



THE IMPACT OF THE MALLEABLE RENEWAL STRATEGY IN ACHIEVING URBAN INTERCONNECTION OF NEW CITY CENTERS THE BISMAYAH RESIDENTIAL COMPLEX CASE STUDY

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ABSTRACT

As a result of stereotypical or morphological changes in cities, new cities have appeared with rules that are disconnected from the existing city center physically and intellectually, and those rules prevented the interconnection of the master plan areas with each other. The urban interconnection of new cities is of great importance in meeting the needs of current and future individuals. This work aims to achieve urban interconnection between the new city center and the current city within a cohesive and integrated framework design based on the most important design strategies of urban democracy. The research begins with the definition of the malleable A renewal framework and its impact as a research topic. Then, a review and discussion of a set of studies crystallized the research problem of "the lack of comprehensive knowledge of the impact of the malleable renewal strategy in city planning in general and in achieving urban interconnection between the centers of new cities and the existing city in particular", on the basis of which the research objective was determined in identifying the most important terms of the malleable renewal strategy within the design strategies of urban democracy in the city planning and linking them with new cities, to build a comprehensive theoretical framework. The research adopted the descriptive analytical approach in building the theoretical framework, then applied it within the practical study. The results of the survey presented that the local project achieved good results. With regard to the obvious impact of this strategy in the development of the master plan of the city of Baghdad by integration and spatial interconnection with new cities as a set of contextualized targeted measures, positive change, and patterns of intervention in urban morphology as a model that harmonizes with local reality and achieves



originality, diversity and creativity of architectural and design products. Intervention at various levels within the master plan of the city of Baghdad contributed to the upgrading of random or degraded urban areas, achieving organically interconnected cities through organic mechanisms (organizing, tension, and reconstruction), structurally interconnected cities through structure mechanisms (improvement, creation, and redevelopment), and networked interconnected cities through network mechanisms (innovation, rhythm, and extension).

KEYWORDS

Formation Patterns; Malleable Design Strategy; Master Plan; New Cities; Urban Interconnection.

1. INTRODUCTION

Contemporary social, economic, and environmental challenges face existing cities, so there is a need to reconsider the design strategies of urban spaces, which support the development of democratic urban cities interconnected with the neighborhoods of the existing master plan scheme.

On this basis, the research employed malleable renewal as an effective strategy for renewing the master plan scheme of cities suffering from neglect, fragmentation, and the lack of interconnectedness of new zones within the urban structure of the city as a whole. The goal was to intentionally make these cities competitive and attractive to the population by making them interconnected structurally, organically, and networked.

The research was able to address the gap represented by the insufficient studies on the design strategies of urban democracy as a part of the master plan of the existing city and achieve urban interconnection between the new city centers and the existing center at the whole and part level. The present work include of three topics, first topic formed the definition framework of the strategy of malleable renewal, the second topic included a critique of a number of previous architectural and urban studies, discussing and analyzing them to derive the theoretical framework, and in the third topic, a local example (Bismayah city) was put forward and analyzed that embodies the strategy of malleable renewal in the interconnection of new city centers and then put forward the main conclusions.

2. DEFINING THE MALLEABLE RENEWAL STRATEGY

The research aims to explore one of the urban democracy strategies represented by (malleable renewal) and its interconnection mechanisms within new city centers as a strategy for improving and upgrading the master plan. It aims to connect new urban areas and integrate them with the existing main center.

The malleable renewal strategy indicates the following:

- The process of making meaningful, positive changes to the deteriorating and disjointed built environment as part of a larger master plan in engaging local communities and local stakeholders in the process of creating a new place that is compatible with the existing one (Von Wirth et al, 2019).
- Developing a unified concept of public democratic space and exploring its possibilities in connecting new areas (Goodsell, 2003).
- An activity of comprehensive renovation, improvement, and reconstruction of a deteriorated area or new centers carried out independently of the existing main center (Zhenbao et al, 2020).

2.1. definition of urban interconnection in new cities

"Broadbent, 1990" referred to the urban interconnection as a connection of urban hubs with a set of axes as connectors that in turn redevelop the city, generate a Structured or characteristic continuity of the urban fabric, and link the blocks with the spatial system structurally (Broadbent, 1990).

Urban interconnection is seen as the articulation of a node or axis that joins the developed areas within the city's fabric with the original center based on the level of planning and design, intellectually or physically (Al-Hinkawi and Alatta, 2017).

2.2. Urban connectivity in forming new city patterns

Urban connectivity is a key strategy for spatial restructuring and organizing new city centers in light of delivering the Transportation network for pedestrians and vehicles, Sightlines influencing the urban fabric, or any other linking elements that join the new parts of the city physically. Therefore, new cities take various patterns and shapes in light of the urban interconnectedness that project to organize their masses and spaces, which are as follows:

2.2.1. Structurally interconnected cities

These are cities that work to improve the structural urban system to reach the required balance and simulate a copy of the design by adding an urban element linking non-essential nodes, restoring distinctive areas or neighborhoods and making them adjacent to a place or space of public use, and the transformation that differs from previous invested urban patterns to embody the creative, culturally continuous, democratic form (Wu, 2007).

2.2.2. Organically interconnected cities

These are cities that work on the physical redesign and construction of new spaces that include an integrated set of commercial and entertainment facilities, and greatly expand the scope of public space, but at the same time its nature and characteristics change, so it is then called extended public space, which helps connect the new centers with the existing main center (Goodsell, 2003).

2.2.3. Networked cities

These are cities that seek to improve the living environment, promote economic development, improve the allocation of urban public spaces and resources, connect with the context, and improve or reform urban functions (Zhenbao et al, 2020).

2.3. Indicators for achieving a malleable renewal strategy depending on urban connectivity patterns in new cities

2.3.1. The malleable renewal strategy in organically interconnected cities is achieved through the following indicators:

- Creating self-supporting social and economic systems.

- Develop a sense of direction and clarity in restructuring parts of the master plan while defining the architectural items that will be involved in the design of added fabric projects, and supporting development processes that are compatible or adapted to the surrounding context.
- Densifying affordable housing versus providing space for renewable energy infrastructure so that the collective whole (as a public-private partnership) can achieve more than the sum of its parts.
- Integrating psychological concepts into redesigning master plans, such as place connection, sense of place, happiness or well-being, as well as social concepts such as cohesion, justice, or social change ([Von Wirth et al, 2019](#)).

2.3.2. The structurally interconnected cities, the above strategy is achieved via the following indicators:

- Reforming the elements that form the city's formal image, such as central business districts, streets or traffic paths, distinct city squares as main nodes, economic development areas, and indicative signs.
- Improving the compositional urban system to reach the required balance within the biological transformation process, and simulating a copy of the design by adding an urban element linking the non-essential nodes.
- Restoring distinctive areas or neighborhoods and making them adjacent to a place or space of public use, and transforming the difference from previously invested urban patterns to embody the creative, culturally continuous, democratic form.
- Gradual revival of distinct forms of embodying investment and development of the local economy ([Wu, 2007](#)).

2.3.3. While in networked cities, this strategy is achieved in light of a set of indicators as follows:

- Forming natural rooms and creating green corridors that guide urban growth and development, and create natural environmental links between the building, the place, and its external context, such as small gardens and trees.
- Reducing energy consumption, recycling waste, and supporting the change of infrastructure systems and their flows within new spaces.
- Connecting existing infrastructure networks with pedestrian spaces.
- Creating new programs that integrate infrastructure networks for new uninhabited areas with the urban fabric of the city ([Zhenbao et al, 2020](#)).

Depending on the patterns of urban interconnection, indicators for achieving the strategy of voluntary renewal can be referred to as Oberbillwerder city. Oberbillwerder is one of the most significant new urban developments in Hamburg in recent decades, second only to Hafen City. Due to its closeness to a rich natural environment and a culturally significant landscape, it will be an urban zone brimming with ecological resources and water.

The zone's landscape DNA transformed from a panoramic marshland among the Surrounding rivers into a scenic drained landscape, and the cultivated landscape branched into a pixel-like structure created by definite canals. Over the last decade, catalyzed by the railroad, the surrounding zones were replaced by pure nature and tiny villages into new suburban developments, briskly expanding the Hamburg metropolitan area into the situation that exists today.

The merged city aims to be a cause of inspiration that develops more than Hamburg and sets the agenda for comparable sites over the world. A city deeply connected to the history and cultural heritage of its landscape. An urban area designed to avoid becoming an isolated, stagnant time capsule. Instead, it focuses on uniting cities, fostering connections, and stimulating growth. In doing so, it will put forward Hamburg's second-largest region (after Hafen City) as a model of broad, affordable, resilient and visionary planning.

2.3.3.1. Landscape based city

The connected city is embedded in the regional landscape. It attaches to the surrounding landscape via an active green-blue network that continues to grow from it while drawing its unique characteristics from the landscape itself. The attached city is not only physically connected to its surrounding landscape; it's an extension of it in every way.

2.3.3.2. Framework for Interaction

The connected city represents inclusive development. The existing surrounding urban zones spread into the area, fusing to create more neighborhoods within Oberbillwerder. A basic and clear structure underpins the plan. It is explained by maintaining the current qualities of the landscape. Its linear framework, The plentiful water and the contrasting curves of the dike. The system of the water becomes one of the central qualities of the development. A dynamic, functional landscape system that filters and buffers water while ensuring high-quality living for all. This foundation incorporates dedicated spaces for infrastructure and greenery, positioning the landscape and public spaces as the core framework of the development

2.3.3.3. Active city:

The connected city is a healthy city due to its public spaces at its forefront. The green loop spaces are the central aspect of the public space organization. It connects the neighborhoods

with all significant social infrastructure via a green artery that merges sports, play, water, and the city. The green loop brings a new form of landscape urban infrastructure that is prepared for the challenges of the future. Adjacent to the green loop, a network of neighborhood squares provides intimate, small-scale spaces for community life, integrating new mobility options, local services, and cultural activities.

2.3.3.4. Mosaic of neighborhoods

This flexible framework forms a mosaic of neighborhoods and qualities. In the low-lying blue zone, for example, there are wider canals; at the same time, in the green area, large green bioswales and narrow blue streams dominate the structure. These distinct landscape features inspire unique identities for each neighborhood, serving as foundations for designing diverse housing types and potentially shared facilities.

2.3.3.5. Reinventing urban mobility

In the connected city, flexibility is more significant than Infrastructure. It is an ecosystem. It couples its unique mobility concept with flexible infrastructure and innovative technologies.

Europe's most sustainable neighborhood

The connected city is the performative city of the future. Planting and Streets are oriented to ensure optimal climatic comfort, blocks are developed to maximize PV and efficiency solar orientation, water and green become part of the city's DNA, and mobility will generate and save energy instead of consuming it.

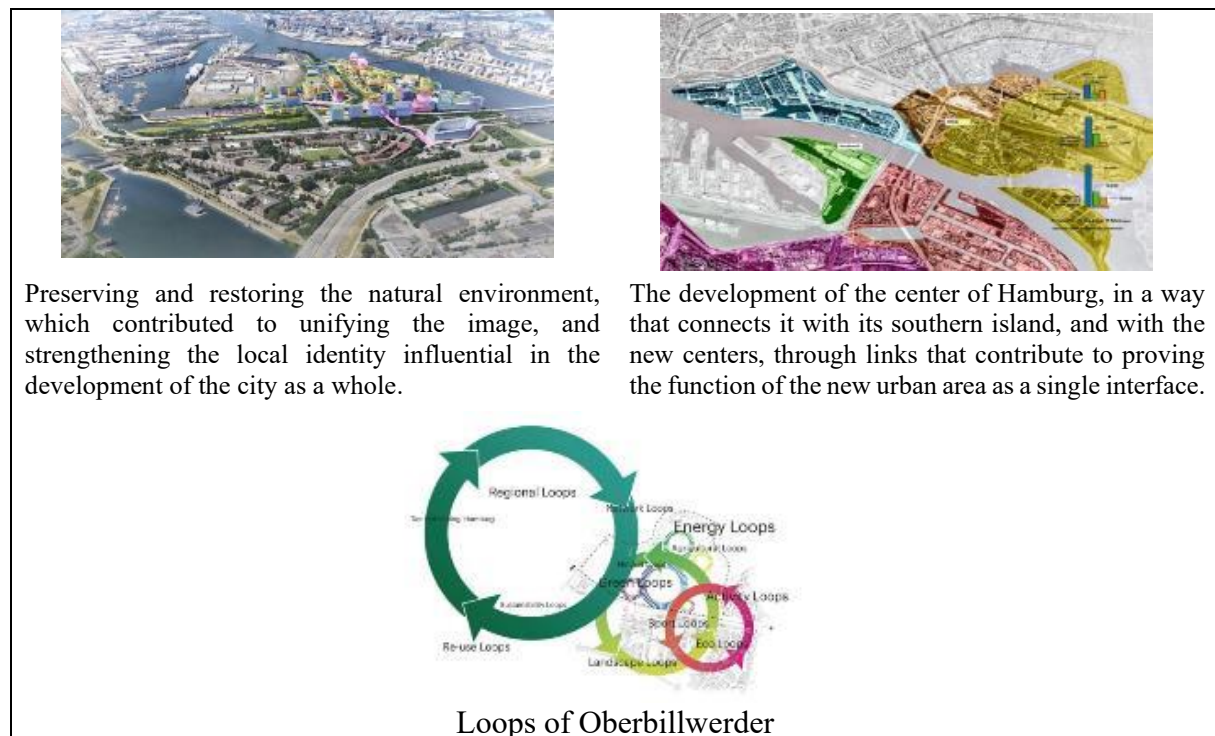


Fig.1. The strategy of malleable renewal to achieve urban democratization in connecting new cities with the center of Hamburg organically, structurally and networked.

3. PREVIOUS STUDIES

This topic focuses on the most important previous research in line with the malleable renewal strategy and its concern with city planning and the interconnection of its center with new city centers, to deduce the research problem. All previous research was in line with the most important criteria accessible in interpreting the malleable renewal strategy, which is (what the malleable renewal strategy is, the goal of this strategy, the type of urban connectivity it achieves, and the mechanisms for achieving this strategy).

3.1. Mutlu's study entitled (architecture: form, space), (Mutlu, 2009)

The study pointed to the criteria of the malleable renewal strategy to achieve urban democracy in embodying the interconnection of new cities with the main center of the existing city, such as physical, economic, social, and ecological factors. The physical factors include improving the standard of living in the built environment by expanding public services and infrastructure, producing safe living environments, and reviving urban design by improving the conditions of the built environment, such as streets.

As for the economic factors, they are embodied in creating jobs that meet increasing human needs, improving the functions of city centers, and strengthening funds and international relations for economic and sustainable development.

The social factors are: providing shelter, health services, and education, eliminating rural poverty, preserving social diversity by preserving the diversity of settlements to enhance solidarity among all people, and reducing rural-to-urban migration by expanding appropriate infrastructure, public services, and job opportunities for rural areas.

As for ecological factors, they are embodied in international cooperation to preserve nature and support sustainable development by promoting energy-saving technology, developing legal tools to protect the environment by putting environmental laws into effect, and increasing public awareness of environmental issues.

We conclude from the study that it focused on the physical, economic, social, and ecological factors affecting the malleable renewal strategy to achieve urban democracy in the interconnection of new cities with the core center of the existing city.

3.2. Glaeser & Steinberg's study entitled (Transforming cities: does urbanization promote democratic change?), 2016 (Glaeser and Steinberg, 2018)

The study clarified the general idea of the malleable renewal strategy in the compositional interconnection of the spaces of the new centers with each other through the total network of public spaces that are defined in the natural form of the urban fabric in each settlement or city, which can be considered as a single, continuous, and compositionally interconnected spatial

system within the master plan in light of identifying the optimum shortest paths between two urban nodes and connecting them to a specific street network, dismantling the structure of spaces and restructuring them with multiple meanings, relationships, and formal systems, dividing old and new neighborhoods and working-class neighborhoods according to cultural and religious criteria, and adapting the building to accommodate the new function while transferring many functions outside the urban fabric.

We conclude from the study that it is necessary to preserve the originality of the distinguished main center by (strengthening the worn-out fabric by adding elements that show the value of excellence, creating new formulas that carry the characteristics and spirit of the place, and unifying the public open spaces scattered in the middle of the city by rearranging some streets and dividing them again, which works to achieve urban cohesion between the new cities and the main center of the existing city.

3.3. The study of (John Ritter) entitled (infrastructure, intervention, and connectivity exploring urban architecture through the integration of infrastructure and landscape Cincinnati's central parkway), (Ritter, 2013)

This study referred to the malleable renewal strategy as a viable design intervention process that contributes to urban development, during the complex reconstruction of the existing master plan structure of the city, as the buildings and facilities that constitute the general structure of the city are combined in the light of a multi-level public space whose virtual perception is important also, in addition to their information capacity and their ability to transform and connect various new cities with one center.

Malleable urban spaces are multi-functional architectural and landscape entities designed following the application of the urban landscape redesign approach with a spatial connection with neighbouring areas. Malleable spaces are very important to the city's economy as they are the development engines for spatial, social, and public changes within the master plan.

The study concludes that adopting a malleable renewal strategy result in the formation of malleable or hybrid urban spaces and the restoration of natural landscapes, achieving urban democracy and urban interconnection between new city centers and the main center of the existing city.

According to the previous studies, the understanding of the gap and the need for research are evident, which is justified by inaction and negligence in employing the strategy of malleable renewal in reforming or organizing new urban zones and their interconnection with various patterns in most Iraqi cities. The work proposes that the possibility of connecting new cities with the existing cities structurally, organically, and network-wise is achieved through

stimulating the malleable renewal strategy in planning new cities. The most important terms and indicators can be extracted in [Table 1](#).

4. THEORETICAL FRAMEWORK

The theoretical plan was built through previous proposals and studies on adopting malleable renewal as a strategy that embodies the possibility of interconnection new cities with the existing cities within a coherent and unified design following a set of indicators and mechanisms, as shown in [Table 1](#). The theoretical framework included three main terms: the possibility of interconnection cities organically, the possibility of interconnection cities structurally, and the possibility of interconnection cities network.

The first main concept (the possibility of interconnection cities organically), which focuses on developing a unified concept of democratic public space and exploring its possibilities in organically linking new areas within the master plan, is achieved through three mechanisms: the organic organizing mechanism, which is concerned with organizing urban spaces and public places within the master plan, through the clarity of connection points and their sequence in the interconnection of areas and parts within the master plan, and developing a sense of direction and clarity in restructuring the parts of the master plan. The organic tension mechanism includes the integration of the elements and parts that make up the urban fabric hierarchically within an innovative design unit, and the scope of the public space is greatly expanded, but at the same time its nature and characteristics change, and it is then called the extended public space. The organic reconstruction mechanism includes reviving public squares and distinct streets in forming the overall space of the city and intensifying affordable housing in exchange for the availability of renewable energy infrastructure space.

The second main unit (the possibility of interconnection cities structurally), works to redevelop old neighborhoods, upgrade them, and reuse buildings in a way that ensures the creation of new urban centers interconnected with the existing city through three mechanisms, namely: the compositional improvement mechanism that focuses on restoring areas or neighborhoods, making them adjacent to a place or space of public use, and identifying the shortest preferred routes between two urban nodes and linking them to a specific street network. The compositional development mechanism focuses on transforming different from previously invested urban patterns and densifying buildings to accommodate new uses while moving many functions outside the urban fabric. The compositional redevelopment mechanism focuses on new, geometrically planned entries that cause a change in the visual formal characteristics of neighborhoods, and the selective assembly of new traditional design elements in a compact mass form and adjacent relationships.

The third term focuses on (the possibility of networking cities), which works to improve the allocation and repair of urban spaces through the network contextual innovation mechanism that works to create natural links between the building, the place, and its external context, and to connect the malleable spaces through organizational relationships, and the network rhythm mechanism that focuses on embedding a network of green infrastructure to the design of mixed urban spaces in the context of landscape urbanism. The network extension mechanism includes the integration between the local green space infrastructure network and the transportation framework of the district and pedestrian links system, and the integration between ecological ecosystem services and added external spaces.

Table 1. The main terms, possible mechanisms, and their indicators for the malleable renewal strategy in planning new cities. (The researchers)

The main Items	Variables	Mechanisms	Indicators
The Possibility of Interconnection Cities Organically	Planning and communication development for participatory design	Organic regulation mechanism	Clarity of connection points and their sequence in the interconnection of areas and parts within the master plan.
			Developing a sense of direction and clarity in restructuring parts of the master plan.
	Connecting the democratic (participatory) space	Organic tension mechanism	Integrating the elements and parts that make up the urban fabric hierarchically within an innovative design unit.
			Expanding the scope of public space significantly, but at the same time changing its nature and characteristics is then called extended public space.
	Expanding the democratic space	Organic reconstruction mechanism	Reviving public squares and distinct streets to form the overall space of the city.
			The intensification of affordable housing in exchange for the availability of space for renewable energy infrastructure.
The Possibility of Interconnection Cities Structurally	Adaptation and improvement of urban spaces	Compositional optimization mechanism	Restoring distinctive areas or neighborhoods and making them adjacent to a place or space of public use.
			Determine the preferred shortest routes between two urban nodes and connect them to a specific street network
	Orientation of urban spaces	Mechanism of compositional creation	The transformation in the difference from previous invested urban patterns.
			Densifying buildings to accommodate new uses while moving many functions outside the urban fabric
	Transforming the urban system	Compositional redevelopment mechanism	New geometrically planned entries cause changes in the visual formal characteristics of neighborhoods.
			The selective assembly of new traditional design elements in a compact mass form and adjacent relationships.
	Creating and renewing urban spaces	Network contextual innovation mechanism	Create natural connections between the building, the place, and its external context.
			Connecting malleable spaces through organizational relationships.

The main Items	Variables	Mechanisms	Indicators
The Possibility of Interconnection Cities Via The Network	Returning the priority of nature to city spaces	Network rhythm mechanism	Embed a network of green infrastructure to design mixed urban spaces in the context of landscape urbanism.
	Developing a socio-economic approach to urban spaces	Network extension mechanism	Integration of the local green space infrastructure network and the transport framework of the district and pedestrian links system
			Integrating ecological ecosystem services and added external spaces.

After revising the main concepts, mechanisms, and indicators, the questionnaire was organized, a qualitative and quantitative measurement methods were adopted by asking various questions and obtaining the percentages for the results.

5. PRACTICAL STUDY

A local intentional specimen was selected, and the work aimed to assume the city of Bismayah as an expanded, new urban expansion project from the master framework of Baghdad city as a new city materially and morally linked to the master plan and designed according to academic professional orientations employing the strategy of malleable renewal in linking its urban spaces with the actual essential center of Baghdad city as a developed basic design, and it embodies visual integration and functional convergence with diversification in the types of jobs and activities. The new city Bismayah project is the first and largest development project in Iraq in general and in the city of Baghdad in particular. Bismayah city is located to the southeast of Baghdad city, and is relatively ten kilometres from Baghdad city on the side of the international road connecting the cities of Baghdad and Kut, and the project was designed on an area of 1.830 hectares and can accommodate 600,000 people, and the total number of residential units is 100,000 units; from public facilities such as religious, recreational, commercial and educational facilities, the city also includes treatment plants The new city of Bismayah is the first city connected to its networks, spaces, blocks and urban hubs with the master plan of the city of Baghdad within an integrated design unit at all levels. As shown in Figs. 2-7.



Fig. 2. Location of Bismayah city concerning the boundaries of the master plan Baghdad city. [The researchers based on Google Map].

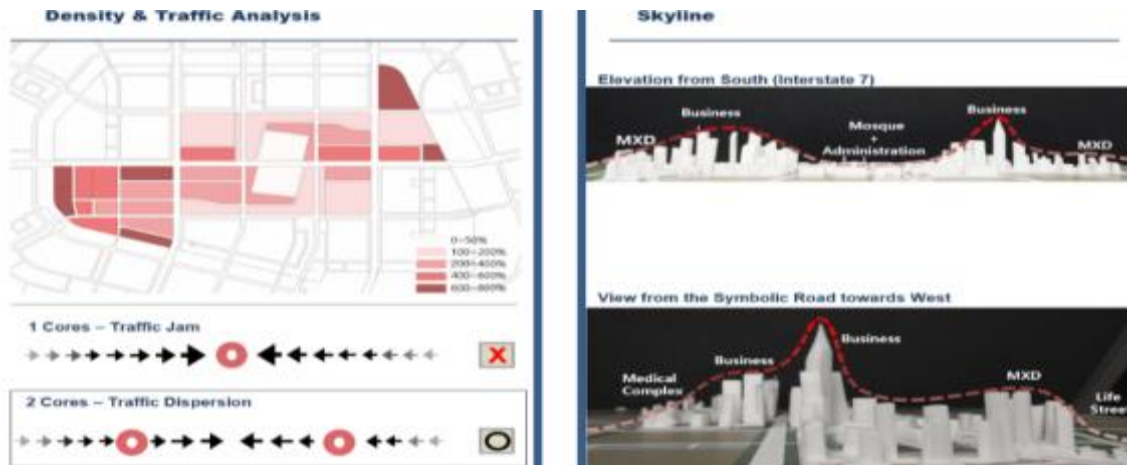


Fig. 3. The adoption of design strategies to achieve urban democracy and the formal mechanisms of urban interconnection contributed to contextual integration within the skyline of the city as a whole (Hanwha, 2012).



Fig. 4. Embodying the possibility of linking cities organically and compositionally within the strategy of malleable renewal to achieve urban democracy and at the level of intervention in solidarity (Hanwha, 2012).



Fig. 5. Linking the city with the master plan of Baghdad city networked by including a network of green infrastructure for the design of mixed urban spaces in the context of Landscape Urbanism (Hanwha, 2012).

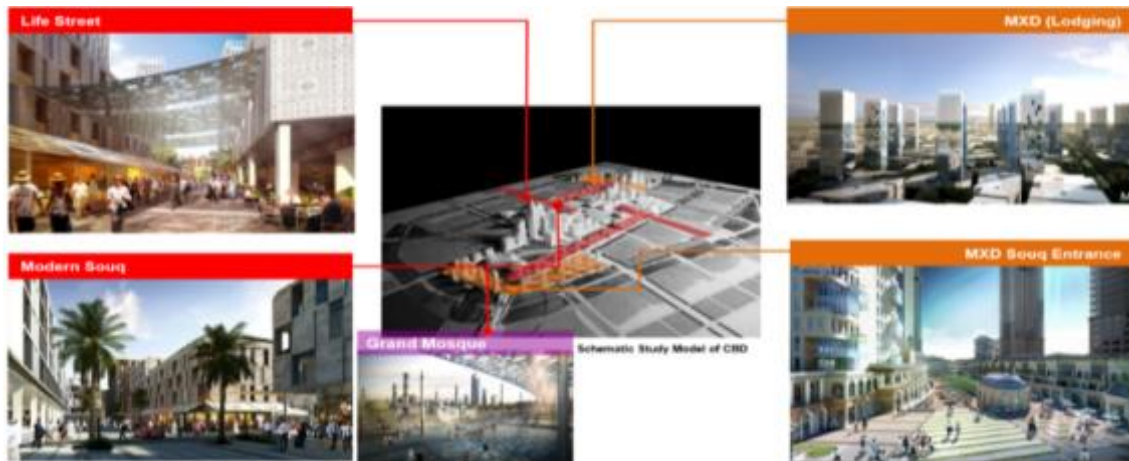


Fig. 6. Reconstruction of the basic design plan with urban spaces that obey the old and are interconnected organically, compositionally and networked (Hanwha, 2012).



Fig. 7. Main public squares, spaces and parks that are spatially interconnected with the new centers within the master plan scheme (Hanwha, 2012).

6. THE QUESTIONNAIRE FORM

The designated questionnaire included certain questions formed and formulated in a clear and simple comprehensible style that can be accessed in light of it to clarify the intended concept and understand the recipient via various interpretive formulas embodied in the questionnaire below, which are associated with the indicators of the strategy of malleable renewal in the possibility of connecting new cities with the existing at least five years to plenty out the form for the elected project. As shown in [Table 2](#).

Table 2. The questionnaire questions related to the malleable renewal strategy. [The researchers]

No	Questions	Evaluation				
		Total	Partial	Relative	Weak	Total
1	Did the malleable renewal strategy embody the reconstruction of the master plan with urban spaces compliant with the old and in an organically interconnected manner at the level of (full or partial solidarity, relative combination of both, or weak)?					
2	Did the malleable renewal strategy embody the reconstruction of the master plan with urban spaces compliant with the old and in a structurally interconnected manner at the level of (complete or partial solidarity, a relative combination of both, or weak)?					
3	Did the malleable renewal strategy embody the reconstruction of the master plan with urban spaces compliant with the old and in a networked manner at the level of (complete or partial continuity, relative connection that combines both, or weak)?					
4	Did the adoption of design or legislative strategies for democracy and formal mechanisms of urban interconnection contribute to bringing about contextual integration at a specific level of development?					
5	Did employing a design strategy for urban democracy in the city of Bismayah project contribute to acceptable connectivity and comprehensive spatial development within the master plan for the city of Baghdad at a specific contribution level?					

7. RESULTS OF THE PRACTICAL STUDY

The results include the results of the questionnaire for the main terms as follows:

The first question: Did the malleable renewal strategy embody the reconstruction of the master plan with urban spaces compliant with the old and organically interconnected at the level of (full or partial solidarity, relative combination of both, or weak)?

The results of the application revealed that the malleable renewal strategy achieved the reconstruction of the master plan with urban spaces that were compliant with the old and in an organically interconnected manner within varying proportions of levels of intervention. Intervention with relative synergy achieved the highest rate of 57% in the formation of transformed urban elements in which the new and old elements were integrated within the master plan for the city of Baghdad. In comparison, the level of intervention with partial interdependence achieved a rate of 30% in reorganizing areas with tensile forces and cohesion between the various distinctive signs in the old fabric, and the level of intervention with total interdependence achieved a rate of 10%. In comparison, the level of intervention with weak interdependence achieved a rate of 3% of its effect in the fabric, is shown in [Fig. 8](#).

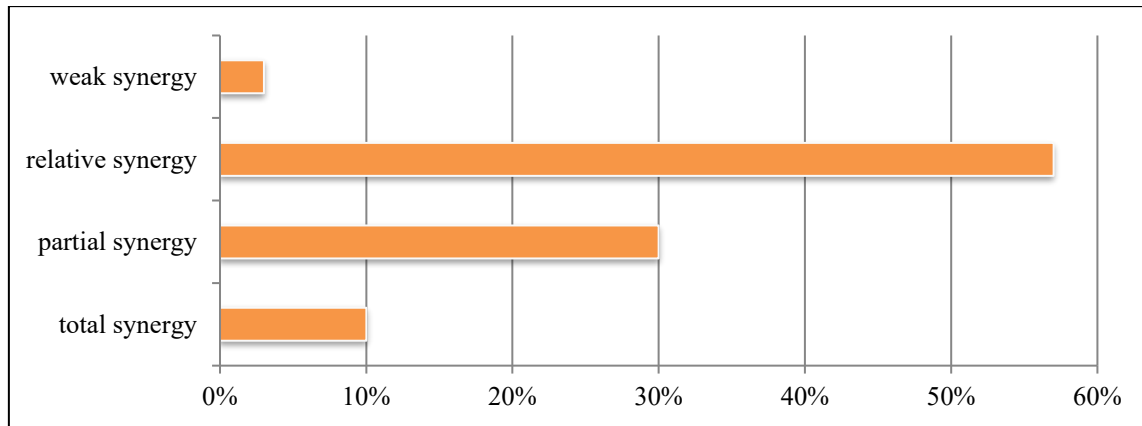


Fig. 8. Shows the result of Q1. [The researchers]

The second question: Did the malleable renewal strategy embody the reconstruction of the master plan with urban spaces compliant with the old and in a structurally interconnected manner at the level of (complete or partial solidarity, a relative combination of both, or weak)? Employing the strategy of malleable renewal contributes to the reconstruction of the master plan with urban spaces malleable to the old, in a structurally interconnected manner, and within varying ratios of levels of intervention in the fabric. The level of partial solidarity intervention achieved the highest percentage in stimulating the spatial interdependence of the shrinking historical nucleus in harmony with the surrounding areas of the city of Bismayah. Its percentage was 77%, while the level of intervention with total solidarity achieved a lower percentage when analyzing the results of the application, represented by 17%. The level of intervention with weak solidarity achieved a percentage of 6%, while relative solidarity was non-existent in the answers of some respondents, is shown in [Fig. 9](#).

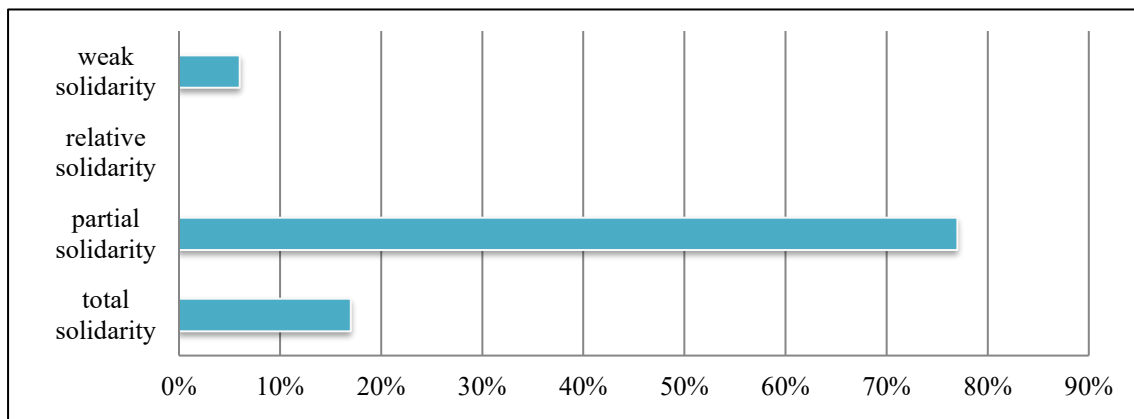


Fig. 9. Shows the result of Q2. [The researchers]

The third question: Did the malleable renewal strategy embody the reconstruction of the master plan with urban spaces compliant with the old and in a networked manner at the level of (complete or partial continuity, relative connection that combines both, or weak)?

The malleable renewal strategy achieves the reconstruction of the master plan with urban spaces that are malleable to the old and networked according to the varying levels of intervention levels within the fabric. The level of intervention in relative continuity achieved 67%, which enhanced the opportunities for creating natural environmental links between the building/place and its external context, such as small gardens, while the level of intervention with partial connectivity achieved a rate of less than 20% in supporting the change of infrastructure systems and their flows within new spaces, and the level of intervention with total connectivity achieved a rate of 13% in enhancing nonlinear dynamics and self-organization within the network of urban spaces with fractional rhythms, while the level of intervention with weak connectivity was 0%, is shown in Fig. 10.

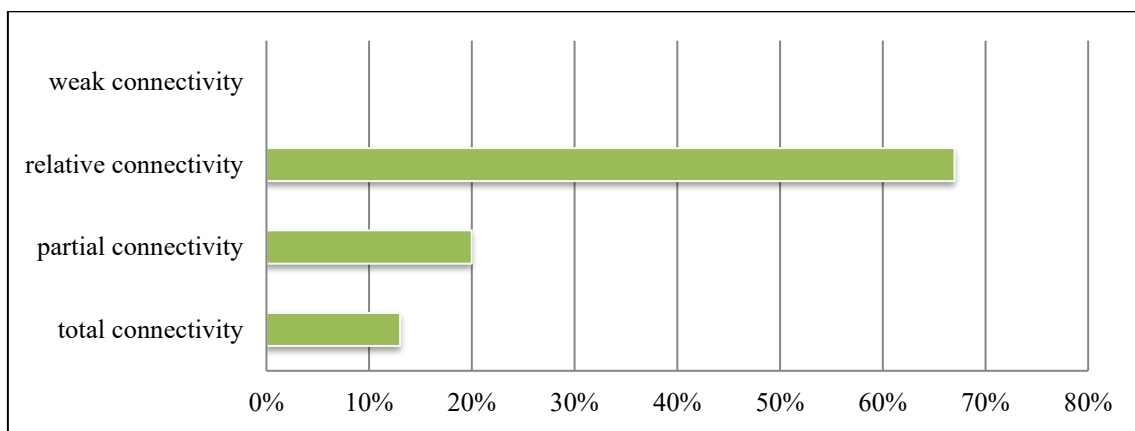


Fig. 10. Shows the result of Q3. [The researchers]

The fourth question: Did the adoption of design or legislative strategies for democracy and formal mechanisms of urban interconnection contribute to bringing about contextual integration at a specific level of intervention?

Adopting design or legislative strategies to achieve urban democracy and formal mechanisms of urban cohesion helped bring about contextual integration in varying proportions. Partial modernization achieved the highest percentage of 50% in redefining problems in advance to present those problems as possibilities that generate different design solutions. The level of intervention through total and weak modernization showed a percentage of 27% and 23%, respectively, while the level of intervention through relative development within the Bismayah city plan reached 0%, i.e. weak, is shown in Fig. 11.

Question five: Did employing a design strategy for urban democracy in the Bismayah project contribute to enhancing connectivity and comprehensive spatial development within the master framework of Baghdad city at a specific contribution level?

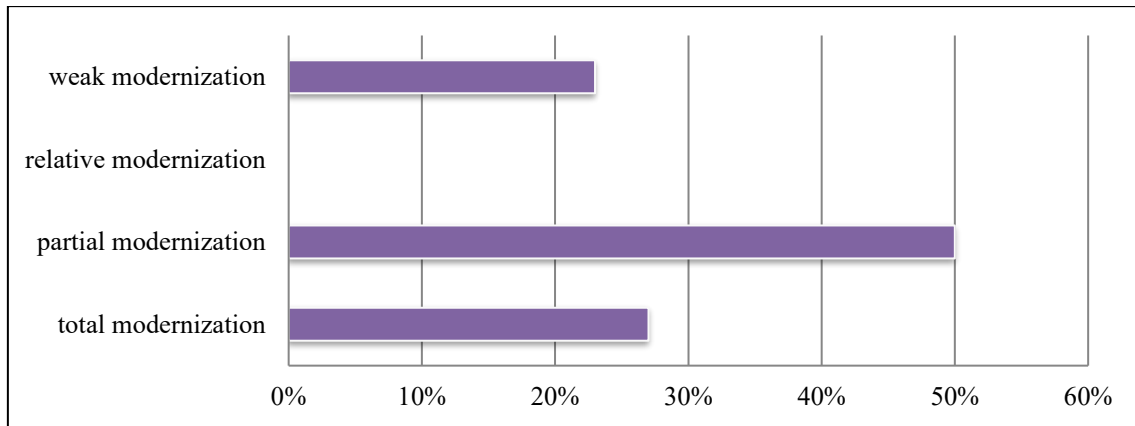


Fig. 11. Shows the result of Q4. [The researchers]

Employing a design strategy for urban democracy in the Bismayah project contributed to enhancing urban connectivity and extensive spatial development within the master plan for the city of Baghdad in different proportions. The partial contribution reached 53% and was the highest in creating continuous places that conserve the invisible and visible values of the community. The total and relative contribution is less than 20%, while the level of intervention with weak contribution achieved a rate of 7% in developing and improving the master plan, as shown in Fig. 12.

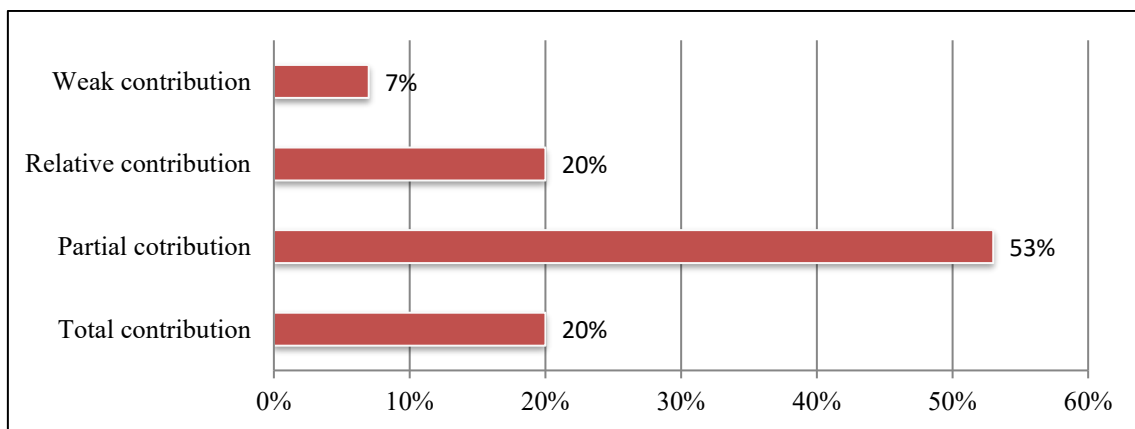


Fig. 12. Shows the result of Q5. [The researchers]

The Question Six: Did urban design strategies for democracy aim to connect Bismayah's city center, as a new urban development, with Baghdad's existing foundational design through an integrated design framework and a defined level of intervention?

The analysis of the results indicates a discrepancy in the values of embodying the urban interconnection among the new city center and the current center. The partial intervention in connecting the spaces through movement and visual axes appeared at a rate of 47%, which is the highest percentage. In comparison, the relative intervention was achieved in connecting the rest of the buildings with each other and the existing urban center based on planning

transformation policies has a lower percentage of 30%, followed by weak intervention with a percentage of 17% in identifying the elements that provide free growth and prepares some organizational indicators for future change, so that the total intervention within the city occupies a lower percentage of 6% in urban connectivity and development, is shown in Fig. 13.

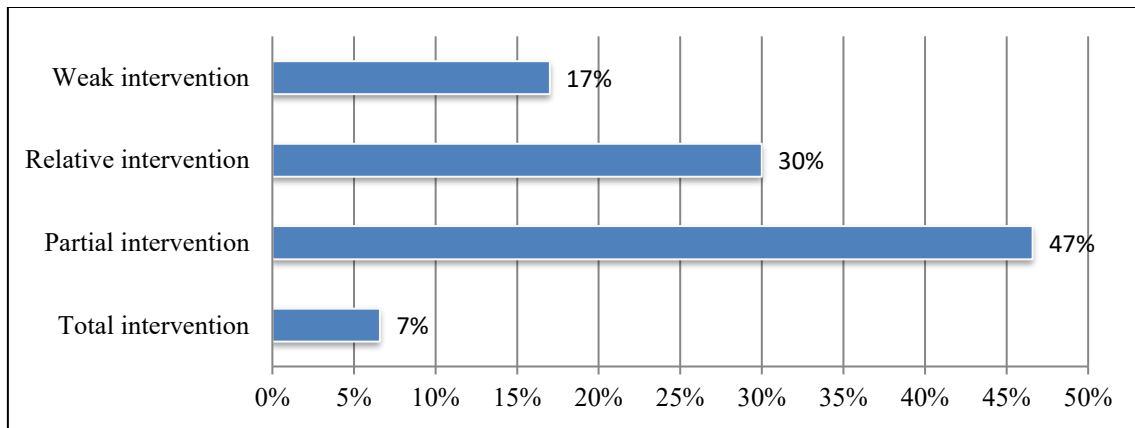


Fig.13. Shows the result of Q6. [The researchers]

8. CONCLUSIONS

- Urban interconnection is the partition or association of critical urban nodes with axes and other places as joints that in turn redevelop the city, clarify the development of modern city centers and interface them together spatially and transiently.
- In case the urban interconnection approach is connected to unused cities, the result will be different shapes and designs of those cities inside the ace arrange plot, counting: spatially interconnected cities, practically interconnected cities, and regularly interconnected cities, each of which has instruments and markers for its execution inside a coherent urban environment.
- The malleable renewal strategy has appeared effectiveness in embodying an organically, structurally, and networked interconnected city within the master plan scheme, and each of these cities has different mechanisms such as: (the organic organizing, the organic tension, and the organic reconstruction), (the compositional improvement, the compositional development, and the compositional redevelopment), and (network contextual innovation, network rhythm, and network extension), each of these mechanisms has different implementation indicators
- The improvement of the urban zones Bismayah venture and the enhancement of their spaces inside the existing ace arrangement for Baghdad city was based on the rule of community strengthening (community cooperation), which centred on redoing places for

individuals with the improvement of auxiliary and supporting spaces of the existing center (Baghdad) city.

- The malleable renewal strategy has contributed to improving the network and comprehensive spatial improvement inside the ace arrange of the city of Baghdad, as well as contributed to the overhauling of urban slums.
- The open-plan procedure comprises adjusting urban spaces and actualizing the thoughts of centralization, integration, and communication by interfacing most public squares and parks within the existing city center with the spaces of unused city centers practically, spatially, and ordinarily.
- The malleable renewal achieved to the reconstruction of the master plan with urban spaces that were compliant with the old according to the levels of intervention within the fabric, and in:

1. An organically interconnected manner: The level of intervention in relative synergy had the greatest impact on the development of a sense of direction and clarity towards the restructuring of the parts of the master plan with the identification of the added architectural vocabulary.

2. A structurally interconnected manner: The level of intervention in partial solidarity played the most effective role in adapting the building of outstanding value in its context to accommodate the new use with the transfer of many functions outside the fabric.

3. A networked interconnected manner: The level of intervention by relative connectivity was of great importance in creating natural environmental links between the building/ place and its external context such as small gardens on the one hand, and connecting the malleable spaces with each other with organizational - spatial relationships that enhance spatial depth on the other hand.

- The modernization of contextual integration in accordance with the adoption of the design or legislative strategies of urban democracy and the formal mechanisms of urban interconnection achieved the greatest impact within the level of intervention by partial modernizations.
- The employing design strategies for urban democracy in the Bismayah city project contributed to enhancing connectivity and comprehensive spatial development within the master plan for the city of Baghdad at the level of an effective partial contribution to the integration of the urban center with its commercial, cultural and residential functions with remote rural areas.

- The urban design strategies for democracy embodied the main goal of linking the center of Bismayah as a new city with the existing master plan of Baghdad within an integrated design unit of the highest importance within the level of partial intervention.

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