

Indicators of visual integration in urban development projects in the commercial markets in the city center of Erbil

Esraa Ahmed Mosa¹, Mumtaz Hazim Al-Dewachi²
Esraa.enp121@student.uomosul.edu.iq¹, momtazdewachi@uomosul.edu.iq²

1,2 University of Mosul, College of Engineering, Department of Architecture, Mosul.

Corresponding author: Esraa Ahmed Mohammed Mosa, email: Esraa.enp121@student.uomosul.edu.iq

Co-authors: Mumtaz Hazim Dawood Al-Dewachi, email: momtazdewachi@uomosul.edu.iq

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Abstract. The last decade was characterized by enormous urban development projects within the center of Erbil where commercial land use is dominant and it is represented by traditional markets or Bazaars. Neshtiman commercial complex is an example that has some distinguishing features in comparison with the adjacent traditional Bazaar.

The issue of visual integration in urban development is regarded as an essential matter which gives more positivity to the project and enhances the whole area. Urban masters had mentioned and established some indicators of the visual integration. This paper tries to explore the visual integration indicators of the Neshtiman complex with its traditional surroundings in order to improve the existing situation and to obtain some guidelines that may be helpful in future development projects.

Keywords. integration, visual integration, urban development, commercial markets, urban scene.

Introduction.

Integrity refers to adherence to artistic or moral values, state of lack of corruption, stability, quality or state of being whole and undivided, completeness. (Dewachi 2019).

Idiomatically: According to (Ali & Armstrong 2007, p.7): Integration is defined as the process of coordinating and designing building systems to work together in a comprehensive manner for the purpose of achieving the highest levels of comfort and efficiency.

According to (Hussain 2008): it is the act or process of uniting the parts in their dissipated state that cannot be comprehended in order to reach every conceivable physical or functional unit.

As for integration in architecture, it is defined by the formation or blending of individual or collective components in all, which gives unity and within the building systems, the integration is the act in creating the building's total function that contains the building systems in all its diversity (Rush, 1986, p.8).

(Hussain 2008) has defined urban integration as the integration of the components of the urban environment in terms of their functional factors (social, economic, and environmental) to reach the integrated urban performance, which is functional

integration, and the integration of the components of the urban environment from a physical point of view to reach a unified whole (visually and synthetically). This integration is achieved through the functional and physical mixture and aims to achieve social integration instead of social isolation.

Thus, the procedural definition of integration was reached as a linking and blending relationship between the different building systems with harmonic relationships to achieve unity so that the building does not appear in the form of independent components one from the other.

The first axis: the theoretical framework

1. Visual integration Definitions

It is the method of sharing between the structural components of assembling and composing the image of the form (Leonard R. Bachman 2003).

According to (Ward, p165): The visual integration is the organization of the components of the urban structure in the city, which clarify the integrated urban and sensory image of the relations between the visual characteristics, giving the city its identity and its distinctive urban character.

As for (Scott), he defined visual integration through the parts interconnected with relationships for the purpose of achieving the overall composition. (Scott, p30,179,193).

Thus, the procedural definition of visual integration is intended to be a set of elements and factors of facades and buildings, and it is achieved by linking these factors (at the level of the part and the whole) to form a unified visually integrated form and unify the urban landscape in city centers.

Lynch identified the visual treatments to shape the city to achieve an integrated and rich mental image, as follows:

- 1- Singularity: as the clarity of the visual boundaries of the formation.
 - 2- Form Simplicity: Forms that are characterized by simplicity and clarity, such as geometric shapes, are easier to perceive than complex formations.
 - 3- Continuity of formation elements: they are either continuity within the formation borders or on their surfaces (such as the sky line and the regression in buildings).
 - 4- Clarity of Joints: The strong points of contact, such as the strength and clarity of the intersection between two roads.
 - 5- Directional differentiation: such as variation in formation density, road width and curves.
 - 6- Visual Scope Confirmation: Transparencies, Overlap, or Panorama, which increases the depth and richness of vision, such as a wide-open area or seeing an open view from a high place. Confirming the visual range increases the chances of visual perception of the elements.
 - 7- Emphasis on motion awareness: through the clarity of curves, directions, the dynamics of spatial formations, and so on.
 - 8- Time series of composition elements: Taking care of designing the tonal sequence of spaces, textures, movement, lighting, sky line, Silhouette formation, etc.
 - 9- Names and meanings: they are non-formal characteristics, which confirm the clarity of the elements. Names in particular are considered of great importance in crystallizing the personality of the element or place. (Yusuf 1983).
- Cullen identified two levels to achieve the visual unity of the urban landscape, as the following: (Al-Qaisi 2016).
- First:** At the level of the whole: It included the following visual characteristics and what are the relationships that achieve visual integration;
- Urban Scale: Neighborhoods in order to determine the urban scale of the street;

- Building line of scenery façade: Sky line continuity;
 - Skyline façade scene: Building line continuity;
 - Directivity of buildings: the directionality of the urban landscape, which is determined by the flexibility of shapes, their formation and arrangement in the landscape.
- Second:** At the level of the part: It includes the following visual characteristics and what are the relationships that achieve visual integration;
- Boundaries of blocks: organize the edges of shapes and create a sense of a unified exterior;
 - Façade openings: repeat and match slots;
 - Block size: the volumetric continuity of the elements;
 - Formal processors (architectural details): repeating formal processors.

R. Bachman Leonard clarified three types of building integration, which are physical integration, visual integration, and performance integration.

Table1. The most important characteristics that were mentioned in the previous studies

| Studies | Main characteristics | Details |
|---------------|---|---|
| Lynch 1960 | Visual Processing to shape the mental image of the city | Uniqueness, simplicity of form, continuity of elements, clarity of connection points, differential in movement direction, confirmation of visual range, confirmation of motion perception, temporal sequence of elements, names and meanings. |
| | The visual elements that make up the mental image | Paths, borders, sectors, nodes, features. Which are organized by three |

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| | | characteristics (identity, structure, meaning). |
| Cullen 1961 | Visual properties for Visual integration (part level) | Block boundaries, façade openings, volume, architectural details. |
| | Visual properties for Visual integration (whole level) | Urban landscape scale, building line, sky line, directionality. |
| Leonard 2003 | Visual Integration Factors | Color, size, shape. And the elements on the façade (lighting, air conditioning, plumbing fixtures). |
| | site systems | Topography, surrounding structures, building mass, perimeter, landscaping, paving, drainage, public utilities, site lighting, annexes. |

The second axis: the practical study

Erbil city center area has been selected to observe the development projects in it and investigate whether they achieve visual integration or not. The reason for choosing this area is due to its historical importance and the great cultural heritage it poses for the city of Erbil. Erbil being a destination for tourists due to the presence of the ancient Erbil Citadel and some important and vital commercial areas in it. The municipality of Erbil city has specific conditions and regulations that must be observed in urban development projects taking place in the Erbil city center area. These regulations and laws have been clarified through a study conducted by the city municipality of Erbil about the city center, which will be clarified later in this research.

Two measurement methods were used. The first was a field study that included cognitive studies by the researcher to observe and measure the characteristics of the urban landscape in the city center of Erbil, especially in the Neshtiman complex. The field study included photographs and perceptual methods for the

purpose of measuring the characteristics of the urban landscape.

The second measurement method included a questionnaire form. The questionnaire dealt with a number of questions about the city center of Erbil, and other questions about the Neshtiman complex and the old Qaysari bazaar. These questions are mainly related to the visual integration characteristics and accessibility of the Neshtiman complex, as well as services and functional characteristics in order to achieve contextual integration in the city center.

2. Brief About the city of Erbil

Erbil City, also known as (Arabela, Erbil, Urbilm, Arbeltis, and in the Kurdish language is known as Hawler) is the capital of Kurdistan region within the Federal Republic of Iraq. It was established as the capital of the Kurdistan Regional Government in 1970 (Yaqoobi, Michelmore & Tawfiq. 2012).

Erbil and its outskirts have an urban heritage dated back to ancient eras that are close to the first appearance of civilized societies in the world. Starting with its citadel, which until 2007 was considered one of the oldest living inhabited cities in the world, and its urban architectural heritage varies as a result between the original styles dating back to the third century BC (Encyclopedia Britannica, 2017).

The city center contains the most important commercial markets in the city, which is the old Qaysari Bazaar. The Bazaar consists of a spacious hall, high and forked, and two main doors.

The southern door and the western one are distributed on several sides which makes the visitor in front of other branches and entrances eventually reaching several shops. In addition to the presence of many gaps in the roof of the bazaar that are used to bring in light and ventilation. Recently, this bazaar has been restored to its urban form according to the old style in line with how the citadel was built. While preserving its purely commercial character, as it still contains a market for goldsmiths, perfumers, sweets, foodstuffs, butchers, and clothes. (Al-Mada newspaper. 2013).

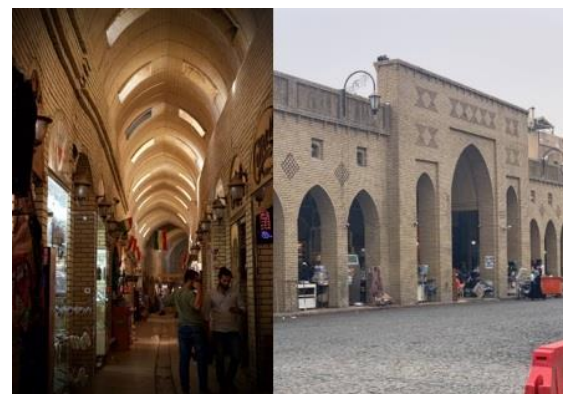


Figure 1.2: The main Qaysari bazaar in Erbil City center.

Erbil Center also contains Neshtiman complex, which is located next to the Erbil Citadel, 200 meters away.

The new shopping center Neshtiman complex has been built and consists of 5,000 stores (Bornberg 2006). There is a cemetery at the back of the mall and the presence of the cemetery restricts access and reduces its external appearance. As for the front part that the mall overlooks, there is Neshtiman Park, or the so-called "Shar Garden". The square was built in 2010, and this square is part of the plan to redevelop the city of Erbil. (Mohammadi 2014). Neshtiman Park was inaugurated on March 21, 2012, in celebration of Newroz. The city of Erbil, the capital of Kurdistan, has become more popular with this central main square in the city center established by the Ministry of Municipality. Neshtiman Park covers an area of about 17,000 square meters, in the center of Erbil city adjacent to the Erbil Citadel, in front of Neshtiman complex, surrounded by a series of commercial stores that complete the whole picture of the space. It is (1 km) away from (The 30 meters road). (Saleh & Bakir 2018).



Figure.3: Shows Neshtiman Complex in Erbil City center

The garden consists of several fountains and benches. There are also many cafes on both sides of the square. The square offers a wonderful view of the castle. However, before this square, there was an old market called "Dalal Khaneh", where many merchants and vendors worked. According to a lawyer from Erbil Governorate, Dalal Khaneh consisted of 638 shops, and some shops had more than one merchant working in them. Unfortunately, there are no written records or documents relating to the history of this bazaar.



Figure 4. 5: the first figure shows Dalal Khaneh that has been replaced by Neshtiman Park in the second figure.

According to the Director of the Department of Archaeology in Erbil (2013), a decision was decided by the Ministry of Endowments and Religious Affairs and the Erbil Archaeology Department in 1997 to remove part of the cemetery. The purpose of this removal was for two reasons: first, it is located in the center of the city and has been there for more than 70 years. Secondly, the city of Erbil is growing at a rapid rate and it needs to be removed to make room for some future redevelopment. Thus, the municipality of Erbil contacted the registered grave owners to transfer their graves to another cemetery located east of Erbil.

3.Erbil City Municipality Study 2013 (Regulations and Conditions)

These planning and building codes for Buffer Zones for Erbil Citadel and its environs are "regulations" partial revision and additional details of the "Urban Design Guidelines for Buffer Zone for Erbil Citadel" developed by ARS Progetti SPA and approved in June 2011.

The provisions set forth herein replace by any other design guidelines and other local bylaw or ordinance with a similar purpose.

4.Buffer Zone

The current regulations apply in the buffer zone of the Erbil Citadel.

The buffer zone extends concentrically around the Citadel. It includes the area between the first rounded road around the citadel (Al-Sharawani Road / Al-Qalaa Street) and the thirty (30) meters road (Barzani Namr Street), and the area around the minaret garden.

The buffer zone is divided into buffer zone A and B:

Buffer Zone A: It includes the area that surrounds the citadel directly (between the Citadel Road and the First Rounded Road) and the historic Tajil area. This area is under a higher level of protection due to its heritage values.

Buffer Zone B: It includes the area between the First Ring Road (Al-Mudhafari Street) and the Thirtieth Ring Road (30) meters. And the area around the minaret garden. This area is subject to a lesser degree of protection.

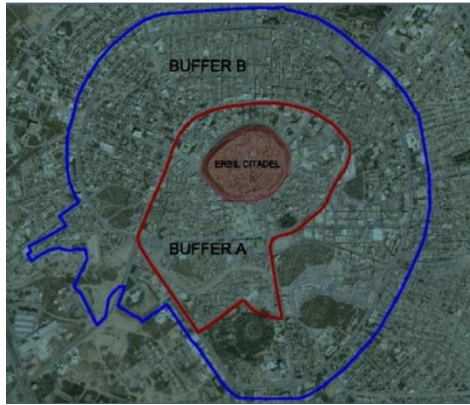


Figure.6: Buffer zone in Erbil city center.

The buffer zone is divided into seven types:

- A- Conservation areas: areas with high heritage values and protection level.
- B - Transitional areas: historical areas, but with some modern buildings.
- C- Reconstruction areas: the areas in need of merging with the historical neighborhoods and the citadel.
- D- Urban Corridor: areas with a strong commercial focus.
- E - Consolidation areas: target areas to enhance the current rating.
- F- New courtyard development areas: the areas targeted to maintain the courtyard house style.
- G- Regeneration areas: areas targeted for revitalization or/and redevelopment of sections of their built texture.

Table.2: shows the most important criteria and regulations of new buildings and development projects in Erbil city center

| Criteria | Regulations | Details |
|---------------|--|---------|
| Building form | -Sky line continuity -Consistency with the existing context -The composition of the façade and the shape of the roof are consistent with the neighborhoods | |
| Building Type | It is not allowed to use different decorations and colors It is not permissible to repeat the shape | |

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| | of the traditional building | |
| Land use | Primarily commercial | Commercial units of different sizes, with a variety of goods offered, and a special section for handicrafts and local crafts |
| | cultural | Providing historical museums that reflect the heritage and history of the city |
| | entertainment | Providing public open spaces containing green cover and fountains |
| Maximum Height | (5) floors, which is equivalent to (18) meters, which is the maximum height of the buildings | Two floors underground are permitted |
| Facades | Building Setback | No front or side setback is allowed. Development shall follow and continuous building line. |
| | The openings | Consistent and even, without ornaments |
| | finishing materials | Wood, metal, aluminum or PVC), walls: (Stone, brick or gypsum Aluminum and plastic sheets are not allowed Avoid colors such as pink, blue, green, violet or black). Only façades made of concrete blocks or concrete are allowed |
| building materials | Both traditional and modern materials are permitted. All construction techniques are | |

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| | permitted. | |
| Streets | Separating the street from the pedestrian path by using low poles or safety barriers. | |
| Parking | Underground parking Public temporary parking at the front of the streets in special cases. | |
| Public facilities | Public restrooms | |
| | Seats | (Simple and limited types, it is necessary to be available in public squares and gardens, to be of iron or steel with wooden seats or a concrete mixture and stone aggregates, the colors are according to the totals). |
| | Lighting | It is recommended to be traditional shapes or modern types with a simple design. |

5. Results of the practical study:

First: Field Study

Based on regulations from the municipality and the factors of visual integration that were clarified in Table No. (2). The most important characteristics regarding the research subject will be taken and a comparison made between the old Qaysari bazaar and the Nishtiman complex to see the compatibility of these two commercial centers with the factors of visual integration.

Table.3: shows a description of the most important indicators of visual integration in the old Qaysari bazaar.

| Indicators of visual integration in Qaysari bazaar | | Description |
|--|---------------------|--|
| Part Level | Façade shape | Traditional shapes and the use of arches. |
| | Finishing materials | Local heritage compatible with the environment of the center |

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|-------------|----------------------------|---|
| | Façade color | Local, matched with the colors of the citadel. |
| | Building type | The use of traditional methods in construction |
| | Visual gradation of blocks | one gradation, unified |
| Whole Level | Scale | Human |
| | Repetition of elements | Repetition in arches and openings |
| | Domination | It is considered as a focal point in the center area. |
| | Balance | Compatible with the surroundings |
| | Organizing (coordination) | Visual and Commodity Diversity |
| | Connection | Strong with the surroundings |
| | Visual sequence | Continuous on a spatial level |

Table.4: shows a description of the most important indicators of visual integration in the Nishtiman mall.

| Indicators of visual integration in Nishtiman mall | | Description |
|--|----------------------------|---|
| Part Level | Façade shape | modern geometric shape. |
| | Finishing materials | Modern, not compatible with the environment of the center |
| | Façade color | Different from the colors and facades of the citadel. |
| | Building type | Geometrical, Different from the old Qaysari bazaar and the citadel. |
| | Visual gradation of blocks | Simple gradation in the blocks to identify the main entrance |
| | Scale | Human |
| Whole Level | Repetition of elements | Repetition of entrance and window openings |
| | Domination | A different type from the existing local markets and the citadel |
| | Balance | Not Compatible with the |

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| | | surroundings |
| | Organizing (coordination) | Limited visual and commodity diversity |
| | Connection | Weak with the surroundings |
| | Visual sequence | Continuous |

Second: Questionnaire Form

The results of the questionnaire are presented in table (5), which shows the number of people who completed the form including the available options selected. The data displays a percentage for each response and compatibility of the commercial centers located in the city center of Erbil with the visual characteristics to achieve visual integration.

Table.5: Shows the questionnaire result

| Visual Integration Indicators | | I agree | I totally agree | neutral | I don't agree | I totally don't agree |
|---------------------------------------|-----------|---------|-----------------|---------|---------------|-----------------------|
| Façade shape | Frequency | 41 | 5 | 29 | 31 | 10 |
| | Percent | 35.3 | 4.3 | 25.0 | 26.7 | 8.6 |
| Façade finishing materials | Frequency | 40 | 4 | 27 | 37 | 8 |
| | Percent | 34.5 | 3.4 | 23.3 | 31.9 | 6.9 |
| Façade color | Frequency | 54 | 10 | 26 | 20 | 6 |
| | Percent | 46.6 | 8.6 | 22.4 | 17.2 | 5.2 |
| building style | Frequency | 24 | 3 | 27 | 49 | 13 |
| | Percent | 20.7 | 2.6 | 23.3 | 42.2 | 11.2 |
| Visual gradient of masses human scale | Frequency | 73 | 15 | 24 | 4 | 0 |
| | Percent | 62.9 | 12.9 | 20.7 | 3.4 | 0 |
| sky line | Frequency | 50 | 5 | 37 | 20 | 4 |
| | Percent | 43.1 | 4.3 | 31.9 | 17.2 | 3.4 |
| Repetition of items domination | Frequency | 56 | 8 | 32 | 18 | 2 |
| | Percent | 28.3 | 6.9 | 27.6 | 15.5 | 1.7 |
| balance | Frequency | 54 | 6 | 27 | 27 | 2 |
| | Percent | 46.6 | 5.2 | 23.3 | 23.3 | 1.7 |
| Organizing and coordinating | Frequency | 51 | 6 | 25 | 28 | 6 |
| | Percent | 44.0 | 5.2 | 21.6 | 24.1 | 5.2 |
| Connection | Frequency | 68 | 12 | 19 | 15 | 2 |
| | Percent | 58.6 | 10.3 | 16.4 | 12.9 | 1.7 |
| Visual sequence | Frequency | 70 | 33 | 9 | 4 | 0 |
| | Percent | 60.3 | 28.4 | 7.8 | 3.4 | 0 |
| | Frequency | 45 | 12 | 31 | 23 | 5 |
| | Percent | 38.8 | 10.3 | 26.7 | 19.8 | 4.3 |
| | Frequency | 57 | 10 | 31 | 12 | 6 |
| | Percent | 49.1 | 8.6 | 26.7 | 10.3 | 5.2 |

Conclusions

1-The citadel bazaar (Al-Qaysari) is considered the most important traditional heritage market in Iraqi Kurdistan, especially in the city of Erbil, the capital of Kurdistan. Its urban characteristics matched with the urban characteristics of the Islamic heritage shops contrast with the commercial center (Neshtiman) located near to the citadel. This commercial center includes a modern development in the design taken from Western designs and move away from the basic and formal characteristics of traditional heritage markets.

2-Development projects, especially the Neshtiman commercial center, were not taken into consideration by the laws and regulations established by the municipality regarding the center area.

3- Most of the people who answered the questionnaire confirmed that the style of the Neshtiman complex does not match the local and heritage style of Erbil Citadel and its neighborhoods.

4- A large market presented in this way along with the design negatively affected Erbil Citadel as it is the main focal point there. The results of the survey confirmed the existence of a visual opposition between this complex and Erbil Citadel. Most of the respondents considered the complex to be the main focal point in the center of Erbil but felt the Erbil Citadel should be the main one.

5- Opinions were similar regarding the finishing materials for the facades, the shape of the facades, and the similarity between the facades of the old Qaysari bazaar and the Neshtiman complex. In fact, the change in the use of materials and the mixture between the old and the modern material led to a change in the characteristics of the urban landscape and thus weakened the identity of the center. As for the façade opposite the graveyard, it is chaotic and lacks coordination, in addition to containing air conditioners and electrical equipment that was supposed to be hidden and arranged in an orderly geometric manner.

Recommendations

1- The use of traditional building materials in historical centers is essential and important to preserve the local identity, and to avoid using global materials or colors that doesn't match with the prevailing local context.

2- Preserving the local style, architectural details and traditional forms in all the buildings around the citadel is considered the most important steps to preserve the urban fabric of the historic center area.

3- Avoid western or modern designs and shapes in the central area and maintaining the existing heights so that they do not exceed the height of the citadel, in order to maintain it being the main focal point in the area.

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