voluntarily imprisoned

Isolated travellers in a capsular and networked society

This paper is part of the graduation project of Dafne Sara Swank.
TU Delft, Faculty of Architecture.
Studio: Explore lab
Tutors: Roel van de Pas, Jan van de Voort, Diego Andres Sepulveda Carmona

an exploration on singapore's capsularity

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| a special thanks

This research paper is a part of the graduation project, within the Architecture faculty at the TU Delft. For this reason I would like to thank all those involved in the process until finalizing this project.
However, within this research paper, I would like to specifically express my very great appreciation to Diego Andres Sepulveda Carmona – my research tutor, for the assistance in writing and structuralizing the paper, and above all for all the assistance during my trip to Singapore.

| Abstract

The city is in a throes of a gigantic transformation process, due to modernisation, globalisation, technological innovation, urbanisation, explosive population growth and climate change (Brotchie, Newton, Hall, & Nijkamp, n.d.; Cohen, 2006).

Within a time of change, whereas technology integrates progressively in our lifestyle, and where man is increasingly designing its environment according towards its own needs – the development and future expansion of the city is becoming a challenge. This lead to the main problem statement: What is the new kind of future habitat that can respond to the socio-technological dimensions, recognising the uncertainties of the future?

In order to answer the main problem statement, the project will start with a literature study, followed by a case-study / prototype design. The literature study consists of two part: 1) Starting with the technological revolution, the first part will try to reveal the changing dynamics of

the socio-techno system (within the global urban context) and which consequences these changing dynamics has on our lifestyle and on a broader scope, 2) Secondly, the aim of literature study is to expose the spatial implications of this socio-techno transformation on the urban structure of the global city.

Firstly, we have seen that technology is a part of growth, acceleration and the expansion of the city. Technology has facilitated us with increased speed and a more inclusive network ever seen. Users of this network, supported by communication and information technologies, become singular nodes, isolated but connected through screens and the virtual world. For those connected to the network, the concept of time and place changes entirely.
The connected urban population is not just bound together by the physical infrastructure of a city anymore, but starts to merge with it, annihilating time, and killing distance. In order to protect oneself, from the increase in physical and informational speed, man will increasingly has the need to withdrawal in capsules. Blind to the outside world, the capsular civilisation is one of dualization of segregation of exploitation and exclusion resulting in an implosion of the polis of the common (Barney, 2013; Manuel

Castells, 2000; Cauter, 2004, 2012; Graham & Marvin, 2002).

Secondly, we have tried to reveal what spatial (in the urban and architectural realm) consequences this capsular society brings forth. We have distinguished five mechanism of capsularity: decentralisation, fragmentation, isolation, privatisation and simulation. Together these characteristics will increasingly lead to the encapsulation of the urban and architectural realm. The future city will not just be a collectives, but rather a multiplicity of entities with their own sociality, character, and own rights (Manuel Castells, 2000; Cauter, 2004; Neil. A, 2018).

The coming age can be defined as an age of disintegration, gated communities are the urban and architectural models that give shape to this order: an inside world of privatised publicness versus a chaotic, unsafe and uncontrollable outside world. We become voluntarily prisoners (Cauter, 2012; Davis, n.d.; Eckardt, 2017).

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| introduction, the city

"The city is "man's most consistent and on the whole, his most successful attempt to remake the world he lives in more after his heart's desire. But if the city is the world which man created, it is the world in which he is henceforth condemned to live. Thus, indirectly and without any clear sense of the nature of his task, in making the city, man has remade himself." (R. Park).

The development of the city as we know it - industrialisation, globalisation, migration – urbanisation

In the last centuries, our cities have developed into hybrids of various urban models. Due to the industrialisation, globalisation, urbanisation and migration, our cities have grown into global megacities, with a variety of populations, attachments, lifestyles and identities (Brotchie

et al., n.d.; Cohen, 2006).

Within the 21st century and for the first time in history, the urban population will outnumber the rural population, whereas cities have absorbed nearly two-thirds of the total global population. The final decanting of humanity out of rural areas towards the city will result in an interchangeable relation between human life and urban life, weaving extraordinary new urban networks, corridors and hierarchies. Therefore, the continuous expansion of our cities, flooded with people, will lead to the point where the urban realm contains the majority of human experience (Audirac, 2007; Canton, 2011; Clarke, 1987; Thrift, 2014).

Although the city is not a new phenomenon, it has been facing server changes throughout time. While the city of the past was all about centrality and accumulation, the city of today can better be described as an interdepended entity within a global network. The city of the past was a power base, a node in the exchange of goods, a concentration of the means of production, a creative milieu, a centre of excellence and excess, linked with the hinterland in a process of constant exchange. However, with the growing Global capital of the city, the interdependence between

the hinterland and the city is disappearing.

The city nowadays provides the urban dweller the best chance of surviving, by offering networks of reciprocity, which support a subsistence economy. The city is not a machine of accumulation anymore, but rather a machine of survival – what Mike Davis describes in his book 'planet of slums'; "an ecological and humanitarian time-bomb" (Cauter, 2012; Davis, n.d.; Sassen, 2000b; Young, Berkhout, Gallopin, Janssen, & van der Leeuw, 2006).

"The urban phenomenon is the weakest point in the industrial system, the metropolis, once the traditional 'birth place of progress' will become the most backward and confused sector of capital" (Archizoom, no-stop city, 1971).

The city in the throes of a gigantic transformation - technological revolution

With modernisation, globalisation, technological innovation, urbanisation, explosive population growth and climate change, we can say that the city is in the throes of a gigantic transformation process. Enabled by mass air travel,

freeway automobility, and digital communication technologies, allied with new geo-engineering capabilities, we can now physically reshape the natural topography of the city and its surroundings in more profound ways than ever before.
The ongoing technological revolution is leading to undefined boundaries and scale of the city, rapidly expanding the physical footprint of the city and concerns regarding the future of the global city – the habitat of man, are spreading (Clarke, 1987; McQuire, 2008; Zuliandi et al., 2016).

Besides inducting new products, machines and techniques, the current technological revolutions differs from the periodic waves of technological change that has brought us, what we now call the 'industrial society' since its origin 200 years ago. This manifests in the socio-technological paradigm that underlies the technological revolution, since it is fundamentally transforming our culture. For example: connectivity nowadays is based on multimodal communication and digital information processes, instead of physical connectivity (M Castells, 2010).

But, although the acceleration of technology has already led to a technological world scarcely imaginable to even the wildest fantasists of the

past (Anderson, D. n.d.), also fears of dystopian perspective on a socially polarised society caused by technology and ecological disasters are materialising (Aurigi, n.d.; Clarke, 1987). As stated in the 'Rapport to the club of Rome', in 1972, limits of growth;

> ***"If the present growth trends in world population, industrialisation, pollution, food production, and resource depletion continue unchanged, the limits of Growth on this planet will be reached sometime within the next hundred years. The most probable result will be a rather sudden and uncontrollable decline in both population and industrial capacity. Climate change is expected to exacerbate current stresses on water resources from population growth and economic and land-use change, including urbanisation…" (Cauter, 2012)***

The future of the city - a new urban character

The city is ever concerned with the question of making comprehensible links between entities in order to make a collective form – but the scale, speed and reach of the current transformations of the city outstrip the old values of urban realm on a global scale (Zuliandi et al., 2016).

The city as we knew it is disappearing and a new sort of city, with a new sort of urban character is emerging. The continued demographic explosion, the logic of growth, the technological acceleration, the growing dualization of society under the pressure of neo-liberal globalisation and mass migration, require the ruthless exploitation of non-renewable resources and are pushing the city as we know it in a period of disaster (Cauter, 2012). Hence, we can say that the rise of this new technocratic form of urbanisation and its threats, is one of the great planetary challenges (Maki, F, Cairns, S).

We state that the question 'what kind of city we want to live in in the future', cannot be divorced from the question 'what kind of people we want to be, how we relate ourselves with technology or nature, what style of life we desire and what aesthetics we hold'. As Harvey, D. states: "the right to the city, is a right to change and reinvent the city more after out hearts' desire (Harvey, 2012b).

How technological change will impact the development of our future cities, will be explored in this paper, whereas we try to reveal how our future cities should respond to uncertainties

| setup of the project

Within a time of change, whereas technology integrates progressively in our lifestyle and where man is increasingly designing its environment according towards its own needs – the development and future expansion of the city is becoming a challenge.

Thus, while dealing with the existing conditions of the city, the aim of the project is to develop a new paradigm for the future urban habitat, able to adapt to and protect against – changing and high risk conditions of the future, in order to create a sustainable lifestyle. In order to formulate a respond to the socio-technological changes we can expect in the future, this paper will try to reveal the expected conditions of and within the future global city.
This lead to the main problem statement: What is the new kind of future habitat that can respond to the socio-technological dimensions, recognising the uncertainties of the future?

01. Literature study

The first step in answering the main problem statement, consists of a literature study providing the architect, city-planner or designer with a framework, revealing the conditions and lifestyle of the inhabitants of the future global city.
In order to reveal these predictions the literature study is divided in two parts: 1) Starting with the technological revolution, the first part will try to reveal the changing dynamics of the socio-techno system (within the global urban context) and which consequences these changing dynamics has on our lifestyle and on a broader scope, 2) Secondly, the aim of literature study is to expose the spatial implications of this socio-techno transformation on the urban structure of the global city.

This lead to the first research question:
a. What does our (predicted) future lifestyle within the future Global city reveal?

The second sub-question, is instead a response to the first sub-question, and will investigating the effect of the revealed predictions on the spatial structure of a city. This lead to the second sub-question:

b. What implications does this (change of) lifestyle have on an urban spatial structure? – (In relation to space & place and form & function)

02. Prototype design

The literature study should provide the structural basis on which the second part of research will depend. The second part of the project will be a prototype design, in order to test and reveal a responds to the findings of the literature study.
Since we always have to deal with the complex systems and dynamics of the existing city; including its culture, specific boundaries etc. the synergies of the agents and the resource base on which they depend, should be revealed, before staring with the design of the prototype. Eventually the aim of the prototype is to design a city-expansion, for Singapore. The location, Singapore, is chosen based on its innovative character, focus on the future, stable political system, economic opportunities and extreme climate conditions.

Singapore as a city-state with a population of 5.6 million, is desperately in need of land. In

order to intensify the urban structure, Singapore has been; building high-rise buildings, building sub and- underground structures, intensifying the urban areas and reclaiming land. However, with a growing population, led by migration, Singapore as a global city port has to respond differently in order to accommodate its spatial needs of the future (Glaser, Haberzettl, & Walsh, 1991; NG & MENDELSOHN, 2005; Yuen, 2008).

At the same time, Singapore is under the influence of the constant threat of climate change. These ecological changes can eventually lead to the sub-merge of many parts of Singapore. The way the city-state will respond to this water threat will, for this reason, be of importance to other cities (miniature nations of a sort) near the water, such as; New York, Miami, Rio de Janeiro, Mumbai, Guangzhou (Glaser et al., 1991; Hornidge & Kurfürst, 2011).

The prototype design can be seen as the normative side of the research, and will lead to the design paradigms of the project. This has led to the following research questions:

a. How can the city-expansion in the context of Singapore adapt or respond to the spatial implications found in the literature study? – (In relation to space & place and form & function)

Question c. will put the information found in question a and b in reverse. The aim is to prototype the design paradigm for the context of Singapore. The prototype and location analysis will be part of the design part of the project, and will for this reason not be a part of this literature study.

theoretical framework

The future of the city

The technological revolution

Network society

Exclusive networks

Capsularity

Capsule architecture

Spatial characteristics of the urban system

Space and place

Form and function

| introduction, the city

The future of the city

Before we continue with the concepts and notions used within the paper, we start with some boundaries of the topic. Dealing with the future undoubtedly means we are dealing with uncertainties. These uncertainties come from changes in all discourses; from technological, environmental to social changes. Although, it is hard to predict events that might take place in the future, we can explore predictions and trends showing patterns in the current, likely to continue. Important to keep in mind; is that the future is never deterministic – instead, we can change events, or even impose a goal or change (Adger, 2003; Harari, n.d.-b).

Within literature we can find many predictions and ideas on how to change or redesign the future city. Take for example Sennett describing 'the city everyone wants to live in', as a safe and clean environment, accommodated with efficient

public services, a dynamic economy and a society that thrives for integration and diversity (Sennett, 2013).

Others, like Adger, propose a more conceptual framework, such as; 'the evolutionary resilient city'. Within the concept of urban resilience, the attention is not only focussed on social or environmental management, but instead on the combination of all dynamics related to urban risk management, disaster planning and the adaptation to various threats, both now and in the future (Adger, 2003).

We can state that the interrelations between different systems define the dynamic, complex, multiscale, and adaptive properties of the city. Thus, in order to generate an endogenous system resolving interdisciplinary dilemmas, it is necessary to investigate all potential interaction on the systems synergies (Adger, 2000; Sassen, 2000a). And although the concept of resilience is open to interpretation and context, we can argue that all aspects of demographic change, including migration and the impact on the social, individuals and communities, as well as on the sustainability of the underlying resource base – 'resilience' is the ability to cope with and adapt to change (Adger, 2003; Stead, 2014).

The technological revolution

Within this paper, all changes described, either within the social dynamics or within the urban context – start with the technological revolution. Two characteristics of the technological transformation, are relevant to mention; firstly; the technological revolution is characterised by its pervasiveness, as compiled by Melvin Kranzberg and Carroll Pursell, since the technological revolution integrates in every domain of human activity, not as an exogenous source of impact, but rather as the fabric in which an activity is woven (Cauter, 2004; Gaspar & Glaeser, 1998). In other words; the socio-technological transformation is not just concerned with introducing new products, but is instead process-oriented.

And secondly; all media as extensions of man, enhance speed in one way or the other – the speed of travel, communication, information, transmission etc. This increased speed of mobility in contemporary space generates forms of living and dwelling which differs from the traditional forms since they are not bound to place, but instead to a network (M Castells, 2010). As a result, our society becomes, while being connected to a growing and more integrated network – increas-

ingly individual (M Castells, 2010; Dehaene & De Cauter, 2008).

Network society – as new socio-technological dynamics

Within the first part of the literature study we will try to understand how the two described characteristics of technological revolution influence the socio-technological dynamics.

We can state that, technological innovations have facilitated the reorganisation of human activities and their interactions (Clarke, 1987). Until now technological development has led to increased connectivity, both physically and virtually. Since we cross distances with increased speed or through a network, we are fundamentally affecting the conditions of our perception of time and place. As Castells describes; “All major social changes are ultimately characterised by a transformation of space and time in the human experience” (Manuel Castells, 2000).

In other words; with the increased mobility (both physical and virtual) we are compressing the time-space continuum. Consequently, we are increasingly disconnected from the locality of a

place which on its turn results in the loss of a sense of place (M Castells, 2010; Manuel Castells, 2000; Dehaene & De Cauter, 2008; Hubbard & Kitchin, 2011). This new form of spatiality is conceptualised by Castells as the change from the space of places to the space of flows (Borja & Castells, 2003; M Castells, 2010).

From these notions on, the concept of 'network society' as described by Castells arises. The 'network society', regarding the restructuring of global networks, which either interconnect or bypass, allows a scalar view of social fragmentation brought about by the information sociality (M Castells, 2010).

But before we continue with this social fragmentation, it is important to understand the essence of a the 'network'. A network consist of three elements; nodes (distinct points), ties (connection between nodes) and flows (whatever passes between and through nodes along ties). To each of the three elements, a number of variables is attached, which describe the character of any network (Barney, 2013; F. E. Emery, n.d.; Graham & Marvin, 2002). In other words; a network as a flexible and adaptive structure, describes the condition of related nodes to another nodes by related connections that are intersecting and

often redundant (M Castells, 2010; Graham & Marvin, 2002).

The network as a term to describe society, seeks to evoke the logic of decentralised, proliferating connectivity. These specific organisational arrangements are, within the information age, based on information networks, powered by microelectronics- and information technologies (Manuel Castells, 2000). In Castells formulation "the network society … is made up of networks of production, power and experience, which construct a culture of virtuality in the global flows that transcends time and space". Thus within the network society, human experience of time and space is displaced in 'timeless time' and the 'space of flows' (Castells 1998:370).

Exclusive networks

When trying to understand how the 'network society' restructures the social dynamics, we first have to understand the concept of the exclusive networks. Exclusive networks arise from the 'social networks' as conceptualised by Graham Allen. The concept of the 'social network' links the way in which individuals routinely live and understand their lives, and how they are connected to others, outside their ego-centred net-

work. In other words; the exclusive network is about the 'lived experience' of social networks, what 'passes' through networks. The social networks are not bound to a specific place, since they are about the individual included or excluded from a (usually global) network.

The network is used as a term to describe the transformation we see from; 'the settled and interconnected relationships of the cohesive society' towards to 'mobile society'. In the latter people are for example less inclined to live in the surroundings and presence of the familiar. Instead we see a de-reterritorializing of communities, whereas people in social networks are potentially far more extensive than the boundaries of the street or city they live in. This process is fundamentally changing the liability to a place – as the way people connect to the daily system and to the morphology that gives meaning to a place. In other words; the sociality of networks has a totally different character than we find in the industrial age, since patterns of sociality are defined by connectedness instead of organizations of spatial boundaries.

Although it might seem that 'the network sociality' means that everyone is included, this is not necessarily the case. Social networks do

have the potential to be powerful agents for inclusion of individuals, however this is not a given – since high density social networks can also be used in order to exclude others, by high demands or unacceptable terms for example. This exclusion of individuals to social networks, are contributory factors to those individuals that become marginalized and socially isolated (Allan & Phillipson, 2003).

Capsularity – as new lifestyle

The inclusion versus the exclusion of individuals within the exclusive network, links the following notion of Capsularity – as the manifestation of isolation and exclusion.

Following, we will try make the connection between the Network society and our future Capsular lifestyle as described by de Cauter.

Capsule: The word capsule derives from the Latin word Capsula, which means a small case or box and is the diminutive of capsa, which has a broader meaning: “a container, case, box” and is a derivative of capere meaning “seise, grab, take, capture.” The term capsule is used for the literal, physical description of an item or struc-

ture and, figuratively as a metaphor.
The envelope of a capsule as an external medium, is defined by its quality – its structure, including its physical tightness and its control mechanism, its materiality and integrity, which usually defines a capsule as a single space element with either a frame or monocoque construction, and technology-related representation.

Because capsules do not necessarily have to refer to a physical concept, but can also refer to the contemporary metaphorical use of the term for extensive environments. To surpass the terminological inconsistency, within this thesis a more general term; "capsularity" will be used, which encompasses both capsules – compact living units and extensive areas of territorial capsularity as well as capsular structures, thus not losing the metaphorical potential of the term (Cauter, 2004; Šenk, n.d.)

The eight mechanism of capsularity, as described by de Cauter will be used as the foundation in order to understand how capsularity, as a consequence from the network society, evolved from the technological revolution, compressing our space-time continuum – can be described as our future lifestyle.

The eight mechanism of capsularity:

1. Technological capsularisation – our media are getting more capsular as technology moves on from the extension of the body to extensions of the mind.

2. Dual society – fear leads to capsularisation and capsularisation enhances fear.

3. Hyper individualism and suburbanisation of daily life – neo-liberal individualism plus suburbanisation of daily life equals capsularisation.

4. Heterotopian urbanism and capsular architecture – the more the non-place (a term by Marc Augé, to describe places that lack functions, other than the suspension of transition(Desmond Manderson, n.d.)) and the space of flows (M Castells, 2010) becomes the dominant spatial dynamic, the more Heterotopian urbanism and capsular architecture will flourish.

5. Spectacle hyperreality and simulation – the grimmer and uglier reality on the outside becomes the more hyperreality will dominate the inside of the capsular civilisation.

6. Rise of biopolitics – the rise of migration, legal and illegal, will mean the crude inclusion and exclusion.

7. Capsule and the network – the degree of capsularisation is directly proportional to the

growth of networks.

8. Capsule and network control – the more control is externalised, the greater the encapsulation of our environment.

Although de Cauter does not differentiate the importance nor the order of these eight mechanism, we propose three categories to cluster the eight capsular mechanism. The aim of these categories is twofold; 1) to be able to reveal the new capsular lifestyle as a consequence of the technological revolution, and 2) to reveal what the consequences of a capsular society are for the urban spatial structure and architecture of the future city.

A. Mechanism of capsularity related to techno-social dynamics (nr. 1, 3, 7 & 8)
B. Mechanism of capsularity related to other lifestyle dynamics on a broader scope (nr. 2 & 6)
C. Mechanism of capsularity related to spatial and functional dynamics the urban and architectural realm (4 & 5)
Mechanism of capsularity A and B will be subject of the first research question, whereas mechanism C will be the subject of the second research question.

Capsule architecture

The notion of the capsule arrived within the context of urbanism and architecture around 1965, issued by the English architect Peter Cook, who wrote "Conceptually the capsule serves to describe (..) an industrial design approach. It implies a deliberate – even a preferred – lifestyle. It suggest that the city might contain a defined conglomeration of such a lifestyle." (Avermaete, 2002)

Thus, within the context of this paper, we do not see capsular architecture as the concept of small plug and play housing units (sometimes even described as movable units). Instead we understand capsularity in a broader sense within the discourse of architecture and urbanism and we do not limit capsularity to only physical qualities of an object but rather as a condition of architecture and urbanism (Šenk & Translation of: Šenk, 2017).

Spatial characteristics of the urban system

Within each step of this paper, different notions and concept will be discussed, such as Splin-

tering urbanism (an umbrella term describing in which networked infrastructures are helping to define, shape and structure the very nature of cities) (Graham & Marvin, 2002), network city, generic city or cellular city. Each of these notions will be used in order to describe a consequence on our urban spatial structure of capsularisation – related to one (or more) of the four characteristics of the city namely; space and place or form and function.

Space and place

The notions of space and place have been widely discussed within literature. In some discourses the notions Space and Place have been considered as synonyms of each other.

And although in the past, the word space has had strictly geometrical meaning, within the context of this paper 'space' should be considered along the line of the notion of Henri Lefebvre 'social space'. Social space is the where the cultural life of a society takes place in. It incorporated both the social actions of individuals, yet should not be conceived as merely a frame nor a container. Social space is rather a materialisation of social being, and defines the timeframe

of social relationship (M Castells, 2010; Forty, 2000; Lefebvre, 1991).

'Places' instead should be seen as the embodiment of a space, constructed out of diverse social processes or experiences, constantly changing over time. Places are articulated moments in complex networks of social relations and understanding. They way these moments come together (or do not come together) in the space-time continuum of urban life, is what shapes the dynamic nature of that place (Hubbard & Kitchin, 2011).

Form and function

Form either refers to the shape and/ or to the idea or essence: in other words, on one hand it describes the property of things as they are known to the senses, on the other hand how they are known to the mind. Function is instead the purpose of an object to which people give meaning (Forty, 2000). But, when we talk about form and function within the context of the urban spatial structure or architecture, the notions are intensely connected to the liability of a place – how people are connected to the morphology and give a certain meaning to that (Allan & Phillipson, 2003; Bijker, Hughes, & Pinch, 1987;

Cauter, 2004).

The liability to a place will be an important conception throughout this paper, since within a period of globalisation, we increasingly see an urban form that arises from the 'generic' (Cauter, 2004; Koolhaas, 1995).

With modernisation, technological innovation and globalisation we increasingly live in a network society, whereas everyone is a state of constant transit. To facilitate these (globally connected) travelling individuals – generic functions such as such as the airports, shopping malls, fast food chains and hotel chains, are manifesting in cities all across the global (Cauter, 2004; Koolhaas, 1995). How these functions 'land' within the context of the existing locality is usually not considered. Instead the not the function nor the form of these spaces, is connected to the space around it (Koolhaas, 1995).

As a result of these generic functions that arise everywhere across the urban fabric, a generic city is increasingly appearing – a city without identity, the same everywhere that loses its characteristics and sense of locality. In a city without characteristics, without sense of localities and without history, people are doomed to regress to a Disneyfied or simulated version of

a collective memory. As Koolhaas notes, ‘in the generic city no real individual memory exist, only memories of memories’ (Koolhaas, 1995).

Thus; when we refer to ‘form’ or to the ‘function’ of the city within this paper, we mean; all relationships between the city and all life within and around it – their given meaning and connection to both the global and local scale (Forty, 2000).

individuals in a time of networks and capsularity

| individuals in a time of networks and capsularity

Technology has been a key factor in transforming societies and since technology is associated with progress and modernity, it has become an important element of the self-image of a culture¬ (Rip, Kemp, Schaeffer, & Van Lente, 1997).

With the growing integration between the human mind and machines, technology is fundamentally altering the way we live, learn, work, produce, consume, dream and how we die. Computers, information- and communication systems, genetic programming and decoding, are something like extensions and amplifiers of the human mind, since what and how we think, becomes expressed in either material or intellectual output, be it food, transportation or images (Cauter, 2004; Clarke, 1987).

On one hand, many advantages can be found as a

result from the technological revolution. The shift from traditional mass media to horizontal networks of communication has brought forth a fundamental (social) transformation whereas the dimension of virtuality is added to our reality and our communication and transportation speed is enhancing. Additionally, with the exponential advancements in technology, impressive results are to be expected in the near future such as: machines matching human intelligence, brain emulation, biological cognition, as well as more included networks and organisations (Bostrom, n.d.; M Castells, 2010; Cauter, 2012; Clarke, 1987).

How the technological revolution is shaping a new society within the future global city, will be the topic of the first part of this paper. We will start by investigating how the technological revolution had led to a 'network society' in which individuals can be described as a lonely traveller. Secondly, we will try to establish how these changes are leading to the rise of capsularisation. Finally, we will investigate what the consequences are of this new lifestyle.

Connected individuals

Ever since the wheel, technology has facilitated the reorganisation of human activities and their interactions (Clarke, 1987). Until now technological development has led to increased connectivity, both physically and virtually, in we could say, three steps; 1) the train, 2) the automobile and 3) the web (Graham & Marvin, 2002). Add the growing amount of cheap flights and we see what Sloterdijk calls 'a Hyperkinetic frenzy of total mobilisation' – exponentially increasing the individual ecological footprint (Cauter, 2012).

"Our world is more than ever caught in the logic of growth and mobility" (Cauter, 2012).

Mobility and immobility – as a product, is affecting the conditions of our perception of time and place, since we cross distances with increased speed or through a network. This process is reinforced by the development of the standardised and black-boxed infrastructural services – such as telephones, computers etc. which have become deeply integrated within our society as a symbol of power, status, connectivity and worth. As a result, our self is to increased

extent linked or divided to the world through a screen from a phone, a television, a computer or through a glass plane of a car (Crang & Graham, 2007; Hubbard & Kitchin, 2011). Individuals are increasingly locked into the isolation of the virtual and only make contact with the outside world through networks of telecommunications or other computerised systems.

> *"An isolated individual, cut loose from the sociality of urban life, separated from the world by the pixilated screen"(M Castells, 2010; Hubbard & Kitchin, 2011).*

Whilst new technologies of information and communication systems are driving connectivity and therefore globalisation, they are at the same time polarising the world into the 'connected and the isolated' (UN development Program). This process is essentially creating a global ghetto of affluent, largely metropolitan and technologically integrated users that are linked to technological systems (UNDP, 1999 in (Graham & Marvin, 2002). Inside these global ghettos of affluent, the social focus of people becomes to a greater extent individual and together with suburbanisation, the boom of private mobility, and increased migration – we evidently observe

a changed in our society. As Margaret Thatcher summarised "there is no such thing as society; there are only individuals, individuals and families" (Šenk, n.d.).

A network of speeding individuals

One of the most discussed social systems evolving from 'connected individuals' is conceptualised by Manuel Castells as Network Society (M Castells, 2010; Cauter, 2012). He states that; the information age is marked by the constitutive principles of the network as an animating force of life. In other words; the network society can be seen as the conceptualized spirit of the contemporary era (Barney, 2013).

> "A historical trend, dominant functions and processes are increasingly organised around networks. Networks constitute the social morphology of societies and the diffusion of networking logic substantially modifies the operation and outcomes in processes of production, experience, power and culture."(M Castells, 2010)

When we refer to network societies, they exhibit two intrinsic characteristics. Firstly, we can find the presence in of networked communication and information technologies as the basic infrastructure of social, political and economic practice. Secondly; the network is the basic form of reproduction and institutionalisation throughout (and between) those societies, organising relationships across a far-reaching range of political, social and economic configurations (Barney, 2013; M Castells, 2010).

Consequently, our societies are increasingly structured around a bipolar opposition between the net and the self. On one hand we see an interaction between the cultural context and social interaction with the technological systems, but at the same time it has a system of its own (M Castells, 2010). People are connected in a global network based on communication and information technology, changing sociality into a period of network sociality (Manuel Castells, 2000). This network sociality is a “form of sociality that is ephemeral but intense, informal and technological, combining work and play, is being disembodied and generic and … and emerges in the context of individualisation” (Wittel in Thrift, 2014).

In Castells formulation "the network society … is made up of networks of production, power and experience, which construct a culture of virtuality in the global flows that transcends time and space" (Castells 1998:370). Since the integration of communication and information networks have become so inclusive within our culture and personal experience they have made 'virtuality' a fundamental dimension of our reality, but more important they have changed our conception of time and space (M Castells, 2010; Cauter, 2004).

Time is defined by a sequence of perceptions and practices. People experience time in different manners, depending on how they have structured their lives. However, under capitalism, time got a whole different meaning – time became money, and time was replaced by different trajectories of imagined and assigned market values. With the availability of technology and new communication and transportation systems which encourage us to pursue the 'mirage of transcending time' – we see a growing attempt to annihilate time (M Castells, 2010; Cauter, 2004; Harari, n.d.-b). Along these lines, we find Castells notion "all major social changes are ultimately characterised by a transformation of space and time in the human experience" (M Castells, 2010).

With the growing diffusion of communication and information technologies in society, the territorial contiguity ceases to be a precondition of interactive social practices and therefor results in the death of distance (M Castells, 2010).
This starts with the claim that we do not experience the city as a continuous thing anymore but rather as ‘a series of events’ (Alison & Peter, n.d.). However, the death of distance, does not mean the end of spatial dimensions in a society. Instead with the growing diffusion of communication and information technologies in society, the territorial contiguity of the space of places, ceases to be a precondition of interactive social practices and therefor results in the ‘death of distance’. The physical proximity continues to be a meaningful source of experience and function for many people. Instead of eliminating space, the distant interactive communication and information transforms into what Castells describes as ‘the space of flows’ (Borja & Castells, 2003; M Castells, 2010; Cauter, 2004; Dehaene & De Cauter, 2008).

Made of bits and pieces of places, the space of flows are characterised by connected communication, transportation and information systems,

marked by symbols and spaces of intermediation and connections. Here we see the generic function rise, such as hotels, airports, stations – all symbolized by de-localised architecture.

In a space of flows, the functional and symbolic meaning of physical places depend on their connection to the network, rather than on a specific characteristic such as locality (Borja & Castells, 2003; M Castells, 2010).

In summary; within the network society, human experience of time and space is displaced in 'timeless time' and the 'space of flows' (Borja & Castells, 2003).

With a population that is not just bound together by the physical infrastructure, but that will begin to merge with is, we see a new urban character emerging, characterized by individualism. People as individual nodes are connected to a global network on a whole new level of call and response. This process is reinforced by the increased individual mobility which results in a contemporary space that is not bound to place anymore, but instead to a network (Borja & Castells, 2003; Manuel Castells, 2000; Cauter, 2004).

We can say that the mobility of a contemporary space is defined by flows, as a process and a spatial manifestation of power and function in society. According to Castells, postmodern architectural rhetoric of certain protagonists falls to the field of the end of all established systems of meaning and new dominant ideology: the end of history and the suppression of place in the space of flows. Although it seems that in the space of flows as described by Castells, a man does not even have to physically move, as everything comes to him as long as he is connected to the network, the exact opposite is true. The space of flows means the development of new forms of mobile jobs, and increased physical mobility between centres of interest in space (M Castells, 2010; Graham & Marvin, 2002).

Although the development of mobility and individualism are crucial for the creation of identity and freedom, they are also a threat to established traditionalism, which is committed to attachment to a place. Therefore, attachment to locus and the issue of the traditional notion of home and dwelling are called into question in the modern society of mobility. The technological development of production of social life which plated the most important role in the process to modernisation, depend on principles of

social relations, whereas greater mobility and the functioning of an individual in various constantly new, social contexts signifies the loss of certain, meaning and also of a real feeling of 'home' for example (Borja & Castells, 2003; Manuel Castells, 2000; Graham & Marvin, 2002).

Sitting travellers during a period of capsularisation

As we have seen; most media as extensions of man, enhance speed in some way; the speed of travel, commerce, communication, information, transmission etc. As de Cauter points out: 'we are sedentary nomads' (in the literal sense of sitting travellers).
High speed movement and fast flows of communication and information, brought about by the recurring appearance of technology, has forced man, with their fragile body and sensitive nervous system, to look for a sense of protection (McLuhan, 2010). This brings us to the second characteristic of technology; most, if not all media have a capsular counterpart (Cauter, 2004).

'Capsules' as described by Freud are 'membranes to protect against stimuli and shock from the

(hostile) environment'. Therefore, a capsule or an envelope, provides comfort to the body, protecting it against the external, while shaping and rearranging the patterns of human association and community. Kurokawa, Peter Cook and Archigram pointed out 'a deep tendency in our society of capsular behaviour when they declared the capsule to be the paradigm of future living' (Avermaete, 2002; Cauter, 2004).

Without regard to this statement, capsularity is not something new. As long as humans have exist we are creating protection in the shape of capsules, from clothes to caves to architecture (Cauter, 2004). This is why McLuhan describes the capsule in the broadest sense of the word: 'a capsule is a medium that has become, quite literally, a milieu, an environment.' Especially within the time of the Anthropocene, where our world is more designed than ever, we become increasingly sitting travellers – prisoners of the capsule.

We can distinguish two types of capsularity deeply rooted in technology. On one hand we can recognise the physical capsules; all means of transport beyond a certain level of speed – become capsules, that creates its own space-time device, such as the car or the train. On the

other hand, we can increasingly recognise mental capsules emerging from the growing influence of the 'virtual' on contemporary culture, that creates its own world separated from the physicality of the human body (Cauter, 2004).
As Freud and McLuhan have argued that 'modern man is under constant attack by an overload of stimuli, which induce a sort of defence mechanism' (Avermaete, 2002). 'Therefore the more physical and informational speed, the more man will need capsules' (Cauter, 2004).

Simply put we can say that fast transportation systems and micro-electronics obey a capsular logic, since a world of screens and high speed transport would be a capsular world. But with the shift from traditional mass media towards networked communication and information technologies enhanced by the rise of social networks, we have created a multiplicity of patters and stimuli, fundamentally integrated in our culture – that evoke an almost compulsive appearance of (mental) capsules. Ego, the more technology moves on from extensions of the body to extensions of the mind, the more capsular our world becomes, since we are increasingly closed in a physical and virtual space that are far from real space (Avermaete, 2002; Cauter, 2004; Šenk, n.d.).

> *'It is a profoundly modern idea that we can enter a flow, be carried along with it, and exit again effortlessly, unscathed' (Mau, 1999).*

Consequences of capsularisation

Capsularity has a major influence on our society. Some of the consequences of capsularity have been discussed, but in order to understand the full dept, a broader scope of consequences should be revealed.

Change space-time continuum

Let us start with 'what capsules do'. For those connected to the network, the concept of time and place within a the process of capsularity changes entirely. Each person is connected to the global social network, but is paradoxical removing our connection and the liability to the locality of a place. Consequently, the connected urban population is not just bound together by the physical infrastructure of a city anymore, but starts to merge with it (Barney, 2013; Mela, 2014). Capsules are essentially the nodes within the networked society, since we do not live in the network, we live instead in the

capsules that are connected to the network (Cauter, 2004).

In other words; the capsule society is a society that is centred around individuals connected to the network and constantly moving. Within this network, capsules are not just a tool but rather a medium to create an artificial environment, disconnecting an individual from the actual space – which increasingly leads to a sense of 'placelessness'. Together with fast transportation and the network, we are less and less connected to the local and more connected to the global, changing our concept of time and space. Since, within both physicals and virtual capsules you are enclosed from the actual space, the space-time continuum is changed – annihilating time and killing distance. (Cauter, 2004, 2012; Crang & Graham, 2007; Graham & Marvin, 2002).

Individualization and dualization

Within a society of these social- and exclusive networks, capsules can be described as the individual shelter in the space of flows, as a utopian exit from the conditions of forced nomadism. Although the non-linear individual might want to be flexible, they have neither the time nor the space to reflect. The capsule instead offers

the individual the possibility to withdrawal and gain control over information flows, to individually regulate partial or complete exclusion or conscious isolation, in space and outside it (M Castells, 2010; Manuel Castells, 2000; Cauter, 2004; Conte, 2015; Dehaene & De Cauter, 2008).

The question however remains if individualisation accompanied by capsularisation and integration are mutually compatible. Whereas the network promises to be the connecting factor, we instead see a massive exclusion of those not connected to the social network. Within the last years, we see a massive disinterest in the concept of society in terms of sociality or solidarity. Individualisation has been transformed into the official ideology of neo-liberalism and a growing dualization of society is visible under the pressure of neo-liberal globalisation – leading to the growth of extreme poverty and the fourth world (Cauter, 2004, 2012; Davis, n.d.).

Uncontrollable growth and mobility

With technology our planet is now more engineered, our cities more complex, and our global networks more integrated. We can say that our world is caught in 'the logic of growth and mobility'. Nobody seems to be able to escape the logic of increasing mobility, of globalisa-

tion, growth, acceleration and expanding (Cauter, 2012). As a result a more and more uncontrollable expansion of megacities in the poorest regions of the world is to be expected in the foreseeable future resulting in a phase of permanent catastrophe (Cauter, 2012; Davis, n.d.). On its turn the continuing demographic explosion and urbanisation, the logic of growth requires the ruthless exploitation of non-renewable resources. This automatically leads to the consequences that the greenhouse gas emissions and peaks of population are not behind us (Cauter, 2012).

We are changing our society, our environment and our climate to such a degree that the lessons of the past have less relevance to the planning of our future. With more pressuring issues regarding the ecological system, for many, the scenario of an implosion is the most probable one (el Gore, 2007). As we can see in two rapports that came out; Fourth assessment Report of October 2007 by the IPCC and Stern Review 2007 – significant changes are to be expected in the way men can relate themselves to others, and the way they are jointly confronted by their environment (F. E. Emery, n.d.).

Ignorance towards the outside

Take together individualization leading to a far-reaching disintegration and uncontrollable growth – and the predictions regarding the 'implosion of the polis' do not seem to be a mere nightmare. On one hand we see that the city becomes the city of the networked individual, empty and without connection to the physicality of the place they inhabit. On the other hand we see the city that is endangered by social exclusion and ecological disasters, without anyone looking outside their capsule.

"The planet of slums" an ecological and humanitarian time bomb (Davis, n.d.) .

'Someday in the distant future, a historian discussing our times will name the present era, One of the more obscene in world history, the capsular civilisation. Why? Because the level of technology and production stands out sharper than ever against the systematic, uncompromising exclusion of a major, and still increasing segment of mankind. The full awareness of this fact is shattering. 'we did not know' will be our response to the historian of the future, but he will condemn us.' (Cauter, 2004).

The implications of capsularity on the architectural and urban spatial structure

Decentralisation of the city

Fragmentation of the city

Isolation in the city

Privatisation of the city

Simulation of the city

decentralisation

| of the city

Capsularisation, as the process of shutting oneself off from the outside through convergence of factors such as individualization and technologizing, manifest itself in many and various forms in the contemporary city. Within this second part of the paper we highlight the five key-manifestations of capsularity, which are: decentralisation, fragmentation, isolation, privatisation and simulation of the city.

Decentralisation of the city

Within the network society, caused by the technological revolution our concept of space, place and time has changed. This change starts with

the extension and growth of the urban peripheries, brought about by the mass diffusion of both public and private transportation and its supportive infrastructure. The landscapes of many contemporary cities have been powerfully shaped by the standardised laying out of circulation and storage systems. In many cities virtually all urban uses are now constructed in articulation to the dominant and space hungry technological systems that surround the car. Along with plug sockets, mobile transmissions, cars connect the 'sitting traveller' to the multiplying and multiscalar territories and spaces of the ever extending global urban realm (M Castells, 2010; Clarke, 1987; Graham & Marvin, 2002; McQuire, 2008).

But besides the change in our perception of place and time derived from the increased speed of physical movement, we also have constructed a whole new concept of space and time brought about by the development of 'the virtual'. Within the network society, the urban population will not just be bound together by the physical infrastructure, but will begin to merge with it, since a person does not have to physically live within a statistically defined urban area to become "urban" (M Castells, 2010). In other words; technologies now binds people, within the city

together on a new level of call and response (Thrift, 2014).

These two changes in our space-time perception, bring us to the visible spatial manifestation of capsularity: Due to the socially networked society – the boundaries of the city are disappearing, and the old logic of centrality, concentration and density is increasingly being replaced by the logic of the network and scatter. The total permeability and accessibility of the territory of a city, are creating the possibility for an almost endless extension of the network of a city. In other words, the metropolis is no longer a place but a condition (M Castells, 2010; Cauter, 2004). Networked infrastructures f technology make the very notion of a modern city possible (Tarr and Dupuy, 1988). But the information technologies also support the restructuring of urban forms and lifestyles, based on their decentralization, fragmentating and restructuring effects of urban uses and functions, within and between cities (Graham & Marvin, 2002).

Thus the 'network' is simultaneously a territorializing and a reterritorializing force. On one hand the network tends to remove places from the place-logic of concrete localised conditions and reinsert them in the space of flows. Today howev-

er the 'network' is increasingly a reterritorializing force to the extent that the network has become the main device to maintain territorial integrity. The network constructs a parallel reality which holds together archipelagos, literally abandoning what used to be the integrated territory (Manuel Castells, 2000; Graham & Marvin, 2002; McQuire, 2008).

The growing mediation within the urban context accompanied by integrated infrastructural networks, consequently leads to a mono-centric urban metropolis, with sometimes strange urban agglomerations. The urban realm now expands far into spaces that were previously considered as countryside. Paradoxical the global trends towards urban decentralisation and the growth of the urban periphery seem further to undermine the whole idea of using networked infrastructures coherently in order to bind together the cities as a whole (Woodroffe 1994). Instead of the ordered, hierarchical and cohesive structure of the modern city, we increasingly encounter a discontinuous unarticulated urban growth that is polycentric and intensively and globally networked (Allan & Phillipson, 2003; Cauter, 2004). Globally distant places can be relationally connected with the cities, due to the network spaces (both physically and virtually). But at the

same time this erodes the notion that cities or urban conglomerations necessarily have any internal coherence. Instead we should rethink the concept of space, time and scale. As we have seen, the city becomes segmented into a multiplicity of different centred spaces, or better 'space time frames' that each have a peculiar character focussed on a specific social group, and still connected to the dynamics of global and local networks of interactions. This segmentation and specialisation, visible from a global scale to a more local scale, for example; within the public space – can be seen as the spatial reflection of the new social and cultural sphere (Graham & Marvin, 2002; Thrift, 2014; Valenzuela, Park, & Kee, 2009).

Eventually the micro-electronic age will complete the sub-urbanisation and de-urbanisation that stated in the previous time. One can live anywhere under the condition that one is connected to the network, a concept that gives birth to the 'a-geographical city' (Borja & Castells, 2003; Cauter, 2004; Davis, 2006; Graham & Marvin, 2002). Descriptions such as; 'post-rural or post urban', 'Disneyfication of the city-centre' accompanied by 'Bronxification of the periphery', or the 'implosion of the city centre' accompanied by the spread of 'endless suburbs'

– try to describe the new urban structure. These description have in common that they describe, in their own way, the enclosure or capsularization of urban areas. Like a ghetto, the tourist zone can become beyond a certain threshold, a no-go zoned for most city dwellers (Cauter, 2004, 2012; Davis, n.d.; Harvey, 2012a). As a result the city will become a complex conglomeration of oppositions; poverty versus wealth, growth versus decline, concentration versus decentralisation – something Deyan Suijc has called 'a single urban soup' (Graham & Marvin, 2002).

'Telecommunications, fast transport networks, now interconnect cities into systems of hubs and spokes, across wide distances' (Cauter, 2004). Within the age of telecommunications cities are held together by social and technical assemblages, which are linked and constructed in increasingly seamless ways. As Allen argues both space and place are constituted out of spatialised social relations, working in practice over time (Graham & Marvin, 2002). However, within the new urban structure our concept of space-time no longer corresponds to the old geographical spaces and scales. Distance is no longer the relevant variable in evaluating either connectivity or accessibility. Connectivity is added to, even imposed upon, continuity (being next to) (Offner,

2000). The multiple geographical scales now intersect in potentially highly conflicting ways within the landscapes and sociotechnical fabric of cities. This development calls into question our concept of spatial scales, such as inherited Euclidean, Cartesian and Newtonian models, as neutral or stable platforms to describe social relationships, since they are conceived as containers. Maybe the city should therefore not be allocated some natural, given coherence in ordering social life. Neither the local nor the global is pre-eminent in the construction of contemporary cities, instead cities are rather bound up in a dynamic continuum of global-local interactions (Borja & Castells, 2003; Crang & Graham, 2007; Graham & Marvin, 2002).

fragmentation of the city |

When spaces become fragmentated, we often dismiss it as the result of the motorised public within the urban realm (Thrift, 1996). But to an increased degree, transport is becoming the transit between controlled and enclosed zones. As Alison and Peter Smithson describe "mobility is not only concerned with roads but with the whole concept of a mobile fragmented, community." (Alison & Peter, n.d.)

Mobility is not a new phenomenon, but is changing the conditions of space. Mobility in the city has developed fast in, we could say, three steps; 1) the train, 2) the automobile and 3) the web. Mobility and immobility are a pair, a product which is directly affecting spaces and our perception of place and space. With suburbanisation, the boom of private mobility, and increased migration, our city space are increasingly conceived as obstructions to the flow of traffic (Berman, 1982). Echoing Haussmann, Moses imagined 'a utopian new city of unified flows

whose lifeblood was the automobile'. However, the fragmentating reality as a result of motorised mobility that support the development of the partitioning and fragmentation of the urban space and social dynamics, is often ignored (Clarke, 1987; Graham & Marvin, 2002).

The growth and extension of the urban realm can be linked with the mass diffusion of both public and private mobility, which is penetrating virtually everywhere within the urban context. The car and its flexibility is however coerced in a sense that the extended, polycentric cities that automobility supports entail an ever-increasing spatial separation of uses (Urry, 1999). This in its turn necessitates more and more use of the car to bring the distanced and fragmented time-space 'bundles' of the metropolis into some manageable articulation (Cauter, 2004; Graham & Marvin, 2002).

This cellular or capsular reality of inner-directed spaces is sustained by a network of connections, equality disconnected from it as much as possible – connections that characteristically enough, form the conditions for existence of the reality of the capsules. After all, it is the collection of traffic and transport movements that makes this archipelagos of silent spaces

necessary and possible (Cauter, 2004).

Thus, the process of capsularity is ultimately linked with the construction of a whole system of supportive infrastructure. In many cities virtually all urban uses are constructed in articulation to the dominant and space hungry technological systems that surround the car (Gandy, 1998). The car works to adapts the 'traveller' to the manifold of territories and spaces of the extending urban realm (Cauter, 2004; Graham & Marvin, 2002). As a result, the landscapes of many contemporary cities are shaped by the standardised layout of circulation and storage systems, such as multilane highways, tunnels and elevated roads cutting through the urban fabric in order to 'integrate' urban regions (Gandy, 1998).

In the process of reconfiguration of the city in service of mobility, we can argue that the modern binary metropolis collapses into a carpet of fragmented communities, zones and spaces, materialized in centres that differ in terms of hierarchy and meaning as specialised monocultures and various programs conglomerate. Each fragment of the city is an 'enclave in its own right with its own boundaries and edge condition, as inward-looking islands or enclaves, surrounded by

the physical highways, connections and services' (Dehaene & De Cauter, 2008; Graham & Marvin, 2002). As a result we are no longer experiencing the city as a continuous entity but rather as a series of events – and will eventually result in a feeling of placelessness (Alison & Peter, n.d.)

Hence, the physical infrastructure that used to bind cities together, turned into a networked infrastructure is now fragmentating the city. As a result the physical fabric of the city becomes fragmented into clusters that are instead virtually globally connected (Borja & Castells, 2003; Graham & Marvin, 2002; Ishida, Isbister, & Kyoto Meeting on Digital Cities (1999), 2000).

"By tearing a place out of space, and creating time-related situations, buildings place an individual in time, not abstract time, but time shared by a community." (Graham & Marvin, 2002) Mark Auge (1995) terms such sides as non-places – sites that are whole constructed and controlled to support the mobility of global commodities laid down to construct super modern spaces of flows. Individuals have no desire to spend time within the area of transition itself, which exists merely as territory to be crossed. When not moving through such spaces individuals are held

in suspension within them, waiting until they are able to traverse or exit them. These spaces, that seem to lack functions other than suspension and transition of individuals that move through these space in order to travel from one place to another, arise everywhere in the city, and again will increase the fragmentation of the city (Graham & Marvin, 2002; Mulligan, 2013).

… homogenising networks, increasingly become punctured and ruptured; that are unbundles and splintered, ushering in new geopolitical logics based on the highly uneven warping of time and space in highly localised and valued places. The city is divided into as many fragments as the networks which traverse it (Dematteis, 1988).

isolation in

| the city

'Traffic circulation is the organisation of universal isolation' (Lotomyi and Vaneigem, 1961).

As we have seen, mobility increasingly leads to fragmentation of the urban realm and a feeling of placelessness. The network city reshapes the city, it intensifies the connections between the most valued user or place, while it simultaneously weakens the connections with the least valued user or place. This creates zones and enclaves for users provided with specialised infrastructure services. In other words; fragmentation inevitable results in isolated urban and architectural enclaves, searching to disguise their own locality (Cauter, 2004).

In the fragmented landscape of the urban realm buildings are no longer defined by a system of walls. Instead buildings are increasingly considered as 'lone objects' – one element within the rhythmic succession of space and matter, voids and solids (Neumeyer, 1990).

As a result, the expanding cities emerge as archipelagos of economic, social and cultural enclaves linked to networks beyond the city, supporting intense flows of exchange (M Castells, 2010; Graham & Marvin, 2002). Therefore we can say that the establishment of lone objects, which usually resemble large urban enclaves, reveal the new paradigm of occupation and control of urban spaces with the network society (Ezechieli, 1998).

The large urban enclaves whose evident purpose is the protection of a specific territorial space, appeal to us, because they are grounded on the exclusion of an outside world that is considered as unbounded, adverse and conflicted (Pope, 1996). Enclaves widen the gap between inside and outside. Badcock calls this process the 'spatial partitioned and compartmentalised cities' (Graham & Marvin, 2002). And although we use the terms 'inside and outside', in the world of capsules and enclaves, the surrounding (for example a garden or atrium) is in many cases also to be felt as an inside. This concept is to be understood on the enormous scale of the urban totality just as much as on that of the building (Jameson, 1992).

Each enclave creates an artificial but self-suf-

ficient and all-embracing experience, both contained and containing (Rowan More). Examples of these enclaves are shopping malls, airports, massive residential structures or hybrids like the themed retail park (all generic) (Graham & Marvin, 2002; Koolhaas, 1995). Supported by air-conditioning or other technologies, each enclave creates a whole climate of its own. Alison and Peter Smithson claim that; 'Architects should create a building that a group large enough to be life-style sustaining within its own boundaries and strong enough to retain its own character as a place' (Alison & Peter, n.d.).

But with the creation of enclaves, the space around each enclave becomes empty, without meaning, and without character as a place. On one hand we see zones such as a shopping mall or the airport, intensely connected to the global, whilst at the same time they are constructed in such as way (with security cameras, and walls) that they are disconnected their relationship with the local urban fabric. With the creation of 'public private spaces' around each enclave, the zones are inclosing even the outside space, turning against the public space of the environment (Graham & Marvin, 2002). In other words; the future city resembles an empty and abandoned city; in which the public space,

is being abandoned and the urban setting of the city will eventually consists of enclosed capsular (self-sustaining) areas, increasingly sealed against the real and outside (Avermaete, 2002).

So far we have discussed the 'isolation' of buildings within the urban realm. However, we can recognise another form of isolation, again as a consequence of the network and mobility. This starts with the notion of Castells, who states that whereas the metropolis originally was the scene in which the masses appeared, the city increasingly resembles a city in which the masses are turned into individuals (M Castells, 2010; Cauter, 2004). Capsules as mentioned in the first part of the research can be seen as a shelter in the space of flows, as a utopian exit from the conditions of forced nomadism. The combination of the effects of physical and non-physical mobility allows the capsule to completely disconnect, to be the off world of hermits, with the voluntary possibility for an individual to connect to the network with technological prosthetics (Šenk, n.d.).

Without any relation to its environment the capsule is an individual unit, isolated and secluded. It is an architecture that functions like a space capsule, minimises communication with the

outside and forms an isolated environment of its own. The urban structure changes into capsules, as stations on planet earth. Gated communities, similarly isolated and controlled architectural ensembles. Within a capsular environment, the spatial order of the archipelago becomes, something like a Russian doll: archipelagos inside a bigger archipelagos. These capsules hold the people in isolation, blind to the outside of their capsules (Avermaete, 2002; Cauter, 2004; Graham & Marvin, 2002; Šenk, n.d.).

In other words; the concept of capsularisation radicalised the functional relation between the privacy of the interior and the communicative character of the social space. Consequently, we see a redistribution of risks involved in the process of capsularisation that may exacerbate not only the process of spatial segregation but also social polarisation. Think of the risks involved in the entrenchment of suspect populations that are in outcast, under-protected and disordered ghettos versus the innocent populations in the over protected and ordered consumerist enclaves (Mclaughlin and Muncie, 1999). Although a capsule should be an unbuilding, making it the subject of contemplation on the possibility of dwelling for example and is understood as an open-system, this position bears risk. If

it is left to technological and media manipulations, the capsule environment becomes another even more subtle control mechanism. According to Guy Debord, “isolation underpins technology, and technology isolates in its turn; all goods proposed by the spectacular system, from cars to television, also serve as weapons for that system, as it strives to reinforce the isolation of ‘the lonely crowd’ (Graham & Marvin, 2002).

privatisation of | the city

We have seen a clear impact of capsularisation within the city, as a result of mobility and its related commodities and infrastructures. But besides the fragmentating and isolating effects on the city, we can see another alarming affect of capsularisation, which derives from a shift in control and power within the city. For those that can access and benefit from technologies and telecommunication networks, fast transportation networks – the networked, fragmentated and isolated, affluent urban spaces will be connected and within reach. But the physically separation caused by roads and cars from gated communities to enclosed shopping malls do reinforce the already existing segregation by further reducing any unplanned encounters (Davis, n.d.; Graham & Marvin, 2002).

Whereas the city is turned inwards, the 'public space' around large capsular urban enclaves, have supplanted the traditional public streets and supersede any spontaneity. Publicness, is in-

creasingly partitioned into functional compartments of privatised scenes. This privatisation of architectural public scenes, is reinforced with complementary electronical spaces that are heavily guarded such as pay-access databases or subscription services. Thus, the network city evolves into the concentration of new networked infrastructures into the valued peripheries of cities, backed up by private capital, leading to the collapse of the coherence of the old city (Cauter, 2004; Davis, 2006).

In many cases the public space is under the direct or indirect control of a corporate, they are a selective gaze focused on those deemed to be 'out of place' and 'out of time' – a potential for seclusion and crime (Cauter, 2004; Davis, n.d.). In other words; network configuration, electronic access control, police security and institutional reinforcement, are increasingly seen to be working in parallel to support the sociotechnical partitioning of the city (Harvey, 2012a).

But the crusade to secure the city will destroy the democracy of the urban space (Cauter, 2012). Within the contemporary cities, groups of included versus groups of excluded based on their intensive use of information technology and oth-

er social networks, are emerging. The included we find in cocooned, secured and fortified urban enclosures with global access to personal and corporate networks. Meanwhile, a short distance away, in the interstitial urban zones, we can find the excluded, often 'offline places' (Auguri and graham 1997). Trapped within these often forgotten places the conception of 'time and space' as constraints on life remain profoundly real (say because of welfare or the withdrawal of public transport). Thus on one hand we find cells constructed for the socio affluent and corporate users, while on the other hand, we find cells separated and partitioned from the surrounding of intensifying marginality – spaces where even basic connections are increasingly problematic (Cauter, 2012; Davis, 2006; Harari, n.d.-a).

Thus, we increasingly live in 'fortress cities', which are brutally divided into 'fortified cells' of affluence and 'places of terror'. The information and communication technology joined into the urban fragmentating process, and backed up by the capsular effect of cars, malls and airports, increasingly provide with an illusory escape into a private world (Davis, n.d.; Graham & Marvin, 2002). Consequently, the networked city is increasingly surround by the decrepit

of declining urban cores, where crime, seclusion and alienation concentrate. (Davis, n.d., 2006; Harari, n.d.-b). ‘Images of prisonlike inner cities, high-tech police death squads, sentient skyscrapers, and guerrilla warfare in the streets are not fantasies anymore, but merely extrapolations from the present. These dark dystopian visions show how much the obsession with security has supplanted hopes for urban reform and social integration’ (Davis, 2006).

‘If the growing divide between those who have and have not and those who are included and excluded is intensified through the use of new technology, there is a real danger that our cities will come to resemble the dystopian vision so beloved by futuristic film makers’ (Cauter, 2004; Graham & Marvin, 2002; Harvey, 2012a).

simulation of

| the city

‘The capsule is cyborg architecture. Man, machine and space build a new organic body which transcends confrontation… it creates an environment in itself… A device which has become a living space in itself, in the sense that man cannot hope to live elsewhere, is a capsule. And signs of such development are beginning to appear around us.’ (Kurokawa, K., 1969)

Capsules functions like a space capsule, that create an artificial ambient, and forms an isolated environment of its own. Take for example the television as mental screen, presenting a virtualised or even simulated reality. Debord calls this the ‘complete separation between daily life and representation’. But also the post-modern atrium is not an opening in a building anymore, but can be seen as a simulation, sealed against the outside (Cauter, 2004). In other words; we can call the capsule a ‘simulation machine’, excluding the hardship of the hostile environment. But the more the city is presented as a turbu-

lent and dangerous place, the more our postmodern world will be attracted to a virtual space, reinforcing capsularity. Operating like vacuum cleaner, the capsule sucks up everyday life, where fear and fantasy construct artificial biospheres, the everyday is abolished. This isolation leads to alienation, which is manifested in an individual's relish of contemplation instead of in life, which results in the automation of the "individual and a false desire of the media-enforced spectacle" (Debord, G, 2001).

So far we have discussed simulation from the rise of the 'virtual'. However we see two other processes that enhance 'simulation' of the urban realm; firstly the transportation systems and secondly the new masses of the city.

A good example of transportation systems that increase 'simulation' are; roads. With the search for maximum speed, roads have been turned into tunnels. But this tunnelling effect is not only confined to roads, but is instead present in all modes of transportation today. Tunnelling isolates us from reality and cuts us off from the intelligible world (Andreu 1998). And the more the space of flows and the non-spaces, loses their architectural drama and connection to the localities, the more the remaining space

of place must be dramatized in order to affirm its identity as a place to be and a place to stay (M Castells, 2010; Graham & Marvin, 2002).

The latter brings us to a second process that is reinforcing the simulation and dramatization of the urban realm. As we have stated before we see that the public space is being abandoned. This however does not mean the city becomes empty – instead we see a restaging of the public space where a new mass appear (Cauter, 2004).

With fast global transportation systems, the city centres, originally exclusively meant for the inhabitant of that city, are now being flooded with new masses of tourists, day-trippers, strolling around the city. For these global travellers, abandoned or underappreciated urban areas become revaluated and are turned into gentrified, privatizes and commercialised places. Think of Venice, that is flooded with visitors, or the 'up and coming, trendy' neighbourhoods such as Brixton in London. Within these tourists areas the city shows a specific image of itself, a theatrical representation of spectacle and promenade (Avermaete, 2002; Graham & Marvin, 2002). Consequently, whereas abandoned urban areas become transformed into scenery of consumption, for the global tourists, the more we see simula-

tion and over-dramatization appear (M Castells, 2010). More and more, we see the city as a spectacle, a hyperreality but in the end essentially generic (Baudrillars).

conclusions

Socio-technological dynamics

Consequences for the social dynamics in the city

Consequences for the urban spatial structure and architectural form and function

| conclusions

What does our (predicted) future lifestyle within the future Global city reveal? Or / What does the social dynamics, changed by the technological revolution – reveal within the future global city?

We have seen that technology is a part of growth, acceleration and the expansion of the city. Our planet is more engineered, our cities more complex, and our global networks more integrated. We are changing our society, our environment and our climate to such a degree that we should rethink the way we relate ourselves towards our environment and to each other.

In the first part of the research we have tried to reveal how the technological revolution has influenced the social dynamics within the city, while within the second part we have tried to understand how technological change will impact the development of the future city. But let us start with the technological revolution.

Socio-technological dynamics

Technology has facilitated us with increased speed and a more inclusive social network ever seen. Users of these exclusive and social networks, supported by communication and information technologies, become singular nodes, isolated but connected through screens and the virtual world (Allan & Phillipson, 2003; Cauter, 2004; Dehaene & De Cauter, 2008).

But the networked society as the paradigm for our society operates both in a connecting but also in a disconnecting fashion in two ways. Firstly; it connects individuals with the global social networks, yet it disconnects the individual from the liability and locality of the place they inhabit. Secondly; the exclusive social networks open possibilities for integration, yet at the same time it results in a society of exclusion and seclusion for those unconnected to the network (Allan & Phillipson, 2003; Cauter, 2012). The connectivity and dis-connectivity, links the notion of capsularity – as the manifestation of isolation and exclusion.

With the shift from traditional mass media towards networked communication and information technologies enhanced by the rise of social net-

works, we have created a multiplicity of patters and stimuli, fundamentally integrated in our culture – that evoke an almost compulsive appearance of capsules. On one hand capsules can be seen as an individual shelter, as a utopian exit from the conditions of forced nomadism, on the other hand the social focus of people is becoming increasingly inwards whereas people are withdraw into capsules, both in the real and in the virtual, blind to the outside world (Avermaete, 2002; Cauter, 2004; Graham & Marvin, 2002).

Consequences for the social dynamics in the city
For those connected to the network, the concept and liability of time and place changes entirely. The connected urban population is not just bound together by the physical infrastructure of a city anymore, but starts to merge with it. Capsules are essentially the nodes within the exclusive network society, since we do not live in the network, we live instead in the capsules that are connected to the social network (Barney, 2013; M Castells, 2010; Cauter, 2004).

The network is in a sense very unevenly changing the interactions between the city. People are connected though a multiplicity of networks which extents and wraps the concept of time and

space beyond the concept of the 'here and now', since a person can be everywhere at any time. Both physicals and virtual capsules means you are enclosed from the actual space you are in, changing the space-time continuum, annihilating time, and killing distance (Allan & Phillipson, 2003; M Castells, 2010).

Thus; capsules should be seen not just as a tool, but rather as a medium to create an artificial environment, which connects to the network, but paradoxical disconnects us from the locality and liability of a place. Together with fast transportation and the network, we are less and less connected to the local and more connected to the global networks, changing our concept of time and space – increasingly enhancing the feeling of 'placelessness' (M Castells, 2010; Cauter, 2004; Šenk, n.d.).

Blind to the outside world, the capsular civilisation is one of individualization, exclusion and dualization. In summary: the capsularisation of society, is the inside shutting itself off from the outside through a convergence of factors. Under pressure of the dualization of our society, we see a sort of internal migration: abandonment of the outside space and seclusion, often out of necessity, in protected capsule

(Cauter, 2004, 2012).
The capsular society can be seen as a dystopia, but at the same time a mirror of the technocratic world we increasingly inhabit.

Consequences for the urban spatial structure and architectural form and function

This brings us to the five urban spatial consequences or characteristics of capsularisation; decentralisation, fragmentation, isolation, privatisation and simulation. Together these characteristics will increasingly lead to the encapsulation of our urban realm, in which the enclosed systems do not see what is happening outside their safe environment, their protected 'zones'. Instead, each capsule is working as individual, unrelated blind to the outside of each individual system. The spatial order of these archipelago becomes, something like a Russian doll: archipelagos inside a bigger archipelagos, holding people in isolation, blind to the outside of their capsules (Barney, 2013; Borja & Castells, 2003; M Castells, 2010; Cauter, 2004). As we have seen, capsularity manifest itself on all scales – from the global, metropolitan scale to the urban and architecture scale. And although each city has its own dynamics bound to

a specific location and culture, we can say that the found manifestations of capsularity are essentially generic.

Metropolitan

Let us start with the scale of the metropolitan. With the network and capsularization we can say that speaking about the 'city' is getting harder. The city is increasingly extended and we see a major growth of the urban peripheries brought about by the physical and virtual network systems. The metropolitan region is not just a spatial form of unprecedented size in terms of concentration of population and activities anymore. Instead the borders of the cities are merging and the bonds that have always been held by buildings, neighbourhoods and cities are eliminated by technological bonds, connecting the city to the global networks. This process goes hand in hand with the appearance of 'generic' functions such as the airports, shopping malls and fast food chains, supporting the global traveller (Cauter, 2004; Komninos, 2011; Koolhaas, 1995).

In other words; globally distant places can be relationally connected with the cities, due to

the network spaces (both physically and virtually). But at the same time this erodes the notion that cities necessarily have any internal coherence, or a feeling of liability/locality. As a result neither the local nor the global is pre-eminent in the construction of contemporary cities, instead cities are rather bound up in a dynamic continuum of global-local interactions (Borja & Castells, 2003; M Castells, 2010; Conte, 2015).

Urban realm

When we zoom in towards the urban realm, we see as a result from the network, that the city is increasingly segmented into a multiplicity of different centred spaces, or better 'space time frames'. This process arises from the conception that one can live anywhere under the condition that one is connected to the network, a concept that gives birth to the 'a-geographical city'. As a result each place gets a peculiar character focussed on a specific social group, connected to both physical and virtual networks (Barney, 2013; Borja & Castells, 2003; Uitto, 1998).

The end result of the urban realm will look like a post rural zone. Whereas the local masses

disappeared into their own capsules, connected by the network. Cities increasingly resemble a multiplicity of entities with their own sociality, their own right with something in mind. Each node is able to become part of outstincts arising out of a dynamic dialogue with the myriad parts of their ecology, simulated, staged and dramatized (Cauter, 2004; Eckardt, 2017; Harvey, 2012a).

The physical infrastructure that used to bind cities together, turned into a networked infrastructure is now fragmentating the city. The urban realm is not a local and homogenous whole anymore, but rather a multiplicity of strongholds, with fast transport systems as the transit between these enclosed zones of strongholds. 'The street' as a concept of public space, within a capsular world resembles exclusively a transit zone. The leftover public space is being abandoned, sealed-off by privatization, or replaced by simulated publicness (Cauter, 2004; Graham & Marvin, 2002; Hornidge & Kurfürst, 2011).

This trend will continually define our cities: the world as an archipelago of capsules and enclaves in a hostile outside space, losing any sense of locality of attachment to a place (Allan & Phillipson, 2003; Cauter, 2004).

Architecture

We have seen that the urban structure is increasingly fragmentated, by the networked infrastructures in the city, creating lone objects within the urban realm. As a result we live increasingly in cities divided into cells or enclaves. Within this fragmentated city, the architectural form resembles one of a 'fortresses', disconnected from the outside world. And although we can say that architecture is in one sense always a capsule, enclosing people – within the capsular society, architecture it is evolving into an artificial environment, whereas man is a voluntary prisoner (Cauter, 2004, 2012).

Architecture within the period of capsularity resembles a wall – a barrier of the fortress, producing segregation. The capsules minimize contact with the outside, creating their own space-time milieu as an artificial environment, searching for their own locality. The capsular enclaves, are grounded on the exclusion of the outside world, widen the gap between the inside and the outside and are both contained and containing. The capsule is the illusion of the normality in a chaos, the idea of a centre, the place to be in the place of flows. The faster we move through time and the more virtual our life

will become, the more capsular architecture will prevail. In a way, we could state that capsular architecture searches for its own locality, exclude the feared outside environment (M Castells, 2010; Cauter, 2004; Conte, 2015; Hubbard & Kitchin, 2011).

The enclaves try to facilitate individuals with an artificial environment, the feeling of safeness or inclusion. In order to facilitate this, the enclaves are increasingly becoming generic, staged and over dramatized. Good examples of such enclaves are the airport or the shopping mall. These functions appear as a result from globalisation everywhere in the city. However these functions 'land', without any regards to the existing space around them – further increasing the isolation of building structures, further removing the feeling of locality and liability of a 'place' within the city (Allan & Phillipson, 2003; Barney, 2013; Cauter, 2012).

Summary

Within the predictions we have found, we can see a serious threat derived from this future society that is inward looking and enclosed within capsules. The retrenchment, the control, the exclusion being reinforced within our society by all kind of factors, such as an increasing

reliance on technology, dualization, migration, suburbanisation, individualisation, etc. etc., are threatening to lead towards a capsular civilisation.

A civilisation where the image of the future habitat is perhaps that of an entropic universe; islands of order and increasing complexity in an ocean of chaos. Entropic in the sense of loss of order and structure as a natural tendency and the most probable end of any (complex) system. The coming age can be defined as an age of disintegration, which is expanding. Gated communities are the urban and architectural models that give shape to this order: an inside world of privatised publicness versus a chaotic, unsafe and uncontrollable outside world.

We are reaching the limits of our ecosystem, with an unstoppable increase of human population, and the logic and inevitable growth and acceleration that drives our world, leading to possibly a permanent catastrophes, both on social and ecological scale (Barney, 2013; Cauter, 2004, 2012).

appendix

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