**Chapter 1: Global Supply Chains: The Role and Importance of Transportation**

**Learning Objectives:**

1. Appreciate why efficient transportation systems are so critical to advance the growth and development of regions and countries, and how they contribute to social and political systems as well as national defense.
2. Discuss the importance of transportation to globalization and how it contributes to the effective flow of commerce among close and distant regions.
3. Understand how global supply chains can contribute to the competitive position of countries and allow them to penetrate global markets
4. Appreciate the dynamic nature of the global economy, which can impact and change the competitive position of a region or country in a relatively short period of time.
5. Explain the underlying economic basis for international exchange of goods and services for the overall benefit of two or more countries or regions and gain some perspective on the volume and overall importance of the more advanced countries of the world
6. Discuss the size and age distribution of the population and the growth rate of the major countries of the world and understand how the size of the population can impact a country positively or negatively.
7. Understand the challenges and opportunities associated with the worldwide growth in urbanization and why there has been such a major shift from rural to urban areas.
8. Appreciate the importance and impact of land and resources to the economic advancement and development of the various countries of the world and how they can be exploited to their advantage.
9. Explain why technology has become such an important ingredient for the economic progress of companies and countries in today’s global economy and understand the need for and types of technology.
10. Discuss the overall characteristics and importance of globalization and supply chains in the highly competitive world economies of the 21st century.

**Chapter Overview:**

In previous editions of this text, transportation was referred to as the “glue” that holds the supply chain together and an enabler of the underlying tactics and strategies that have catapulted supply chain management to the level of acceptance, which it now enjoys in many organizations, both private and public. For example, transportation management systems technology along with complimentary software is used by many organizations to improve logistics and supply chain efficiency, effectiveness, and execution. Transportation has moved from playing a reactive or supporting role to a role that is more proactive and enabling. In other words, transportation has become much more strategic for organizations in determining their ability to compete in the growing and complex global marketplace.

The global marketplace is also changing on a continuing basis, that is, it has become very dynamic, and is buffeted by economic, political, social, and natural forces, which can impact a country or region negatively or positively in the short or long run. For example, the rising cost of fuel has impacted the rates charged by transportation service providers, which in turn impact the distance that it is economically feasible to transport goods. The cost of labor can change over time to the disadvantage some geographic areas and benefit others. For example, the labor cost advantage that China enjoyed, along with low rates for ocean carrier movement, had a positive impact on their ability to sell products on a global basis. These advantages have diminished somewhat allowing other countries to develop and improved competitive position because of market proximity, labor costs, or other factors. These changes in turn impact global supply chains and their associated flow of goods.

In this chapter, the initial focus will be upon developing an overview of the flow of global commerce and trade overtime on a worldwide basis not only to understand the importance and magnitude of global supply chain flows but also to gain some perspective on important changes that have occurred. A variety of economic data will illustrate the impact of the overall changes that have occurred. The next section will examine the underlying rationale and economics of global flows of goods and services. In other words, the “why” of global flows will be discussed to understand the advantages of international trade to countries and consumers in contrast to the “what “ of the first section of this chapter. The third section will provide additional insights into the factors that can contribute to the economic advancement an development of countries. The final section of the chapter will provide an overview of the supply chain concept including its development, key characteristics, and major activities.

**Global Supply Chain Flows**

Early in the 21st century, frequent reference was made to acronyms such as the BRIC (Brazil, Russia, India, and China) or VISTA (Vietnam, Indonesia, South Africa, Turkey, and Argentina) countries. The former were identified as the top emerging economies and the latter are those developing at a fast pace. The development of the BRIC and VISTA countries was seen as an indication of opportunities for “sourcing” of materials, products, and services and the identification of potential markets for the more developed economies such as the United States, European Union (EU), and Japan. Also, they were a sign of more economic balance in the world and continued growth. Consequently, one noted author1 declared that the world was really flat because of the developing economies. Interestingly, there have been some economic shifts already with respect to these countries, and the future importance of some of the VISTA countries is not clear. For example, South Africa has been added to the first group, BRICS, by some economic pundits. Nevertheless, all of this supports the observation made earlier about the dynamic and competitive nature of world markets. An important caveat is the potential for disruption caused by political instability, associated acts of terrorism, and military action, which can cause a major disruption in global trade flows.

Traditionally, many countries imported raw materials that were scarce or not available in the importing country, and they then produced finished products mostly for domestic consumption. The raw materials were much lower in value than the finished products that contributed to the imbalance of trade among developing and developed economies. However, that situation has changed, countries that previously imported materials for domestic production and consumption are exporting more finished products while so-called underdeveloped countries are participating more in manufacturing, especially of parts of a finished product. A very good example is the automobile industry. The typical automobile of today has over 10,000 parts, which can be manufactured in many different countries. Furthermore, the individual parts may be exported and put together into subassemblies that are frequently shipped to an assembly plant in another location. So a ford assembled in Detroit may have less U.S. made parts than a Toyota assembled in Mexico. The efficiency of the global supply chains and especially the transportation systems afford these more complex operations as compared to an earlier era when the auto parts were produced in locations, which were more contiguous to the assembly plants. This is also an excellent example of companies using logistics systems analysis to evaluate the trade-offs among production costs, transportation services, and inventory carrying costs to arrive at the overall best location for efficiency and effectiveness.

As indicated earlier, the global supply chains of today allow production of products with parts being produced in several countries before the final finished product is assembled. A major contributing factor to the global supply chains and the economics of production is the efficiency and effectiveness of global transportation and associated services. The improved global supply chains with faster transit times and lower rates help to promote global trade. Consumers received not only lower prices but also in many instances better quality food and manufactured products. In the next section, we will examine the economic basis and complimentary logic for global trade.

**The Economic Basis and Logic of Improved Global Trade**

**Absolute and Comparative Advantage**

As the European countries advanced economically in the 18th century, there was a growing recognition of the value and potential of international trade. Adam Smith in his 1776 book, The Wealth of Nations,2 not only provided a rational basis for a market economy based upon open or free competition, but he also advanced the so-called Theory of Absolute Advantage that provided an economic basis for “free trade” among countries. Essentially, he stated that if two regions or countries produced and consumed the same two products, for example, eggs and butter, but had different costs of production, trade could be beneficial. For example if Country A had an advantage with producing eggs (50 centers versus $1 per dozen) and Country B had the advantage with butter (75 cents versus $1.25 per pound), Smith concluded that A should produce eggs and buy butter from B, while B should produce butter and buy eggs from A. Both would benefit by being able to buy more of each product at lower prices than if they each continued to produce both products. This example is somewhat simplistic because it does not consider transportation costs for delivery or other costs that could be incurred. If the additional costs were added to the production costs, the subsequent “landed cost” would have to be lower than the importing country’s cost of production. In other words, in the example earlier, the eggs produced in A would have to have a landed cost in B (50 cents plus transportation costs) less than $1.00.

The Theory of Comparative Advantage was advanced about 40 years after the publication of Smith’s *Wealth of Nations* by several economists.3 they maintained that even if two countries produced and consumed the same two products and one country could produce both products at a lower cost (absolute advantage in both products) than the other country, it could possibly be beneficial for both countries to specialize and trade. It would require the country with the advantages to specialize in the product that it had the greatest comparative advantage over the other country. For example, if Country A could produce butter for 75 cents less than Country B and Country B could produce eggs for 25 cents more than Country A, A should produce eggs. Again, transportation cost and other costs would have to be considered to develop a landed cost.

In today’s more complex, global economy, there are more variables than the traditional factors of production (land, labor, capital and entrepreneurship) that can give advantages to countries and provide a basis for global trade flows. Some of these factors help to explain the development of the so-called BRIC and VISTA countries that were previously discussed. For example, two of the BRIC countries, India and China, have developed and prospered during the last 20 years because of factors such as improved global transportation, faster communication with lower costs, population growth, and technology advancement. China, for example, has taken advantage of their low labor costs, including skilled workers, ample raw materials, and capital to invest in production facilities. India’s expanding population and growth in technology expertise contributed to their economic advancement. In a later section of this chapter, China and India’s advancing economies and leadership positions in the world economy will be discussed in more detail.

**Contributing Factors for Global Flows and Growth**

Important factors that are frequently cited for greater economic development may include population growth and age distribution, urbanization, land and resources, economic integration, knowledge dissemination, labor mobility, financial flows, and investment in infrastructure by public and/or private agencies to promote improved transportation, faster communication systems, improved financial services, and increased flow of goods and services. These same factors also become the driving forces for overall globalization. At this juncture, it would be worthwhile to examine some of these factors in terms of the global economic growth and development of selected countries.

While the total population of a country is an indicator of economic growth potential in terms of workforce and consumers, it has some limits. We need additional information about the population to draw meaningful conclusions such as age distribution and education levels. If we examine population age distribution on a macro level, the young-age balance is shifting throughout the world. In the more developed regions, the proportion of older people (over age 60) already exceeds that of children (under age 15), 19 percent versus 18 percent, but by 2050 the numbers are predicted to be 34 percent versus 16 percent, respectively. Europe will have the greatest disparity followed by North America. The longer life spans in developed countries is exacerbation the young-age disparity ratio and has important implications for the labor force in various countries and the needs of consumers for food, housing, and medical care.

The private sector and the public sector will be challenged by these changes in terms of the size of the workforce, medical care, and even retirement benefits, but some opportunities are likely for certain types of business including heath care, housing, transportation, food products, and so on. Much depends upon immigration policies, technology, retirement ages, and educational opportunities. Net, there could be benefits but challenges also will persist. An interesting opportunity cold occur with more mobile migration among countries. The European countries with their “graying” populations could probably benefit with a migration of younger individuals from less developed countries not only to help care for the older citizens but also to provide a younger workforce for the developed economies. Even in the United States this could be a possible benefit. Table 1-6 compares selected age groups in the United States for 2000 and 2010, and an interesting group is the 25-44 age bracket showing that in 2010 there was a decline of almost 3 million people in this group compared to 2000.

**Urbanization**

There has been a noticeable demographic shift in a number of countries with the migration from rural to urban areas. In 2000, 47 percent of the world’s population lived in urban areas. By 2030, it is estimated that the number will increase to 60 percent, and the change will be most rapid in underdeveloped counties. This will cause additional challenges for those countries to provide the housing, infrastructure, health care, and security necessary for effective and prosperous expansion. The rural areas will also face challenges with smaller and likely older populations. There will be opportunities for business to help alleviate the burdens for the public sector and develop new business opportunities for domestic and global economic expansion. The challenges will be daunting in some cases. A relatively new term is the megacity (more than 10 million people). It has been estimated that Asia will have 18 megacities, the United States will have five, but there will be nom in Europe. This will be an interesting demographic change with important implications for global trade. The megacities in some countries especially Africa will be faced with inadequate infrastructure, especially transportation and utilities, to support the population growth.

**Land and Resources**

The availability of land and critical resources such as energy, food, and water are of paramount importance for economic viability and future development. Technology will play a critical role in mitigating the scarcity of key resources from desalinization of ocean water, to fracking for increased oil and gas production, to biotechnology for improving crop yield and food production. Fracking for oil and gas production has already changed the global dynamics for energy with the United States likely to become a net exporter and the changes in transportation requirements, which will be discussed in later chapters. All three are keys to stable economic growth and development but the geographic disparity among areas of the world could be daunting and lead to political conflicts. The public and private sectors can both be instrumental in alleviating the challenges and potential crises. Our success in this area will be of immeasurable importance for peace and prosperity. Transportation can play and important role in resolving the disparity by moving these resources efficiently and effectively among regions and countries, but governments and businesses have to provide the stable and economic basis for this to happen. The expansion of oil and gas pipelines in recent years and improvements in rail tank cars and water vessels are based upon such growth. Technology has two important dimensions. It can be viewed as an internal change agent that can enhance the efficiency and effectiveness of an organization and its ability to compete in the global marketplace. However, technology can also be viewed as an external driver of change similar to globalization. In many organizations, the rapid development of new technology by technology companies whether it was hardware or software changed in “rules of engagement” and enabled new forms of competition or new business models. The new technology and new companies changed the nature of the competition, which meant that existing companies had to change or perish. There are many examples of established organizations that were blindsided by the technology. The internet alone was the biggest ‘culprit’ or agent of change because it made information available in real time to large segments of the population via their personal computers, telephones, or other devices.

The development and sharing of so much information is a major force for changing business models and for the obsolescence of some business. Travel agents, for example, became passe’. Amazon without stores can compete with WalMart’s store network, as can Zappos with more traditional shoe sales organizations. Technology and transportation services have been major factors supporting these changes. For example, companies have been able to outsource selected internal functions like customer service centers or personnel service. One of the most significant impacts has probably been more efficient and effective supply chains and related services such as high-tech warehousing and overnight delivery via Federal Express or UPS. From the specially designed supply Chains of Amazon and Zappos to the realigned supply chains of companies like Macy’s or Kimberly Clark, supply chains have become a critical ingredient for profitability and customer service.

While information technology has been and will continue to be an important dynamic for external and internal changes and economic growth, there are additional dynamics noted in the in the text that also will be important for future growth and development. Among the more important of these technologies are industrial robotics, additive manufacturing or so called, 3D printing and digitization and advanced computational methods to model and changes the manufacturing and distribution systems of many companies.

**Globalization**

Globalization has become a very frequently used term or concept not only in business related conversations but also in more casual settings, Individuals probably have many interpretations and use the word differently in different settings. However, in this particular context, globalization can be used synonymously with economic integration and development across country and regional borders. The integration will increase the flow of goods and services globally based upon the logic of comparative advantage discussed previously. Also the efforts to eliminate and/or reduce tariff and non-tariff barriers will promote greater interregional flow. However, military and terroristic interruption pose a real threat to increased global economic progress.

The global interdependence can be good or bad news. On the good side, the lower prices, wider availability of goods and services, land and resource development, and new employment opportunities have benefited many countries and regions of the world, both developed and developing areas. However, the benefits and advantages have not been equal for all, that is some have benefited more than others, but on a macro level, and one could argue that the wins have outnumbered the losses. On the negative side, the interdependence can lead to global recessions as was the case in 2009 with serious repercussions felt throughout the world. The economic recovery has been very painful and has required government intervention. There are still lingering economic problems from this recession in some areas of the world. However, there have been strong recoveries in other regions such as North America and some countries in Europe.

On a micro level, the global interdependence has increased the level of complexity and competition with shorter product life cycles, new forms of competition, and new business models. Outsourcing, offshoring, and insourcing have become part of the lexicon of businesses. The information technology previously discussed has allowed supply chains to be reexamined and redesigned for more efficiency and effectiveness and even better execution. The fast or even real0time information flows globally have even allowed companies to connect in sharing information and to collaborate much more expeditiously than in the past. This has placed a premium on flexibility of planning and operations to respond and adjust to changes in the competitive environment. Also, visibility of inventory and other assets has become an important dimension for efficiency and effectiveness.

**Supply Chain Concept**

References to supply chain management can be traced to the 1980s, but it was not until the 1990s that supply chains captured the attention of senior level management in many organizations. They began to recognize the potential of effective supply chain management to improve global competitiveness and to increase market share with consequent improvement in share-holder value.

**Supply chain management** came into vogue during the 1990s and continues to be a focal point for making organizations more competitive in the global marketplace. Supply chain management can be viewed as a pipeline or a conduit for the efficient and effective flow of products and materials, services, information, and financials (usually cash) from the supplier’s supplier through the various intermediate organizations out to the customer’s customer (see Figure 1-7). In essence, it is a system of connected networks between the original vendor and the ultimate final consumer. The extended enterprise or boundary spanning perspective of supply chain management represents a logical extension of the logistics concept, providing an opportunity to view the total system of interrelated companies and their impact on the final product in the marketplace in terms of its price-value relationship.

Figure 1-7 also illustrates the basic characteristics of a supply chain that are important to supply chain related decisions. The definition, which is part of the illustration, indicates several important points. A supply chain is an **extended enterprise** that crosses the boundaries of the individual firms to span their related activities involved in the supply chain. This extended enterprise should attempt to execute a coordinated or integrated two-way flow of goods, information, and financials (especially cash). The three flows illustrated in the figure are very important to the competitive success of the organizations. Integration across the boundaries of the several organizations in the essence means that the supply chain needs to function like one organization in satisfying the ultimate customer by delivering an appropriate price-value relationship for products in the marketplace.

One of the realizable outcomes of supply chain management is the sharing of sales information on a more real-time basis to reduce uncertainty, which reduces the need for safety stock. In this sense, the supply chain is compressed through timely information flows from the marketplace. In other words, inventory can be reduced in the supply chain by timely, accurate information about demand. If point of sale (POS) data were available from the retail level on a real-time basis, it would help to mitigate the bull whip effect associated with supply chain inventories and would reduce costs. It should also be noted that transportation plays an important role in the level of supply chain inventory. One of the components of transportation service as discussed was reliability of delivery. It was noted that if service was unreliable, companies carried more inventory or safety stock, which would be true along the whole supply chain. It was also noted that transit time had an effect upon inventory, namely, longer transit times could contribute to higher inventory levels. Longer transit times combined with unreliable service exacerbate the need for safety stock in the supply chain. Consequently, the transportation is an important cog in the whole supply chain in terms of efficiency and effectiveness.

The third and final flow indicated is financials, or usually and more specifically, cash. Traditionally, financial flows have been viewed as one-directional-backward in the supply chain. In other words, this flow is payment for goods, services, and orders received. A major impact of supply chain compression and faster cycle times has been faster cash flow. Customers receive orders faster, they are billed sooner, and companies can collect sooner. The faster cash-to-cash or order-to-cash cycle has been very important for companies because it reduces the amount of working capital they need in their system. If cash flow is slow, a company needs more working capital to finance the processes until they collect from the customers. There are some companies that have negative working capital or what financial organizations refer to as **“free” cash flow**. They collect form their customers before they have to pay their vendors or suppliers. In such companies as Dell and Hewlett Packard, the period between collection and payment may be as much as 30 or more days. This cash can be used for financial investment purposes or another source of funding for product development or other improvements. Cash flow measures have become an important metric of the financial community to gauge the viability of companies. Slower cash flows increase the need for working capital and may require loans from time to time to pay suppliers, service providers, or even employees. Frequently, one will see in the financial analysis of an organization references to their cash flow situation. Supply chain management provides organizations with an opportunity to improve customer service and cash flow, and transportation service is an important part of this equation.

**Study Questions**

1. Transportation has sometime been described as the glues that holds global supply chains together. What is the meaning of this statement and do you agree? Why or why not?

*Most students will probably agree that transportation is the “glue” of the supply chain since it connects the individual parts of the chain with product movement, but they should point out that information is also important to holding the supply chain together. The essence of the statement is that supply chains are extended enterprises with many “parts” and the final outcome is a product delivered on time to a particular location without damage or delay. Transportation and information flows are key to this outcome. They should also point out that transportation as well as information can provide a strategic advantage and therefore, should be an important part of the planning process. Overall supply chains plays an important role helping organizations to gain strategic advantage in the global economy of the 21st century.*

2. During the last 20 to 30 years, there have been a number of countries whose economies have experienced important economic expansion and development. One group of countries has been labeled the BRIC countries and the other the VISTA countries. Identify each of the nine countries and provide some insights about their economies and economic importance.

*BRIC countries are Brazil, Russia, India and China. The VISTA countries are Viet Nam, Indonesia, South Africa, Turkey and Argentina. The BRIC group are generally considered to be the most advanced economically. China is clearly the most important as indicated by the grade flow data in the chapter. They are important for manufactured productions well as resources. India has advanced rapidly through their educated and industrious citizens and technology, and organizations in India have become an important part of many supply chains. Russia and Brazil both have vast resources that can be the basis for funds but are also developing a more advanced manufacturing sectors They are both challenged by their geography and size as well as political factors. The VISTA countries have established themselves are as countries for sourcing some basic manufacturing because of low cost labor. They also provide agriculture products and other resources for exporting. The key dimension for both the BRIC and VISTA countries is that the establishment of global supply chains has allowed them to be a part or play a role in the global economies.*

*There is abundant information about the BRIC and VISTA countries on the internet if you want to make this question a special assignment or extra credit.*

3. The theories of absolute and comparative advantage have been offered as an economic rationale for trade between and among regions and countries. Compare and contrast the two concepts. Which of the two do you think is more important for explaining the growth in global trade during the last 25 years? Why”

*Both theories are offered as a rationale for expanded trade between and among regions and countries to promote growth and development. Absolute advantage is the oldest concept and easiest to explain since in the two country scenario each country has an advantage in the production of one or more products. Comparative advantage postulates that even if one country has the advantage in both products, trade can still be advantageous. Comparative advantage has probably been the most important for overall development in our complex global economy since countries can produce so many products that are competitive with other countries to some degree. However, absolute advantage is still important to rationalize some major trade flows especially for basic materials and agricultural products. There are also seasonal and weather related factors that provide advantages at particular times of the year for different regions*

4. The overall growth of global trade had more than doubled since 2000. Why? What has been the most important factor prompting this growth. Is this rate of growth likely to continue in the future? Why or why not?

*There are a number of reasons for this growth. Some of it can be explained by population growth and improved education systems in developing countries. Capital for development has become more widely available from private and public sources. There is also more acceptance of products manufactured in other countries. But probably the most important reasons are trade agreements and lower tariffs on imported products that have been greatly expanded because of the recognition of how important global trade can be to economic development and the health and welfare of the citizens of the country. One of the biggest challenges to the progress that has been made in promoting global trade is the political instability and terrorism that has developed some areas of the world such as Africa and parts of the Middle East. These factors undermine these benefits that can accrue from the growth in global trade. One can argue that the growth will continue because of the economic and political forces atwork in the global economy, but there will be ups and downs or bumps along the road because of human error and greed.*

5. The size of a country’s population and the associated age distribution can be causal factors for economic growth. Why is the size of the population important to economic development? Can size be a disadvantage? Why is age distribution important?

 *The sheer size of the population can be very important because labor is one of the prime* factors for economic growth, and population numbers indicate the availability of labor. The size of the population can also indicate the market size or potential for buying products. Size can be a disadvantage if the economy cannot provide opportunities for employment. Large size can also challenge the education system and may require government resources to sustain the basic needs of the citizenry. Age distribution affects the size of the labor pool of available employees. Also, older populations require more medical assistance and other services which can drain the resources of individuals and/or government agencies. The population data and commentary in the Chapter provide the basis for some interesting discussion. Again, this is a topic that has abundant information available on the internet, and could be the basis of a special assignment. The differences in population size, growth rates, age distribution and education levels are all factors to consider for economic development.

6. Energy, food, and water are frequently cited resources that are critical for economic development. Explain the importance of each one to economic development. What disparities exist among countries with respect to these three resources? How can these challenges be resolved?

*Energy is a primary ingredient to support agriculture and manufacturing as well as transportation. Consequently, if much of the needed energy has to be imported, it will increase the cost of the producing products and may put a country at a disadvantage in producing and/or exporting products. Food is almost self-explanatory since it is needed to sustain the citizenry of the country. When there is a shortage of food, a country will be challenged unless they can offset this shortage*

*with advantages in some other area such as mineral resources and/or labor productivity. Water is a critical resource for individuals, agriculture and manufacturing and other businesses and organizations. The absence of adequate water supply is one the most debilitating conditions for an economy. There are major difference around the globe in terms of the availability and quantity of these resources. Technology may be able to solve some degree of this problem, but not all of it*

7. Technology can impact economic development on both a macro and a micro level. What types of technology do we need to have such impacts on a macro basis? On a micro basis?

*On a macro basis technology is needed to increase the productivity for agriculture and manufacturing in many parts of the world. Improvements can be made also in the supply chains especially in the transportation area. On a micro basis, technology can improve the quality of life for many people through medical treatment, safety and aids for seniors We have made significant progress with technology, but some individuals feel that we have only ”scratched the surface of the potential” to improve economic development. The supply chain has been the beneficiary of technology, especially information technology, to improve efficiency effectiveness and execution. However, in the last decade, the “hard side” of technology has been receiving more attention in transportation, warehousing and manufacturing to improve efficiency and effectiveness.*

8. Robotics has attracted more attention in recent years. Why? How are robots being used in supply chains?

*Robotics has indeed received more attention in a number of areas especially health care, manufacturing and distribution. Some people see robotics as strictly replacement for labor, but now robots are being viewed as complimentary to improve manufacturing and distribution productivity and improve the health and welfare of the population. Robots are being used in warehouses to put away items, order picking as well as loading and unloading transportation equipment.Robotshave potential in other areas of the supply chain especially transportation.*

9. The economic integration associated with globalization can provide an opportunity for more widely dispersed development. Why is this possible? What are the major stumbling blocks to such integration?

*Economic integration can release the power of comparative advantage and provide more growth and development along with prosperity. The major stumbling blocks are “fear” and “terror” which are associated with individuals and groups who will exercise their ability to thwart trade flows for selfish or self-serving agendas.Collaboration among organizations is a global supply chain can be a driving force for more efficiency and effectiveness.*

10. Supply chain management has enabled some companies to operate more efficiently and compete more effectively on a global basis. What inherent characteristics of supply chain management contribute to these outcomes?

*Supply chains that are efficient and effective and well executed can indeed make companies more competitive. The basis of this outcome is related to systems analysis and trade-off analysis which provides an opportunity for organizations to do what they can do best and depend on other organizations to provide the rest. The coordination and collaboration that should be inherent in supply chains are important ingredients for efficiency and effectiveness.*

## CASE 1-1 Clearfield Cheese Company: A Sequel

Small companies that produce milk based products have experienced growing competitive pressure from large regional producers who sell to large chain stores and wholesalers. As these chain stores have attracted more customers from nearby smaller communities and rural areas with their prices and product variety, they have negatively impacted the sales of small local stores who are often the most important customers for small to mid-size food processors such as Clearfield Cheese Company. Clearfield Cheese Company has successfully thwarted this type of competition to this point by the aggressive management actions pointed out in the case. Their success has been in recognizing the challenges and responding aggressively. Now, they appear to be at another important cross road in their ongoing development, and they need to ‘stay out in front” of the competitive challenges with decisive strategic action.

The current situation, as described in the case, presents a different but related type of competitive threat—the dietary changes that are popular in the United States. These changes are essentially a move to more “healthy” types of food which may not be milk-based. The Clearfield Cheese Company has identified several possible competitive strategies to protect themselves against a decline in sales and profits related to this dietary trend: (1) Establish a new division or company to produce non-milk based dairy products such as soy or almond milk; (2) expansion of the sales of existing products into Mexico and Central America[ (3) expand their current product line or items to sell in their current market areas.

All three of these alternatives have advantages and disadvantages and a logical argument could be made for any of the three suggestions by students. The lowest cost alternative in terms of investment is probably #3 and it would also probably involve less risk for the company since there would fewer unknowns and potential surprises. However, it probably has the lowest potential for long run growth. #1 probably has the next lowest risk of failure, but they could minimize their investment by developing facilities in their current area and sharing facilities and labor to the extent possible. Their history and experience in the area would provide advantages for development and growth while minimizing investment and risk. This alternative has more growth potential over the longer run than #3. #2 would probably have the greatest growth potential because of the size and age of the populations in Mexico and Central America but the highest risk because of the distance, language differences and trade policies and regulations.

They could endorse all three with a phased in approach over a 5 to 7 year period using the sequence suggested above starting with #3 then #1 and finally #2. They could delay or move ahead more aggressively with the sequenced alternative based up their success or lack thereof.

## CASE 1-2 KEMS LLP

The case provides an interesting opportunity for students to do research on the two biggest “partners” of the United States in terms of imports and exports. The Chapter provides relevant information about both countries in terms of imports, exports, population size and distribution, etc. which will be a good start for addressing the case, but there is a wealth of information available and accessible to them via the internet that will provide data and information for an effective

analysis to support their conclusions. Expansion into either country or both will require investment and will have risk to consider. They should probably explore the possibility of acquiring an established 3PL company in one or both countries as they did in Europe. There is risk and investment involved with this strategy, but if done carefully, there are many advantages. This approach provides an established “footprint” with current and potential customers. If the investment is too high to purchase existing 2PL companies, they can explore the opportunity for this geographic expansion through their current customers which could be a win-win for all. The proposal to expand into South America would have more risk,

The lower cost and lower risk alternative would be to expand on a commodity basis as opposed to a geographic basis, There are similar products that could have potential such as the inbound, cold chain for pharmaceutical companies.

A stronger case can probably be made for the second alternative in the short run with a longe run strategy based upon geographical expansion.