

Key Success Factors of Urban Infill Development: A Conceptual Framework

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ABSTRACT

Current cities, especially megacities, are going through a continuous increase in population size because the city extends beyond its urban borders, causing what is called urban sprawl, which constitutes the real problem for cities at present. Also, these megacities have many informal areas and urban dilapidated areas because of the ancient period since their establishment, from which the city has suffered greatly. Hence, the need to determine development methods that should be within the city instead of expanding outside its borders, and many methods have been reached that can be used to solve this problem, the most important of which is infill development. The research methodology focused on reviewing the literature of the study and discussing the best international practices to arrive at a first draft of a list of key success factors for infill development projects and reviewing it with a group of experts who developed it until the final approved version was reached. The result of these procedures was to arrive at a conceptual framework for the key success factors for infill development. This conceptual framework applies to any city to ensure that infill development projects are successful with the highest possible quality and reflect positively on the city and its residents.

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1. INTRODUCTION

The idea of infill development is based on developing the available lands within the city borders instead of expanding and extending outside them, as some cities have the opportunity to develop within urban areas and establish the land uses that they need. Infill development, if implemented with high quality, may contribute to increasing the diversity of housing and addressing the obstacles facing the development of vacant lands within the city, in addition to improving the associated means of transportation (Code Handbook, 1999). To achieve the maximum benefit from infill development, key success factors (KSFs) that contribute to determining the direction towards correct development must be designed and applied with high quality in assessing the current situation and developing appropriate development plans. KSFs are an important tool that will help decision-makers and city planners in achieving development, the required goals, and defining requirements and procedures that will contribute to creating an integrated urban environment that enhances the quality of life for the community and the city.

2. THE RESEARCH PROBLEM

The current cities, especially the megacities, suffered from turbulent growth in population size, which contributed to the expansion of the city beyond its approved urban area, causing urban sprawl outside its borders and the dispersion of development and provision of public services to the population in these areas outside the city limits, which led to the real problem of the cities currently, and there is no doubt that this problem will worsen if it is not resolved. Also, most megacities in the world are suffering from the presence of informal areas and some old areas that contain dilapidated buildings because of



the ancient period since their establishment, in addition to the deterioration of infrastructure networks in general, the inability to make these areas livable, and their urgent need for one of the methods of development to be implemented. controlling the problem and not repeating it in other areas of the city and ensuring that residents do not need to go outside the city to search for areas that guarantee their quality of life.

3. OBJECTIVES OF RESEARCH

The objective of this paper is to explore infill development as one of the alternative solutions towards smart growth and addressing the problems of urban sprawl. This research tries to build a conceptual framework based on KSFs that have been explored through extensive literature review and best international practices.

4. RESEARCH METHODOLOGY

During the research, several basic steps were relied upon to discuss the KSFs of infill development projects. The beginning was identifying the study literature related to the KSFs and infill development, one of the important tools for smart growth, where their concepts, tools, elements, and other basic points were identified. The best international practices were also reviewed and discussed, which dealt with talking about the KSFs and infill development and applying them, knowing the pros and cons of working with them, and coming up with the best results and recommendations that give clear indicators to move towards their correct application. Finally, work was done on building a draft of the conceptual framework and reviewing it with a group of experts who developed it until the final approved version was reached. This conceptual framework forms the basis for working with all infill development projects and verifying the quality of their application ([Smart Growth, 2022](#)).

5. SMART GROWTH

Many definitions of the term “smart growth” appear, and these vary in many scientific sources. They should be addressed and read before delving into the topic. They can be mentioned as follows: The American Planning Association defines smart growth as: “building a political consensus (a) to support comprehensive local plans employing market-sensitive and innovative land-use planning concepts to achieve a wide range of housing choices for all Americans, (b) to fairly and fully finance infrastructure to support necessary new residential, commercial, and industrial growth, and (c) to preserve meaningful open space and protect the environment” ([Johnson, 2002](#)). Also, smart growth means using comprehensive planning to guide, design, develop, revitalize, and build communities and compact, transit-accessible, pedestrian-oriented, mixed-use development patterns and land reuse ([Meyer, 2005](#)). Moreover, smart growth is defined as development that is environmentally sensitive, economically viable, community-oriented, and sustainable. Smart Growth also guides people to help them move from rhetoric to reality and helps communities determine the type of growth that best serves their interests ([Meyer, 2005](#)).

Smart growth is used in urban communities to achieve many of the main aims that have been set to reach what the residents desire in their lives. There are many main objectives, which we mention as follows: First, to preserve the public benefits in the city from natural resources, open spaces, and sites of cultural and historical importance, among others, because they are all considered public goods for the benefit of current and future generations. Second, to reduce the negative interactions with the uses of land and maximize the positive interactions. For example, industrial facilities that emit air pollution are a source of nuisance to the nearby population and are therefore considered one of the negative interactions. On the contrary, the presence of residential buildings in which the apartments are located has a positive impact on the nearby shopping centers; therefore, it is considered one of the positive interactions, and so on ([EPA, 2007](#)). There are many benefits related to smart growth that are positively reflected in the standard of living and quality of life in the built environment at various levels and in societies. For example, the benefit of smart growth in health aspects appears by balancing development and protecting the environment that accommodates growth while preserving open spaces and protecting natural supplies by reusing the land to the fullest. In the economic aspects, smart growth creates investment opportunities, improves the local base, and creates strong economically competitive societies that provide a range of housing options that give people the opportunity to choose the housing that best suits them, which is reflected in creating a sense of belonging to the community ([Josef & Marlow, 2008](#)).

6. INFILL DEVELOPMENT

One of the key components of smart growth is infill development. Thus, in the following, we will present a synopsis of its concepts, along with some of its features, benefits, and drawbacks.

6.1. Definition of Infill Development

Infill development falls within the types of smart growth in which various definitions and concepts can be mentioned successively. Infill development is the “development of vacant or remnant lands passed over by previous development in urban areas.” Redevelopment is “the act or process of redeveloping, especially the renovation of a blighted area.” “Replacement, remodeling, or reuse of existing structures to accommodate new development” (Gardiner, 1999). We also mention another definition of infill development as: “the new development of vacant, abandoned, passed over, or underutilized land within built-up areas of existing communities where infrastructure is already in place.” The infill also includes the redevelopment of lots in those areas. “The redevelopment is described as encompassing construction in previously developed areas, which may include the demolition of existing structures and building new structures, or the substantial renovation of existing structures, often changing form and function.” (Allan, 2001).

Infill development is also known as “residential or nonresidential development that occurs on vacant sites scattered throughout the more intensely developed areas of municipalities.” “Generally, these sites are vacant because they were once considered of insufficient size for development, because an existing building located on the site was demolished, or because there were other, more desirable sites for development.” (Schultz, 1984). From the definitions mentioned for the infill development, it is “the development of new housing or other buildings on scattered vacant lots in a built-up area.” Redevelopment means “the removal, replacement, or adaptive reuse of an existing structure or of land from which previous improvements have been removed, including the conservation or rehabilitation of any structure” (New Jersey State Development and Redevelopment Plan, 2001). We also mention the definition that explains infill development: the new development of vacant, abandoned, passed over, or underutilized land within built-up areas of existing communities where infrastructure is already in place. The demolition of existing structures and the building of new structures, or the substantial renovation of existing structures, often change form and function. Infill sites could be divided into vacant lots, which often become dumping grounds for waste, posing health and safety hazards; abandoned properties, which require maintenance and demolition costs; or brownfields, which are usually lands where old industries, other businesses, and warehouses were held (Attwa, 2013).

6.2. Benefits of Infill Development

The infill development is characterized by many of the advantages mentioned in some sources that enhance the process of internal development to implement its policies and its positive impact on smart growth in various cities, and we mention them as follows (Burchell, 2000):

- Enhances the compactness of urban form and promotes relatively high density with mixed land uses. It enhances the character and respects historic preservation (Attwa, 2013).
- Increase the efficiency of public transport and urban layout, encouraging walkability, capitalizing on existing infrastructure, and minimizing the need for costly new ones, thus providing opportunities for social interaction as well as a feeling of safety and belonging (Attwa, 2013).
- Maintain and restore spatial continuity to streetscapes, enhancing the viability and function of existing communities (Attwa, 2013).
- Introduces compatible uses that complement existing community attributes and needs by increasing the supply of housing types, improving the quality of building stock, and revitalizing city centers (Attwa, 2013).
- Utilizing public facilities to promote the economic health of the city, injecting new life into communities (Attwa, 2013).
- Conserves environmental resources, economic investment, and social fabric while reclaiming marginal and abandoned areas (Listokin, 2007).
- It reduces the pressure of growth towards rural areas by absorbing the growth in the current existing societies, enhances its character, powers, and functions, and provides high efficiency and quality of life in the old societies (Listokin, 2007).
- It takes advantage of the existing infrastructure without the need for a new and expensive infrastructure, even if it needs some minor upgrades to the existing infrastructure to meet the new development (Allan, 2001).

6.3. Types of Infill Development

Variables differ in defining the types of infill development and how to classify the plot of land as being able to be included in this type of smart growth. They can be mentioned as follows:

1. *Residential infill development*: It is a type of development that takes place in residential areas, whether in cities or villages and is linked to the development and construction of residential uses for community residents and preparing them to live in them (Infill Development Details Explained: Plan Accordingly, 2022). This type is considered one of the most widespread because it is an economically feasible way to reduce the heavy spread of car transport, enhance walking and cycling places, and support various means of transportation (Infill & Redevelopment, 2022). Residential infill development enhances the individual's quality of life through the development of new types of housing, the optimal use of lands, and the maximum preservation of the general character of the community, considering the historical and cultural areas and preserving them also through residential infill development of residential and commercial uses, which enhances the sense of the urban environment and its elements (Infill & Redevelopment, 2022). Residential infill development is one of the smart growth tools that can significantly improve the quality of life in the built environment by allowing better use of the land and its infrastructure by reusing it to develop the public uses in the region, which positively affects it and also enhances the effective use of pedestrian paths by adding uses in vacant sites that do not require access to them via cars and can be accessed by walking. Finally, residential infill development works to preserve open spaces and natural resources within the built environment for their positive impact on society (Cilurso, 2003).

2. *Commercial infill development*: This is related to the establishment of hubs and commercial centers, including the development of stores, shopping centers, and other commercial activities (Infill & Redevelopment, 2022). Commercial infill development occurs in sites that are vacant, underutilized, or have not been sufficiently invested, such as shopping centers that have become unattractive to visitors or investors (Infill & Redevelopment, 2022). The old shopping centers may be the most prominent and inspiring attraction points for development, despite the expectations that their value has diminished, but they may be more suitable for many other uses, such as a mixture of housing, public services, offices, retail, and others (Infill & Redevelopment, 2022). Also, there is no doubt that commercial infill development will have a positive impact on strengthening the tax base, increasing employment opportunities for the community, and promoting the existence of different, more efficient types of land use (Infill & Redevelopment, 2022).

3. *Mixed-use infill development*: This type of development combines all the previous two types, residential infill development and commercial infill development, where the infill development is on the same plot of land so that commercial uses are built near the residents' homes so that the urban environment becomes a living and working area at the same time, which contributes to reducing the environmental impacts resulting from the movement of vehicles, and the total dependence on public transportation to move outside the region (Infill & Redevelopment, 2022). Mixed-use infill development helps to ensure the effective use of land, especially when the place of residence for the individual is near the workplace, shopping places, restaurants, cafes, and other interactive commercial activities. This kind of convergence enhances the possibility of walking and cycling and has a greater impact on public transportation (Infill & Redevelopment, 2022). It should also be noted that mixed-use infill development provides a wonderful variety of low-cost housing through affordable housing that reduces transportation costs. It must be considered that this type of development will require a review of government standards and regulations for parking spaces to accommodate both residential and commercial use (Infill & Redevelopment, 2022).

4. *Brownfield infill development*: It takes place in sites where industrial use previously prevailed and was abandoned or became underutilized, such as factories, old warehouses, gas stations, or landfills of all kinds. This type of development may be one of the most difficult because of the environmental threats surrounding it (Infill & Redevelopment, 2022). On the other hand, the use of infill development helps positively increase social and economic development by creating new homes, public services, and open spaces. They are often considered to have a high development cost in the short term, but in the long run, they are economically viable and create alternative opportunities for more efficient land uses (Infill & Redevelopment, 2022).

7. RESULTS

7.1. Conceptual Framework for Urban Infill Development (First Draft)

Expanding on earlier sections, this part presents a set of key success factors (KSFs) for infill development. These KSFs serve as a theoretical and conceptual foundation for utilizing infill development to accomplish smart growth in a city.

7.1.1. KSF1: Developing the Master Plan for the City and Setting Priorities and Goals with Executive Programs

Establishing a strategic plan that sets priorities according to scientific foundations and development principles, with operational programs ready to implement these ideas, which must be derived from the national vision and consider the current and future basic requirements of the population. Also, the strategic plan must be integrated with local and regional strategies to enhance partnerships between them. The strategic plan is considered a basic reference for work and a starting point for all workers in the entities involved in development towards achieving the desired goals. It is preferable that one of the objectives of the strategic plan is to implement a system of urban governance that enables access to the set goals (Vázquez, 2014).

7.1.2. KSF2: Encouraging Effective Participation Among all Targeted Groups for Infill Development, Including Urban Planning Agencies in the Government and Private Sectors, Planning Experts, and the Local Community

Advocacy and transformative methods, which are widely used in urban land use planning today, encourage cooperative procedures between experts/planning authorities and the public. People who want to apply for planning-related projects are another group that has a stake in this (developers, architects, etc.). Technical experts (planners and other relevant professions), local councils, the provincial government, and so on all fit into this category of “experts” (MMAH, 2019). The local government must determine the highest priorities for infill development through the application of public participation and by taking the opinions of the residents of the community in this regard. Community participation is one of the most important elements in the success of any strategy related to infill development, as residents need to have a general awareness and understanding of the details of infill development so that they have a complete picture of the future of the area. Local government decisions will be more accurate with the participation of community residents, as everyone will reach a common and clear vision for the proposed development mechanism. Priorities are set with the participation of the population by holding periodic meetings and intensive workshops, in addition to reaching the population through various means of communication to ensure the participation of the largest number of them (Cardiff Council, 2011).

7.1.3. KSF3: Determine the Responsibilities of all Stakeholders Involved in Infill Development Processes, Ensuring their Commitment and Avoiding any Negative Interference in their Tasks

The local government should initially identify all relevant governmental and private agencies involved in infill development projects to organize work between them and ensure that there is no negative interference in their work during the development process. It is also possible in this strategy to hear the views of non-profit organizations in the work area and arrange their way of working in development if necessary (Sabti, 2018).

7.1.4. KSF4: Organizing and Encouraging Partnerships between the Public and Private Sectors in Infill Development Processes to Carry Out all Phases of Planning, Implementation, Evaluation, and Improvement

The local government may sometimes encounter problems in providing enough human and financial resources to carry out infill development projects in the required manner. In this case, it is necessary to search for assistant partners in the projects to carry out the planning, executive, and detailed tasks. The partners may be advisory bodies with long experience in this type of project to provide the desired benefit or financing bodies that invest in project sites and support the local government's vision at the sites of infill development projects. It is also possible for the local government to allocate its employees to work with these bodies and benefit from their expertise in a way that benefits and develops them for future projects (Mohammadi-Hamidi, 2022).

7.1.5. KSF5: Explaining all Guidelines and Controls Related to the Development of Historical Areas to the Executive Authorities Responsible for the Development Process

Most investors and advisory bodies face some ambiguity about what is required of them in front of the historical buildings in infill development sites because these buildings are considered a historical heritage that cannot be interfered with without the permission of the local government and the competent authorities. These matters are determined so that developers do not face any obstacles or problems because they interfere in these areas. The role of the local government lies in determining the historical buildings that have priority and setting clear rules and methods for their development without compromising their historical value. Regarding the residents of historical buildings, it is possible to develop clear design guidelines (Alberta, 2007) to be applied by them in line with the general

urban approach of the developed area and to ensure the preservation of its historical identity (Feisal, 2020).

7.1.6. KSF 6: Reducing the Administrative Fees Imposed by Local Authorities on Infill Development Sites (Public Facilities, Services, and Infrastructure Network) as Incentives to Attract the Private Sector to Participate in the Development Process

In some cases, administrative fees are available by the local government on sites, public utilities and services, which it determines based on the systemic infrastructure, the size of the development to be established in the project, and the proximity or distance from the city center and urban centers. These fees are determined due to the reuse of the housing infrastructure, the road network, and the water and sewage network. Here, more advantages should be given to the infill development sites and reduce the percentage of administrative fees on them to attract investors and pilot projects to them (Puustinen, 2018).

7.1.7. KSF 7: Improving the Urban Image by Enhancing the Visual Character and Community Identity in Development Areas

In most of the informal areas, there are many abandoned buildings and vacant shops, because of which the value of the neighboring properties decreases due to the concern of those wishing to move to the area about the lack of vitality of the place and their lack of sense of safety. The role of the local government is to work with the relevant authorities to implement standards to improve the public image of the area and address potential problems. It is also necessary to help the owners of dilapidated real estate who suffer from financial difficulties in carrying out the necessary maintenance work for their buildings and improving them to suit them with the rest of the buildings in the same area (Abedini, 2019). Local government can encourage infill development in informal areas by enhancing the identity of the community by highlighting its own architectural identity in building facades, street lanes, shops, and public spaces. Also, it works on creating a specific icon that expresses the residents of these areas and increases their affiliation with the development area. After that, it will be possible to promote and market this brand professionally within the general marketing operations of the region and its development work (Abedini, 2019).

7.1.8. KSF 8: Involving Civil Society Bodies in Infill Development Projects that are Related to the Social, Economic, and Housing Aspects of the Residents of the Targeted Areas for Development (Such as Neighborhood Centers, Charitable Housing Associations, etc.)

There are some local and national organizations interested in some common issues in infill development, such as social aspects, economic development, affordable housing, and other issues of common relevance. The informal areas need the assistance of these organizations in infill development in their locations and solidarity with the parties involved in its development through funding programs, vocational training, and direct investment in these areas. The local government should identify these organizations and coordinate with them to make them partners in the development process and to exchange information on what is in the interest of the community (UN-Habitat, 2015).

7.1.9. KSF 9: Developing the Skills of Employees in the Public and Private Sectors who Participate in the Infill Development Process through Intensive Training Programs and Workshops

Investors and consultants tend not to fully understand the type, design, regulatory framework, and financing tools of infill development projects. In this case, the local government contributes to the implementation of intensive training programs to improve the skills of employees in dealing with infill development projects through contact with local government employees with high experience in these projects or by providing lectures and workshops to get a full background on them, or conferences and meetings can be held between all parties of the project to benefit the maximum by everyone (UN-Habitat, 2015).

7.1.10 KSF 10: Create a Media Plan to Educate the Local Community about Infill Development Procedures and the Expected Profits (Goetz, 2005)

A media plan must be prepared to educate the local community about infill development projects, their importance, and their positive aspects at the city level if they are completed due to the importance of the local community's participation in understanding this type of development and understanding the stages it will go through and all the procedures related to it. Their opinions and participation in ideas and suggestions that increase the quality of infill development projects should also be considered.

7.2. Validating the Conceptual Framework

A structured interview was conducted to discuss the KSFs previously mentioned in the study literature, and it was presented to a focused group of academic experts specialized in urban planning to

TABLE I: CHARACTERISTICS OF STRUCTURED INTERVIEW PARTICIPANTS

	Professor	Associate professor	Assistant professor	PhD researcher	Master degree
Academic rank	1	5	5	1	1
Department name	Urban and regional planning		Architecture		Other
Total number of experts who participated in the structured interview	12		1		0
					13

hear their scientific opinions and see their updates regarding the KSFs for infill development. Thirteen faculty members at various universities participated in the survey, 85% of whom hold a Ph.D. degree in urban planning, as presented in [Table I](#).

The results of the structured interview showed high degrees of agreement with the KSFs for infill development. A five-point Likert scale was used to interpret the results and calculate the average satisfaction among the experts who confirmed that they were compatible with what was proposed, with a very high percentage of agreement for the weighted mean, ranging between 3.54 and 4.38. The experts participating in the structured interview contributed to adding three KSFs. Thus, the final list includes 13 factors, as presented in [Table II](#). The three additional factors are mentioned as follows:

7.2.1. KSF 11: Risk Management Plan for the Projects to Confront Various Challenges

Many development projects suffer from many urban challenges, such as weak infrastructure, which poses a great danger when facing environmental challenges, especially projects established in Jeddah, which suffer from the dangers of floods and rainwater drainage, which always directly affect the city and its facilities, as happened in 2009 and 2011. Many facilities were damaged, and roads were affected due to the heavy rains that struck the city of Jeddah, causing many deaths. It is necessary to look at the various challenges that may face this type of project, whether they are urban, financial, investment, or other challenges that may negatively affect the project. Attention must be paid to managing these risks and working to avoid them in the future in backfill development projects, as a specific plan is prepared for the risks that may face these projects to ensure that they are designed with the best possible quality and the highest safety standards, and all necessary precautions are taken to avoid any potential obstruction.

7.2.2. KSF 12: Using Modern Technologies to Infill Development Projects

Many modern technologies have begun to appear in urban projects that work to develop cities and their facilities, where the emphasis has been placed on using the latest types of technology in preparing advanced studies, designs, and construction methods. For example, adding modern technologies in building and construction to infill development projects and activating the latest technologies in them is one of the best ways to ensure construction sustainability as required. Modern technologies also appear in safety methods in terms of preparing a good security system to maintain safety in areas targeted for development by installing surveillance cameras to monitor any violations or transgressions that threaten people as the end users of the project.

7.2.3. KSF 13: Continuous Monitoring and Evaluation of Infill Development Projects ([Nelson, 2000](#))

Clear standards must be established for the process of continuous monitoring and evaluation of the performance and effectiveness of infill development projects so that they do not lose the high quality required of them. Care must be taken with this type of project that will provide the desired benefit to the community and the built environment so that these areas are distinct from others in development. This includes creating a database aimed at monitoring objectives, outputs, and results, as without effective planning, monitoring, and evaluation, it will be difficult to assess whether the work is moving in the right direction. It may be better to allocate an independent local body to undertake planning, evaluation, and monitoring tasks for infill development projects, thus ensuring the sustainability of their success in the desired manner ([Siegel, 2021](#)).

7.3. Conceptual Framework for Urban Infill Development (Final List of KSFs)

TABLE II: CONCEPTUAL FRAMEWORK FOR URBAN INFILL DEVELOPMENT

KSF#	Definition	References
KSF 1	Developing the master plan for the city and setting priorities and goals with executive programs.	(Vázquez, 2014) (Khadour, 2023)

TABLE II: CONTINUED

KSF#	Definition	References
KSF 2	Encouraging effective participation among all targeted groups for infill development, including urban planning agencies in the government and private sectors, planning experts, and the local community.	(MMAH, 2019) (Kandil, 2023)
KSF 3	Determine the responsibilities of all stakeholders involved in infill development processes, ensuring of their commitment, and avoiding of any negative interference in their tasks.	(Sabti, 2018) (Kandil, 2023)
KSF 4	Organizing and encouraging partnership between the public and private sectors in infill development processes to carry out all phases of planning, implementation, evaluation, and improvement.	(Mohammadi-Hamidi, 2022). (Attwa, 2013)
KSF 5	Explaining all guidelines and controls related to the development of historical areas to the executive authorities responsible for the development process.	(UN-Habitat, 2015) (Feisal, 2020)
KSF 6	Reducing the administrative fees imposed by local authorities on infill development sites, (public facilities, services, and infrastructure network) as incentives to attract the private sector to participate in the development process.	(UN-Habitat, 2015) (Puustinen, 2018)
KSF 7	Improving the urban image by enhancing the visual character and community identity in development areas.	(Smith, 2022) (Abedini, 2019)
KSF 8	Involving civil society bodies in infill development projects that are related to the social, economic, and housing aspects of the residents of the targeted areas for development (such as neighborhood centers, charitable housing associations, and etc.)	(Feisal, 2020)
KSF 9	Developing the skills of employees in the public and private sectors who participate in the infill development process through intensive training programs and workshops.	(Puustinen, 2018) (Stollman, 2015)
KSF 10	Create a media plan to educate the local community about infill development procedures and the expected profits.	(Abedini, 2019)
KSF 11	Risk management plan for the projects to confront various challenges.	Expert panel survey
KSF 12	Using modern technologies in infill development projects	Expert panel survey
KSF 13	Continuous monitoring and evaluation of infill development projects	Expert panel survey

8. CONCLUSION

The research methods revealed two basic problems that cities suffer from, which are urban sprawl and informal areas, where the need has become clear to apply infill development as one of the appropriate development methods. The methodology was focused on reviewing the study literature and international best practices to arrive at a conceptual framework for the KSFs for infill development projects (Smart Growth, 2017). The research goal was achieved by creating a conceptual framework that is based on reviewing the study's literature and discussing the best international practices related to KSFs and infill development. This conceptual framework consists of 13 KSFs that can be applied in infill development projects, and a careful evaluation of them was conducted by specialized experts in urban planning who participated in the structured interview. Positive results were achieved that support what was concluded. The research recommends using this conceptual framework for infill development projects or similar tools, as they should be activated and used to evaluate the current situation and develop plans for implementing infill development projects in the city, explore defects and problems, and make appropriate decisions and actions. (Smart Growth, 2017).

CONFLICT OF INTEREST

The authors declare that they do not have any conflict of interest.

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