CONTEMPORARY SUPPLY CHAIN TRENDS 
AND WORLD’S FREIGHT TRAFFIC

Introduction

Today’s global world is characterized by great numbers of supply chains of various industrial branches. All companies whether from industrial sphere or tertiary sphere striving to gain competitive advantage and to manage their flows effectively. One way to reach high level of competitiveness is to design or optimize single supply chain in global view and simultaneously in relation to other supply chains1.

In the current global world’s economy, each industrial branch, whether e.g. air, automotive, pharmaceutical, food, or metallurgical industry, has got its own supply chain formed by huge material, financial and information flows. All three kinds of flow must be planned and manage to reach required level of competitiveness and simultaneously to minimize negative impacts on living environment. As a main result of positive trend of total world’s merchandise trade volume, see fig. 1, is growing volume of world’s freight traffic. Logistics is a science playing significant role in today’s global world, it has got developed methods, approaches to effectively plan and manage all three mentioned flows and thereby also world freight traffic. It develops new methodologies to manage more and more complex supply chains. Through developed and new developing logistics methods, approaches and methodologies to plan and manage, it’s possible considerably contribute to enhance gross domestic product (GDP) of single countries thereby also to enhance world gross domestic product2.

The evolution of world gross domestic product along first decade of the 21st Century had positive growing trend, see fig. 1. In the fig. 1 it’s evident the global economic crisis of 2008 and 2009 which caused the total merchandise trade decline thereby also the world’s GDP decline³.

![Fig. 1. World’s Economy Indicators 2000-2010](image)


For better notion, in 2011, the largest economies in the world, which considerably affect the world’s GDP pattern, are the United States, China, Japan, Germany, France and the United Kingdom, see table 1.

The reality is that international trade is the indisputable foundation for economic growth and prosperity⁴.

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³ Ibid.
⁴ Ibid.
A supply chain consists of all stages involved, directly or indirectly, in fulfilling a customer request. The supply chain not only includes the manufacturers and suppliers, but also transporters, warehouses, retailers and customers themselves.

A supply chain is dynamic and involves the huge flows of information, product and funds between different stages. Each stage of the supply chain performs different processes and interacts with other stages of the supply chain.

A typical supply chain may involve a variety of stages. These supply chain stages can be (see fig. 2):
- Customers,
- Retailers,
- Wholesalers / distributors,
- Manufactures,
- Component / raw material suppliers.

A structure of particular supply chains is given by industrial branch character (e.g. automotive, food or pharmaceutical industry). They are usually consisted by hundreds or thousands of companies and institutions which are connected through huge material, information and financial flows.

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5 Ibid.
Supply chains are crucial networks or links that connect all inputs and outputs of all organizations within the scope of concerned industrial branches. Traditional challenges have included lowering costs, ensuring just-in-time deliveries, and shrinking transportation times to allow better reaction to business challenges and minimize negative impact of logistics activities on living environment.

![Fig. 2. General Illustration of Supply Chain](http://www.thehindubusinessline.in/bline/2007/03/12/stories/2007031201160600.htm (07.08.2011)).

**Supply chain management**

Supply chain management (SCM) involves the management of huge flows between and among stages in a supply chain to maximize total profitability.\(^6\)

SCM is the integration of key business processes from end user through original suppliers that provides products, services, and information that add value for customers and other stakeholders, see figure 3.

Thousands of activities are performed and coordinated within a company, and every company is by nature in some way involved in supply chain relationships with other companies. Successful supply chain management requires integrating business processes with key members of the supply chain. Valuable resources are wasted when supply chains are not integrated, appropriately streamlined, and managed. The value of having standard business processes

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in place is that managers from different organizations in the supply chain can use
a common language and can link-up their firms’ processes with other members
of the supply chain, as appropriate7.

![Supply Chain Management Diagram](http://scm-institute.org/Our-Relationship-Based-Business-Model.htm (22.07.2011)).

Fig. 3. General Illustration of SCM

Supply chain management co-ordinates flows of information and product
through integrated logistical networks. In today's marketplace efficiency, cost-
effectiveness, appropriate customer service, and sustainability unlock profitabi-
li ty and competitive advantage. Every enterprise has its unique characteristics and dynamics. In a rapidly shrinking world, many logistical issues now have
an international dimension. Selecting the right supply chain options is an in-
creasingly complex task8.

With increased globalization and offshore sourcing, global supply chain
management is becoming an important issue for many businesses. Like tra-
ditional, supply chain management, the underlying factors behind the trend are
reducing the costs of procurement and decreasing the risks related to purchasing

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8 www.supplychaineurope.com/ (22.07.2011).
activities. The big difference is that global supply chain management involves a company's worldwide interests and suppliers rather than simply a local or national orientation.\(^9\)

Because global supply chain management usually involves a plethora of countries, it also usually comes with a plethora of new difficulties that need to be dealt with appropriately. One that companies need to consider is the overall costs. While local labor costs may be significantly lower, companies must also focus on the costs of space, tariffs, and other expenses related to doing business overseas. Additionally, companies need to factor in the exchange rate. Obviously, companies must do their research and give serious consideration to all of these different elements as part of their global supply management approach.

Another big issue that should be addressed when dealing with global supply chain management is time. The productivity of the overseas employees and the extended shipping times can either positively or negatively affect the company's lead time, but either way these times need to be figured into the overall procurement plan. Other factors can also come into play here as well. For example, the weather conditions on one side of the world often vary greatly from those on the other and can impact production and shipping dramatically. Also, customs clearance time and other governmental red tape can add further delays that need to be planned for and figured into the big picture.\(^10\)

**Global supply chain trends 2010-2012**

The global economic crisis of 2008 and 2009 provided significant disruptions and high demand volatility in supply chains for companies across many industries. In a number of sectors, demand and supply almost came to a halt, forcing companies to enact short-term measures to tightly manage inventories, costs, and cash flow.

Compare this with early 2010. As the global economy continues to recover, most of the companies surveyed now believe there will be a significant upturn in demand from their customer base as well as a significant increase in company profitability over the next few years.

However, this widespread optimism may be premature. Our findings indicate that many companies lack the capabilities critical for meeting growing demand or for managing an increasingly complex and global supply chain. Driven by short-term exigencies, many companies did not strengthen critical

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\(^10\) Ibid.
capabilities during the recession. Only a small percentage truly improved supply chain flexibility and processes needed both to capture an increase in demand and to better manage high volatility. The degree to which companies can capture benefit from an eventual upturn will depend largely on how they deal with five key supply chain challenges or trends, see table 2.

Table 2

<table>
<thead>
<tr>
<th>Current Main Trends of The Global Supply Chains</th>
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<td><strong>Global Supply Chain Trends</strong></td>
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<td><strong>Trend 1</strong></td>
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<td>Supply chain volatility and uncertainty have permanently increased</td>
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**Constantly Increasing Supply Chain Volatility and Uncertainty**

Market transparency and greater price sensitivity have led to lower customer loyalty. Product commoditization reduces true differentiation in the consumer and business-to-business (B2B) environments.

**Global Customer and Supplier Networks**

Future market growth depends on international customers and customized products. Increased supply chain globalization and complexity need to be managed effectively. For that purpose is crucial to use sophisticated management tools, techniques and simultaneously to do research in the way of effective supply chain flow management.

**Cost-Optimized Supply Chain Configurations**

Customer requirements and competitors necessitate regionally tailored supply chains and product offerings. End-to-end supply chain cost optimization will be critical.
Risk Management

Risk and opportunity management should span the entire supply chain from demand planning to expansion of manufacturing capacity and should include the supply chains of key partners.

Integration and Empowering

The supply chain organization needs to be treated as a single integrated organization. In order to be effective, significant improvements require support across all supply chain functions\(^{11}\).

World’s freight traffic

Current world is characterized by total globalization trend which is the most typical for international trade and particular industries. There are plenty of different supply chains containing huge flows necessary to plan and manage. Almost each industry has got its own supply chain whose flows must be managed to be cost-effective and eco-friendly. As a result of the globalization trend is that the all supply chains are getting more and more complex and require more sophisticated methods and approaches to plan and manage their huge flows. For better illustration, please see figure 4, to see increasing trend of world’s freight traffic 2000-2010.

It’s evident positive trend of huge goods and material flow volume in the world during past 10 years. All huge flows within the scope of particular supply chains carried whether by ship, railway, road or air should be managed more precisely as a consequence of more complex global supply chains in current world’s economy\(^{12}\).

Logistics is a science having well-developed methods and approaches to plan, manage and control those flows and it’s still developing new methodologies as a result of more complex and huge flows inside global supply chains\(^{13}\).

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\(^{13}\) Ibid.
That all should lead to enhance a level of interested industrial branches concerning flow management and as a result of the logistics management concept should be long – term enhancement of GDP whether single country GDP or total world’s GDP. Well, it’s evident that the analytical and systematic approach using logistics science methods and methodologies to manage all huge flows inside the great numbers of supply chains is crucial to be cost – effective and living environment – friendly in today’s global economy. As a main result of systematic global logistics management should be a long – term increasing of single country GDP thereby also a long – term increasing of world’s GDP.\(^\text{14}\)

Freight is generated by economic activity and the freight industry tenis to respond to fluctuations in this activity and the resultant level of trade among nations. Trends in global economic activities directly affect the volume of merchandise trade and worldwide movement of freight. The growing reliance on global supply chains means the effect of an economic downturn is not limited to exporting and importing nations. Other nations that provide freight and port services to transport traded goods are also affected.

\(^{14}\) Ibid.
To move large quantities of goods across the countries and around the world, the world’s economy depends on the global international freight transportation systems – a vast network of roads, bridges, rail tracks, airports, seaports, navigable waterways, pipelines, and equipment.

For example, today’s U.S. households can buy fresh fruits and vegetables in mid-winter, expect fast and reliable next-day deliveries of Internet purchases, and use electronic appliances manufactured thousands of miles away, often in other countries. Because economic activities worldwide have become more integrated and globalized, more goods produced by U.S. factories and farms are bound for export, and imports originate from more than 200 countries. This pace of trade Americans have become accustomed to is made possible by the complex intermodal transportation network that blankets the country and links the United States with world markets.

The movement of international freight among nations relies on a complex array of long-distance transportation services. The process involves many participants, including shippers, commercial for-hire carriers, third-party logistics providers, and consignees. Moreover, global trade depends on seaport and airport services to move large volumes of merchandise over long distances via a variety of transportation modes. The interaction of these services and participants is vital to successful global trade.

Businesses rely on all freight modes to transport international merchandise trade. Often, goods are moved by a multimodal combination of airplanes, maritime vessels, trains, and trucks.

Seaports and airports are vital components of the freight system. They enable global trade and facilitate international economic activities.

Shipping lines, airlines, all-cargo air couriers, trucking firms, and railroads provide services that link shippers, ports, and consignees, all is a part with its own important within the scope of global supply chains. Managing product supply chains and transporting goods globally involves considerable interaction across the carrier industry. During the past decade, businesses expanded sourcing of raw materials and finished goods from multiple locations around the world, and the air and ocean freight carrier industries that provide overseas services adapted their freight operations in response. Globally, the leading all-cargo air carriers include FedEx, UPS, DHL, and TNT. Leading airlines that provide cargo services include Lufthansa, Korean Air Lines, Singapore Airlines, British

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16 Ibid.
Airways, and Air France. The air-freight carrier industry continued its heavy reliance on hub-and-spoke operations that allow carriers to connect several origins with multiple destinations without having all the points connected directly.

Expanded use of hub networks allowed the airlines to control fleet size and capacity while serving many markets. It also allowed them to cut operating costs and offer improved integrated cargo delivery services.

Worldwide, the leading ocean container carriers include APM-Maersk Line, Mediterranean Shipping Company, CMA CGM, Evergreen Line, and American President Lines (APL). During the past decade, the ocean-shipping industry continued consolidations begun in the 1990s. Carriers engaged in vessel-sharing arrangements that allowed them to serve multiple ports by connecting to larger hub seaports. These hub ports provide feeder vessel services to smaller ports and often use intermodal rail and truck carriers for deliveries to final destinations. Some of the major inter-carrier alliances, mergers, and acquisitions include Maersk and Sea-Land, Neptune Orient Line and APL, and Maersk and P&O Nedlloyd17.

Conclusion

The issues regarding supply chain management and logistics are getting more and more important in context of international trade growing positive trend and totally global world’s market. To be engaged in classical and newly developing logistics methods to plan, manage, optimize and control all huge flows across global supply chains is getting to be necessary to be cost effective, competitive and eco-friendly in long – term time period of sustainable growth.

There are dynamic industry-wide changes that continue to influence and shape the global freight industry as worldwide international trade is transformed by the global economy.

The principal forces that are likely to affect future international merchandise trade and freight movements include the following:

– changes in reliance on imported consumer products,
– China’s expanded role in the world economy and global trade,
– fluctuations in fuel prices and transportation costs,
– environmental concerns, and
– a rise in Internet shopping and on-demand deliveries18.

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17 Ibid.
18 Ibid.
These global forces and the pace of reliance on imported consumer products may affect the movement of freight from, to, and within the particular countries. Changes in the global economic situation as well as trade between nations will continue to affect the choices of transportation modes used in transporting traded goods around the world and in the particular countries. Resumption of growth in worldwide merchandise trade is likely to create more demand for intermodal freight services. Continued integration of global economic activities and resumption of growth in ocean-borne and air cargo would increase demand for freight transportation services.

Global economic activities will continue to shape where and how goods are produced and distributed. Expanded trade among countries will ultimately affect the movement of freight internationally as well as into and out of the particular countries. Fuel costs, changes in logistics supply chains, out-sourcing, just-in-time inventory management systems, and online shopping could impact the demand for freight transportation.

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Contemporary supply chain trends and world’s freight traffic


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