

## INTERACTIVE PLACE MAKING AS A NEW METHODOLOGY TO IMPROVE THE VISUAL AND MENTAL EXPERIENCE OF PUBLIC PLACES

صياغة المكان التفاعلية كمنهجية جديدة لتحسين التجربة البصرية والذهنية للفراغات العامة

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### ABSTRACT

*Public spaces considered one of the main items of urban fabric, which forms a primary surrounding for human interactions. Nowadays, despite the recent development of public spaces, it mostly neglected the human aspects, as the users' interaction and delighting, which can be achieved through place making methodologies that seeks to enhance the role of human being and his social interactions in public spaces, and how to meet his physical and spiritual needs and aspirations. In this context, the research begins with studying the concept of place making, moreover, illustrates its traditional methodology. Then, turns to study the role of digital technology in developing and creating new techniques that are more dynamic and interactive, which can develop the traditional methodology, aiming to reach an integrated methodology of place making that combines the aspects of traditional place making with the digital interactive techniques to reach public spaces that are more interactive, attractive and enjoyable for users.*

### KEYWORDS

*Place making; Digital urbanism; Public spaces.*

### المخلص

تعتبر الفراغات العامة احدى ركائز النسيج الحضري والتي تشكل حيزا هاما للتفاعلات الانسانية، وعلي الرغم مما تشهده الفراغات العامة مؤخرا من اهتمام وتطوير الا انه أغفل في كثير منه للجوانب الانسانية وتحقيق التفاعل والاستمتاع لرواد تلك الفراغات وهو ما يمكن تحقيقه من خلال مبادئ صياغة المكان والتي تسعى الي تعزيز دور الانسان وتفاعلاته الاجتماعية في الفراغات العامة وتلبية احتياجاته المادية والمعنوية خلالها ومن ثم تطوير وتاكيد دور الفراغات العامة في المجتمع. وفي هذا الاطار يبدأ البحث بدراسة المفهوم التقليدي لصياغة المكان وفكرته الاساسية ومن ثم يتعرض للمنهجية التقليدية لتحقيقه ثم ينتقل البحث لدراسة دور التكنولوجيا الرقمية في تطوير واستحداث طرق وآليات جديدة تتسم بالديناميكية والتفاعلية وما يمكن ان تسهم به في تطوير منهجية صياغة المكان وصولا الي منهجية مدمجة جديدة تجمع بين مبادئ صياغة المكان والاساليب والطرق الرقمية التفاعلية التي تحققها والتي يمكن من خلالها الوصول الي فراغات حضرية أكثر فاعلية في تحقيق أهدافها واكثر جذبا وامتناعا لروادها وتفاعلا معهم.

### الكلمات المفتاحية

صياغة الفراغ؛ التصميم العمراني الرقمي؛ الساحات العامة.

## 1. INTRODUCTION

Designing to strengthen and support communities is all about creating places that bring people together. A key approach to achieve this is through place making, which is to create quality places that spark an emotional attachment for people and thrive when users have a range of reasons to be there. Nowadays, despite the breakthrough of digital technologies which penetrate through most of the human life, traditional ways of place making became mostly not efficient to achieve people pleasant, satisfaction and interaction in public spaces, in this context the research will discuss how digital technologies and tools can benefit place making methodology aiming to reach more inviting, effective, interactive and fascinating public places, in addition to enhance their identity and characteristics to fulfill its desired role in .modern society.

## 2. A THEORETICAL BACKGROUND (THE CONCEPT OF "PLACE MAKING")

### 2.1 THE DIFFERENCE BETWEEN URBAN DESIGN AND PLACE MAKING

Urban Design is process of creating equitable, lively, and sustainable places with featured identities, consequently it's a merge process that formed from the whole built environment such as planning, architecture, and landscape architecture, but more specifically focuses on shaping the physical setting of the public realm. The public realm is the space that the general public has right of access to and is the setting for street life, so it can be defined as the space that connecting between street and the building facades. (David & Oliver, 2009).

Urban design influences both private elements along the building facades and public elements within the street through; contextual streetscapes; safe sidewalks; frequent connections; active Building Edges; determining building entrances; suitable building forms; proper building placement; thoughtful transitions; well-placed parking; opportune open space. So here comes the role of place making which deeply concentrate on enhancing the efficiency of each of these public connections, and work on increasing psychological, emotional and cultural bonds between people and public spaces. (Community Planning Academy, 2017)

### 2.2 PLACE MAKING CONCEPT AND DIFFEENETIONS

- Place making is both an overarching idea and a hands-on approach for improving a neighborhood, city, or region. Place making inspires people to collectively reimagine or reinvent a local asset or space in order to create something that is unique, inspiring and reflective of the community's identity. (Mark, 2016)
- Place making means creating places and focuses on transforming public spaces to strengthen the connections between people and these places.
- Place making is a process centered on people and their needs, aspirations, desires, and visions, which relies strongly on community participation. (Francis, 2001)

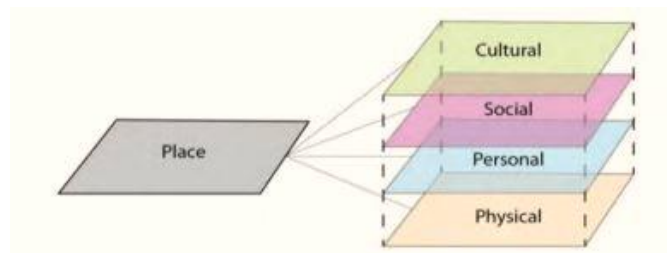


Figure 1, The diverse layers that form a 'place' (Improving Sydney's Liveability through Digital Place making; Symone Goddard, 2017)

## 2.3 IMPORTANCE OF "PLACE MAKING" IN COMMUNITY'S PUBLIC PLACES

"Place making" has a great role in improving and developing the quality of the public space, and this can be summarized as the following:

1. Transform unused or underused areas into active spaces, as Place making helps to restore the social functions of a public spaces that are not well used.
2. Engaging people to create an interactive space and ensure maximum citizen participation by providing variety of activities so they can gather, interact and build the social and emotional ties between people and their community. (Elise & Andreas & Marcus, 2020).
3. Determine neighborhood needs, requirements and aspirations.
4. Utilize and highlight the local assets and resources.
5. Create ecologically sustainable and adaptable sites for future use. (Ann & Anne, 2010).



Figure 2, Examples for place making activities. (Smart City Bohbal, 2015)

## 3. TRADITIONAL PLACE MAKING PROCESS

Place making is a practical process for transforming public spaces. Its methodology relies on consequent processes that should be achieved to reach a transformation of space to a real place, which can fulfill communities present and future needs. place making methodology can be achieved through three main processes, the first one is place evaluation and vision which relies on the possibilities (physical and human resources) leading to the plan of achievements. The second part is Place making methodology which depends on a deep architectural vision that takes in considerations all the studied that have been done in the evaluation and vision stage to reach all the needs and aspirations of a certain space community. Finally, implementation takes place with firstly short-term experiments, reinforced with ongoing evaluation of what has been done, leading to long-term improvements for the space. (Casanova & Hernández, 2014). It is important to be considered that the success of a Place making depends on continued management, observation and analysis.



Figure 3, Place making Process (by the researches)

### 3.1 PLACE EVALUATION AND VISION

It is based on the determination of the existing state, the possibilities and needs of a chosen site through, firstly evaluation, by observing, listening, and asking questions to the people who live, work, and play in a particular space, so it is important to meet with the community and identify stakeholders, this can be achieved through many ways as: surveys, assessment tool, brainstorming session, workshops, which help in ensuring community participation in greater numbers for better understand of the space and its challenges, moreover, the needs and aspirations of this community. Secondly, it is crucial to spend time on site, to state the site intended character and clear idea of the vision focused to reach a place making main vision and goals. (Derek, 2016),

### 3.2 PLACE MAKING METHODOLOGY

Place making methodology relay on group of aspects which depend on a deep architectural vision that resulted from a comprehensive study to the site assets and challenges that have been done in the place evaluation and vision stage, to reach a successful, remarkable and unique place making. (Cara, 2020). The following table will explain each aspect main concept and the way of its achievement.

Table 1, Title Place making methodology aspects and its way of achievements. (Smart City Bohbal, 2015)

Methodology Aspects	Main concept and characteristics	
	Main concept	Way of achievement (characteristics)
Visual character and identity	The space Identity that has a unique character is more inviting and remarkable than a space that feels more general and common, to enhance the mental and visual image of the site and become more significant to the community of that area.	Achieving this can be through design strategy and space elements morphology which can give the space its own character and identity.
Attractions nodes	To achieve great public destination a variety of smaller attractions “spaces” within it must exist and should simply provide interest points to attract variety of people, and give them reasons to spend time in that space.	The attraction nodes or points can include fountains, food vendors or art installations which don’t need to be big in size to succeed but variable in activities.
Triangulation	The concept of triangulation relates to locating elements next to each other in a way that enhance function and space activity.	For example adding a bench, trash bin, and a coffee vendor placed near a bus stop create integration because they are more convenient for waiting bus passengers and pedestrians than if they were isolated from each other.
Power of 10	A successful and good public space provides variable activities for the users. The Power of 10 refers to a principle that says that every place making at every scale should provide 10+ things to do to create a variable interaction in the space and accommodate different age groups and users.	For example: Place making can include hawker streets, street performers, facade activation, public seating, outdoor cafes to increase and retain foot traffic, sidewalk activation, bus stop redesign, cycle lane design, and for residential areas we can add pocket parks, playgrounds, outdoor gyms, community gardens or urban farming.

Amenities and services	Spaces must feature certain basic amenities to make the experience more comfortable and promoting user comfort and safety in addition to public cleanliness.	For example adding bathrooms, benches, trash cans and different lighting units.
Flexible design	These spaces are not meant to be infrastructure developments or fixed in their design and use. Successful public spaces are flexible and adaptable and can be used in different ways. Flexibility needs to be built into the site through well thought out plans and programming.	For example: using ship container structures that can be reoriented or rearranged, pneumatic structure, tensile structure, light weight steel structure, all of these types can be disassembled and assembled
Seasonal strategy	A successful space needs to think of all seasonal conditions, including how the use will change around different festivals. By accommodating this adaptability, we can ensure maximum usability of the space.	This can be achieved through finding shaded and unshaded parts, or movable shading techniques, open and semi closed areas, moreover the presence of gathering plaza between activities for different festivals.
Accessibility and connectivity	To attract crowds, the site must have proper infrastructure through the connectivity between different functions and easily accessibility from the outside, to facilitate a comfortable and smoother pedestrian experience.	As an example; the sidewalks and paths must be walkable. There should be consideration given to the parking needs of the visitors. Such parking may not be on site but must be thought through
Safety	Safety and the perception of safety are integral for a successful public space. Additionally, a safe public space encourages a sociable environment for interactions and activities.	Special attention must be given to make the space secure for female users and ensure their safety and comfort in the space.
Methodology Conclusion	Place making methodology can be achieved through specific characteristics and ways within the 9 aspects, by changing characteristics feature, design and activity, it can affect the strength or the weakness of each aspect.	

#### 4. THE ROLE OF DIGITAL TECHNOLOGIES IN PLACE MAKING

As the digital technologies in the 21 century breaks through most aspects of our lives, and it became boundless and distinctly shape our societies, so human spaces and specifically public spaces as a main determinant of the human life and society, should adapt to and accommodate new models digital facilities and techniques to benefit from this digital breakthrough, (Latorre, 2011).

Therefore, the use of these digital techniques and tools can enhance and develop the place making process. This process can be considered as digital place making, in which redefining urban spaces, landscapes and their elements, by transforming traditional place making methodology's characteristics to enhance public spaces by using digital technologies, (Gee, 2009).

In this context, the research will discuss how these technologies can affect positively place making and determine the digital technologies and tools that can be used to develop the place making methodology.



## 4.1 THE CONCEPT OF DIGITAL PLACE MAKING

It can be considered that the concept of digital place making in the 21 century focuses on how to involve several dimensions and aspects of integrated technologies. Digital Place making can be defined as; developing and integrating physical places with specific interactive digital services, installations or experiences to create more significant destinations for all users and communities, (Jo Morrison, 2021). Digital place making offers a range of interactive and forceful opportunities to add more value to public spaces, in ways which can enhance economic growth, cultural success and improving lives for local communities, which aim to increase interaction, responsiveness, users' belongingness to the city and citizen-driven experiences, (MarketLine, 2015).

## 4.2 DIGITAL INTERACTIVE PLACE MAKING TOOLING

Digital place making tooling focuses on the digital interactive tools that can reinforce and develop the place making methodology aspects, by offering new ways and techniques to achieve the digital methodology aspects characteristics, in order to enhance and develop the experience of public spaces. Although, there are unlimited digital interactive techniques and tools, we can focus on some of these main tools and techniques, which deeply represent and illustrate the concept of digital interactive place making, as the following:

- Interactive projections and hologram.
- Interactive smart walls structures.
- Digital interactive furniture.
- Interactive smart lighting techniques.
- Interactive sculptures and public art.
- TechniPlay.

### 4.2.1 INTERACTIVE PROJECTIONS AND HOLOGRAM

Interactive Projections indicates to interactive digital art that depends on hologram and virtual reality technologies, which designed to examine the ability of digital technology to encourage people to discover, interact and play, in order to experience and deal with new quality of the surrounding without making a complex and time consuming for physical rearrangements of the built environment, (Anna, & Sebastian, 2018). So it can be considered as a digital interactive art tool that is intended to increase effectiveness of the areas of public transition that has no activity, giving it a pleasant and delighting ambience for its users.



Figure 4, digital technology for interactive digital animals.

(<https://futurearchitectureplatform.org/projects750cfb4c-6993-4480-976e-9f97616fe467/>)

#### 4.2.2 INTERACTIVE SMART WALLS AND STRUCTURE:

Smart walls Focus on the effect of implementation of digital responsive walls and interactive media facades into the public spaces, and how it can engage the user, as it not only enhances the possibilities of modern technologies that bring to shape the urban spaces, but also showed an attraction, dazzle and interaction of users and the physical surroundings. As an example: “Synch as FINGERS” It was an experimental interactive structure. (Anna, & Sebastian, 2018) that re-envisioned the typology of architectural partitions changeable by human motion.



Figure 5, Synch as FINGERS” an experimental interactive structure. (<https://futurearchitectureplatform.org/projects/750cfb4c-6993-4480-976e-9f97616fe467/>)



Figure 6, wall interact with people motion an experimental interactive structure. (<https://nextcity.org/urbanist-news/entry/san-francisco-prototyping-festival-market-street-design>)

#### 4.2.3 INTERACTIVE SMART FURNITURE

It's about providing and installing digital forms and objects as smart interactive seats and furniture, and how to use it to enhance the seating and gathering experience, and how to utilize it as an attraction and resting nodes for passengers. (Sophie Barbaux., 2011). Such as “NUBIS” which is an interactive urban seat, remarking the space by their forms which shaped as delicate clouds, (Anna, & Sebastian, 2018), each of them gently produces the sound of a pleasant wind noise, whereas the user can control its tone by moving his hands or body over the hidden sensors, moreover, at night, it can give different lighting color modes in



which people can modify its intensity.

Figure 7, smart interactive seats. (<https://www.anaisafranco.com/projects>)

Figure 8, NUBIS It interactive urban seat. (<https://futurearchitectureplatform.org/projects/750cfb4c-6993-4480-976e-9f97616fe467/>)

#### 4.2.4 INTERACTIVE SMART LIGHTING TECHNIQUES:

Smart lighting techniques are so influential tool as it is one of the most important element in giving a various, changeable senses and moods, which can be used and utilize to give the public spaces the diversity and flexibility, which can be compatible with the changeable activities, moreover it can be designed and installed as an interactive media tool that the users can control and interact with. (Fredericks, Hespanhol & Tomitsch. 2016).



Figure 9, Interactive flooring.  
(<https://dsmpublicartfoundation.org/new-media-interactive-artist-works-large-scale/>)



Figure 10, Media technique on bridge column.  
(<https://www.architonic.com/it/project/nl-architects-a8erna/5100103>)

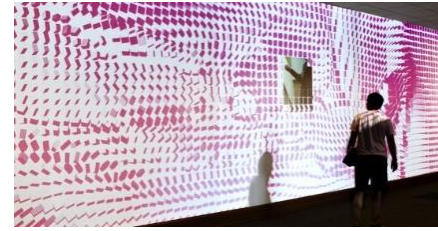


Figure 11, Interactive lighting surface. (<http://www.digital-projects-index.julien-drochon.net/portfolio/interactive-wall-at-university-of-dayton/>)

#### 4.2.5 INTERACTIVE SCULPTURES AND PUBLIC ART

Dynamic digital art forms and interactive sculptures that have many characteristics in driving the dynamics in public spaces; they accommodate active or passive participants with different roles and goals, so they can be considered as unique attractive nodes, which have much to offer and to explore how the elements and techniques could contribute to enhance interaction design. (Jun, Mathias, Yu, Feng, 2014). Such as “INTERACTIVE DIGITAL FLAME” It is an interactive sculpture installation that is controlled by group bicycling, which change the color, intensity and motion of the flame lighting when people ride the bicycles, giving the sculpture various intensity of energy. This artwork introduces the new ways of experiencing an urban space through adaptable technologies, which enhance the attraction, interaction and appearance of the public space.



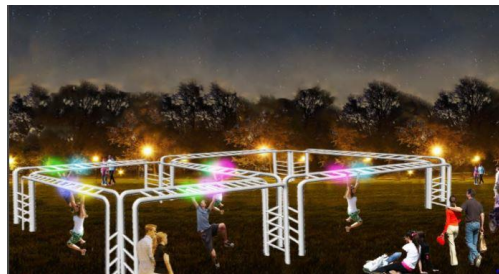
Figure 12, Interactive Public Flame that interacts with bicycles motion.  
(<http://www.acastronovo.com/InteractiveArt.html>)



#### 4.2.6 TECHNIPLAY

‘TechniPlay’ can be considered as an interactive and digitized playground for kidult that comprised of several equipment. Whilst each equipment is very different, they are all connected to a central ‘TechniPlay’ app which allows users to customize their experience for each site and sign into a ‘virtual queue’ which helps manage the crowds. The idea is to further promote a sense of place for both active participants as well as spectators by having designated picnic areas and food trucks nearby (Symone Goddard, 2017). They can be clarified through the following examples:

- Swing Along: A modern version of a childhood playground swing with an interactive, playful twist.
- ‘Hang Time’: Bringing out the inner ‘kidult’ through engaging and fun, modernized version of monkey bars.
- TrampoLit’: Encouraging kids of all ages to collectively play with an innovative take on a traditional trampoline.



- ‘DigiSketch’: An ever-changing, digital canvas designed to bring communities together through art.

Figure 12, TechniPlay Interactive Public games that interacts with players. (Improving Sydney's Liveability through Digital Place making, Symone Goddard, 2017)

### 4.3 IMPACT OF DIGITAL INTERACTIVE TOOLS ON PLACE MAKING METHODOLOGY

As we found from the previous examples that digital interactive tooling can develop the process of place making, adding more characteristics, ways and opportunities in achieving place making methodology. According to the previous studies, we can illustrate how these digital technologies transform and develop some of the main aspects of place making methodology through the following table:

Table 2, The impact of digital interactive tools on place making methodology.  
(by the researchers, retrieved from table 1)

Methodology Aspects	Digital role in place making	
	Main Concept	Way of achievement (characteristics)
Visual character and identity	Digital interactive tools can enhance the mental and visual image of the site through adding new horizons of dazzling and interaction between users and space.	Most of the digital tools focuses on the visual and the mental effects, so it has a unique impact on the character and the identity of the public spaces.
Attractions nodes	Creating attraction points by digital technology became easier but more technical that enhance remarkable and interactive.	Both Interactive smart walls structures and Interactive sculptures and public art can give great attraction to users.
Triangulation	It can transform the traditional triangulation concept which relates to locating elements next to each other. by two main aspects: 1. Adding digital features to the existing elements used. 2. Adding a new digital elements to enhance interaction and engaging.	Using three related interactive facilities next to each other, as locating one of the interactive public activities (techniplay-interactive sculptures and public art - interactive projections and hologram) next to digital interactive furniture and Interactive lighting techniques.
Power of 10	As mentioned before a successful and good public space provides variable activities for the users to create a variable interaction in the space and accommodate different age groups and users. So power of ten concept can be enhanced through digital tools by many digital activities and installations.	Power of ten can accommodate different digital interactive activities with different ways and characteristics, as Interactive projections and hologram that can give various ways of interaction, Smart interactive walls structures, Interactive smart lighting techniques that can facilitate

		so many changeable and interactive features, in addition to Interactive sculptures and public art that has a great attraction to any public space, and finally TechniPlay that is one of the important activity for kids and adults.
Flexible design	Digital technologies can enhance more the concept of flexibility in design through different ways.	smart structures, and virtual reality techniques that depend on light projections in creating a field, and interactive smart lighting techniques that can give a flexible and changeable moods that can compromise with different events and functions held in the public spaces.
Seasonal strategy	Digital technologies can have great impact in compromising with changing seasonal conditions.	Through flexible structures that can deal with changing climate conditions, moreover smart lighting and projection techniques that can give varieties in moods and expressions.

## 5. CONCLUSION

The research reaches main conclusions about the effect of digital technologies on the place making prosperity through the following:

- Digital place making affords a broad range of physical-digital installations creates new opportunities to improve and develop the mental and the visual experience of public spaces, in terms of attractiveness, pleasantness and social development, through applying these creative interactive public installations, merging physical material with digital content, allowing more social engagement and participation.
- The research highlights the role of "Interactive Place making" towards the changeable public realm in which encouraging and relying upon community participation as the users of the place are the real participants and creators.
- Through the examples which are presented in this paper, as examples for interactive and participatory forms of digital smart installations, the targeted spaces and user groups, in addition design concepts and implementing technologies which can vary, aiming at different social experiences.
- The design techniques and the user experience evaluation methods overlap and many of these techniques and methods have been found to be useful in place making practice.

In addition to the research develop the place making methodology by merging the digital tooling with the traditional place making methodology, to reach proposed integrated methodology which can convert the public spaces into interactive places through digital interactive tools. Consequently, the following diagram shows the integrated digital place making methodology which consists of three main stages:

- The first stage: (Place making aspects) which contains the eleven aspects of place making methodology which selected according to the desired aims for each space.

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- Second stage: (Digital tools and techniques) which has two sub stages, the first one illustrating the digital interactives tools, the second stage determining the suitable tools for each place making aspect.
- Third stage: (Methodology aims and achievements).



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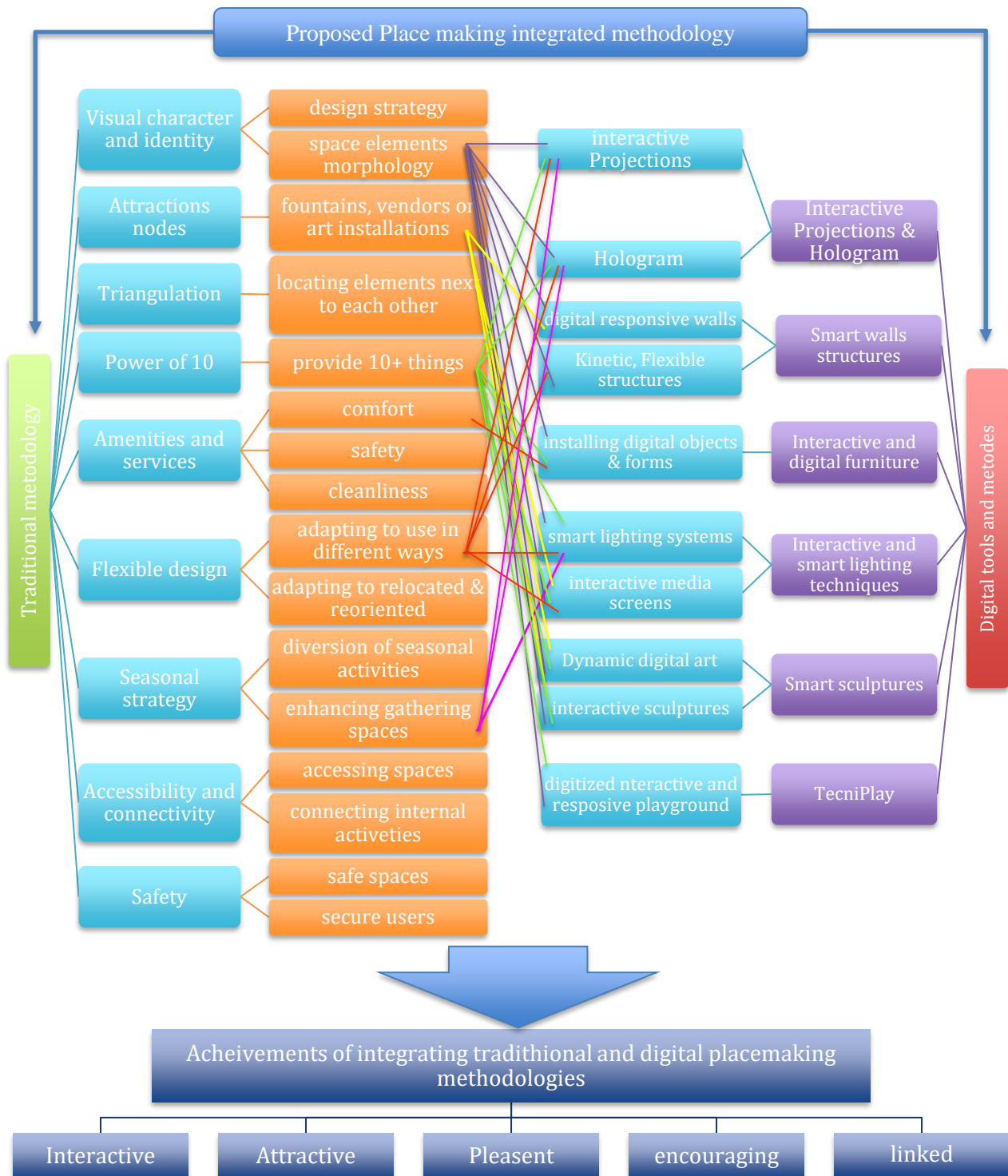


Figure 17, Place making Integrated Methodology (by the researches)

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