Conceptual Model of Logistics City

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Abstract

Logistics is referred to all of the coordinating activities that for investigate, research, study and assessment of needs and requirements of equipment, machines and tools, all of the equipment and fragments and all matters about Preparing, manufacturing, insurance, storage, warehousing, distribution, transportation, planning and preparation of work procedures, and system design and guidelines and monitoring is performed above mentioned. According to the literature of logistics issues in supply chain, if the logistical macro level divided to three main sector, department of transportation, inventory storage and department of logistics management; the logistics city word is referred to the areas that by costs for logistics management departments, planning for minimizing the costs of the transportation and inventory storage. According to existing definitions logistical centers are the areas that all of the activities related to transportation, distribution and other goods logistical services in a international or national levels is performed by several operators. Logistics cities are referred to the most developed and fullest logistics centers.

Keywords
Logistics cities, logistics management, infrastructures, supply chain.

1. Introduction

Considering the concept of logistics as a process that includes all activities associated with the flow of goods from production to consumption and the concept of logistics center as a area that all of the activities about shipping of goods like transportation, distribution, value added services and such a tool is take place in different geographical levels including regional, national and international, so the concept of logistics city is development of a compact business cluster and evolved logistics center. The realization of a logistics city in a developing countries needs to numerous infrastructure, since the logistics not achieved to desired position in this countries, its better that in a first step consider the improvement of logistical activities and formation logistical centers, because for create a logistics city this infrastructures are required.

2. Study of Literature

2-1) History of logistics city:
Logistics is the management of the flow of resources, not only goods, between the point of origin and the point of destination in order to meet the requirements of customers or corporations. Logistics involves the integration of information, transportation, inventory, warehousing, material handling, and packaging, and often security. Today the complexity of production logistics can be modeled, analyzed, visualized and optimized by plant simulation software, but is constantly changing. This can involve anything from consumer goods such as food, to IT materials, to aerospace and defense equipment. The term logistics comes from the Greek logos (λόγος), meaning speech, reason, ratio, rationality, language, phrase, and more specifically from the Greek word logistikí (λογιστική), meaning accounting and financial organization. Logistics is considered to have originated in the military's need to supply themselves with arms, ammunition and rations as they moved from their base to a forward position. In ancient Greek, Roman and Byzantine empires, military officers with the title Logistikas were responsible for financial and supply distribution matters. The logistics word entered in human literature about one hundred years ago. Figure 1 displays the evolution of logistics in four decades ago.
The concept of logistics centers considered about thirty years ago, the evolution of logistics centers can be divided into three periods; 60's to 70's, 80's to early 90 decade and the mid-90s to the present time. The actual logistics city in the world is the Dobie logistics city that supported all methods of transportation, logistics services and value added operations in supplier chain include manufacturing, style and assembly in free zones. Dubai Logistics City (DLC) is a part of Dubai World central development. Upon completion it will become the world's first logistics platform with all transport modes. It will be located near Jebel Ali free zone. DLC will have the capacity to turn over 12 million tones of air cargo annually, in addition to having its own staff village set in landscaped surroundings with sports and leisure facilities, restaurants, shops and service spreading over 21.5 square kilometers, a 140 square kilometer urban aviation community centered on what is to become the world's fourth largest international airport, Al Maktoum International Airport, currently being built 40 kilometers south of the existing Dubai International Airport. Upon completion, DLC will consist of warehouses and plots of land for the logistics business of industry, trade, and distributors. Up to 16 airs cargo terminals with an average area of 30,000 square meters will handle cargo. The 21.5 square kilometer Dubai Logistics City is part of the Dubai government's overall 2015 strategy to enhance the emirate's transport and logistics services and capitalize on its geographical location to make Dubai a regional hub for logistics. The DLC is a world’s first and one of its kinds. Its first phase will be fully operational in mid-2009 when the first cargo flights are expected at Al Maktoum International Airport. The 25,000 square meter distribution center at DLC is already completed. Once operational Dubai Logistics City will have:

- Air cargo terminals
- Land plots for industry or contract logistics
- Land plots for forwarders
- Land plots for aviation industry
- Shared forwarders warehouses
- Integrator facilities
- DLC Office Park
- Amenities
- DLC Labor Village

2-2) Related concepts of logistics city:

2-2-1) Urban distribution centers:
There are in the lowest level of centers, which are responsible for distributing goods in urban areas.

2-2-2) New Towns:
In urban areas and transportation terminals can improve the regional economy with the establishment of logistic villages or load villages and Decrease the costs of transportation.

2-2-3) Logistics parks:
Logistics park a little more advanced than new town and urban distribution centers and create this parks due to improve all of the activities in any level of urban domain.
2-2-4) Specific areas of logistics:
These areas are included wide geographic level from urban to international and logistics city is evolved form of these areas. Logistical centers have converted to logistics cities during a developmental process and these cities have been formed according to a national experience and social knowledge. So sudden mutation to the logistics city will be impossible without during the developmental stages.

2-3) Importance of logistics city:
With the establishment of a logistics center as was pointed out, total costs of transportation, storage and warehousing will be reduced and productivity in any levels of center that have logistics management will be increased. With implementation of logistics activities can achieve to customer satisfaction with best level of quality and minimizing the activities total cost and time. In logistics city multifunctional activities cause to Increase speed of tasks in all of the levels. Quality and quantity of air and marine transportation and capacity of transportation in all of the areas will be enhanced. All of the roads in the city Such as transit, freeway and highway between the cities, main roads and secondary roads are designed so that traffic will be minimal and in terms of the access these roads will be in a position that people can use them in minimum time. Just in time system will be implementation in the warehousing and this system avoids Inappropriate and non efficient storage. Because the logistics management is one of the Subcategories of supplier chain management, it's involved with material flow from row material to final product, so implementation of logistics activities cause to reducing waste and don’t let to destruction row materials. In the energy field create logistics city cause to reduce costs of the product energy.

3. Logistical Activities
With defining logistical infrastructure in an area and possibility of implementation logistical activities in this area could estimate the Tendency of area to become a logistic city.

According to the definitions provided logistical activities include any activity related to products transportation, distribution and storage.

So the important functions in logistic cities are:
- Integration of different transport methods and transport equipment
- Hub or gateway role in products logistics LAN
- A place for packaging and delivery of products
- Storage products (dangerous and cold storage goods)
- Products management (packaging, ordering and etc)
- Supply, maintenance of vehicles, containers and transport equipment
- Provision of infrastructures such as railroad, parking, gas stations and etc
- Providing spaces for local services such as customs, security, information systems, training and consulting

Logistical activities are influence directly and indirectly in all spheres of human life; from personal affairs and daily life to family life and enterprises life cycle; every thing influenced by subjects and concepts of logistics. Because the purpose of logistic is minimizing the cost of organization with considering time and space utility for products, so for minimizing total costs of production, the organization should be reduce costs of logistics.

Effective use of logistics science and take advantage of the scientific concepts in management measures of product supply chain in some of the countries over the past years cause to reduce Gross domestic product for five percents.

Logistical subsystems can be divided into two categories:
1. Logistics activities at the macro level
2. Internal logistics activities.

Activists in logistics affairs at the macro level can be fit in the following groups:
1. Transportation service providers (One-way transport, multi-way transportation, terminals operation, providing services to activists involved in the transport)
2. Distribution service providers (warehousing, storage and distribution facilities)
3. Load service providers (customs clearance, load forwarder, load integration, the movement of dangerous loads, load intermediates and packing)
4. Ancillary service providers (information and communications technology, banking and insurance, labor supply and training)

In addition the internal logistics activities are:
1. Customer service
2. Demand forecast
3. Supply
4. Production planning

4. Infrastructure

"Public infrastructure included Highways, streets, roads and bridges, transportation, transit, airports and airlines; water and water resources products, waste management, electricity generation and telecommunications, communications and management of a hazardous waste and the complex system of this quality factors. In addition to these constructions of public facilities, infrastructures are included operational procedures, methods management and broad sites with social demand and physical world on interaction with each other and facilitate the transport of people and Products, the provision drinking water and other various using, safe disposal of waste products, electricity is provided where needed and transfer of information within and between communities."

Infrastructure generally can be divided into two main classes of hardware and software. The hardware infrastructure is a wide physical network that is required to operate a country industry in a modern style. Software infrastructures needs for all institutions that want to have continuity and survival of the economy, healthy and cultural/social standards. Some examples of infrastructure software are: Financial systems, education systems, health systems, government systems and the legislative and etc.

Following comprehensive classification of infrastructure is presented with emphasis on the commercial infrastructure; infrastructures are divided to fourteen departments in this classification:

1. Storage infrastructure
2. Distribution infrastructure
3. Transportation infrastructure
4. Mobility infrastructure
5. Markets
6. Industrial and economic areas
7. Commercial links
8. Financial infrastructure
9. Legal infrastructure
10. Firms and institutions
11. Agricultural infrastructure
12. Energy infrastructure
13. Communications infrastructure
14. Natural infrastructure

5. Conceptual Model of Logistics City

The purpose of this diagrams design is showing the concept of activities that with implementation them have a logistics center will be possible. It means after finding the city that has potential to become a logistics center should making logistical culture for organization in any level of the center for encouraged everyone to implement logistics management. When achieve to this mindset in a center proper training about logistics information will be important. For create logistical center infrastructures should be change from physical to logical, so areas will provide for professional Logistics management with improved infrastructure. Everyone should update their logistical information for survive and compete in global market. When all centers move towards gradually with increasing the logistical centers, logistics cities will create. This will be increases the logistics performance index and reduce the rank of country in world Ranking.

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1 International American Studies Association (1987)
Figure 2: Conceptual model of logistics city

Figure 3: Activities that exist before the creation of Logistics city
The operational concepts of logistics city show that the activities that have occurred in a city with a logistical flow needed are changes to the activities that are ideal from a logistics perspective. It means with an implementation of logistics management in a city, the activities will continue to exist for increasing productivity in any level of areas and activities with a new structure cause to reduce the total cost and increase the quality of products. This condition everyone will be satisfied from products and production.

6. Concluding
Create a logistics city at first required logistical culture that people, authorities, manufacturers, importers and exporters, training centers, welfare and recreation centers and ... reach to this mindset that in a logistics city activities are done in a best level of utility and most efficient mode that possible. Manufacturers with the lowest cost in any fields except logistics management could achieve to maximum amount of customer and customer satisfaction. When everyone in all of the levels of city knows that logistical activities can be improve society then should attempted to modify the infrastructure, because evolution will not be met with resistance in such conditions. With Create logistic centers in every district of the city and maximum absorption to become a logistic center gradually logistics city will be created.
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