Lecture Note

Course Code: TRM 3305

Course Title: Logistics and Supply Chain Management in Tourism

Credits: 3(3-0-6)

Lecturer: Siripen Yiamjanya, Ph.D.

Program: Tourism Management, International College

College of Hospitality Industry Management

Suan Sunandha Rajabhat University

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Lecture Note

Course Title: TRM 3305 Logistics for Tourism Management

Credits: 3(3-0-6)

Lecturer: Dr. Siripen Yiamjanya

Program: Tourism Management

Week 1

Unit 1: Introduction

Topic

- Globalization and development of logistics
- Definition of value chain
- Definition of logistics and supply chain
- Importance and role of logistics

Objectives

After the completion of this unit, students should be able to:

- Describe about globalization or global evolution that has changed the world's economic principle.
- Explain what value chain is.
- Explain what supply chain is.
- Explain what logistics is.
- Explain differences between value chain, logistics and supply chain.
- Explain importance and roles of logistics.

1. Globalization and development of logistics

Global evolution

After the World War II, political and economic changes had been occurred. Communism disappeared, with an emergence of capitalism almost all over the world. It is this capitalism that has driven the world's economics. There are more trades and investments and the world has opened for more freedom. There are the factors of the following changes:

(1) Higher level of trade opportunities and threats both within country and international level, and both in micro economics and macro-economics: Decrease of trade restriction has caused more numbers of competitors in businesses and therefore higher competition. Because of this high competition, many businesses are forced to reduce their investment cost and propose quality and high value products and quick response for their customers, in order to compete with other competitors. Improvement of logistics and supply chain beyond the competitors is very important way to be above the competitive market and to survive in the industry.

(2) The world today: More opportunities and threats are driving the world's economics and finance. The results are:

- There are more services and investment across the world (international trading of goods and services);
- Symbols of material cultures and product- consumerism drive the world to be a global village where the world's population almost like the same things, do the same things or consume the same products such as Iphone, Coca Cola;
- Production factors are from various sources of raw materials across the world, then goods are produced and spread across the world;
- Forces of international organizations such as WTO, international meetings on economics such as G-20 influence on the world's liberalization for trades and investment;
- Economic policy of a country or many countries can lead to the global or regional financial crisis due to the fact that the world now is very interdependent such as Subprime crisis in U.S.A or financial crisis in Asia; and
- There still are people living with poverty, sickness, and the environment is getting worse- therefore there are people who act against the globalization.

(3) Changes of the global economic principle: The world in the past is different from the world today. In the past,

- Countries were separated from the world trades and investments;
- Countries locate in a big distance and in different regions;
- There is a big difference in time;
- Countries have different cultures and languages;
- Countries have different economic systems; and
- Countries have different governmental disciplines and regulations.

The world's countries today have less difference by:

- Opening of free trades and investments;
- Transport technology; and
- Information and communication technology.

Because of these things mentioned above, the world has been driven to be the world with less restriction and obstacles in trading and investment; the world that has advanced technology of transportation and communication; the world that has similar material cultures (likeness and tastes); the world where countries are interconnected in economics; and the world that has integrated economics. These happenings are the main cause of the global severe trading competition.

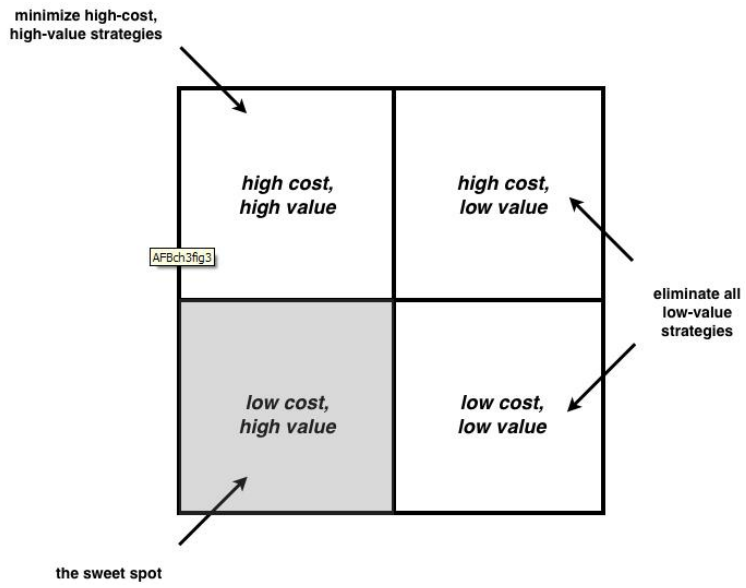
Globalization process has changed the world's economic principle. Survival businesses are those that can quickly respond to changes and make benefits of those changes for catching competitive advantages. Companies are doing these things:

(1) Developing and adjusting products to respond local likeness and tastes;
(2) Managing logistics activities with lower cost and faster response to their customers;
(3) Managing each step of supply chain to have high value for their products;
(4) Improving productivity and flexibility by selecting production location, points of selling and distribution, and methods of production that can respond to their customers more quickly;
(5) Managing appropriate market segmentation and marketing mix for different markets; and
(6) Managing and re-organizing organizational structure that can support competition strategies and that is easy for administrating in running business process.

2. Definition of value chain

What is value chain? Value chain was developed by Michael E. Porter. Value chain is used as a guideline to gain competitive advantages above competitors in every division of works in business process. But in order to gain this competitive edge, companies need to show that they can create and add product value for their consumers, and consumers can perceive or realize that value. Consumers' perception and realization of product value is the factor influencing them to buy products.

However, adding value to products has high cost. The more company adds value to its product, the higher cost it will has. Therefore, decision to be made between adding product value and increased cost becomes a strategic decision. Companies may choose differentiation strategy or low- cost strategy. The companies that choose differentiation strategy in order to add value to their products also need to make production cost to be low. "This means effectiveness." *The important point is how to make a difference between value and cost higher than competitors (high value but low cost).*



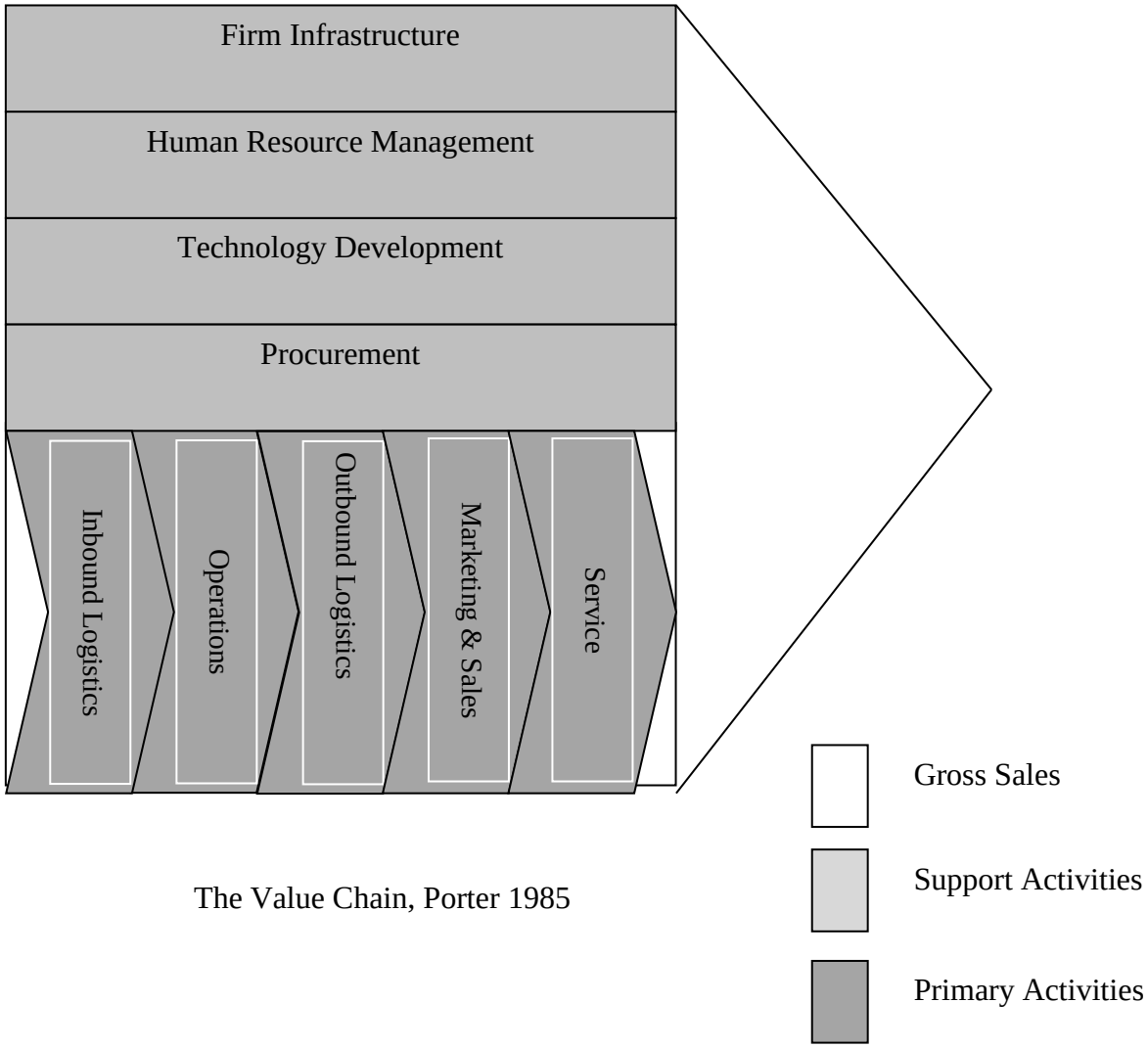
The goals of creating value chain are to be able to compete with other companies, to increase profits for companies, and to help companies to grow with sustainability. Companies with these goals mostly select having low cost- high value, or high cost- high value, whichever that help them reach the goal of having value for their customers. *Therefore, value chain is in also every division of works of organizations-- each work has to be part of creating and increasing value to products, while reducing production cost.* This is why we call *"value chain"*

Porter's Value Chain

The value chain helps tourism suppliers (i.e. managers) to "visualize and analyze value- creating activities" and to pursue strategies which offer "lower prices than competitors for equivalent benefits or provide unique or differentiated benefits that more than offset a higher price"[1].

Michael E. Porter divided activities that create product value into *(1) primary activities*; and *(2) support activities*.

[1]An intermediary (or go-between) is a third party that offers *intermediation* services between two trading parties. The *intermediary* acts as a conduit for goods or services offered by a supplier to a consumer.



The Value Chain, Porter 1985

Tourism products are often viewed by consumers as a value- added chain of different service components which form a service network. Therefore, identifying ways to manage this network is vital, especially for large tourism firms that are keen to maintain a competitive advantage over their equally efficient rivals.

Today, the tourism industry is in the era of "value- driven strategy" through "value innovation" based on 3 assumptions:

(1) *Operational excellence*- reliable products/ services at competitive prices, delivered with minimal difficulty and inconvenience, e.g. an airline that flies people to destinations at realistic prices and with few or no delays;

(2) *Customer intimacy*- precisely tailored offerings for niches, e.g. 18- 30 holidays which do not interfere with the enjoyment of families or senior citizens;

(3) *Product leadership*- offering leading- edge products and services that competitors have difficulty catching up with.

Figure 6 demonstrates the tourist- driven supply chain for a travel experience (example), as to explain that tourists have to go through many stages from the decision to take a holiday to experiencing it at the destination. At each stage, the tourist can have a negative or positive experience which can contribute to a "gain or loss" in perceived value. The value chain concept can be applied to tourism. Tourism is experienced at the point of consumption, i.e. the destination; therefore it cannot be brought back home. The tourist product is experienced in the marketplace. The value-added" by a tourism product is likely to be manifested by an increase of enjoyment of the experience for a tourist[2].

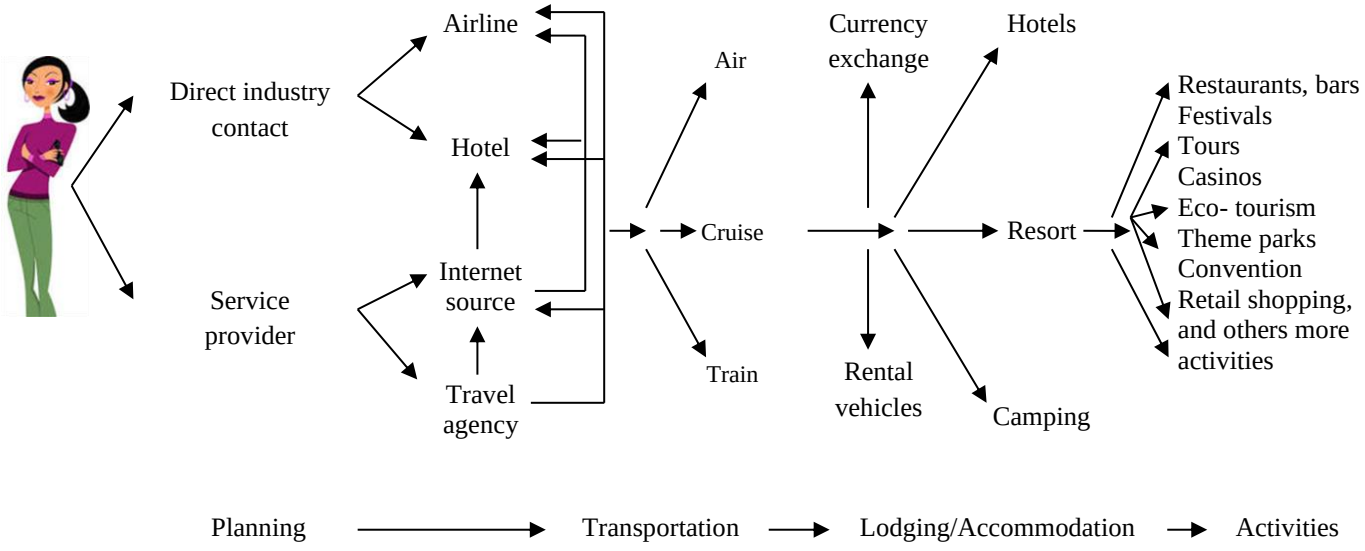


Figure 6: tourist- driven supply chain for a travel experience

Value can also be added by more information about the destination, theexperience of traveling there, the local atmosphere or ambience, including attitudes and behavior of local people. Let's read the case of value chain of amusement ride in the box[3].

[2]Travel and Tourism Consultant Course Textbook, IATA

[3]Song, H. (2012) Tourism Supply Chain Management

The case of value chain of "Amusement Ride"

The following example examines an amusement ride, which demonstrates how value can be achieved through the examination of the structure of and the supply chain for an attraction.

Structure of the attraction (amusement ride)

- Line personnel- maintenance and engineers, marketing and sales staff- all are involved in producing and selling the attraction's services.
- Operators of rides- ensure rides run smoothly, within health and safety guidelines, to provide a positive experience.
- Support staff- finance and accountants, personnel, public relations to support the work of the line personnel, so that the attraction runs smoothly.

The combined activities of these workers can ensure the creation of value for the tourist.

Supply chain for the attraction (amusement ride)

- Backward linkages- purchase of land and the rides and the fuel to run them.
- Operations- transform inputs to a ride to be experienced and enjoyed.
- Ticket sales and booking system- on site, by phone and internet.
- Marketing- promotion, advertising and pricing policy to attract customers.
- Service quality- meeting the expectations of customers/ tourists.
- Customer care- managing relationships with customers to encourage repeat visits and/ or sell the attraction to others.
- Support activities- Research and Development (R&D), Human Resource Management (HRM), finance, legal and quality management to ensure smooth running and adoption of new innovations.

Value is created when the end customer is able to enjoy the ride in a safe and encouraging environment.

3. Definition of logistics and supply chain

Definition of logistics

What is logistics? The word "logistics" has been widely accepted today. This word is usually seen on vehicles of transport service companies. Logistics plays an important role on customers' sensitivity, in that nowadays customers are more sensitive with quality of products and service of logistics, such as they usually complain and blame logistics service when they cannot find the product they are looking for, or when the product cannot be delivered in time.

Management of logistics involves activities that support production and distribution of finished products/ goods. These activities include procurement, movement (transportation), keeping/ storage and delivering of products to customers. Logistics is a process and tool that businesses use for creating value for products and services and responding needs of customers. So, companies or organizations will need to have effective and efficient logistics management by managing all logistics activities with low cost, while making customers to be satisfied with products and services.

Definition of supply chain

When we talk about supply chain, we are referring to supply chain management, or how to manage supply chain (chain of suppliers of business) from "point- of- origin" to "point- of- consumption". Supply chain covers activities related with *flow and storage (storing/ keeping) of production materials (raw materials), finished products, and flow of information.* Because of these many activities, supply chain therefore consists of several companies that work together as partnership in order to increase product value (s) to involved organizations or stakeholders as well as to end customers. Supply chain management focuses on attempts of focal firmto motivate and facilitate its suppliers (or we can call "partners"), customers, and logistics service providers to do their activities (duties) in order to reach the absolute goal, which is *"to increase product value with effectiveness", "to respond quickly to customers' needs"*, and *"to cooperate and work together closely for customers' satisfaction towards products and services"*. If a particular company (or corporate) producing a particular type of product or service works this way, its supply chain will have higher profitability and sustainable competitive advantages. You need to be aware that a company or a corporate can produce more than one type of product. For example, if it produces two types of products, it will have more than one supply chain. Supply chain of each product can have different characteristics and structure. Therefore, managing a supply chain must go along with finished product.

Differences between value chain, logistics and supply chain

(1) Value chain is a strategy that companies use in competing in the market and for gaining profits and sustainable growth.

(2) Logistics is about flows of products and service, and storing of production materials (raw materials) and finished products, and about information related. The goal of logistics is making the total logistics cost as low as possible, while still satisfying customers in the service. This goal can be reached if logistics activities can create value to products.

(3) Supply chain is about managing flows and storing of products from point- of- origin to point- of- consumption (from producers to consumers). Supply chain management (or "the management of the chain of supplies") of focal firm is to effectively manage suppliers' works from production sources (i.e. factory), involved companies (i.e. intermediaries), and distributors until the finished product reaches consumers, and consumers should be satisfied. Focal firm is required to manage its supply chain to have highest profitability while satisfying not only its consumers but also its suppliers (stakeholders). Besides, value must be increased in the supply chain, while the supply chain must have integration along the flow of particular product by managing related suppliers and every joint in the chain to meet with competitive strategies.

What involve?

Discussions of supply chain usually focus on the forward flow of goods and backward flow of information. Effective or ineffective supply chain can be characterized by this flow. It is comprised of 7 main business processes:

(1) Customer relationship management
(2) Customer service management
(3) Demand management
(4) Order fulfillment
(5) Manufacturing flow management
(6) Procurement
(7) Product development and commercialization[4]

Efficient management of the 7 processes in a supply chain network can contribute to successful business. To manage the flow of these 7 processes concern not only one firm, but also other firms chosen to be part of the chain. By this, it means that both internal and external groups of people get involved in the chain in different levels (strategic, tactical or operational level). The key aims of managing a supply chain are not only to facilitate flows in the processes but also to add values to the chain, which finally lead to the absolute goals of a business, satisfying its end customers, maximizing profits and reducing production cost.

The key concern in supply chain management is to recognize the interdependency in the supply chain and thereby generate strategies that support the efficient integration of the various links.

Tourism Supply Chain

Discussions of tourism supply chain have been done just recently. Tourism supply chain by some academics was focused on the distribution channels of the tourism industry[5]. This means that tourism supply chain in one sense is narrowly defined as a supply chain that focuses mainly on the distribution and marketing activities in the chain.

However, later tourism supply chain was elaborated in the view that the provision of tourism products and services involves a wide range of interrelated tourism suppliers and therefore a tourism supply chain was structured.

There was also a view that a typical tourism chain consists of 4 components: *tourism supplier, tour operator, travel agent and customer*, and they are in a single- link chain. Finally, a chain in tourism industry can be defined as the following:

"A chain of tourism industry comprises the suppliers of all the goods and services that go into the delivery of tourism products to consumers."

[4]Cooper et al. (1997), in Song, H. Tourism Supply Chain Management (2012)
[5]UNWTO (1975), in Song, H. Tourism Supply Chain Management (2012)

Due to heterogeneity of tourism industry and the fact that tourism products are normally rooted in a specific territory and provided to tourists from a specific source market, they often vary according to destinations and source markets. Another definition of tourism supply chain was formulated as below:

"A tourism supply chain (TSC) can be defined as a network of tourism organizations supplying different components of tourism products/ services such as flights and accommodation for the distribution and marketing of the final tourism products at a specific tourism destination, and involves a wide range of participants in both the private and public sectors."

The supply chain concept tries to explain how different businesses enter into contractual relationships to supply services, products and goods, and how these goods are assembled into products at different points in the supply chain.

The goals of tourism supply chain management are similar to the supply chain management of manufacturing industry: to reduce overall supply chain cost and to maximize profits. However, as tourism products are service and experience- oriented, tourism supply chain management are also projecting its goals in improving the service quality, shortening response time and building good business relationships. These goals are fabricated within strong coordination in the chain.

Suppliers of Tour Business

Suppliers in tourism business vary accordingly the variety of products and services, including the types of tourism products, or vacations and grades or markets of particular vacations from basic and budget to high-end or luxurious ones. Some types of vacations have a wider range of suppliers, while some do not. One- day free and easy package, for example has a simple supply chain, which incorporates only a tour operator and/ or travel agent and customers. However, at destination level, as tourists will finally engage at places and in different ranges of activities, tourism supply chain will need to be discussed inclusively of factors at tourist destinations.

What components in tourism do consumers consume? Pre-trip consumption, during-trip consumption, and post-trip consumption, illustrated in Figure 1

At first, it is important to think what consumers in tourism industry consume. At the pre- tip stage, once they have chosen a destination and products, before they make a decision, they need travel information, reflecting the information search stage. This helps in the step of making a decision. So the supply of this stage could be those related with the provision of information, with the development of information and communication technology, including tourism retailer (e.g. a retail agent, a direct selling company or an internet-based seller such as www.expedia.co.uk). The development of ICT facilitates

efficient and effective information sharing among tourism supply chain members. Moreover, consumers once make a decision will need to book various components for their holiday. Those who provide booking engine of transport and accommodation start to play the role in the supply chain. Many time consumers also inquire travel agent or tour operator to arrange a vacation for them. With high ICT advancement, individual consumers can become independent travelers as it is easier today to arrange their own vacation.

In the supply chain, tour operator enters into contractual relationships with tourism suppliers such as airlines (in a case, larger tour operators may also own their own charter or schedule airline), hotel operators and suppliers of associated services such as airport transfers. These suppliers, in turn, contract suppliers who service their business needs: in-flight caterers, airline leasing companies, airport terminal services (i.e. check-in services, baggage handling, flight controllers, customer service agents for visitors and those with special needs, such as the disabled)[6].

At the during- trip stage, consumers consume more components, and this is the stage of high significance, due to its linkage with the quality of holiday experience, satisfaction and repeated visit. Arriving at the destination, tourists need to deal with airport activities (i.e. ground service). At this stage, destination management plays its role. It is the superstructure that requires national level development, with the chain of airline industry and related public collaboration. Then, tourists will deal with staff sent from land operator or tourist guide. An example is the employment of tour representatives to meet guests (tourists) at the airport, welcome them into their accommodation. Along this moment, there may also be an opportunity for retail sales of additional services such as tours and events. The accommodation that has already been booked can also provide airport transfer service (in some cases tourists may use public transport service such as metered taxi, while many also use airport shuttle bus) to the accommodation in town.

During the trip of those who travel within the fixed program with tourist guide, driver and tourist guide are really important in the supply chain. Also, quality of tourist attractions both in tangible and intangible elements, and friendliness and helpfulness of local people are of concerned. Many organizations also get involved in the supply chain in relation to tourist spending and activities (e.g. attraction visit, dining, and souvenir shop). This stage is thus hugely dealing with a country's destination management. Particular images of the destination will be constructed in the mind of tourists at this stage, through their real experiences. Therefore, it can be concluded that the principal elements of the tourism industry included accommodation establishments, attractions (including activities), transportation, public and private sector organizations and associated services.

[6]The Supply of Tourism- Routledge, retrieved from http://cw.routledge.com/textbooks/9780080969329 /data/Further-web-reading.pdf

THE CUSTOMER JOURNEY	PRE-JOURNEY PLANNING		TRAVEL ----Touring ----- in transit -----	DESTINATION(S)	RETURN HOME
STAGE IN THE VISITOR JOURNEY	LOOK	BOOK	TRAVEL	STAY	KEEP IN TOUCH
VISITOR INFORMATION NEEDS AND SOURCES – OPPORTUNITIES FOR THE TOURISM INDUSTRY TO ENGAGE WITH TOURISTS DURING THE CUSTOMER JOURNEY	• Destinations to visit • Key influences: - word of mouth - media - tourist board websites - travel agents and tour operator brochures and websites • Online travel guides (e.g. Lonely Planet) • TripAdvisor and consumer websites	• Internet • Travel agents - virtual - high street locations - call centres	• Information on airports/travel to • Car hire • Tourist board websites and offices • Government sources (consulates) • Options for touring/activities in destination	• What to do in the destination to be obtained via: - TICs - websites - leaflets/brochures - local service providers - hotel concierges - travel guides and online sources (mobile devices)	• Information to encourage a repeat visit: - e-newsletter - direct mail - brochures - advertising - special events - special offers and new products

Figure 1 Customer Journey

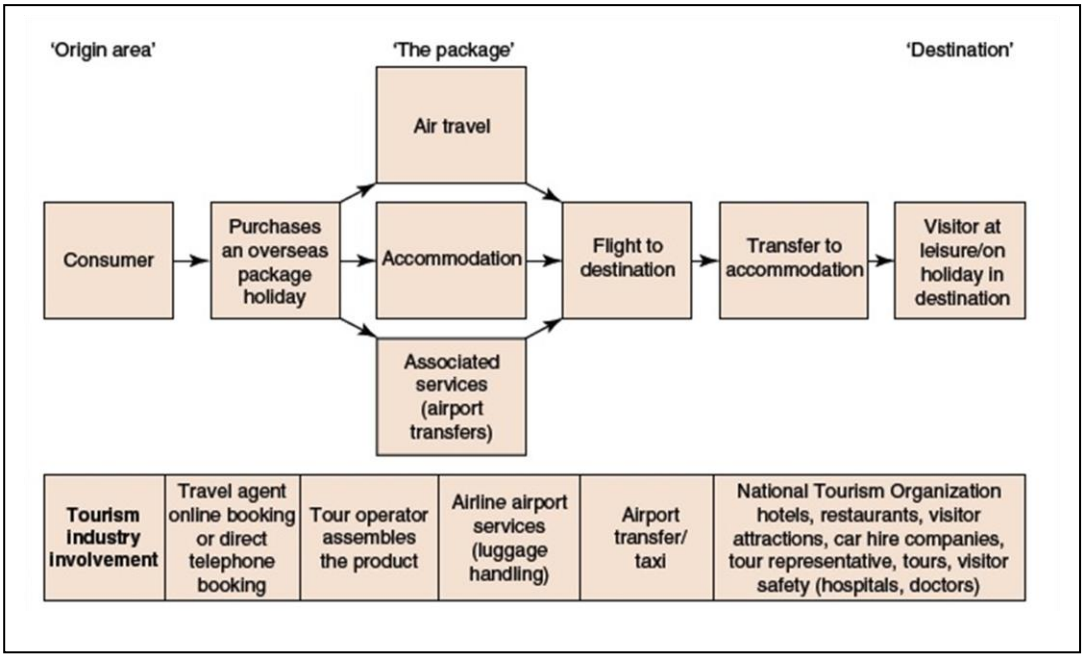


Figure 2: Typical Tourism Supply Chain

The case of transport

Transport is the most critical element in the promotion of the growth of domestic and international tourism. At a simple level, transport links the tourist from the origin area with the destination area. It enables the tourist (the holidaymaker, business traveller and other categories of traveller) to consume the products and experiences they have purchased, because it links the supply chain together. Figure 3 below illustrates the all-embracing role of transport to:

- Facilitate the tourist trip to the destination
- Enable tourist travel within the destination.

In addition, transport may be an attraction in its own right (e.g. a cruise ship or a trip on the Orient Express). Tourists who 'tour' by road may use public transport or private transport (e.g. the car) to experience a variety of destinations. Increasingly, the transport sector is entering into strategic alliances (i.e. formal business partnerships) where different operators will seek to offer seamless transport experience for travellers, recognizing the selling opportunity. For example, if the tour operator can sell not only a holiday but also airport transfers, car hire and tours from approved partners with whom they have entered into a strategic alliance, then, their profit-ability is increased. This can be achieved through commissions from selling partners' products and is evident in much of the web-based marketing by low-cost airlines as well as through airlines cooperating rather than competing.

Source: http://cw.routledge.com/textbooks/9780080969329/data/Further-web-reading.pdf

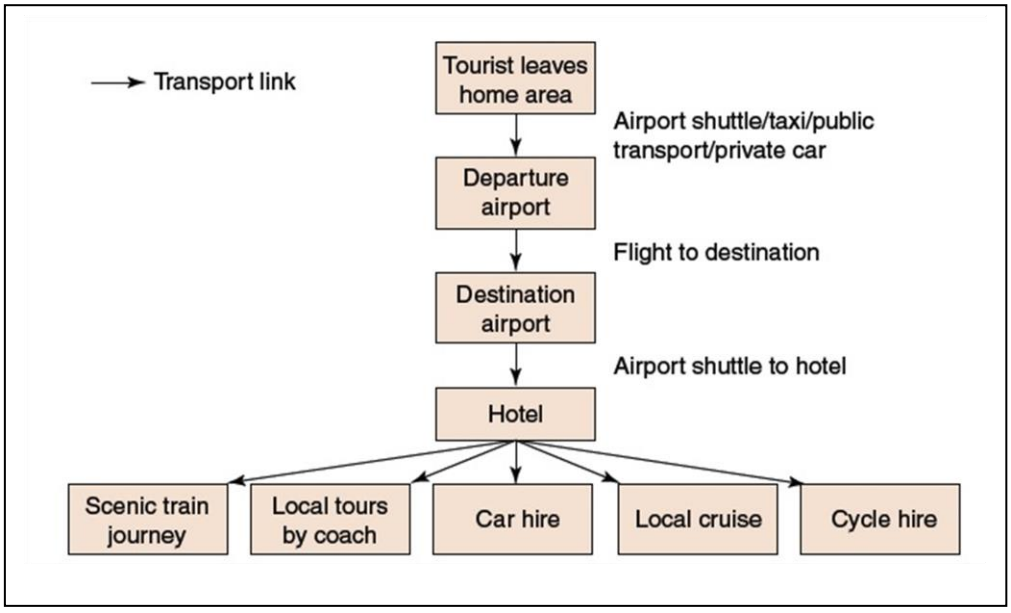


Figure 3

The case of retailed business in the tourism supply chain

The private sector is also responsible for tourist services and facilities of course, and dominates the restaurant sector as well as provision of services used by tourists and non-tourists alike, such as retailing. In Europe, much of the activity in the restaurant sector is dominated by small businesses, many being family-run and employing fewer than ten people. In contrast, retailing is often dominated by chains and retail multiples in major tourist cities. In China, retail growth of 14 per cent occurred in 2004, much of which is attributed to 'leisure shopping'. In 2003, China had 236 shopping malls and by 2004 this reached 400, illustrating the scale of this growth and demand which has continued to grow. Shanghai, which was the host of the 2010 Expo (expecting to attract 70 million visitors), developed a multilingual digital map to link shopping and tourism together; this illustrates the synergy that exists between each activity. The infrastructure development for the Expo was expected to cost US$3 billion but was expected to lever US$6 billion in revenue. There is similar investment in retail infrastructure. Hong Kong International Airport's new terminal is an example of this, demonstrating the scale of leisure spending by the 85,000 travellers who use the facility each day (as well as the 36,000 meeters/greeters welcoming visitors and returning travellers). On average, departing international visitors spend three hours in the terminal ('dwell time') creating many opportunities for retailing. This illustrates the potential of linking tourism with business activity and the implications for managing the supply of tourism.

Adjusted from The Supply of Tourism- Routledge, retrieved from:
http://cw.routledge.com/textbooks/9780080969329/data/Further-web-reading.pdf

Today, what many travel suppliers are recognizing is the growth in e- commerce which is necessary to respond to increasingly changing demand of consumers in tourism, which will include:

- A gradual reduction in the length of main holidays;
- A rise in the number of additional (second and third holidays);
- Increasing demand for activity holidays;
- Greater flexibility among consumers willing to book last-minute holidays, seat-only sales and more short breaks; and
- The rise of self-packaging of products online ('dynamic packaging').

These trends in consumer demand illustrate that the supply of tourism products and services requires highly refined management tools within the tourism sector if its members are to respond to changes and opportunities[7].

[7]ibid

4. Importance and role of logistics

Importance of logistics

Logistics is the one important function in business today. Marketing, manufacturing or carrying out of any projects cannot succeed without logistics support. For companies, 10 per cent to 35 per cent of gross sales are logistics cost (i.e. logistics cost of U.S.A has increased since 1980 for 451 billion US Dollar or 16.1% of the total GDP.), depending on business, geography and weight/value ratio. Logistics is comparatively a new term, but not the operation. Logistics has existed since the beginning of civilization. Raw material and finished products had always to be moved, even though on a small scale. Things began to change with the advance in transportation. Population has moved from rural to urban areas and to business centers. No longer did people live near production centers. No longer did production take place near residence centers. The geographical distance between the production point and consumption point increased. And logistics gained importance.

Another factor has come into play recently that makes logistics very important. Since the early 1990's, the business scene has changed. The globalization, the free market and the competition has required that the customer gets the right material, at the right time, at the right point and in the right condition at the lowest cost.

Role of logistics

Effective and "Just-In-Time logistics management can reduce the inventory or carrying cost. This is because production of some types of products does not need to store high amount of raw materials in the inventory. However, for production of some products such as agricultural products (raw materials by seasons), companies/ manufacturers require to have adequate amount of raw materials for producing products, in order to ensure that they have enough raw materials for the production in a particular period of time, and to make sure that there is no shortage of raw materials. After the production, companies will need to stock high amount of finished products in the warehouses in different regions. And when the finished products need to be distributed, we can see that transport (part of logistics) plays big role. Besides, manufacturing today have raw materials and parts from different parts of the world both within the country and from other countries. Therefore, companies today have higher logistics cost. For service industry, logistics cost is lower than manufacture industry, because it has lower amount of raw materials inventory. Most inventories are equipment for office uses. For transport cost in service industry, even though it is not as high as that of manufacture industry, we cannot deny that transport cost of service industry comes from transporting of goods to be used in different elements of service provision such as beds for accommodation business, kitchen ware for restaurant business and others more.

Then, we can say that logistics plays a big role in managing supply chain. It helps move activities of supply chain. Moreover, logistics can be supporter when businesses have activities that can promote goods-- this increases buying and selling activities. Furthermore, in terms of economics of production:

(1) In terms of production, logistics supports in transforming raw materials into finished products with utility. This is called the value added to production.
(2) In terms of marketing, logistics supports as marketing tool to help consumers possess and use products.
(3) In terms of logistics, it is to transport products in the right time (the time in which consumers want products), and to the right place (the place where there are people who want to use products). This can be explained in 4 types of utility:
    1) *Form utility*: value added to products in the production process, manufacturing process, or assembly process, such as raw materials brought into production process to transform into finished products that have utility for consumers. Logistics comes into play when finished goods/ products are transported from factories and delivered to distribution centers or warehouses before redistributing to retailers to wholesalers, or delivered directly to consumers in different places. Then, products will be distributed based on amount of products required by consumers (we call this as being demand driven).
    2) *Place utility*: logistics provides place utility by transporting (by different modes such as train/tram, air, water and land), goods from point of production, or from locations where supply is higher than demand, to point of consumption or locations where there still is demand for particular goods. By this, we can say that logistics adds value to product by expanding markets, both economic market and physical markets. These markets will have more products for their consumers. In economics terms, it is called "place utility".
    3) *Time utility*: managing inventory of products and services to be ready for selling is not just readiness for selling at places where there are demands. In many cases, products must be ready anytime demand appears. This means that any time consumers want products, they must get them fast and easily, and products must be ready for use. Logistics provides time utility by providing inventories and having warehouse or distribution centers that store products, and managing to transport goods in time required by retailers or wholesalers that order products. This usually happens when retailers or wholesalers have promotion activities to increase sales, which is the time that they need more products. Today, consumers also want faster order process, making lower amount of inventories in the warehouses, thus logistics (transportation) has a big role in moving inventories in time.
    4) *Possession utility:* this utility happens from marketing efforts that relate with sales promotion. Sales promotion is both direct and indirect effort to persuade people to want and buy products, in order to possess products. This role of logistic relates with creating wants/ demand to possess products, whereas time and place utilities can happen in the context that there is already demand. Marketing effort that can create demand depends on effective logistics in time and place utilities. To make it easier, logistics provides possession utility by making the last step which is to deliver

products to consumers completely and correctly. We call this “order fulfillment”, meaning that logistics acts its role in ordering process (computerized service process) to make consumers fulfilled with their order, receive and possess products they have ordered.

Learning Activities and Medias

- Introducing with some videos.
- Lecture and discussion
- Assignment: study a supply chain of a product (focusing on tangible product, first) and write in paper, or draw in picture that illustrates the supply chain.

Lecture Note

Course Title: TRM 3305 Logistics for Tourism Management

Credits: 3(3-0-6)

Lecturer: Dr. Siripen Yiamjanya

Program: Tourism Management

Unit 2: Introduction to Logistics Elements and Principles

Topic

- Concept and principles of logistics and supply chain management
- Elements of logistics management

Objectives

After the completion of this unit, students should be able to:

- Explain the concept of logistics management.
- Recall the principles of logistics management.
- Explain the concept of supply chain management.
- Point out common share of the logistics and supply chain concepts.
- State the elements involved in the analysis of supply chain network, and imply this in tourism activity.
- Describe the link or interaction within the elements of logistics management (process of logistics management).
- Demonstrates idea how to apply the elements of logistics management in tourism product production.

1. Concept and principles of logistics and supply chain management

1.1 The concept of logistics management

Logistics is a broad concept. "It is part of the supply chain process that plans, implement, and control the efficient, effective flow and storage of goods, services and related information from the point-of-origin to the point-of-consumption in order to meet consumers' requirement." From this explanation we can see that logistics has its role in every part of business supply chain and those firms/ companies which involve in that supply chain must manage their own logistics with effectiveness and efficiency for the mutual benefits of the whole supply chain.

Logistics comprises activities that have interaction. This means that an activity will have effect on another. For example, a reduction of cost of an activity may cause an increase in a cost of another activity (or other activities), and make the whole logistics less effective.

The interaction can be drawn into the figure below that illustrates the elements of logistics management. Elements of logistics management include the following:

(1) Input factors (natural and production resources, human resource, financial resource, and information resource)

(2) Operational management (planning, operating, and monitoring)

(3) Logistics process from producers to consumers (raw materials, materials during production/ manufacturing, and finished products)

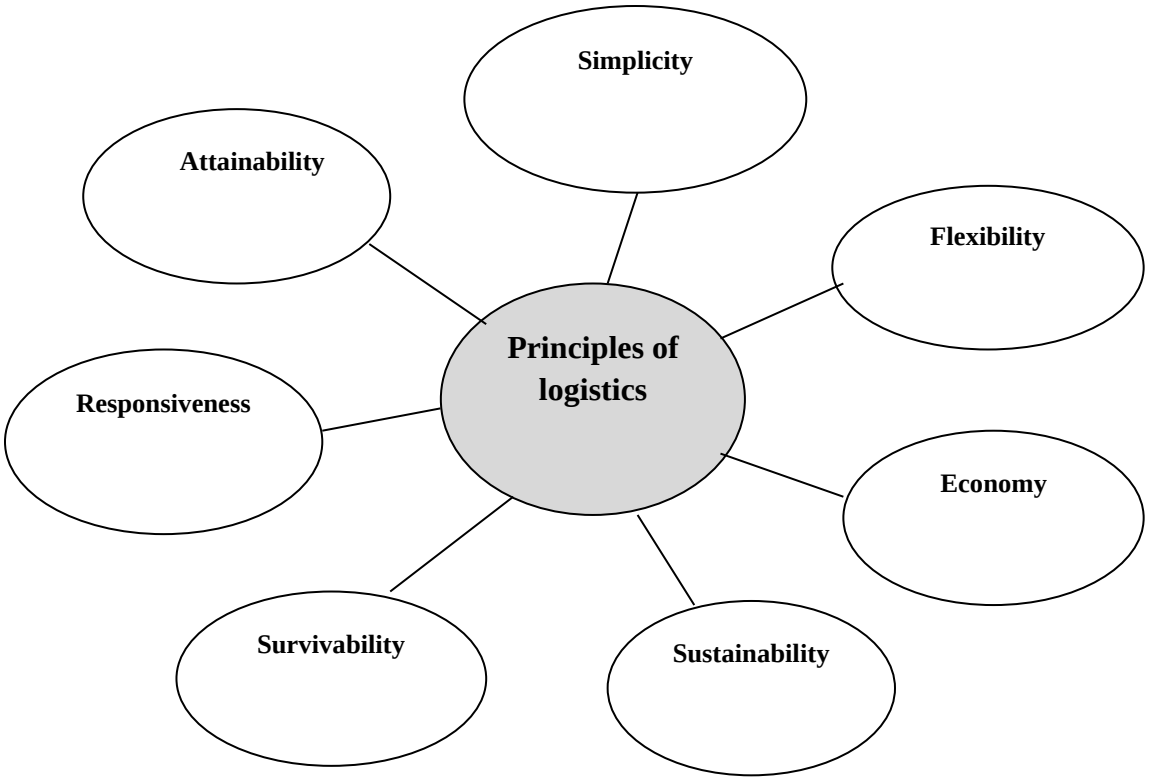
(4) Main logistics activities including inbound logistics and outbound logistics

- *Inbound logistics* concerns material management. It mainly supports production. Related tasks include forecasting of raw material demands, procurement of raw materials, planning for demands of raw materials, production planning, management of raw materials for production, management for movement of raw materials, management of materials inventory, and packaging.
- *Outbound logistics* deals with physical distribution management. It responds needs of selling and marketing. The main duties include management of product inventory, management of moving products in warehouses (dealing with inventory system), packing of products before distributing to points of consumption (point of consumers), product inventory control, planning for product distribution, purchase order processing, transporting products to customers (from distribution centres to wholesalers or retailers), and customer service management.

(5) Outcomes(competitive advantages in the market, effectiveness of time and space uses, effectiveness of products transportation to end consumers, and assets or values)

1.2 Principles of logistics

Principles of logistics can be demonstrated in the figure below.



(1) Responsiveness: Right support in the right place at the right time
(2) Attainability: Ability to provide the minimum essential supplies and services required to begin operating of production
(3) Simplicity: Avoidance of complexity and enhancement of efficiency in both the planning and implementing or carrying out of logistics operations
(4) Flexibility: Ability to adapt logistics structures and procedures to changing situations, missions, and concepts of operations. Logistics plans and operations must be flexible to achieve both responsiveness and economy.
(5) Economy: Provision of support at the least cost
(6) Sustainability: Ability to maintain and continue logistics support to all suppliers throughout the area of operations for the duration of the mission. Consideration of the most difficult tasks may be done in order to respond the most difficult problems that can occur during logistics support. This will ensure that logistics support to all suppliers can be continued.
(7) Survivability: Capacity of the organization to overcome when it faces potential destruction. Organization must include a plan for protecting or securing logistic

installations (systems/ mechanism) with provisions for reinforcement (back up) and dismiss support.

> ***"Responsiveness" is the primary principle***
>
> The five "rights" - - - the simplest definition of "logistics"
>
> Supply the right product at the right place at the right time in the right condition for the right cost to the customer.

1.3 The concept of supply chain management

The concept of supply chain is based upon the integration of business process throughout the supply chain, which needs to be done in order to create *(1) product flow; (2) storage; (3) information flow; and (4) fund flow (financial flow) from the origin to the end of consumption with efficiency and effectiveness.* The supply chain management concept says that it manages the link of these flows together, while increasing the product value to end consumers and other stakeholders (i.e. suppliers) in the supply chain.

Normally, the analysis of supply chain network covers the analysis of or looking into the following:

(1) *Plant location*: in tourism, it can be about location of travel companies, location of destination, which is more geographical concern.

(2) *Warehouse network*: in manufacturing industry, warehouse network is the point that connects between factory and consumers. It is the place to store finished products that are from factories and they are classified in accordance with customers' inquiries or orders. Warehouse is also the point of transit/ transfer of products to consumers (in manufacturing industry, it is called "cross- docking). This point also provides relevant services such as making products ready for sale or floor- ready merchandise, or final assembly

(3) *Other nodes*: node is the point that functions similar to warehouse but it can be other types. It is where products may stop (hours or overnight) there in order to run some process before moving on or transfer to destinations. For example, products may need to be moved from one transport mode to another mode, or there are some official document procedures to do for those products before moving on. These nodes can be, for example, port, railway station, airport, and custom.

(4) *Supply chain network*: supply chain network involves several firms or companies or organizations in the chain that are important to the focal firmin terms of strategies, production operation and marketing. It is that the management of supply chain network aims to create more values and to respond consumers' desires/ to satisfy them. The

management of supply chain network is therefore about managing relationship between focal firm and its partners, supply chain process, and link of information chain. *Supply chain network includes supplier networks and distribution networks*.

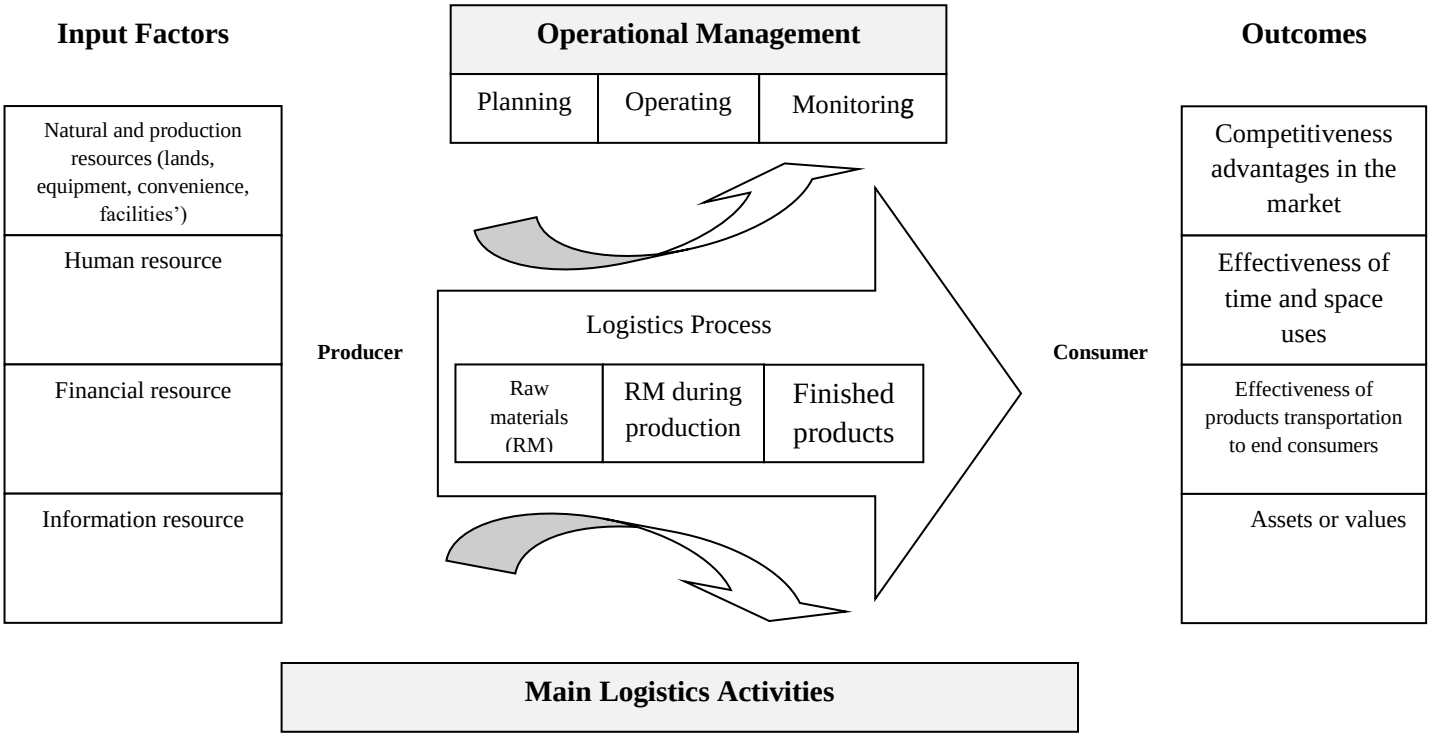
(5) *Products flow*: product flow includes inbound flow and outbound flow. Inbound flow is the flow of raw materials into production and outbound flow is the flow of finished product out to customers (those who order products to be sold again) and end consumers (those who purchase products for use) based on their orders.

(6) *Informational system and communication*: as market network, demand network and business process today covers areas all around a country or the world. The logistics and supply chain management is therefore complicated. Production and marketing management requires fact, responsive and accuracy. Human labor is not enough, but it needs software (s) to be utilized throughout the process of all linked activities.

(7) *Third party logistics service providers*: to design supply chain, it needs analysis, which can be done either by in- house or outsource providers. Many companies decide to manage only activities that are their core competency. For the rest, the company may decide to hire other companies to do, if the company sees that it will be more effective and reduce cost (we call this "outsourcing").

2. Elements of logistics management

The figure below illustrates the elements of logistics management.



Inbound Logistics	Outbound Logistics
• Forecasting of raw material demands • Procurement of raw materials • Planning for demands of raw materials • Production planning • Management of raw materials for production • Management for movement of raw materials • Management of materials inventory • Packaging	• Management of product inventory • Management of moving products in warehouses (dealing with inventory system) • Packing of products before distributing to points of consumption (point of consumers) • Product inventory control • Planning for product distribution • Purchase order processing • Transporting products to customers (from distribution centres to wholesalers or retailers • Customer service management

Learning Activities and Medias

- Introducing with some VDOs.
  (1) Introduction to Supply Chain Management, Transportation
  https://www.youtube.com/watch?v=Umk3G13aBhY
  (2) A Behind the Scenes Look at Starbucks Global Supply Chain
  https://www.youtube.com/watch?v=ElYNhGbOTOQ
  (3) Coca Cola Supply Chain
  https://www.youtube.com/watch?v=UBSOiHUctrY
- Lecture and discussion
- Class activity: In group, let's brainstorm to match the concept of supply chain management and the elements of logistics management with the service/ tourism 8 marketing mix.
- **Task at home no. 2:** group assignment (presentation): In group, you are assigned to work on a type of transport mode: *Road / Rail / Marine / Air / Canal and River*. Then, research and study about its history of development, roles in the past and present to the world, and prepare a power point presentation next class. Pictures are needed.

Lecture Note

Course Title: TRM 3305 Logistics for Tourism Management

Credits: 3(3-0-6)

Lecturer: Dr. Siripen Yiamjanya

Program: Tourism Management

Unit 3: Transports in the History

Topic

- Definition and objectives of transport
- Evolution and waves of transport development
- Transports from the 19th century onwards

Objectives

After the completion of this unit, students should be able to:

- Describe the definition of transport/ transportation.
- Recall briefly the evolution and waves of transport development.
- State the transportation periods categorized according to the energy technology innovation.
- Describe the cumulative waves of transport development.

Introduction

Transportation has played its significant role in human daily life since ancient days. Physical and mental needs of human such as the 4 factors for living foundation have forced human to find solutions. As human is a social living who need to travel and contact with other people within their own community and outside their community in order to exchange information, knowledge and trades. Therefore, human started to develop transport or vehicle modes that could help them move themselves and move things faster, and they have tried to improve the technology to be better until they could travel very faster in a longer distance. Trades between areas were improved. There have been exchanges of things like natural resources (raw materials), goods and services. Later, development of routes and other vehicles to transport goods are increasingly advanced. Many places become more easily accessible. Growth and progression of transportation has driven the world society to be more urbanized or bigger society. This means that people are more mobilized; they can move to different places to work, to travel or even to live. This has driven many towns to be bigger until they become cities. Higher population means higher level of needs, a diversity of needs of people, where, within a single town/ city/ country, resources are not enough to feed them. Transportation therefore plays essential role in transporting resources, materials and goods from other places to another.

1. Definition and Objectives of Transport

1.1 Definition

Transport is composed of one prefix and one word:

- *'Trans'* means across, beyond, crossing, on the other side, changing thoroughly
- *'Port'* means to hold, to carry, or a place one waterway with facilities for loading and unloading ships, a city or town on a waterway with such facilities, the waterfront district of a city, a port of entry.

Transportation means an act of moving things or animals from one point to another; moving of individuals from one point to another.

Besides, Business Dictionary gives a definition of *transportation* as below:

- Any device used to move an item from one location to another. Common forms of transportation include planes, trains, automobiles, and other two-wheel devices such as bikes or motorcycles.
- The process of shipping or moving an item from point A to point

(Source:http://www.businessdictionary.com/definition/transportation.html)

Wikipedia provides a definition of *transport* or *transportation* as a movement of people, animals and goods from one location to another. (Source: http://en.wikipedia.org/wiki/Transport)

Moreover, transportation is considered to be a movement done by demands and needs of human, and to provide benefits or utilities to those who involve, and to make them meet the objectives of transportation.

1.2 Objectives of Transport

Human created transportation with the main aim of the development of the three dimensions: society, economics and politics. The development of these three dimensions will enable a country to have positive changes in the following:

Social changes

(1) Transportation expands new communities. Due to the inner areas having high density of population, transport development enable human to move from these dense areas to other places in the outer part to settle. By this way, communities and towns are expanded and spreads of economic occur from the inner areas to the outer areas.

(2) Human is a social species, meaning that they need to meet, communicate and interact with others in order to share knowledge and experiences. The development of transport enables human to meet and interact with people at a further distance from their hometown. This is to promote relationship between communities.

(3) Transport helps spread the growth and development from the core zones to other more remote areas (periphery zones). This promotes equality of development and reduces development gap. For example, there are movements of technology and other ICT to regional areas.

(4) Transport improves quality and standard of community living because there is higher mobility among people of community and people outside community to travel or commute to each other. This is the mobility diffuse factor that supports dwellers to live better with positive changes and *acculturation*.

(5) Transport promotes education nationwide. This happens by people traveling outbound to receive education service or by transporting educational materials and equipments to people living in remote areas.

(6) Transport facilitates people to have relaxing time, and therefore to have good mood and to develop positive state of mind. This is because transport allows people to make a move or to travel to other places outside their routine and daily life and far from their home environment. This is the main benefit of transport for tourism industry.

Economic changes

(1) Transport allows trades of goods and services, including goods of 4 factors needed for human daily living, because transportation is used in distributing goods and services from production sources (producers) to consumption sources (consumers) or residential areas. Also, people use transport in commuting to other areas to find goods and services that are not available in their areas.
(2) People use transportation in traveling to work places, in order to work for earning money for living.
(3) Transportation creates utilities and adds values of goods and services. Without transportation, human could not move goods and services to places of demands (places there are people who need particular goods and services), and therefore, goods and services would not be any of value.
(4) Transportation creates price stability, because human can distribute goods to different places or markets in similar times. By this way, prices of goods, even at different places, are similar or the same.
(5) Transportation spreads income and reduces unemployment. People who cannot find a job in their areas can travel to other places, where there is a diversity of businesses and demands of labor, to find and get a job, both within a country and abroad.
(6) Transportation motivates huge productions or manufactures, which thus reduces the cost of production. Without transportation, each producer or manufacturer would produce goods only to cater people within their areas, as they could not distribute goods to other areas.

Political and governing or administrative changes

(1) Transportation facilitates improvement of a country's administration. Each government or state can govern its country under the good condition of transportation network that connects different parts of the country. Government can be decentralized by distributing governmental officers to administrate or governing in each remote area. For example, Egypt could be existing a hundred years because of having The Nile River as its main transport mode.
(2) Transportation promotes international relationship because leaders and population of each country can travel to the other countries to make relationship. Without good or well- developed transportation technology, it would be difficult to travel to make international relationship.
(3) Transportation is very useful when there are any (urgent) crises, disasters or political unrests. It facilitates governmental staff to move fast to charge, to control, or to solve problems with effective and timely manner.

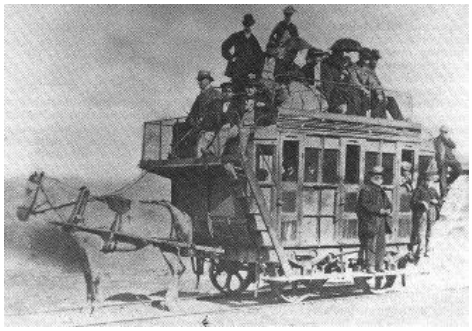
2. Evolution and waves of transport development

From the old time to the present day, transportation can be divided into 6 periods, based on the energy technology innovation created by human to propel or move vehicle:

2.1 The period of natural energy

This was the first period of transportation in which human had learned to use natural energy in move vehicles. Vehicles during this period were simple. Natural energy in this period can be divided into 2 main types:

- *Energy from nature* such as wind or airstream, water current/ flow. An example is ship driven by wind flow or water current
- *Energy from human or animals* (human or animal labor), which was used in the very early period of transport; human moved or moved things by use of human energy (muscle). Later they learned to use animals by putting things on the back of some kinds of animals such as horse, cow and elephant. After, they learned to use animals in drawing, dragging or pulling, by placing things on a plate tied with the animals, and later by creating a carriage with wheels (first wooden wheels, and later gas wheels), and animals drag the carriage.



2.2 The period of steam engines

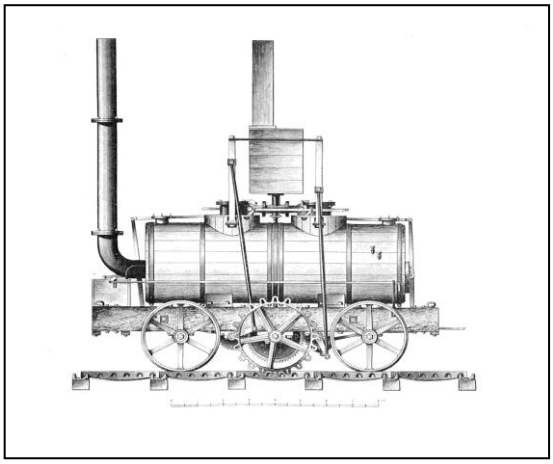
In the early time, human used wood and coals in boiling. Later they changed to use oil. Thomas Newcomen, a British man, was the first person who invented steam engine. Steam engines have been used in water or maritime transport which has ships as the vehicle, and land transport which has rail as the vehicle.

2.3 The period of electric motor

In this period, human was successful in inventing electric motor. Electric motors convert energy into mechanical motion that is used in driving vehicles. Electric motor can be used with small- sized vehicle, tram, and some types of trains. Some are called by the energy used such as electric train which is a train powered by electricity (for example: electric locomotive). Electric energy is considered an environmentally-friendly energy.

An Amtrak, electric locomotive pushing train, New Jersey

Locomotive train, India



Blenkinsop's rack locomotive, 1812 (British Railway Locomotives 1803-1853

2.4 The period of internal combustion engine

In this period, human invented internal combustion engine. The main energy used with this type of engine is fuel or gas, combusted to produce energy. There are 2 types of fuels used dependent on types of vehicles. Small- sized vehicles that do not need much energy in propelling, use Benzil, such as private car. For vehicles that nee higher amount of energy like truck or 10-wheel trailer *truck*, pick- up, or train, use Diesel. Combustion of the vehicles of this type leaves chemical substance; therefore, internal combustion engines cause air pollution, while some types of internal combustion engines cause noise pollution.

2.5 The period of jet engine

Jet engine is a product of higher technological advancement developed further from internal combustion engine. Jet engine has a very high propulsion (jet propulsion), making a vehicle that uses this type engine move very fast. At present, the only vehicle type that's jet engine is air transport mode, such as airplane.

2.6 The period of nuclear power

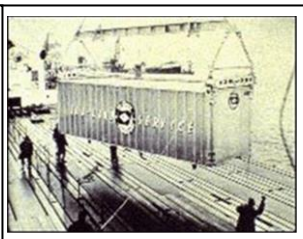
Nuclear power was developed from the knowledge of chemistry and physic sciences. It is categorized as a very high technology that costs very high investment and can have severe danger if there is no strong control of production and use. Because of this, nuclear power is normally restricted in laboratory uses for research benefit. There still is no use of nuclear power in transport services.

3. Transports from the 19th Century onwards

3.1 Transportation in the Fordist era (1920- 1970)

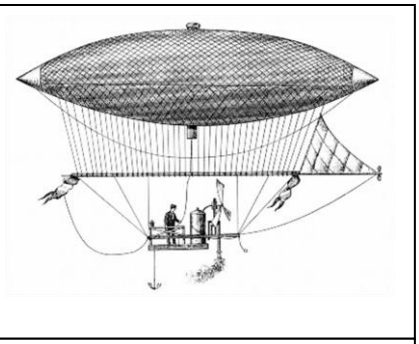
The Fordist era *(**Fordism**, named after Henry Ford, is a notion of a modern economic and social system based on an industrialized and standardized form of mass production)* was characterized by the adoption of the assembly line as the dominant form of industrial production, an innovation that benefited transportation substantially. The internal combustion engine, or four- stroke engine by Daimler (1889), which was a modified version of the Diesel engine (1885), together with the pneumatic tire (1885) by Dunlop made road vehicles operations faster and more comfortable. Compared with steam engines, internal combustion engines have a much higher efficiency and use a lighter fuel: petrol. Previously, petrol was perceived as an unwanted by- product of the oil refining process, which was obtaining kerosene for illumination. In this era, petrol became a convenient fuel. Initially, diesel engines were bulky, limiting their use to industrial and maritime propulsion. The internal combustion engine permitted an extended flexibility of movements with fast, inexpensive and door-to-door transport modes such as automobiles, buses and trucks.

Mass producing these vehicles changes considerably the industrial production system, notably by 1913 when Ford began the production of the Model T car using an assembly line. From 1913 to 1927, about 15 million Ford Model T cars were built, making it the second most produced case in history, behind the Volkwagen Beetle. The automobile became more comfortable and popular among consumers. The rapid diffusion of the automobile marked an increased demand for oil products and other raw materials such as steel and rubber.



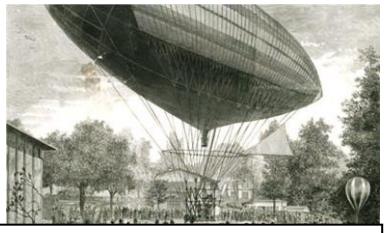
Containerization

Economies of scale also improved transportation in terms of capacity, which enabled low-cost bulk commodities such as minerals and grains to be moved over long distances. However, the process was slow to start because cargo ships require large amounts of labor to be loaded and unloaded. This informally imposed a limit of 10,000 deadweight tons to break- bulk cargo ships that remained in place until containerization began in the late 1950s. Still, the gradual growth of international trade and the Second World War motivated a building of ship (shipbuilding). The end of the war left an ample supply of military cargo ships (named Liberty Ships) which could be cheaply sued for commercial purposes and became heavily used in global trade until the 1960s. Oil tankers are a good example of the application of the principle of economies of scale to transport larger quantities of oil at a lower cost, especially in the postwar period when global demand surged. Maritime routes were thus expanded to include tanker routes, notably from the Middle East, the dominant global producer of oil. Because the distances were very long, larger tankers were produced to do oil trade in this long distance (for good economies of scale).



Hot air balloon (left) and air balloon to carry a basket containing people into the air (right).

In 1783, the first air balloon flight took place. However, because there was a lack of propulsion, no practical applications for air travel were realized until the twentieth century. The first propelled flight was made in 1903 by the Wright brothers and then an era of air transportation started. The initial air transport services were targeted at mail since it was a type of freight that could be easily transported and due to technical limitations in carrying capacity initially proved to be more profitable than transporting passengers. The first commercial air transport service between England and France began in 1919, but air transport suffered from limitations in terms of capacity and range. Several attempts were made at developing airship (dirigible) services, with the Atlantic crossed by a Zeppelin airship (dirigible) in 1924. During the 1920s and 1930s, there was the expansion of regional and national air transport services in Europe and the United States with mass produced propeller aircrafts such as Douglas DC-3.



Dirigible (ai

Zeppelin airship (dirigible) used to drop bombs in World War I

Through the first half of the twentieth century the Atlantic remained an important technical challenge for non- stop distance transportation modes since it linked large markets in Europe and North America. Both sides of the North Atlantic have substantial levels of economic activity to that a mode able to safely cross the North Atlantic non-stop would be a commercial success. The steamship was the first powered mode to set regular passenger services from the late 1830s, initially taking more than 10 days, but technical improvements reduced the transit time to about 6 days by the 1870s. By the time transatlantic liner services started to be abandoned in the 1950s, transit times were reduced to 4 days.

Propeller plane

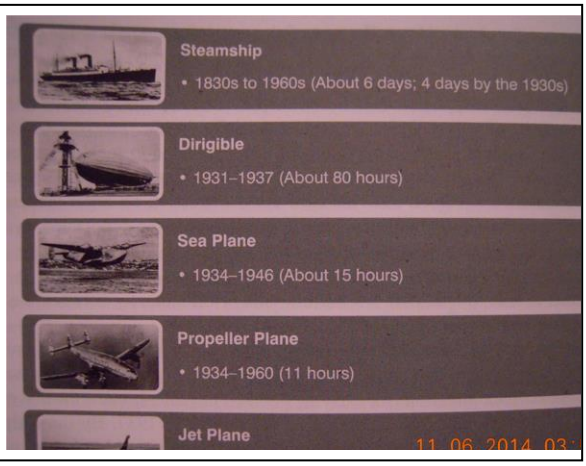
In the mid- 1930s, flying boat (propeller and sea plane) transatlantic services began. The sea plane initially had an advantage with its capacity to land on water but this advantage turned out to be an impediment as technical improvements were made to propeller planes, which left the sea plane with limited range. It was later abandoned as a long distance transport mode. The introduction of pressurized propeller planes in 1945 permitted the first regular transatlantic services with two technical stops (Gander, Newfoundland and Shannon, Ireland), and a flight time of about 11 hours.

Transatlantic liners

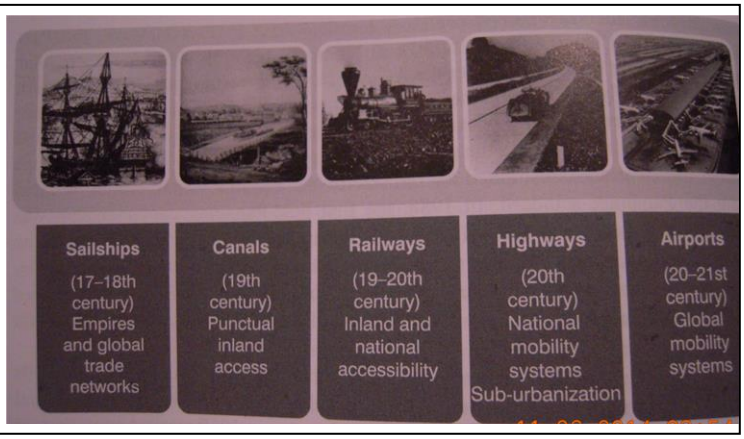
The postwar period was the turning point for air transportation as the range, capacity and speed of aircrafts increased as well as the average income of passengers. A growing number of people were thus able to afford the speed and convenience of air transportation. The application of the gas turbine principle led to the development of jet engines, and in 1952 marks the beginning of commercial jet services with the Comet. In 1958, the first successful commercial jet plane, the Boeing 707, entered in service and revolutionized international movements of passengers, marking the end of passenger transoceanic ships (liners) and replacing propeller planes for long distance services. The jet plane enabled the setting of time dependent trade

relations between producers across the world (such as electronics), and created a long-distance market for perishables (fruits and vegetables) and supported the development of mass tourism.

Two figures below show (1) powered transatlantic passenger modes and (2) cumulative waves of transport development.



Powered transatlantic passenger modes



Cumulative waves of transport development

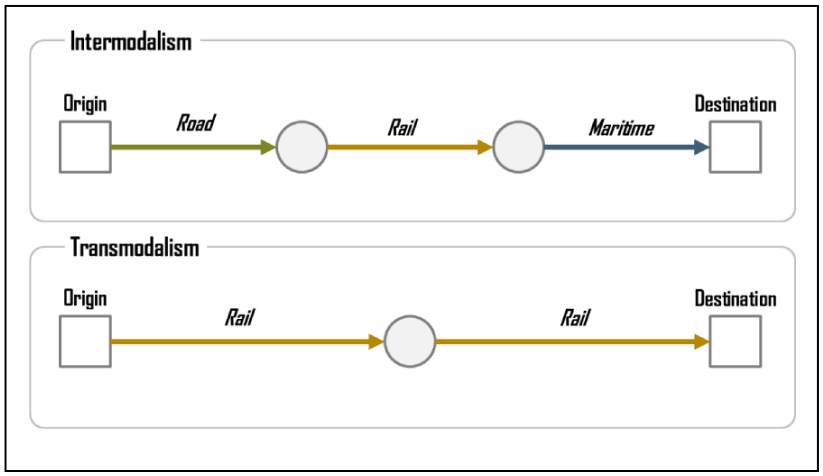
3.2 Cumulative waves of transport development

(1) First wave: Sail ships- The mastery of high sea navigation in the mid-sixteenth and early seventeenth centuries led to the gradual setting of a global trade network supported by the emergence of colonial empires. In the late nineteenth century, the steamship would mark the demise (downfall/ fall) of the sail ship, but not of commercial maritime shipping networks that continued to expand. Subsequently in the late twentieth century, the container ship would strengthen global commercial relations to an unparalleled level.

(2) Second wave: **Canals**- The early stages of the industrial revolution in the nineteenth century were accompanied by the setting of canals complementing existing rivers or linking them. They provided the first level of inland access with the economies of scale they were able to confer; such accessibility was highly punctual, where canals could be built. Although canal systems were historically set in other parts of the world (China being the most prominent example), it is in Western Europe and North America that their impacts on economic development were the most significant. Even if canal systems were supplemented by railways for many commercial relations, they remained active transport modes, particularly in Europe, China and North America.

(3) Third wave: **Railways**- The setting of rail systems in the second half of the nineteenth century permitted the first effective forms of inland accessibility and

alongside of cohesive national transport systems, although interconnecting different rail systems took time. At the beginning of the twentieth century, rail systems were the dominant mode supporting passengers and freight flows. Although their relative importance has declined with the setting of highways, railways are still up-to-date technology (never out-of- date) because there are high speed rail systems around the world as well as their conversion to inter-modalism (inter-modal system)



(Intermodal transportation involves the use of more than one mode of transport for a journey. Intermodal passenger transport can also be called mixed-mode commuting, involves using two or more modes of transportation in a journey. The goal of mixed-mode commuting is often to combine the strengths (and to balance the weaknesses) of various transportation options. A major goal of modern intermodal passenger transport is to reduce dependence on the automobile as the major mode of ground transportation and increase use of public transport.)

(4) Fourth wave: Highways- The diffusion of the internal combustion engine and the availability of cheap oil supplies permitted an effective setting of individual or small load (truckload) mobility (national mobility systems). This, however, could not take place without the construction of national highway systems, such as the Interstate in the United States. Another important impact of the highways was lower density forms of urbanization, namely suburbs (*this means that people started to move out of the inner zone (urban zone) to live in the outer zones called suburbs, due to easier traveling by roads (highways that link suburbs with inner densely dwelled zones) to travel from home (at suburbs) to work (at inner zone/ business district zones). This permitted a huge expansion of urbanization and population.)*

(5) Fifth wave: Airports- The introduction of jet services in the late 1950s permitted for the first time the setting of true global mobility systems where locations can be reached within hours. Airports became important nodes in the national and global systems of passenger flows as well as freight flows. *(Freight is (1) Goods*

carried by a vessel or vehicle, especially by a commercial carrier; cargo/ or (2) A burden; a load/ or (3) Commercial transportation of goods.)

Learning Activities and Medias

- Start Unit 4: introducing with some videos.
  - Blue Pullman
    https://www.youtube.com/watch?v=A1sTmFDRBgo
  - Bankhead Highway Auto-Based Tourist Travel
    https://www.youtube.com/watch?v=bL3759kfjoI

- Lecture and discussion
- Student presentation (10 marks): the students present the historical timeline of the selected type of transport mode. Then, the class activity is to make relationship or association between different transport/ travel modes with types of tourism and their potential as a tourism product.

Lecture Note

Course Title: TRM 3305 Logistics for Tourism Management

Credits: 3(3-0-6)

Lecturer: Dr. Siripen Yiamjanya

Program: Tourism Management

Unit 4: Concept of Transport

Topic

- Utility and effectiveness of transport
- Types of transportation modes
- Cycle of transport
- Components of transport

Objectives

After the completion of this unit, students should be able to:

- Describe the definition and objectives of transport.
- Describe influences of changes in different dimensions that drive human to invent and develop transportation.
- Indicate and explain the utilities of transportation.
- Explain how transportation can be measured for its effectiveness.
- Describe different types of transportation modes.
- Explain the life cycle of transport product and service.
- Explain characteristics of the components of transport.

1. Utility and Effectiveness Induced from Transport

1.1 Utility induced from transport

Utility means ability or qualification of any goods and services that can respond to needs or necessity of human at a particular time. Utility induced from transport therefore refers to ability or qualification of any goods and services that can respond to needs or necessity of human at particular time, by use of transport and related equipment or tools to carry goods and services from one place to another place at human demands.

Utility induced from transport can be divided into 4 types.

(1) Time utility: time utility happens when human uses transport in moving particular goods or services to consumers in a timely manner before those goods are damaged or rotten by time (especially fresh goods like vegetables and meat), or quality of goods decreases (some goods might be expired before reaching consumers).

(2) Place utility: place utility happens when human uses transport in carrying goods and services from places with no demand (or even low demands) to places with demands or higher demands. This is called place utility, which increases values and usefulness of those goods and services. For example, mobility of labor from Thailand to Saudi Arabia or other countries that need these labors.

(3) Form utility: form utility happens when human uses transport in carrying materials from one place to another place to be processed in production. The production can transform materials into new forms of goods. For example, woods are transported from a forest to a factory to make furniture and packaged wood for building houses. In terms of service, tangible materials can be carried into a place where service will be produced such as hotels and restaurants.

(4) Possessive utility: possessive utility happens when human uses transport in carrying goods and services from individual or groups of individuals to another individual or another groups of individuals. Goods and services are transferred or changed hand from one to another by different ways such as by trading, exchanging, or giving for free (charity/ donation). For example, Mr. A sells a truck of vegetables to Mr. B, and Mr. B needs to transport the truck of vegetables to his place. Another example is when people donate things to people who live in a place affected by a natural disaster, transport is utilized in carrying these donated things (which are formerly possessed by donors/ givers) to people in need (then they possess the donated things).

If we consider the above utilities, we can see that the first two utilities (time utility and place utility are directly involved in tourism industry. People use transport in mobilizing or traveling from home environment to unfamiliar environment to seek for tourism, leisure and recreation opportunities in order to receive different benefits from various types of tourist destinations. Moreover, transport reduces time spent in traveling, making traveling far away from home come true, even within limited time availability.

Form utility and possessive utility are not directly involved in tourism industry, as tourism products are services and experiences, which are intangible and lack of ownership (we cannot possess services even when we travel to the places where services take place-- we only experience services).

1.2 Effective of transport

Effectiveness of transport can be measured by the following:

(1) Speed: time spent in each transportation
(2) Economy: cost spent in transportation
(3) Safety: safety of travelers/ commuters, and safety of baggage/ luggage during transporting (traveling) and after.
(4) Punctuality: provision of transport service on time by scheduling and timetable, and ability to manage traveling to reach destinations on time.
(5) Frequency: frequency of transport services
(6) Certainty: certainty of transport services provided at different times
(7) Reliability: ability of transport services to make consumers feel confident in service standards
(8) Comfort: ability of transport services to make consumers feel comfortable while they are receiving transport services
(9) Convenience: levels of easiness (simplicity) and difficulty in traveling to use transport services

However, in order to measure the effectiveness of particular transport services, purposes of travel and surrounding factors are important. For example, while some people may use speed factor as their main criteria in making a decision to use particular transport due to their need to be in time in particular tasks or appointments, while some other may use economy factor as their main criteria due to the fact that the price is lower and they are not hurried.

2. Types of Transportation Modes

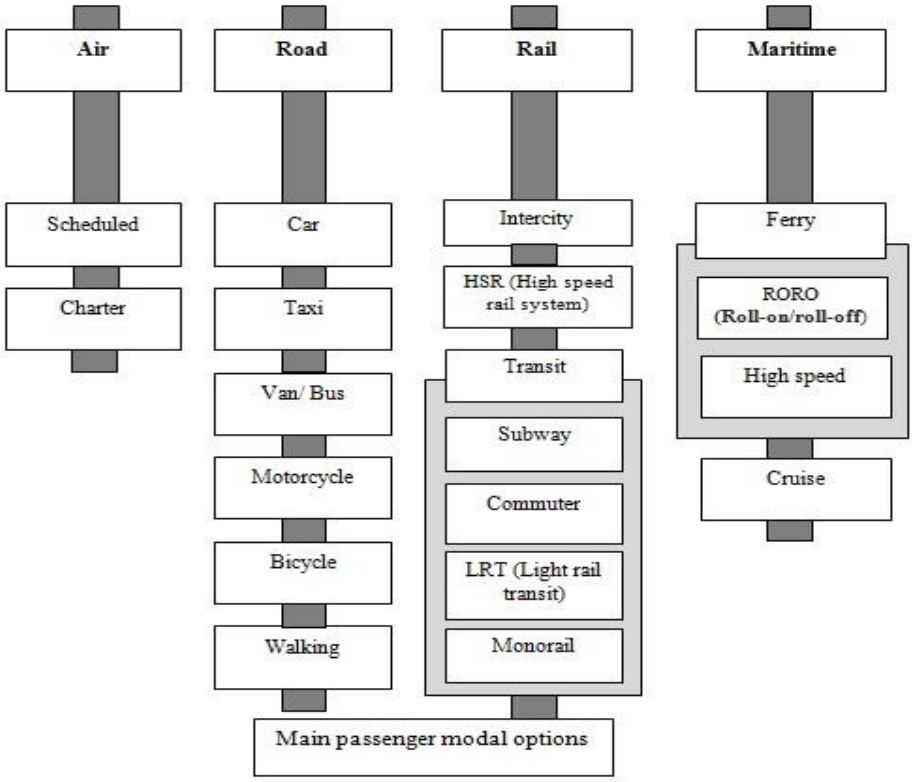
The history of transportation was reviewed from the start of the innovation of engines and parts that became the huge factor of transport's gradual growth and development, from the stage of introducing newly invented types of transport vehicles, to the development of transport modes such as roads, rails and airports. Different types of transportation have become fully operated as commercial passenger services rather

than only limiting to industrial or trading and military services. Until now, there are many corporate which operate transport services and therefore the industry becomes more competitive, especially in air and land (road) transports.

Transportation modes are an essential component of transport system since they are the means by which mobility is supported. A wide range of transport modes can be grouped into three broad categories based on the medium they use: land, water and air. Each mode has its own requirements and features, and is adapted to serve the specific demands of freight and passenger traffic. This gives rise to market differences in the ways the modes are deployed and utilized in different parts of the world. More recently, there is a trend towards integrating the modes through intermodality and linking the modes ever more closely into production and distribution activities. At the same time, however, passenger and freight activity is becoming increasing separated across most modes.

2.1 What is transport mode?

Transport modes are the means by which people and freight achieve mobility. They fall into one of three basic types, depending on over what surface they travel-- land (road, rail and pipeline), water (shipping) and air. Each mode is characterized by a set of technical, operational and commercial characteristics. The figure below shows different transport modes and their main passenger modal options.



2.2 Telecommunications

Telecommunications are a special case as they cover a grey area in terms of whether they can be considered a transport mode, because unlike true transportation, telecommunications often does not have physicality. Yet, they are structured as networks with a practically unlimited capacity with very low constraints, which may include the physiographic and oceanic masses that may impair the setting of cables (causes cables decline). They provide for the instantaneous movement of information (speed of light in theory). Wave transmissions often require substations, such as for cellular phone and wireless data networks, because of their limited coverage. Satellites often use a geostationary orbit which is getting crowded. High network costs and low distribution costs characterize many telecommunication networks, which are linked to the tertiary and quaternary sectors (stock markets, business-to-business information networks, etc.) Telecommunications can provide a substitution for personal movements in some economic sectors.

3. Life Cycle of Transport

When we talk about product life cycle, we are talking about these stages: exploration or introduction stage, development and growth stage, maturity stage, and decline stage. These 4 stages are generally referred to in most of products and services,

or of businesses. The cycle of transport goes the same way. There are 4 stages as follows:

(1) *Introduction stage:* it is the stage where particular transport service is brought to a market (new entrant), or there are new transport innovation, including equipment, tools, machines used in that transport. They all are new, young, simple, and therefore can be considered less safe and less effective (the innovation is newly developed, kind of pioneer). Besides, the cost is still high due to the fact that there are a few or no service providers that run this type of transport service (a few entrants due to high cost). This is the stage with the highest risk. Perhaps, only big investor (s) can survive.

(2) *Growth stage:* once there is a new product or service entering into the consumer market, it will gradually arouse consumption demand and attract consumers to use the service. The market will be livelier and more active (in terms of both demands and supplies) and the technology (equipment, machines) of this type of transport and related services will be developed to respond higher demands, consumers' safety and convenience.

(3) *Maturity stage:* transport product and service at this stage starts to stagnate and see its intended decline. Whereas transport companies have good and proper system and well- developed transport equipment and high safety, there also are more companies entering into the market, which makes the business more competitive. There are some co-operations between companies as well to survive. The government also has more active role in announcing law and regulations to control the business.

(4) *Declined stage:* because there are other alternative transport modes for passengers' choice, many existing companies that run old transport types may have lower revenue and profit. Passengers learn to use new kinds of transportations. The government seems to relieve the regulations, whereas transport companies or entrepreneurs have tried to create marketing campaigns to expand the market or to find new markets. Some companies may not be successful, facing low profits and see their decline.

The length of time during the life cycle of transport product and service is dependent on the following factors:

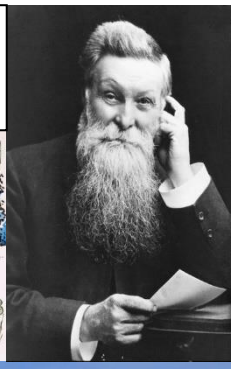
(1) *Technology*: from the history, it was proved that inventions of technological innovation have changed the world in various eras. For example, at a time in the history, human could create steam engine, that had moved the world a big leap in transportation of goods and human mobility at longer distance at a satisfactory speed. Later, internal combustion engine was invented successfully, which had changed the world transport history again as vehicles that used internal combustion engine were also created later. Human behavior of transport uses had

also changed accordingly; internal combustion engine vehicles became more popular than steam engine vehicles.

(2) *Innovation in transportation*: once there are other types of transportation invented that have higher effectiveness, the older transportation will be normally less popular, and sometimes they are no longer used. For example, after the World War II, the operations of commercial aircraft transportation had been started, which was the factor of decline in popularity and use of oceanic transport (i.e. oceanic liners)

(3) *Transport development/ improvement*: even though no new transport service is launched and an improvement for higher effectiveness has just been done, transportation life cycle can be affected. For example, during an earlier time in the history, the tyre (tire) was just an inflated tube of sheet rubber (ยางรถแบบตัน). Later, John Boyd Dunlop (1840- 1921) developed a pneumatic or inflatable tyre (tire) which is more flexible and rebounding (spring/ bounce back). The old type of tyre was therefore no longer used.

John Boyd Dunlop: Tyre Inventor



The cycle of transportation can also be discussed in terms of particular transportations that are operating commercial passenger service. The discussion can be linked with the economics of transportation. As mentioned earlier that effective of transportation both in demand and supply sides, should take into account the nine items of effectiveness in order to create each utility for passengers. Level of competitiveness of transport services can cause how long and how effective particular transport services are, and then affect the life cycle.

Transportations that have various operators or providers will be more competitive than transportations that have a few operators. High competiveness of the business is good somehow because the price of service will be lower; however, the business is urged to reach maturity stage sooner. If a transportation service has only one operator, or we call “monopoly” in the industry, this only one operator may take advantage of consumers (because it is the only one in the industry), which leads to unfairness to passengers in terms of quantity, quality and price of the service. Contrarily, having the monopoly can be good as well, because the business can enjoy the *economies of scale* as this transport service provider has high revenue due to the fact that all passengers need to use its service. Then the cost per head is reduced. This capital will also be invested in the service development. By this, the monopoly

transport service will enjoy longer stage of growth. The examples of monopoly transportation service in Thailand are BTS and MRT.

4. Components of Transport

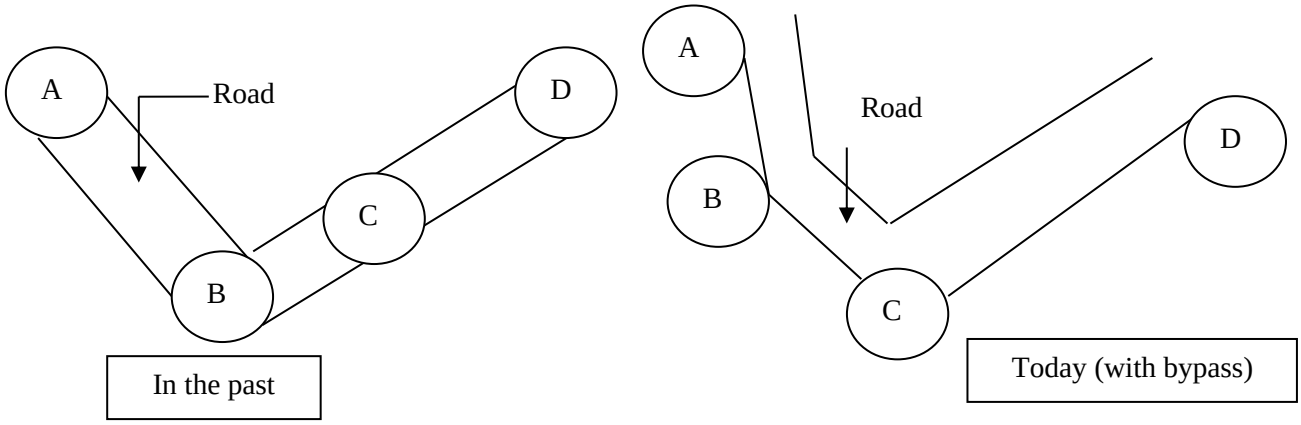
Each type of transport modes has its own special components. Mainly, transport components include the following:

4.1 Way/route

Way for transportation refers to 3 main types: natural way, artificial way and natural artificially improve way.

(1) *Natural way:* natural way is based on the topography of the earth, which does not need any adaptation or development of human such as rivers and seas for water transport, sky for air transport. Sky has no physical element and human use sky without any fee. However, in reality, because of political and governmental issue, each country has a determination of territorial *sky. Normally nowadays, each country's commercial airlines can fly across other countries' territorial sky, but* will need permission if they want to land at other countries' airport to drop passengers or goods. Sky as natural way of air transportation needs air traffic control in its operation.

(2) *Artificial way:* artificial way is the type developed or invented by human and high technology is required. It is for use, normally of land transportation such as road, rail. Canal can also be made by human for canal transport as well. For roads, during the earlier time, roads were made across the inner zone of cities (city centers). When cities were more developed, this could affect the city centers' traffic as there were more vehicles used. Later, in order to disperse the traffic, more roads such as highways that link regional cities, were built at the outer zones, that help passengers not necessary to drive pass the city centers (in case they want to go somewhere else, not the city centers). We call this *bypass road*. For rail, there also are many types of rail such as monorail (or single line), double line rail, tramway.



(3) *Natural artificially improved way:* this type of way refers to the way of transport that is natural but adjusted to be used more effectively. It is adjusted in order to respond human's particular purposes of transportation. For example, there are two rivers that are normally used for water transport. Later, human dig canals to connect with both rivers. This allows human to transport along the river and they can also be able to access into village through the canals. People who ride a boat along the rivers can continue to the village. We can also see that there are some rivers (inland waterway) are not appropriate enough for transport, as they may have many curves or the rivers are not deep enough to use as waterway. So human adjust the rivers to control the flow of the rivers for human benefits.

4.2 Terminal (Passenger terminal)

Terminal can be defined as any facility where passengers and freight are assembled or dispersed. Both cannot travel individually, but in batches. Passengers have to go to bus terminals and airports first, where they are "assembled" in busloads or planeloads to reach their final destinations where they are dispersed. Examples of terminals are airport, bus terminal or bus station, port, railway station.

Terminals can be large or small. Bus station on street sides or ferry piers can also be considered a type of terminal but they are very much smaller. However, terminal is usually used with larger- size station with well- established system. A spot where passengers take a motorcycle taxi service in Thailand is not called a terminal. Sizes of terminals rely on the following factors:

(1)Extent of use

High number of passengers using a terminal during the day is a factor to consider building a terminal that can carry high number of passengers. Extent of use also includes length of time spent by passengers or freight to stay at the terminal waiting for transport modal options or carrying units (i.e. bus, flight, train, ferry) and length of time spent in steps before taking off the vehicle, such as buying, checking, or loading process (such as at an airport). Airport, for example, is built at large size to facilitate these steps.

(2) Size of carrying units or vehicles

A terminal for buses is of course smaller than a terminal for airplanes. A terminal for ships or cruises or called as a port is also very large due to large space required in handling and transshipping

freight/loading. An airport has many functions that explain why it needs large area. It has very large runway for planes to take off and to land, and large apron for parking, and other none- passenger function zones (not related to passengers) such as airside and landside zones. Actually, passenger terminal of airport is within a hall that composes of functions and services that passengers uses before traveling such as check- in counter, passport control, baggage claim, duty free, lobby waiting before entering gate and get on a plane, restaurants and other services.

(3) Length of the journey

Length of the journey is another factor that influences a provision of a range of terminal facilities. Passengers who will travel a long distance such as traveling across a continent or between countries use air and sea transport (flight/ cruise), will carry many bags (baggage/ luggage), and they are accompanied by many relatives and friends who send them and say good bye. So, passengers normally have many activities to do at that terminal. Contrarily, for an example of a small port for ferry travel, passengers travel a short distance by a ferry have no or a very few activities to do before traveling, and do not have much luggage carried. So, they just buy a ticket, wait awhile, get on a ferry, and then the ferry moves.

4.3 Carrying unit and other equipment

Carrying units refer to equipment used in facilitating transportation; they are equipment that are used in moving passengers, animals, objects from one point to another point such as car, truck, airplane, ferry, train and cabin, pipe. As well, if it is about goods transport, equipment used in cargo work and container cranes that load goods from one point to another point, can be in this category.

4.4 Motive Power

Carrying units could not move without motive power. Motive power is energy used in driving carrying unit. Motive power can be divided into 2 types:

(1) *Natural power*: human use this power without any mechanic to change or transform the power into energy.

(2) *Artificially- produced power*: for this type, human use technology in transforming natural power into energy and use it.

Human use both types of power in moving vehicles. Natural power can be seen clearly by water and air transportation, especially in the past where vehicles or carrying units were moved by the power of sea waves and wind (such as hot

air balloon, ship). However, for air transport today, natural power (air) has no real benefit to move airplanes above and fly, but airplanes are moved by engine created by human. For artificially- produced power, it plays a big role in land transport. It was from the beginning where boiling water produced steam and steam was used in making a train move was used, until today the motive power is produced from an internal combustion engine. Besides, electric battery is also used in land transport for small- size car. This type of power is produced by the change of chemical power into electric power in the battery. Moreover, solar power (sunlight) is also converted into electricity to be used in land transport as well, even though it is still not widely used.

4.5 Operator

Operators in transportation can be categorized into 2 types.

(1) *Public operator (s):* it refers to transport operated by government, which can also be in the form of state (government) enterprise (s) (there can be more than enterprise, operating under the control and financial support of government in case operations may not make profit in some fiscal years). The reason why government is usually an operator of national transportation is to prevent immediate cancellation or stop of transport service in case it is operated by private sector (due to profitability and commercial factors). However, a weakness of public control and management is a bureaucratic and red-tape problem.

(2) *Private operator (s):* generally, they are operators enfranchised by government to run transport business. This type of operators normally has disadvantages compared to public or state enterprise operators, because they are not really protected by the government and do not receive much benefits from the government. However, an advantage of this type is its speed and effectiveness in management and providing transport service.

Both types of transportation operators, however, require registering to have business license and to respect the laws and regulations issued by the government in operating transport services in many issues such as pricing or changing of prices.

Learning Activities and Medias

- Introduction to the unit
- *Group discussion:* students work in group to discuss the following:
  - How does transportation play its role in human life?
  - What are the utilities induced from transportation?

- Discuss good points and weak points of different passenger terminals of different transport modes in Thailand and share to friends of other groups.

- *Self- observation, discussion and presentation (in pair) (next class):*
  - Students are assigned to observe the components of transport in different modes (focusing here on road/ rail/ and river or canal) at different areas/ zones of Bangkok.
  - After the observation, please prepare the power point presentation (with pictures) for the following:
    (1) Describe first about physical characters and location of the selected transport mode and area.
    (2) Discuss the effectiveness of the components of that transport mode of the selected area.
    (3) Also indicate what are good and bad points about it.

Lecture Note

Course Title: TRM 3305 Logistics for Tourism Management

Credits: 3(3-0-6)

Lecturer: Dr. Siripen Yiamjanya

Program: Tourism Management

Unit 5: Concept of Transport and Urban Space

Topic

- Definition of spatial management
- Transportation and spatial structure
- Spatial management in tourism

Objectives

After the completion of this unit, students should be able to:

- Define spatiality in transportation and factors that shape.
- Indicate the major components of the spatiality imprint of urban transportation.
- Describe how public transportation system enhances accessibility and mobility of residents and visitors living in urban area.
- Point out how accessibility and mobility induced by transportation affects economic at accessible locations, as well as changes of land forms and land uses.
- Discuss some problems or limitation of urban transportation and people living in or traveling to.
- Discuss how spatial management in relation with transportation is significant in the management and development of tourist attractions.

1. Definition of Spatial Management (Space Management)

The meaning of the word '*spatial*' involves a nature of '*space*'. The word '*spatiality*' can be explained as *the effect that space has on actions, interactions, entities, concepts, and theories*. Physical spatiality can also be symbolic, as human also uses spaces they are in or presence to symbolize their identities. It is used to show social power through occupying of spaces and power expansion[8]. Spatiality concept is applied in many sciences such as human geography and consumer culture.

Spatial planning can be another word used interchangeably with spatial management, yet is more oriented to or a synonym of '*urban planning*'. Spatial planning mainly includes land use, urban, regional, transport and environmental planning[9]. Spatial planning therefore takes place on local, regional, national and international levels, and usually is integrated in comprehensive urban and community plan.

2. Transportation and Spatial Structure

2.1 Definition of spatiality in transportation

The word "spatial" means involving a nature of space.

The word "spatiality" can be explained as the effect that space has on actions, interactions, entities, concepts, and theories. Physical spatiality can also be symbolic, as human also uses spaces they are in or presence to symbolize their identities. It is used to show social power through occupying of spaces and power expansion (*Source: http://www.answers.com/topic/spatiality-1*). Spatiality concept is applied in many sciences such as human geography and consumer culture.

Spatiality in transportation is the concept that talks about site and situation, which are fundamental to geography and to transportation. While the site refers to the geographical characteristics of a specific location, its situation concerns its relationships in regard to other locations. Therefore, it means that all locations are related to one another but situation is not a stable attribute, because transportation developments change levels of accessibility, and as a result, change the relations between locations. The development of a location reflects the cumulative relationships between transport infrastructure, economic activities and the built- environment. The following factors are particularly important in shaping the spatial structure:

(1) *Costs:* the spatial distribution of activities is related to factors of distance. Decision to invest any businesses or distribution of businesses to any areas also rely on transportation costs, as investors who want to invest a business to an area must concern about how easy its prospective customers will travel to. This concerns a development of transport. A disperse of businesses is therefore related with transport accessibility.

(2) *Accessibility:* all locations have a level of accessibility, but some are more accessible than others. Thus, because of transportation, some locations are perceived as more

[8]http://www.answers.com/topic/spatiality-1

[9] https://en.wikipedia.org/wiki/Spatial_planning

valuable than others. And once an area is perceived more valuable because of its higher accessibility, the structure of its space will be changed such as more people, more businesses, and more interactions resulted from public social gatherings.

(3) *Agglomeration* (*synonym: compilation, collection, accumulation*): there is a tendency for activities to agglomerate to take advantage of the value of specific locations. The more valuable a location, the more likely agglomeration will take place. The organization of activities is essentially hierarchical, resulting from the relationships between agglomeration and accessibility at the local, regional and global levels. This means that transportation is a factor that shapes a level (higher or lower) of agglomeration of activities, which accordingly affects economic of an area. Vice versa, when there is a consideration of building a public transport, important cities or cities with high passenger traffic or high passenger density to other core areas are usually considered, as it concerns the economic impact around the areas and along the corridor where the transport transits and stops.

Many contemporary transportation networks are inherited from the past, especially transportation infrastructures. Even if it has been over two hundred years new technologies have revolutionized transportation in terms of speed, capacity and efficiency, the spatial structure of many networks has not much changed. This is because of the two major factors:

(1) *Physical attributes*: natural conditions can be modified and adapted to suit human uses, but some natural conditions have very difficult constraint, especially for land transportation. It is therefore not surprising to find that most networks still are those along the easiest (least cost) paths, such as valleys and plains (rather than mountains and islands). Considerations that affected road construction a few hundred years ago are still in force today.

(2) *Historical considerations*: new infrastructures generally reinforce historical patterns of exchange, notably at the regional level. For instance, the current highway network of France has mainly followed the patterns set by the national roads network built early in the twentieth century. This network was established over the Royal roads network, itself mainly following roads built by the Romans (*Rodrigue, J.P., 2013*). At the urban level, the pattern of streets if often inherited from an older pattern, which itself many have been influenced by the pre- existing rural structure (lot pattern and rural roads).

Using the case of Bangkok, even though it is called a metropolis, it is still facing with a limitation of spaces, that affect its less capability to expand the number of roads for very high traffic today (18 million commutes/ ridership per day). So we can see that many roads in Bangkok cannot be expanded to respond drivers/ traffic today. Only 10% of the whole space in Bangkok is for road transport, comparing to Tokyo having 23% and New York 38%. This affects Bangkok become a metropolis that has a lower standard of being a metropolis with convenient travel. Moreover, most travelers use private car and many

others also have a high level of need for car ownership, whereas mass public transport (i.e. bus) is still operated with car drive lanes, and mass transit with rail system occupies only 3% of all transport modes in Bangkok due to the fact that the network is not competed yet and it lacks of planning to integrate with other transport modes (*source: http://203.155.220.230/info/NowBMA/frame.asp*).

When physical and historical considerations are at play, the introduction of new transport technology or the addition of new transport infrastructure may lead to a transformation of existing networks, as well as adding higher costs. Recent developments in transport systems such as container shipping, jumbo aircrafts and the extensive application of information technology to transport management have created a new transport environment and a new spatial structure (for example, if existing roads are improved and new lanes are expanded, this modification will also affect other transport such as rail transport, and hen new transport environment and spatial structure will be created- Once these improvements are completed, there will be changes of both environment and landscape, and patterns of human uses of land). These transport technologies and innovations have intensified global interactions and modified the relative location of places.

How is spatiality concept related with urban public transportation?

As mentioned earlier that an operation of public transport involves many things. An important issue to be brought here is impact which covers land use and economic impact.

Land use impact from having public transport networks

Urban space is a precious commodity and public transport utilizes it more efficiently than a car dominant society, allowing cities to be built more efficiently than if they were dependent on automobile transport. Cities with good urban planning usually have public transport planning as the core of their urban planning, because good urban planning forces cities to be built more efficiently in order to create efficient feeds into the stations and stops of public transport. *At the same time, good public transport will allow the creation of centers around the transport hubs, serving passengers' daily commercial needs and public services*.

2.2 The spatiality of urban transportation

The amount of urban land allocated to transportation is often correlated with the level of mobility. In the pre- automobile era, about 10% of the urban land was devoted to transportation which was simply roads for a predominantly pedestrian traffic. As the mobility of people and freight increased, a growing share of urban areas was allocated to transport and the infrastructure supporting it. Different cities or even different parts of a city are varied in terms of spatiality imprint of transportation. The major components of the spatiality imprint of urban transportation are:

- *Pedestrian areas*: refer to the amount of space devoted to walking. This space is often shared with roads as sidewalks may use between 10% and 20% of a road's right of way[10]. In central areas, pedestrian areas tend to use a greater share of the right of way and in some instances whole areas are reserved for pedestrians. However, in the context where motorized or automobile era, most pedestrian areas are for servicing people's access to transport modes such as parked automobiles.
- *Roads and parking areas*: refer to the amount of space devoted to road transportation, which has two states of activity: moving or parked. In a motorized city (city with high automobile travel dependency), on average 30% of the surface is devoted to roads while another 20% in required for off- street parking[11]. This implies for each car about 2 off-street and 2 on-street parking spaces. In North American cities, roads and parking lots account for between 30% and 60% of the total surface.

[10] Right of way is public throughway--a term first used to describe the right to travel unhindered, to access a route regardless of land ownership or any other legality Right of way is a term first used to describe the right to travel unhindered, to access a route regardless of land ownership or any other legality.

[11] Off street parking means vehicles are parked off the street itself. This will be usually controlled by commercial agencies itself

Off- street parking

On-street parking

- *Cycling areas*: in a disorganized form of urban, cycling simply shares access to pedestrian and road space. However, many attempts have been made to create spaces specifically for bicycles in urban areas, with reserved lanes and parking facilities. The Netherlands has been particularly proactive over this issue making biking paths part of the urban transport system: 27% of the total amount of commuting is by cycling.

Bicycle pool, Paris, France

The pooling of vehicles for short- term rent is an option that is increasingly being considered and applied. This photo shows the "Velib" (Velo Libre- - *freedom or liberty of wheel*) initiative in Paris, France, where bicycles are offered for rental for less than 24 hours, and ideally for less than 2 hours. The system is composed of 1,450 bicycle rental stations that have an average separation of 300 meters with a pool of 20,000 bicycles. The pooling system turned out to be very popular but also had some problems, notably a high level of vandalism and the need to reposition bicycles every night because of commuting patterns.

- *Transit systems*: many transit systems, such as buses and tramways, share road space with automobiles, which often impairs their respective efficiency. Attempts to mitigate congestion have resulted in the creation of road lanes reserved for buses either on a permanent or temporary (during rush hour) basis. Other transport systems such as subways and rail have their own infrastructures and, consequently, their own rights of way.
- *Transport terminals*: refer to the amount of space devoted to terminal facilities such as ports, airports, transit stations rail yards and distribution centers. Globalization has increased the mobility of people and freight, both in relative and absolute terms, and consequently the amount of urban space required to support those activities. Many major terminals are located in the peripheral areas of cities, which are the only locations where sufficient amounts of land are available (peripheral areas have more spaces for transport terminals that are usually large and thus require large areas, such as Suvannabhumi Airport,

Morchit Bus Terminal that are located outside the core area of Bangkok or the peripheral areas-- Samutprakan in case of the airport, and Jatujak District in case of the bus terminal).

Rail yards

The spatial importance of each transport mode varies according to a number of factors, and density as one of which is the most important. Further, each transport mode has unique performance and space consumption characteristics. The most relevant example is the automobile. It requires space to move around (roads) but it also spends 98% of its existence stationary in a parking space. Consequently, a significant amount of urban space must be allocated to accommodate the automobile, especially when it does not move and is thus economically and socially useless. In large urban agglomerations almost all the available street parking space in areas of average density and above is occupied throughout the day. At an agglomerate level, measures reveal a significant spatial imprint of road transportation among developed countries. In the United States, more land is thus used by the automobile than for housing. In Western Europe, roads account for between 15% and 20% of the urban surface while for developing countries this figure is about 10% (6% on average for Chinese cities but growing fast due to motorization- *motorization is a phenomena where cities have been increasingly supplied with motor- driven vehicles, or provided with automobiles*.

2.3 Land use impact from having public transport networks

Urban space is a precious commodity and public transport utilizes it more efficiently than a car dominant society, allowing cities to be built more efficiently than the situation when they were dependent on automobile transport. Cities with good urban planning usually have public transport planning as the core of their urban planning, because good urban planning forces cities to be built more efficiently in order to create efficient feeds into the stations and stops of public transport. *At the same time, good public transport will allow the creation of centers around the transport hubs, serving passengers' daily commercial needs and public services*.

2.4 Economics of public transport (mass transit)

Public transport allows transport at an economy of scale that is not available through private transport. Investment of public transport or mass transit is claimed to ultimately reduce

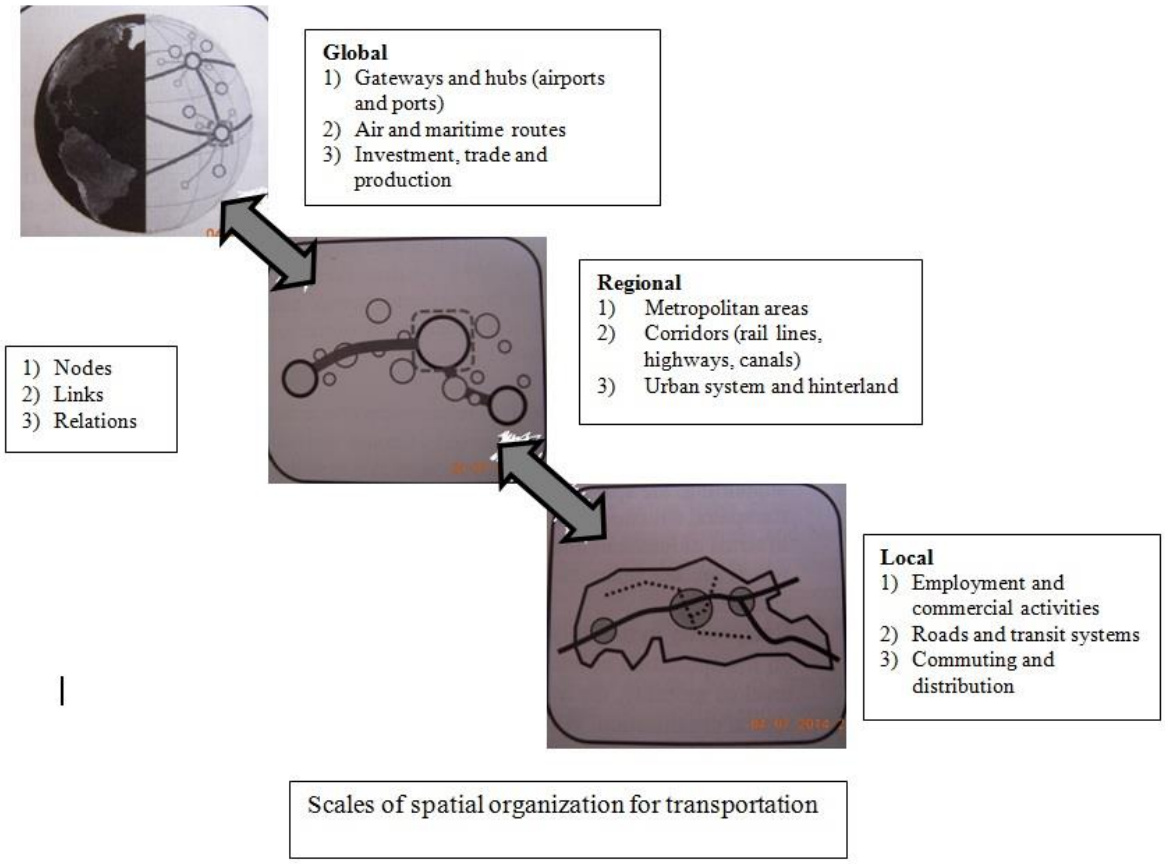
the total transport cost for the public. Time saved can also be significant, for both those who use public transport and those who still use private vehicle (because of high accessibility of public transport, people depend less on private car (automobile independent), especially those who cannot afford a car. Then, fewer cars can convert to less congestion). Transit-oriented development can both improve the usefulness and efficiency of the public transit system as well as result in increased business for commercial developments.

Because of the increased traffic and access to transit systems, putting in public transit frequently has a positive effect on real estate prices. Investment in public transport also has secondary positive effects on the local economy. Many businesses rely on access to a transit system, in particular in cities and countries where people's access to cars is less widespread (*less automobile dependent*). With public transport, especially in cities, businesses that require large amounts of people going to a same place, such as concert venues, sport stadium, airports, exhibition centers, etc., may not be able to accommodate a large number of cars, or businesses where people are not able to use a car (bars, hospitals, or industries in the tourism sector whose customers may not have their cars).

Given the case of attractions in Bangkok that are typically located in the inner and business districts whose space is not spacious enough to travel to by car (concerning inadequate car park area issue), or some exhibition or convention centers such as Queen Sirikit National Convention Center- even though it can accommodate large number of people, it cannot accommodate much of cars. So, with MRT access to the convention, people can travel to this convention easily without a dependency on car ride. Thus, imagine if there are more public transit access points and nodes linking to some other important places in city core zones and more outer areas; more diverse businesses will be emerging. Moreover, people can travel with equality, in particular, those who cannot afford a car.

Transit systems also have an effect on derived businesses: commercial websites and applications have been founded, such as transit apps (transitapp.com) that was created by a team of developers, designers, transit nerds and those who work in transit transportation units, which helps people in using mass transit systems. In some cities, such as London, products themed on the local transport system are a popular tourist souvenir. In Thailand, there also is this kind of application such KK Transit App.

At a global level, transportation supports and shapes economic specialization and productivity through international trade. The patterns of globalization have created a growth in spatial flows (trade, in particular) and increased interdependencies. Telecommunications, maritime transport and air transport support the majority of global flows, because telecommunications, maritime transport and air transport have high scale of service. The figure below shows the scales of spatial organization for transportation.



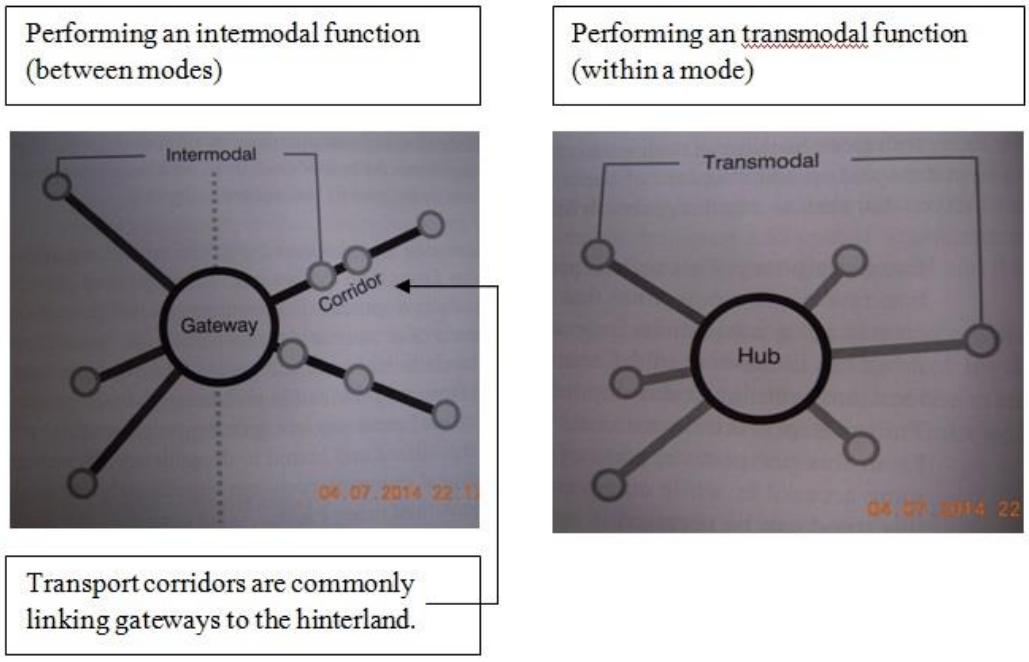
Remark:

Gateway: a location offering accessibility to a large system of circulation of freight and passengers. Gateways bring in the advantage of a favorable physical location such as highway junctions, the confluence (convergence) of rivers, a good port site, and have been the object of a significant accumulation of transport infrastructures such as terminals and their links. A gateway is commonly an origin, a destination and a point of transit. It generally commands the entrance to and the exit from its catchment area. In other words, it is a pivotal or central point for the entrance and the exit in a region, a country, or a continent and often requires intermodal transfers.

Hub: a central point for the collection, sorting, transshipments and distribution of goods for a particular area. This concept comes from a terms used in air transport for passengers as well as for freight and describes collection and distribution through a single point such as the “hub-and-spoke” concept.

Difference between gateway and hub

While a hub is a central location in a transport system with many inbound and outbound connections of the same mode, a gateway commonly implies a shift from one mode to the other (such as maritime/ land). A gateway is performing an intermodal function (between modes) while a hub is mostly trans-modal (within a mode). Transport corridors are commonly linking gateways to the hinterland. Gateways also tend to be most stable in time as they often have emerged at the convergence of inland transport systems while the importance of a hub can change.



2.5 Regional spatial organization

At a regional spatial organization level, regions are commonly organized along an interdependent set of cities that form what is often referred to as an urban system. The key spatial foundation of an urban system is based on a series of market areas, which are a function of the level of activity of each center in relation with the friction of distance. The spatial structure of most regions can be subdivided into three basic components:

- *A set of locations of specialized industries* such as manufacturing and mining (in some other countries), which tend to group into agglomerations according to location factors such as a raw materials, labor, markets, etc. They are often export-oriented industries from which a region derives the bulk of its basic growth.
- *A set of service industry locations*, including administration, finance, retail, wholesale and other similar services (including tourism), which tend to agglomerate in a system of central places (cities) providing optimal accessibility to labor or potential customers.

For example, in case of ASEAN Community, there are clusters of countries in accordance with business specialization resulted from level of accessibility due to transportation information and technology. A set of industrial countries include for example Indonesia, Vietnam, Laos, Cambodia and Myanmar, whereas a set of service countries include, for example, Singapore, Malaysia and Thailand. Even in the local level, clustering of districts also relate with transportation information and technology that provide accessibility and flows to each districts in each cluster, for example entertainment district, attraction district, employment district (i.e. industrial district, i.e. factories), central business district or CBD (service district, i.e. banking, governmental offices), residential district-- these clusters can be more obviously seen in western continent.

- A pattern of transport nodes and links, such as roads, railways, ports and airports, which services major centers of economic activity.

From the above explanation, it can be concluded that the components define the spatial order of a region that involves flows of people, freight and information. In conclusion, there is a relationship between transport, urban systems and regional development, the core/ periphery stages of development and the network expansion.

3. Spatial Management in Tourism

As we have learned that transportation technology development is one of the main factors that increases human and goods mobility. Higher level of mobility, as a result, increases degree of "space consumption" (use of spaces). The "space consumption" involves the "spatial management" (management of uses of space). Effective and productive use of spaces requires effective spatial management (management of use of space.

Human uses (or consumes) spaces for tourism, leisure and recreation purposes as well. Therefore, spatial management in tourism refers to the question of how we manage tourists/ visitors' uses of spaces (such as tourist attractions), or how to manage effect (s) results from different uses of spaces by tourists.

Advances in transport technology especially mass air travel and car travel (resulted from higher level of car ownership) have altered the patterns of tourist flows and made tourist travel more flexible and diffused. They have changed the physical and tourism landscapes to the world so far. Tourist movement patterns and flows are varied by different modes of transport (e.g. automobile and caravan). So, what we need to know for managing this includes a spatial analysis of tourist demand and supply in terms of using spaces and transports and impacts or effects of tourist movement and flow around or within tourist places/ areas (destinations). After that, we will find ways to do the following:

(1) Managing tourist flows and designing good traffic to reduce congestion and to increase their mobility, accessibility and safety
(2) Managing tourist's consumption of place/ space
(3) Developing and designing spaces (including 'honey pot'), facilities and signage for tourism purposes (both 'drama' and 'document' parts)
(4) Developing and designing tourist destination clusters
(5) Developing and designing tourist touring routes/ circuits
(6) Zoning and landscaping

In order to do the above (in the box), we need to know some factors in order to understand the spatial consequences that are associated with the uses of various modes of transports in getting to and traveling within the destination. These include:

(1) Distance travelled
(2) Amount of time involved in traveling
(3) Mode of transport used
(4) Tourist and recreational purposes/ preferences and motives
(5) Tourists' activities in relation with space uses

Why we have to concern about managing tourist space?

In tourism, we have one word, 'enclave'. The word refers to an area that is being constrainedly used and it causes a concentration of number of tourists and high density of tourist activities in one area. With lower degree of diffusion of tourists to other areas, many negative impacts occur such as degraded physical condition and facilities of areas heavily used, low income spread, lower diversity of tourism products and activities, lower satisfaction from visitation due to crowded environment, difficulty in managing flow, and others more. You may think about more of them.

Learning Activities and Medias

- Lecture
- Watch related VDOs
  - One of them is: https://www.youtube.com/watch?v=DqVwc6nrHjI (Watch the part: 9.11)
- Case study discussion and implication in tourism
  - The case studies: (1) *Self- drive tourism in South Africa with specific emphasis on caravanning*; (2) *Highways and byways: car- based tourism in the US* and; (3) *The influence of international tourists' travel patterns on rental car fleet management in New Zealand*. (Cases may be changed.)

Lecture Note

Course Title: TRM 3305 Logistics for Tourism Management

Credits: 3(3-0-6)

Lecturer: Dr. Siripen Yiamjanya

Program: Tourism Management

Unit 6: Logistics Management in Tourism Study

Topic

- Meaning of logistics management in tourism study
- Tourism logistics and tourism supply chain management link

Objectives

After the completion of this unit, students should be able to:

- Define logistics management in tourism study.
- Identify similarities and differences between industrial logistics and tourism logistics.
- Explain how transport, supply chain and logistics are linked and applied in tourism industry.
- Explain how logistics is a linkage between different tourist activities, tourism supply chain and tourist satisfaction.
- Discuss physical flow, information flow and financial flow in tourism logistics.
- Recall the measurements of tourism logistics and apply in selected case studies.

1. Meaning of Logistics Management in Tourism Study

1.1 Defining

If we remain the same meaning of industrial logistics, logistics management in tourism study or tourism logistics therefore involves the process of acquiring, producing and distributing (selling) in order to offer tourism product to tourists. Tourism logistics is not only a point of contact between tourists and tourism or service providers, but also covers:

> "Where, from who, and how tourism or service providers produce products for tourists, by using "what" raw materials, and how much they are facilitated in operating tourism business"

The process of managing tourists to travel, to travel along the journey, and to arrive to tourist destinations, with satisfaction is considered a topic of tourism logistics, *while it involves tourists' activities at destinations as well.*

In order to understand the transport and logistics applied in tourism industry, we need to know similarities and differences between *logistics in tourism production and logistics in industrial production, tourism logistics and tourism supply chain*, and *tourism logistics and tourist transport*.

2. Tourism Logistics and Tourism Supply Chain Management Link

2.1 Similarities of tourism logistics and production/ industrial logistics

- Tourism products need production as well, but tourism products are just intangible (service and experience- related). Therefore, tourism products also have production units, product activities and deliveries of products. (moment of truth)
- Tourism industry is also supported by other related production sectors (and supported by space management).
- Like industrial sector, the issue of "*flow*" is the main issue that needs solutions, *because tourists involve with 3 flows: physical flow (tourists travel to destinations and travel within), information flow (information is moved to tourists- or in other word, tourists need information and how information can be designed to reach tourists, online/ digitalized, and offline) and financial flow (money spent by tourists that go to service providers-- it concerns how to make the money flows effectively, fast and securely from tourists (payments) to service providers (receipts), as well as flow that facilitates tourists' higher spending*.
- The same goal is customers or tourists' satisfaction.
- Tourism product/ experience quality depends on tourists' willingness to pay, whereas tourists can be categorized into many classes/ groups (markets) who have different level of willingness to pay (logistics for marketing/ marketing segmentation and targeting—requiring data which is critical in logistics management)

2.2 Differences of tourism logistics and production/ industrial logistic

- As tourists are part of tourism experience production (tourists are "who create their experiences"), we may say that tourists could be the product as well. Therefore, if we talk about good transport, we need to talk about storage of goods as well. In the same way, if we see tourists as persons who are moved or who are mobilized by transport, storage can be considered as accommodation, spots for taking stops during long journey, or places to stop for having meals, and other tourism activities. *Therefore, the difference is that tourists are human, not like goods. Humans have emotions, moods, or feelings. This fact forces destination managers and service providers to manage tourists flow* to be smooth, fast, economy (value- to- money), safe and comfortable. So, the process of transport and storage (i.e. accommodation, stop spots) need to take this fact into account.
- In tourism, transportation does not play a role in moving tourism product (destinations) to tourists, but tourists must come to the destinations by means of transportation. *This means that transport does not move things from production point to market point, but transport moves the market to the production point*. That's why destination management is of high importance.
- Issues about illegal immigration, sickness and hospitalization during trips, food issue, toilettes or even gathering of people who share or do not share the same mindset or interests, are important to take into account. These issues reflect a more complexity of tourists as consumers, especially in the changing world.

Besides, even though tourism logistics is often discussed together with tourism supply chain, there are differences between them.

2.3 How is tourism logistics different from tourism supply chain management (TSCM)?

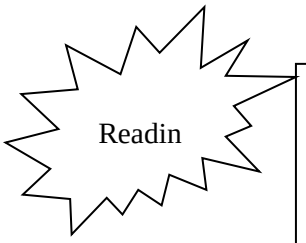
The concept of tourism supply chain can be described as *"all the goods and services that go into the delivery of tourism products to consumers. It includes all suppliers of goods and services whether or not they are directly contracted by tour operators or by their agents….. or suppliers (including accommodation providers: Tourism supply chains involves many components- not just accommodation, transport and excursions, but also bars and restaurants, handicrafts, food production, waste disposal, and the infrastructure that supports tourism in destinations."*

Many of these supply chains are managed by business- to- business relationships, using what is known as supply chain management (SCM) to improve the performance and output in the chain. Tourism supply chain is not only tourism distribution channel, but it is more specific to the management of tourism supply since it focuses on a series of approaches to help manage the supply chain to meet tourist needs, particularly the end product as well challenges such as seasonality. Above all better coordination of the supply

chains assists in improving relationships in the system as well as overall profitability and competitiveness. In the large tour operator sector, oligopolistic business[12] relationships mean that SCM can be used to assist in profitability, quality assurance and improvement of market share. This raises the issue of travel chains.

In relation to transportation, tourism supply chain management (TSCM) can highlight a question of how the transport element in the supply chain needs to be used as a basis for planning transport trips to reduce impacts. Moreover, supply chain management can be discussed for the service supply chains of various transport services as tourism and leisure product such as cruising. Well- coordinated supply chain of cruise trip product, for example, will ensure cruise ships to be efficiently supplied throughout their journeys. Above all SCM studies focus on meeting the customers' needs.

Now, let's read the following text and discuss whether it explains about tourism logistics or tourism supply chain management.



A group of tourists were moved to an island. The tourism logistics manager needed to co-ordinate with different units or organizations that concern different activities such as bus, ferry and accommodation. In the process, the bus came to take the tourists at the appointment point. Once the tourists got on the bus, a tourist guide started to introduce things to give the tourists the useful information and to entertain them in order not to make them get bored. When the bus arrived at a pier, the tourist guide led the tourists to get on a ferry that was waiting already. On- board, there were games for tourists' entertainment. During that time, the tourist guide also needed to contact with the accommodation that was already booked, to inform the accommodation staff to prepare for welcoming. Once the tourists arrived at the island, a staff was approaching to give a welcome, followed by welcome drinks when the tourists were led to move into the lobby of the accommodation.

In the box, it demonstrates tourism logistics. *Tourism logistics therefore involves co-ordinations between various activities in order to make help the tourist flow well from the start point to the end point without mistakes (flawless) and create the highest tourists' satisfaction.*

[12]Oligopoly is a market condition in which sellers are so few that the actions of any one of them will materially affect price and have a measurable impact on competitors.). In terms of economics, it is a market situation in which control over the supply of a commodity is held by a small number of producers each of whom is able to influence prices and thus directly affect the position of competitors.

Whereas the tourism supply chain management explains beyond the tourism logistics. It is here: Each activity described in the box has many things behind. *For example, for the "bus activity" there are many other details (activities) behind, that make the "bus activity" happen, such as procurement of buses and petrol, trainings of drivers, bus maintenance and taxation. Another example, for the "accommodation activity", other activities behind are such as food and drink preparation, laundry, waste management, recruitment and training of accommodation staff, and many others more.*These all activities reflect the duty of supply chain management, here, in the context of tourism industry.

2.4 How is tourism logistics different from tourist transport?

Tourist transport is the only activity in tourism logistics. It happens for a moment or a period of time, or a session, not for the whole trip. For example, bus or ferry transports are needed only for a few hours to move the tourists from the meeting point to the pier, and from the pier to the island and to the hotel. But once the tourists arrived at the hotel, there is no more transport activity. But, tourism logistics is a linkage between these activities (for example, activity A and B in figure 1). Moreover, tourism logistics manages tourism at points with no transport activity as well. For example, during the tourists' stay at the hotel, they need some signs and other guiding elements to lead them to different service units of the hotels, especially these are important when the hotel is big or has spacious area, as signs are part of tourism logistics that give information to tourists-- if the signs are clear, sufficient, understandable, and in both local language and English language, these signs are considered giving *tourists' information flow*. This is just one example.

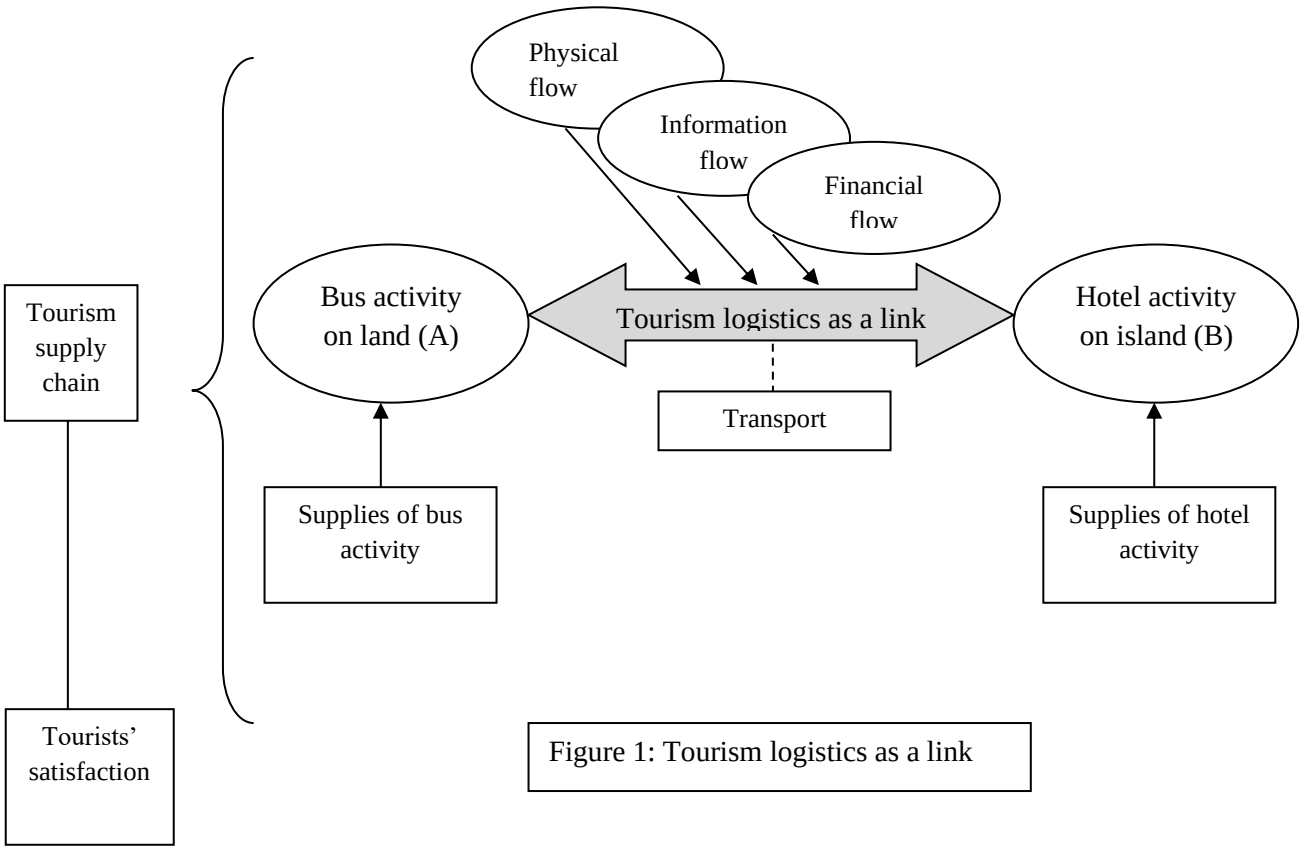


Figure 1: Tourism logistics as a link

A more complexity of tourism supply chain management: a case of cruise ship sector

In the cruise ship sector, vessels with over 4,000 passengers and almost 1,500 crew require supply chains able to service their supplies needs, carefully aligned to set itineraries and on-board tactical planning to ensure day-to-day operations run smoothly (see the figure 2). The supply chain management of cruise ship is "the timely coordination" of supply in anticipating the demand in support of support to service delivery excellence. These supply chains tend to be more reactive in their planning and management because of the time-compressed manner to which cruise ship schedules operate using very complex supply chains, where replenishment is a critical element to ensure the on- board experience, given the dependence upon food and beverages as a key element of the visitor experience.

A corporate quality control system may help to minimize customer dissatisfaction, particularly if the organization employs and trains staff to deal with the service encounter as an ongoing process, rather than viewing the services as a series of discrete (disconnected) elements. With a corporate quality control system, employees have to recognize the limit of their responsibilities and be able to refer customers to the relevant personnel who can be empowered to or who can deal with an interruption (problems) in the service requested.

All parties involved in the supply chain may make a contractual commitment to supply services to a certain standard to avoid weak links in the system (e.g. poor quality food and service on- board an aircraft) that can affect the tourist's impression of the entire service. All parties involved need to agree on a particular quality principle to implement throughout the supply chain, using performance indicators to ensure that the necessary standards are being reached.

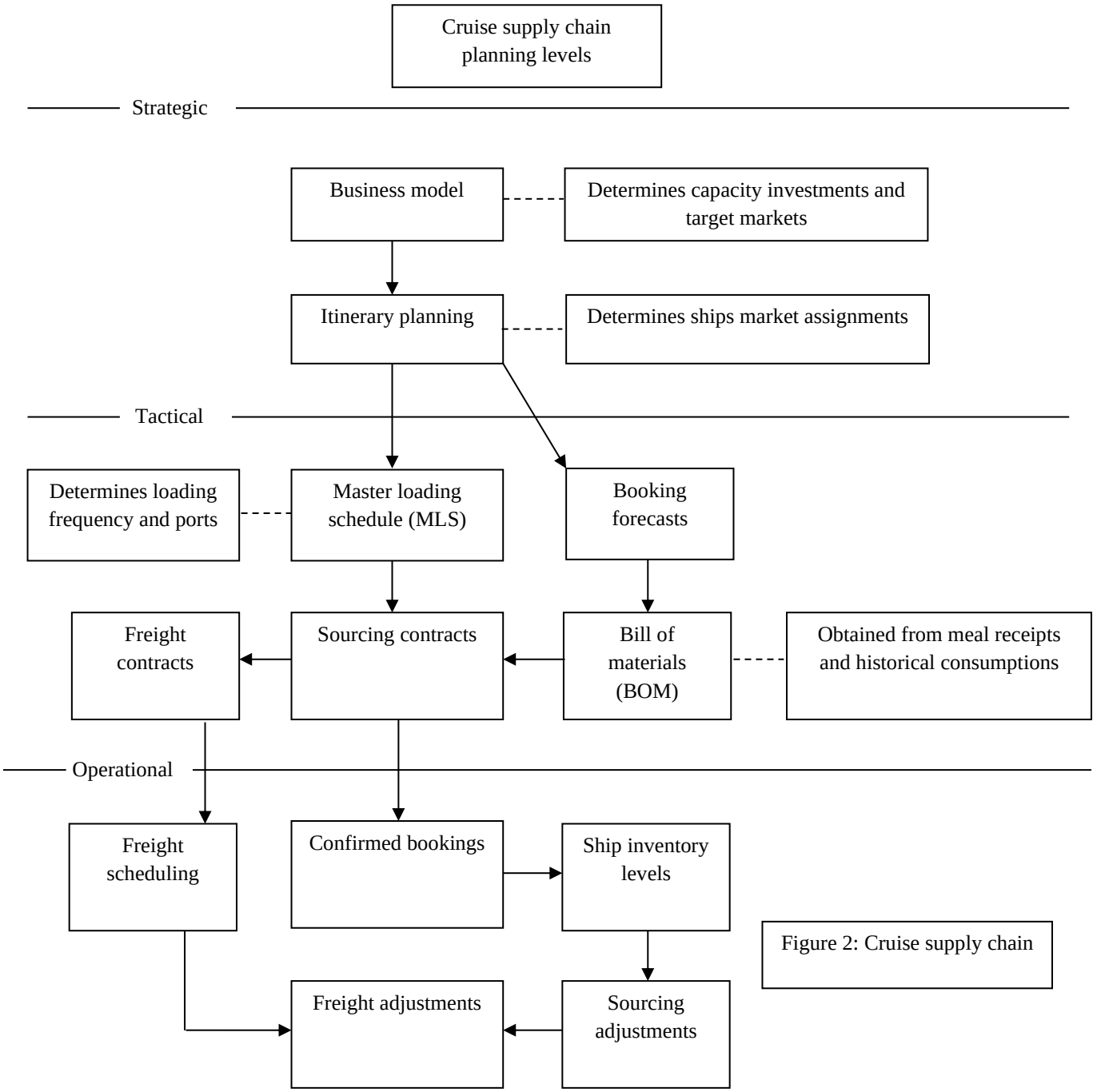


Figure 2: Cruise supply chain

Thus, to study about tourism logistics, we need to ask the following questions, as examples:

- What kind of tourists we are responding to?
- At present, can tourists plan their trip from the beginning to the end?
- How can we create tourism logistics that can help tourists in planning their trip from the beginning and the end?
- Do tourists get lost when they travel on their own?
- Are there any linkages between each transport modes and vehicles? How to improve this?
- Are tourists feeling good, relaxed, safe and fulfilled (= satisfaction) during their trips (physically and emotionally)?
- Are the co-ordinations between various activities in tourism effective and smooth enough to make tourists' trips so satisfying and memorable that they want to come back to travel again?

Three main areas of tourism logistics

The concept of tourism logistics covers 3 main areas:

- Physical flow (transport of tourists and goods for use in tourism activities)
- Information flow (giving and receiving of information in tourism activities); and
- Financial flow (payment and receipt of money in tourism activities)

Tourism logistics starts from a topic of transporting of tourists that relates to the role of transport in terms of giving an ability of tourists to travel. This was analyzed mainly in terms of physical flow and information flow. Later, financial flow attribute and other related activities in tourism supply chain that supported tourist transport were added in order to analyze tourism demands and supply.

Measurement of tourism logistics

In order to analyze tourism logistics, we can measure the following factors:

(1) Availability: this means availability of transport mode types and sufficiency of carrying units in each mode, routes opened for tourist service, level of service quality by classes such as first class, second class, including extra service such as lift for disabled persons or those who have many baggage or high loads, lockers for tourists (i.e. for transit passengers who have to wait hours before taking further flight- they may need to walk and sightsee around), communication channel for tourists in case of emergency

(2) Accessibility: this means an ability of tourists in using tourism services, facilitation provided for tourists in using tourism services such as timetable and place that

facilitate tourists to buy ticket easily and fast, location of rail terminal (or terminals of other modes), signs at bus stops, and etc.

(3) Information: this means provision of information that is correct and fast, in order for tourists or passengers not to be confused in traveling. Correct ad fast provision of information can help tourists in planning their trip in advance as well as planning once they arrive at destination (in situ trip planning). Moreover, this includes the fact that places or channels from which tourists can search for and retrieve information must be found, seen and read easily and clearly.

(4) Time: this means appropriate timetable setting or scheduling of transport service; for example, buses should be appropriately frequent in servicing to make sure that tourists or passengers do not wait too long. Contrarily, for example, scheduling of bus service should not be too frequent that there are a few passengers using the service in each round. Ability to be just in time (JIT concept) and punctuality are important.

(5) Customer care: this means cares and courtesy of staff given to tourists and passengers in terms of safety (physical and mental), such as cleanliness and hygiene of seats, toilets, floor and lockers, food and drink services on- board (quality of on- board catering), provision of areas for smoking and non- smoking people, provision of staff who take care and monitor, and even who receive passengers' requests and complaints on the carrying unit. Customer care can also include discount for frequent users or travelers (frequent flyers for air transport)

(6) Comfort: this means that passengers' physical comfort should be concerned and taken care such as comfortable seats, space between seat for passengers extending legs and knees for relaxing, design of passenger room or cabin suitable for human body, adjustment of temperature and humidity of passenger rooms or cabins, quietness and no noise during passengers' journeys.

(7) Safety: this involves concerns on accidents during a journey, as well as accidents that can occur within passenger rooms, preventing falls of baggage from the shelf that can hurt passengers, preparation of equipment always ready in case of fire and a provision of first aids.

(8) Environmental friendliness: this refers to a reduction of carbon dioxide and carbon monoxide releases to the air when a transport operates its service, no use of chlorine gas that affects the ozone and causes ozone depletion, no release of wastes from the carrying unit without treatment, use of renewable energy, and managing the transport service in the way that it is not making a noise pollution that affects people living nearby or along the routes driven.

(9) Attraction: this is an element of tourism, referring to pull factors of destinations that attract tourists to visit, such as festivals and events, iconic attractions, tourist attractions, activities. Many times you can also see that transport itself can become a tourist attraction, for example in the case that a replica of transport mode is built as a

toy for children tourists such as small train, or in a case of museums that show collections related to transportation, or in many cases of tourist activities that relate a use of transport carrying units as part of their pleasure such as train sightseeing, bicycling, or boating along a scenic rivers.

(10) Walking route or walking zone: this refers to areas or zones preserved for tourists or residents walks for pleasure and shopping. This type of zone is opened only for pedestrian traffic, not car traffic. This is to facilitate pedestrians (tourists/ local residents) to walk around and access important sports (attractions) of a town/ city and to stop anytime for shopping. It is emphasizing a concept of walkability and productive space use.

(11) Money- making zoning/ spots: this refers to zones or spots designed for tourists to have motivation to spend money on various purposes such as shopping, eating, drinking, playing games, and more. The zones are like the stimulators that accelerate tourists' spending or tourists' moods to spend. These zones can be designed by making a prediction of tourists' emotions or moods once they arrive at those spots, such as being excited (*i.e. ticket counter and attractive signs to be located / menus to be handed*), exhausted (*i.e. drink shops with comfortable seats to be offered*), or hurried to buy things before leaving a destination (*i.e. souvenir shops to be located).*

(12) Pleasurability during a journey/ trip: this is an ability of transport that turns tourists' experience from a general transportation from one point to another point into the transport journey that is filled with pleasure. This is why we call "pleasurability of transport journey" or an ability to give tourists pleasure during journey. For example, designing travel routes that pass beautiful places/ spots (i.e. coach tour, Tuk Tuk tour, boat trip or train trip that pass beautiful places, sceneries and landscapes), designing activities on- board (i.e. on a train, bus or coach), or serving best dishes on- board.

All of these above combine transport factors with tourism factors (no. 1- 8 are transport factors; no. 9- 12 are tourism factors.) Managing and operating thetourism logistics or logistics of tourist by concerning the above factors can add value to the supply chain of tourism and incorporate transport as important part of tourism activities to support the meaningfulness of logistics. You can see that tourism and transport can go together in ways that both of them are pleasure/ leisure products for tourists. Transport not only has a function of moving tourists from their home (origin) to tourist destinations, within a destination and between destinations, but also becomes a tourism product that, if managed well, can build tourists' pleasure/ leisure quality experience.

An example of service model of tourist InterCity Train (figure 3) can let you understand pre- train experience, on- board experience and post- train experience of tourists. The model attempts to explain how a transport (in this case, train) service for tourists can add value for tourists using the train service in each stage of consuming train service and experience, to make sure that tourists can enjoy a high- quality experience.

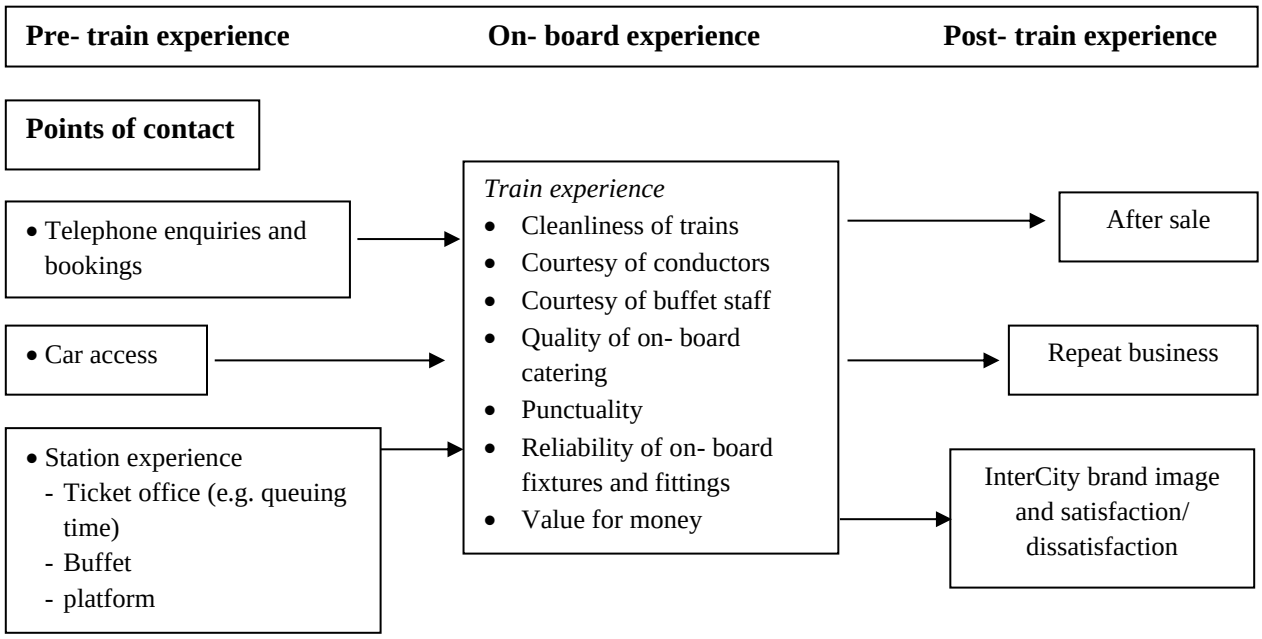


Figure 3: Value add in the service: a case of tourist InterCity Train

Learning Activities and Medias

- Lecture
- Discussion on the models.
- **Group Task**
  (1) Choose one tourist attraction or destination. Visit the place and come back to discuss the measurement of tourism logistics.
  (2) Have a group presentation and submit the report

- **Individual Task**
  (1) Select only one logistics measurement factor and think more about how to improve it for your destination. Share to your friends and submit the paper.

Lecture Note

Course Title: TRM 3305 Logistics for Tourism Management

Credits: 3(3-0-6)

Lecturer: Dr. Siripen Yiamjanya

Program: Tourism Management

Unit 7: Logistics of Tourist Destination

Topic

- Types of travel activities for logistics design
- Attraction communality
- Attraction design principles

Objectives

After the completion of this unit, students should be able to:

- Describe each type of travel activities for logistics design.
- Explain each factor in attraction commonality.
- Explain how designing a tourist attraction relates tourism logistics.
- Apply useful factors and design principles for tourist attraction design as part of students' assignment.

1. Types of travel activities for logistics design

As mentioned earlier that managing tourism logistics involves the three flows: physical flow, information flow and financial flow. To make these all happen at destinations, there must be an integration of people from different professions, for example, tourist destination developer, designer and manager.

Before we know about how to design tourist destination, we need to know that travel activities can be categorized in the following groups as below, in relation with logistics management at tourist destination.

1.1 Touring Circuit Activities:

by "touring circuit", it means those activities engaged on a tour. Because tourists are flowing through an area, attractions require resources, design, and operations for successive groups of tourists that visit throughout a single day. Travelers will visit more than one location in the period between leaving home and returning. The typical activities are as follows:

- Driving for pleasure, sightseeing
- Visiting outstanding natural areas: parks, forests, scenery
- Travel camping: tent, trailer, RV
- Water touring: boating, cruising, rafting
- Visiting friends/ relatives, including duty travel
- Visiting universities, factories, processing plants, scenic facilities
- Visiting national, state shrines, pilgrimages, gardens
- Visiting places noted for food, entertainment
- Visiting historic, archeological sites, buildings, museums
- Visiting places important for ethnic foods, costumes, arts, drama
- Visiting shopping areas
- Visiting art, craft, gift, legendary places

1.2 Longer- Stay Activities:

activities for longer- stay use require resources, design, and operations for groups of people staying for more than a brief visit. For example, a historic site can be toured in a relatively short time, perhaps an hour or so. However, travelers who use vacation homes, stay in resorts, or attend conferences, stay in one part of a destination zone for a longer time. A resort visitor can fish, boat, or swim in one general area day after day, whereas a touring circuit traveler will attend an outdoor drama but once. The typical activities are as follows:

- Vacationing at resorts (food, lodging, fitness, recreation)
- Vacationing at camp sites-- parks, forest areas
- Vacationing at hunting, fishing, other sports destinations
- Participating in programs at organization camps
- Visiting personal vacation homes
- Participating in festivals, events, pilgrimages

- Participating in conferences, conventions—professional- business
- Vacationing at gaming centers—gambling, racing entertainment
- Visiting major sports arenas—domes, coliseums
- Visiting major trade centers—professional- business
- Visiting science- technology centers—professional- business
- Vacationing at theme parks

The purposes of these two categories are different. Short- term attractions (circuit activities) require quick and easy circulation, but focused attractions (longer- stay activities) can be designed for more casual, exploratory use.

In order to achieve economic goals, there must be greater the aggregation of both touring circuit and longer- stay attractions. Groupings or clustering provides business support for the service desired by travelers, such as accommodation, food, and entertainment, but they also cause concern over saturation and the environmental consequences of too many visitors.

2. Attraction commonality

For designing tourist destination, it is considered that a destination needs to have elements that share common factors, or what we call “entities”, for example, physical entities. Recognition of six common factors is important for improving or establishing new attractions, as follows:

2.1 Easy comprehensibility

Tourist attraction designers and developers must ensure that attractions are easily and readily understood by those who use them. This discusses about information flow. Every attraction should provide the user with information or skill for fullest participation. For example, in sports, many resort areas offer instruction in swimming, golf, water skiing, winter skiing, fishing, or hunting. Many national parks are staffed by professional nature interpreters who tell of the area’s unique flora and fauna. Historic, archeological, and other heritage sites and restorations are not only labeled with descriptive information but are interpreted by guides, taped narrations, and colorful displays. If the visitor cannot understand the attraction, he loses interest, and that attraction cannot be called real attraction.

The designer must exercise constraint so that mechanisms that foster communication between visitor and site do not overwhelm the visitor. Sometimes, too mass of information by visitor centers, exhibits, and signs can also reduce the visitor’s motivation. So, there must be a balance between allowing the visitor to gain adventure from the attraction and overwhelming the visitor with information.

2.2 Basis in environment

It must be noted that tourist attractions have environment as the foundation. Every attraction has ‘place’ and ‘association’. For all attractions, association is

important in designing tourist logistics coupled with the significance of physical place. In other words, attractions cannot have only 'place characteristics' but developers and designers of attractions need to create particular mental associations for visitors that can allow them to be associated with. For example, honeymoon couples are lovers, and they seek for a place that can be linked with their love. Environmental setting influences visitors to, for example, its native climate and other natural influence, and man- made influences surround it. Even site- less attractions, for example gambling and parades, also occur some kinds of setting. Therefore, in the design of attractions to have effects on tourist logistics, while also remaining distinguish qualities, the implications of locational environment are important.

2.3 Magnetism

Attraction is magnetic by its nature. It must draw people. Each visitor has unique interests and preferences. Therefore, magnetism also comes from a quality of the design, development and managerial operation of an attraction. Designers can create magnetic attractions from given environment assets.

Emphasis must be placed on the need for an attraction to meet the needs of a specific market segment or several segments at one time. When the designer brings market interest and resource potential together to create an attraction, greater success is assured.

2.4 Capacity to satisfy

A successful attraction is rewarding to the participants, and statistics of number of visitors alone cannot tell about their satisfaction. This is the major challenge in designing and establishing attractions. If the visitor leaves feeling disappointed, uninterested, or even cheated, the attraction may have succeeded in attracting but not in carrying out its complete function. If a designer is to produce successful attractions, his designs must elicit user satisfaction.

2.5 Result of man's creation

Every attraction today is created. With natural attractions, even though they are nature- based, they do not become true attraction until they are provided with access, lookout points, parking areas, interpretation programs, and linkages with service centers. We may think that natural features must not be altered. This can be true. However, today these natural attractions are vulnerable to natural disasters such as fires, earthquakes, floods, insects and diseases, which can destroy their natural features. So, management control must be done to 'preserve' or 'protect' them, which concerns intervention of man. There are two ways: one can protect fragile sites by limiting structural development, and restricting visitor use; meanwhile, one can

develop 'hardened' sites nearby for facilities and services (the later one can be called as a buffer).

2.6 Design for a purpose

Every attraction has its own physical appearance. However, not all are successful attractions. The question is on how and to what extent an area is able to tell its story from its physical appearance, and whether it is possible to shape the environment purposefully in such a way that the story of the landscape becomes evident to visitors.

- How to adapt the landscape to utility and functional requirements?
- How to underpin or create beauty in the physical environment?
- Can the above contribute to tourist attraction production by designing landscape structures and qualities that tell stories to the tourist?

3. Attraction design principles

3.1 Basic design

- Alignment of drives and walks
- Positioning of buildings
- Development of overlooks
- Design of building exteriors and interiors
- Other basic land resources
- All above must be designed and managed in ways that play with the sense and perceptions of visitors.

3.2 Order
3.3 Relativity
3.4 Clustering
3.5 Suitability
3.6 Exposed functionality
3.7 Efficiency in the experience
3.8 Sequence/ satiety
3.9 Genius loci (considering about sense of place when designing an attraction)
3.10 Sites/ buildings/ spaces
3.11 Innovation and creativity
3.12 Wholeness of human use

Learning Activities and Medias

- Lecture
- Discussion different types of travel activities and tourist attractions.
- Individual task: choose one tourist attraction or destination. Then brainstorm and discuss about its tourism logistics and how to improve it and share to friends.

Lecture Note

Course Title: TRM 3305 Logistics for Tourism Management

Credits: 3(3-0-6)

Lecturer: Dr. Siripen Yiamjanya

Program: Tourism Management

Unit 8: Tourism Logistics, Transportation and the Future

Topic

- Sustainable transport and green logistics
- Transportation safety and security

Objectives

After the completion of this unit, students should be able to:

- Discuss about transportation and its key issues in future concerns.
- Define what sustainable transport and the three dimensions (environment, economy, society), and green logistics are.
- Explain the relationship between transportation and environment.
- Explain the environmental dimensions of transportation that related to the causes, the activities, the outputs and the results of transport systems.
- Suggest how to manage transport demand, especially road transport, in ways that can reduce motorized use.

1. Sustainable Transport and Green Logistics

1.1 Transport, energy and environment

Transportation systems are linked with a wide range of environmental considerations at all geographical scales, from the global to the local. The nature of these environmental impacts is related to the transport modes themselves, their energy supply systems, their emissions and the infrastructures over which they operate. While consuming large quantities of energy especially oil, vehicles also emit numerous pollutants such as carbon dioxide and nitrogen oxide as well as noise, and transport infrastructure have damaged many ecological systems. Several of the environmental impacts of transport systems have been externalized, implying that the benefits of mobility are realized by a few while the costs are assumed by the whole society. The spatial structure of economic activities, notably their land use, is also increasingly linked with environmental impacts. The sustainability of transport systems has become one core issue in the provision of mobility. Besides, energy issue is also focused. Today, there are alternative fuels in the form of non- crude oil resources. These alternative fuels are drawing considerable attention as a result of shrinking oil reserves, increasing petroleum costs and the need to reduce emissions of harmful pollutants. The most prevalent alternatives being considered are: *biogas, hydrogen, electricity and hybrid vehicles*.

1.2 The environmental impacts of transportation

On one side, transportation activities support increasing mobility demands for passengers and freight, on the other side transport activities are associated with growing kevels of environmental problems. This has reached a point where transportation is a dominant source of emission of most pollutants and their multiple impacts on the environment. The complexities of the problems have led to much controversy in environmental policy and in the role of transportation. The transportation sector is often subsidized by the public sector, especially through the construction and maintenance of road infrastructure which tend to be free of access. Also, a higher level of car ownership encourages people to freely use car, which has been leading to higher level of congestion as the number of vehicles like automobiles, is steadily increasing.

1.3 The transport- environment link

The acid rain and chlorofluorocarbons had occurred in the 1970s and 1980s. The 1990s were characterized by a realization of global environmental issues as well as the growing concerns about anthropogenic effects and climate change. Transportation also became an important dimension of the concept of sustainability, which is expected to become the prime focus of transport activities in the coming decades, ranging from vehicle emissions to green supply chain management practices. The main environmental

dimensions of transportation are related to the causes, the activities, the outputs and the results of transport systems (see figure 1).

Causes: Two major factors contribute to the level of transport activities. Economics refers to the general level of development, income and transport supply. An advanced economy is likely to generate more transportation activities per capita than a developing one. Land use refers to the spatial structure and location of transport demand.

Activities: Involve a wide array of factors that express the usage of transportation infrastructures and all the related services. All these activities have environmental outputs.

Outputs: The first outcome of transportation activities are emissions of all sorts (carbon monoxide, nitrogen oxides, particulates, etc.) According to the geographical characteristics of the area where emissions occur (e.g. wind patterns) ambient pollution levels are created. Once these levels are correlated with population density, a level of exposure to harmful pollutants can be calculated. This exposure is likely to have consequences.

End results: They include all the health, environmental and welfare effects of the exposure to emissions from transportation activities, which are very difficult to measure.

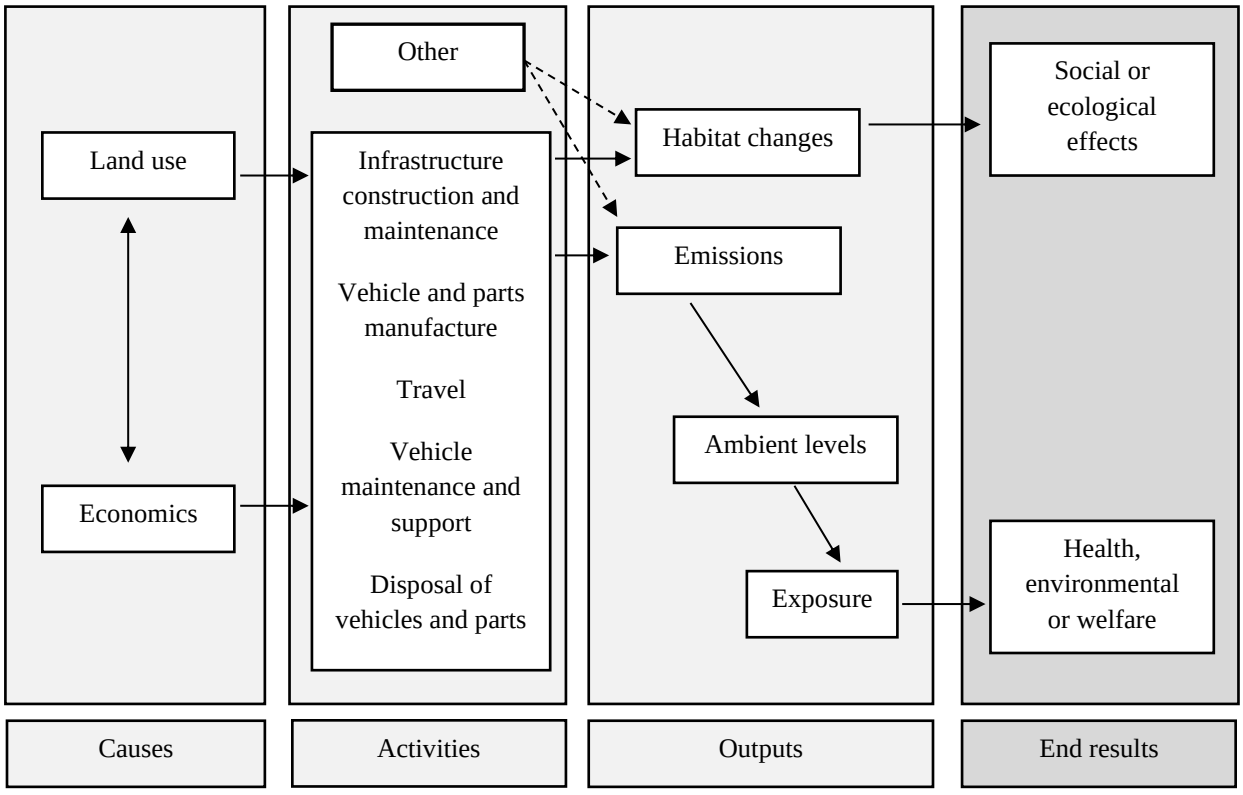


Figure 1: Environmental dimensions of transportation

1.4 Environmental dimensions

Transportation activities support increasing mobility demands for passengers and freight, notably in urban areas. But transport activities have resulted in growing levels of motorization and congestion. As a result, the transportation sector is becoming increasingly linked to environmental problems. The most important impacts of transport on the environment relate to climate change, air quality, noise, water quality, soil quality, biodiversity and land take (land take: transportation facilities have an impact on the urban landscape. The development of port and airport infrastructures is a significant feature of the urban and peri- urban built environment. Social and economic cohesion can be severed when new transport facilities such as elevated train and highway structures cut across an existing urban community. Arteries of transport terminals can define urban borders and produce segregation. Major transport facilities can affect the quality of urban life by creating physical barriers, increasing noise levels, generating odors, reducing the urban aesthetic and affecting the built heritage.

1.5 Sustainable transportation

Sustainable transportation is the capacity to support the mobility needs of people, freight and information in a manner that is the least damaging to the environment.

The concept of sustainable transportation is intricately linked with the development of sustainable transport modes, infrastructures and logistics. Three major dimensions are considered for such a purpose:

Environment: A reduction of the environmental impacts of transportation is a likely strategy for sustainability. Transportation significantly contributes to harmful emissions, noise and climate changes. Vehicles are becoming more environmentally efficient but there are more of them around. An improvement of the land use impacts of transportation, especially the impacts of infrastructure construction and maintenance, is also a strategic goal to achieve. The transportation system is also a generator of wastes (vehicles, parts, packaging, etc.) that must be reduced.

Economy: Transportation is a factor of economic growth and development. A sustainable strategy would aim to efficiently use transportation for the purpose of growth and for the creation of jobs. Transportation should also have a fair pricing strategy, meaning that users are bearing the full costs (direct and indirect) of their usage of the transport system. A transport system where competition is fair and open is likely to promote modal choice and efficiency. In a system where transport is a public or private monopoly, price distortions and misallocations of capital are created which in the long run are likely to render the system unsustainable.

Society: Sustainable transportation should benefit society. It should be safe, should not impair or harm human health and should minimize disturbance on communities. Access

and equity are also two important principles as transportation should promote the access to goods and services for as many people as possible.

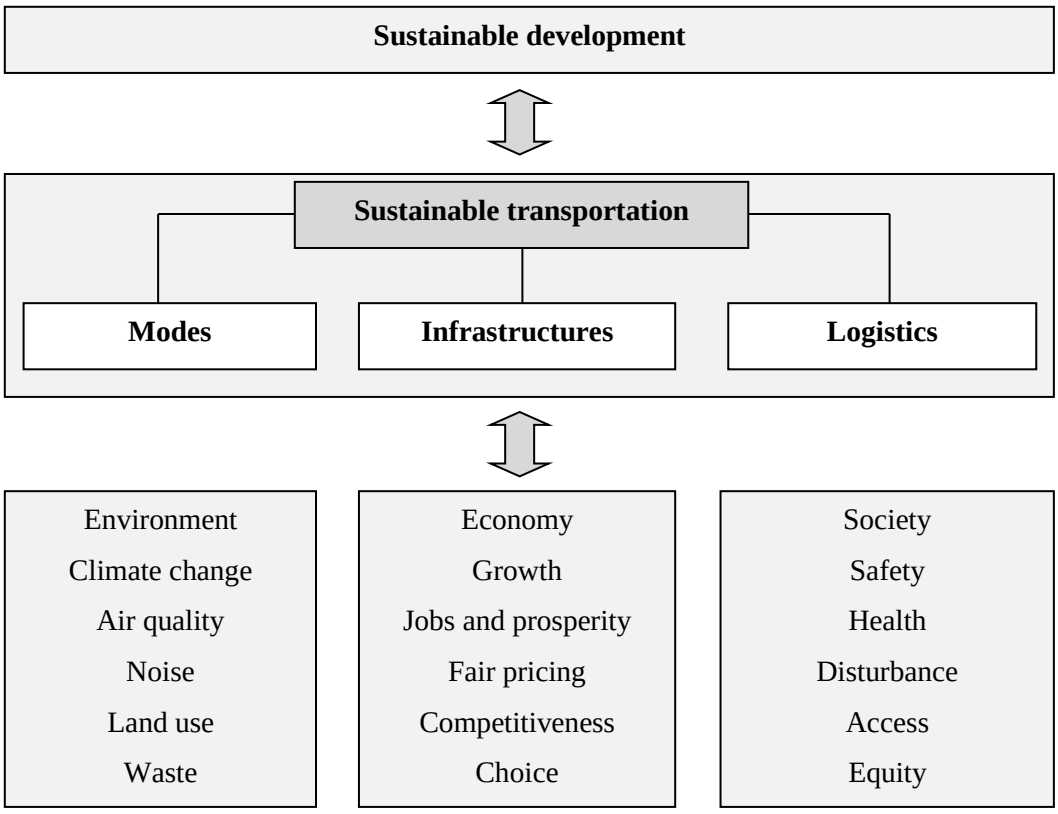


Figure 2: Sustainable transportation

1.6 Greenness and logistics

Most considerations in sustainable transportation focus on passengers, but focus less on freight. Logistics is at the heart of the operation of modern transport systems and implies a degree of organization and control over freight movements that only modern technology could have brought into being. It has become one of the most important developments in the transportation industry. Greenness has become a code word for a range of environmental concerns, and is usually considered positively. It is employed to suggest compatibility with the environment, and thus, like logistics, is something that is perceived as beneficial. When put together the two words suggest an environmentally friendly and efficient transport and distribution system.

Green logistics: It is supply chain management practices and strategies that reduced the environmental and energy footprint of freight distribution. It focuses on material handling, waste management, packaging and transport.

The green applications of logistics are numerous and cover three main dimensions:

Product design and production planning: developing products that have a lower environmental footprint, including their production process.

Physical distribution: Ensuring that the mobility of freight related to logistics operations is performed in a sustainable and environmentally friendly manner.

Material management: Moving towards more efficient forms of materials use, including packaging and recycling so that what used to be an output can become an input (meaning that wastes can be recycled and used again).

2. Transportation Safety and Security

2.1 Safety and security issues

Air transport

Safety and security issues of transport concern the modes and the terminals. As locations where passengers are freight are assembled and dispersed, terminals have particularly been a focus of concern about security and safety. Because railway stations and airports are some of the most densely populated sites, crowd control and safety have been issues for the management. Access is monitored and controlled, and movements are channeled along pathways that provide safe access to and from platforms and gates. In the freight industry, security concerns have been directed in two areas: worker safety and theft. In terms of physical security of passengers, airports have been the focus of security concerns for many decades. Hijacking aircraft came to the forefront in 1970s, when terrorist groups in the Middle East exploited the lack of security to hijack the plane. In response, the airline industry and the international regulatory body, ICAO (International Civil Aviation Organization), established screening procedures for passengers and bags. This process seems to have worked in the short run, at least, with reductions in hijackings, although terrorists changed their tactics by placing bombs in unaccompanied luggage and packages, as for example in the Air India crash off Ireland in 1985 and the Lockerbie, Scotland, crash of Pan Am 103 in 1988. The growth in passenger traffic and the development of hub-and-spoke networks placed a great deal of strain on the security process. There were wide disparities or gaps in the effectiveness of passenger screening at different airports, and because passengers were being routed by hubs, the numbers of passengers in transit through the hub airports grew significantly.

After September 11, 2001 event, the US Government created the Department of Homeland Security which in turn established a Transportation Security Authority (TSA) to oversee the imposition of strict new security measures on the industry. Security involves many steps from restricting access to airport facilities, fortifying cockpits, to the more extensive security screening of passengers. Screening now involves more rigorous inspections of passengers and their baggage at airports. For foreign nationals inspection

employs biometric identification, which at present involves checking fingerprints, but in the future may include retina scans and facial pattern recognition. A new system, the Computer Assisted Passenger Prescreening System (CAPPS II), requiring more personal information from travelers when they book their flights, is used to provide a risk assessment of each passenger. Passengers considered as high risk are further screened.

The imposition of these measures has come at a considerable cost. A significant factor has been the integration of screens into the federal workforce, with important increases in salaries and training costs. The purchase of improved screening machines and the redesigning of airport security procedures have been important cost additions. These measures become the most important source of delays in the passenger boarding process. Passengers are now expected to arrive two hours before departure at the terminal in order to clear security.

Security issues have had a negative effect on the air transport industry as costs increased with delays and inconveniences to passengers increasing as well. Business travel, the most lucrative sub- market for the regular airlines, has suffered particularly sharp declines. Anecdotal evidence suggests that these passengers are switching to other modes for shorter trips, so as to avoid the time delays and aggravation caused by the security process, and to executive jets for longer trips.

Land transport (focusing on road transport)

Road safety is another concern, especially in the automobile- dependent countries. Rod accidents such as traffic collision or car crash, which may result in injury, death, vehicle damage, and property damage. Car accidents involve driver impairment. Driver impairment describes factors that prevent the driver from driving at their normal level of skill. Common impairments include alcohol, physical impairment (poor eyesight and/or physical impairment), youth or teenage and early twenty-aged drivers who are not mature enough to drive, old age, lack of sleep that causes fatigue, drug use and other distractions such as having a conversations on mobile phones while driving. World Health Organization (WHO) Global Status Report on Road Safety 2013 presents information on road safety from 182 countries, accounting for almost 99% of the world' s population. The report indicates that worldwide the total number of road traffic deaths remains unacceptably high at 1.24 million per year. Only 28 countries, covering 7% of the world's population, have comprehensive road safety laws on five key risk factors: drinking and driving, speeding, and failing to use motorcycle helmets, seat-belts, and child restraints. In terms of policies, many countries have launched campaigns that promote drivers to reduce speed when driving, to reduce drinking and driving, to increase motorcycle helmet and seat- belt use, and to increase the use of child restraints. Strict laws

and regulations concerning road safety should be practiced to minimize injuries, death and key risk factors.

Governments need to make walking and cycling safe as well. The increasing number of motorized vehicles makes roads more dangerous for those road users who use alternative modes of transport – notably those who walk, cycle and use motorcycles. In planning road construction projects, there has been insufficient attention given to preventing the negative effects of motorization from falling most heavily on these road users most at risk. For example, new multi-lane roads are often built to cut through communities without provision of safe routes and crossings for pedestrians, slowing traffic speeds, or dedicated lanes for cyclists. In a number of countries, there is a growing policy interest in encouraging a better balance between private motorized transport and non-motorized transport. While such policies may be national, they are usually implemented at the sub-national or municipal level. For example, some countries have national transport policies that aim to reduce traffic volume in urban areas by promoting walking and cycling, which mitigates congestion and thus improves mobility. Policies to encourage walking and cycling need additional criteria to ensure the safety of these road users. Encouraging children to walk to school without providing pavements or safe places to cross the road, or reducing the speed of traffic, could in fact lead to increased injuries. Promoting city cycling to reduce congestion cannot be encouraged if cyclists repeatedly find that their lanes cut across oncoming traffic. Measures to separate walkers and cyclists from other road users in conjunction with speed management interventions are particularly important if such policies are to be successful. There has been some progress in implementing national or sub-national policies to promote walking and cycling, with 68 countries having such policies. However, only79 countries have policies to protect vulnerable road users by physically separating them from high-speed road users. As a result, many countries attempting to encourage walking and cycling as viable alternatives to motorized transport do not have infrastructure policies in place to ensure that walking and cycling are safe, and could potentially increase risks for road traffic injuries. Countries that can effectively reduce private motorized vehicle use, increase the appeal of walking and cycling and make associated infrastructure improvements to protect pedestrians and cyclists can reduce the risk of road traffic injuries. Additional co-benefits can also result from such policies, including reduced air pollution and greenhouse gas emissions, reductions in traffic congestion, and beneficial health outcomes associated with increased physical activity from walking and cycling.

Managing transport demand to reduce motorized use

Transport planners, particularly for road transport, they usually manage transport demand and system by various techniques. Building roads has produced a car- oriented society in which the other modal alternatives have little opportunity to coexist. Car

ownership is beyond the ability of the transport planner to control directly and the question remains whether it should. But car use and ownership is affected by land use and density, both elements that planners can affect. High population densities, in particular, favor walking, bicycling and public transit use. It is for this reason that a great deal of attention in planning is being paid to densification and integration. This includes concentrating development along well- served transport corridors (transit- oriented development) and increasing densities in areas undergoing rehabilitation.

Managing the demand for transport is made up of a large number of small interventions that cumulatively can impact car use, but in particular improve the livability of cities. A sample of well- practiced and successful interventions includes:

- *Park and ride:* parking spaces are provided, usually close to an expressway, where drivers can board buses that provide service to the city center. This has become a staple feature in the outer zones of many US and British cities. Its success is variable, however, and there is some evidence from the UK that park and ride may actually increase car use, as people who may have used regular bus services now use their cars to drive to the car parks.
- *Traffic calming:* measures that seek to reduce the speed of vehicles in urban areas, such as speed bumps and street narrowing. For residential streets, the goal is to make their use by car drivers unattractive because of the obstacles; for thoroughfares (main roads), the objectives is to reduce the average speeds. The measures indicate the need for much greater attention to street design and layout.
- *Priority lanes for buses and high occupancy vehicles:* lanes on major thoroughfares and expressways that are reserved for buses, taxis and passenger vehicles with several occupants. This has become an important feature of transport planning in North America, where major highway expansion projects offer priority lanes. The goal is to encourage use of buses and high occupancy vehicles that can be seen to travel at higher speeds along the reserved lanes by other drivers who may be stuck in traffic jams.
- *Alternative work schedules:* encouraging work hours other than the dominant 9 to 5 schedule. One of the great problems in transport planning is that demand is concentrated in two main peak periods. In the past, efforts were made to meet this demand by increasing road capacity, which was never sufficient, and resulted in an underuse of the capacity the other 20 hours each day. Promoting flexible schedules and encouraging telecommunicating are policies that are seeking to spread out the demand for transport over more hours and even reducing the demand altogether.
- *Promoting bicycle use:* in some countries, particularly the Netherlands, the bicycle is an important mode of travel. It is a green and healthy mode, but in automobile- dependent cities, the bicycle does not share the roads easily with trucks and cars. Encouraging greater use of the bicycle requires significant planning adjustments, such as the provision of bicycle lanes and bike stands.

- *Car sharing:* encouraging drivers to share car use with neighbors or co- workers.
- *Enhancing pedestrian areas:* in most cities, vehicles dominate the streets. In many areas of high population density, the quality of life (enhanced safety, less pollution, etc.) and the visual attractiveness of streetscapes can be enhanced by excluding vehicles from streets altogether, or limiting access to public transport vehicles. In Europe this has become a distinctive feature of the historic cores of many cities.
- *Improving public transit:* for 50 years or more, public transit use has declined in most cities. Yet, it is the only major alternative to the car in these cities, and thus enhancing the use of transit has become a major planning objective. Improvements include making transit more attractive, by improving bus schedules and improving the underway to widen the range of transit alternatives. These include extending commuter rail services, and constructing new systems such as light and heavy rail modes.
- *Parking management:* restricting on- street parking and charging higher rates for parking.

2.2 Transport and disasters

Transportation systems are designed to operate under normal conditions. Yet, disruptions such as those caused by an accident or by a storm are rather common and well mitigated. On occasion, a disruption at a much higher scale takes place to the extent that the security of a whole region or nation is compromised.

A disaster: a disaster involves extensive damage to people and physical infrastructure that is unforeseen in nature, scale and extent. It often implies that their risk of occurrence has not been properly assessed and a large share of the damage is the outcome of a lack of preparedness.

In this era, there are a huge number of activities related to social physical movements, which need transportation for passengers and freight. Besides, there is a higher level of car ownership around the world, increasing with high population and urbanization. These phenomena emphasize the fact that there will be more congestion. The transport industry has responded to these with massive investments in infrastructure and facilities that have expanded the capacity and efficiency of transportation systems, both at the domestic and international levels. Added flows and capacities have in turn created increased demands on the management of physical distribution systems, which includes activities such as transportation, transshipment, warehousing, insurance and retailing. These are all of strategic importance to national economies. With the increasing reliance on distribution systems, any failure of transportation, due to intentional or non- intentional causes, can have very disruptive consequences and can compromise national security over 4 major issues:

- *Transportation supply*: ensuring that transportation modes, routes, terminals and information systems are able to satisfy national security needs such as troop deployment and emergency relief.
- *Transportation readiness*: maintaining the readiness of transportation to face time-sensitive national security needs.
- *Transportation vulnerability*: reducing the vulnerability of the transportation modes, terminals and users to intentional harm or disruption from natural events.
- *Illegal use of transportation*: reducing the trade of restricted or illegal goods (e.g. drugs, endangered species), and illegal immigration.

Learning Activities and Medias

- Give introduction and lecture on the lesson.
- Conduct class discussion.
- Discuss case studies.

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