

# BEYOND URBANISM

A design approach to social sustainability in the digital age.

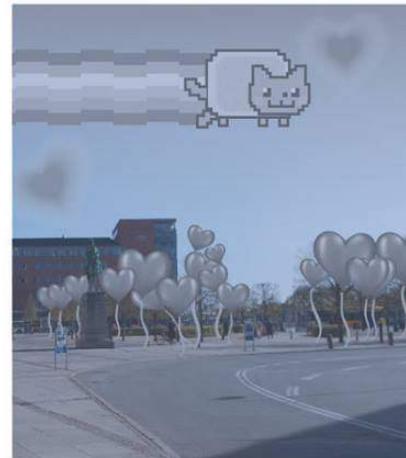
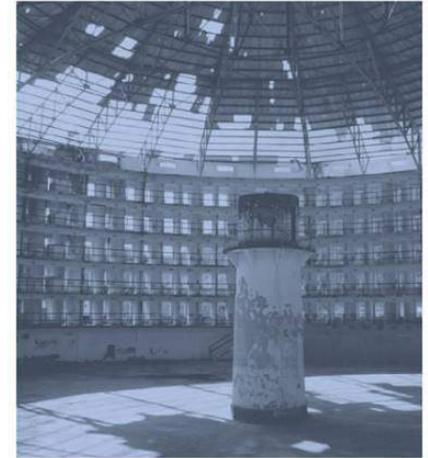
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# ABSTRACT

Contemporary European cities - particularly those of Western Europe - face the challenge of a high flux of culturally diverse groups. The political landscape of openness, the level of transportation infrastructure, and the economic and personal incentives of cultural exchange and consumption, global security inequalities and the emergence of the digital realm have led to the age of “radical mobilities”: an era when large groups of people from vastly different backgrounds rapidly appear and disappear in cities, forming extremely contingent, extremely temporary communities, questioning the social sustainability of space. Urban design must find a way to place their work within the complex, hybrid spatial network. The aim of the thesis is operationalising the work with the networked space - The system of (re)circulating social practises on a multiplicity of networked quasi-objects - for a social end. For experimentation, the group chose to work with Kennedy Square in city of Aalborg of Denmark, a site hosting a refugee centre. Kennedy square is the main public transportation hub of the city with a colorful range of user groups clashing: transitters, low-income square regulars, Nykredit bank, and the refugees themselves. The urban design concept of this project is to extend the transitional and stay activities afforded by Kennedy square by increasing the programmed “depth” of its spatial structure. This depth is capable of displaying and distributing socially and locally relevant, voluntarily created intellectual products in computed environments. Three proposals are presented to showcase the use of system diagrams, scripting, coupled with conventional urban design tools to construct the networked space. The conclusion of the thesis is that designing hybrid, networked spaces afford greater expressivity, involve the formerly detached personal networks of newcomers, and support a process-driven approach to urban design.

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# INTRODUCTION

## **Quo vadis?**

We would like to open a discussion on the identity of man, how it is made and where does it reach. This thesis is a journey through the subconscious of humanity manifested in its marks on the world, in the spaces it creates. There has been an anomaly, a sudden change in how the European society and thus European cities are shaped: the refugee crisis - the flow of the involuntarily displaced. However, European citizens are already highly mobile, building their spaces, their spheres and stages of existence in various physical and digital locations: the voluntarily displaced. The common root of the two is the age of radical mobilities: being has become increasingly fluid, temporary and incidental, which has a profound impact on place and thus on urban design. Designing cities is the stewardship over a co-creation of a particular way of life in a given situation. What becomes of that process when the authors of a task requiring lasting commitment simply appear and disappear rapidly - sometimes voluntarily, sometimes against one's own will? What becomes of urban design, when the spaces they work with become subjected to challenging, complex social conflicts? What about the spaces they do not work with - the digital? The profession fancies itself as the makers of place for people, their culture, their identity. However, people are less forged in places, cultures are no longer visible on maps and identity is more contingent.

## **Quo vadis, urban design?**

# PROBLEM FORMULATION

Refugee crisis in Europe

Refugees and the city

The impact of networked technologies

Summary: the age of radical mobilities



Figure 1  
Refugees resting at Keleti pályaudvar, Budapest

# PROBLEM FORMULATION

## Refugee crisis in Europe

Cities talk of an age of unprecedented movement, witness the shrinking of distances and the erosion of boundaries. Unaccounted for, it is not always nice. We are approaching the second summer of uncontrolled, colossal flow of people towards western and northern European cities. In 2014 the number of asylum applicants were around 630 000 in EU/EFTA countries, the same number for 2015 was around 1.3 million (Eurostat, 2016) - not counting those who do not seek asylum, but a better life. Denmark registered 21 000, compared to the roughly 15 000 in 2014 and the 7 500 in 2013 (Eurostat, 2016). Between 2011 and 2015, the rate of increase was steady, around 1.5. The amount trickling down to Aalborg was 587 in 2015, with 642 prognosed for 2016 (Aalborg Kommune, 2015).

The response of the unsuspecting local population largely hinges on what is perceived as the impact of the newcomers on their surroundings - their behaviour, relations, and lifestyle; the communication and representation of the urbs changing under the hands of its changing civitas. The imagery of the so-called refugee crisis is grim: corpses of infants washed ashore, trails of migrants marked with garbage and the scent of urine, weary people with little patience and distrustful looks. The common discourse is radicalising, flocks of people are called “swarm” or “invasion”, migration is labelled as “attack” while at the dozens of fledgling charity groups, NGOs and ordinary people are on the streets and highways to help (Elgot & Taylor,

2015; Kocsis, 2015). Radicalisation does mean that rational issues are argued emotionally. The debate has seen many skeletons falling out of the closet, as shortage in affordable housing, wealth inequality, aging population issues, coated in scapegoating and scaremongering on both sides. We see at the heart of the problem a fear for the local, national and European identity, the values of “us” threatened by “them”. At the end of the day, the refugee crisis is an emotional problem, a new chapter in the eternal conflict of how things should be; and the “how” translated to the level of practicalities is culture, while the manifestation of culture is apparent in the realm we create: cities. Quo vadis, cities?

## Refugees and the city

Big cities are a mosaic of communities living side by side. Back in the 20th century, inhabiting the same neighbourhood meant an internal bonding based on territoriality, a sense of “us” and “them”, a sense of togetherness (Jacobs, 1961). Togetherness also means that certain groups or individuals of the “them” party may become unwanted elements in the public spaces of the territory - despite the universal access the name suggests. Put that idea in the context of mass migration: localised relationships and communities are formed for weeks, months or years, and the sheer rate of unknown people hinder the formulation of “togetherness” in place, leading to an ever increasing disinteraction. In a worse case scenario, preexistent togetherness prompts prejudice and a defensive behaviour opposing newcomers. In that sense, togetherness is an obstacle for

integration. Nevertheless, the diaspora of asylum seekers is more promising than concentrated placement. Integration is best addressed locally, and continually - it is the everyday integration that counts, the one that is formed on the streets and squares, the public spaces of a city (Cherti & McNeil, 2012). This means inclusion is territorial in nature, and if nothing else, the shared habitat is a foundation, meaning more meetings in public space, opportunities to get accustomed to each other. Territories are formed through the small rituals taking place in spaces of interaction; and participation in the process is a participation in community. New elements refresh the process, forming a slightly different territory accompanied with a new, transformative togetherness. This of course increases the stakes of public space design and planning - defining who is allowed to do what (planning) and affording a degree of freedom within and outside that definition (design) may help or hinder inclusive community building. The issues arise when territories - and their subjects - feel threatened to be succeeded and relapse into the defensive togetherness instead of a transformative one. In the 20th century city, people have little choice, territory is a stable entity, one may participate or one may leave. This status changed with the introduction of networked technologies.

"I urge you to celebrate the extraordinary courage and contributions of refugees past and present..." Kofi Annan, former U.N. Secretary General

"...share responsibility for asylum-seeking refugees"  
"If Europe fails on the question of refugees, then it won't be the Europe we wished for"  
"Germany is a strong country - we will manage" Angela Merkel, DE Chancellor

"a swarm of people coming across the Mediterranean, seeking a better life" David Cameron, UK PM

"...large numbers of pretty desperate migrants marauding around the area..." Phillip Hammond, UK foreign secretary

"To all of you. Find a different place to live and stay. Nobody is keeping you or forcing you to stay. We will accept you, and now it is up to you to show the necessary respect for our society and the values it is build on."

Inger Støjberg, DK, Venstre spokesperson for integration

"Where there are a lot of immigrants, crime rates go up, public security deteriorates, life becomes harder" Viktor Orbán, HU PM



Figure 2  
Opinions about refugees by people of power

### **The impact of networked technologies**

When the bombs hit Hiroshima and Nagasaki, the Japanese architectural avantgarde expected to work on “tabula rasa”, an empty ground with little societal restriction of city designing experiments. They have found out later that razing the city to the ground only made things more complicated: land ownership, legal rights, and limitations of property remained, with the heirs and rightful owners scattered across the country (Koolhaas & Obrist, 2011). The lesson to be learnt is the inherent resilience of social structure that persists even in nuclear ground zero. The same way the millions of people leaving their country, a country that has been turned to rubble, world heritage levelled, and a new power in the same land established; the society itself persists in the shadows, and seeks survival. Friends and family, information sources and their audience about homeland or prospects form the structure of what remains, and such structure makes appearance in the digital world.

Setting aside asylum seekers, networked technologies have allowed individuals to form relations, engage in social practise real-time with anyone who is also connected, regardless the distance. In other words, they build new spaces together, new territories, new togetherness. The common ground establishing belonging has never been land, but rather connections. Proximity is an excuse to connect, but networked technologies afford the exploration of forming community based on shared interest, struggle, dream or fear. Furthermore, these technologies

have become accessories, wearables, meaning that our presence in any of the new worlds we could be a part of, is just whim away, wherever we stand. Which is why the smartphone is the most valuable item in the migrant starter pack: the world that they left lives on as a shadow, while the world they intend to enter subtly materialises. This also means refugees come with a carried society and togetherness bound be the shared suffering; on the other end there are locals who live an increasing portion of their lives online. Thus the surface of local contact, out there in physical, public spaces, on the stages of “everyday integration” are shrinking, so is the impact of urban design on a rather spatial issue: staging cross-cultural integration in western European cities.

### **Summary: The age of radical mobilities**

Contemporary European cities - particularly those of Western Europe - face the challenge of a high flux of culturally diverse groups. The political landscape of openness, the level of transportation infrastructure, and the economic and personal incentives of cultural exchange and consumption, global security inequalities and the emergence of the digital realm have lead to the age of “radical mobilities”: an era when large groups of people from vastly different background rapidly appear and disappear in cities. Localised communities are formed for weeks, months, couple of years, making them extremely contingent. This challenge is accentuated by the recent sudden growth of asylum seekers in western Europe, while the spaces of the city are in compe-

tition with digital spaces to retain inhabitants. The networked technologies have made entirely parallel communities to share location and nothing else. Locally occurring disinteraction and distrust undermine the role of a city as an echo society and belonging - the integration of its own people. What should and what could be the role of urban design in integration?

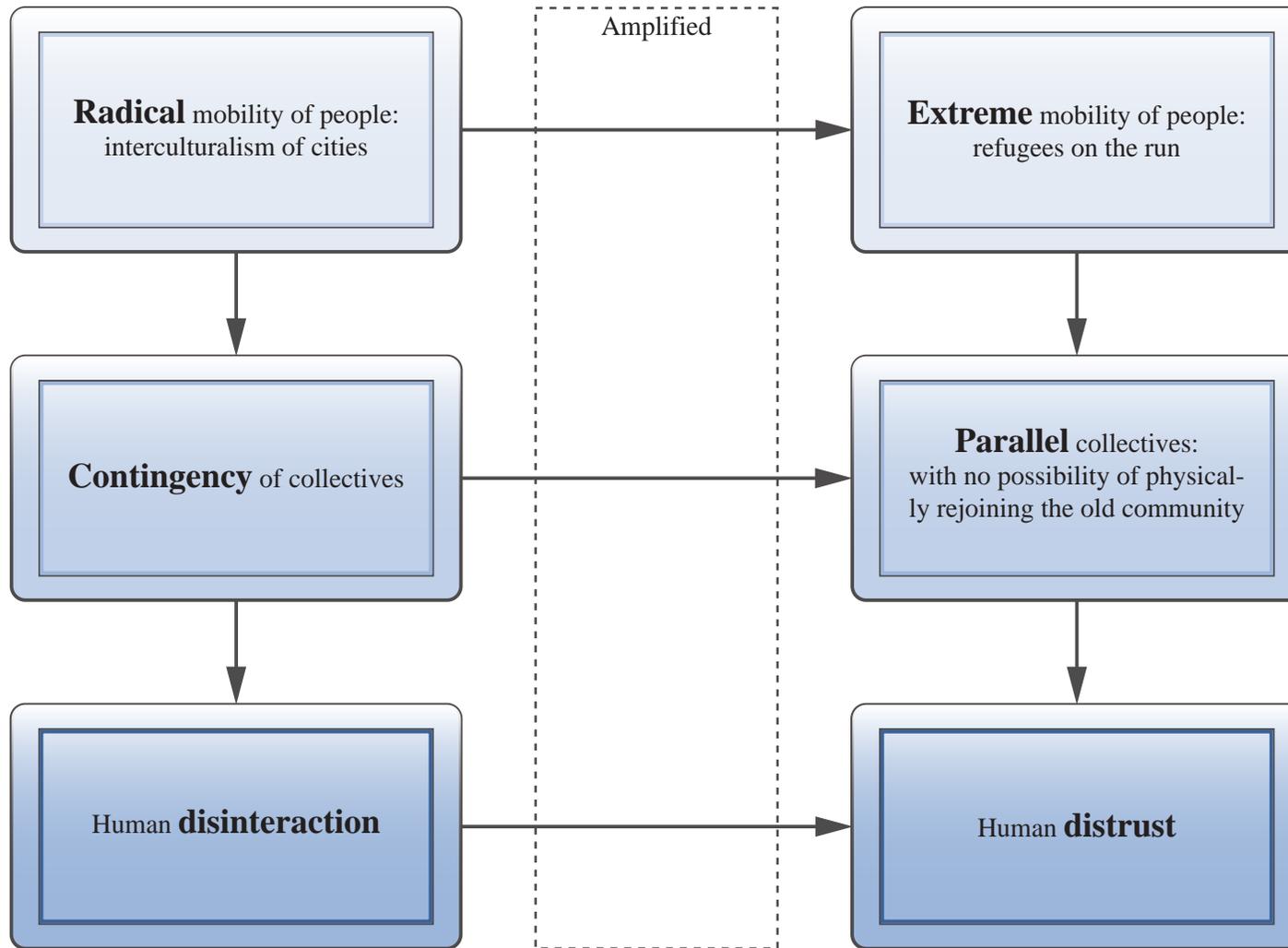
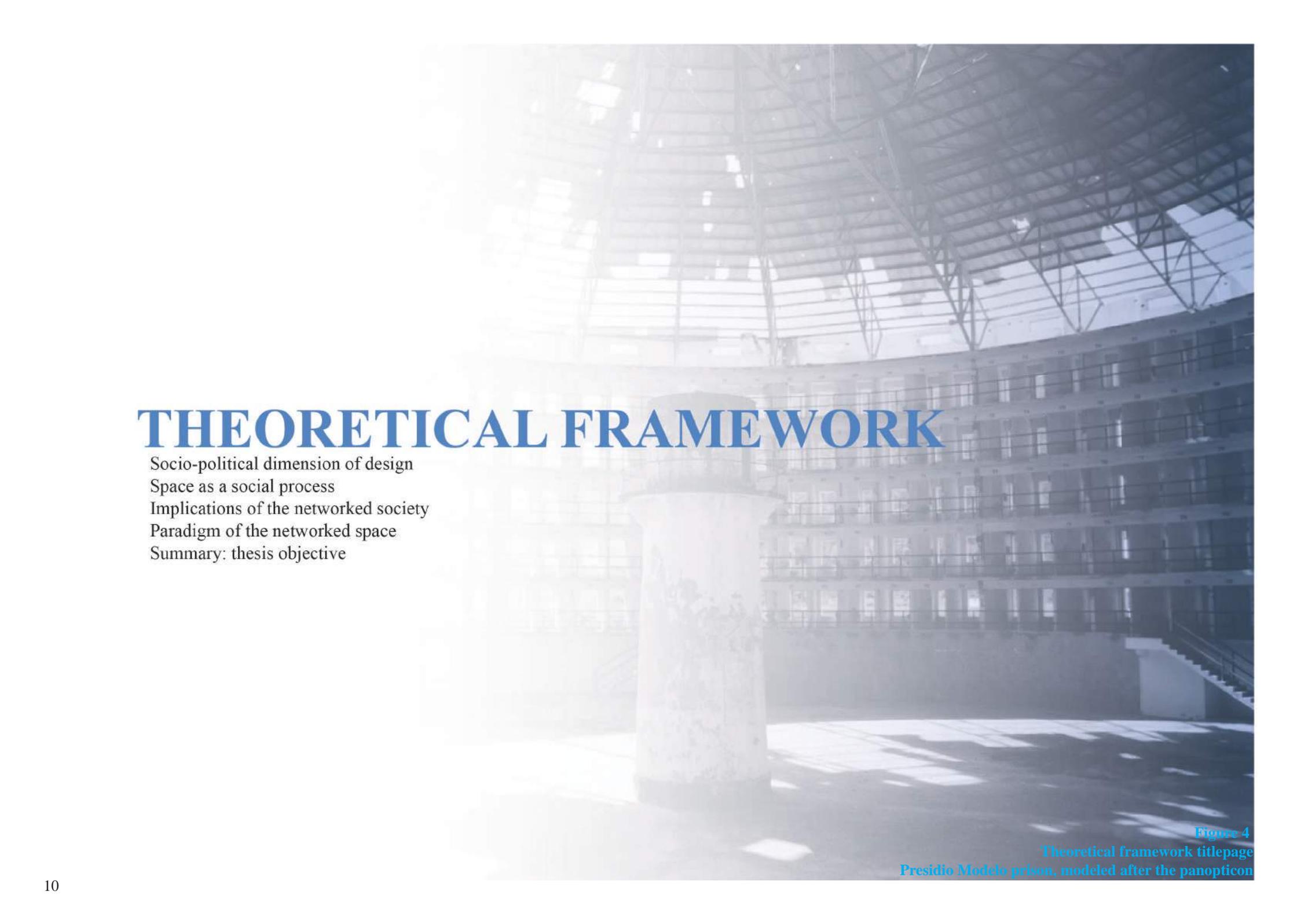


Figure 3  
Illustration of the amplified issue caused by the refugee crisis



# THEORETICAL FRAMEWORK

Socio-political dimension of design  
Space as a social process  
Implications of the networked society  
Paradigm of the networked space  
Summary: thesis objective

Figure 4  
Theoretical framework titlepage  
Presidio Modelo prison, modeled after the panopticon

# THEORETICAL FRAMEWORK

The Architecture for Humanity group shared a story of planning short-term housing for the internally displaced in Kosovo in the aftermath of their struggle for independence. They established good relations with NGOs operating in the field as well as international agencies. This network provided design criteria and some funding they implemented to an architectural contest. The contest raised the awareness of the profession - or rather justified the willingness of the profession - but no houses were built because of negotiation difficulties with the interim authorities in Kosovo. Both their initial success and their subsequent failure hinged on engaging knee-deep in the social and power structure of their site, coating the professional debate with politics. On the other hand the political nature of design is debatable. The problem formulated raises the issue of social sustainability in cities, it is thus important to review this debate. The theoretical framework of the project argues for a strong socio-political core within the design process (parts 1 and 2), and lays the foundations of an urban design theory capable of stepping up to the challenges of the 21st century: the age of radical mobilities (parts 3 and 4).

Architectural practise should be socially concerned, politically aware and active.

Public space is the emergence of social exchange and the stabilisation of social structure functioning based on a shared layer of interpretation.

Social structures and their spatialisation are globally networked , fragmented and partially dematerialised.

The system of (re)circulating social practises on a multiplicity of networked quasi-objects is the new paradigm of public space.

**Figure 5**  
**Structure of argument within theory**

## SOCIO-POLITICAL DIMENSION OF DESIGN

The modernist tradition championed the role of architecture and urban design in curing the ails of society. Soviet avantgarde architectural theorists sought an active role for building - rather than a mere mirror of the status quo (Cooke, 1995), while Le Corbusier went as far as declaring appropriate architectural interventions prevent the social revolt: “architecture or revolution (Le Corbusier, 1928). For modernists, the making of space was radically political, capable of triggering, thwarting or substituting fundamental shifts in society (Leach, 1999).

In his essay “Architecture or Revolution”, architectural theorist Neil Leach challenges this view by arguing how built form as a representation of political will does not originate in the form itself, but in the use - meaning architecture is not inherently political, but constantly appropriated for political use (Leach, 1999). He acknowledges the built as an exercise of power: once a form is appropriated by use for politics, it becomes a resource-intensive tool in service of a political end - however, any political content embedded in form can equally be erased. Leach recites the discourse on the panopticon: a conceptual prison in which cells face a central control tower, with lighting design rendering the inmates impossible to see each other nor the warden, while the warden has potential oversight of all inmates - making the panopticon by design a “perfect” prison (Foucault, 1975). Foucault initially argued that form created the power structure, suggesting its political nature, then he emphasised it was not the architectural intent, but the social in-

tent that imposed social control; in other words: the policy, using the panopticon as a prison (Rabinow, 1991). That being said, if a group of people with some form of self-organisation would stumble upon the perfect prison, how would they possibly use it? If it is use that is political, then it is form that affords use.

It is true that form has to be appropriated for political use, but politics have to be uttered to exist. As laws use words to allow and restrict action, built form does it so by design, meaning building is a form of policy. The school of critical architecture proposes that the construction of form should be in dialogue with culture, that architecture should be “resistant to the self-confirming conciliatory operations of dominant culture and yet irreducible to a purely formal structure disengaged from the contingencies of place and time” (Hays, 1984). Such practise manifests in the appropriation of the international style for local cultures (Baird, 2004), or in the late projects of Mies van der Rohe, attempting to clear up the perceived chaos in the city structure (Hays, 1984). Critical architecture teaches us to question rather than represent, to make statements rather descriptions, which means to add substance to the way we communicate through form, and that substance should come from the reflective assessment of culture - the way society does things - meaning that the act of building is indeed political.

Somol and Whiting attack that stance, stating critical architecture is limited by constant retrospection,

it rather commentates on culture in a reactionary manner, which shackles architectural practise precisely to the dominant culture it intended to resist (Somol & Whiting, 2002). Speaks lacks practicality of criticality, proposing “intelligent design” that is a practise focusing on solving actual, relevant design problems (Speaks, 2002). The post-critical stance would be called projective, a forward-looking, innovative practice emphasising creativity over critique (Somol & Whiting, 2002; Baird, 2004; Nguyen, 2010). Post-criticality is not denouncing political substance. On such terms, the way of doing things - culture - can be part of the equation, a focus of the problem the designer solves. Post-criticality is rather interesting because of its turn to speculation: to move the profession forwards on a problem-by-problem, rather than an overarching guiding thought basis. There is potential in architectural projects to inform rather than to follow or criticise social intent, by serving as proving grounds, 1:1 models of politics (Andersson & Thomsen, 2008).

The importance of a politically active architecture is further emphasised by the marxist discourse. Laclau argues that power structures are contingent and can be changed by struggle and conflict (Laclau, 1990; Roskamm, 2015). For marxist scholars the “city” is a direct manifestation of “society”, rendering the architectural act a political one (Harvey, 1995). Harvey coins the term, the “right to the city”, the common right of citizens to participate in the transformation of the city both as a physical and as social entity (Harvey, 2008). It is through the everyday political

*Santiago Cirugeda, a Spanish architect decided to build without permission in post-crisis Spain. He condemns aestheticising architecture as well as the bureaucratic obstacles his community projects would have faced, had not he built them illegally. Pictured is a community-built, guerilla school building in Sevilla.*



**Figure 6**  
Example of guerilla architecture

struggle such right can be ensured (Dikeç, 2001), through the exercise of difference from authoritative generalisation and categories (Lefebvre, 1996). Marxist theory resolves the critical, post-critical opposition, which can be seen through an example. A guerilla architect firm in the US built a bridge over the bounds of a fenced off park that is supposedly public space, yet access is filtered on the gates to exclude homeless. The project is an act to exercise the right to difference and a clear, active, political statement in the city as a social process. The right to the difference is just another way to say an act of resistance to dominant culture, making the project critical, while the installation itself represents and simulates a social problem, informing policymaking, making the project post-critical.

Moreover, it is argued that the social problems that are considered ideological, are indeed aesthetic (Dikeç, 2012; Žižek, 1994; Rancière, 2000a). Aesthetics must be understood as the study of how things sensed, uttered and thought of (Rancière, 2000b). Problems however are issues of unwanted excess or lack of something in a personal model of reality (Hawking, 2010), meaning that it is sensed and uttered as a problem: too many foreigners can effectively mean that there are too many people one perceives as a foreigner (Dikeç, 2012). This means a very active form of aesthetics configures “toleration”: when too much is too much; and “criteria”: when is a foreigner a foreigner. It is among the strengths of urban design that it can condition what is publicly sensed and uttered, it is the practise of

aesthetics including and impacting the widest range of society. Dealing with issues such as xenophobia on the aesthetic level is empowering to urban design practise.

Conversely, if the architectural problem excludes the political, it reproduces and cements the social ills that were systemic but manifested physically (Dikeç, 2001). Such approach is apparent when ghettos are treated as the deterioration of physical space: refurbishment would then take place, the inhabitants would be forced out, and a new ghetto would appear elsewhere. The ills and injustices of social structures, the physical environment, the legal context and the course of the nation are interrelated; social structures are stabilised by spatialisation and vice versa, as society produces space, but society also aligns to space (Dikeç, 2001). Marxist political theory argues for a spatial dimension of politics, it argues to think in systems of flow, distribution, infrastructure or cityscape to understand social injustices (Marcuse, 2012; Soja, 2010; Dikeç, 2001), that in turn means urban designers should think social implications and context. The built form the profession creates is political only within a context in which it is appropriated as the spatialisation of social structures, but architecture is always in a context and is always appropriated - it is thus always political, and a powerful tool to practise politics real time on site.

*A very simplistic case merely to illustrate the “aesthetic regime”: during this “social experiment” a person dressed up as business man, then a homeless man proceeded to fall in the public while registering the help he got. Ten out of ten times he was helped when represented as a business man, while as a homeless, this ratio was 2:10. What happened here is that a homeless person falling was less seen as an anomaly, illustrating how two identical occurrences trigger different responses merely by conditioning their representations.*



Figure 7  
Homeless vs Businessman: Social experiment

## SPACE AS A SOCIAL PROCESS

In order to design for the “everyday integration” within public space, a politically active practitioner must understand how space and public space is produced socially. Thus the focus of discussion shifts towards finding links between space - public space - and social processes.

Contemporary urban studies record the pluralisation of public space, and the erosion of its classic definition shared by the legal systems of Western democracies: a universally accessible property usually but not necessarily owned by a form of government, that can be used by anyone so long as the use is appropriate to its dedicated function (USLegal, 2016; Simitis, 2014; Forslag til Lov om røgfri miljøer, 2006). In a quest from dichotomy to spectrum, Arida argues for a “duality of the public-private” instead of the dualism: public or private (Arida, 2002). From the living room of the family house, the courtyard of a multi-apartment complex, institutional spaces to streets and various public parks, different grades of ownership size, and acceptable behaviour appear. Postmodern cities are also introduced to pseudo-public spaces, privately owned areas accessible by those contributing to the goals of enterprise running it; usually in the form of consumption (Lukovich, 2001; Sorkin, 1992; Turner, 2002). Furthermore, advanced forms of communication, interface design, digital networks offer an alternative stage for some forms of public life (Schmidt & Németh, 2010; Graham & Marvin, 1996), in a purely imaginary “consensual hallucination” that is nevertheless a form of public space

(Appignanesi & Garrat, 1995; Eco, 1990).

The pluralisation of public space is graspable by describing space as the emergent property of social processes. Laclau claims space is a “system of meaning”: the set of discourses, identities and societies that occur, but is rather contingent (Laclau, 1990). A relentless repetition of social practice, the replay gives the system stability, and this act of fixing is spatialisation - the social production of space (Lefebvre, 1991; Laclau, 1990). Construction for example - and thus cities - can be seen as a precipitation of accumulated capital: a “fluid”, resource entity cast into solid form to keep up the social practice that is the city (Harvey, 2008). Out of the marxist discourse, a simple example of building a road can be described that way: human activity between two points intensifies, which first manifests in tracks, but after a certain level, laying down a piece of tarmac becomes desirable. Once the tarmac is there, its mere presence incentivises crossing. Thus the road - and built form - is an emergent property of situated intent.

Publicness of space is a description of the processes of which space emerges and to which space feeds back. The fixing of social structures require a shared repetition of the rituals constituting said structures: it is interaction and exchange - the exchange of goods, food, money, stories, thoughts, information - that builds up the public domain (Hajer & Reijndorp, 2001; Ringgaard, 2010; Worpole & Knox, 2007). In the pluralised publics, Nissenbaum argues

it is the set of acceptable behaviour, the rules and norms of this interaction, and the authority of these norms describe publicness (Nissenbaum & Varnelis, 2013). This in turn hinges on how the space is interpreted, appropriated by use. Public space is the emergence of social exchange and the stabilisation of social structure functioning based on a shared layer of interpretation. What makes public spaces of the twenty-first century fragile is finding this shared layer.

Behaviour

Protocol

Spatialisation



Figure 3  
The relationship between space and social process

## IMPLICATIONS OF THE NETWORKED SOCIETY

Mouffé calls for a public space that can become the channel, through which passions and identities over issues are freely expressed, the ground upon which differences meet in organised conflict (Mouffé, 2005; Rancière, 2004). It has long been argued that the success of public space is measured on the width of inclusiveness, and the diversity of participants producing it (Fraser, 1990; Blomley, 2001; Németh, 2006). Our problem proposition has been that by the networked society, the differences to be expressed and met are increasing in magnitude and fluctuate rapidly. It is now clear that the age of radical mobility endangers public space as a struggle for stabilisation - the environmental awareness of people, the formation of social identity, and ensuring the basic human rights to space are at stake. In other words: the problem proposition of this thesis expands into an existential question of urban design. How does urban design need to respond to the changing nature of social production of space? This section aims to understand spatialisation as a social process in the twenty-first century by discussing three phenomena: the networked society, the expansion of social processes to the digital realm, and the pervasion of the digital into the physical.

The concept of the networked society originates from Latour's actor network theory. According to Latour, Social relations, power structures, knowledge, ideas are effects and products of an ongoing (running) heterogeneous network: the actor-network (Latour, 2005). As a result of information-communication technologies, the individual

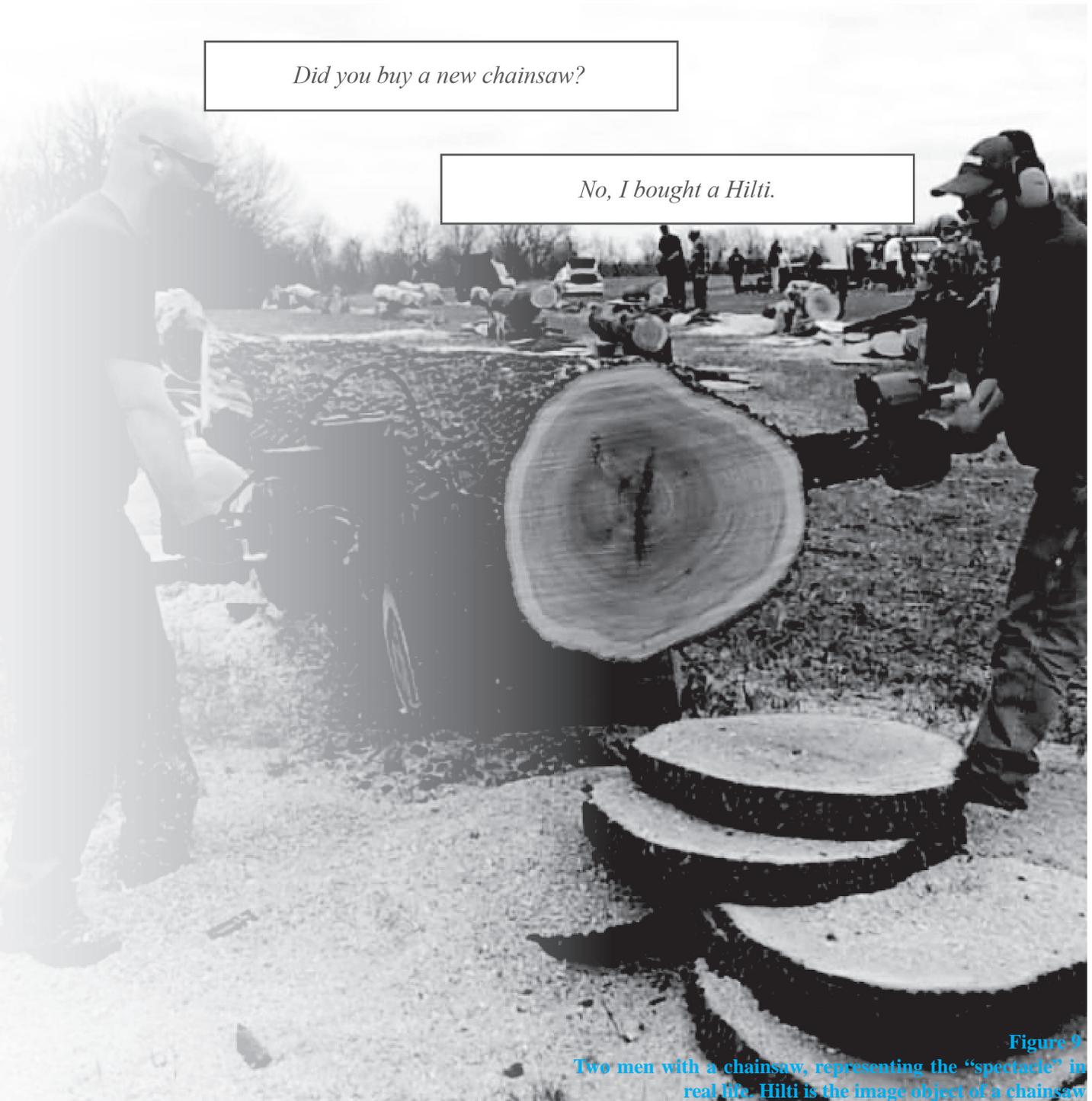
itself has become a node temporarily, but simultaneously present in an assemblage of potentially global networks (Latour, 2005; Papacharissi, 2011; Alexander & Thacker, 2007; Reinhold 2003; Farias & Bender, 2010; Castells, 1996). If identity is an emergent property of relations among places and objects in the public sphere (Abbas, 2005), then the networked identity is shaped by many sources: the integrity of the person dissipates from a "whole" into a transmitter of heterogeneous set of behaviour by assuming different roles (Goffman, 1959) in different situations. As a result of mobile technologies, the node carries its own networks possible to keep up connectivity and telepresence in the multiplicity of spaces (Castells, 2004). On the other end, places are parts of networks of places (Farias & Bender, 2010) - and by the pervasive computing technologies, nodes in the entire assemblage; meaning that places are also subjected to heterogeneity and dissipation.

Another aspect of the ICT revolution is the appearance and the proliferation of dematerialised spaces. A considerable portion of public life occurs in the virtual realm (de Waal, 2014; McCullough, 2004; Barnett, 2001). The digitalisation of publics raises issues of shallow communication, erosion of politics, the amount of privacy given up for connectivity, but also the possibilities of collective intelligence (Büscher, 2012; McCullough, 2004). The overly fragmented presence of the individual in a domain of overly abundant information, social process changes, the deliberate citizen transforms into

the "monitorial" citizen: observing the flow of information through mediated lens, cherry-picking relevant or interesting issues and acting on them (Schudson, 1998). Civic action is replaced by raising awareness, and "spreading the message", as political power is perceived to be found in information flows. The sheer quantity of dematerialised spaces, the myriad of mediation filters actually afford people of a shared community "living in parallel worlds": see the radicalisation of the republican-democrat-Trump triangle in the US. As the physical world is shrinking, we have created a new one, a "paradis artificiel" with a size that is gargantuan and a reality that is questionable. The phenomenon is similar to the post-structuralist "spectacle": a mass of image-objects - not related to purpose nor utility - and commodified illusions detached from the real world, substituting actual experience (Gibson, 1984; Debord, 1967). They are less and less faithful representations of their originals, leading to a loss of sense of reality. Practically these image-objects appear as: market value, mass media, multinational capitalism, urban enclavism (Baudrillard, 1981; Debord, 1967). This has enormous repercussions on any attempt to condition the representation of social issues by urban design, as the designer is in competition for the attention of people with a legion of image-objects or simulacres manifested by the spatialisation of social behaviour that can potentially span across the globe.

The circle of discussions return the physical world when taking pervasive computing into account: computer have exited their shells and drains into the physical world, with all data that is recognised, analysed and processed within the digital realm can potentially become embodied (Weiser, 1991). This essentially means that the interface is no longer the display: it is the entire world (Feiner et al, 1995). Usually this is the point where contemporary urban design starts to become concerned and mostly inspired: art projects with location sensitive media has proven to stimulate activity in urban spaces (Sejdel, 2006); computed, dynamic urban environments have been proposed to test development strategies - a form of projective policymaking (Andersson & Thomson, 2008) - mostly however, the implications of digital spaces are addressed intuitively and on a case-by-case basis (Weller, 2011; Kang, 1998; Shepard, 2010).

Designers been given the opportunity and the challenge of a stewardship over the social production of hybrid - physical and digital - spaces. What have been learned from the past two chapters is that urban design needs to become the profession of spatialising just social practises, and the only way to do it, is by conceptualising, operationalising, and testing the design of the hybrid space. The final chapter of the theoretical framework is the conceptualisation of the hybrid space.



*Did you buy a new chainsaw?*

*No, I bought a Hilti.*

Figure 9  
Two men with a chainsaw, representing the “spectacle” in real life. Hilti is the image object of a chainsaw

## PARADIGM OF THE NETWORKED SPACE

The aim of this chapter is to provide a comprehensive, theoretical description of space which will later be implemented into urban design practise. The foundation of this theory are the concepts of speculative materialist philosopher Michel Serres that will be expanded with the results of previous discussions. The theory consists of four steps:

The building blocks of space: spectrum, process and quasi-object

Implementing network theory

Description of the cyberspace

Description of the hybrid space

First we argue space is spectrum, by which we mean a “set of finite, but uncountable information [that is made legible by imposing] layers of interpretation” (Serres, 1982). A general example is the open-system model of networks in information science, where a network is an abstraction, a description of the electrical charges transmitted (ISO/IEC 7498-1). Upon one abstraction came another, making the seemingly arcane process of physics comprehensible - the layers have their own language that can be used to design. More complex design tasks required additional abstractions, relentlessly expanding the model (ISO/IEC 7498-1). In the case of public space, the even more mystical processes of embodied human decisions, interactions and social processes are interpreted culture by culture, place by place - the things you can do in your living room, in the courtyard, in a chat room, in Trafalgar square define the public space as Nissenbaum suggested;

moreover it defines the processes constituting what that particular space is - its identity. When however an interpretation obsolete, the space might end up dead, if not substituted by a new practise.

Space as process have been exhausted in the previous chapters: it is the act of fixing, stabilising the meaning of our identities (Laclau, 1990; Law, 1992), and our communities and relationships by a repetitive process exchange and interaction (Hajer & Reijndorp, 2001; Worpole & Knox, 2007; Ringgaard, 2010; Lefebvre, 1991). We carve it into reality what we are in this world, and in relation to this world (Abbas, 2005) - all the rest is emergent.

Finally: space is quasi-object. In his “theory of the quasi-object”, Serres deconstructs the object-subject dichotomy to describe how communities work, using a ball-game to explain it (1982). In a game of soccer, the players, subjects, position and move in relation to a ball, an object. Roles are temporarily assigned to subjects based on their current affiliation with the ball. This sets up the relationship among subjects: I am individual holding the ball, and I dissolve in community without the ball, which is in this sense a quasi-object; it is alive as long as it is in circulation. The small society is built up by participation in a process of exchanging the ball, in a process of interaction. Now, if public space is the practice of community making, then public space is everything necessary to the “game”: not only the rules, but also the ball, the quasi-object - the agent in circulation constituting space. Think of the square

Karlsplatz of Vienna. It has a small pool in the middle, and users of the square either walk by it or sit next to it, perhaps checking the temperature. A second person takes a glimpse at this: the entire scene, what Karlsplatz is, is defined by the small rituals that gives participants temporary roles in relation to the pool. If, however nobody sits by the pool, these roles do not exist, the rituals cease to relate to the place, the pool no longer in circulation, no longer contributes to group dynamics, it is no longer alive. Recalling the model of politics according to Schudson: circulating a political message itself is considered an exercise of political power, as it is alive as far as people talk about it. Gehl has observed that the presence of activities in urban squares make it appear livelier (!), encouraging others to join in (Gehl, 2011).

With the building blocks accounted for, step two is talking about what happens, when quasi-objects are networked. The person walking by in Karlsplatz holds a mobile phone, talking to someone: she is simultaneously present in two rituals, two spaces, with the attention of one person. The individual is a “networked self, a collection of different sets of behaviour absorbed through the roles, through the manifold, extremely contingent and extremely temporary participation in various circulations. Hence, attention to keep up circulations, communities, public spaces is split; hence the contingency of contemporary public spaces. No wonder we expect our design products to do more than one thing, no wonder we want our parks to be flashy, provide flood buffer,

host sensitive species of animals while affording recreation at the same time. We want to embed our brain-children in as many circulations as possible; it gives resilience to the architectural idea. No wonder the pool on Karlsplatz assumes the role of a playground filled with hay during the weeks of Advent, while staying a water container for most of the year.

Step three: how do cyberspaces fit in the picture? They act as rapidly occurring contexts for bursts of emergent public rituals, mirroring the contingency of contemporary communities. These rituals involve groups from the pool of worldwide connected people and create contexts with little material investment, laying the ground for a very dynamic metastructure of spaces. On the other hand, these spaces are also quasi-objective constructs “seeking” to be alive. Such aspiration is increasingly difficult in a crowded field of competition like the Internet. The spectacle of web-pages distract us, they emerge and dissolve, but the more persistent ones are successful because of the immense number of participants of their ball-game. these entities stay alive by staying in circulations be embedding themselves in ever larger and ever more networks and retaining the ability to move across them.

Step four: close the circle - space is spectrum. It does not matter whether it is physical or digital, what matters is the “mask”, the layer of interpretation/abstraction applied to make use of it. A layer lays the ground for a circulation within a certain network: a circulation from now labelled “hori-

zontal”. Adding multiple layers, reinterpreting the space penetrates different networks, opens up new horizontal circulations, while in the process, the space itself circulates “vertically” among layers. Physical and digital spaces have different advantages in this system. Digital spaces offer dynamic, rapidly (dis-)assembled formations of publics. Their performance depends on their ability to assimilate to larger, robust networks and to transform in the face of changing circumstances. Physical spaces on the other hand are tangible hosts of embodied practices of publics that have been processed through proportionally longer time. By the tools of ubiquitous computing and situated media, digital spaces can conceive embodied contexts and physical spaces gain an opportunity to reposition, reinvent, reinterpret themselves. The system of (re)circulating social practises on a multiplicity of networked quasi-objects is the new paradigm of public space.

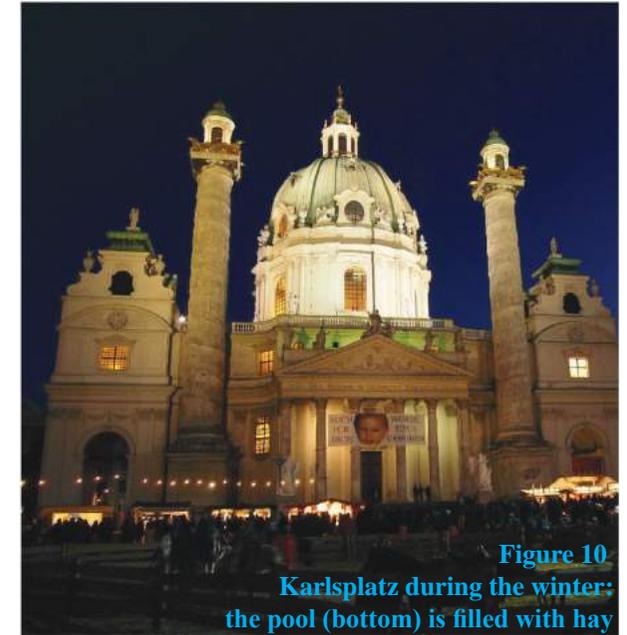


Figure 10  
Karlsplatz during the winter:  
the pool (bottom) is filled with hay

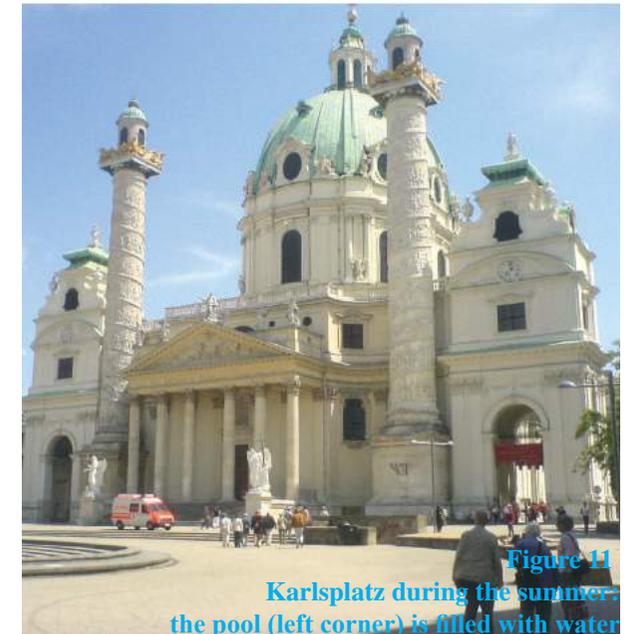


Figure 11  
Karlsplatz during the summer:  
the pool (left corner) is filled with water

## SUMMARY: THESIS OBJECTIVE

At this point we have to return to the problem proposition, which has been finding a role for urban design to address the social ills of the age of radical mobilities, namely the disinteraction, distrust and dissolution of localised communities. It is the social sustainability of space that is at concern, which eludes the physical sphere in the age of the networked society. The theoretical discussion concludes that urban design must find a way to place their work within the complex, hybrid spatial network. The first step towards that goal was the general interpretation of this spatial hybridity, the rest of the thesis must offer working methods on specific sites, on a specific manifestation of the problem proposition.

This work will likely not produce any technical innovations of digitally augmented physical spaces, nor does it seek to solve social problems on a purely spatial basis. The aim of the thesis is operationalising the work with the networked space for a social end, meaning that the essence of the project lies in the critical reflection both on theory and proposed methodology with the help of the actual proposals. The key indicator of the results will be the performance of implementing the theory of hybrid spaces in achieving social sustainability - solving the initial problem. This objective can be summed up as the justification of the following key hypotheses:

1. Replacing the urban design of physical spaces with the urban design of the networked space produce socially more inclusive design solutions, justified by interaction;
2. The size and diversity of the network, in which the designed space circulates, contribute to the liveliness of the space, justified by use;
3. The urban design of networked space produce more socially just design solutions, justified by the rights to the city and to difference.

In other words, the application of the proposed models are predicted to be more engaging to people, to take a more active role in daily lives of people, and to ensure wider citizen empowerment. For experimentation, the group chose to work with the city of Aalborg of Denmark, in relation to accepting a larger-than-expected sum of asylum seekers.

Thesis case: The social transformation of Aalborg

## REFUGEES & AALBORG

Aalborg, like many other Danish cities in Denmark is receiving an influx of immigrants and has become a place, where many different ethnicities shares the city. Like any other city, the biggest challenge is the integration of the new cultures they bring with themselves and how to make them become a part of the local society.

Due to the huge influx of refugees, Aalborg municipality decided to rent the former Park hotel by the Kennedy square, the central station square, for a 6 year period and use it to house 125 single male refugees. Before it opened up its doors as a refugee centre, the municipality held a public information meeting in order to address questions and concerns with regards to having a refugee centre in the middle of the city centre. There were a lot of mixed opinions about the topic and so many had interest for the meeting that it had to be held twice in order for everyone to be able to join (TV2Nord, 2016). One concern for many were the risk of conflicts due to cultural differences and the risk of an increased crime rate at the city centre, but the municipality denied that (TV2Nord, 2016). Fyn's police also confirmed as it is nothing more than a myth that refugee centres increased the crime rate of their local area, and that fact is often being neglected (Fyens Stiftstidende, 2016).

One of the reasons as to why the choice for the location of the refugee centre had fallen on this location, is because the municipality felt that they have a better chance of integration inside the city, with more

opportunities to mingle with Danes - compared to an encampment at the city limits (TV2Nord, 2016). Park hotel is meant to be an introduction program to the city that offers shelter for 3 months before they will be moved to new compartments and someone else will take their place (TV2Nord, 2016). The hotel opened up its doors for the refugees in spring and has so far run without any problems or incidents.



Figure 12  
Park Hotel



Figure 13  
From the meeting



Figure 14  
From the meeting

# SITE ANALYSIS

- Planning context
- Networks
  - Infrastructure
  - Spatial structure
- Use dynamics
  - Functional context
  - Flow distribution
  - Stay activity pattern
  - Use pattern
- Social structure
  - Social geography
  - Songlines

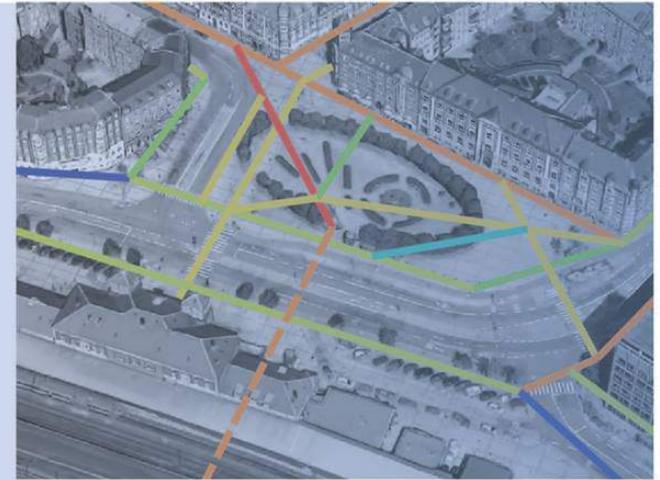


Figure 15  
Site analysis title page

# PLANNING CONTEXT

On that premise, The chosen project site is Kennedy square, near the city centre of Aalborg. The square is located in a central position among Kennedy Arkaden which serves both as a shopping centre and a bus station, Aalborg train station, and the conclusion of Boulevarden, one of the main streets of the city centre. The arrival of the refugees at Park hotel suggests Kennedy square will become one of the places that is going to facilitate some of the meetings and interactions between them and the rest of Aalborg. But how can the square contribute? The Kennedy square is not a simple location as it contains a lot of different layers that needs to be investigated in order to understand the physical, and the social relations constituting the public space.

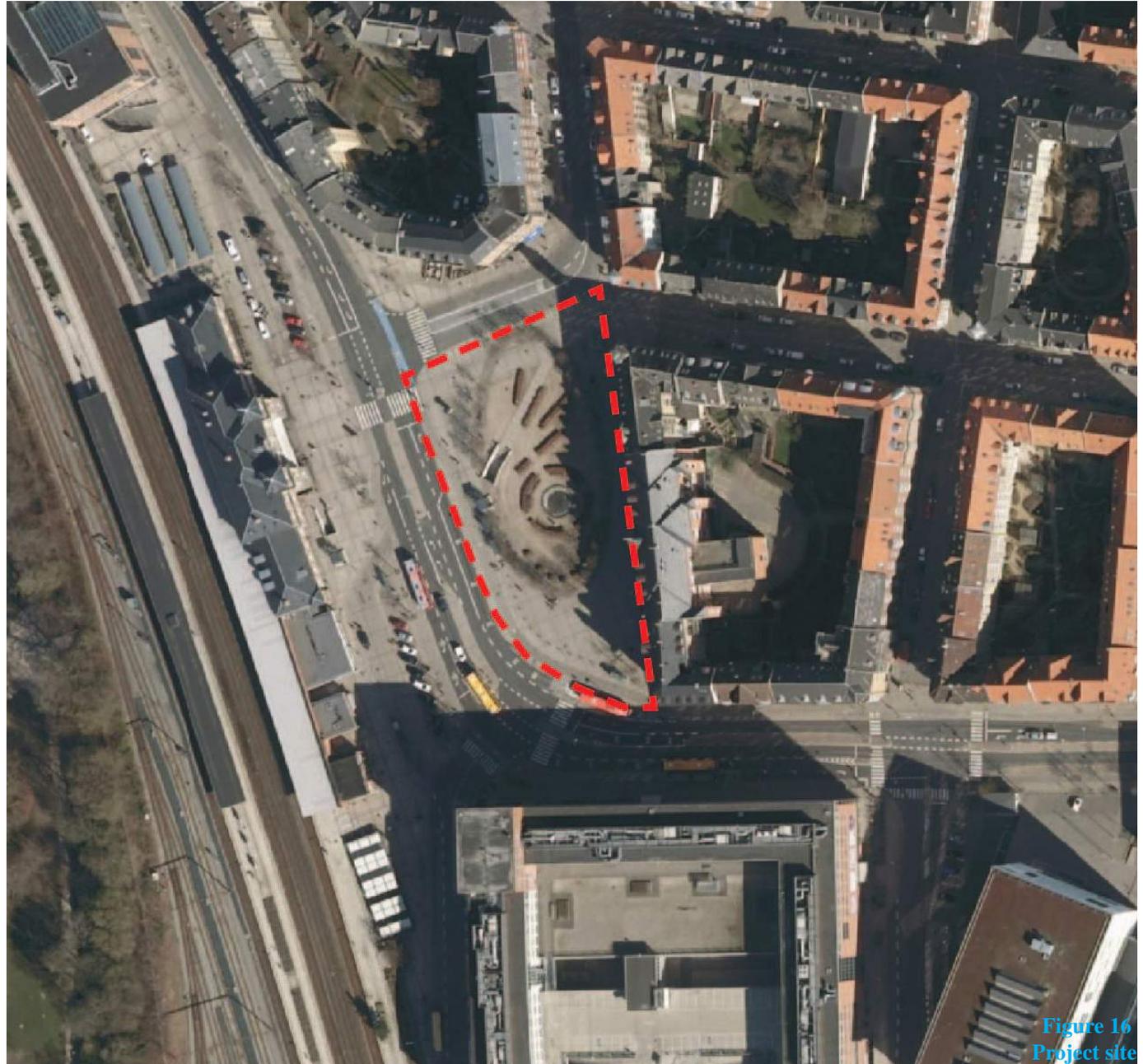


Figure 16  
Project site

SITE ANALYSIS

Planning context

# NETWORKS

Infrastructure

Spatial structure

Use dynamics

Functional context

Flow distribution

Stay activity pattern

Use pattern

Social structure

Social geography

Songlines

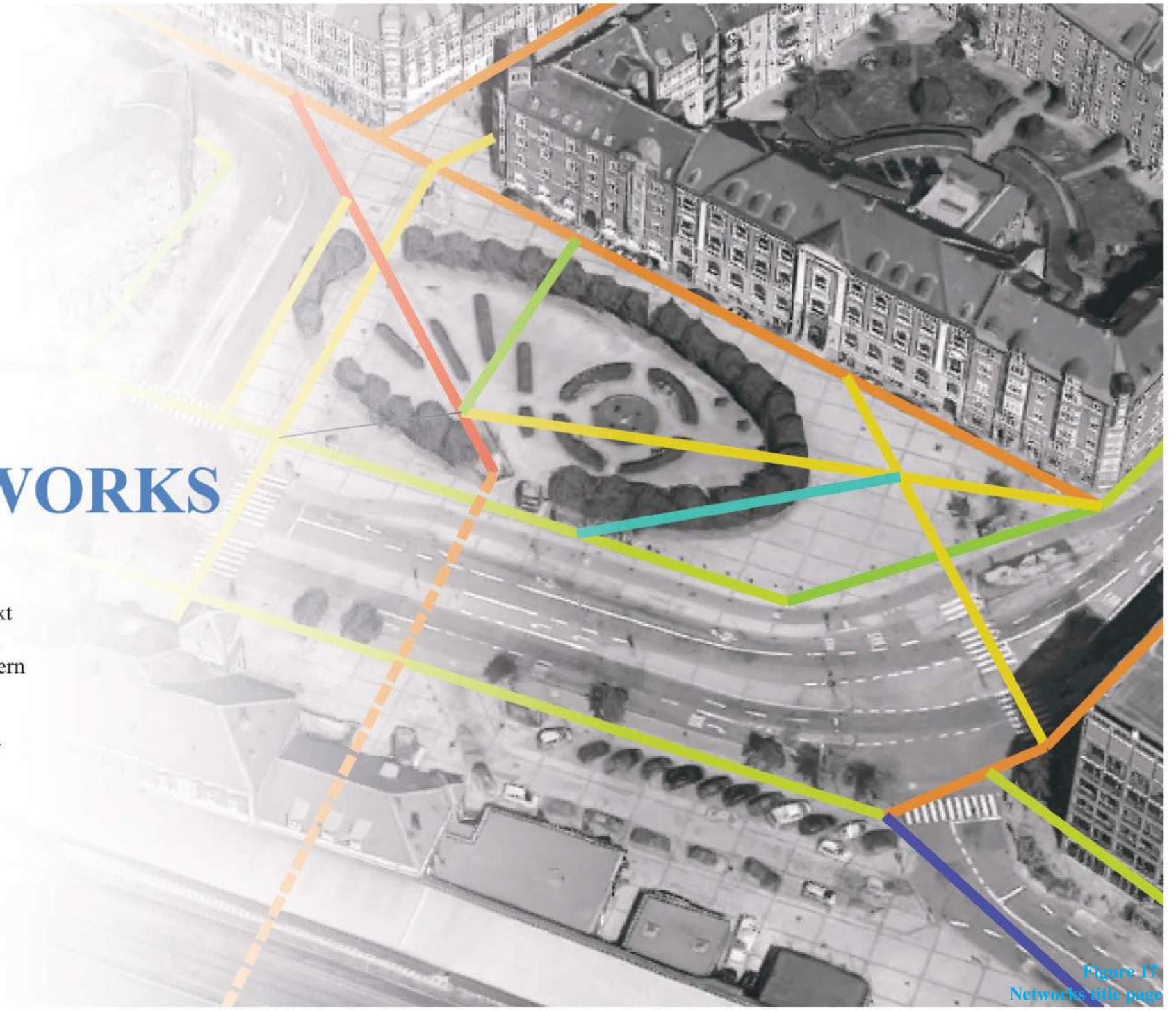


Figure 17  
Networks title page

## METHODOLOGY

The theory of the networked space is not new in the sense that it calls for the relational understanding of space. The very reason that planning *context*, infrastructural *networks*, sequential studies and social context is examined in most design projects, is the consensus on the importance of putting the place into a bigger picture. In this thesis, network is told apart from context by the appearance of an internal logic, that is the focus of examinations rather than a description. As major public transport hub, the transportation infrastructure, and local traffic management is examined; and as a space defined by the dynamics of pedestrian flow and friction, spatial structure is analysed. The former can be done by mapping out engineering tools of traffic management, the latter requires the toolbox of space syntax.

Space syntax is an umbrella term for concepts, theories and tools for linking spatial structural analyses to human behaviour. Spatial structure is modelled as a network, upon which topological analyses can be conducted, which - when empirically justified - can predict certain behaviour (Hillier et al, 1993). There are two variables in the process: first, the urban can be modelled into a graph many different ways; second, there are several mathematical tools for graph analyses. The model and the formula together add up to a single space syntax tool, giving a picture of the spatial situation from one specific perspective, correlating with one type of behaviour; this limitation means no one analysis can be conclusive on its own - only suggestive.

In this project, three models have been used: the axial map is an abstraction of the main pedestrian flowlines into a network, where the flowlines - the axes - are the vertices (Hillier & Hanson, 1984); the segment map, where segments of the axial map defined by intersection points comprise the vertices (Hillier & Hanson, 1984); and the visibility map, built up from a mesh of pixels imposed on the open space. In a visibility graph, the pixels are the vertices, and a link stands between them, if an unobstructed straight line (vista) can be drawn from one to another (Braaksma & Cook, 1980). The individual graph analyses conducted are defined next to the corresponding maps, because they are better read together with a sample and the interpretation of results. Since each map contains a graph that has been cut out of its context, values around the edge of the maps are invalid, while the ones in and around Kennedy square are accurate. Every space syntax analysis was completed in Depthmap, the space syntax software developed by researchers at University College London, the birthplace of the concept (Turner, 2004).

## INFRASTRUCTURE

Kennedy square is located in a busy traffic junction of private and public transport. Next to the square is Kennedy Arkaden, which serves as a bus station, though most of the bus stops are located south behind the building, a lot of stops are spread out the area in front of it as seen on figure 19. Furthermore there is Aalborg station, which serves as a link between north and south with several access points to it including an underground passage that goes from the Kennedy square past the station and all the way to Kildeparken on the other side of the train tracks. Due to its location in the middle of Aalborg and with some key infrastructural functions an infrastructure hub has been formed with a lot of cars going to and from. Just from Prinsensgade going northwest from the square, it is estimated from countings that on average 6219 cars a day go through this street alone, which can be derived from the close proximity to the main roads Hobrovej through Prinsensgade and Østre Alle through Jyllandsgade (Geodatastyrelsen, 2012). Due to its location in the middle of the square, a lot of the parking is done out on the streets with the exception of Nykredit employees, who have their own parking lot in the middle of their block. But despite that, a lot of cars drive into the part of the square in front of Nykredit by using Boulevarden. The area is usually used as a parking lot, but a lot of cars have also been seen driving in and dropping off people who then proceeded to Nykredit.

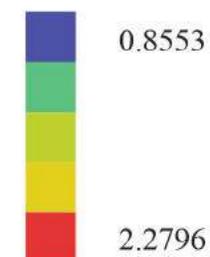
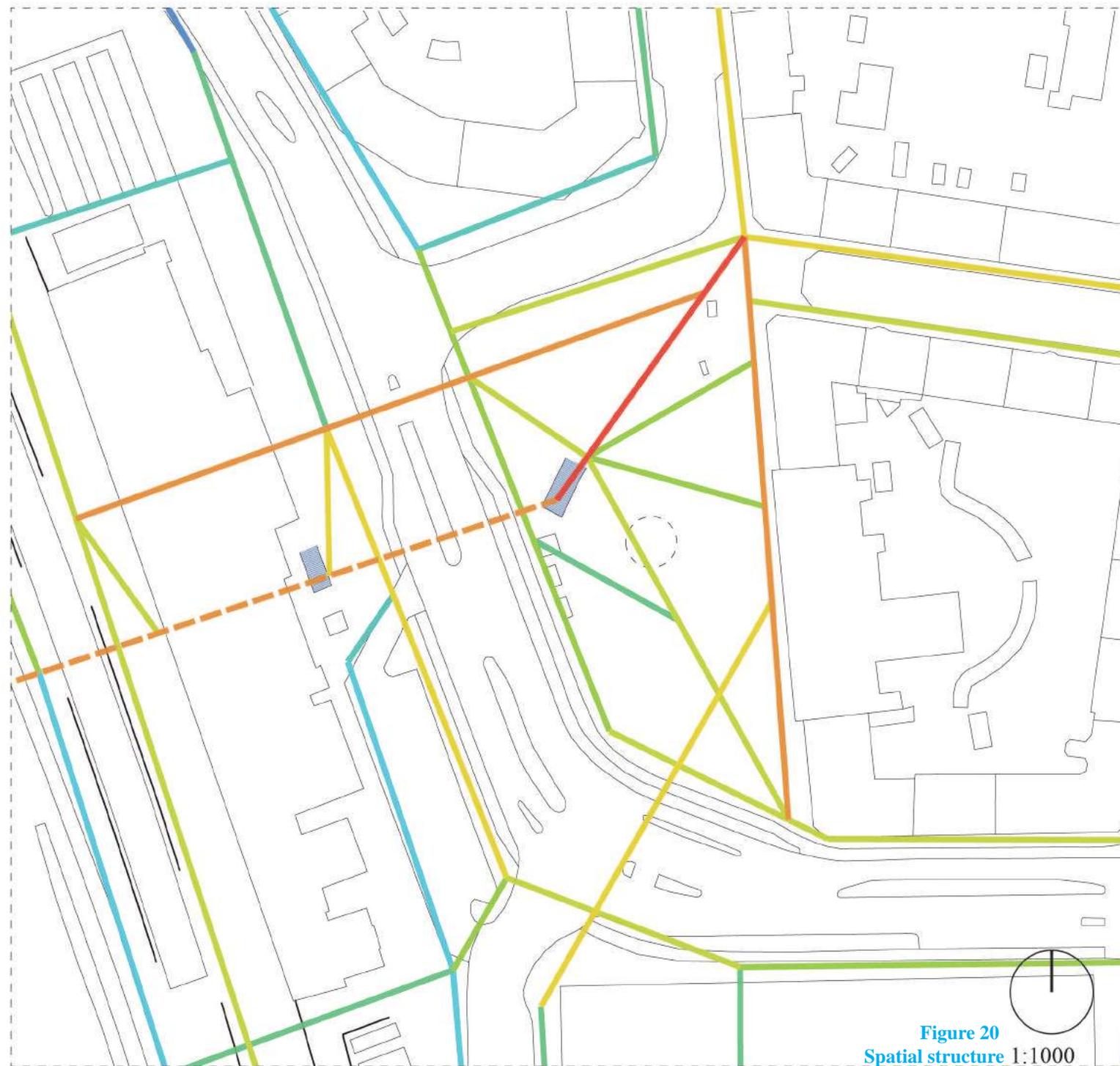


Figure 18  
Ortophoto of Kennedy and its surroundings

# TRAFFIC MANAGEMENT



Figure 19  
Traffic management  
29

**AXIAL INTEGRATION****Description:**

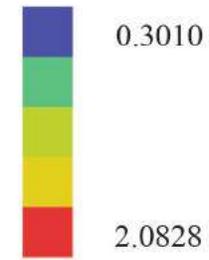
Integration is the number of steps from a vertex required to reach every other vertex in the network. Warmer colours suggest user preference based on how each axis is embedded in the entire network (Klarqvist, 1993).

**Result:**

The map suggests a preference of the northern part of the square which is justified by weekday countings. This is mainly because the path to the tunnel connect to rather detached clusters: the park and the city centre. The map underestimates traffic along the bus stops, as it is not informed about functional magnets. The continuation of Boulevarden is a potentially frequented area, it is desirable to respond to that with active interfaces and functions within the buildings.

**Figure 20**  
**Spatial structure 1:1000**

# CHOICE



**Description:**

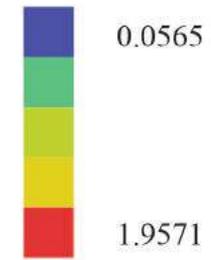
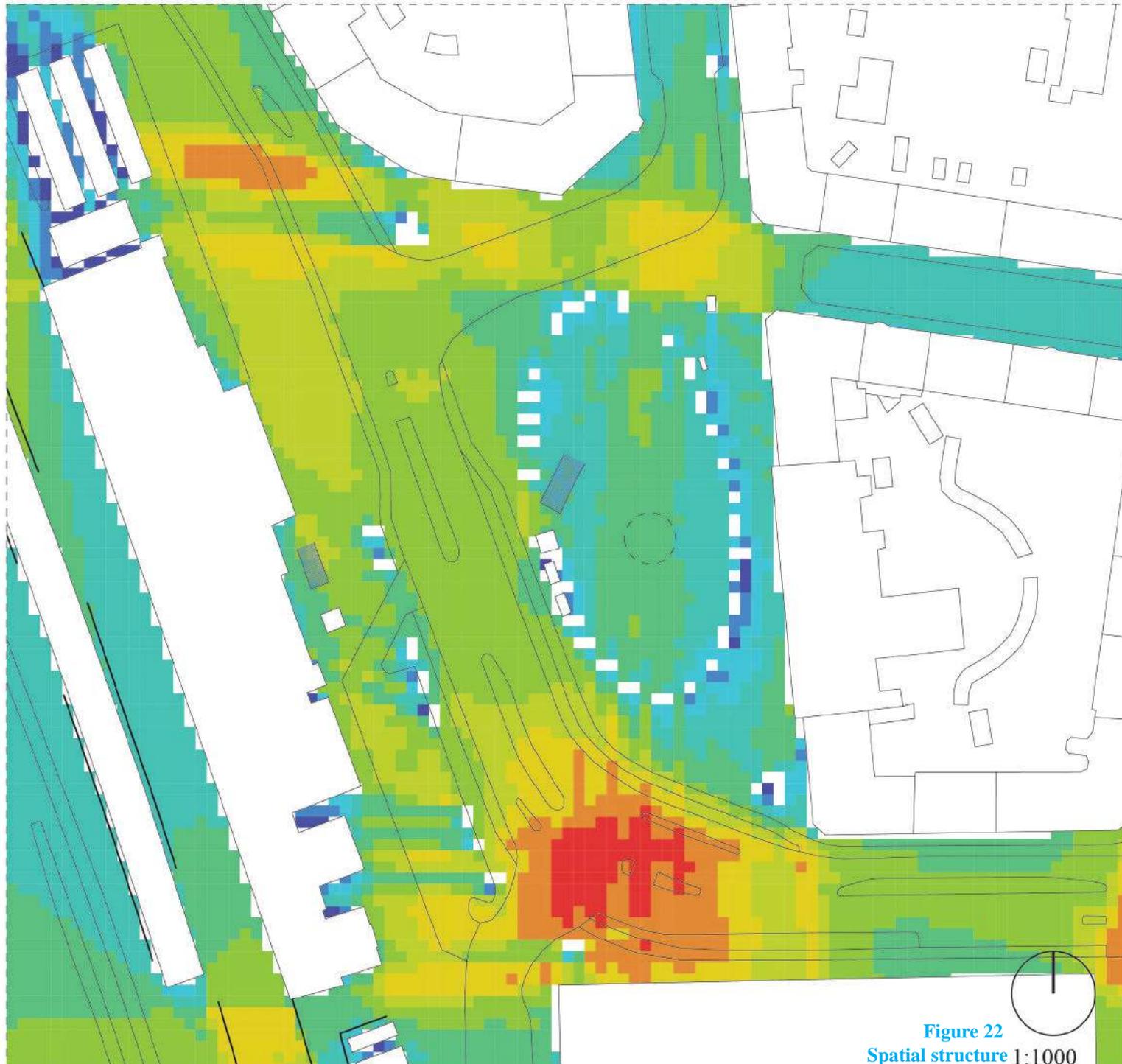
Choice measures “how likely an axial line or a street segment it is to be passed through on all shortest routes from all vertices to all other vertices” (Klarqvist, 1993). In other words, it indicates likely chosen routes when going through the network (as opposed to integration, which suggests destinations, not routes).

**Result:**

The simplest thoroughfare is going through the centre, which is in conflict with the gathering of the drunk people pushing away others. Because of the placement of the pedestrian crossing in the south, the continuation of Boulevarden will not be a prominent through-movement area, giving room for stay activities.

**Figure 21**  
Spatial structure 1:1000

# VISUAL CONTROL



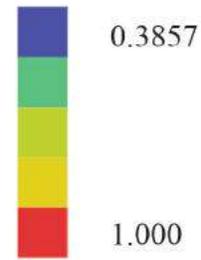
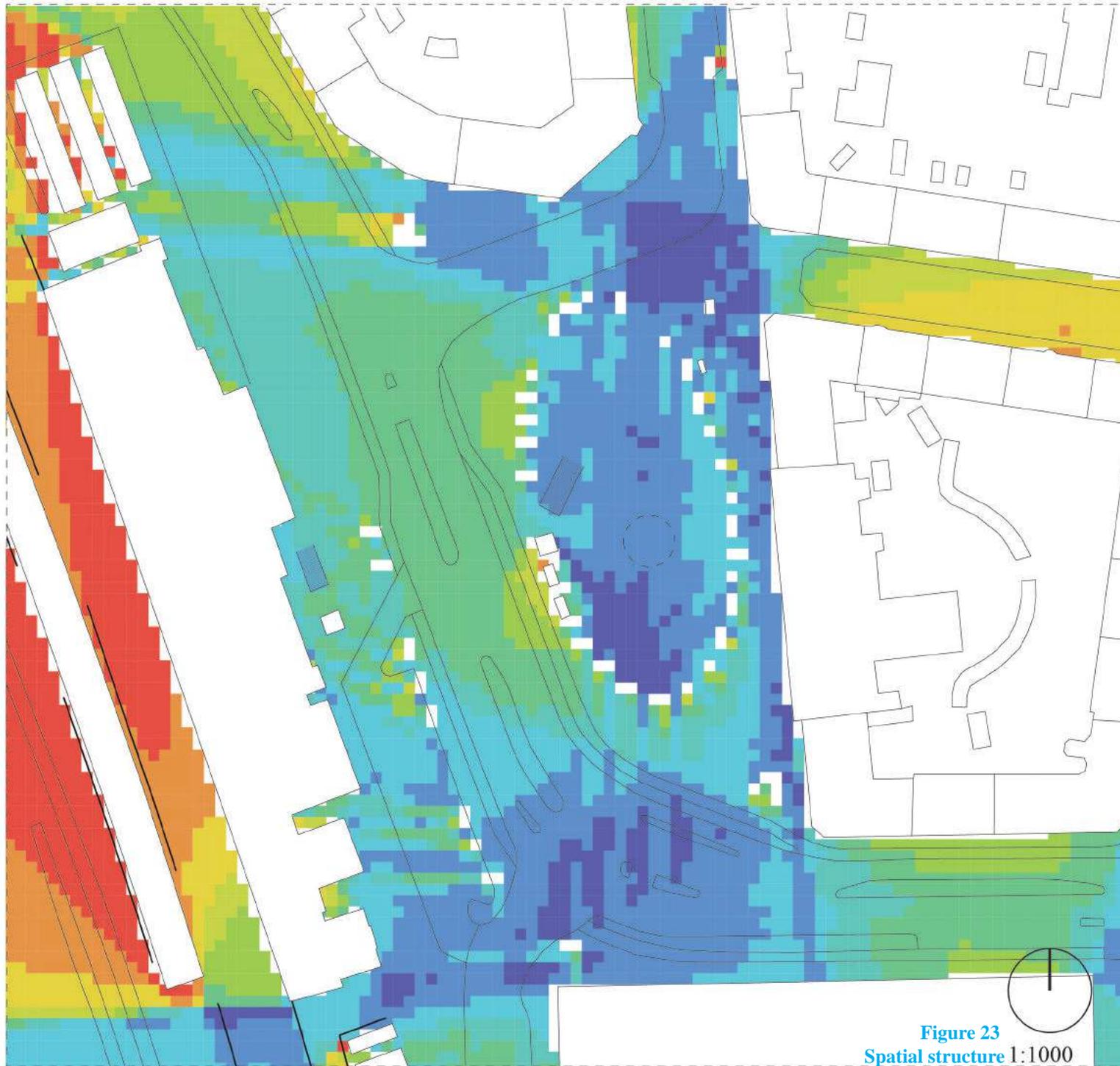
**Description:**

Control is used to identify dominating vertices. First each node is examined of how many visual links it has, then this result is weighted according to the number of connections the linked nodes have. The most dominating vertices have more visual connections, and these connections in turn, have few (Klarqvist, 1993).

**Result:**

Analysis shows junctions emerging as wayfinding points, with the one by Kennedy Arkaden marked by the huge building itself. From any arrival points of the square, a wayfinding node is visible. It is notable however, that in such a small network, the notable buildings: Nykredit, station, the mall, provide far more apparent dominance than any spatial configuration.

**Figure 22**  
Spatial structure 1:1000

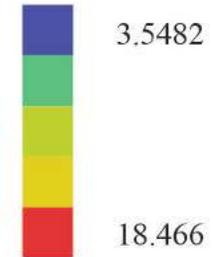
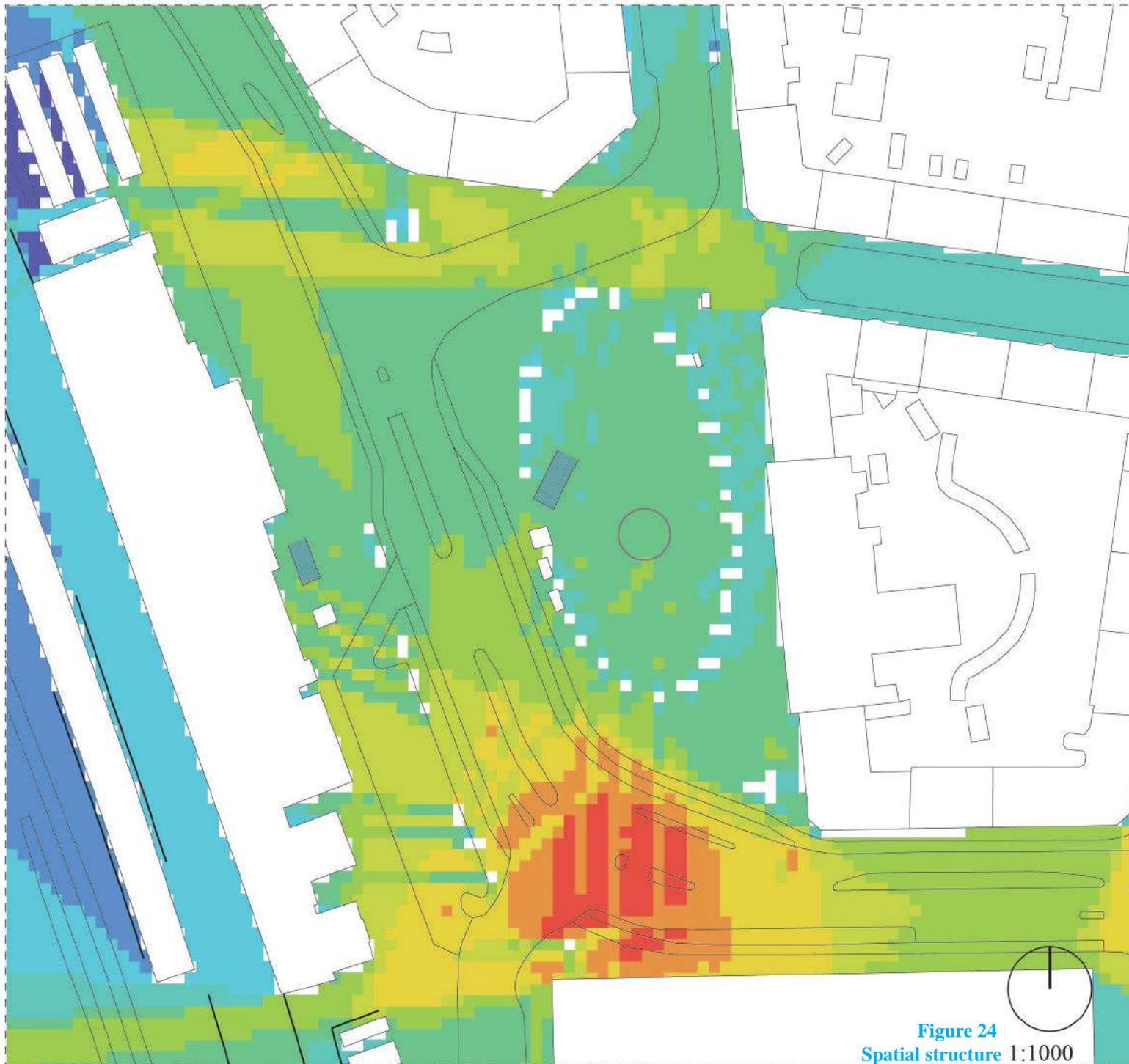


**Description:**  
Clustering measures whether or not the neighbours of a vertex are neighbours of each other or not. A group of vertices with high values have more internal than external connections, hence they form a cluster, a nest within the network (Watts & Strogatz, 1998).

**Result:**  
Because of the extreme values on the left side, the colour range within the square is distorted - the differences are visible, but less apparent. The bus stops, and the circular zone around the trees got higher values, but the bus stop is not a real cluster, only a sub-network in a rather convex geometry. The map thus seems inconclusive, but the filtering the trees create do suggest stay activity preference in the same area as other analyses suggested.

**Figure 23**  
Spatial structure 1:1000

# VISUAL INTEGRATION

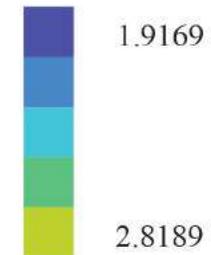
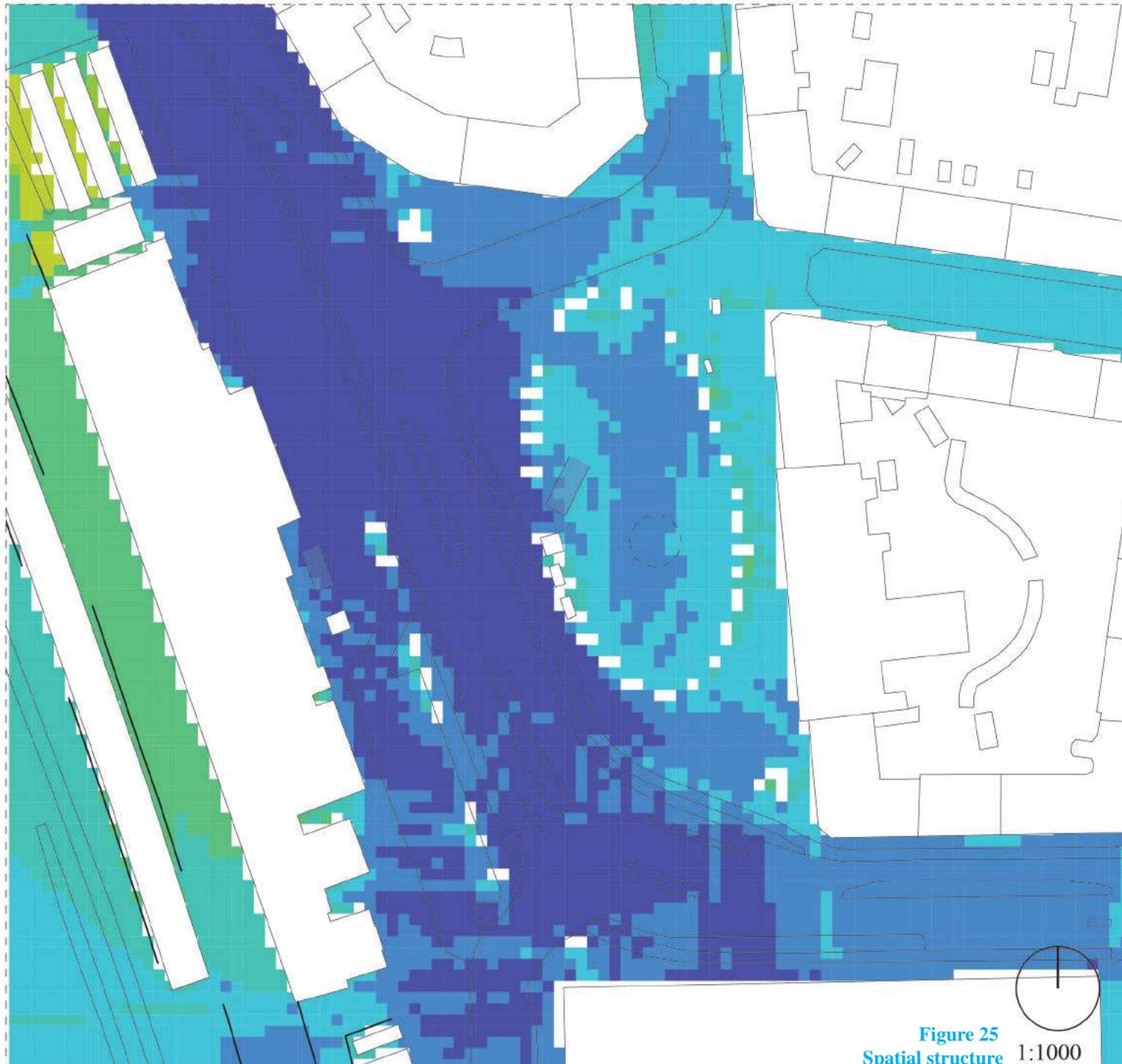


**Description:**  
 Visual integration is an integration calculated on a visibility graph.

**Result:**  
 According to visual unfolding of the space, people should be visiting the pedestrian crossing, and the entrance of Kennedy Arkaden. The continuation of the Boulevarden is noticeably off the map, if there is a need to further foreground it as destination, a rearrangement of the trees is suggested, to represent the continuation of the second facade.

**Figure 24**  
 Spatial structure 1:1000

Networks - Analysis  
**RELATIVISED  
ENTROPY**



**Description:**

Entropy expresses the distribution of connections from each vertex, thus showing how ordered a network is perceived from each point, suggesting wayfinding preferences based on the visual unfolding of space (Turner, 2001).

**Result:**

As expected from such a small network, there are only slight differences in entropy, produced by the tree placement. Exiting Park centre and moving towards the square is the least simple visual unfolding, but the values suggest a differentiation that is reasonable for main roads versus pedestrian streets.

**Figure 25**  
**Spatial structure** 1:1000

## SITE ANALYSIS

- Planning context
- Networks
  - Infrastructure
  - Spatial structure

# USE DYNAMICS

- Functional context
- Flow distribution
- Stay activity pattern
- Use pattern
- Social structure
  - Social geography
  - Songlines



Figure 26  
Use dynamics title page  
Demonstration at Kennedy square

## METHODOLOGY

People are very dynamic and can do very unexpected things, where the actual behavior can contradict the intended design for a location. The only guaranteed way of collecting the data about the users is by observing them as they interact with the area. This was done through countings, several observations throughout the project, and tracing. The countings and the observations were executed on site at the 20th (Tuesday) and 25th (Saturday) of March 2016 in an interval of 20 to 30 minutes, with 20th being gray and rainy while 25th was cloudy. The countings were sectional as seen on figures 28 and 29, due to the very open shape of the square. The tracing and flow distribution follows Ole B. Jensen concept of the “river” and the “ballet”, where it was observed how people move around objects or people to a similar to a river splitting up due to meeting a rock or dancing around each other to avoid a confrontation (2013); but more importantly the concept implies how different information we get when we observe people from inside, as singular elements (tracing or “ballet” observations), or externally, as a mass (flow pattern, “river” observations). Furthermore an experiment was performed by having a person perform an activity out of the norm, in this case singing at the square, and observe what kind of reaction this foreign element would get. Data from the subsequent short visits have been added to the text, but the maps themselves represent the data collected from the 20th and 25th of March since the image of it for the most part look the same, with the exception of the effect of seasonal change.

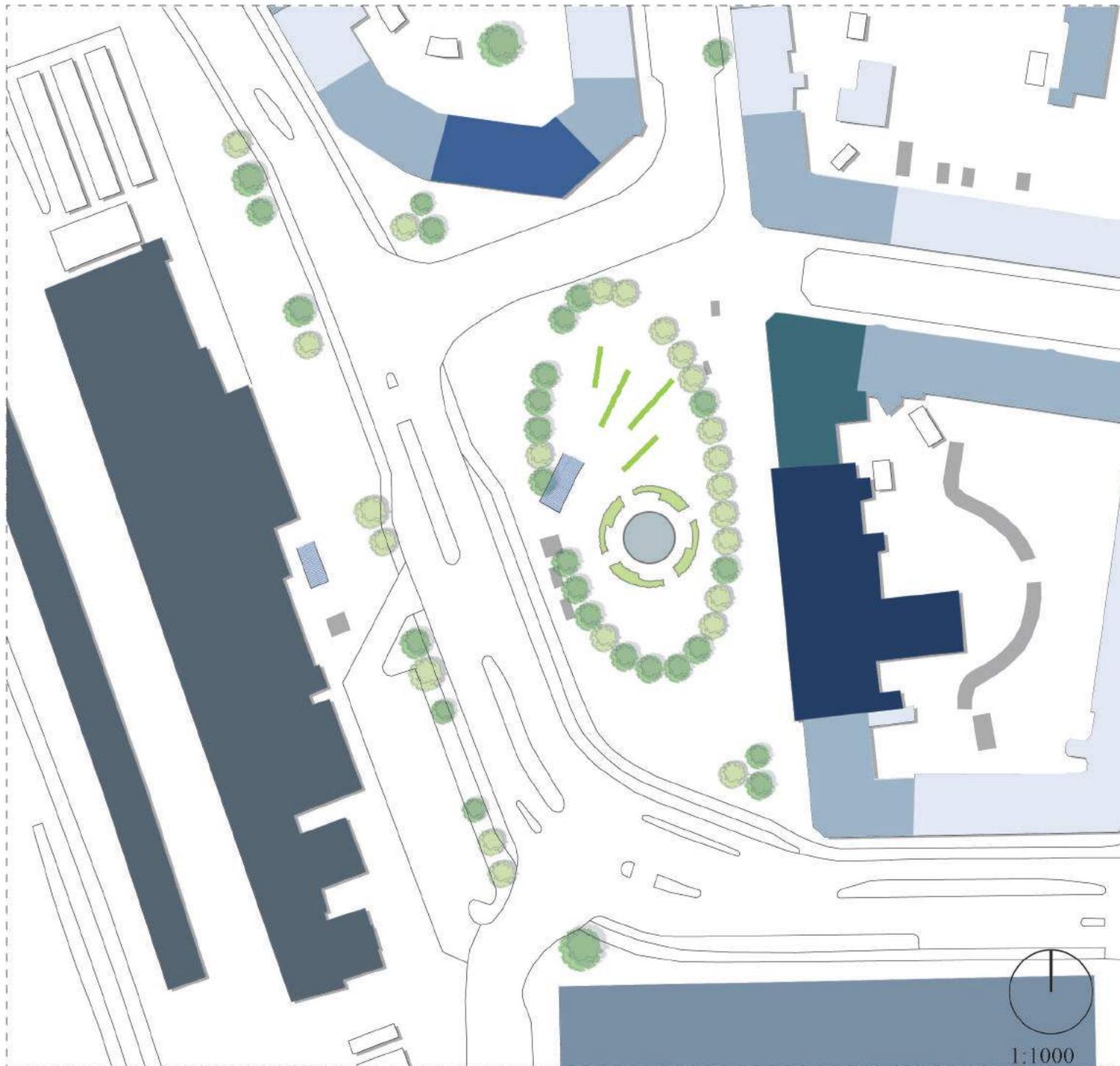
## **FUNCTIONAL CONTEXT**

Kennedy square houses formidable functional diversity drawing a wide segment of target groups. Some of the key functions can be found in Kennedy Arkaden and in Aalborg station. They serve as an infrastructural nerve in Aalborg as the main train station and bus station, which have had a huge impact on the use of Kennedy square.

Among other functions that stand out in the vacancy of the square are Nykredit and Park hotel. Nykredit itself is unique as it attracts a particular group of people due to its function as a mortgage bank. Park hotel transforms from housing hotel guests to housing refugees, it now has a temporary residential function but also act like a refugee center bringing in a new group of people to the square.

When it comes to the square itself it does not have that many functions on its own, but serves as a pocket park, bus stop and a meeting place for many people, which will further be explained in the following analyses.

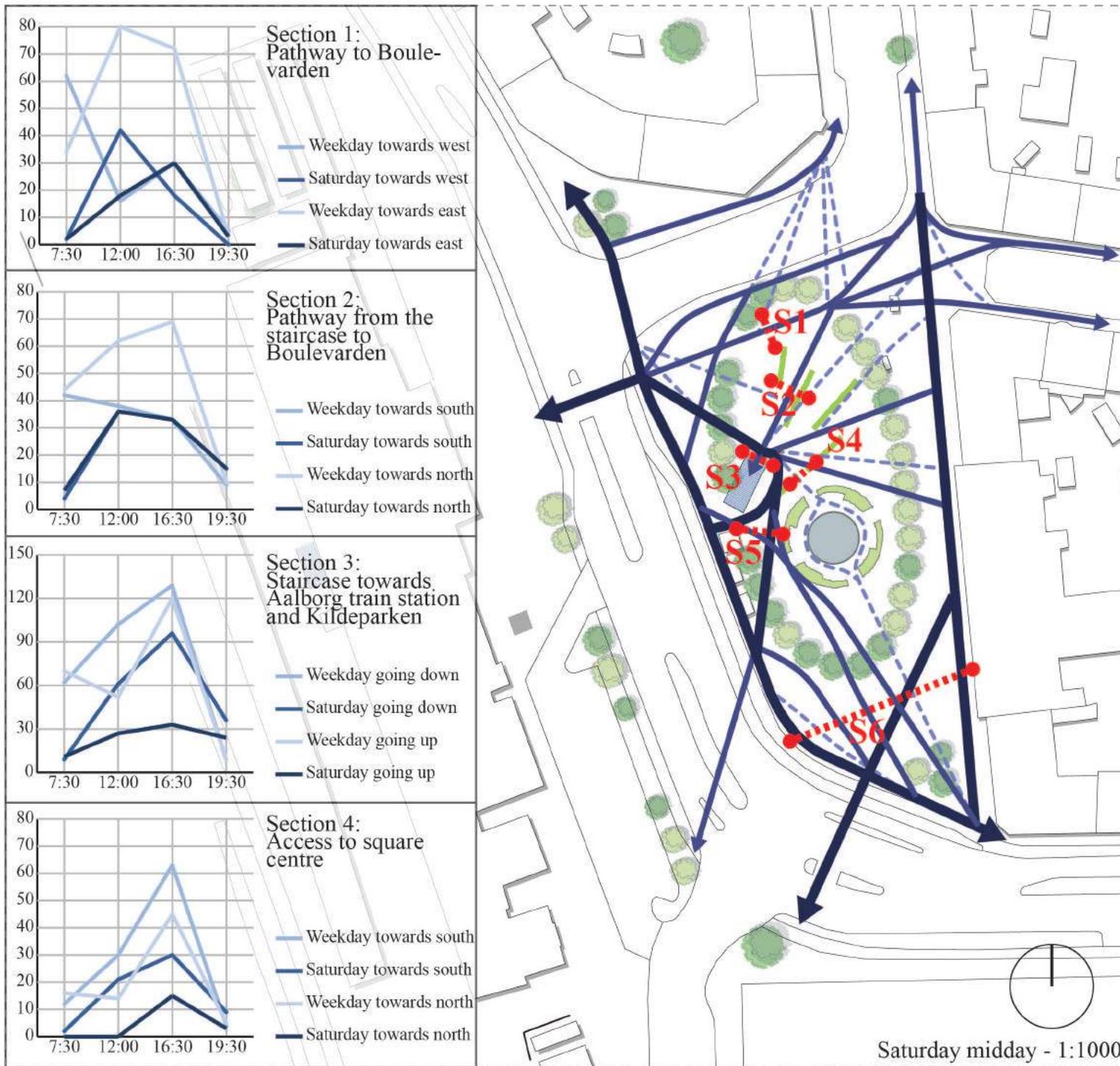
# FUNCTIONAL MAP



-  Aalborg station  
*Central train station*
-  Nykredit Aalborg  
*Bank and mortgage*
-  Park hotel  
*Refugee centre*
-  Mallorca Bar  
*Residential and bar*
-  Kennedy Arkaden  
*Shops, restaurants, grocery store, cinema, offices, fitness and welfare, and bus station*
-  Mixed functions  
*Residential, driving school, shops, café, dentist, church, and offices*
-  Residential

Figure 27  
Functions near Kennedy square

# FLOW DISTRIBUTION I

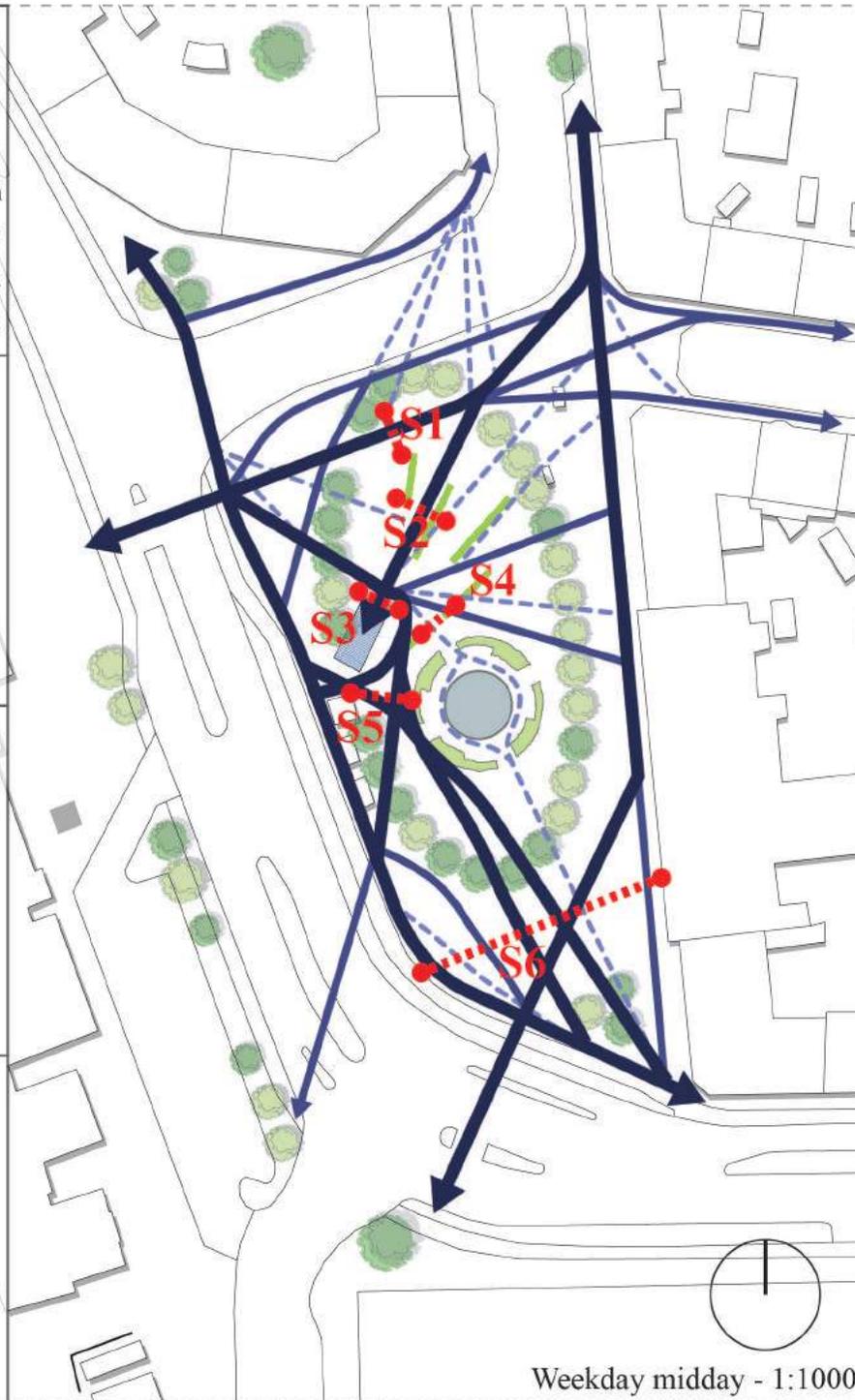
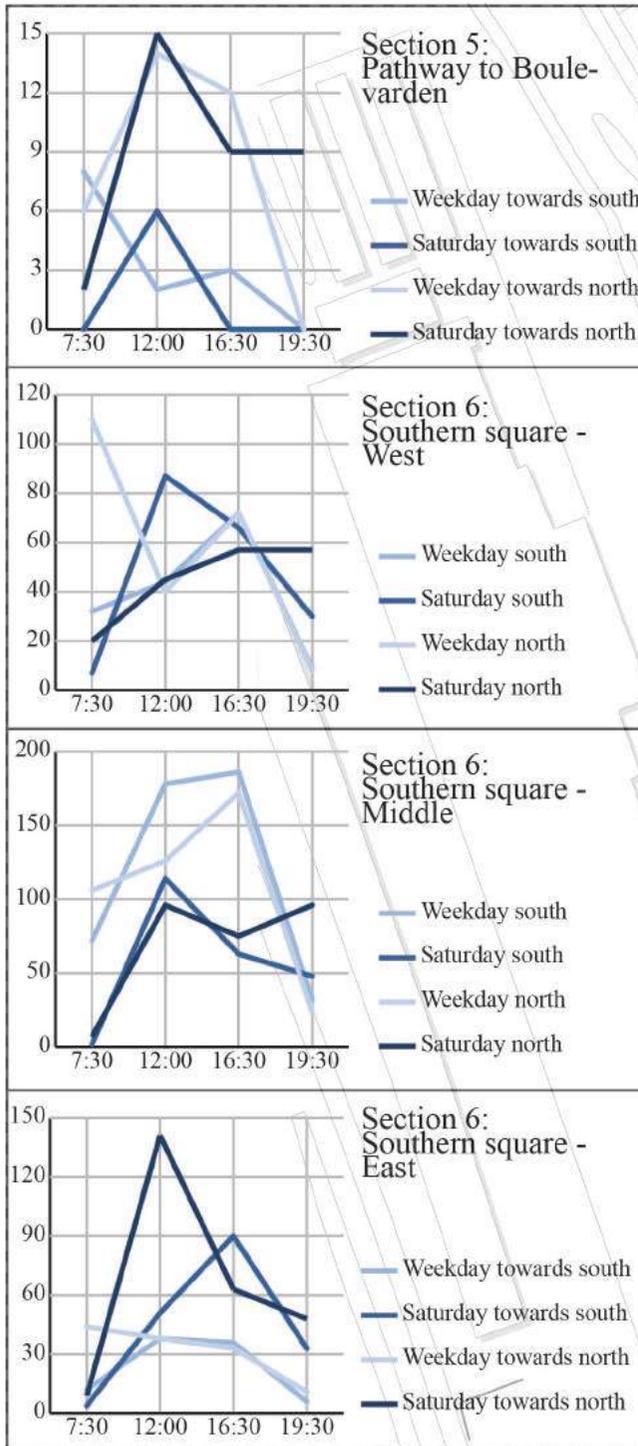


## Description

The stay patterns were conducted alongside the flow patterns and show the results for that time period, seasonal change will be addressed here in the text and not on the illustration since there has not been possible to collect any data for it. During the time spent at the square it was very clear that there were no programs that could keep people at the square for a long time. The ones who spent the most time were the people who was doing the demonstration, which is an unusual activity for the site and then the “regulars”, who was meeting up at the site and drank a beer together with each other. The only ones who were returning and were actively using the square were these “regulars” who had their own spots at the square.

**Figure 28**  
Flow distribution map 1

# FLOW DISTRIBUTION II



- █ Primary flow
- █ Secondary flow
- █ Spontaneous flow
- █ Sections

The “emptiness” of the square is most related to the programs of the site, as mentioned before that is a huge variety of them, but none of them can keep people there for more than 5 minutes. This was again observed at the 2nd of May 2016 where there happened to be a warm and sunny day. The “regulars” had disappeared and people had gathered in their location in the center of the square where they sat on the benches and just enjoyed the sun which had finally arrived. The sun acts currently like a precondition for people to use the square, otherwise it will not be used except by the “regulars” and people who are taking a 5 minute break.

**Figure 29**  
Flow distribution map 2

## **STAY ACTIVITY PATTERN**

In order to uncover the flow distribution of the square several countings and observations has been conducted. The countings and the observations were done on 20th (Tuesday) and 25th (Saturday) of March 2016 in an interval of 20 to 30 minutes, with 20th being gray and rainy while 25th was cloudy.

It was observed that during weekdays there tended to be a stronger flow due to the arrival and departure of people at or near the square. This tendency peaked during the early morning hours due to the rush hours and were more spread during the day. The key main flows of the square are around the edges and then disperse into smaller or form new main flows going either to the passage to the Aalborg trainstation or shortcuts through the square to reach other main flows.

An important critical point of contact that were formed from the flows were centred around the stairs to the train station. At this location a lot of flows, including some of the important main flows, converge into a singular flow going beneath the ground to the other side of the street.

One thing to note down is that on 25th there was a demonstration that was dispersing around the 12:00 counting, which have given it an artificially high number that normally would not have been possible.

# STAY ACTIVITIES

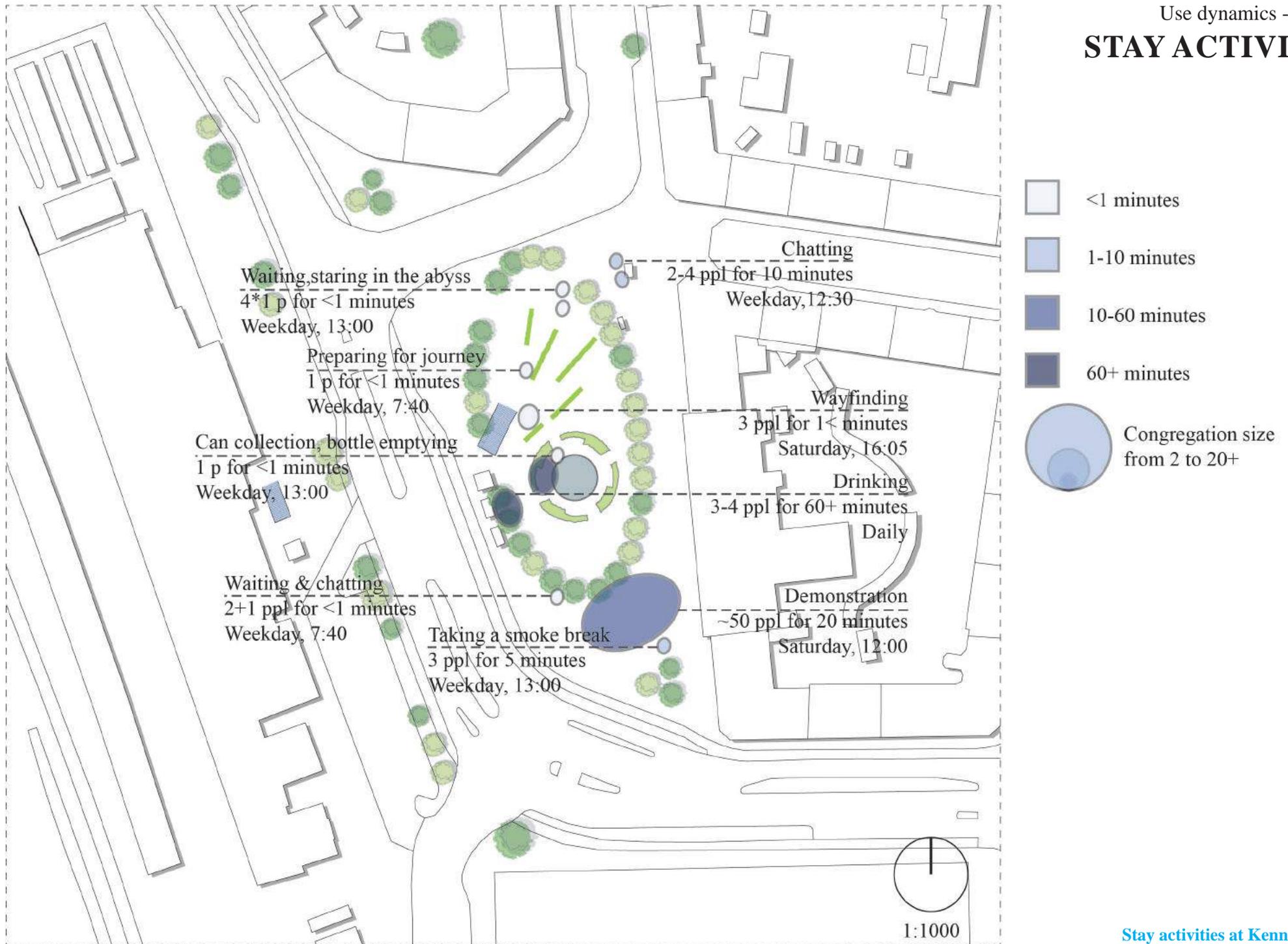


Figure 30  
Stay activities at Kennedy square

## USE PATTERN

For everyday interactions, the openness, attentiveness of square uses and square users become an important resource. Generally, uses can be classified as go-through, and go-to. Their spatial characteristics are described in flow pattern, integration and stay pattern, choice analyses.

Tracing go-through use pointed out possible distractions from focusing on moving from A to B. Seven out of ten users look into sudden expansions of their horizon, such as a staircase, a tunnel or the street, while five out ten take a glimpse at written texts, characters, artificial symbols. The former is an act of registering the immediate surroundings, the latter is a natural seeking of signs and condensed information - both reactions are reflexive. Four out of ten users stopped momentarily upon ascending to the square from the stairs: either to hop on the bike, dress up, or to look around. Both ascension and descension are clear transitions in the use routine resulting in a few seconds of mental appropriation. Transitters spend less than a minute in the square, focused on their trajectory: these points of transitions are the only opportunity to “catch them off-guard”.

Most go-to uses split into drinking/chatting in the square and waiting for the bus. Chatters are a homogenous social group (see Social structure), delineating a temporary territory, that is semicircular, centred around a bench, with the occasional use of the nearby hedge for urinating. Members of the congregation are aware of their surroundings, and often-

times watch the flow of people going by. Those who wait in the bus stop are mostly alone, and tend to distract themselves to a certain degree. Those who use smartphones barely register anything outside the screen - though they are conditioned to react to the arrival of any bus. The ones who listen to music pan the environment with their eyes until there is something with “informative depth” - an object or event revealing more information by persistent scanning - captures their attention. Those without any appliances curiously examine whatever secrets the bus schedule might tell them.

The triangulation experiment proved the efficiency of capturing attention. The chosen method - singing and reciting and act - failed to hold attention. The reaction of people is comparable to walking by a staircase in the tunnel under the train station: one parameter in the environment rapidly and considerably changed, the natural reflex is to register this change at its source. Once the event is concluded to be safe and/or nothing out of the ordinary and/or not worthwhile to observe, the individual returns to her routine. It is notable that people can more easily divert attention than environment - mostly because people are active components on their own, while the static environment is “active” only by the observer recentering her point of view.



Figure 31  
People waiting for the bus split their attention between the road and the timetable



Figure 32  
The “square regulars” can spend multiple hours drinking and chatting.



Figure 33  
A screenshot from the triangulation experiment; keeping up attention is more challenging than raising it.



Figure 34  
An atypical use of the square; demonstration.

## SITE ANALYSIS

Planning context

Networks

Infrastructure

Spatial structure

Use dynamics

Functional context

Flow distribution

Stay activity pattern

Use pattern

# SOCIAL STRUCTURE

Social geography

Songlines



Figure 35  
Social structure title page  
Regulars at the square

## **METHODOLOGY**

To better understand the users, a series of interviews and observation were made. The participants to be interviewed for the “Social geography of Kennedy square” were found at Kennedy square and interviewed about their opinion of the arrival of the refugees and cover one specific group of people. The mapping of the social relation is based on the current situation at the square and what interest and opinions might be involved. The refugee songlines are based on Gitte Marling’s (2011) urban songline, which is a method that involves the participant to tell their life story and what opinions they had on this journey. The refugee songline follow two different refugees on their journey to integrate into their new host country and focus on the connections and relations they form on the journey.

## **SOCIAL GEOGRAPHY**

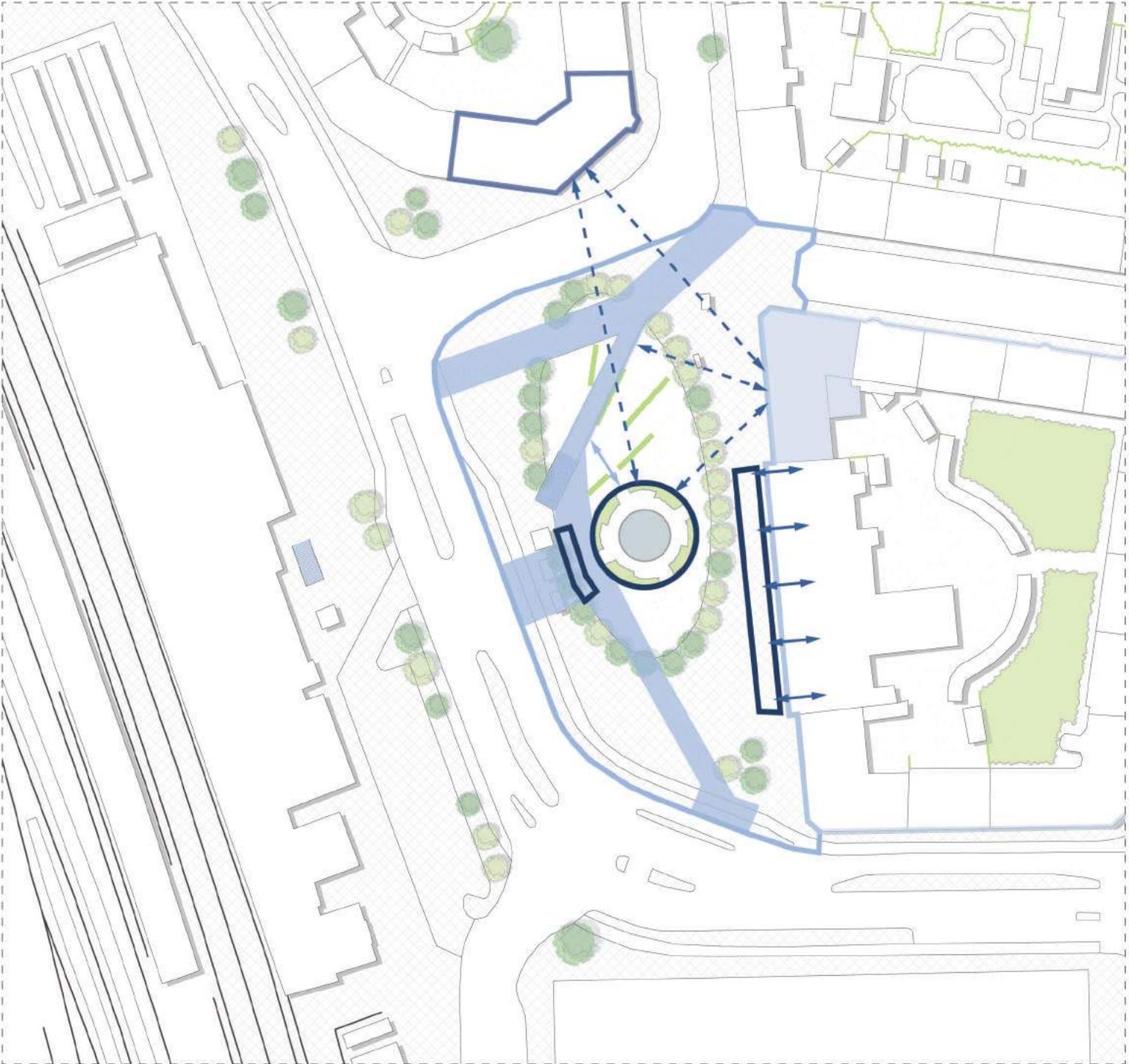
The social geography of Kennedy square has always been very complex to it having many different actors on the stage. What comprise the largest part and most diverse of all the social demographic spectrum is the transitters whose territory is comprised of the entire square and the many individual in it have a lot of different objectives and opinions. Unlike the groups they are more likely to get along with the other groups and their influence on their square is very determine on how the square is seen. Another group with just as much power is Nykredit who owns the entire block next to Kennedy square and is also the one who rents out Park hotel to Aalborg municipality, and its interest is in a conflict with the “regulars” of the square, the “outcast” that gather up and the square, and to a certain degree are in a conflict with every other group due to their presence.

The situation is further complicated when the refugees are taken into consideration, since they are a new group that need to find their place in this social geography. As they are a new and “strange” group, there are a certain mistrust as to what will happen with them at the square, are they going to make trouble or are they going to contribute in someway to the square? In an interview with the “regulars”, they talked about how some of them have gone to the square for 20 years, and this were their meeting spot where all of them could meet up due to the public transport that were situated near the square. There were a feeling of dread and hopelessness when they started to describe how they were treated like the

“outcast of society” and that the police deliberately went to check up on them when they gathered in groups. There were a feeling that they would be further pressured to leave the square with the arrival of the refugees and one of them further emphasised this with a small degree of hostility directed towards the refugees that showed no understanding as to why they should be situated in the city centre. They questioned their right to the city and why people who were only going to stay for three months at a time should have that much influence that they end up being pressured away.

Despite of the negative view on the refugees, one of the interview did agree that interaction could lead to a common understanding between this two opposite group when he was questioned about it. Other interviews were also conducted, in the following chapter it will be about the refugees and how they integrate into a completely new environment, similar to what is happening at Kennedy square.

# SOCIAL GEOGRAPHY



**Territories**

-  Transitters
-  Nykredit
-  Refugee centre
-  Square "regulars"
-  Mallorca Bar

**Power dynamics**

-  Direct conflict
-  Mixed feelings
-  Evasion

**Figure 36**  
Social geography of Kennedy square

## REFUGEE SONGLINES

### THE STORY OF “K”

“K” is a 23 year old female student in international relations from Irani Kurdistan. Her family had to leave the region at the age of 6 because of her father’s political activism became intolerable by both Irani and Iraqi authorities. The family had been picked in 1999 by UN as genuine asylum seekers and was transferred to Denmark subsequently, meaning she grew up in an entirely different culture while she was old enough to comprehend the change. Her story is told through the friendships she established with some insight on the environmental dimensions of the practise of these relations.

#### **Karlslunde**

Before the escalation of the refugee crisis the admission of asylum seekers was more ordered. The family applied directly at the UN due to the increasing harassment and discrimination which in turn evaluated the applicant’s age, education, possible contribution to host society, integration potential and severity of their situation. The conditions of the family of “K” with four young children was labelled critical and Denmark granted them political refuge. They have spent the first year in an oblong, single-storey house shared with another refugee family in Karlslunde. Life was inconvenient with lots of arguments and little option for privacy. The family used to visit a local church and “K” felt it is the “safe place” in an otherwise strange environment. Due to the living conditions the family moved to Glumsø shortly.

#### **Glumsø**

“K” called her residence in Glumsø a “real” house, two storeys, with one family on each - it suggests the house in Karlslunde was a poorly transformed former agricultural building. They have lived there for three years, while “K” was attending a specialised school for refugees. In the learning environment her classmates were mostly strongly embedded in their own groups - being children of families who fled their countries together. She is in touch with one Kurdish student and some of the natural-born teachers of Kurdish ancestry.

#### **Næstved**

Næstved is the place “K” has spent the majority of her time in Denmark, finishing primary and grammar schools before going to university in Aalborg. She called it the “destination”. They finally lived alone in a single housing unit in a rowhouse in a quiet neighbourhood of the suburbs. She made most of her lasting friendships in the schools of Næstved. On the top of her list is a girl from Morocco, an “open personality, easy to bond with”. Their older sisters have been friends before, but they met independently in grammar school. They usually met at the “scene”, a leisure area with a stage which has been used for practising music but is also a frequented by immigrant students and avoided by at least some Danish students. She also keeps in touch with a Danish friend from primary school. She liked her for her understanding, well-hearted, non-judgemental personality. They hung out much

at the Næstved handball club - as they were both members. Apart from sports they used to sit on the floor someplace chatting. Alternatively they spent time at each others home.

#### **Aalborg**

By the time she arrived in Aalborg, “K” already felt she is part of the Danish society. During her 17 years she has not experienced any major atrocities nor regrets coming to the country. Due to the active campaigning of her father, the family as a whole still cannot return to Kurdistan - she on the other hand could and did, spending roughly a month in Iran with relatives. “K” described that as the best experience in her life, and is leaning towards returning if possible. They continue to engage with relatives back home through social media, and her grandparents have visited Denmark multiple times.

#### 4: Aalborg



#### 1: Karlslunde



#### 2: Glumsø



#### 3: Næstved



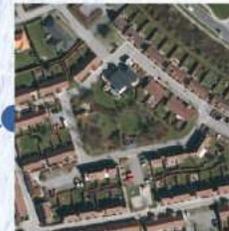
One notable place “K” remembered from her brief stay in Karlslunde is the local church her family used to visit independently. Despite the muslim faith, the church provided a sense of security and homeliness in the difficult first months.



The Glumsø school for refugees did not leave a great mark on “K”. She is in contact with some of the teachers, but her classmates were refugees who fled together and stuck together.



The handball club in Næstved was not only a site for training and sports, “K” used to sit on the floor and chat with her friends there after school.



This particular park next to the Næstved apartment of the “K” family is one of the reasons she called Naestved the real “destination” in Denmark. It is a medium sized park with a playground, but “K” introduced is a “huge garden” where she would go with her family.



The “scene” in the high school of Næstved is practically a stage with some café furniture used after-school leisure. It was a common meeting point especially for migrant children, eating lunch on the stairs, listening to prospective musicians.

Figure 37  
Locations “K” has lived and her experiences with them

## THE STORY OF “B”

“B” is a 28 year old male English teacher who fled Syria because English was branded the language of the devil. He had an adventurous journey through the Aegean sea, spending three days in Hungarian prison before he arrived in Austria. His story is told through the stages of his integration to Austrian society as he arrived in the country, using his places of residence as a structure. At each stage, his local interactions, feelings, territory of operations and his reliance on digital media indicates his state of presence in his new environment.

### Traiskirchen flüchtlings-siedlung

Traiskirchen is a first-response refugee camp in Austria to gather newcomers and organise their sorting. “B” spent three days here, and despite the wide range of common programs, did not make lasting relationships.

### Marxergasse flüchtlingshaus

“B” spent four months living in Marxergasse. During this time was his asylum inquiry accepted, his insurance and salary established and he also volunteered as translator due to his training in English education. His connection with fellow travellers somewhat waned, but he started to make Austrian friends through volunteering, and kept in touch with his closer Syrian friends who spread out across Europe. He started to explore the city, enjoying the markets and watching people go by at the Donaukanal, but felt the language barrier took a toll on his chances to fit in, to which he responded with self-training with language-learning apps.

### Apartment

“B” has been living in an apartment with 11 other people for 6 months, actively looking for a better one - this time on his own, on the internet. He has been schooled to learn German, goes out with his volunteer friends to bars, visits a gym regularly, and is allowed to move freely within the EU for a limited time. He has a brother in Germany, and friends in the Netherlands, Norway and Sweden whom he intends to visit. He is generally eager to participate in any social event.



Figure 38  
Café of the Marxergasse  
flüchtlingshaus



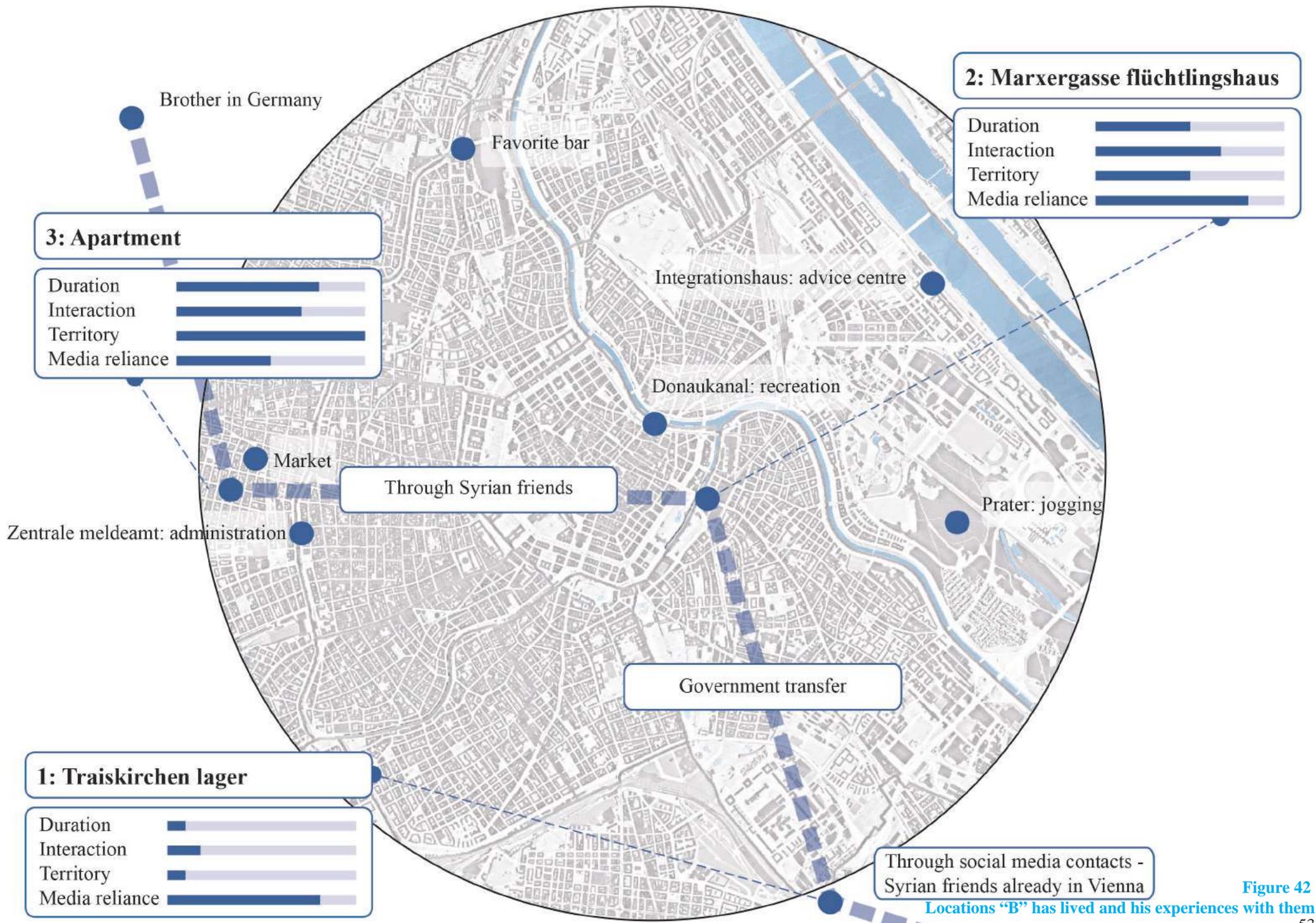
Figure 39  
Donaukanal, Wien



Figure 40  
Brunnenmarkt, Wien



Figure 41  
Learning the language at Traiskirchen



**Figure 42**  
Locations “B” has lived and his experiences with them



# DESIGN STRATEGY

## Synthesis

- Critical points of contact

- Critical trace

## Concept

- Design concept

- Integration concept

## Design methodology

- Reference project: Living. Making. Being. Public space.

- From urban design to urban narrative

- From narrative to genetic programming

- From programming to design



Figure 43  
Design strategy title page

## CRITICAL POINTS OF CONTACT

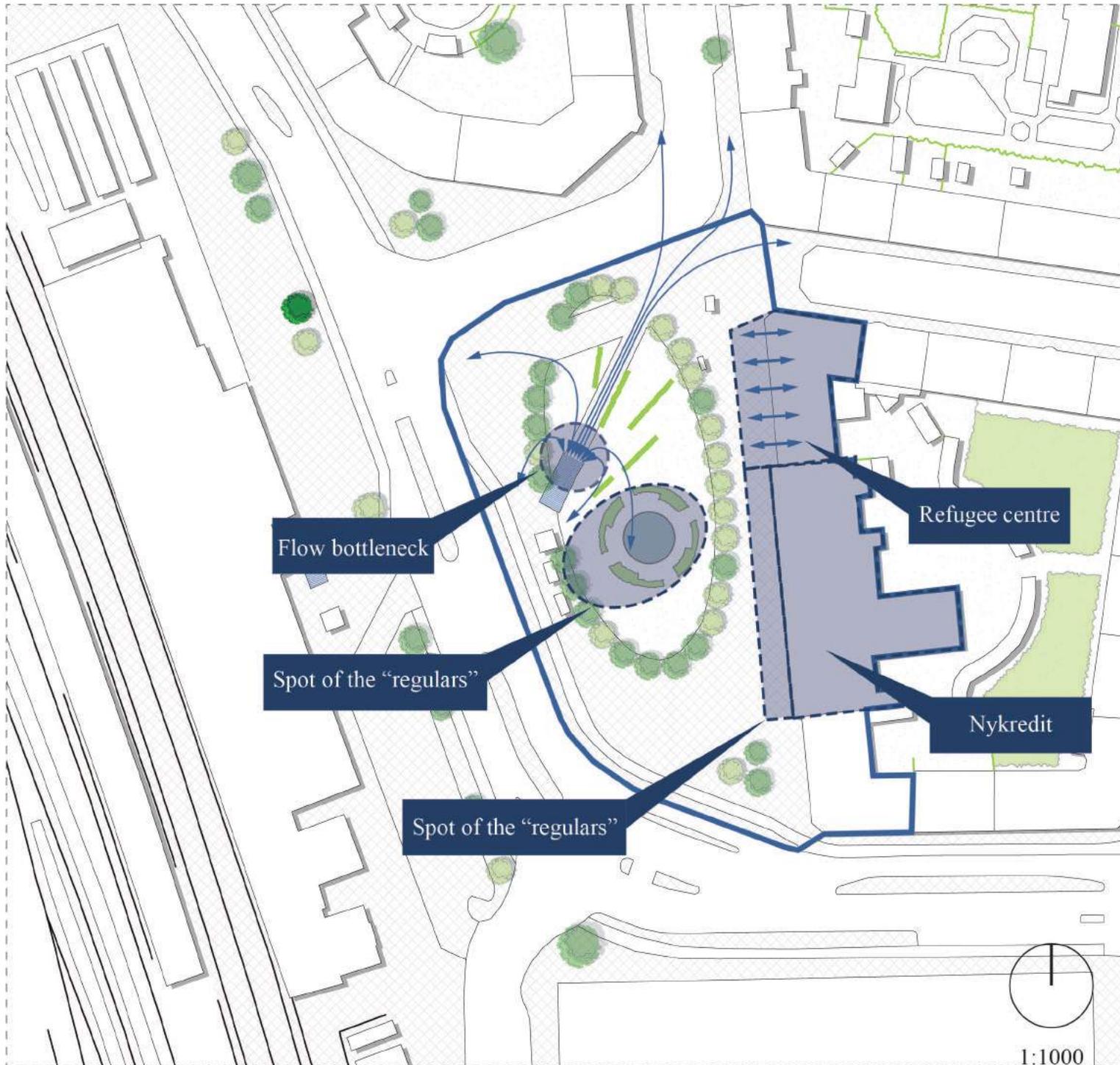
As a synthesis of investigations, strategic areas within the site were pointed out as starting points for intervention. Considering the urban space as a vertex in an assemblage of networks, it is natural that some points are more impactful than others: chokepoints, connections of various networks, places where something - some relevant parameter - jumps (Jensen & Morelli, 2011). In the case of Kennedy, the zones of friction among the user groups, and uses outline three critical points of contact: the refugee shelter, Nykredit bank, and the stairs towards Kildeparken.

The refugee centre stands as the most important in this project due to the refugees bring a lot with them and it is from their arrival that this project takes point in. It was previously mentioned in “Social geography of Kennedy square” that there was a mixed opinion about their arrival and the refugee centre representing a borderline between their community and the rest of Aalborg. But the refugee centre is not just limited to its physical boundaries, but also reach out a bit into the square as seen on figure 44, and the relationship between them is something that should be further enhanced and get the refugees into the square.

Nykredit stands as a strong presence in the square, but stands in conflict with the “regulars” and despite its strong presence it does not interact with the rest of the square at all. Nykredit is closed off from the square, and the people who are invited inside are very specific and limited, which is why it might also be a possibility to make interaction.

The flow bottleneck is as mentioned in “Flow pattern” an important critical point of contact for the overall flow of the square since a lot of the flows converge here and it provides access to the trainstation and Kildeparken. The stair is like a centre of the square, and whether or not it becomes part of a proposal, it will still affect the direction of the flow.

# DESIGN STRATEGY



-  Critical intervention sites
-  Project demarcation

Figure 44  
Design strategy  
57

## CRITICAL TRACE

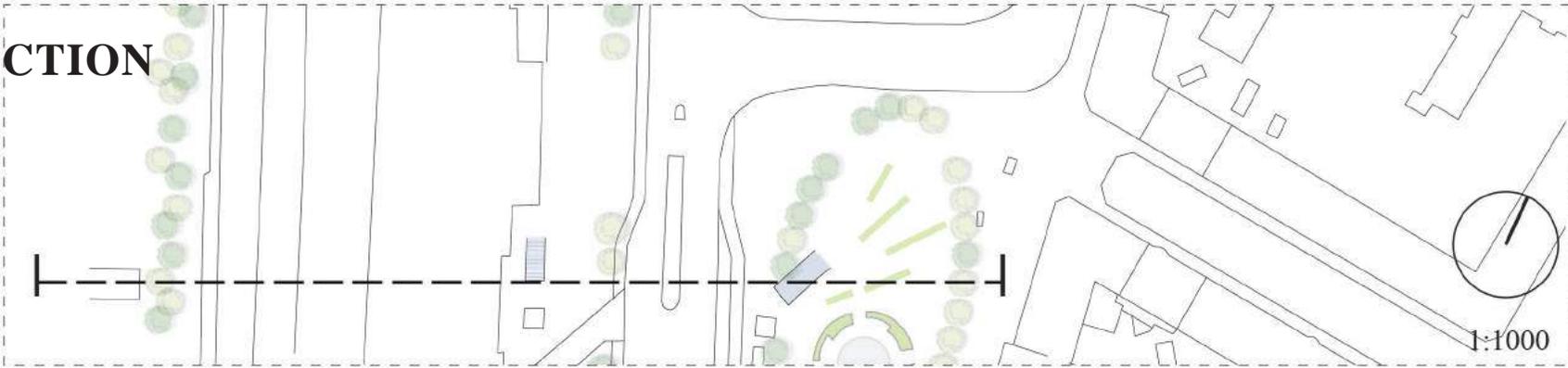
The critical point of contact is expanded into the critical trace: walking up the stairs and through the square. This trace describes a single sequence of experience hitting the most critical points of contact. The trace is described through a section cut on the trace itself, and the distribution of several contextual parameters. The purpose of this exercise was to find whether or not there is any spatial quality in the user experience that hinders interaction. In addition to the geometry, field of vision on a logarithmic scale, geosemiotic intensity, and the changes in tempo are shown, and weighed against the observed wandering of attention.

All contextual parameters point to a jump-cut architectural design correlating with attention. Apart for symbols, the differentiation of space draws attention and slows down walking pace. These two variables: duration and attention are the most important resources in designing for interaction, and both are hindered, when faced with an urban context of little information to comprehend. It is notable that most symbols in the tunnel are either directions, or pictures, meaning both represent spatial information - virtually. The greater intensity of signs in the tunnel is an effort to balance the loss of actual space to read. The arrival in the square should and does provide a moment to stop, comprehend the new world, switch to a new psychological state before walking on. This is where jump-cut design shows its teeth: the moment is those few seconds as the square unveils, which is incredibly fast. The attention of the user is immediately lead to walk on to Boulevarden.

The space in Kennedy square has very little depth - spatial differentiation - especially in two-thirds of the year when trees have no foliage, meaning the transition phase of arriving, from whichever direction, is a blink of the eye, and the determined citizen is already ten steps ahead.

Design strategy

# DEEP SECTION



Slow  Fast 

Figure 45  
Deep section through Kennedy square

## DESIGN CONCEPT

The urban design concept of this project is to extend the transitional and stay activities afforded by Kennedy square by increasing the programmed “depth” of its spatial structure.

One of the architectural critiques of modernism was the reductionist approach “flattening” the built environment to screens (figure). The thick interfaces, spaces of transition, alcoves, semi-public areas, the nooks and crannies of a highly differentiated geometry were the areas where the “interesting things happen” (Alexander 1979, 2002; Salingeros, 2006). More differentiated geometry has higher information capacity, while a portion of this is not in the “spotlight”, meaning it can be uncovered by entering it - hence the wording: depth. Once you “enter” and foreground new information you close the door on some others - sitting down in alcove softly detaches from the corridor, also detaching from corridor-related activities. This argument is validated by the search for ambient media in information design: information that is no longer represented in the already overpopulated centre of attention, but in the context, from where it can be brought forward on demand (Weiser & Brown, 1996; Norman, 1998). Ambient media is an attempt to give depth to the artificial environment.

How would this relate to interaction and social sustainability? You sit with your friends on the secluded sitting area, you are enclosed from the externalities to some degree, but it opens up internal worlds (built from stories, memories of the individuals as information hubs) in social exchange. You enclose something in order to open up something else. In the networked spaces paradigm, material and digital media are both to be used to add depth: the nooks and crannies, pockets and transitions on one hand; private rooms, thematic information filters, hot and cold media on the other hand. Close doors and open up new ones, so people go through them and wander relentlessly in the labyrinth of public life.

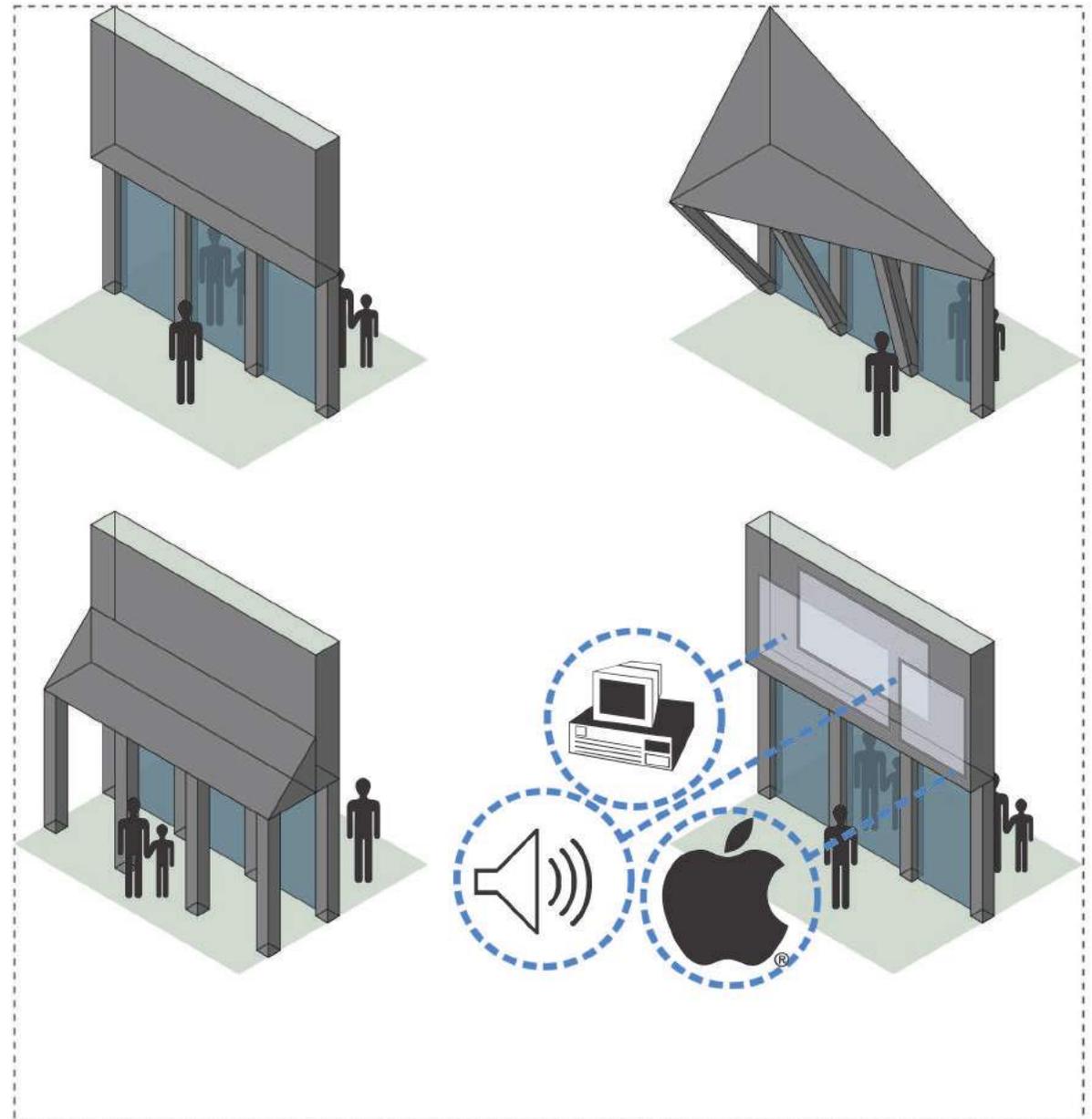


Figure 46

Adding physical and mediated depth

## INTEGRATION CONCEPT

If the design concept provided guidelines how to place information in space, the integration concept talks about the content that is to be placed. In short, the concept is to display and distribute socially and locally relevant, voluntarily created intellectual products in computed environments.

How integration is approached comes from the nature of time spent. It could be a valid argument to say, that time spent in the urban space might really just be A to B, because it is seen as an intermission, while a lot of energy, attention and contribution is spent to produce and consume digital material on the internet, glued to the screen. It has been argued earlier that digital media would be used to add depth to space, the integration concept works with the content of this depth - that is the voluntarily produced digital or physical material we like to consume. In order to make it locally relevant, contributions of refugees, locally displaced or marginalised people would be foregrounded precisely by spatialisation. Their added value is displayed, summoned to “reality”, thus making them more competitive than a fully digital representation.

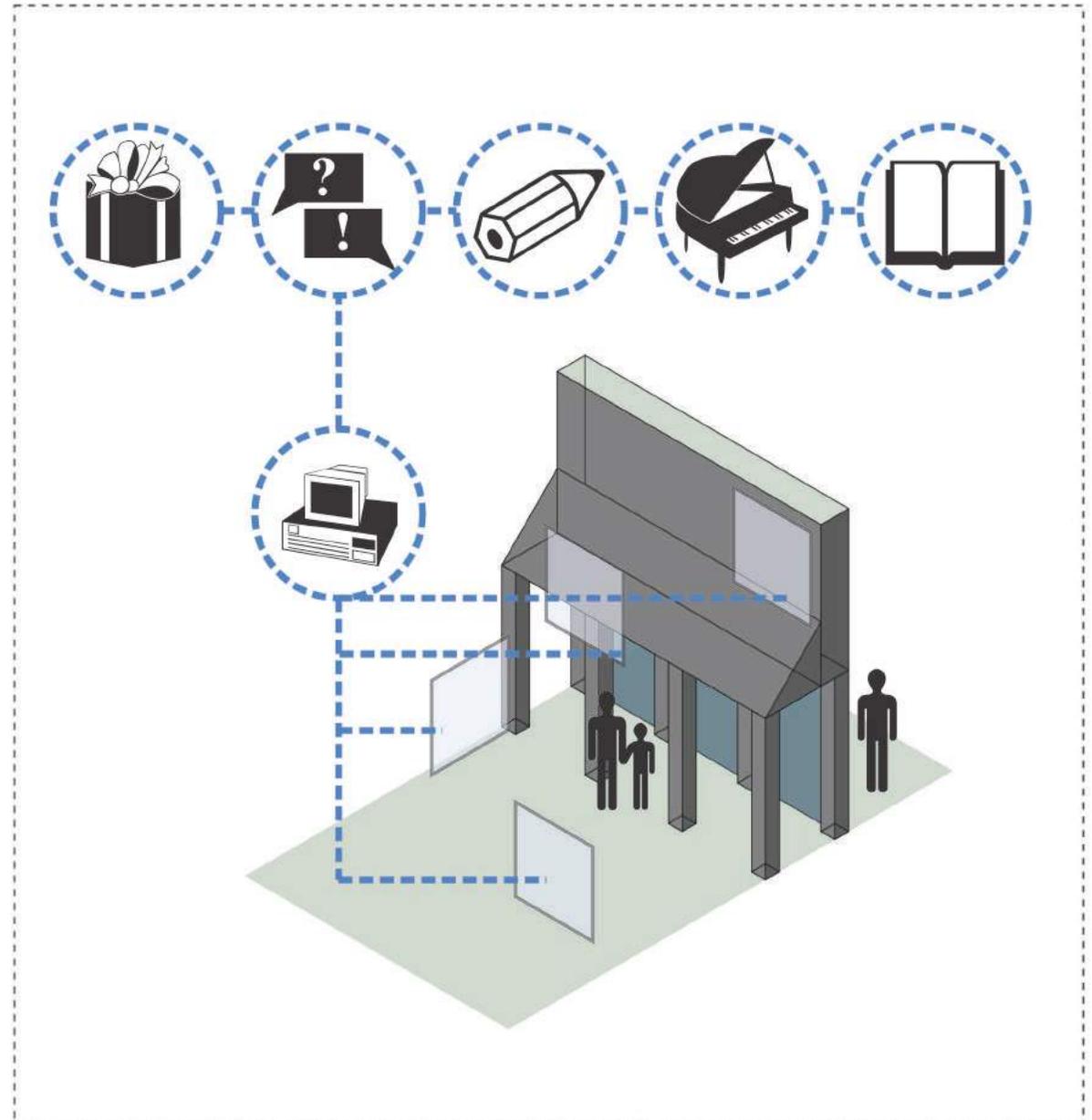


Figure 47

## DESIGN METHODOLOGY: REFERENCE PROJECT

Implementation of the theoretical basis, the points related to the social sustainability of networked spaces; require an expansion of the designer arsenal, as plans and sections may not be able to describe the functioning of proposed networked interventions. The purpose of this chapter is to operationalise the proposed theory of the networked space. The design methodology will take shape by taking a tour in reference projects and related disciplines. The contents of this chapter will explore the lessons learned from a simulated public space project Vienna, implications of rhizomatic, process-driven design, basic principles of memetics and the methodology of interaction design.

### Reference project

The reference project, carried out by urban planning master students of TU Vienna, is exploring the role of public space in the integration of refugees, by simulating situations of interaction of differences, drawing up qualitative conclusions. The main experiment of the project involved a group of locals and a group of asylum seekers asking and answering the same questions in their own language while being recorded. In the first instance, the questioner and the respondent walked down a route – simulating a street scenario. In the second instance, several participants sat in a circle, passing the camera – simulating a square. In the last case, participants filmed themselves individually in a location of their choosing – simulating social media.

The study concluded with recurring elements in a successful – inclusive, participatory – public space: initiation, common ground, informalisation, anchor, and recirculation. Initiation was important to overcome existing barriers and distrust among strangers. At the end of the day, it is still a handful of people trying to get through their lives encountered with a sudden change, whether we are talking about refugees or locals. The establishment of the common ground varied in each instance. In the square, where a group participated, the pre-established rules of the game – hold the camera, ask, and wait for answer, then pass the camera – ensured the order of the “ritual”, thus the space. In the street, the two participants continuously shaped the terms of their engagement based on each other’s reaction. In the

social media case, the respondents were represented by the camera, the actor was free to express herself. The difference among the formalities of expression and common ground formation suggest digital spaces are better suited for expression, group-spaces for security, and private discursive spaces for personalised interactions. It is also important to phase out the regulations of the artificially imposed common ground as it is being replaced by a personally established one. The last recurring elements: anchorage and recirculation address keeping up the relationships created by the simulated interactions. It is not enough to initiate, there has to be something that stays with us after we part ways that would trigger either memory or a future meeting, preferably both.

Anchorage is particularly alien from the urban design practise, as it creates the “moment”, the situation, a here and now. Notice how the implications of this urban planning (!) project were focused on the process, and the physical features have been adjusted to support the process, if considered at all. The physical and digital environments in this sense are media for communication, and are evaluated based on their ability to encourage expression, to clarify a common ground of behaviour, a degree of freedom to leave this ground behind, and something that ensures continuity. Assessing the experiments retrospectively, the real “anchor” of the simulated spaces were the fact that everyone participated in their constitution, which gave a sense of ownership and responsibility to participants.

*Pictured is an external shot of the simulated square. Form in these experiments were used to enable the “rules of the game”, the common ground, upon which the process of everyday integration could occur. The project motto reflects the intricate relationship between form and process: “we chatter en route, we form a street; we gather in a cricle, we form a square; we talk to a stranger, we form public space.” (Bukovszki et al, 2016)*



**Figure 48**  
The simulated square performed in Vienna

## **FROM URBAN DESIGN TO URBAN NARRATIVE**

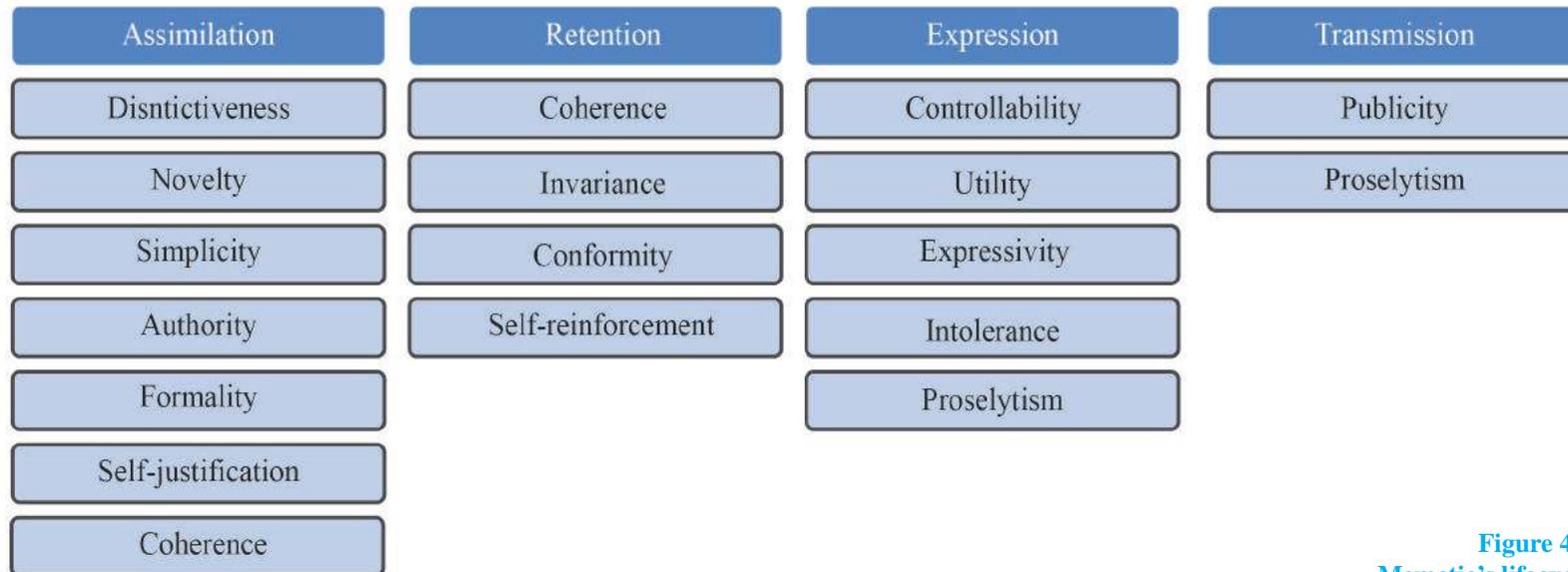
Process orientation has its precedent in urban design theory. Neil Leach proposes scenario planning as a form of design methodology, based on post-structuralist concept of the rhizome (Leach, 2009). Rhizome is the non-hierarchical way of describing reality in order to address high complexity (Deleuze & Guattari, 1988). A rhizomatic thought is like capturing the middle of an ongoing process, with no beginning, only potential – very similar to the way urban design analyses project sites. Rhizomatic urbanism is a consideration of an ongoing story of man and space that concurrently have impact on each other, and proposing to “fast-forward” a particular choreography of many possible choreographies in this story (Leach, 2009). If the urban is the emergent system of human interactions, then urban design should indeed be a story, where the tools of intervention are: “feedback loops, indirect control and pattern recognition” (Johnson, 2002). Neither of the authors go further, nor provide examples of such practice, but the language should appear in future design presentations: urban designers should talk and draw about patterns, feedbacks, narratives.

## FROM NARRATIVE TO GENETIC PROGRAMMING

It is essential to ensure the success of socially relevant information and content when progressing with the urban narrative. Memetics is the study of self-replicating units of cultural information (Dawkins, 1976; Moritz, 1990). Heylighen describes several criteria for meme fitness – their chance of survival – for each stage of the meme lifecycle (Heylighen, 1998).

The architecture for humanity group unknowingly provided an example of using memes as strategic tools: a soccer field in South Africa includes a dressing room where regular HIV filtering takes place – it couples an ignored but necessary activity with a desired one (Architecture for Humanity, 2006). This strategy in memetics is called encapsulation, implanting the targeted meme to a successful one (Salingaros, 2006).

Memetics is relevant by providing practical evaluation criteria for the upkeep, the recirculation of interactions and thus the public space. The lifecycle of memes will provide a structure for the proposed urban narratives, and the various stages can be better coupled with particular concepts: for instance the stage of expression occurs most easily in purely digital spaces, where the need for a common ground does not restrain expressive freedom.



**Figure 49**  
Memetic's lifecycle

Factors supporting meme fitness in each stage of the lifecycle. It must be noted that it is not necessary for a meme to have all of them in order to be successful. Distinctiveness means the meme stands out, is easily noticed; novelty attracts attention; simplicity requires less cognitive work to assimilate; authority is in other words power; formality means the meme is expressed precisely, unambiguously; self-justification is an internal quality describing how much the meme components support each other. Coherence is consistency with the existing pool of cultural information; invariance is recurrence, repetition independently from perception filters; conformity is peer reinforcement; and self-reinforcement means the meme stimulates repetition. Among expression factors: controllability means the meme is responsive to the subject actions; utility is usefulness; expressivity is the ease of expression; intolerance describes aggressive memes; and proselytic memes urge the host to spread the meme. Finally, publicity is the broadness of distribution, obviously supporting transmission. Sources: Boyd & Richerson, 1985; Heylighen, 1992, 1998; Cullen, 1998.

## FROM PROGRAMMING TO DESIGN

The outlines of the methodology is so far the management of information flows, feedback loops to define a process within and in relation to a specific urban situation, that shows elements of the meme lifecycle. In this format it is hard to imagine how it would work in urban design, but the process of scripting within interaction design, is rather similar.

Interaction design is design of human-computer interaction related systems and services – a design field more preoccupied with processes and behaviours, than form (Cooper et al, 2007). The centre of interaction design is the user experience, which is a process described by the sequence of cognitive and motor activities the user takes to achieve her goals. The most basic model of this sequence is breaking it down to GOMS: goals, methods to achieve these goals, operators – individual cognitive and motor steps building up the methods – and selection criteria – whenever there is more than one method to achieve a goal (Card et al, 1983).

It is of course impossible to represent every single selection rule and goal within the public space – scripting human-environment or human-human interaction is fundamentally more complex than human-machine interaction. On the other hand, neither are our plans and sections fully deterministic, and it is possible to write, or discuss the script of a sequence that is most important for the success of the intervention to address process, memetics, and narrative related issues. A script – only when accompanied by “shots” of spatial experience – has the potential to describe which meme lifecycle oc-

curs, are the fitness criteria met, where are we in the interaction process, how does it happen step by step.

The obvious handicap scripting has, is that it is a “ballet” design tool: it describes the process of a single particle within a complex system. The system of indirect control and feedback loops mentioned in the rhizomatic method become visible on graphs, where the links between vertices have some sort of design parameter assigned to them. This is a direct interpretation of the “networked space”: the network relevant for the design problem has to be drawn. According to the theory each space is defined by interpretation, by the social practice constituting them. When drawing maps, plans and sections, it must be apparent what behaviour are the spatial elements designed for. In Kennedy square, the various examined groups have more or less a territorial pattern, and if their interaction is the goal – and it is – then this territorial differentiation outlines the components of a network, and the quantity and quality of information going through the interfaces correlates to the script of a unit user proceeding through the system. This way, the system diagram, the script, and the conventional design tools can describe spatialised social processes. It is true though that graphically these tools can manifest differently, which is why multiple design proposals will be offered, to explore the nuances of their use in practise.

# DESIGN TOOL ECOSYSTEM

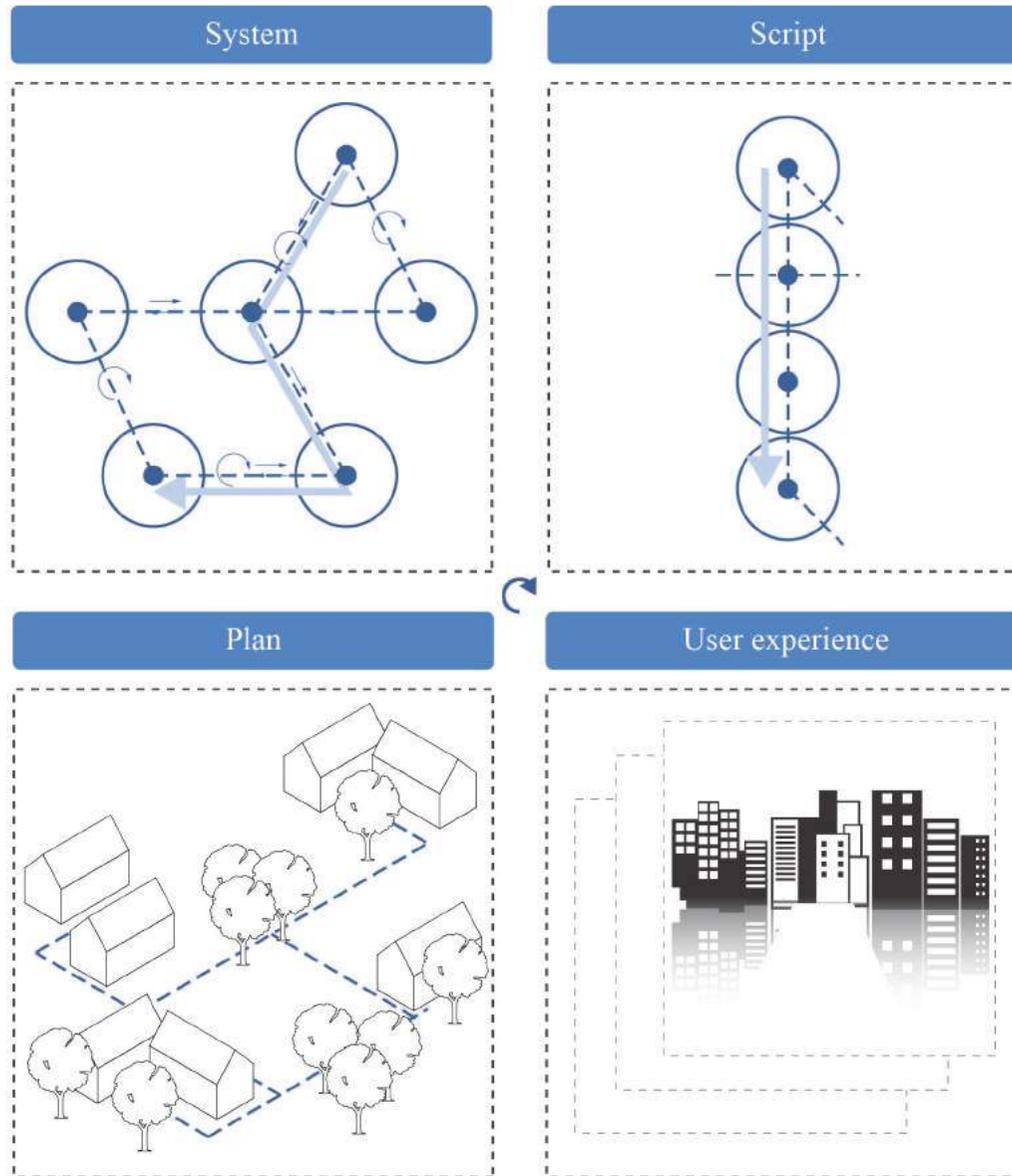


Figure 50  
The ecosystem of design  
67

# DESIGN PRESENTATION

Catalogue of proposals

The Appscape

System

Reference

Spatialisation

Vanishing space

Description

Technical requirements

System

Script

Situated social discussion

Overview

Lobby: a new business model for banks

Showroom: augmented public diplomacy

Square: situated social discussion

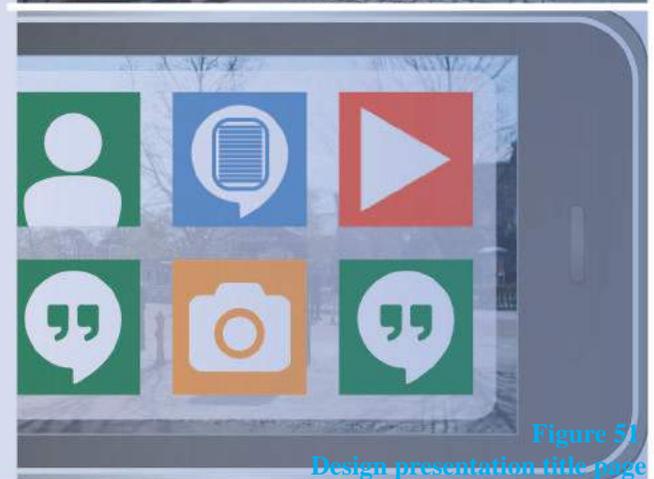
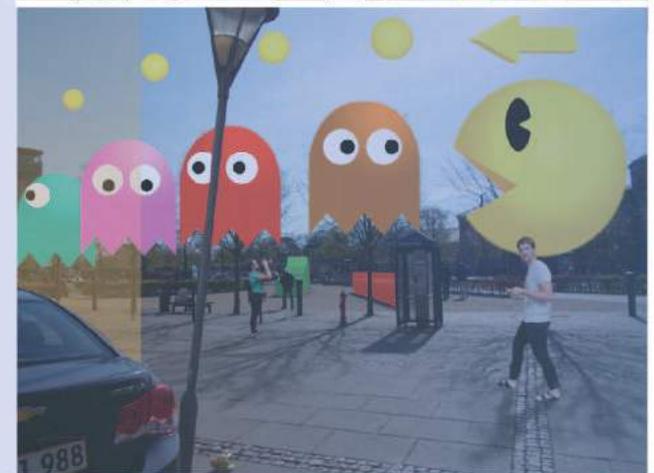


Figure 51  
Design presentation title page

## CATALOGUE OF PROPOSALS

To get the most material possible for reflection, multiple proposals of the same concept are chosen. The hypotheses of the study focus on the role of digital spaces, and designing networked spaces to achieve social sustainability. Three design proposals are presented, each with a different network focus and a different degree of digitalisation.

The first proposal, the ppscape is basically a purely digital design proposal working with the existing fabric of the city, but independently from it. The offshoot of the appscape is installing points of contact to reach out to the physical world, but the driving factors of this proposal is to achieve design solution through digital environments. The second proposal is the vanishing space, which takes the physical space as a starting point, and superimposes it on the original. The second space aims to resolve the thesis problem by creating a new layer of an existing site that is more dynamic and connects people independently of location. The final proposal takes the social geography of the site as a starting point, and aims to create an overarching program involving as many of the heterogeneous stakeholder groups in the formation of the public space as possible. In this proposal, digital spaces are rather augmentations of an already outlined design idea that is expected to accentuate the social performance.

Each design proposal will have a description, an account for applied technology, practical application and issues of availability. Additionally, each proposal will be presented by a combination of script-

ing, system building and placemaking. Finally, all of them will have a critical reflection on the methodologies used, and on the theory - in particular the justification or the rebuttal of the hypotheses of the theory.

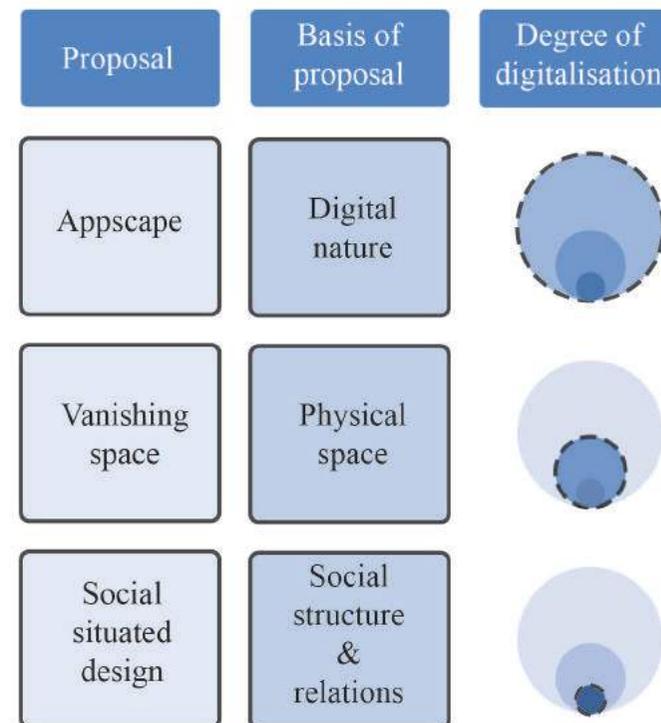


Figure 52  
Project taxonomy

Design presentation  
Catalogue of proposals

# THE APPSCAPE

System  
Reference  
Spatialisation

Vanishing space

Description  
Technical requirements  
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Situated social discussion

Overview

Lobby: a new business model for banks  
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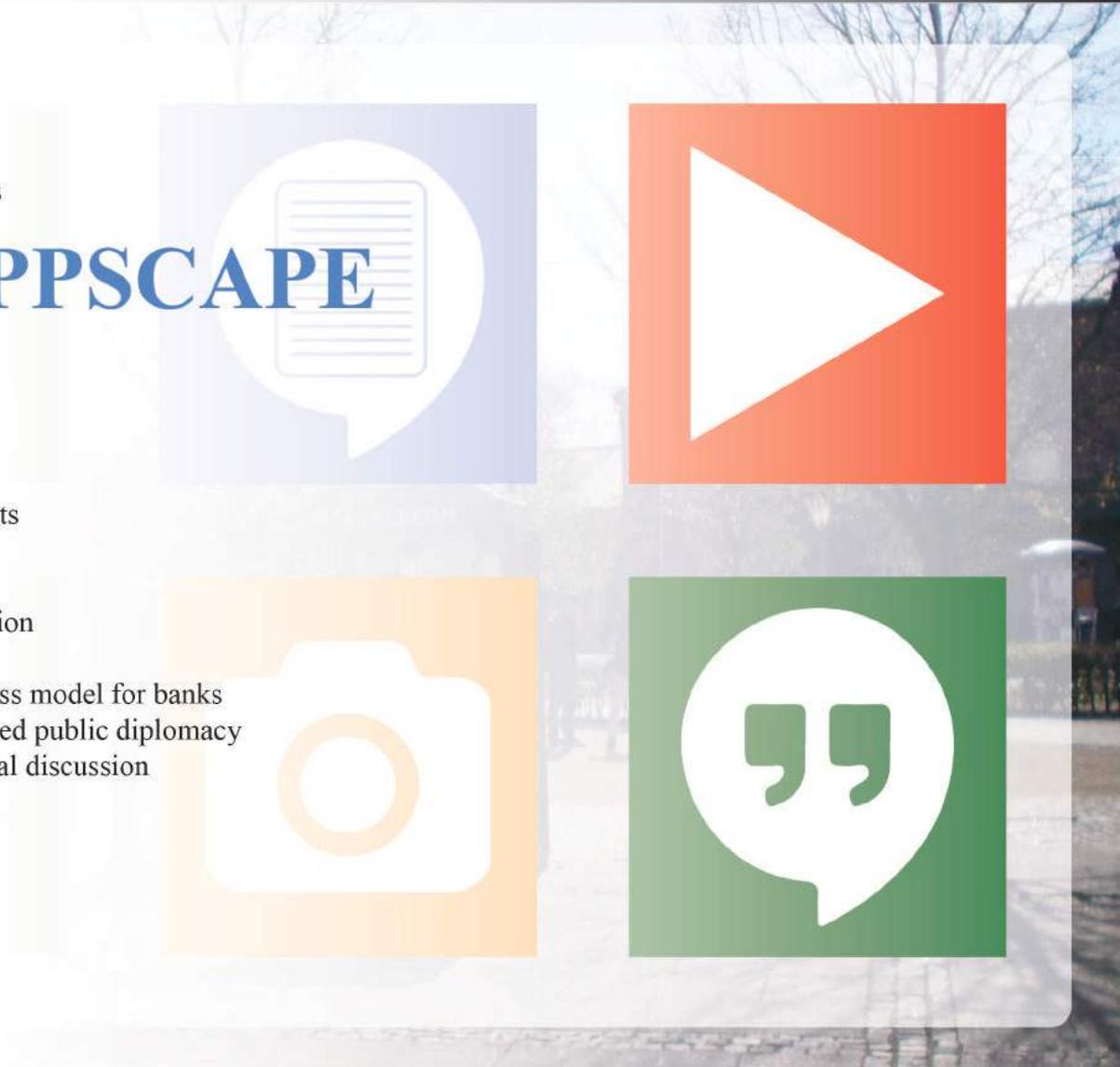


Figure 53  
Appscape title page

## SYSTEM

One of the biggest challenges for the refugees is facing a complete new culture that can very different than their own and the Appscape is about helping them in that challenge and create integration. The Appscape consists of different types of applications that are collected in a bundle which is the origin of the apps name. The app is meant to guide, inform, and teach the refugees about the Danish society, its rules and furthermore in order to help integrate them into the Danish society all by using the smartphone. There would be three groupings in the app which can be summarized as Location, Meeting, and Learning, and within these they have their own functions that can also interact and share information with functions from other groups.

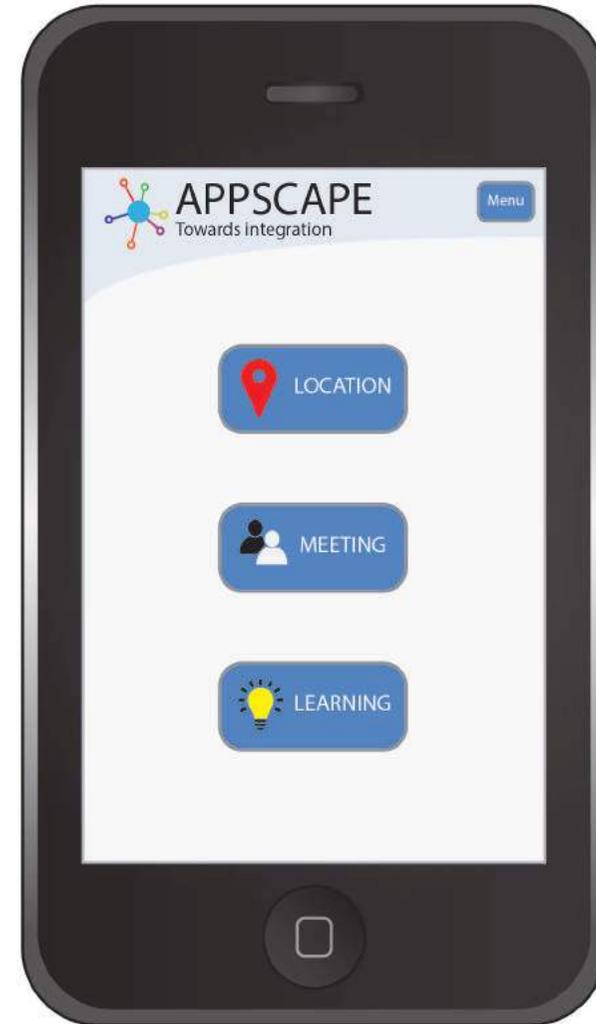
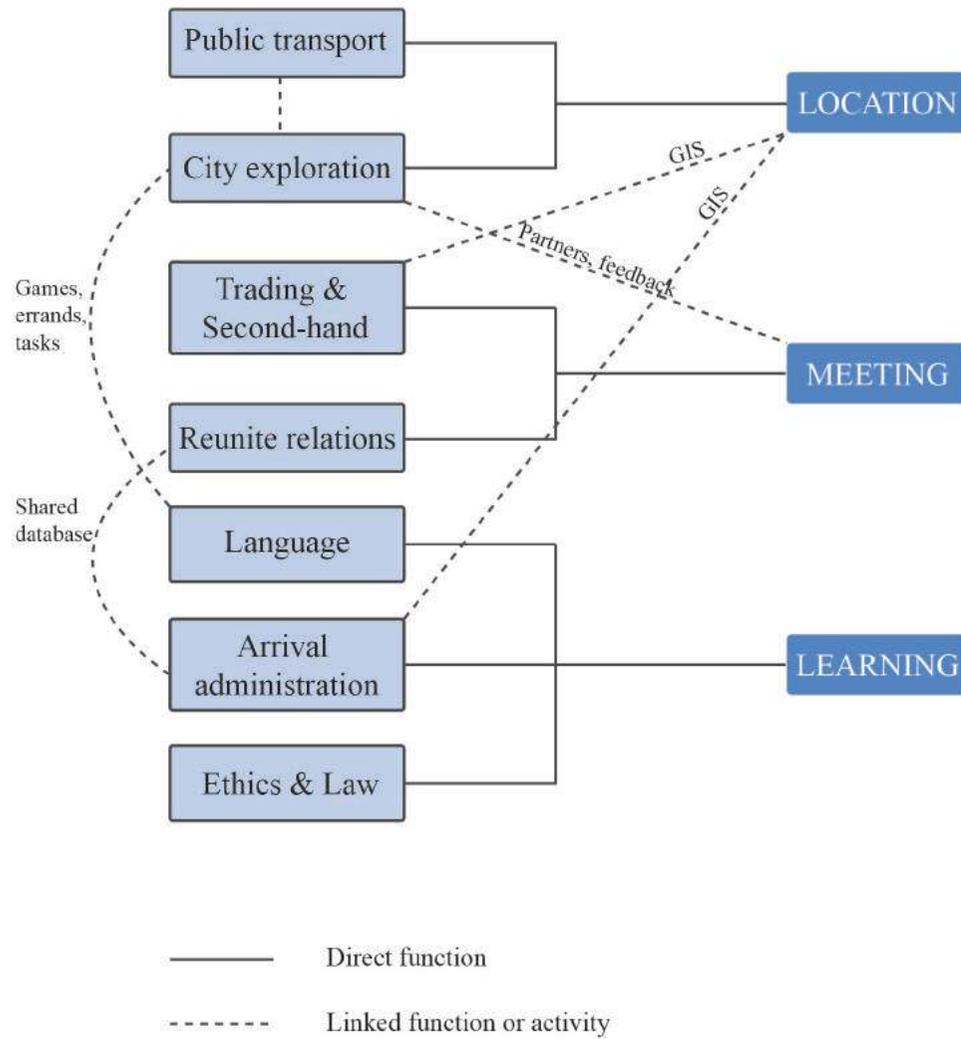
**Location** is based on traveling and finding your way around in the city and contains the functions *Public transport* and *City exploration*. *Public transport* will contain information about how the public transport goes, and by mobildata it would be possible to point the smartphone towards a bus stop to find out which buses leave or arrive at which time at the location. *City exploration* will contain an interactive map, where people can contribute with comments and info about places that are good to visit or are important.

**Meeting** is all about making connection to people, old or new relations. An important part of the group to allow people who have previously split apart meetup again by being registered on the app. A second part is to set up meetings with people who

wish to get in contact with the refugees and those who want to help them. The trade and second-hand follows this idea, which encourage the refugees to interact with the locals. This will allow the refugees to get access to cheap goods that they might need to rebuild their new lives here in Denmark, but also allow them to be creative and to produce goods of their own that they can sell.

**Learning** is about teaching the refugees about the Danish language and how the Danish society works. *Language* is a learning program that allows the refugee to learn about the Danish language directly from their smartphone, containing phrases, exercise and further to serve as a supplement to the Danish courses they might already be taking. *Ethics and law* are about how you behave in the Danish society, and is made to introduce the refugees to the strange new culture that they are facing, that is quite like their. It will contain some of all the basic norms that can seem very confusing and then explain how things are in Denmark through examples and illustrations. Not being aware of these has so far led to preventable misunderstandings with the Danish authorities at refugee centres. This proposal does not require an internet connection for the refugees to use and can be accessed anywhere with their smartphone.

Proposal catalogue: The Appscape  
**SYSTEM**



**Figure 54**  
 Interface and system of the Appscape

## REFERENCE

The app is inspired by the German app called “Ankommen”, which is a free app made in a developed by the German Federal Office for Migration and Refugees, the Federal Employment Agency, the Goethe Institute, and Bayerischer Rundfunk, a public radio and TV broadcaster (Toor, 2016). The app was meant as a response to the over 1 million refugees that entered Germany, and was meant as a tool to help the refugees get a footing the first couple of weeks in Germany (Toor, 2016). The app has been described as such: *The app is available in Arabic, English, Farsi, French, and German, and does not require an internet connection. It includes a basic German language course, as well as information on the asylum application process and how to find jobs or vocational training. The app also provides information on German values and social customs, with tips from other non-Germans who live in the country* (Toor, 2016). Though there exist a lot of initiatives about refugees, Ankommen is one of the few that have actually manifested in reality and directly try to use technology to help integrate refugees.

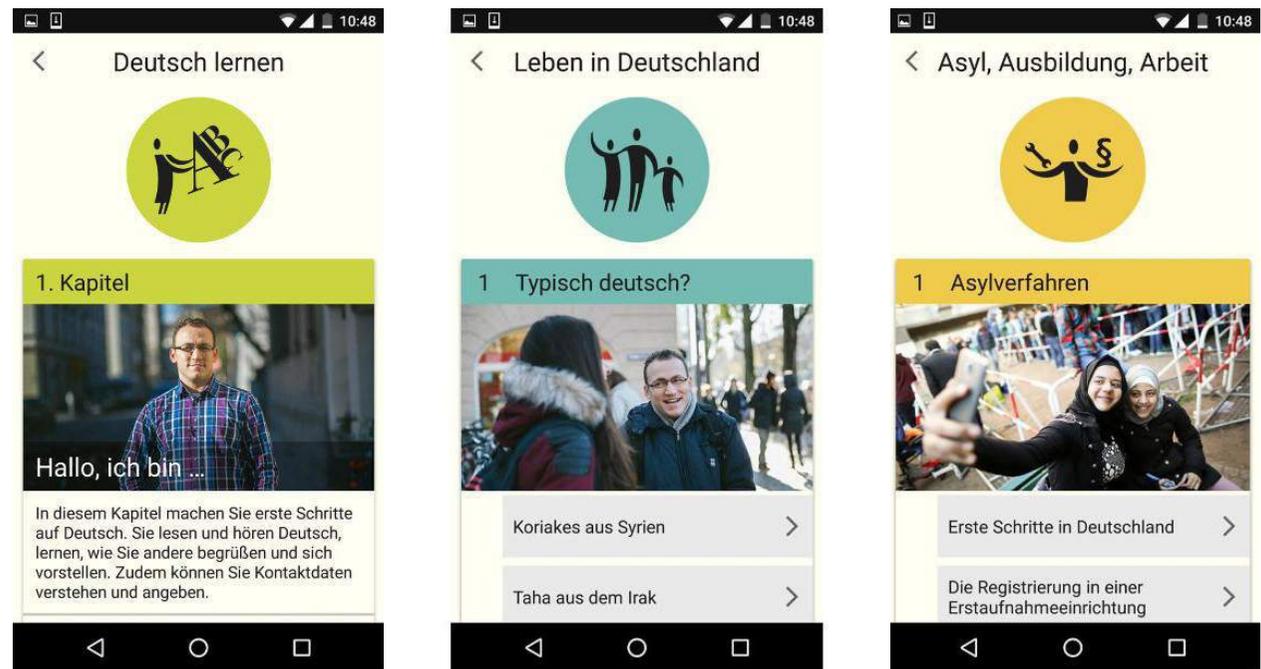


Figure 55  
Ankommen interface

## SPATIALISATION

The challenging part of implementing the Appscape lies in the fact that it is a purely digital venture. However, as the integration concept of the app is based on learning by exploring the city and meeting people, the appscape will have spatial dimensions; in fact, the process implementing social practise to space, spatialisation, partly occurs during the design phase. The role of the urban designer is to inform software development on these spatial dimensions and if possible or when required, design the possibilities of Appscape actions to manifest in the physical realm.

Scripting the Appscape is proposed to follow a rationale of gamified experience. What that means, is that the learning elements of the Appscape would be a choreography of tasks that needs to be carried out in the city, for example, when learning numbers and units of measurement in the language platform, Danish cuisine on the culture platform, a task to go to a shop, buy specific quantity of specific items, cook the meal and invite some friends over would be given. This practise have three benefits: first, it is problem-based learning, helping to deepen knowledge that would have been incredibly difficult on a purely digital platform. Second, it nudges to explore the city and meet and talk to people, promoting the much needed interaction. Thirdly, task performances can be rewarded - a common feature in gamified scenarios - which reward, as an anchor, can assimilate to one's story, one's songline of getting by in Denmark. The reward itself is in a minimal scenario a digital badge, if partners can be drawn into the

project, then actual goods, discounts.

Writing the actual script however is beyond the scope of this project. The project management of the appscape would first require to build up its partnership network based on the presented concept, and then script a city-wide, location-oriented sequence of gamified experience, followed by the graphical design of user interface. A conceptual business model is shown. The model is read from *value proposition*, which indicates added value the appscape creates, which is delivered through *channels* and upkeep through *relationship* to various *customer segments*. In order to do so, the *key resources* necessary for the *key activities* are listed along with *key partners*. Finally, the *cost structure* of these activities are weighed against expected *revenue streams*. Based on the partnership and the existing structure of Aalborg, some places will emerge as more important than others. These places have the potential to feature physical design elements as mementos of the appscape. To demonstrate design process, the example of Kennedy square is briefly explored.

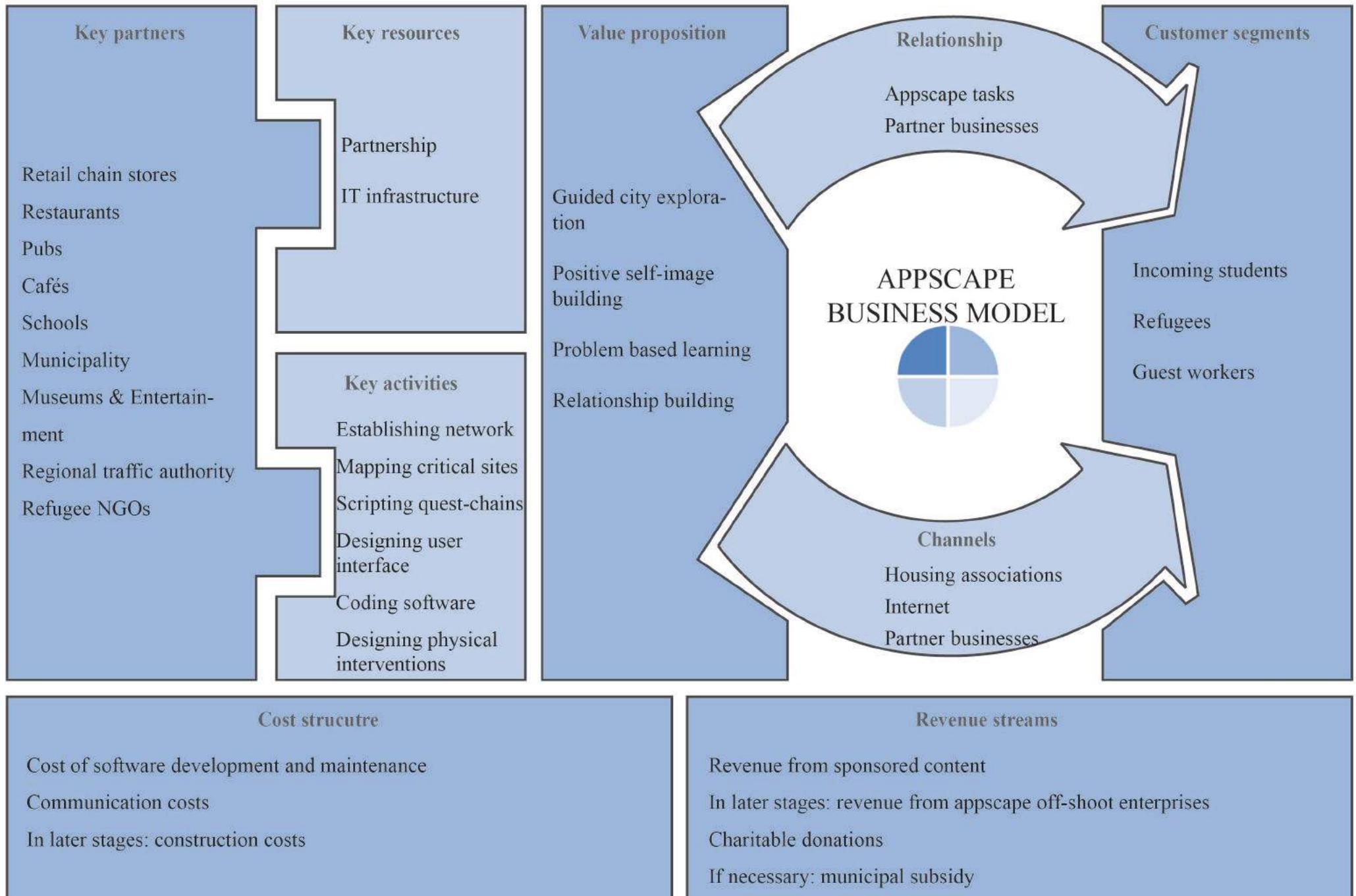


Figure 56  
Business model 75

## SPATIALISATION

Spatialising the Appscape is a process where the script is appropriated to a preexisting physical situation, meaning the possibilities are somewhat limited by what is already there. We have the Kennedy square with a distinct role in the city, and a distinct role for the target group: it is a major public transport hub, it is a shelter of a congregation of target users, and a shopping mall. It means the space can give accessibility to any other point of the city, a series of goods and services and this will be most likely a starting and an ending point for a lot of users. Based on this information, a part of the script has to be determined. In most cases it is somewhere in the middle of the story, but because of having home, and a traffic hub at the same place, the role of Kennedy square can be where the "quests" start and finish (figure: 57). Additionally, Kennedy is potentially a good meeting point for cooperative quests (figure: 58). Once the exact partnership is established, all other goals can be scripted, an example has been given for assigning a partner, as it is more general than reward collection, and more informative than starting/finishing a quest-chain or sharing the results (figure: 58). In the example, 2.11 refers to a task of asking for directions that can be a part of the language learning experience.

Physical design features of the square may evolve from the script. Since quest-chains are ending here, partners meet and probably also leave each other here, such social practise can be cemented by a thematic café/community space, that we name: "the Source". "The Source" is a pavilion mainly in ser-

vice of appscape users and secondary contributors. Physically it is a café run by refugees, where one can pay with donation/participation in the tasks or contribution to Appscape databases. Screens, as decorative elements represent the latest achievements of appscape users, check-ins of people who are lost, struggling or succeeding with their quests, also people who are looking for group, or looking for more to complete a quest. In this sense, "the Source" is an outreach of the Appscape to the physical world by a limited telepresence of users. The actual shape of "the Source" may vary.



Figure 57  
Goals involving Kennedy square

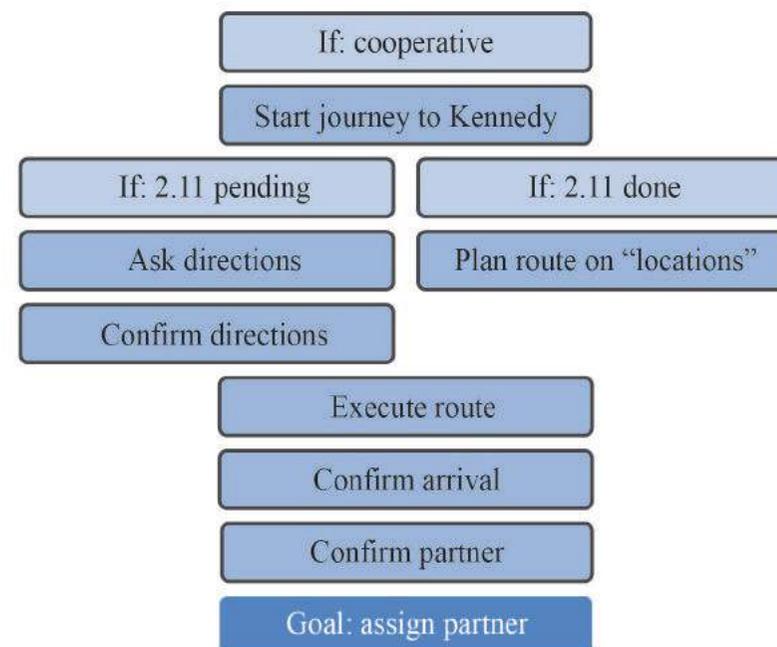


Figure 58  
Script segment of assigning a partner

Proposal catalogue: The Appscape  
**SPATIALISATION**

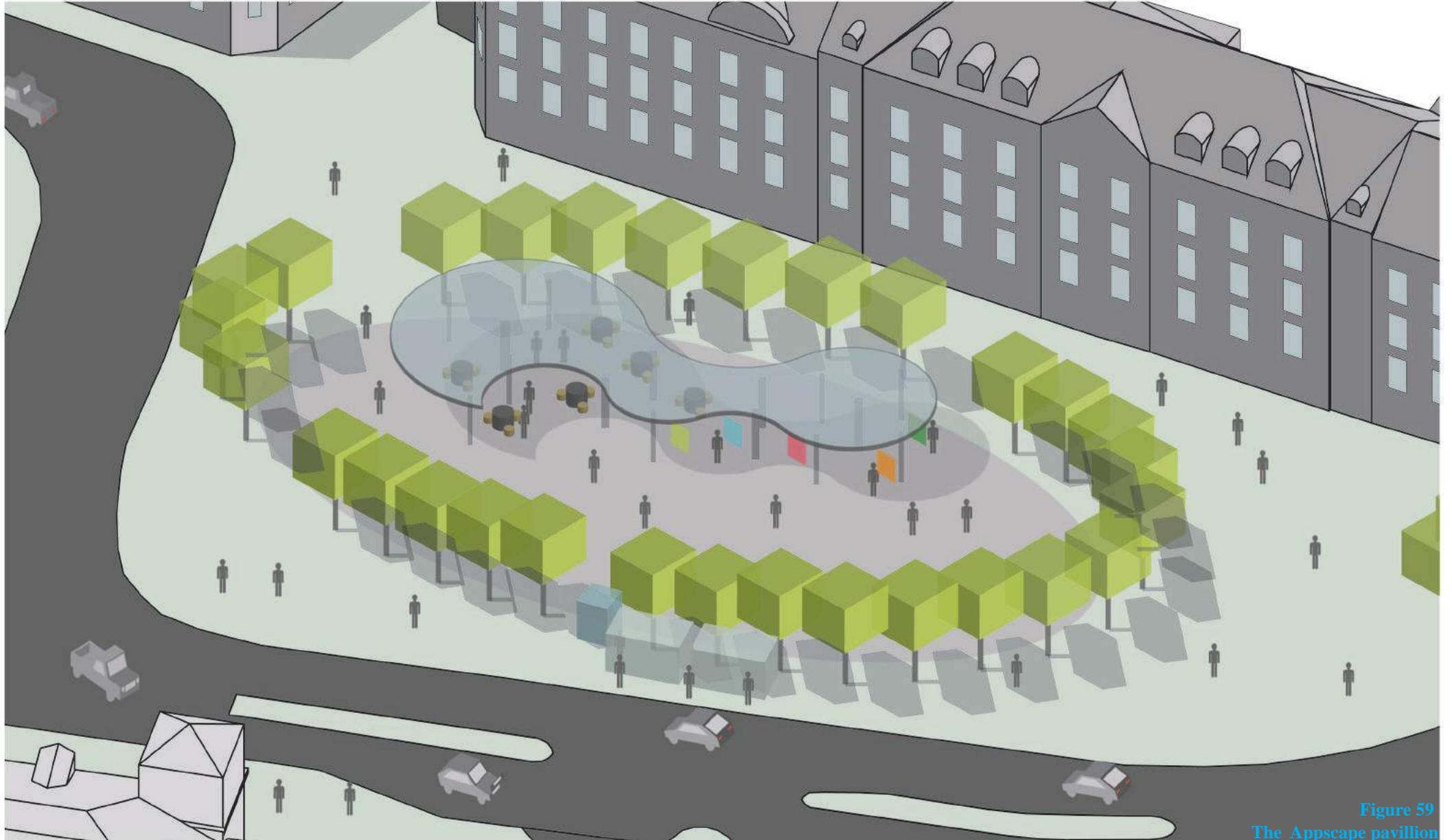


Figure 59  
The Appscape pavilion

Design presentation  
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# VANISHING SPACE

Description  
Technical requirements  
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Situated social discussion

Overview  
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Figure 60  
Vanishing space title page

## DESCRIPTION

The public space has for a long time been a place for interaction, but with the arrival of the digital age our understanding of the public space has started to change. This is especially true for the last few years where devices such as the smartphone have gotten more influence in the public space and people are no longer restricted to just stay within the physical public space since they can now connect to the digital spaces through their smartphone, but what happens when the boundaries of the physical and digital public space collide? The vanishing space is the idea of creating a new digital layer on top of the physical Kennedy square, it is basically augmented reality where you would be able to see this hidden world through a screen. The medium for this is the smartphone or a similar devices that would be able to download an app online, for instance a PC or something similar. The reason for picking the smartphone is its availability both for refugees and other users, but also its compactness which allows the user to move around in the physical space and interact with the environment. In order to encourage interaction between the refugees and other users, there will be thematic zones and one which would be focused on the refugees to raise questions about Denmark, and share their thoughts, stories, and creations.

## Reference

The Vanishing space is inspired by already existing apps that utilize augmented reality. Among these apps the “ArcheoGuide AR system” and the free Dutch “Urban Augmented Reality” app (Buhalis & Yovcheva, 2013). What these two apps have in common is the fact that they place a digital layer of a structure on top of the physical through the screen of the smart and give an image of what have been in the area or what could be. This is especially true for “Urban Augmented Reality” which also allow you to see a 3D model of future development and with the possibility to add comments, which can be used for decision for city development. The technology used for the app is relative simple, since it makes use of the smartphones own GPS and compass to place to place the digital layer, though this could provide a problem for some, since now all phones have these features built in.



## TECHNICAL REQUIREMENTS

The basis of the vanishing space is a collaborative virtual environment - a computer generated virtual reality space in which users are represented graphically to one another (Benford et al, 1994) - imposed on the physical Kennedy square. The CVE is heavily spatialised, requiring an accurate digital model of the site translatable to a CAD platform. The key intended use of the CVE is exploring it in the physical space through the interface of the smartphone, meaning that it would become a mixed-reality boundary: a transparent layer mediating between adjacent physical and digital spaces (Benford et al, 1998). In order to make the boundary location-aware, a local reference system has to be installed, for which two alternatives are given.

One option is to place three identical wifi hotspots maximum 100 metre of each other. The mobile device is capable of measuring the distance of the hotspots by registering signal strength. Alternatively, RFID technology can be applied to inform the location of the smartphone. RFID stands for radio-frequency identification, the use modulated electromagnetic fields to transfer data (George, 2016). The hardware include finger-sized chips containing an internal memory with pre-programmed data, a coil to transmit and receive electromagnetic charges, and sequencing/modulating units to read and code data from and to signals. The range of

a typical RFID tag is around 100 metres, unobstructed by any of the physical elements in the square.

With both technologies at any given time, the position of the mobile device can be determined by resection (for mathematical solution: see appendix A). Since providing wireless connection is essential for the intervention, the former solution would mean a simpler system with less hardware; on the other hand installing RFID tags are considerably cheaper: while hardware for wifi hotspots are sold at hundreds of USD, the most simple tags start from as low as 0.3 USD.

The softwares required for the concept comprise of a smartphone application for the everyday user, and a plugin for CAD tools facilitating the user-generation of complex models, skins, design.

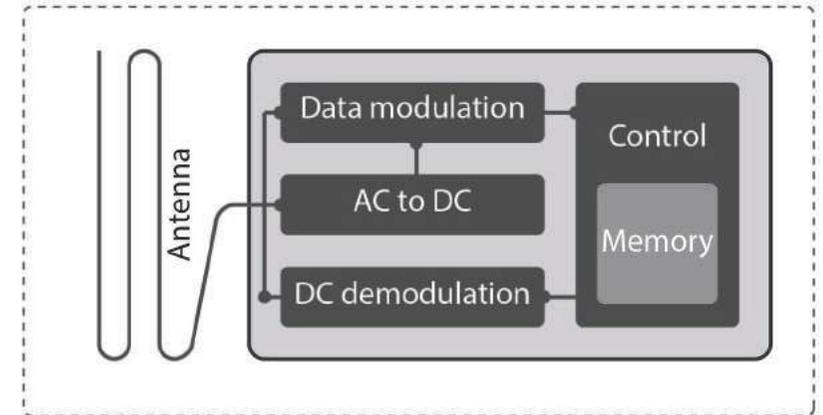


Figure 64  
Scheme of a single RFID tag

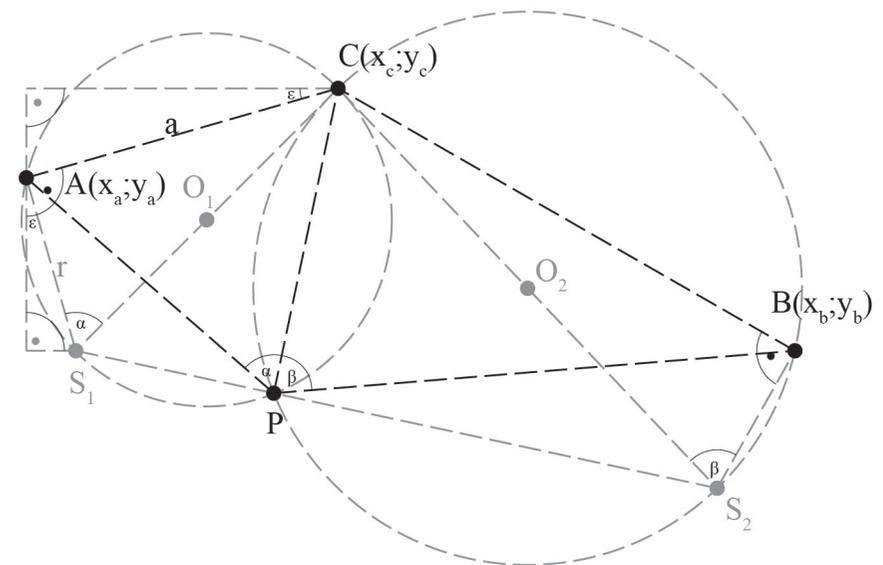
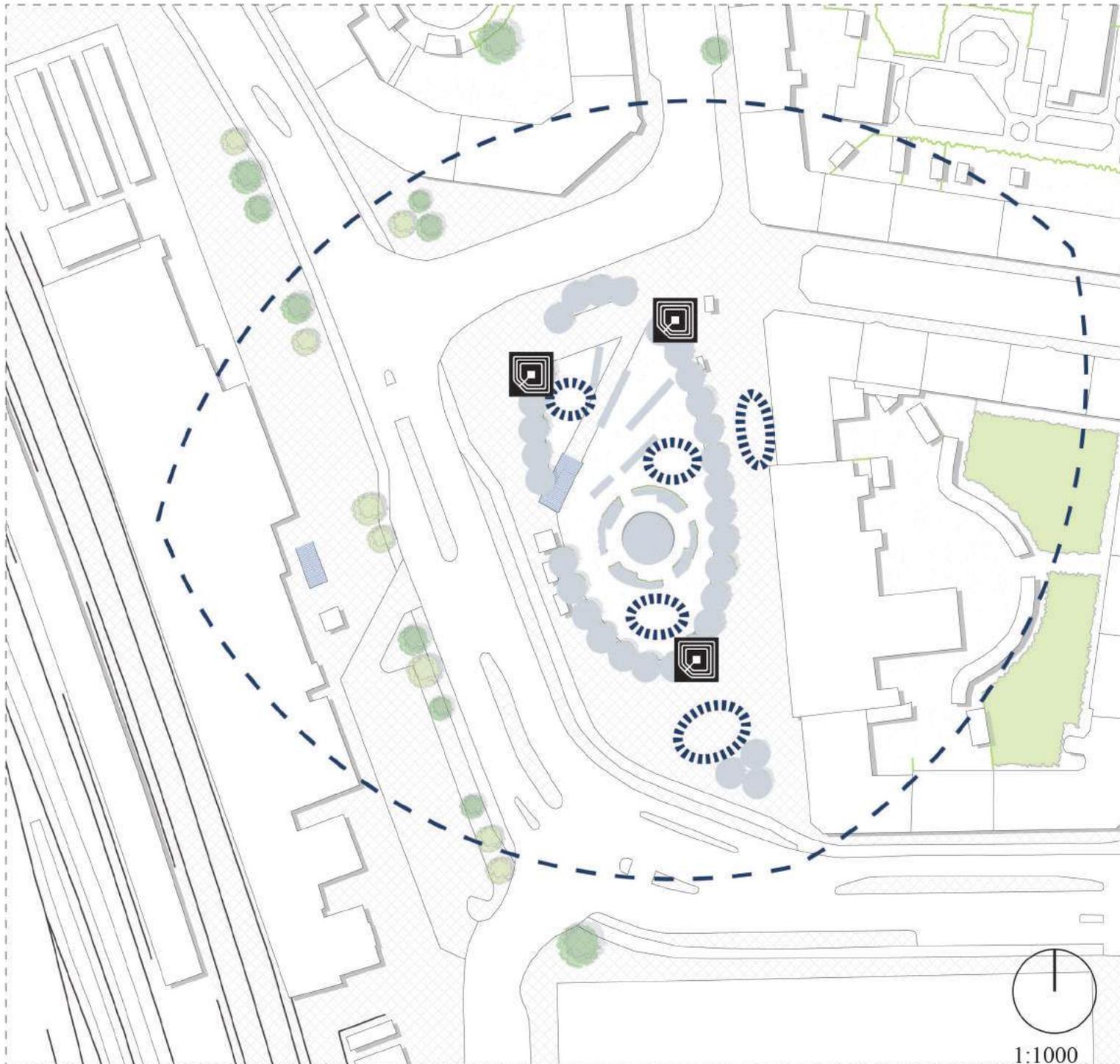


Figure 65  
Geometrical basis of positioning smartphones from three known points

# SITE PLAN



-  Signal nodes
-  Coverage
-  Customisable elements
-  Thematic zones

Figure 66  
Map over coverage of WIFI and RFID and the  
customisable environment

# SYSTEM

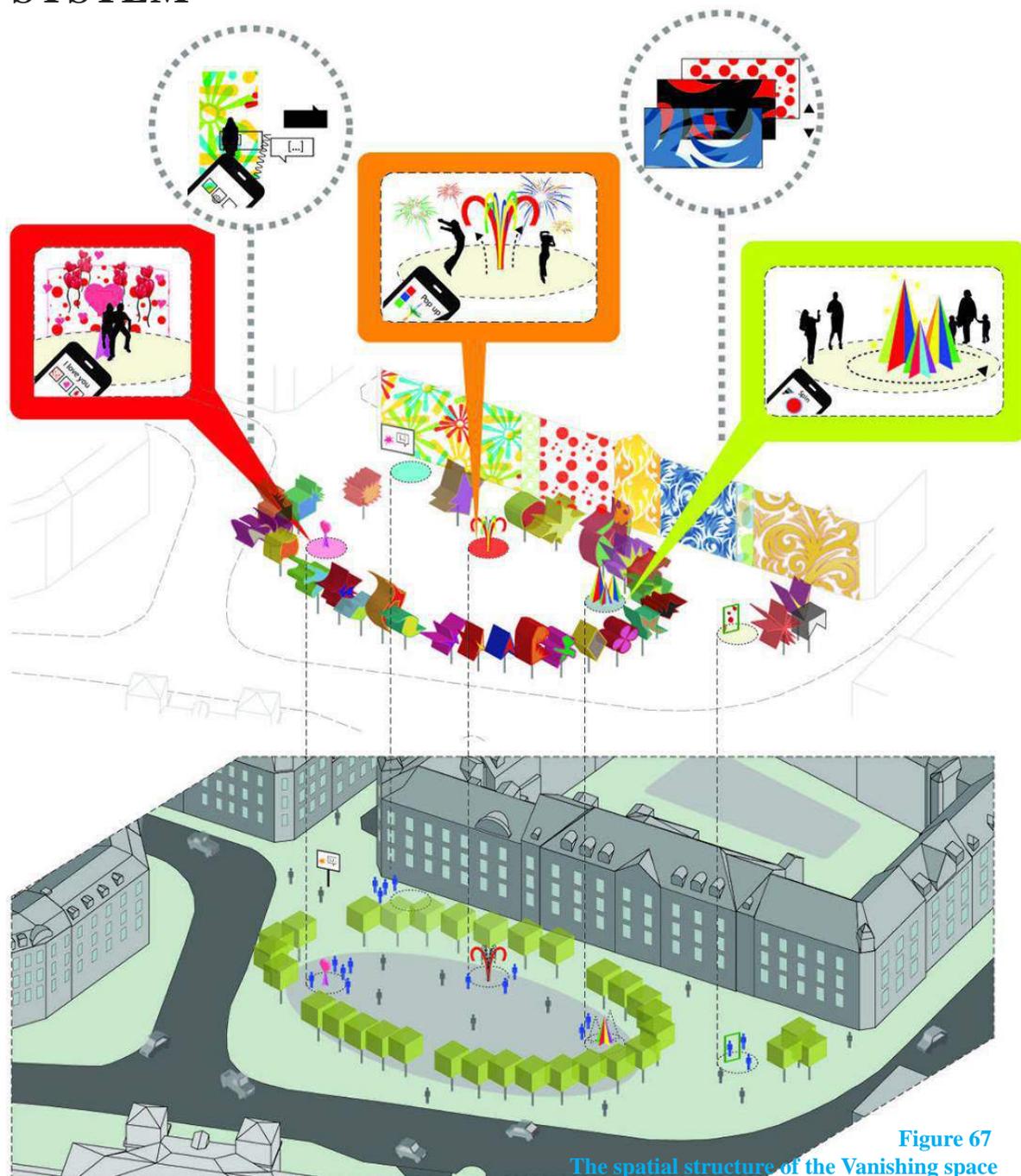


Figure 67  
The spatial structure of the Vanishing space

## Structure

**PVE** Finally, opening interactive content on the superior layers will show said content in a traditional web-page format.

**CVE.2** Within the CVE, some zones are thematic areas, dedicated to a theme, that manifests in distinct design, and topical user-generated content. These zones can be rented for a small duration, giving admin rights to its temporary owner. One thematic zone will be reserved for refugees.

**CVE.1** The first virtual layer is a collaborative virtual environment imposed directly on the physical space, visible by hovering with a smartphone like a window to an augmented reality. The CVE is also accessible virtually, from a distance. Here, stories, questions, multimedia can be shared, read and discussed, they will be labelled as user generated content. Additionally, trees and surfaces are modifiable, and small objects, doodles can be added - these will be called customisable elements. Other design elements are grouped in various skins.

**E.0** The first layer of the proposal is the physical. There will be one information board with details on the software and how to download it placed just outside Park shelter. Additionally, cut graphic components are to be installed as temporary sculptures to arouse curiosity.

## Regulation and indirect control

Fourth level regulation is incentivisation of interaction. More opportunities of custom elements - added objects, usable surface textures - and representation in the more artistic, popular skins are rewarded for those participants most actively engaging with design, content, and people. Those outstandingly active in a certain category, such as most feedback given, most refugee interaction are invited to occasional physical gatherings, and are represented in the physical installations as well.

Third level regulation are the temporary owners of CVE.2.1 zones. They have the right to moderate off-topic content within the zone, and they are responsible to keep up the flow of content and design. Failure to do so accelerates their ownership clock.

Second level regulation is a web manager employed by the owners of vanishing space. The web manager can moderate inappropriate content in CVE.1 and off-topic content in CVE.2.2. He is also responsible to keep up the flow of content and design in CVE.2.2.

First level regulation is crowd-control, applied for CVE.1. Skins can be changed individually for everyone, and each participant will see their own preset skin. Custom elements and user generated content have a duration and are rateable. Good ratings can extend duration, while bad ratings fade the content out at first, then it deletes it prematurely. Fading user generated contents are still intact, but fading customisable elements can be replaced. The regulation of custom elements are described in detail in the script.

## Interaction performance

Web pages are the virtual interpretation of private spaces. Reading a story, an image, a video can be saved and experienced individually with an option to comment and evaluate. Questions and other inquiries lead to private chat rooms keeping up any established interaction to carry on even after the participants leave the CVE.

Rented thematic areas encourage participation in general. People can truly feel that they own a slice of public space and have expanded powers to exercise - compared to a fully physical space. Keeping one zone dedicated for art, stories and design for and by refugees guarantee that they are represented and foregrounded in a frequented site - increasing their surface of friction.

The main critique of the classic www format digital spaces is that users mostly do not see each other. With millions of people "googling" at the same time, Google is the largest and most private of public spaces. In a CVE, people are present on the same platform as avatars. Moreover, this proposal is a mixed-reality project, meaning physical people and virtual avatars can see and interact with each other. It is the immense range of user-generation and customisation opportunities that ensure at first, participation, and more importantly, learning about each other. CVE.1 appears in design features, simple icons, teaser imagery and floating questions, so its content is comprehensible in a matter of seconds - appealing for passers by.

Those people who are present in the CVE can identify others and their friends also participating, forming a common ground upon which a level of trust is hinted - within the physical space. The virtual elements augment interaction, but a sizable proportion of it would happen in the physical realm: the cases where interacting participants are present physically at the same time.

## SCRIPT

The detailed functioning of the vanishing space is described in the script: a logically ordered sequence of cognitive and physical actions of prospective users. Components of the script follow the GOMS terminology, with certain goals reached by multiple methods that can in turn be broken down to individual operators, and selection criteria for each method. Additionally, preceding and succeeding goals are listed whenever relevant (figure: 68).

The most important aspects of the vanishing space structure the script. How do people meet the software? How do they experience the Vanishing space? How do they collaborate and most importantly how do they interact? Answering these questions are the four main parts: encountering, exploring, creation, interactivity (figure: 69). Encountering the software is a critical success requirement, the channels are differentiated per user group: arriving residents at Park hotel, passers by at Kennedy square, and local residents. Second, exploring the Vanishing space lists what the user can do once the application is installed. Content creation is a more detailed account of the actions necessary to share personal or personalised content: stories, multimedia, questions, design elements. Finally, interactivity explains the feedback and regulation mechanisms from user perspective in addition to the options of interacting with others. The latter three parts talk about the actual digital content and opportunities within the virtual environment, so this content is shown on proposed interfaces in addition to the script.

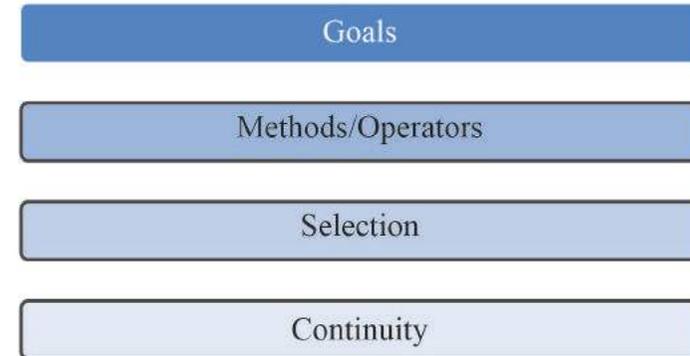


Figure 68  
GOMS model: script reading guide

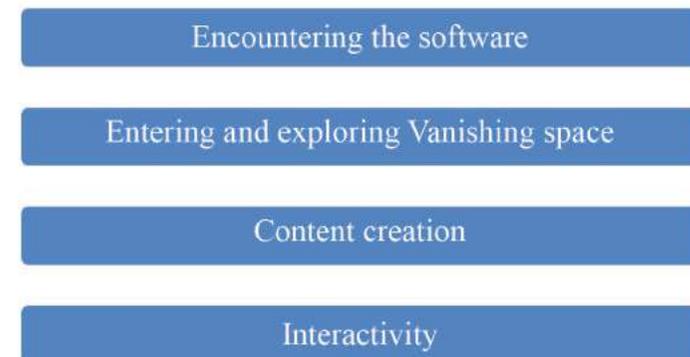


Figure 69  
Script structure

# ENCOUNTERING THE SOFTWARE

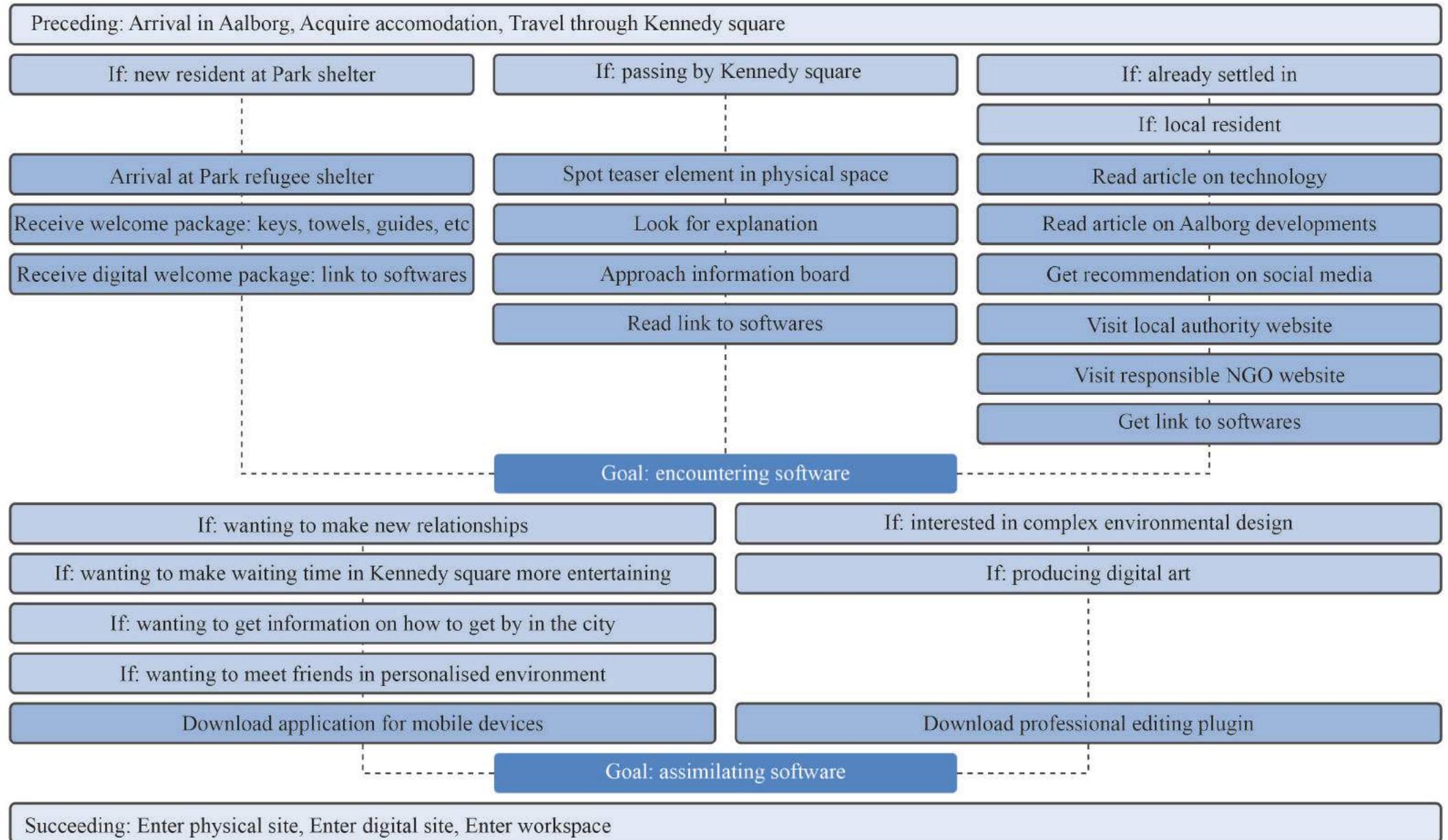
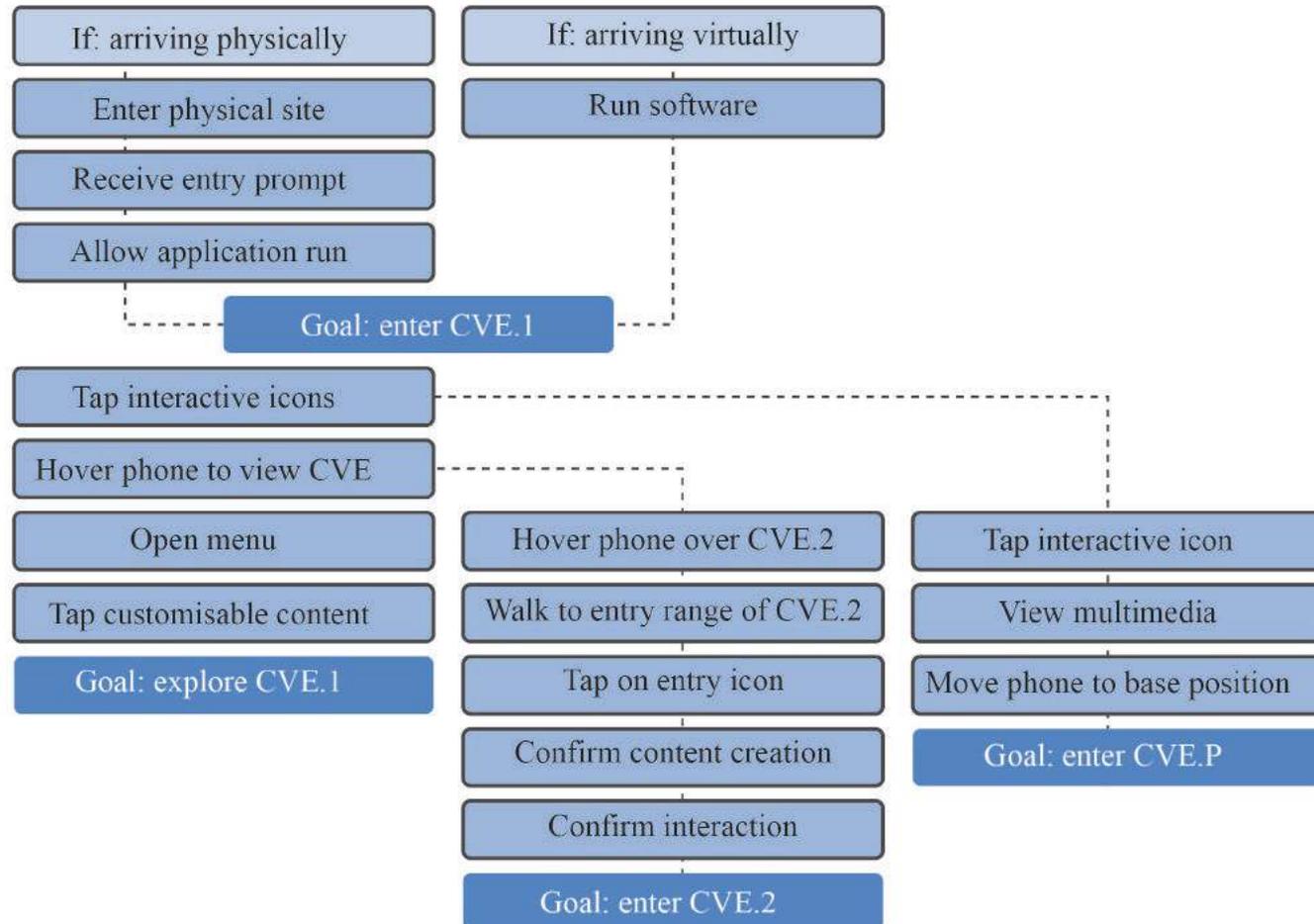


Figure 70  
Script of how you encounter the the Vanising space

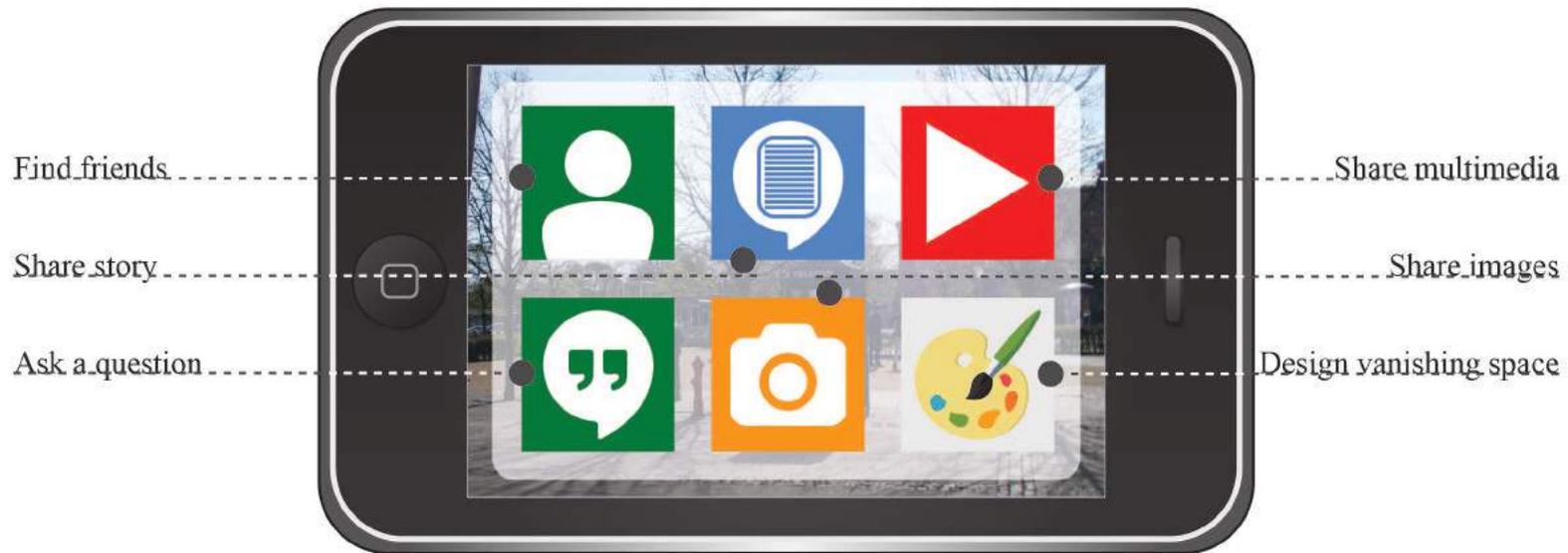
# ENTERING & EXPLORING VANISHING SPACE

Preceding: assimilate software, travel to Kennedy square

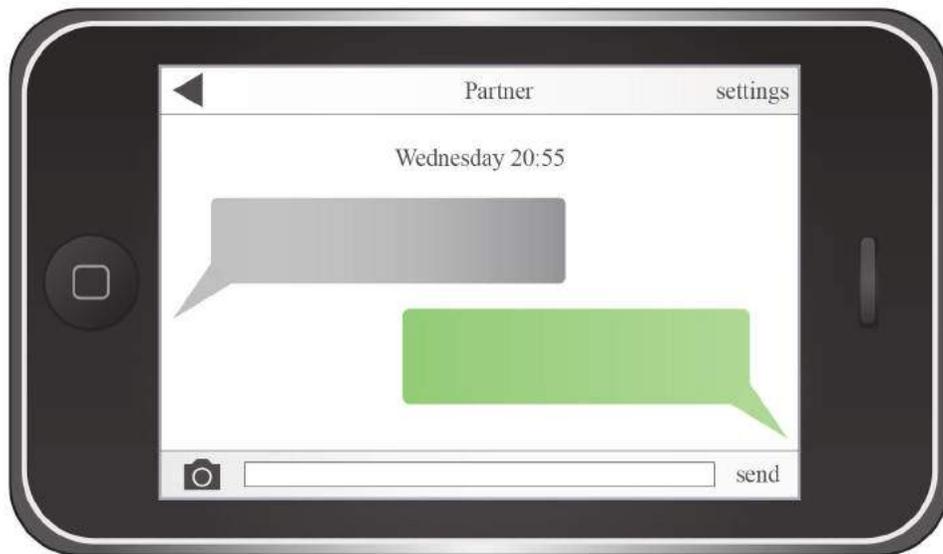


Succeeding: content creation, interactivity

Figure 71  
How to interact with the Vanishing space



Main menu



CVE.P rooms are traditional pages



CVE.2 zones are recognised by their distinct design

# CONTENT CREATION

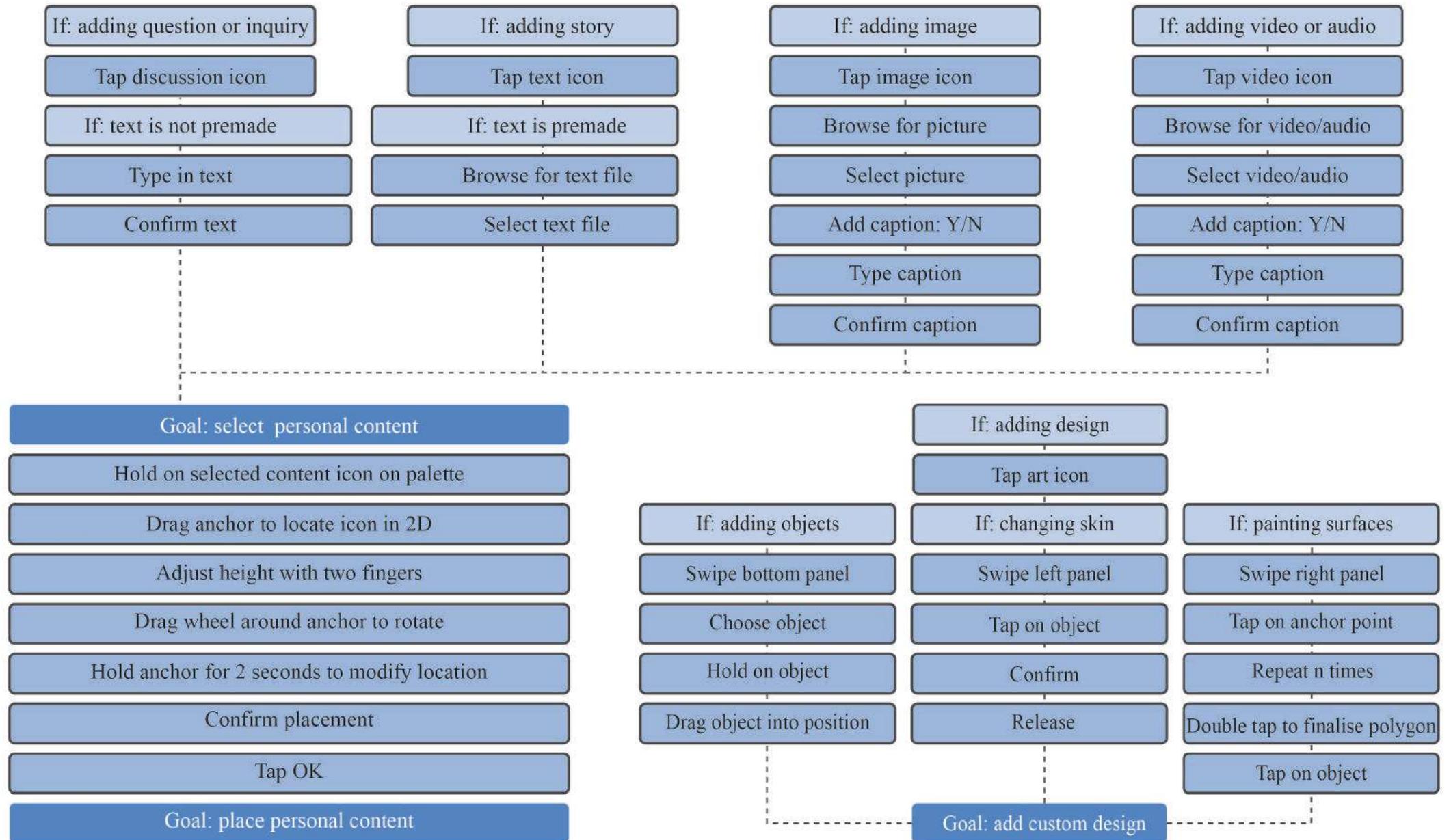


Figure 73  
Content creation script



Change skin



Place personal content



Paint surfaces



Add objects

# INTERACTION

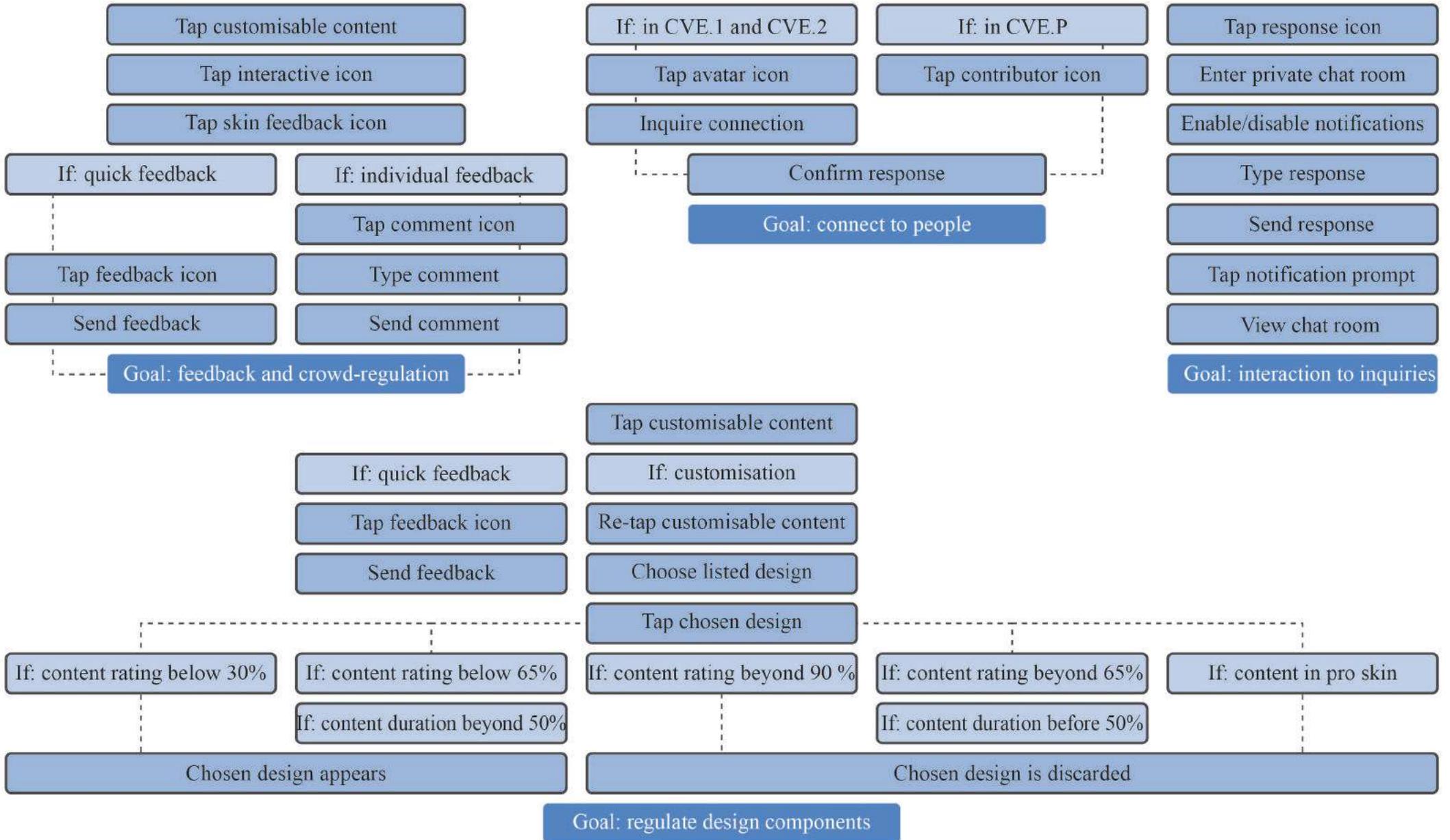
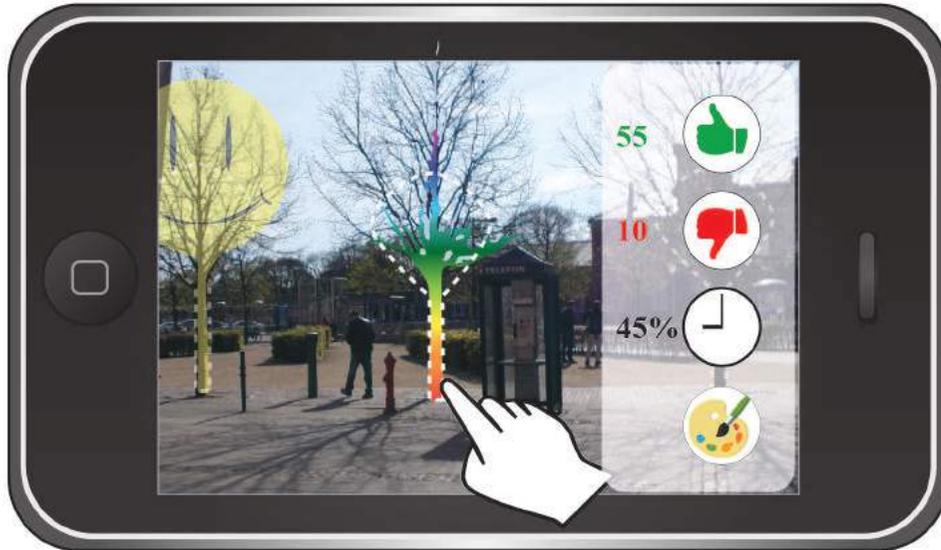
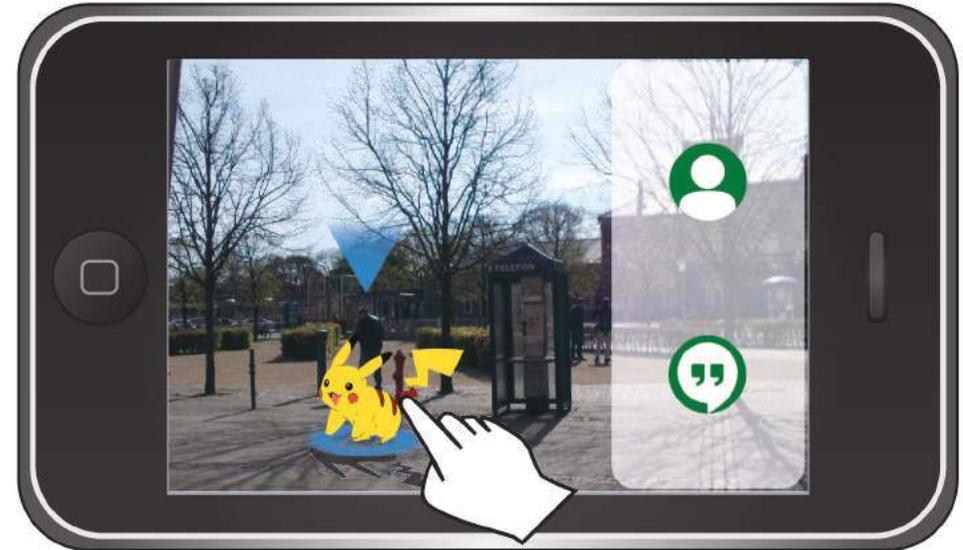


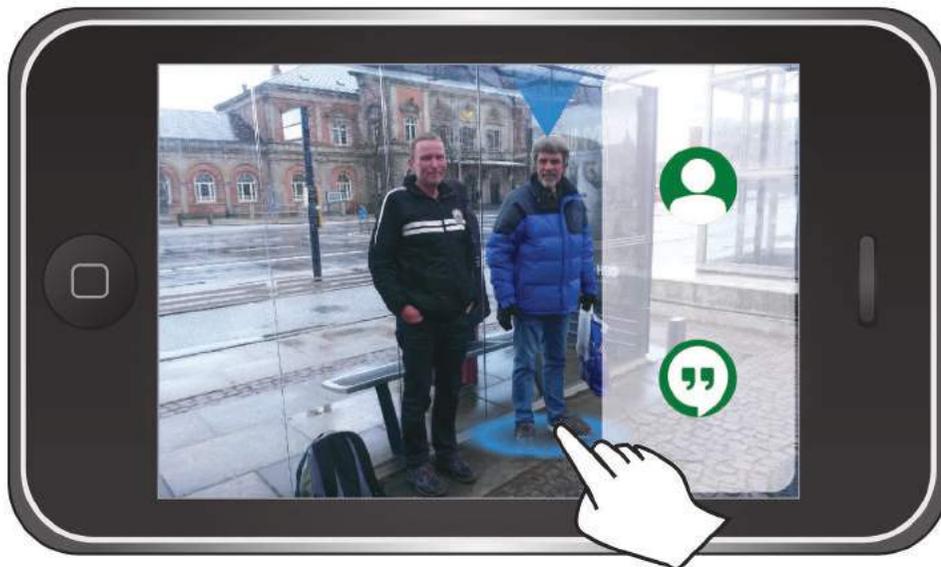
Figure 75  
Regulation and participation script



Regulation of customisable content



Virtual participants appear as avatars



Physically present participants retain the graphic indication



Friends are indicated differently than regular participants

**Figure 76**  
Regulation and participation interface



Figure 77  
The Vanishing space as seen from Boulevarden



Figure 78  
The Vanishing space as seen from the refugee centre

An architectural rendering of a city square. A large, multi-story building with a mansard roof and dormer windows is the central focus. The square is populated with stylized green trees, small human figures, and various architectural elements like a staircase and a fountain. The scene is depicted in a semi-transparent, layered style, suggesting a digital or augmented reality environment.

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# SITUATED SOCIAL DISCUSSION

Overview  
Lobby: a new business model for banks  
Showroom: augmented public diplomacy  
Square: situated social discussion

## OVERVIEW

The final proposal uses the intricate social structure of the square surroundings as a starting point. Considering that the integration concept is bringing out “the refugee” to the open in order to allow them to be expressed and discussed in public space, it is natural to apply the same concept to other detached actors, namely: the bank. It is a classic urban design anomaly that Kennedy square, in front of the building facades, ought to be a natural continuation of Boulevarden leading to Kennedy Arkaden, but the inactivity of the framing interfaces - the facades - fails to recreate the Boulevarden atmosphere. Few hundred metres to the south, shops place the wares on the pavement, cafés place some furniture outside. In the Kennedy building block, there is one second-hand shop doing the same, while the former hotel has removed the chairs and tables, and a mortgage bank office is hardly the business for window-shopping.

The concept of the final proposal is to expand the idea of mixed reality boundaries to lure out detached social entities into the public space. Mixed reality boundaries have been used in the earlier propositions as transparent layers mediating between adjacent physical and digital spaces, but the concept is applicable to digital-digital (hyperlinks) and physical-physical (windows) boundaries as well (Benford et al, 1998). The key is to create an interface that unveils contents of two spaces to each other, creating adjacency independent of physical location. The design challenge is the regulation of information flow through these interfaces that will

determine the degree and nature of participation of the mediated spaces, or with the terminology of the theoretical framework: it defines the vertical circulation.

In the case of Kennedy square, the interior functions of the buildings must be addressed in order to get workable spaces to begin with. The proposal will attempt to cover the many actors with an overarching quest: discussions about the changing society of Aalborg. Talking cures, and we would like the various actors of Kennedy to talk, express themselves, argue, hate each other, reconcile later; based on their existing, but up until now detached roles. The structure of presentation follows the different groups involved. First, a new business model is suggested for Nykredit bank to give them a more participative profile. Second, the ground floor of Park hotel is reprogrammed into the living room for the many. Finally, the activities of these two are adapted to quick response in order to reach out to the people in transit and thus the wider local population.

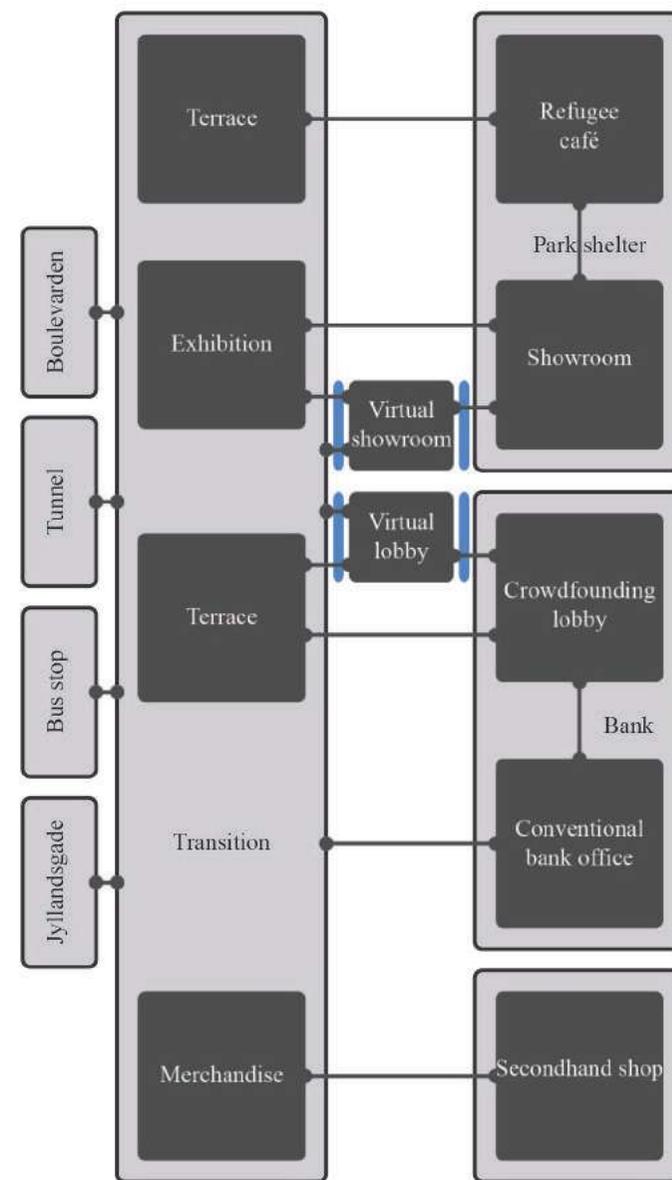


Figure 79  
Layout and programming

## LOBBY: A NEW BUSINESS MODEL FOR BANKS

The toughest nut to crack is the bank, as it has no outdoor merchandise, nor active interfaces because it facilitates no everyday use. One goes to the bank to open an account or to fix an issue with the account that requires personal presence. Mortgage banks are even worse as their clientele involves only those affiliated to the real estate market. This is a wider problem as banks around the world are able to move in the most frequented, high-end urban districts only to act as public life black hole.

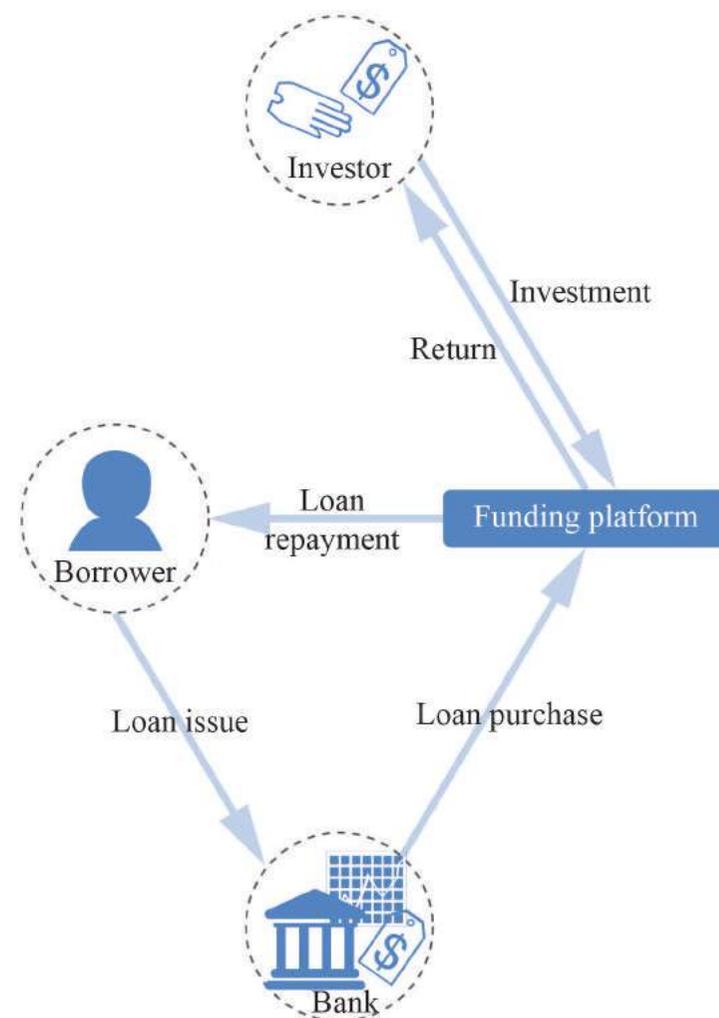
**A new financial service/product is required to create more active and persistent customer relationships.**

For a solution, two ideas are combined. First, create a secondary but synergic function within the bank building, like cafés in bookstores. Second, minimise the amount and increase the frequency of cash flow among clients, like microtransactions. The proposed solution is a crowdfunding platform that presents projects open for micro-investments for bank clients. Crowdfunding platforms are usually social-media based meeting places between peers and businesses, providing a more accessible, comprehensible alternative to traditional funding schemes. Conventional banks have the potential to use their networks and funds to supply crowdfunding platforms with know-how, clientele and risk management, while they benefit from an expanded market share (Cuesta et al, 2015) and fiscal resilience (Blaseg & Koet-

ter, 2015). The most important benefits of these platforms address the urban design problem: they create more understandable products, they are the showrooms of projects and the meeting places of potential investors (Cuesta et al, 2015).

*“In any event, an attractive design is necessary, similar to that used by social media, to attract a segment of the population that is increasingly accustomed to digital media, and to improve the user experience on the journey with the financial institution, thus helping to retain the customer.”* (Cuesta et al, 2015)

Crowdfunding platforms are digital, the proposed application is a digital platform and a physical lobby in-between. This comes in the form of a projected image a virtual lobby in the bank, and a live stream window of the actual lobby in the virtual one. The standard course of business would be akin to a more socially responsible horse-racing: clients can “bet” in small amounts on a myriad of ideas, hold discussions and consultations about them, share some refreshments while doing so, and attend special “stock market events”, where successfully funded projects are introduced. The projects themselves will be various, but those of local or social relevance would be more actively represented, such as an intercultural picnic or a temporary use of abandoned buildings.



**Figure 80**  
Cash flow in mediated crowdfunding platform  
(Cuesta et al, 2015)

## APPEARANCE: LOBBY

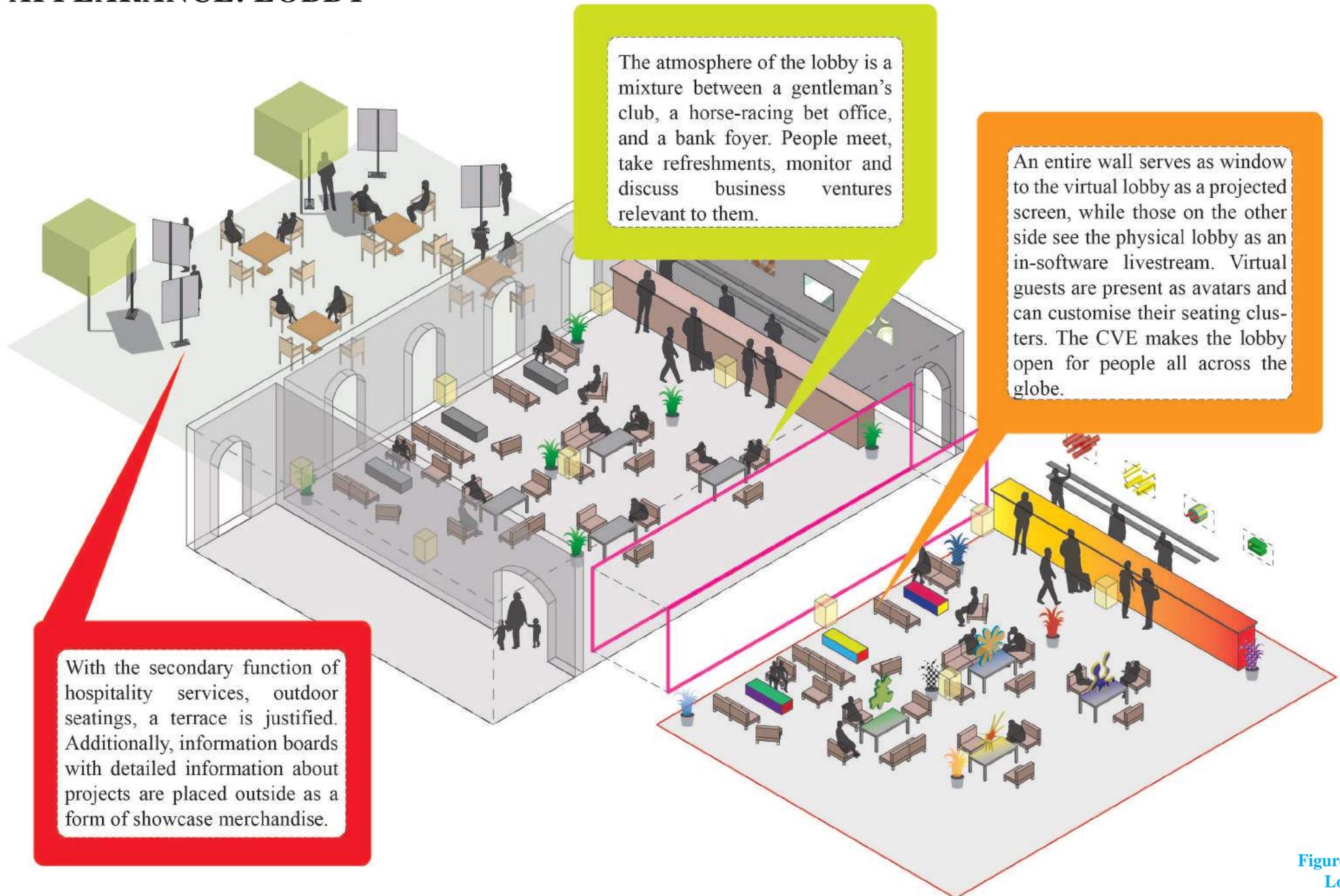


Figure 81  
Lobby  
97

## SHOWROOM: AN AUGMENTED DISCURSIVE SURFACE

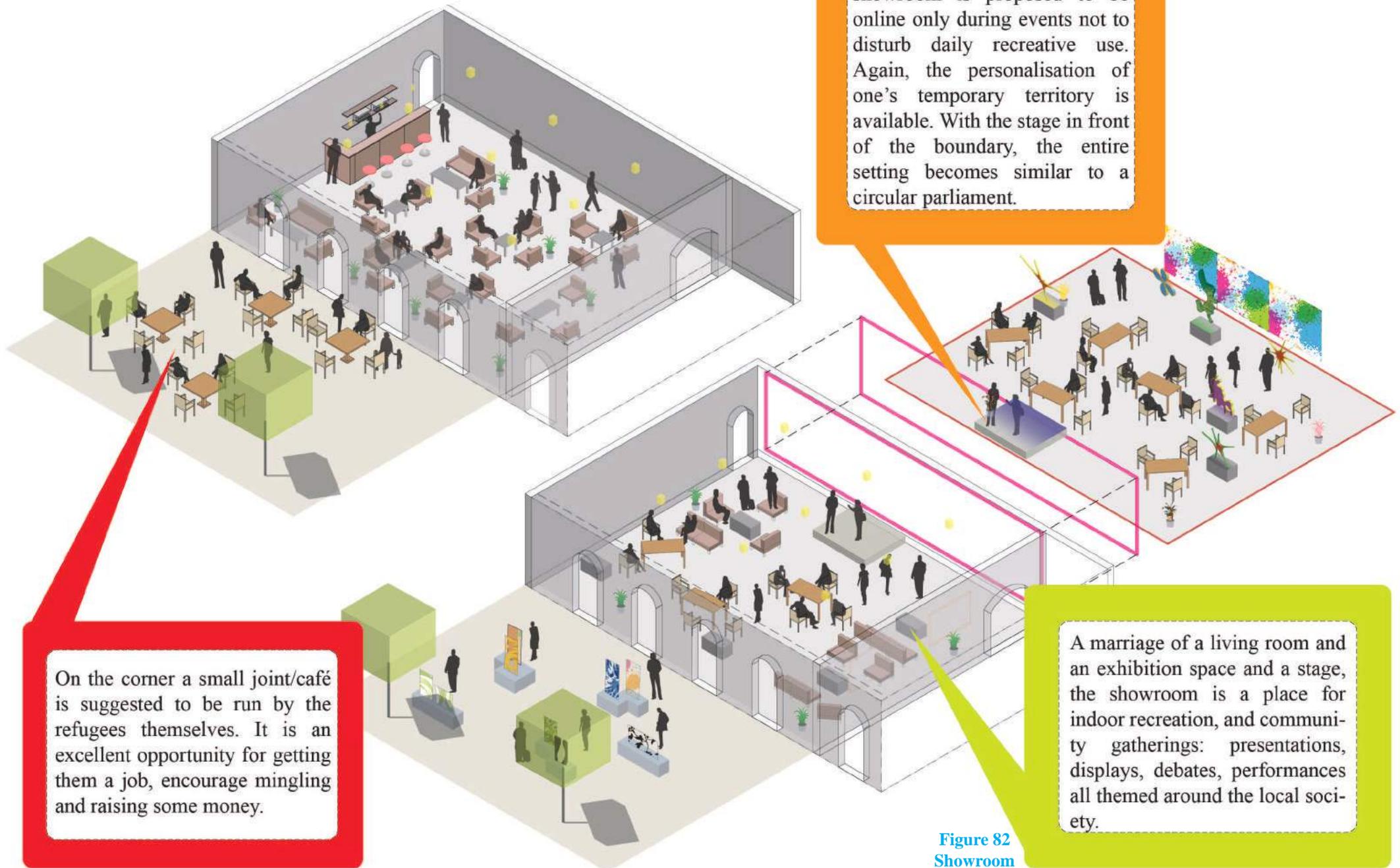
Migrationlab is a European NGO creating opportunities for migrants, refugees and locals to meet, interact and inspire each others in cities across Europe. In Vienna, the organisation kickstarted a platform called *The living room* for exploring and experimenting with migration issues and documenting intercultural communication together with these communities (Pana, 2016). Practically, invited migrants, refugees, visitors and locals join in a series of workshops, cultural events and artistic performances on migration in a living-roomlike area donated by a benefactor for temporary-use, furnished by art and architecture students of Viennese universities. Since then *The living room* has transformed into a travelling, collaborative exhibition fostering intercultural relationships through events.

*The living room* is the direct reference to the showroom, an exhibition and discourse panel accompanied by a refugee run café. The showroom recreates a livingroom-like environment, but sacrifices the its mobility and temporary nature. It is possible, since the ground floor of Park hotel could potentially house a more permanent cultural project. The showroom would be furnished as a livingroom or foyer, meaning it can always afford indoor recreation for the shelter inhabitants. Additionally, debates, forums, presentations, exhibitions, pecha-kucha nights are to be held for invited and interested locals. The theme must be socially and/or locally relevant, meaning that the events can vary from storytelling to urban development debates, events can be hosted by the municipality, NGOs, schools or

even individuals. The purpose of the platform and the café is to open up the ground floor of Park hotel, create a zone of friction between refugees and locals, and give them something to talk about that interests them both: the place and the people.

The showroom has an obvious disadvantage of not being mobile, making it more difficult to reach a wider public, although the fact that it is in Kennedy square, a public transportation hub, helps. To balance the disadvantage, the showroom is proposed to have a collaborative virtual environment version which will in turn be connected to the physical one, through a mixed-reality boundary explained earlier. The presented and debated content of the showroom can expand to ideation and actual project proposals, that will in turn be linked to the neighbouring lobby. Suddenly, the discussions of the small society has a potential to evolve from “talking cures” into serious speculation, and if the project emerging from the discussions gain traction, it can become reality. The synergy between the showroom and the lobby is established precisely to “keep things rolling”, to maintain a continuous interaction among people.

## APPEARANCE: SHOWROOM



The virtual environment of the showroom is proposed to be online only during events not to disturb daily recreative use. Again, the personalisation of one's temporary territory is available. With the stage in front of the boundary, the entire setting becomes similar to a circular parliament.

On the corner a small joint/café is suggested to be run by the refugees themselves. It is an excellent opportunity for getting them a job, encourage mingling and raising some money.

A marriage of a living room and an exhibition space and a stage, the showroom is a place for indoor recreation, and community gatherings: presentations, displays, debates, performances all themed around the local society.

Figure 82  
Showroom

## SQUARE: SITUATED SOCIAL DISCUSSION

The two hybrid spaces proposed earlier would naturally have outdoor elements: a terrace for both the café and the lobby, and outdoor installations for the showroom; this is the classic urban design solution to afford interaction between interior functions and the strollers of Kennedy square. The hypotheses of the theory suggests that we can go further with the help of digital media. The final element of the proposal is setting up physical-physical mixed reality boundaries with the aim of involving people who sit outside in the park or wait for the bus. The boundary comes in form of two screens that showcase a graphically simplified representation of the stories, projects, exhibitions presented in the lobby and the showroom. Square users are able to interact with the screen by using their smartphones.

In order to make that possible, There has to be an RFID tag at each entrance to the square with a radius limited to 3 metres. The tag prompts the smartphone, asking for permission to connect it to the local intranet. Once connected, the phone screen would then have the option to become a touchpad used to interact with the screen. The whole process would not take more than a few seconds, leaving the rest of the five minutes transitters usually have to give feedback to the presented projects. There will be four options: users can feedback through thumbs symbols, give typed-in or voice recongised comments, invest in the project and have details sent to the users e-mail account; all with tapping on simple icons.

Placement of the physical-physical boundaries need other adjustments in the square. As a minimum, the seating of the bus stops have to be rearranged to provide vision of the screens, but also on the streets whenever needed. If larger investment is possible, the square is proposed to be differentiated by pushing the middle part lower. This would delineate a transitional area both for people who ascend from the tunnel and for those arriving by bus. The intervention would result in a longer and larger exposure to the screens as well as an extended duration of the psychological transition phase - a prolonged moment of arrival that is exploited by imagery of socially and locally relevant issues and stories.

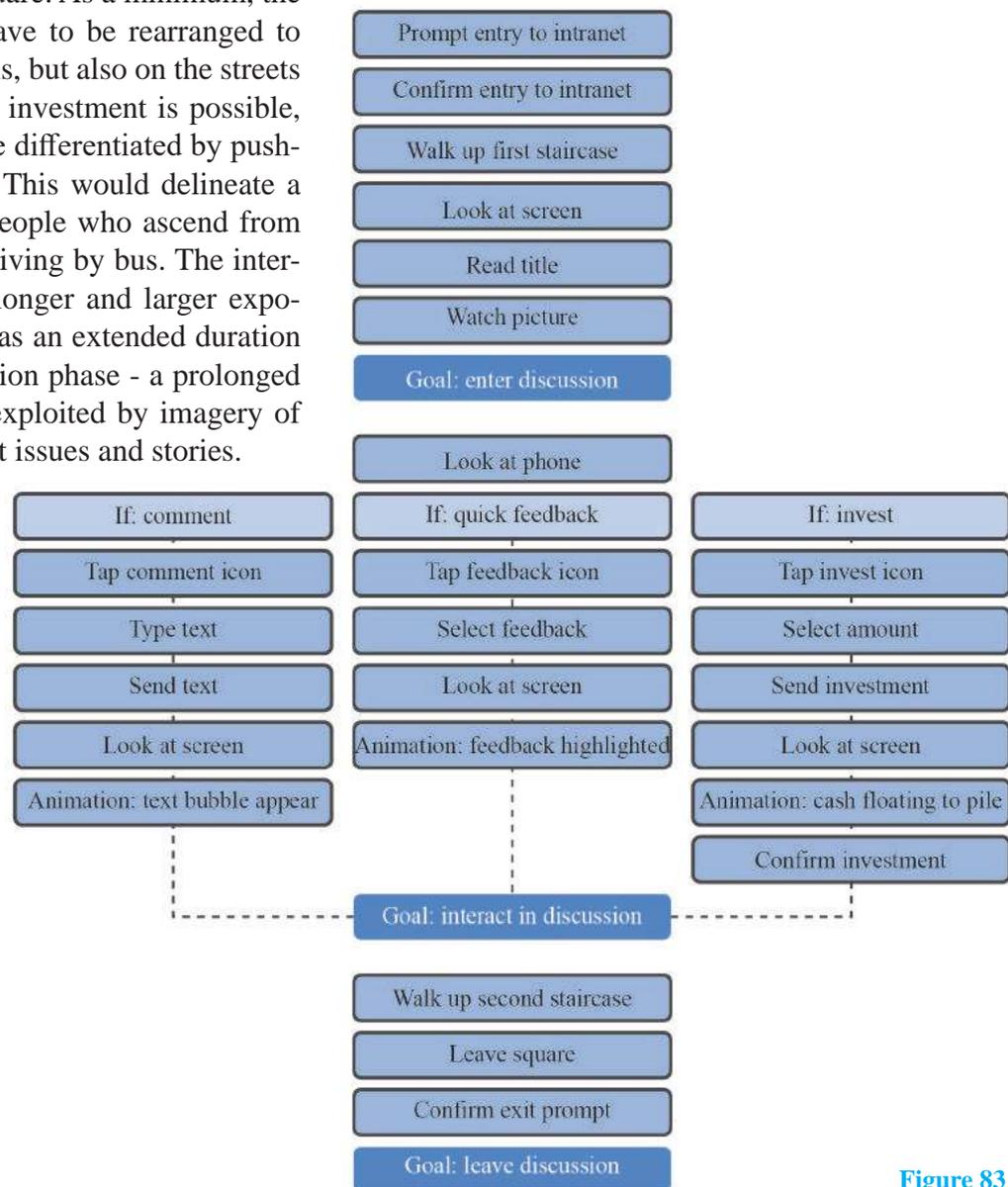


Figure 83  
Script of physical-physical boundary

# APPEARANCE: KENNEDY SQUARE



Figure 84  
Proposed appearance of Kennedy square

# REFLECTION

The objective of the thesis was to prove that a turn to the urban design of hybrid, networked spaces is a step towards better social sustainability - apparent in the participation, inclusiveness and empowerment of people in, by and for public space. In the theoretical framework, we have established a model of space: a networked, emergent fixation of social action. Physical spaces by durability, digital spaces by adaptivity, keep up circulations in order to stay alive. We have operationalised this theory by design methodology expressing the exact nature of these circulations: the network diagram expresses relationships, the script expresses processes, the user-experience expresses regulation - filters, feedback, and interaction. Finally we have proposed three design solutions to the case of refugee integration in Kennedy square, Aalborg, in an attempt to argue that the social problem is better addressed through digital, physical and hybrid spatial networks: in an attempt to argue for the authority of urban design.

First we must reflect on compatibility with the urban design praxis. Out of the three proposals, the Appscape is essentially a politically driven software development enterprise that has been appropriated to an existing city - operating on the city scale. The success of the enterprise depends mostly on the partnerships, and how compelling the experience, the script is. Because of the spatial appropriation, the urban designer in this case, is an advisor in developing the experience, while when the digital reaches out into the physical, actual architectur-

al tasks emerge. The other end of the spectrum is the Situated Social Discussion proposal, which is an untangling of the complex social geography of Kennedy square in an otherwise analogue urban design project; the digital components of the proposal have been an augmentation of what was already there. It is the Vanishing Space, where digitality has been the principle of design, yet because it meant the design of a collaborative virtual environment, the process is very familiar to analogue urban design: the Vanishing Space after all, is just a second Kennedy square.

However, technology did have its implications on the design process. Because the second square was purely digital, the materials and construction technology jumped from the usual so drastically that the difference dwarves the introduction of steel and reinforced concrete. The industrial revolution laid the foundations of skyscrapers, cable bridges and halls; the digital revolution created the opportunity for a dynamically changing architecture bound by nothing else, but the fantasy and comprehension of its creators. Both the second and third proposals operate partly within a collaborative virtual environment brought into adjacency with the physical one through mixed-reality boundaries. These digital spaces, unlike www page formats, afford for a higher degree of presence, the interaction with other site visitors. They can be nested in the physical world whenever a demand for a spatial extension comes up, the virtual showroom is a second showroom hung on the wall, the Vanishing Space is a second

Kennedy square without a square-metre of added territory. One notable limitation to this, is the existence of the interface: in both proposals, the second worlds are bound to a screen, though in the case of Vanishing Space, the experience is more than just looking through a window. Like mentioned in the thesis objective, no new technical innovations have been proposed, but the technology to deliver digital content to the naked eye is on its way. What is most important that the dynamism of digital spaces challenge the profession to expand their toolbox: if the environment changes rapidly, drawing 20-30 different plans, sections to cover all "allowed" alternatives is not only too laborious, but also technocratic. This is the reason why scripting has been involved in the first place: writing design commands, triggers, regulatory codes, rules, patterns and monitoring, adapting how the results unfold better exploit the flexibility of digital environments - this is "swarm urbanism" in practise (Leach, 2009). Instead of designing the actual environments in the Vanishing Space, we proposed a regulatory framework, dedicated some elements customisable, some zones with limited ownership, and a feedback-based self-organising overall appearance.

The theory reverberates in the various elements of the proposals. First, working with spatial "depth" in the Vanishing Space uncovered the spatial characteristics of digital environments, including the www format sites. Routes and adjacency translates to access links, accessibility is synonymous with embeddedness in the network (perceived rel-

evance by major search engines), enclosures and differentiation is set up by filtering information: on websites and digital environments more so than anywhere else, the “public” of the public spaces is determined by the accepted and agreed norms of behaviour (Nissenbaum & Varnelis, 2013). Second, the “vertical circulation” concept of spaces is apparent in any virtual environment proposed: the Showroom, the Lobby, Kennedy square are linked to their virtual counterparts, and however these dynamic elements adapting, it will be associated with the physical space as well: this is an act of appropriating image-objects (Baudrillard, 1981; Debord, 1967) to form a more involved relationship with their originals, to synergise with physical space, not to compete with it. In the case of the Appscape proposal however, the constant reinterpretations to keep it alive have limits: if the refugee influx falls, the project that is merely an introduction to a place and society, becomes obsolete. Unlike the Vanishing Space and Situated Social Discussion, which rely less on refugees, the Appscape needs to transform its scripts, perhaps to a touristic application, in order to survive. It is questionable though - in all cases - whether or not the scale of Aalborg is enough to sustain such enterprise without a social value. Third, the customisation options respond the marxist challenge: by having the ability to express ourselves upon our environment, not only are we then assigned a role from a quasi-objective space (Serres, 1982), but we have gained access to a domain, where our ideas, passions, difference (Harvey, 2008; Lefebvre, 1996) is channelled, presented

to the public (Mouffe, 2005).

Expressivity is one of the pillars of the social performance of all proposals: the ability and power to say in public space that this is who I am and be heard is the necessity of integration and social justice. The Appscape nudges people to meet, the Vanishing Space foregrounds the creativity of the vulnerable, the Situated Social Discussions directly hammers together an arena where personalities, cultures and opinions clash. In a CVE, this goes as far as a highly apparent and rewarding temporary ownership over a territory. Thinking in hybrid, networked spaces did more than providing expressivity: it brought the previously detached personal networks of refugees in the open, addressing the main obstacle of integration: disinteraction in parallel communities. Each asylum seeker is a walking piece of Syria, a carrier of a shard of Afghanistan that can appear as user generated content in the Vanishing Space, in the Showroom, or in the refugee-run café. Furthermore, we must see the rhizomatic nature our interventions: these projects are no beginnings, but middles in a story, where the context is both before and after the new Kennedy square (Deleuze & Guattari, 1988), in practical terms: the carried personal networks are also on the receiving end of all three proposals - much like a feedback loop. Sharing results, progress in the Appscape tasks, inviting people from all over the world in the CVEs of proposal 2 and 3, is an act of sharing a small bit of Denmark (host country) to the rest of the world; making the interventions a form of indirect public diplomacy -

by definition: communication with foreign publics to establish a dialogue designed to inform and influence (Nye, 2008). The traits of public diplomacy, the heterogeneous partnership, making dialogues, not a sales pitch apply to the way CVEs operate. It is most apparent in the case of the Showroom, where refugee related events mingle with locally relevant ones, inviting a very differentiated group of people, that these interventions can potentially advocate a positive image of the host country, and export the local values, ethics, norms by the foreign publics themselves. Connection to the carried networks would not have been possible without the use of digital environments: the high degree of expressivity, global accessibility and unrivalled flexibility are the foundations of initiating integration. Eventually, all these traits describe how and what kind of information circulates within a relevant subset of the networked space. The quasi-object theory taught us to do more than initiate: the options to go deeper, open another, more private chat room, do the next task; they describe a sequence, not an action. Even more so, the use of an “anchor” helps keeping the initiated idea warm: any content in the Vanishing Space can be saved, a gamified Appscape provide tangible rewards, and most promisingly, a socially responsible bank offers stewardship over crowd-funded social projects, meaning the public space, by design provides a path from idea to realisation. In order to design such outcome, it is necessary to script the key elements of the social process that constitutes the essence of the proposed space.

One major flaw of all proposals - that is attributed to the use of digital environments - is that they fail to address the position of the square regulars, another marginalised group present in Kennedy square, not so closely attached to mobile devices, the key vehicles of each intervention. It is unclear how they would react to the introduction of the Vanishing Space, or the Source café, as both respond to different target groups. The right to difference also means the right not to be online in the virtual environments: this right is not curbed in the case of Vanishing Space, which is only accessible via a mobile device, but the digital walls of Situated Social Discussion or the appearance of the Source can be disruptive, with no chance of turning them off. If that drives out the square regulars, then both these proposals fall into the perils of gentrification, thus cannot be labelled as just. Situated Social Discussion also hinges on the willingness of the bank to participate - as Appscape relies on a wide partner network; if these critical partnerships cannot be established, both projects lose much of their added value: the Appscape could not provide tangible rewards nor tasks involving flexible partners, while Situated Social Discussions would remain on the level of discussions with no prospect of realisation. On the scale of Aalborg, a medium sized European city, the key values of social interventions must be safeguarded, as in smaller communities, the stakes are higher, the impact of society-shaping interventions on what the city is, multiplies. Working with networked spaces, opening doors and closing others carries a stout burden of responsibility, for place

is another word for society, us, designers of places must bring together society, to ensure that when the day is done, people and spaces appear and disappear, Aalborg would still be Aalborg; the Aalborg justly produced by her people.

# EPILOGUE

Quo vadis, cities? The future of place identity is drifting towards “chaotic emergence”; with more and more hybrid-networked projects, the degree of adjacency within a city could bring together many spaces, cultures, expressions; perhaps “more faces a head could possibly carry”. What would happen to the identity of cities? Already, digital spaces, like quantum particles, appear and dissolve by the laws of survival, and will continue to do so in hybrid networks, meaning what a city is, depends on what can stick. It is the responsibility of the urbanist, to help a city assimilate those social processes that are just, sustainable, and meaningful. Quo vadis, urban design? In the age of radical mobilities, we have a tool - designing networked, hybrid spaces - to deal with the cities as instances of complexity, manifestations of emergence; to depart from the “that” and “there” to the “beyond”; to create cities beyond cities of people beyond people by an urbanism beyond urbanism.

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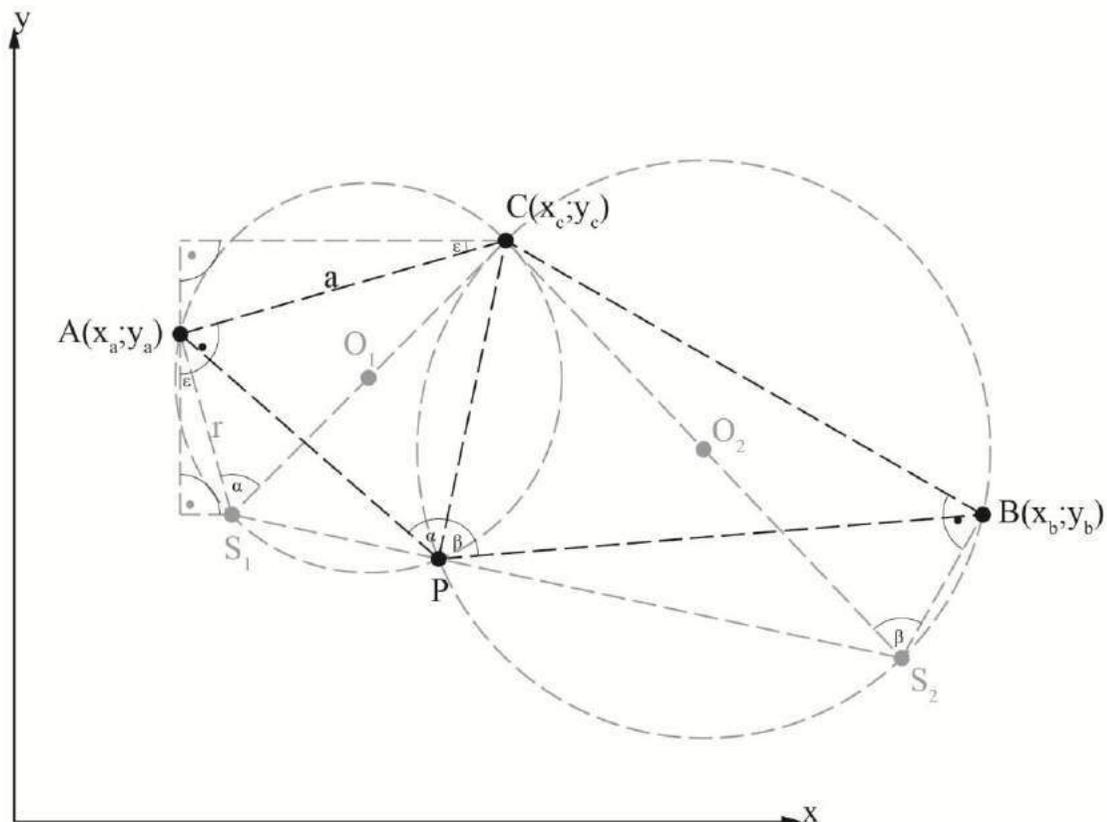
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## THE MATHEMATICAL FOUNDATIONS FOR POSITIONING

The mathematical foundations in this appendix seek answer to one question: is it possible to determine where mobile participants of the physical space are at any given time without cameras? It has been settled that the more convenient hardware for Vanishing space are wifi hotspots, and the cheapest ones are RFID tags, which provide some limited geometrical data: they are fixed points, and they know how far a transceiver is at any given time. Positioning smart phones from known locations based on distance only – measurable either by the signal travel duration in the case of RFIDs or by wireless signal strength of identical hotspots – is a common problem in geodesy, mathematically solved by resectioning from three known points. The basis of the solution is drawing two circles covering all four points as shown on the first figure, which gives a series of trigonometrically processed angles. The interim solution gives the position of two support points that fall on the same line as the unknown “P”:  $S_1$  and  $S_2$ . After resectioning, “P” can be found as an intersection of a known line and a known circle – which is described in a simultaneous quadratic equation set on the principles of coordinate-geometry. This particular solution is not the only valid way of positioning, the exercise is necessary to determine the technical requirements of the Vanishing Space; to answer the question stated earlier: the position of a mobile point can be determined when its distance from free known points is available at any given time.



From the figure:

$$\begin{aligned} \text{I.} \quad r \times \sin \varepsilon &= x_{s1} - x_a \\ r \times \cos \varepsilon &= y_{s1} - y_a \end{aligned}$$

From CAS<sub>1</sub> triangle:

$$\begin{aligned} \text{II.} \quad r &= a \times \cot \alpha \\ \text{III.} \quad a \times \sin \varepsilon \times \cot \alpha &= x_{s1} - x_a \\ a \times \cos \varepsilon \times \cot \alpha &= y_{s1} - y_a \end{aligned}$$

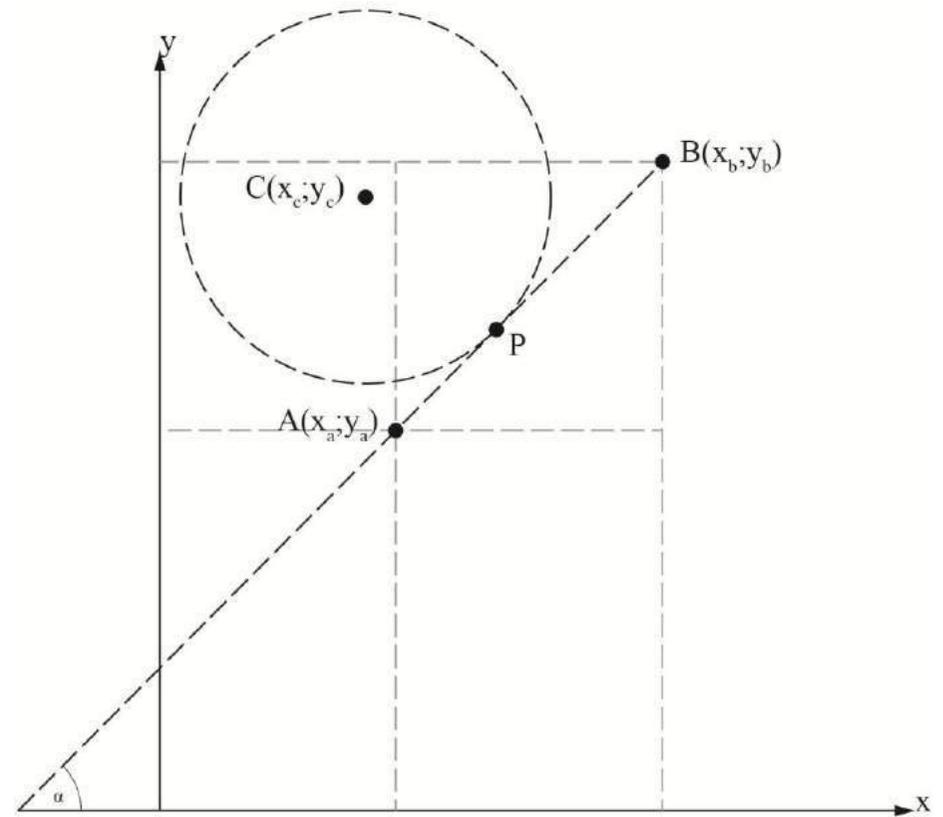
From the figure:

$$\begin{aligned} \text{IV.} \quad a \times \sin \varepsilon &= y_c - y_a \\ a \times \cos \varepsilon &= x_c - x_a \\ \text{V.} \quad (y_c - y_a) \times \cot \alpha &= x_{s1} - x_a \\ (x_c - x_a) \times \cot \alpha &= y_{s1} - y_a \end{aligned}$$

determining  $x_{s1}$  and  $y_{s1}$ . The same reasoning applicable to CBS<sub>2</sub> triangle:

$$\begin{aligned} \text{VI.} \quad (y_c - y_b) \times \cot \beta &= x_{s2} - x_b \\ (x_c - x_b) \times \cot \beta &= y_{s2} - y_b \end{aligned}$$

determining  $x_{s2}$  and  $y_{s2}$ . This results in a task of finding the intersection of a known circle and a known line – which can be solved by means of coordinate-geometry:



$$\text{VII.} \quad x_p^2 + y_p^2 = d_{CP}^2$$

$$\text{VIII.} \quad (x_p - x_{s1}) \times \tan \alpha = y_p - y_{s1}$$

Solution to the equations determines the coordinates of the unknown “P”.

Appendix B

## **TRIANGULATION EXPERIMENT**

On this CD you will find an 8 minute video of the triangulation experiment conducted at Kennedy square. The result and the discussion of the video can be found at *Use pattern*.