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Concepts and Trends in Global Supply, Global Value and Global Production Chains

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EXECUTIVE SUMMARY

Rapid technical progress, improved transportation and communication infrastructure, falling trade and investment barriers, and the emergence of developing, low-wages economies have fragmented the traditional vertically integrated production model, changed the global production chains (GPCs), and facilitated the emergence of global supply chains (GSCs) and global value chains (GVCs). Globalization is also changing the patterns of GSCs and GVCs, and these chains are becoming increasingly interconnected and complex. Moreover, emerging external and industry forces will affect the configurations of future GSCs and GVCs.

Managing and participating in a dynamic and evolving GSC and GVC are challenging tasks for any business. It needs to manage the challenges, capitalize on new opportunities, and mitigate the risks. It is important for APEC policymakers and businesses to have sufficient knowledge and information on how GSCs and GVCs work, and understand the major challenges and factors that affect the governance of GSCs and GVCs. In this way, APEC policymakers will have ample information to make informed decisions and take appropriate actions to address the key challenges and help businesses to take advantage of potential opportunities.

APEC has already begun this process, such as through the Supply Chain Connectivity Framework Action Plan, the Supply Chain Visibility Initiative, and the ABAC Regional Economic Integration priority. Nonetheless, there is further scope for APEC to conduct additional studies to advance APEC's understanding on critical issues related to the GSCs and GVCs.

Building on APEC's existing work on GSCs, APEC could undertake a study analyzing how external and industry forces have affected the GSCs of key industries in the region, the major obstacles that the main participants face, and how they have responded and adapted to these changes. This will help APEC policymakers to better address the key challenges in the GSCs and to adopt best practices in this area.

There is also scope for APEC to move beyond logistical issues and focus on issues related to value added activities at the various links of the GSCs. As enterprises move up the GVCs, firms and employees reap greater financial benefits from higher value added activities. APEC could conduct a series of case studies to better understand the role of GVCs for key industries in the region, and how the GVCs for those industries would affect the patterns of trade and investment in the region. Based on the findings of these studies, APEC could develop an action plan to assist enterprises to move up the GVCs and undertake higher value added activities. This will be particularly useful for APEC policymakers and businesses.

Furthermore, APEC could conduct separate studies analyzing how each of the emerging external and industry trends would affect the patterns of future GSCs and GVCs, and hence, businesses in the region.

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1. INTRODUCTION

Following the success of the Trade Facilitation Action Plan II, APEC has given greater emphasis on supply chain related issues to advance trade facilitation activities among APEC economies. Several key initiatives on supply chain have been undertaken by APEC, including the Supply Chain Connectivity Framework Action Plan (SCFAP), the Supply Chain Visibility Initiative, and the ABAC Regional Economic Integration priority.

The SCFAP contains various initiatives aim at addressing the eight agreed supply chain chokepoints: (i) lack of transparency/awareness of full scope of regulatory issues affecting logistics; (ii) lack of awareness and coordination among government agencies on policies affecting logistics sector; (iii) lack of capacity of local/regional logistics sub-providers; (iv) inefficient clearance of goods at the border and lack of coordination among border agencies; (v) burdensome procedures for customs documentation and other procedures; (vi) underdeveloped multi-modal transport capabilities; (vii) variations in cross-border standards and regulations for movements of goods, services and business travelers; and (viii) lack of regional cross-border customs-transit arrangements.

The Supply Chain Visibility Initiative is designed to reduce the logistics and warehousing costs of regional manufacturing enterprises, reduce environmental burden by reducing wasteful logistics, and strengthen container security aimed at counterterrorism.[1] Some of the key measures include: adopting standardized radio frequency identification and cargo management code, establishing information sharing mechanism, and exchanging information on the movement of cargo.[2]

ABAC Regional Economic Integration priority provides a comprehensive perspective on the supply chain. ABAC has developed an integrated supply chain and value chain framework for goods, services and investment to deal with the integrated nature of global and regional supply chains. The framework addresses both the goods and services components of the supply chain, as well as evaluates the integration between the two components[3].

There are various perspectives on the concept of global supply chain, global value chain and global production chain – which at times can create some confusion. The purpose of this paper is to clarify and discuss these concepts to enhance APEC's understanding, highlight the evolution and major trends of the three chains, and identify the key challenges and priorities where APEC can help address.

[1] APEC (2010), *Enhancement of "Supply Chain Visibility" in APEC economies.*
[2] Chou, J. (2011), *Enhancing Supply Chain Visibility and Security with GNSS in Chinese Taipei*, Institute of Transportation, Ministry of Transportation and Communications.
[3] University of South California- Marshall School of Business (2011), *APEC Supply Chains: Identifying Opportunities for Improvement.*

2. CONCEPTS OF GLOBAL SUPPLY CHAIN, VALUE CHAIN, AND PRODUCTION CHAIN

a. GLOBAL SUPPLY CHAIN (GSC)

There are multiple definitions of the term supply chain. In this paper, supply chain refers to a system of organization, people, technology, activities, information and resources involved in moving a product or service from supplier to customer. Supply chain activities transform natural resources, raw materials and components into a finished product that is delivered to the end customer.[4] The complexity of the supply chain and the business relationship between the various links varies from industry to industry and company to company. A supply chain can be within an enterprise or between enterprises in a local economy or a regional grouping of economies. Global supply chains consist of worldwide networks of suppliers, manufactures, warehouses, distribution centers and retailers through which raw materials are acquired, transformed and delivered to customers (Figure 2–1).[5]

b. GLOBAL VALUE CHAIN (GVC)

A value chain refers to the full spectrum of value added activities required to bring a product from its conception, through design, sourcing raw materials and intermediate inputs, production, marketing, distribution and support to final consumers. As in the case with GSC, the complexity of the value chain and the business relationship between the various components also varies from industry to industry and company to company. Similarly, a value chain can also span enterprises in a local economy or a regional grouping of economies. Value chains become "global" when their component activities are geographically spread across several economies (Figure 2–1).[6]

c. GLOBAL PRODUCTION CHAIN (GPC)

A production chain refers to linkages within or among a group of firms in a particular GVC for producing specific products, such as particular types of computers, mobile phones and automobiles. It represents how lead firms, such as Honda, Acer, and Mizuno, arrange their particular networks of suppliers to produce a given product. Lead firms tend to control access to key resources and activities, such as product design, international brands and access to final consumers. This usually gives them considerable influence over the other suppliers in the production network. Production chains become "global" when their production activities are geographically dispersed across multiple economies (Figure 2–1).[7]

The basic network structure for GSCs and GVCs is similar. However, the focus of GSCs is on moving goods and services through the network, and the focus of GVCs is on creating value of the goods and services at each stage of this network. GSCs require trade infrastructure, trade finance, trade intermediaries, logistics providers, transport services, and information flow. Whereas, GVCs require

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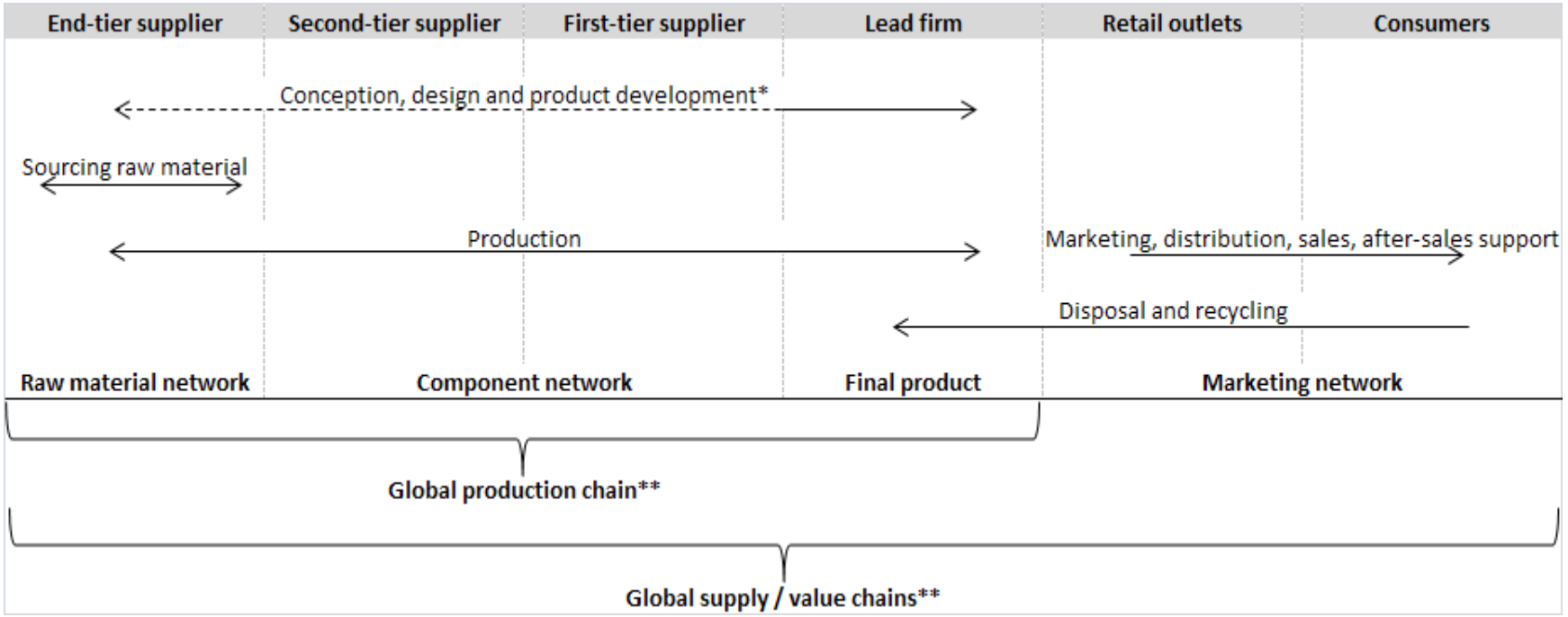
[4] Nagurney, A. (2006), *Supply Chain Network Economics: Dynamics of Prices, Flows, and Profits.*
[5] OECD (2002), *Supply Chains and the OECD Guidelines for Multinational Enterprises*.
[6] Abonyi, G. (2005), *Integrating SMEs into Global and Regional Value Chains: Implications for Subregional Cooperation in the Greater Mekong Subregion,* A Report prepared for UNSCAP
Kaplinsky, R. and Morris, M. (2001), *A Handbook for Value Chain Research, Prepared for the IDRC*, available at http://www.globalvaluechains.org/concepts.html
[7] Abonyi, G. (2005), *Integrating SMEs into Global and Regional Value Chains: Implications for Subregional Cooperation in the Greater Mekong Subregion*, A Report prepared for UNSCAP

markets, firms, innovation, technology, rule of law, and finance.[8] In contrast, the focus of GPCs is on the production of goods and services. The GPCs typically end at the point after the goods and services have been produced for the lead firm (Figure 2–1). Examples of the GSC, GVC and GPC for apparel and electronics are provided in Figure 2–2 and Figure 2-3, respectively.

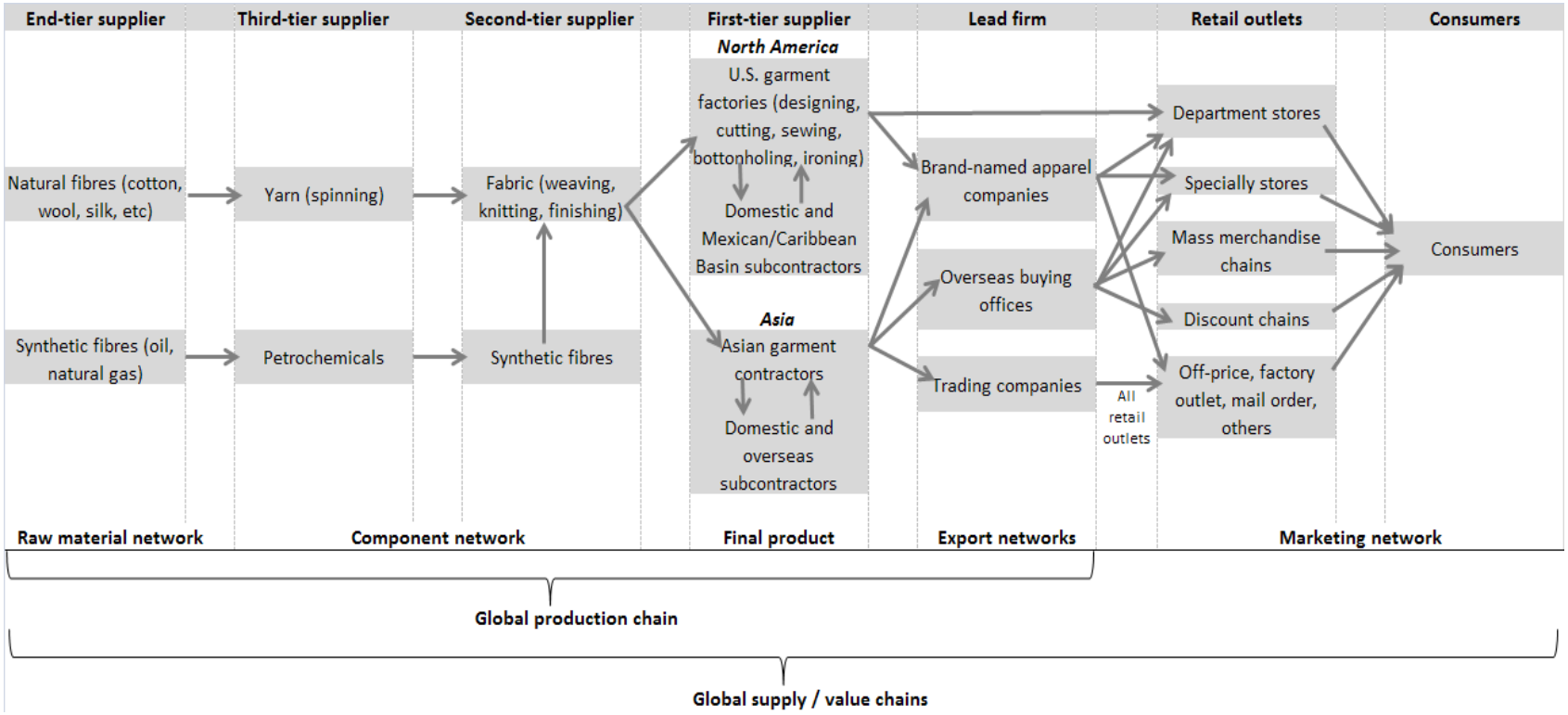
[8] Futin, E. (2010), *The Establishment of Global Supply Chain*, APEC e-Trade and Supply Chain Management Training Course (Phase III: Logistic Management for SMEs)

Figure 2-1 Global value/supply/production chains



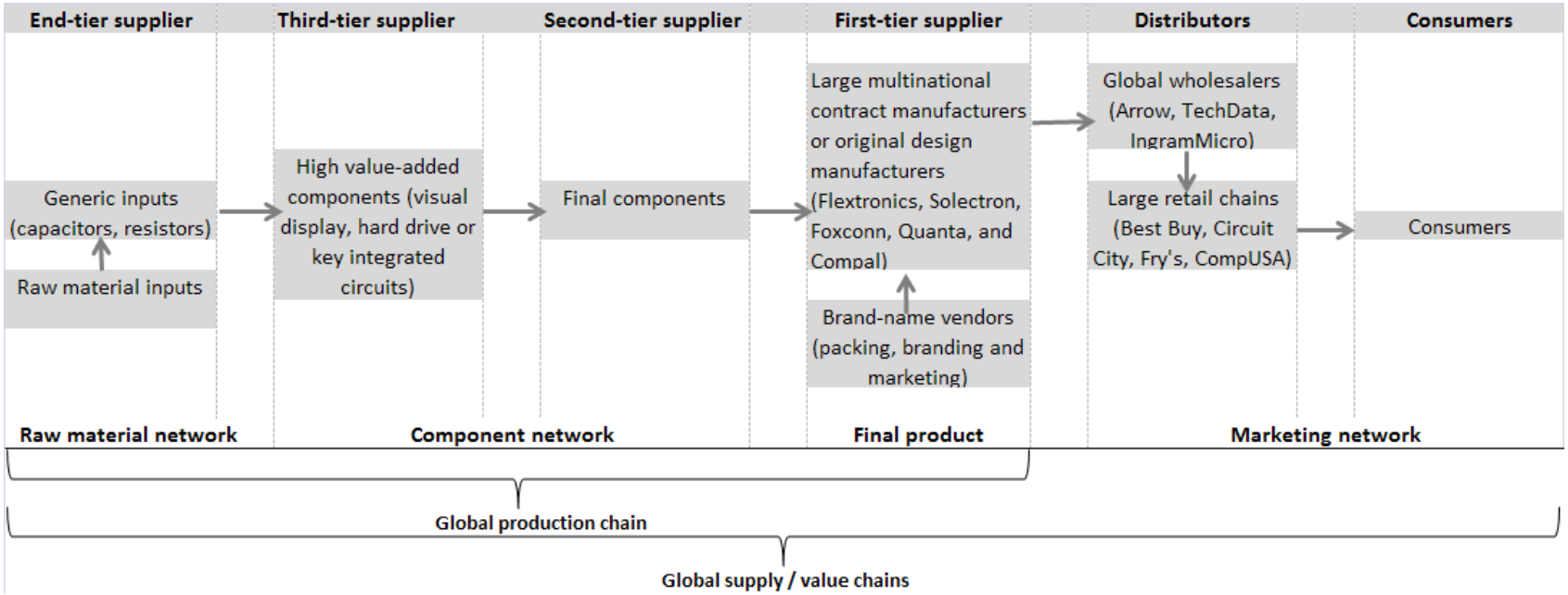
Note:
* Traditionally, conception, design and product development are controlled by the lead firm; nowadays, some of these activities are outsourced to other firms.
**The players in global production/supply/value chain include domestic and foreign firms.
- Lead firm typically contributes market knowledge, intellectual property, system integration and cost management skills. The firm's brand name usually reflects its reputation for quality, innovation, and customer service.
- First-tier supplier is a firm which supplies directly to a lead firm. First-tier supplier generally requires design and innovation capabilities.
- Second-tier supplier refers to a firm that supplies directly to a first-tier supplier. Second-tier supplier usually requires processing-engineering skills in order to meet cost and flexibility requirements, and capability to meet quality requirements and standards.
- End-tier supplier generally supplies raw materials, and requires limited skill level and minimum investment in training.
These definitions can be found in the report: *The Global Automotive Industry Value Chain: What Prospects for Upgrading by Developing Countries*.

Figure 2-2 Example of global value/supply/production chains for apparel



Source: Gereffi G. and O.Memedovic (2003), *The Global Apparel Value Chain*, UNIDO

Figure 2-3 Example of global value/supply/production chains for electronics



Note: There is no overall lead firm in this diagram. Please refer to the multi-polar chain in Chapter 3/Section b/Sub-section ii for further information.

3. TRENDS IN GSCs, GVCs, AND GPCs

a. TRADITIONAL MODEL AND DRIVERS OF CHANGE

International trade and investment flows have increased steadily since the end of World War II. Large multinational corporations have become the major players in all major sectors. Production networks were initially vertically integrated, that is, multinational corporations owned an entire production process. Overtime, through foreign direct investment and international mergers and acquisitions, they were able to circumvent tariff and non-tariff barriers, and access natural resources, labor and technology around the world.

Rapid technical progress – particularly through technological advances (e.g. in ICT), modern transportation and communication infrastructures, falling trade and investment barriers, and the emergence of developing, low-wages economies have fragmented the traditional vertically integrated production model and facilitated the emergence of global supply chains and global value chains.[9] In other words, globalization has changed the way firms do business.

Trade and investment liberalization, through international and regional forums, such as the World Trade Organization and the APEC, and regional and bilateral Free Trade Agreements have reduced transaction costs substantially and increased trade and intensified competition nationally and internationally. Heightened competition has put enormous pressure on firms to expand into new markets, reduce costs and improve profit margins. These pressures have led to two complementary and interdependent developments – reorganization and relocation of the production of goods and services.[10] Reorganization involves deciding which activities should remain in-house as 'core competencies' against activities that would be purchased from other firms – this is often referred to as 'outsourcing'. Relocation involves deciding which activities should be moved from the firm's home economy to another economy or economies – this is usually referred to as 'offshoring'. These events have splintered the vertically integrated production model, increased task-related specialization by firms in the production of goods and services, and as a result, have propelled growth in intra-industry trade and intermediate products trade.

b. EMERGING MODELS AND TRENDS

In general, some of the key trends driving the structure of GSCs and GVCs are similar, such as outsourcing and offshoring. However, given the different focus of GSCs and GVCs, there are also different factors influencing the governance of the GSCs and GVCs. For example, the emergence of low-cost developing economies has influenced the structure of the GSCs. On the other hand, some large retailers have bypassed lead firms and sourced directly from independent suppliers, which affects the organization of the GVCs, and hence, the structure of the GSCs.

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[9] Fragmentation refers to the physical separation of different parts of a production process. It allows production in different economies to be formed into cross-border production networks that can be within or between firms.

[10] Abonyi, G. (2003), *Challenges of Industrial Restructuring in a Globalizing World: Implications for Small- and Medium-scale Enterprises (SMEs) in Asia*, Institute of Southeast Asia Studies Working Paper: Visiting Researchers Series No. 3(2003)

Abonyi, G. (2004), *The New Face of Global Competition: Global Value Chains and International Production Networks*, prepared for the Greater Mekong Subregion Investment Working Group, Asian Development Bank

i. Global supply chains

Global supply chains have existed since the advent of trade in intermediate products, but they are now becoming increasingly important. Currently, trade in intermediate inputs accounts for about two-thirds of international trade.[11] Globalization is accelerating at a rapid pace and shifting the structure of supply chains. Firms are increasingly outsourcing their activities to other firms in order to reduce costs and become more competitive. They are also locating parts of their supply chain outside their home economy. Companies now offshore more activities, both in terms of size and scope; more and more manufacturing activities and final assembly are moving offshore. For example, manufacturing and assembly operations for some companies have already been relocated to low-cost economies, such as China, India, and other Southeast Asian economies. As a result, support functions, such as warehousing and procurement, have also been moved offshore in support of international operations. Some firms also offshore other high-knowledge activities, such as research and development and technology development.

The annual survey on The Global Supply Chain Trends 2010–2012 conducted by PRTM Management Consultants in 2010[12] found that most of the surveyed companies expect that over 50 percent of the business functions or activities, such as product development and/or new product introduction, demand planning and/or forecasting, supply chain planning and sales and operations planning, strategic sourcing and/or supplier development to be moved offshore by 2012 (Figure 3–1). Moreover, there is a rising trend relating to outsourcing of various business activities of the surveyed firms, ranging from eight to 59 percent between 2010 and 2012. Furthermore, up to 39 percent of the functions, such as manufacturing, final assembly and/or configuration, and warehousing and transportation, are expected to be outsourced to other enterprises between 2010 and 2012.

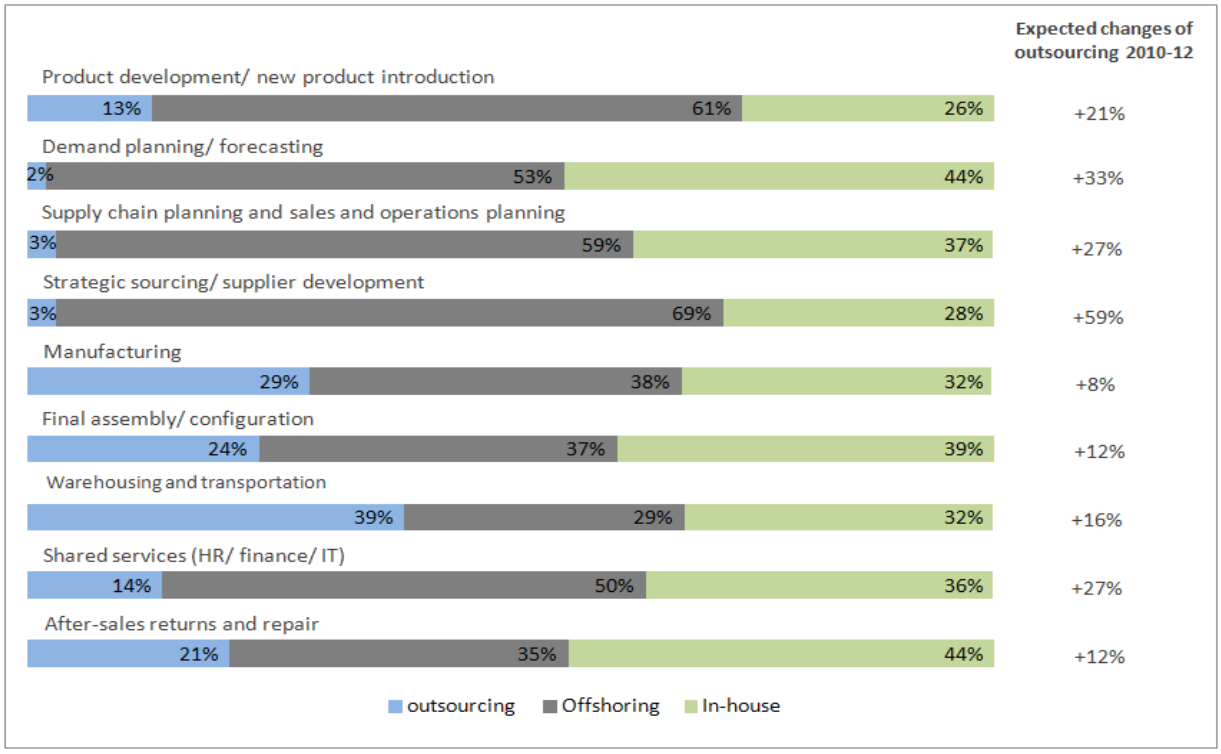
In addition, some firms are increasingly partnering with other firms through strategic alliances and joint ventures, this means smaller firms and suppliers are now becoming global. These new business models have permitted firms to specialize on ‘core competencies’ to enhance their competitive advantage.

Production chains used to be almost exclusively owned by a single multinational. But today, the trend is toward multiple ownership of complex supply chains – where several business partners are located in different economies. This trend is more widespread when products or activities can be easily defined or standardized, technology can be protected or is difficult to replicate, business partners can write and enforce legal contracts, and monitor the activities of their partners.

[11] ADB (2012), *Asian Development Outlook 2012: Confronting rising inequality in Asia*

[12] It surveyed nearly 350 manufacturing and service companies across Europe, the Americas, and Asia. The survey population comprised a diverse set of industries, including aerospace, industrial and automotive equipment, consumer goods, retail, electronics and semiconductors, telecommunications, and health care.

Figure 3-1 Outsourcing and offshoring



Source: PRTM Management Consultants (2010), *2010-2012 Global Supply Trends - an Annual Survey.*

ii. Global value chains

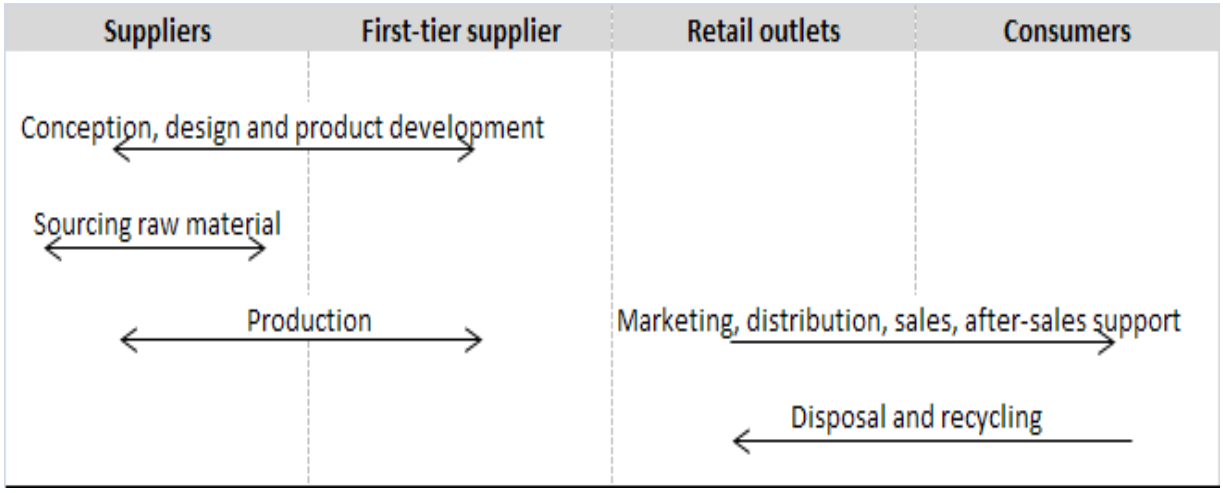
Through the 1980s and 1990s, many economies entered the global export markets, usually producing intermediate inputs or performing assembly in global value chains. The growth of trade in intermediate goods and services reinforces the need for global linkages. Globalization trends are putting particular pressure on industries – providing both opportunities (e.g. fast growing emerging markets) and challenges (e.g. increasingly global competition for talent and innovation). Foreign affiliates no longer only serve local markets but also overseas markets. Global transactions and partnerships also facilitate access of skills, inputs, technology and other opportunities.

The 2008–09 global financial crisis has led to the consolidation of some types of supply chains, and sped up the consolidation of GVCs at the firm level and economy level. For example, lead firms tend to prefer larger, more capable, globally oriented, first-tier suppliers. This is exhibited in the apparel, automobile, and electronics sectors. Consolidation of GVCs has implications for those economies and firms with limited capabilities seeking to move up the value chain, and may work to exclude potential new entrants' entirely.

There are three main types of value chains: producer-driven, buyer-driven, and multi-polar.[13] The producer-driven chain was the initial type of global value chain to emerge as a major force in reorganizing international production. It is one where the lead firm, often a large multinational manufacturer plays a central role in exercising relatively close control in coordinating a geographically distributed network of suppliers. The lead firm generally retains control of research and development, basic product design and innovation. This type of chain tends to be characteristic of capital- and technology-intensive industries, such as automobiles, ICT and semiconductors. As a consequence, a supplier requires a certain level of technical capability and sophistication, and associated investments in both technology and skills.

The buyer-driven chain is a relatively more recent development in international production where large retailers and brands (e.g. Target, Walmart, and Carrefour) play the lead role sourcing from decentralized networks of independent suppliers, defining product and process specifications and standards. Figure 3–2 presents the changing organization of the GVCs (relative to the structure of GVCs illustrated in Figure 2–1) as some retailers may bypass lead firms and engage directly with increasingly powerful first-tier suppliers (e.g. Li & Fung[14]) that help organize production-related activities on their behalf. To compete in a new global environment, first-tier suppliers tend to impose more stringent standards and use fewer preferred manufacturers as they shrink their own supply chains. The buyer-driven chain tends to be characteristic of labor-intensive, consumer goods industries, such as apparel, footwear, agro-industry and consumer electronics. The participation requirements (e.g. level of technical capability and sophistication) are relatively lower than the producer-driven model, hence, providing opportunities for producers from developing economies, including small and medium enterprises. Enterprises move to higher value added activities as they increase their technical capability and sophistication.

Figure 3-2 Changing structure of GVCs



[13] Gereffi, G. (1999), *A Commodity Chains Framework for Analyzing Global Industries*, chapter in Institute of Development Studies (1999), Background Notes for Workshop on Spreading the Gains from Globalisation.
Abonyi, G. (2005), *Integrating SMEs into Global and Regional Value Chains: Implications for Subregional Cooperation in the Greater Mekong Subregion*, a Report prepared for UNSCAP.

[14] Li & Fung is a global trading company based in Hong Kong, China. The firm supplies high-volume, time-sensitive consumer goods, primarily garments, Source: Li & Fung, Wikipedia (http://en.wikipedia.org/wiki/Li_%26_Fung).

The multi-polar chain is a less common type of value chain. It is characterized by multiple power centers in different parts of the value chain. There is no overall dominant lead firm with the power to determine the ultimate shape of final products, but they exert control over certain key activities throughout the chain. For example, Intel, Microsoft and Fujitsu, are lead firms in their own production chains within the personal computer global value chain, however, a specific personal computer marketed by Fujitsu reflects Microsoft's software strategy, Intel's strategy in semiconductors, and Fujitsu's customer-based brand reputation and marketing strategy.

iii. Future GSCs and GVCs

GSCs and GVCs have evolved over the years, several key external and industry forces will continue to drive change in the coming years.[15] These include:

- **Economic trends: emerging markets.** Brazil, China, India, Korea, Russia, and Africa are major emerging markets to consider. Each of these markets is evolving much more quickly than traditional markets such as North America and Western Europe. This will have implications on the governance of GSCs and GVCs. Moreover, it will affect the patterns of outsourcing and offshoring.
- **Ecological trends: sustainability and scarcity of natural resources.** Ecological sustainability will be a major factor in influencing future GSCs and GVCs because of increasing global awareness of environmental issues. For example, preserving energy, raw materials and other scarce resources will be a crucial aspect in future supply chains, as resource costs and supplies will likely remain volatile.
- **Regulatory trends: new rules, new compliancy.** In addition to consumer pressure and companies' own growing focus on corporate social responsibility, governments will enact more regulations, particularly targeting areas such as environmental sustainability.
- **Natural disasters and pandemics.** The impact of natural disasters and pandemics will disrupt key component supplies, reduce productivity, re-direct resources to emergency causes, and reduce manpower availability. For instance, the Japan earthquake and tsunami in March 2011, and the 2011 Thailand floods severely disrupted the global supply chains of the automobile and electronics industries. This demonstrated the need for a robust supply chain continuity plan.
- **Demographic trends: graying and urbanization.** The future will be dramatically changed by shifting demographics, such as the ageing population in many advanced and some developing economies and the increase in urban population. This will change demand preferences and labor market conditions.
- **New technology trends: technological advances.** New technologies will promote new business models and platforms, and affect the design of the GSCs and GVCs. More and more GSCs are powered by information technology, requiring flexible IT-based solutions. For example, 'cloud computing' is an emerging technology that will change the governance of global supply chains. A recent study analyzed the major benefits and costs associated with 'cloud computing' on global

[15]Capgemini (2008), *2016 Future Supply Chain: Serving Consumers in a Sustainable Way*, Global Commerce Initiative and Capgemini, http://www.futuresupplychain.com/.
Futin, E. (2010), *The Establishment of Global Supply Chain*, APEC e-Trade and Supply Chain Management Training Course (Phase III: Logistic Management for SMEs)

supply chains and supply chain management; it noted that future supply chains would become more dynamic, more scalable, and more capable of supporting financial objectives. However, collaboration issue would arise due to scattered ownership of supply chains and potential loss of data, which might lead to loss of intellectual property, loss of customers, and loss of business. Thus, information security is one of the major concerns regarding 'cloud computing'.[16]

There will also be key industry trends that will affect the future supply chain and value chain, such as:

- **Consumer behavior: driving the value chain.** Consumers will continue to become more demanding and empowered. They will become active participants in the value chain, and will directly influence product development and recycling.
- **Product flow: redesigning supply chains.** New industry challenges require innovative supply chain solutions. Existing transportation and infrastructures are increasingly congested and affect service reliability. Moreover, energy prices and government regulations will have a significant impact on the costs of transportation. The industry will need to find new ways to distribute products at lower costs.
- **Information flow: managing complexity through transparency.** Supply and value chains in the future will be even more complex than they are today. Companies will need to determine how to collaborate to match supply with demand effectively and efficiently. Open information sharing and new technological platforms will help companies anticipate changing consumer demands.

4. THE ROLE FOR APEC

Global supply chains and global value chains are not static – they are dynamic and becoming increasingly interconnected and complex. As demonstrated, external and industry forces have already changed the governance of the GSCs and GVCs over the years. Emerging trends, such as those factors discussed in the previous section, will affect the pattern of future GSCs and GVCs, including the role of the key players, the way they interact, and the flow of information within the network.

Managing and participating in a dynamic and evolving GSC and GVC are challenging tasks for any business. It is important for APEC policymakers and businesses to have sufficient knowledge and information on how GSCs and GVCs work, and understand the major challenges and factors that affect the governance of GSCs and GVCs. In this way, APEC policymakers will have ample information to make informed decisions and take appropriate actions to address the key challenges and help businesses to take advantage of potential opportunities and mitigate risks.

APEC has already begun this process, for example, through the SCFAP, the Supply Chain Visibility Initiative, and the ABAC Regional Economic Integration priority. APEC is currently implementing measures to overcome major transportation and logistical barriers to improve the movement of goods and services through the GSCs. APEC's main objective is to improve supply chain performance (in terms of time, costs and uncertainty) by 10% by the end of 2015. APEC is also in the process of evaluating the progress of the SCFAP.

[16] Schramm T. S.Nogueira, and Jones D. (2011), *Cloud Computing and Supply Chain: A Natural Fit for the Future,* Accenture.

Nonetheless, there is further scope for APEC to conduct additional studies to advance APEC's understanding on critical issues related to the GSCs and GVCs. As noted in a paper submitted for consideration by Singapore and Canada, *Facilitating Global Supply Chains* (2011/SOM3/CTI/049), 'there are still many aspects of the GSCs that are not well understood'.[17]

Building on APEC's existing work on GSCs, APEC could undertake a study analyzing how external and industry forces have affected the GSCs of key industries in the region, the major obstacles that the main participants face, and how they have responded and adapted to these changes. This will help APEC policymakers to better address the key challenges in the GSCs and to adopt best practices in this area.

There is also scope for APEC to focus on issues related to value added activities at the various links of the GSCs, i.e., for APEC to focus on the GVCs. As enterprises move up the GVCs, firms and employees reap greater financial benefits from higher value added activities. APEC could conduct a series of case studies to better understand the role of GVCs for key industries in the region (including how the major participants interact, the value added activities at each stage of the network, and the major barriers for new firms to enter the value chain and for existing firms to move up the value chain), and how the GVCs for those industries would affect the patterns of trade and investment in the region. Based on the findings of these studies, APEC could develop an action plan to assist enterprises to move up the GVCs and undertake higher value added activities. This will be particularly useful for APEC policymakers and businesses.

Furthermore, to enhance APEC's understanding of how emerging external forces (e.g. economic trends, ecological trends, natural disasters and pandemics, demographic trends, new technology trends, and regulatory trends) and industry forces would affect the development of future GSCs and GVCs, APEC could conduct studies on how these trends would affect the patterns of future GSCs and GVCs, and hence, businesses in the region. For example, APEC could develop a regional supply chain continuity plan to mitigate against the potential impact from natural disasters and pandemics.[18] This is particularly critical given the serious disruption to the GSCs following the 2011 Japan earthquake and tsunami, and the 2011 Thailand floods.

[17] APEC (2011), *Facilitating Global Supply Chains*, Paper submitted for consideration by Singapore and Canada, (2011/SOM3/CTI/049).

[18] The 2011 APEC High Level Policy Dialogue on Disaster Resiliency has also highlighted the need to promote and facilitate the use of Business Continuity Plans (BCPs), especially for SMEs, as well as in recognizing the importance of the supply chain and related infrastructure in the delivery of goods and services following a disaster. The APEC High Level Policy Dialogue on Disaster Resiliency is available at http://www.apec.org/Meeting-Papers/Ministerial-Statements/Annual/2011/2011_amm/2011_disaster.aspx.

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