

The Impact of Historical Nodes and Links of The City on Adopting Knowledge Networks Strategy

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Abstract

The city was formed historically as a node for human activities. Its formation depends on the resources and relations in areas of production and distribution; therefore, it was divided into special zones with different economic activities that depend on them (industrial, recreational, commercial, residential areas and other uses of land). The physical and functional features of the city reflected imposed social and digital systems. The Technological advances have expanded the role of knowledge in everyday life that established the concept of knowledge networks.

This study deals with the concept of knowledge networks as an updated multidimensional strategy which imposes its ways to deal with the historic urban system as a part of the larger one, where the developed technology imposes its needs of the organizational vision of the city as part of the global system.

This study hypothesis that the knowledge networks is a concept not separated from the historic space networks in cities. The study also hypothesis that these historic networks, which were formed from nodes and links impose the strategic vision to adopt and promote the knowledge networks into urban level.

This study aims to clarify the concept of knowledge networks as an updated strategy for the urban growth, shows the role of nodes, and links which had grown historically in cities to adopt and promote strategies for the knowledge networks.

This research adopted a method to achieve its aims, through studying the cognitive network mechanism and the role of urban characteristics as guidelines to strengthen these networks in a number of global examples, and then use the global experience to build a vision for network strategy in the Iraqi city to produce a new urban pattern.

The main conclusion is that the historic urban ties act as a mutual force along with the global mechanism of knowledge network so that each city would show its special response to the network pattern.

Key Words:- Network pattern, Historical urban nodes, Urban planning.

الخلاصة

تشكلت المدينة تاريخياً عقدةً للحياة الإنسانية و قوامها مصادر الموارد وعلاقتها بمناطق الإنتاج والتوزيع، و جاء مخطط المدينة مقسماً إلى مناطق خاصة بمختلف الأنشطة الاقتصادية التي تعتمد عليها (منطقة صناعية، منطقة ترفيهية، منطقة تجارية، منطقة سكنية وغيرها من إستعمالات الارض)، وانعكست ضمنها السمات العمرانية والوظيفية التي فرضتها النظم الاجتماعية و النظم التكنولوجية، وبفعل التقدم التكنولوجي اتسع دور المعلومة وأضحت ميزة العصر نظراً لسرعة تداولها وإتساع دورها في الحياة اليومية لينشأ مفهوم الشبكات المعرفية، يتناول البحث القائم مفهوم الشبكات المعرفية إستراتيجيةً معاصرةً متعددة الأبعاد تفرض آلياتها في التعامل مع نظام المدينة التاريخي، حيث تفرض التطورات التكنولوجية متطلباتها على الرؤى التنظيمية للمدينة جزءاً من النظام العالمي، ويفترض البحث أن الشبكات المعرفية هي مفهوم غير منفصل عن الشبكات الفضائية التاريخية في المدن، كما يفترض البحث أن هذه الشبكات التاريخية المؤلفة من العقد والروابط تقوم بفرض الرؤى الإستراتيجية لإنشاء الشبكات المعرفية وتعزيزها في المستوى الحضري، يهدف البحث إلى توضيح مفهوم الشبكات المعرفية كإستراتيجية معاصرة للنمو الحضري، ودور العقد والروابط التي تطورت في المدن تاريخياً في تبني إستراتيجيات تعزيز الشبكات المعرفية، وينهج البحث في هذا السبيل لدراسة

مفهوم الشبكة المعرفية وآلياتها في نظام المدينة ودور العقد الحضري القائمة في توجيه وتعزيز العقد والروابط المعرفية (في المستويات الحضريّة) وهي قوام الشبكة، ويستعرض البحث هذه الآليات من خلال عدد من التجارب العالمية ومن خلالها يبني رؤية للتعامل مع المدينة العراقية وفقاً لإستراتيجية الشبكات المعرفية وخصوصية هذه المدن ، ويصل البحث إلى إستنتاج مفاده أن خصوصية العقد والروابط التاريخية تفرض آلياتها بشكل متبادل مع الآليات المرتبطة بإستراتيجية الشبكات المعرفية وأن كل مدينة تعكس إستجاباتها الخاصة لنمط الشبكة (في المستوى الحضري) لينتج نمطاً حضرياً جديداً.

الكلمات المفتاحية: أنماط الشبكات، العقد التاريخية المعرفية، التخطيط الحضري.

Introduction

Contemporary cities in all their sizes, population rates and urban functions depend on new trends to distribute services, goods and their people in a way that insure more efficiency and effectiveness in order to rationalize the available resources and direct them to their actual need. That is to say to develop the urban system in a more rational way. The system of smart networks is one of the applications that serve these goals and form a core nerve to the conceptions as smart cities, knowledge cities, digital cities and others. These samples depend on the Information and communication technology (ICT). The cities adopt ICT recruitment among the details of the urban system to maximize their connections with the national global system. This leads to the continuous flow of information (which is the main nerve to improve the economy and leads to the prosperous city after the third millennium), but no efficient efforts were paid to the role of the architectural assets and symbols which were formed through history forming the urban image of cities and a title for their identity. Where the buildings, spaces, and paths (formed through the history of the city) represented an important factor in the urban system. As it was in the networks of traditional paths their relations with markets and city centers. On the other hand the policies of reservation, rehabilitation and urban development paid attention to clarify the architectural image for these sites. But no effort was made to study the appropriate strategies to merge and activate them within future systems of cities that tend to rely on capacities that are provided by digital applications and virtual spaces. But the conversation was getting louder about the selection of actual need of urban spaces as an important factor in knowledge exchange.

This research will study the possibilities and the strategic steps available to promote the role of these assets as important nodes to generate and distribute knowledge and exchange information in the urban future system for these cities according to knowledge network strategies.

1- The concept of urbanization and the formation of urban nodes.

The process of urbanization was a result of the relations found between economy, society and technology and the ability of cities to provide homes for these relations. Thus, the potentials were joined historically according to the range of the provision of natural and human resources and the growth of place's culture. That's to make cities global capitals for trade and poles to attract human and material resources. Palmberg had defined the concept of automatic city layout (Palmberg. 2013, p-p, 100-102), the emergent order of the city, self-organized systems (for groups and individuals), mutual causality human action, system order specific feedback, agglomeration effects and the location specific attributes. These cities grow to form nodes where the potentials of creation, skills, the competitors reputation, the network

of relations and a special kind of resource management. According to this concept the factors of success for every attractive urban system through city history are

- The growth of technology (according to historic standards).
- The availability of intellectual capacities and innovative human skills.
- Guidance and management systems to stimulate and spread the values of innovation and creativity.

Through history and among the different global places, cities represented different dimensional nodes consist of the following kinds:

Economic nodes (industrial and commercial): these nodes are considered as the center for the production, marketing and (high and added value commodity trading), the provision of technics and special human creativity along the stages of production and distribution. The geographical location of the city (ports, crossroads of global trade, the provision of natural resources and manpower are the main factors to promote the location of the city as an economic node) Ex. London and Newcastle (Scotte, 2012, p- 65).

Cultural nodes: These nodes are represented by the provision of number of attracting sites in the city which were centers for global and art heritage are represented by cities like Vienna and Paris these are characterized by the provision of local culture (Van Winden, 2010, p-105).

Administrative nodes: (Capitals) as Brasilia, which was designed with high symbolism to contain state institutions.

Scientific nodes: (cities of ancient universities and research centers) as Oxford and Munich represented global nodes for research and development activities (Mustard, 2010, p-6).

Before the third millennium and after it, the problems that followed globally resulted in a new prospective of the city as a complete and effective node within the new global system. This system is based on the continuity of the administration, social and economic dimensions which is considered a result of the digital technology development and a revolution of communications, therefore, the city is a node within the global system that must be characterized by the following;

- Constructing creative systems for samples of trade, production and work to attract resources and boost growth
- That will need constant interaction of scientific research and development.
- Which means the ultimate possession of facilities to enhance scientific research growth and creativity, which is a smart cities' approach, where technology transferred to the present of dense information exchange networks.
- Which requires a higher response and ability to continue sustainable urban development, which based on the dense production of social experiments and positive interaction.

All the experiments on cities around the world are based on a rapid review of their urban situation which include strategic aims and vision. New strategic plans are based on the support of production and distribution of resources and the created application to solve the problems of social and environmental dimension and boost

economic chances. (Ladraa *et.al.*,2007 , p:4). All these indicatives collaborate in a general aim to enhance and promote urban attributes for modern cities within the new global system and keeping up with its requirements.

2- The concept and support of network strategies.

The potentials provided by computer sectors and communications available by global network are being depended on this trend was synchronized with the substantial changes in technologies, culture and globalization of markets. These sectors represent the new urban focus after trans passing the two periods of urbanization that depends on agriculture and industry towards the stage of post-industry. "The concept of network describes the systems of wide relations to exchange the use of knowledge information and investments inside the economic and social fabric in addition to the increase of using technology and knowledge in life activities" (Dameri&Sabrox, 2014, p:184). "Which is the general trend in urban and global contemporary economies based on the growth of dense investments in technology, the industries based on them and the global high skilled manpower and the productive achievements related to it".(World summit, 2013, p:37)

2-1 The concept of network

The network represents a kind of connective systems (interactions or constructive relations). It is a concept developed with the development of computers were network is a branch of communication science. It is a concept that came because of the development of computer science and the revolution of communication sector. According to this, network is a connection between tow computers or more using the technology of communication systems to exchange information, resources and the data available in the network. Networks also connected to the output devices like printers or software applications, which provide high quality of direct communication among users. This concept was developed through the enhancement of network activities among many parties, it also provide the fast exchange of information that provide profits to earn by the parties within the network (as human, social and individual resources), through the enhancement available groups and firms and there contribution in the knowledge pattern. (World summit, 2013, p-p:2014-2015).

This concept tends to enter wider sciences, including urban planning sciences and the planning of cities that produce new concepts like: digital cities, virtual cities and smart cities and others.

Cities started constructing the nodes of their new growth, according to the effectiveness and improvements of the distribution of services and the possibility to widen the style of services for its residents. This requires concentrating the attention on the communication, transportation, education and health systems (change it into smart system) and take the full advantage of high information technologies to develop the performance of the cities and enhance their economic processes (Dirks and Mary , 2010, p: 2). These nodes network represent basic positions where interactions concentrate, and the recognition of the kind of networks, which consolidate not only the social capital but also construct structural education and generate knowledge. It is known as the communication network between groups relating to knowledge and creation (ibid, p: 218). The nodes form in their tangible reality through the concentration of creation on the place in locating cities or cities known as attractive cities. (Florida, 2002, p: 55).

2-2 Motion Mechanism and Network Structure

Studies concentrated on the stylized nature of the network, the effective parties and the basic players within the network and also on the activities of stakeholders (beneficiaries) who were called agents and the style of interaction between these agents which the structure of the network is formed from it .

The network framework consists of the following:

- Members who are working and interacting on the network.
- The organization where the interactions happen.
- The potentials and the performance of the members.

The interactions happen and the type of work were identified by (Carlsson and Sandstorm, 2008). These two researchers tried to build a knowledge structure for the frame of the networks by putting the institutional, networks and social capital theories together. A sample was structured for the network connected to the nature of performance of the network, whether it is network closure and network heterogeneity. These networks represent new types of heterogeneous networks and sectors and are based on the cooperation found among people in all their affiliations (Dameri and Sabrox, 2014 p -186).

3-Networks and City Regulations.

Cities face the problem of social and architectural adaptation with the new system types that the technological growth impose where the new volatile and untouchable resources are key elements in the growth process and influence on the general features of the other elements in the production process and cause changes in their specifications and mechanisms (ibid . p : 188). Temporary production processes in the context of production are characterized by the absence of harmony and the increase of diversity without taking a specific organizational layout with the erecting of numerous relations between the sources, the users and distributes which were the multiple paths of interactions called the networks.(Dameri, 2014, p :184). The network was defined within a number of implications on the urban and regional levels, in the Scandinavian network of cities a sample of eight characteristics that provide the strength of connections and easy entries to information: that spread through it including urban creation, the attraction of the city, competitiveness, culture, the relation of the city with the university, the spearheads of knowledge, the human society, the urban administration, the urban planning. These characteristics are provided to the citizen maximize their ability to use the network possibilities in the best professional way among those planning an urban design and planning better cities. (Jacobson, 2012, p-p 14 – 17).

The Strategies of Networks : The strategy means the number of policy plans, charcoal and ways which are drawn and according to them the execution is put in order to reach the targets put using an economic and effective usage of the available resources.

Strategy represents an applied reflection formed from the prior drawn plans. Toward an appointed target on long term. Taking into account the various possibilities "the tech of communication the attention of decision makers and planners widely around the world. It is the most important possibilities provided by technology. The

attention of the urban development program is increasing in cities around the world to consolidate the interaction networks to increase the competition of cities on the global level. Therefore, the aims of the network strategies are to consolidate the colliding and hanging on the urban level to enhance the overlapping between the hypothetical and real which produce the consolidation of the communications and interaction on the regional and global levels.

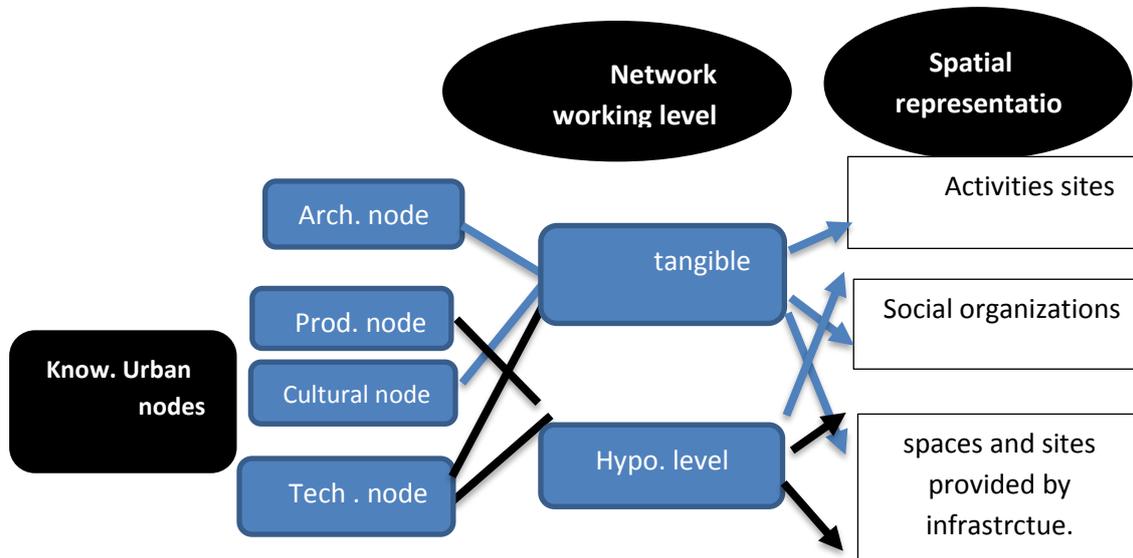


Figure I (Johnson. 2011 p-p: 19-20)

The nodes represent the place of dense cuts among the network of various connection which was among the following kinds:

1st -The Architectural node:

This node represents a touchable site with a dynamic force to produce urban and social spaces. It is in the traditional cities a product for the accumulation of historic events through which attract the central activities in cities among important sites, which added to it the symbolic feature. As for the cities that are built according to planning processes it's a result of institutional tensions between the planning sides and the local governments and the credit of real estate's available. This will promote (developed) according to the need of the stakeholders (investment parties and society). These processes will direct city planning to support like these sites with the infrastructure and legislation and draws its future development that goes with the trends of global markets. (World summit,2013, p-p 234–236) As usual, the investigation of these nodes was done in temporary cities when proses of urbanization appeared and accelerated in special cities. So, these sites may be on the cities centers or on their boundaries. These processes reflect a type of network relations formed from the struggles and benefits among numerous types of organizations that have their (spatial reflections). " The interactions happened in these networks aim to find a new kind of the spatial development that have a type of flexibility and diversification in the applied dimensions .(the urban development in China is the best type of the role of these networks in producing the architectural nodes as the development of site SZ park (ibid , p . 238)

2nd - The Productive Nodes:

It means the different types of production, which its diversification is lengthened to the global market. Often these types are limited to the following:

- * A type of production that depends on imitation where technology and techniques are imported from abroad and imitated by re-producing it, the programs of training skills and advanced studies and the benefit from foreign expertise.
- * A type of production through buying the right of an innovation by the permission of using a patent or the trademark which is an agreement between the exporter of the technology and the importer of it. Buying the components of these technologies like spare parts adding to this the cost of asking the help of technicians. (Wilfred Dolfsma and Loet Leydesdorff, 2011. P.319)
- * Direct foreign investment through multinational companies with the local side taking part or not. When there is a taking part of the local side, it will make it better to get the benefit of technical knowledge the exporting side provide (AL-Ataa, 2008 p. 4).

The network strategies aim to consolidate the type of contract and the social capital through gatherings filled with creative and innovative criteria and often in the boundaries of cities targeting development in local communities. (Ibid p-p: 219-222).

Technical nodes stand on the ability of future technology to create and administrate the resources (tangible and intangible, as information and knowledge). That is connected with interconnected processes to create and handle these different resources and distribute them with proficiency (Ibid p:5)

The technical nodes are called names like creation nodes, free places of exchange, and ports of knowledge, innovation hubs and free trade zones. All these names mark the importance of the process of exchange through the spaces of electronic exchange which form a network of hidden knowledge nodes and their moving rounding and surfaces. (Ladraa *et.al.*, 2007 p:10)

The technical dimension represents a substantial factor in building and enhancing the work of technical nodes in the city. And these technical nodes with their complete urban kinds as architectural sectors and spaces that enhance technology where they represent cushions for the processes based on the technical development trying to bring into success the interaction of the urban social and historical fabric and the social activities in the city (Elena, 2015, p:355).

These kinds of nodes are appointed according to the activities concentrated, where networks work to attract activities associated with features of all the cities and their abilities. (to support any type of industrial or productive style or more than that). *5 (Mustard & Mury, 2010, p-p :7-8)

Often the increase of patents (especially in the field of technology) and its adoption in the development of production on one of the important signs to the success of network strategy to consolidate these kinds of nodes. (Dolfsma *et.al.*, 2011, p:317)

3rd – Local and global cultural nodes .

The formation of these kinds of urban nodes represents the ultimate target of the network strategy. Where cities in all their kinds of historical and contemporary nodes to places of high attraction and a known symbol within the global range, and consolidate their places among the global communication network. The growth of attention in sites of the electronic cities, the increase in number of tourists and tourism support. This target "in the global strategies for urban development" is marked as (Making of the place). The social capital is distinguished in different dimensions where the network strategies are adapted to consolidate the cultural nodes in a social work." A connected structure of the natural relation is strengthened from local to global level). This will happen between social networks and organizations and is completed by putting rules and taking procedures to support mutual benefits (Undp. 2015, p.p:10-11).

It is very important to point that achieving these types of nodes is a progressive process. The success of cities in this process is relatively because cities have their special features in their resources and abilities; therefore, we cannot reach the network strategies according to one sample, but according to the type of these nodes and the shape and size of their connections. The stages of the formation of these networks (called the nodes of resources, people and activities as the formation, the development, the growth and the expansion) (Huggins, 2008, p.p :10,11). Where the expansion phase (according to the knowledge network concept) might include the expansion in the hypothetical relations during the digital network of the expansion in its traditional meaning in the spatial expansion and spreading the activity, these two types of expansion have a kind of formal functional relations and back and forth connection (figure 2)

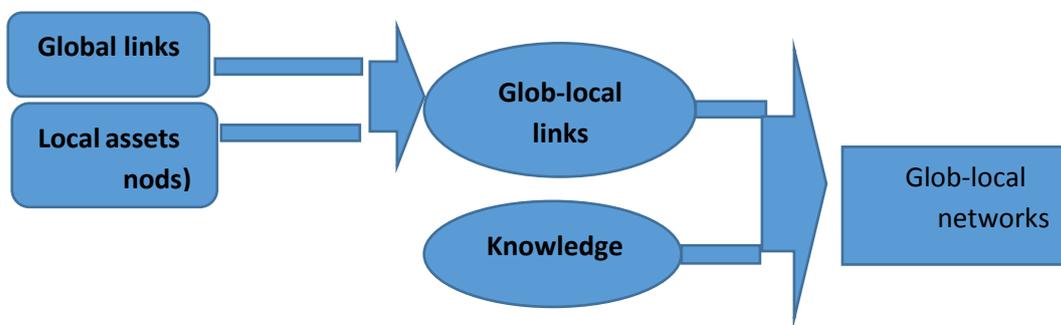


Figure 2 the basic concept abstract to develop the global local cultural nodes prepared by the researcher from (Gonzalez, 2006, p:849)

4th- Hypothetical Technical Nodes:

Users of digital networks see hypothetical cities a space that gives the chance to communicate and reach any place in the world while the piloting of hypothetical cities tends to anthropomorphism, which makes the interaction between a person and groups more homogeneous within the complex urban structure with the iteration of the concept of the hypothetical city. Thus, urban places still have an important role in serving the interactions in their tangible and direct sides (Al-Shahri, 2013, p:108)

3.2 Fundamentals of network strategies.

In this part of this study, a general frame will be put for network strategies. This frame will be constructed by studying a number of sample global cities, which have taken the step to enhance different urban nodes in the process of urban development. There is no an ideal model of the special strategies in widening knowledge networks" as was mentioned before" where the type of North American cities cop with the metropolitan places which is formed by a central big city and a number of suburbs related to it. While in European countries " Holland as an example, " urban places tend to have the style of a number of cities connected to smaller cities as urban networks; Therefore, the types of nodes and their actual and hypothetical connections where a formation of work framework should be structured general fundamentals of network strategies were pointed and the way of their implementation and their comprehensiveness (The type of nodes and the shape of connections). This will be reached by displaying the following samples.

3.2.1 Bilbao city- (the rehabilitation and development of museum area in Guggenheim) .The process of developing the Spanish city of Bilbao was based on a significant node where the strategies were built to develop the project of Guggenheim Bilbao museum. The city witnessed the rehabilitation of the capitalist economies to consolidate the cultural dimensions through supporting the urban project policy being backed by local and global cooperation. It is a step that attracted great attention in the academic sector at first. Then it expanded to practical steps to implement and enhance the ability of the city to compete globally, It is to transport the urban development processes from their closed partial resume to a regional and global connective process. That was done by forming the net of cooperation with the local government, which tend to continuously provide the best income through the expansion of the sites and open them to the flow of information available due to capitalistic globalization to consolidate the accumulation of resources and keeping the concept of place firm and stable. (Gonzalez, 2006, p:836). That is to say to convert from the geographical closure strategies to that based on the global cooperation and translate that into local and global solid policies to reserve and develop. (In these strategies the analysis of the single value of an urban site is done according to the other sites that are effective or have a benefit in the process of development, which work as a complex series of events each one of it has a meaning to the parties involved in this event).(Ibid,p. 833). The design of rehabilitation of the center of metropolitan Bilbao a sample of these cooperation processes. (It is a sample to mix globalization and localization values represented by the iterance of global firms as partners with the local and governmental firms). It is a model of globalization – localization process that included planning efforts translated with consecutive strategies. In 1989 the stage of re enhancement of Bilbao city and its surroundings. The total plan of Bilbao city was decided and in the year 1999 the vision plan was re decided in 1995. It developed to generate soft resources starting to implement many projects of urban rehabilitation including the provision and change the use of some lands to expand the processes of relaying pollutant industries and the bringing down of some buildings. This was done in two stages the first included the development of the physical assets (the buildings and urban spaces) and establishing of cooperation relations to support the new entrepreneurial urbanism process in the city. The signing of the total plan of the regional development was done in 2003. The establishment of these cooperative networks resulted in many urban nodes. The most important events were the opening

of Guggenheim Bilbao museum (by the architect Frank Gehry), the opening of the airport of the city by the planner Santiago Calatrava, the development of tram system, the rehabilitation of the project of ship building in the city center, the opening of new exhibitions area, and the residential towers by the planner Isozaki and the renewing of a deserted peninsula which the Iraqi architect Zaha Hadeed implemented it (this was called the Abandoibara Project). (Gonzalez ,2006,p-p: 836-857) and diagram 3 represents the track of nodes and links in the strategy of supporting networks in Bilbao city.

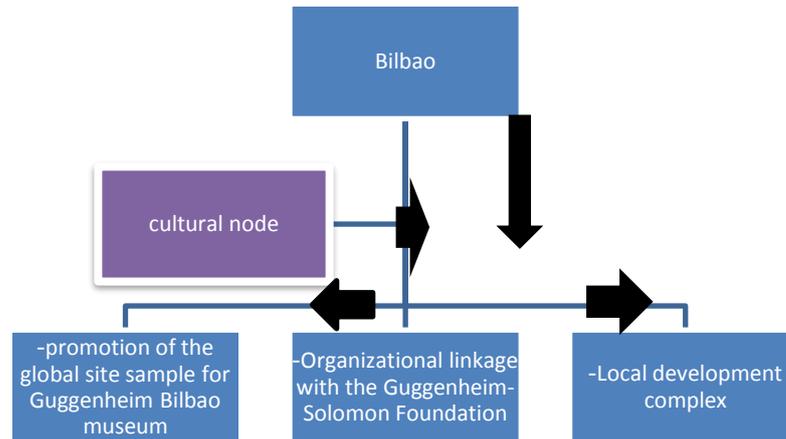


Figure 3 the track of nodes and links in the strategy of supporting networks in Bilbao city (made by the researcher).

3.2.2 The Multimedia Super Corridor and Cyberjaya in Malaysia:

The Multimedia Super Corridor and Cyberjaya in Malaysia is a great project to connect cities with high-tech communication hub to exchange information and expertizes locally, regionally and globally. This project includes more than 900 ICT hubs. The first stage was completed between 1996- 2003 work started to locate a number of sites within the city featured with the high-density presence of research and production activities in the information technology field. The main goal of this stage was to enhance the exchange of information and services and the cooperation of production stages, 1000 companies were attracted and the provision 22000 job opportunities for high skilled people in the I.T field. The second stage was between 2004-2010. In this stage the expansion of the super hub was completed to include nearby places and form free industrial area known as (Hi-Tech Park Kulim). The area was located first outside the borders of the site allocated to the project to build the cyber city which is a start to build five other cyber cities. Side by side with these projects a process to develop special regulations for electronic trade and information sector to complete the connection of these cities with the entire world. The agreed aims of the third stage up to 2020 is the lengthening of the ultimate hub to reach all the places of the country and establish 12 cyber cities. This stage will provide the services of the cyber government, cyber schools and the activities of healthcare (telematics healthcare) and the services of smart card to support research and development and electronic environmental work. This project took into consideration the functional and environmental benefits that serve the country and raise the standard

of living for the people of the country, it will also provide foreign workforce and consolidate the local and global interaction. (World summit 2013, p-p:133-136)

Plans were drawn for the future expansion of the infrastructure of the cities so as to create a living environment for the different users from multinational companies and the elite workers and small enterprises (the risky capital in the fields of creation) and students. The institutional structure developed parallel with the physical development to enhance the growth of information communication sector and the industry of multimedia in Malaysia. The concentration was on the support of the strategies to create and develop the city of Cyberjaya as an urban center in which the technology of information and communication merge in the working and living environment. Diagram 4 represents the formation of nodes and links in the strategy to support networks in Malaysia.

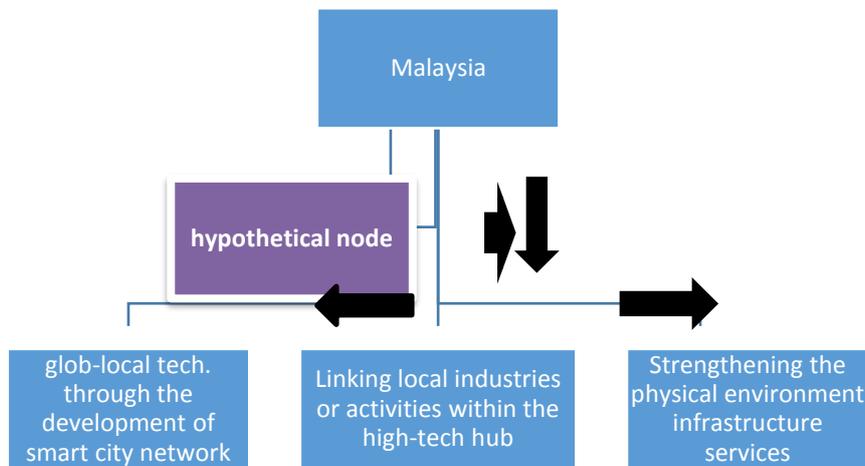


Figure 4 the formation of nodes and links in the strategy to support networks in Malaysia (made by the researcher)

3.2.3 Knowledge Quarter in Liverpool

This quarter represents an urban zone in Liverpool city that developed to embrace trade and economic activities to attract the sources of knowledge to the place. It was designed to involve gardens for work and gatherings to connect activities in the fields of knowledge and information among the center and its surroundings wherever the urban space that fits the need found. Liverpool knowledge quarter is based upon strong analysis of the global and regional market to assess the demand factors and understand the range of urban development chances for the buildings and spaces of the site. The activities and the basic structure were established and Knowledge provides basic features to the urban planning strategy in the quarter where it develops investment according to it in special places in urban sites . The first report was published in 2010 to determine the needs and the chances for the sector. The concept of the quarter was developed as a part within the strategic frame to develop the city of Liverpool and its suburbs since 1999. The report included the determination of the policies and the current strength points and the strategic visions. These strategies were translated into planning the investment in the fields of trade and accommodation and the spaces of work in the global market .(the requirement of big companies to endemism) (Mc aslan, 2011 , p-p .2-4) which include :

- Create and attract dense knowledge economic activities" technologies and innovations and the activities of development and research "to be a node for the knowledge society and to enhance a chain of local ties between these activities.
- Create a kernel environment for the global investment through encouraging mixed and lively uses and build the knowledge networks among them (vibrant mix of uses knowledge networks and physical links). This environment resulted from developing physical environment and the creation of numerous official spaces to contain businesses and novice companies (especially in the field of knowledge) in all its development phases .This required the movement of activates and people to provide areas for expansion. Since the borders of the sector tend to show a wish to embrace activities and duties that reflect to the demands enhanced by the activities of the sector.
- Enhance the links within the city of Liverpool such as the interactions between the people of the same interest to locate the places of likely investments. These links either these links either these links either on the level of buildings or the outside spaces and the connection of axes of movement and the activities and links created between universities and healthcare centers. The links created enhanced neighboring districts connectivity with the wider context of the city .The administration of the sector aims to change it into an economic informational path through the ultimate benefit of strategic investment in the public sector. These investments were gathered within two important sites in the sector :
 1. University Hospital Boulevard Copperas Hill Development Area.
 2. Islington London Road Hope Street.

The identity of the place was consolidated by these sites and connecting the important spaces. This was within the process of development in the quarter to create a new public place consolidated by natural sceneries and functions parameters. It is featured by connectivity and easy to reach where these axes complete the transportation network found. The sector suffers from the shortage of areas for accommodation buildings, lands for expansion and the type of architectural environment which are strategic aims to for the plans to develop the sector due to the need to find a strong and specialized identity within the city. (Mc aslan , 2011, p-p 11, 13) . This was done by structuring a clear pyramidal series by finding a net of green areas and a network of urban conservation to form the spinal of the space in addition to the promotion of the communication network that consolidate the green infrastructure and clearly the picture of the area by creating social areas for entertainment and education.

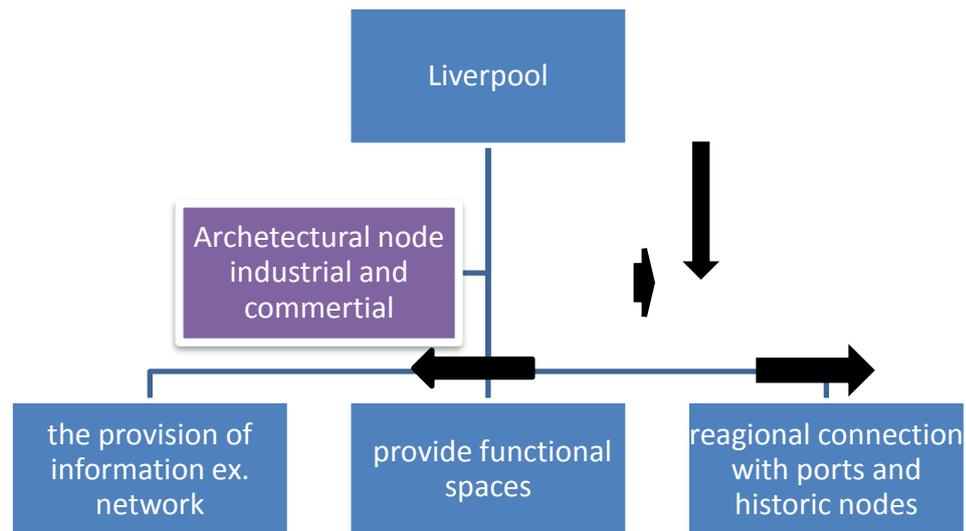


Figure 5 represents a path to the formation of nodes and links in the strategy to support networks in knowledge sector in Liverpool city .(made by the researcher).

3.2.4 General Prospective in Adopting Networks Strategies Locally

The knowledge network strategies pillars were identified in the experiments of the three previous cities studied above in part A and the procedure enhanced these frameworks locally in part B as follows:

1st Technology and the Digital Infrastructure.

A- the network is considered as a system of communication and linking and the formation of hypothetical nodes and technical and creative nodes support this pillar, and developed to support communication among industry, university and government which elevate the ability to compete with alternative investment sites this would be related the outside visions of the place.

B- In the last decade The Iraqi cities witnessed the growth academic activities (local and government universities and different kinds of schools) with a shortage in the creative and research activities, therefore; it is an urgent need to enhance digital communication by promoting communication systems like the electronic government and libraries or universities. And direct communication by organizing cooperative works like scientific conferences among different specializations.

2nd Qualified Intellectual and Human Capacities.

A- The strong networks provides and distributes information with high capacity that gives the involved parties (knowledge producers, investors, beneficial and academy professors and students) wider abilities associated with the presence of architectural and technical nodes that have the ability to install and expand these networks. Some creative, academic and research activities are connected with urban nodes which have a history in promoting such networks.

B- The adapting of network strategies is connected with the provision of human experts, and the provision of graduation output of universities and specialists in the field of knowledge technology one of the important factors to identify the ability of the city to promote a strong service knowledge network.

3rd Simulative Directive and Administrative Systems (Strengthening the Urban Management of Cities)

A- The strengthening of networks to connect the practical factors and important sites in the city provides the ability to identify the sites of chances and needs and the strong places in the city which leads to find the priority of work and direct the policies in an active way.

B-The Iraqi cities suffers from the shortage in the activation of inter-party relations it is a result of the barriers of digital infrastructure and the laws and regulations that form these connections. The provision of infrastructure is not considered a basic factor in promoting this pillar locally.

4th The symbolic and Architectural Assets in Cities.

A- Directive systems identify framework and promote local and regional connections which lead to direct resulted policies to promote important architectural sites to be connective node within the system of network (attract individuals and investments and develop smart infrastructure).

B- Most of the Iraqi cities have rich cultural and historic heritage that can be seen in the center of the historic cities. The archaeological sites are considered the important basics to improve cultural, local and global nodes (as it is in the experiment of the city of Bilbao). So, it is possible to focus on the media consolidation for such sites as it is in the marshes of southern Iraq to attract money, tourism and global support. This base is considered a strong point to allocate the path of network strategies in the Iraqi cities.

5th The Values of Location that Stimulate the Creation of Creative Society.

A" This pillar is considered one of the important basics that contribute in building strong networks from links especially in the field of science and creative production. This is connected to social and historic factors that contribute to the development of these values as in the range of openness of the society and the ability to take new ideas. It is considered a practical product to bring the path of the strategy into success, to support the pre-foundations. As it is in the cities based on the openness of their societies and the flexibility to change is an important factor to consolidate other foundation.

B" Our local societies may differ in the range of the availability of this foundation; therefore, we take into consideration the path of strategy (the priorities of the past foundations are taken into account) according to the features of each community.

Table 1 shows the mechanism of the knowledge network strategies in enhancing the types of urban nodes and the accumulation of their formation in the experiments of the three cities (Bilbao, Liverpool and Malaysia),(the fifth pillar from the pillars of network strategies is also considered a result of these strategies to increase the diversity and the openness of the existed networks in the urban society *6

Table (1) Mechanisms of the strategy of knowledge networks in the activation of urban contract types in the experiments of Bilbao, Liverpool and Malaysia (researcher)

Mechanisms for supporting urban knowledge nodes in the three cities				The pillars of the knowledge network strategy in the cities under study	
- The global cultural node	- Constructional node (contemporary or ancient)	Technical node (research and industrial productivity)	Default node		
Renewal of planning policies and programs to meet existing challenges and transform the potential of networks into catalysts for the sustainable development of the city. It provides a continuous social learning process and capacity development to keep pace with changes on the one hand				Availability of technology and digital infrastructure	Bilbao
		Implementing the Smart Grid as an innovative energy solution, including integrating and engaging business across the region along with universities, hospitals, residential complexes and supporting supporting infrastructure (soft and solid) to attract companies within the region with a lack of broadband infrastructure			Liverpool
		Malaysia's IT strategy has been centrally supporting the government and marketing Cyberjaya City as a preferred investment destination			Malaysia
Global designers have been drawn to create a world-class architectural and cultural contract				Attracting qualified intellectual and human resources	Bilbao
					Liverpool
		The aim is to attract more knowledge resources of the country and expand the local knowledge base and diversity (this increases the possibility of building and expanding networks globally) and this gives support to improve the physical environment in the future.			Malaysia

<p>the establishment of the Bilbao Ría 2000, which is the integrated stage of the planning of the network of relationships (through the organization of Ría Bilbao) to support the Bilbao development strategy, aimed at capturing the complex nature of the multifaceted nature of the globalization process "</p>			<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Availability of proactive guidance and management systems (urban urban governance enhancement)</p>	<p>Bilbao</p>
	<p>The establishment of local linkages between the industry, the university and the government for knowledge management. The development of the knowledge sector depends on the participation of the local community and businessmen to achieve a common understanding of the size of the activity, future investment trends and the opportunities available to develop the business communities and housing communities and influence the size and nature of the change according to the actual need</p>			<p>Liverpool</p>
		<p>The availability of continuous monitoring by the federal government may hinder the direction of future planning of more flexible policies that meet the demands of the global market</p>		<p>Malaysia</p>
<p>Enhancement of city attractions improve services and housing and mobility activities</p>				<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Supporting urban and symbolic assets in cities</p>
	<p>The lack of growth in the physical environment and urban infrastructure services, which are essential to support the competitive advantage of the site and raise the quality of life High quality mixed uses, providing ease, access and continuity of traffic (including public transport) and supporting infrastructure (including broadband and utilities) Establish viable and viable sites and support functions to facilitate a professional work environment. It should include the provision of broadband infrastructure and facilities that will enable future growth and not constrain the growth of the knowledge economy.</p>		<p>Liverpool</p>	
			<p>Malaysia</p>	

Attracting activities and supporting cultural tourism				Strengthen Evaluate the motivating place to create an innovation community	Bilbao
	The collection of knowledge-intensive activities represented by local and international companies within a single urban area as a result of several policies to revitalize the city center, including a change in land uses for knowledge-intensive activities. This led to the emergence of multidisciplinary facilities that accommodate the need of companies at different stages of their life cycle The region is also home to many academic institutions				Liverpool
		Enhance the attractiveness of companies in the field of information technology			Malaysia

4-Conclusions

All cities developed through their history as a type of nodes that attract individuals and activities. These cities witnessed dense human interactions and the provision of different services.

- Knowledge network strategies represent a new vision to see the connections of urban nodes in the tangible and intangible levels (touched and hypothetical levels) in order to promote the role of these nodes within the global system to exchange knowledge.
- These nodes are considered types of connection systems, which are the most flexible of all what connects between social, and economic, formal and informal, therefore they are considered effective in adopting and go side by side with the digital and tangible environments, which are the levels that must promote the enhancement of urban nodes within them in cities. (Through this representation the accumulation of network strategies).
- Knowledge network strategies are translated into different types of urban policies each one of them is directed to develop a type or more of nodes, which include the architectural, productive, cultural, and technological nodes.
- Network strategies are adopted in different levels of completeness according to the obstacles that are imposed by the architectural, social and economic environment to be opened to the connections among the global and local levels according to the tangible and intangible forms and the number of the parties that are taking part in it and the role of these connections to promote the four types of the urban nodes.

- These three cities show different rates of completeness to result in strategic pillars in the support of knowledge networks. Each one of them related to the support of the formation of these nodes (hypothetical, technical, architectural, global and local nodes).
- Network strategies contribute to the developing of creative answers to the urban problems in all their dimensions (architectural, social, economic and environmental dimensions). It includes technological pillars, digital infrastructure and qualifying intellectual and human capacities. The completeness of these pillars is related to the mechanism of the implementation in cities .The local context is considered important when the ongoing plans to develop the urban nodes are selected (in all their types) and the policies to deal with them to develop their site as a center for the tangible and hypothetical interactions within the network .
- According to that Bilbao city was a sample of cultural, architectural, global and local nodes development, while the architectural and technical nodes were represented in the knowledge sector in Liverpool city while the experiment of Malaysia concentrated on the development of digital communication to promote the role of smart cities as hypothetical nodes within the regional and global surroundings.
- The three cities tend to consolidate nodes and links on tangible and intangible levels within the local, regional and global networks according to the need and the availability of qualities which the path that should be taken locally.

5. Recommendations:

According to the previous conclusions it is important to understand and then promote the features the urban nodes in all their kinds historically represented and these networks should be used in the strategy to support the finding of the place .

Efforts should be made on the analyses of individual behavior and the relations that he made within these nodes (urban society) among a series of interactions that form these networks.

It is required to direct urban studies toward concepts like Gender, positive or effective space and territory and the role of these concepts to support the system of individual , social and institutional interactions and then connect it with the theories of urban cities planning .

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