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ECONOMIC COMMISSION FOR EUROPE

INLAND TRANSPORT COMMITTEE

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**ISSUES THAT NEED CONSIDERATION AND REQUIRE DECISIONS BY THE
COMMITTEE**

Supply chain and logistics implications for transport

Transport and trade facilitation from the perspective of Global Supply Chains

Note by the Secretariat

Introduction

Globalization has created an unprecedented demand for efficient and cost-effective international transport systems. At the global, regional and national levels transport systems have been under increasing pressure to support the growing demand of international trade and globalization of production and consumption. In spite of its importance in the contemporary global economy, international transport predates globalization. One is the prerequisite for the other; they are both mutually interdependent. What has changed is not the purpose of transportation, but its volume, capacity, speed and efficiency.

Recent efforts in international transport have led to integration of separate transport systems through the use of at least two different modes. This came to be known as intermodal transportation, which enhances the economic performance of the transportation system by using respective modes in the most productive manner. Thus, the line-haul economies of maritime shipping and rail may be used for long distances, with the efficiencies of trucks providing local distribution. The entire transport sequence is now seen as a whole, rather than as a series of stages, each marked by an individual operation with separate sets of documentation and rates.

Intermodal transport is transforming a growing share of freight distribution across the globe. Large integrated transport carriers provide door to door services through a sequence of modes, terminals and distribution centers. Transportation, in terms of modes and routing, is no longer of much concern for customers, as long as shipments reach their destinations within an expected cost and time range. Thus the concerns are mainly with cost and level of service. For the customer of intermodal transport services, transportation and distance appear to be meaningless, but for the intermodal providers routing, costs and service frequencies assume an ever greater importance.

Because of the geographical scale of the global economy, most international freight flows circulate over several modes. Transport chains must be established to service these requirements which reinforce the

importance of transportation modes and terminals at strategic locations. International trade requires distribution infrastructures that can support its volume and extent.

The UNECE has, long ago, recognized the vital importance of transport infrastructures, facilitation and common technical norms and standards in the globalization process and overall economic development of the region. For decades, it has been relentlessly developing international transport legal instruments thus creating conditions for unprecedented expansion of transport sector in its member countries. The approach has been focused on inland transport modes, with specificities and distinctiveness of each considered somewhat in isolation from each other. However, changes brought about by globalization and newly emerging patterns of international production and trade might require rethinking of this conventional approach. The growth of regional and global supply chains which have put pressure on transport sector and its performance both in terms of infrastructure development and transport services, or rather, logistics service provision, are the most apparent manifestation of this need.

With a view to launch this rethinking process, this note – as part of the three informal documents addressing different elements of the supply chain and logistics implications on transport – has the focus on the transport and trade facilitation aspects. From this perspective, it takes a critical look at the main changes in the demand for transport, facilitation needs to be addressed in the forthcoming years and their impact on the traditional “mode-by-mode approach”, and the way the Working Parties of the Inland Transport Committee have been working so far. It takes into account the some of the driving forces imposed by globalization and links between main challenges for transport sector such as seamlessness in provision of transport services, logistics, supply chains, security and environmental considerations. New developments described above, might require re-examination of the ways and methods by which the core work on international transport legislation would best respond to new economic realities and fulfill the expectations and the needs of all UNECE member countries.

The committee is requested to consider the elaborated issues and provide guidance to the secretariat.

The Global Supply Chains Concept

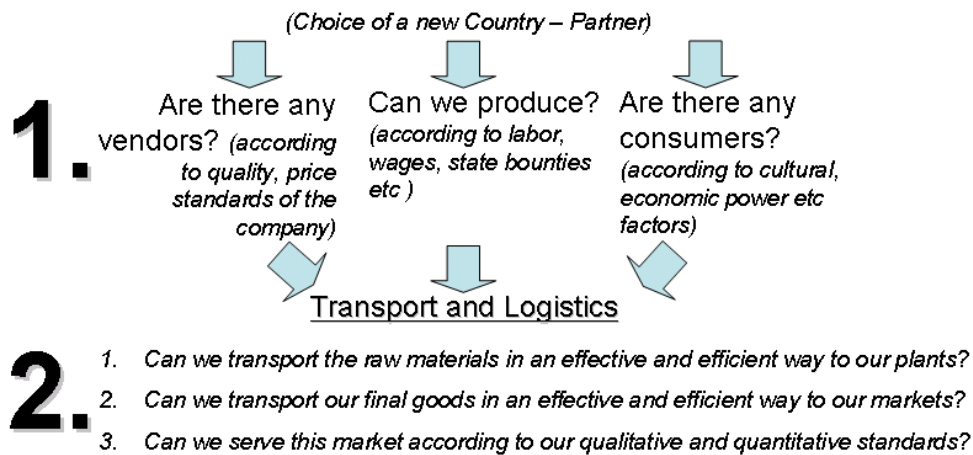
1. Almost every supply chain is international to some degree. Materials, components, or services originating in another country enter into the final product of the supply chain. The global concept of the supply chain, however, is more than incidental. It deliberately recognizes the necessity to supply markets through multiple national markets, often using foreign production or contractors. The global network is more than an extension of the domestic supply chain. It is more complex, faces a diverse set of constraints and is inherently more difficult to understand and manage. It also deals with a global economy in transition from national autonomy to an integrated system of producing, trading and consuming. The process of global economic integration has been accelerated by technological innovations. The business environment for global supply chain management (GSCM) is in a state of continuous change and, consequently, managers must make adjustments. Inter-dependence among the different participants within the chain is huge.

2. What makes the global supply chain different from the domestic supply chain? The major differences appear to lie in higher organizational and structural complexity. .

3. Supply chains become global because they serve one vital scope: the optimization of at least one of their links: procurement, production or sales (customers). The need for optimization – with optimization defined as the maximization of customer satisfaction with parallel minimization of operating costs (production and distribution of final products) – leads supply chain / logistics managers to search for solutions, for both procurement and production, worldwide. The management of supply chains and supply chains’ geographical expansion support the sales of the company. How many customers are being served by the company? Which markets does the company cover worldwide? These are some of the questions that influence the management of a supply chain. In addition, the nature of the product, its value, its usefulness in daily life, as well as questions concerning the diversity, culture, and economic power of the markets on which the product is distributed, are some of the factors that determine the level of contestability and the search for alternatives in procurement, production or distribution to keep costs at the optimum level. The following scheme illustrates

the two main reasons for the constant change and geographic expansion of a supply chain, i.e. the driving forces for becoming global.

How does a supply chain become Global?



Source: UNECE, Transport Division

4. What makes a country attractive to global supply chain participants and managers? How is it possible for service providers (transport operators, freight forwarders, logistics service providers etc.) to become part of the global supply chains? There are many factors that affect or enable such developments. The doing business surveys carried out by the World Bank address these questions from the point of view of foreign direct investments. In a far more simplistic way we can consider a country a “possible partner” if the economic geography of the country is beneficial (see factor endowments) and it has conducive business conditions, including facilitation of international trade and transport.

In addition to traditional requirements on trade and transport conditions, flexibility and reliability is critical for supply chains, especially for those at a global level, since they are “lean and hungry” Thus, any market fluctuation – may it be caused by economic crisis, change in consumer behaviour or any other changes - must be absorbed with ease and the least amount of loss. The following table summarizes the link between global supply chain management and trade and transport facilitation.

Link between Global Supply Chain Management and Trade and Transport Facilitation

Why does a Supply Chain need to operate beyond the national borders?

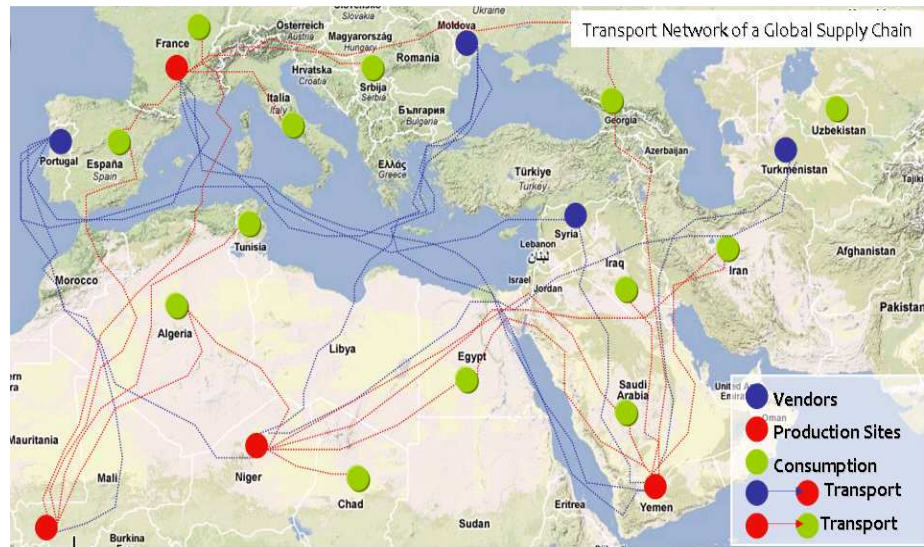
- | | |
|---|---|
| 1 | Optimization of its operations |
| 2 | Optimization comes by maximizing customer satisfaction and in parallel minimizing operating costs |
| 3 | Maximizing customer satisfaction and in parallel minimizing operating costs can be realized when procurement, production and consumption alternatives/substitutes are available |
| 4 | Alternatives/substitutes in procurement, production and consumption exist when markets are competitive |
| 5 | A supply chain can be optimized when trade and transport facilitation removes barriers |

Source: UNECE, Transport Division

Changes in the demand for transport

5. Transport and Trade Facilitation are crucial for the management of a global supply chain. While it is hard to assess the share of transport costs within the total costs, let it be 10-15% or 20-25%, we can safely agree that it depends both on the facilitation measures, as well as on the nature of the product. To illustrate this, it must be adequate to compare the production and distribution features of two very different products, like the cell phones and tomatoes. Theoretically, both products can be in the global supply chains, both products may require the same transport needs from their supply chain operations, but at totally different ratios of transport cost per final product. In addition to the value of the product, the quantity would obviously further change the ratio. In any case, when we refer to global supply chains, transportation plays different roles as the following scheme illustrates:

- ☑ Multimodal transportation is needed from several vendors all around the world to several production plants or warehouses all around the world,
- ☑ Multimodal transportation is needed between several production plants or warehouses all around the world,
- ☑ Multimodal transportation is needed from several production plants or warehouses all around the world to different consumption markets all around the world.

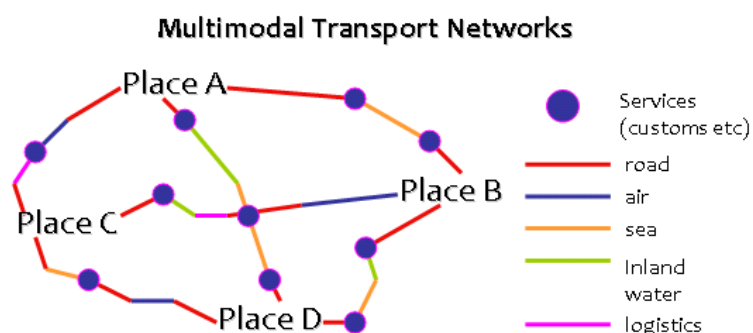


Source: UNECE, Transport Division

6. A supply chain manager clearly wants to keep the chain flexible so that the flow of cargo, information and payment is organized in the optimal way. Therefore, a supply chain manager needs to be able to choose from several options that include alternative locations, shipment and transshipment scenarios supported by all kinds of technological solutions. The final decision is subject to the optimization needs for that specific moment. Assuming that these are the tensions and needs for the management of global supply chains then the following summarizes the forthcoming changes in the demand for transport:

- ☑ The availability of **integrated multimodal and alternative transport network services** instead of isolated transport (rail, road, etc.) corridors or networks and monopolistic operators;
- ☑ The availability of numerous technological solutions that will lead to “**eTransport**” where all the relevant information can be transmitted online and processed in real time.

7. Consequently, future developments of transport are expected to promote *multimodal and alternative transport networks and services*. In addition, standardized data submission and broad use of ICT solutions that offer virtual interoperability will likely determine the future competitiveness of supply chains and their participants. Optimal operations of global supply chains require integrated solutions with many

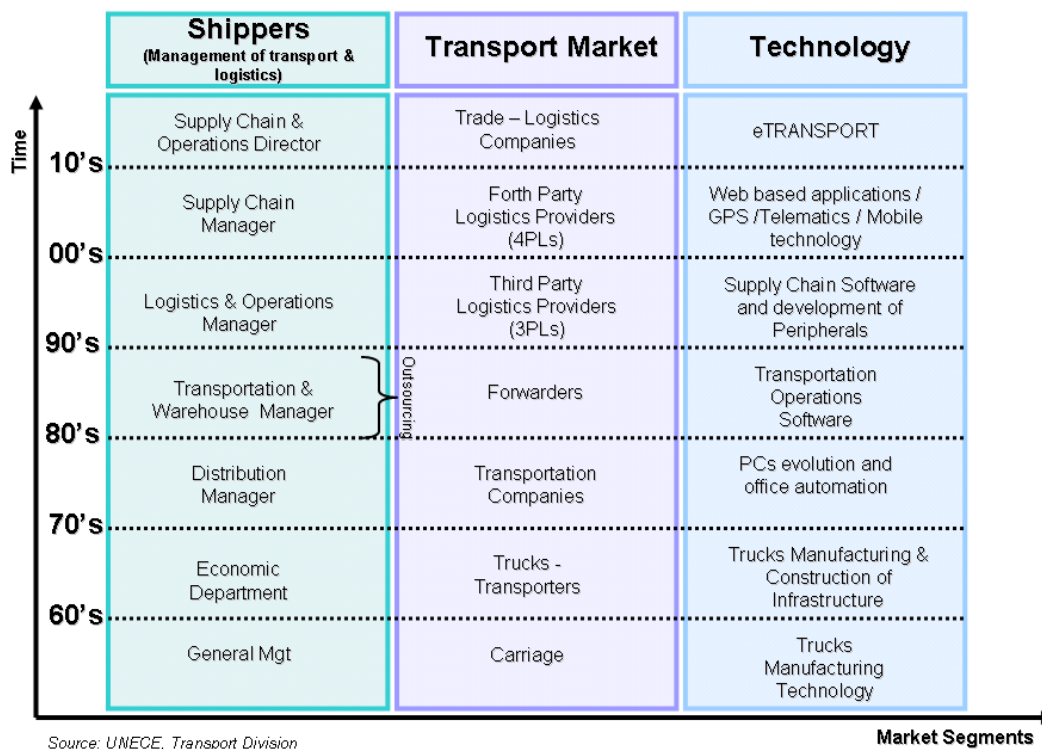


Source: UNECE, Transport Division

alternatives. The multimodal and alternative transport networks and service providers are part of an integrated solution.

As the previous graph illustrates, the manager of a global supply chain needs to know not only that place A is physically connected with place B, and by which modes. He may also require the possibility to choose from the many integrated transport alternatives that exist between place A and place B so that the most efficient or optimal route (based on time, cost or reliability) can be selected. To achieve this, transparency is as much a requirement as the availability of offers. In parallel, other qualitative and possibly harmonized information, such as trade procedures must be provided.

8. The transportation market has been radically restructured over the last decades. This has been triggered by waves of liberalization of international and domestic services, sector reforms, particularly de-monopolization, as well as technological changes. Technological changes have completely changed the way of service delivery. In parallel with the changes in transport, manufacturers have also altered their relationship to logistics: the first and partial outsourcing of logistics led to the growth of the logistics industry. The development of the logistics profession and the management of operation costs led to new management solutions, such as transport and logistics outsourcing. Forwarding and Third Party logistics providers then became important market players. Market restructuring and consolidation have led to both horizontal and vertical integrations. Today, these companies are genuine partners of trading companies that wish to outsource not only their logistics and transport operations, but also their trade operations. At the same time, technological developments have helped and supported these changes in the transport market. Internet based applications have totally revolutionized trade and led to new trade opportunities.

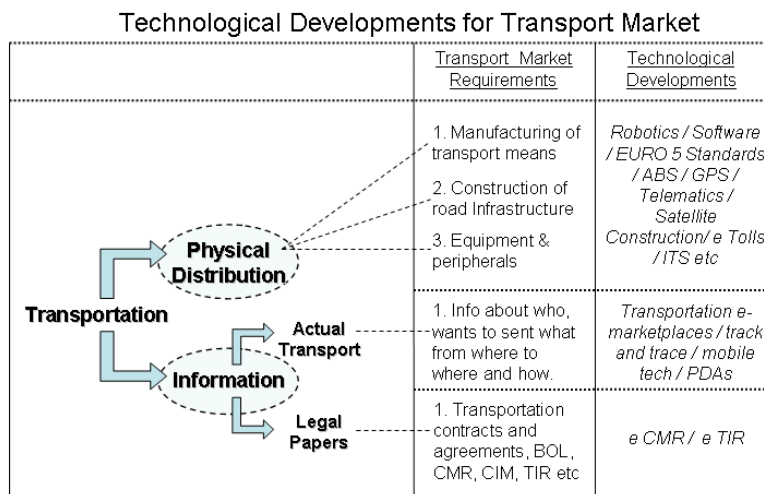


The above scheme illustrates the development that has taken place, since 1960, in three areas: trade companies and the evolution of their supply chain management, the transport market structure and the technological

developments in the transport sector. In 1960, managing supply chains in trade companies was the duty of the manager of economic affairs. Nowadays, specialized executives are responsible for this management. Also, in 1960 transportation services were provided by isolated carriers. Today, 3rd and 4th PL companies even carry out the trade activities of their clients. Finally, the development of technology has been rapid and crucial. Modern transport companies are fully automated and use all kinds of technological solutions (satellite and GPS services, handheld systems, smart cards etc.) to further improve their competitiveness.

In parallel, technology has supported the development of different transportation sectors with applications and systems such as Intelligent Transport Systems (ITS). ITS is the integration of information and communication technology with transport infrastructure, vehicles and users. It offers a fundamentally new business environment where piecemeal facilitation measures can be wholesaled, governance boosted and where efficiency enhanced to the benefit of both businesses and authorities.

9. The transport sector is under pressure by regional and global supply chain demands to keep pace with recent developments. At the same time it is also challenged by growing competition within the sector. Efficient public-private partnerships and facilitation measures are warranted to respond to these challenges.



Source: UNECE, Transport Division

Technological developments, like the fast spread of ITS and other information and communications technology (ICT) solutions, support the scaling up of traditional facilitation measures. Particularly large efficiency improvement can be obtained by replacing paper based transport documents with electronic documents.

10. The road towards e-governance in transport has been paved by the new protocol to the UNECE CMR Convention which provides for the use of electronic consignment note in road freight transport. Similarly, for railways, CIT has spearheaded the use of electronic railway consignment note in the OTIF countries and their cooperation with OSJD has facilitated the use of a common CIM-SMGS rail freight consignment note. For the transport of dangerous goods, the UN Sub-Committee of Experts on the Transport of Dangerous Goods, which is serviced by the UNECE secretariat, adopted new recommendations last December aiming at authorizing the use of electronic data processing (EDP) and electronic data interchange (EDI) techniques as an alternative to paper documentation. In relation, the UNECE secretariat is participating in a task force established by IATA, including representatives of the supply chain for air, sea, and inland transport modes, to develop a "Shippers' declaration for dangerous goods (SDDG) electronic message standard" that would allow compliance with the documentation requirements of all transport modes. The difficulty in the case of dangerous goods' transport is that the information required is mainly intended for emergency response in case of accidents and for control of compliance with the rules, and therefore this information must be readily available on board means of transport in case of a control or an accident. In order to promote the use of ITS, the RID/ADR/ADN Joint Meeting has put in place an informal working group on telematics, to consider *inter alia* how information provided by telematics could enhance the safety and security of transport of dangerous goods and facilitate such transport (see ECE/TRANS/WP.15/AC.1/108/Add.3). The e TIR project, which is a customs to customs system based on the secure exchange of data under customs supervision via a centralized, international database and the management by customs of data on guarantees, has begun. The computerization of the TIR system will further facilitate the transit of goods and will contribute significantly to increasing security in the international supply chain. As a next step, to better respond to ongoing market developments, an integration of the various computerization efforts, working towards an e-transport platform, could be envisaged. As UNECE has become a centre of international land transport agreements, opportunities lend themselves for accelerating the progress towards e-governance in the transport sector. The progress of work of UN/CEFACT gives further reason to believe that e-governance in transport can become a reality relatively soon.

11. In the forthcoming years, facilitation requirements will be influenced by the need for global supply chains to operate in a smooth and efficient way and by the demand for optimal transport and trade processes. More specifically:

- ☑ The need to transmit all the information dealing with transport operations and processes electronically , online and in real time,
- ☑ The need to facilitate an integrated multimodal transport network by enabling alternative / substitute solutions meeting different market demands (time, cost, reliability and other qualitative features of transport services),
- ☑ The need for real-time information on safety and security (e.g. for transport of dangerous goods).

Impact of these changes on the traditional work of the UNECE working parties

12. The working parties of the UNECE ITC constitute a mosaic that covers all the contemporary issues of the transport market. The working parties have long recognized their inter-dependence on each other and already share a tradition of cooperating on common issues as has e.g. been the case with transport and security. In the future however, intra-sectoral cooperation, i.e. among the specific working parties, will be even more warranted. The development of e-governance in transport, to the benefit of both public and private players, as well as the development ITS to support transport and trade facilitation, will require concerted and coordinated actions (see table below). In addition to strengthened interfaces among the different working parties, close coordination is envisaged also between the Inland Transport Committee and the Trade Committee (CEFACT) to further explore opportunities for mutually beneficial cooperation, as was foreseen in the “Roadmap on Trade and Transport Cooperation” presented to the ITC at its 2008 session.

The following table describes the role of the working parties in relation to Global Supply Chains and facilitation work:

Global Supply Chains Impact	Changes in the demand for transport	Facilitation Needs	Working Parties
Efficient and effective multimodal transport operations and alternatives at the global level	1. e-Transport Governance 2. Integrated Multimodal Transport Network with qualitative and quantitative information	Need for transmitting all the information dealing with transport operations and processes electronically, online and in real time	WP30, WP6, WP5, SC3/WP3 , WP24, WP15, WP11
		Need for facilitating an integrated multimodal transport network according to different parameters (time, cost, services etc.) and among different destinations	WP29, WP5, WP1, WP3 , WP24, WP15, WP11

13. The Committee may wish to generally endorse the above conclusions and to request the relevant WP's to consider the present document with a view to identifying areas of multi-modal and inter-sectoral cooperation and submit their views to the ITC Bureau for consolidation and reporting back to ITC at its session in 2010.

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