



Inaugural Lecture

# The Power of Imagination

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**Utrecht University**

## **The Power of Imagination**

Inaugural Lecture on the Occasion of the Acceptance of the Distinguished

Professorship in 'Urban Futures' at the Faculty of Geosciences, Utrecht University,

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‘Without a long running start in history, we shall not have the momentum needed, in our own consciousness, to take a sufficiently bold leap into the future’.

Lewis Mumford, *The City in History*, 1961.

*Mijnheer de Rector Magnificus, Mijnheer de Decaan, ladies and gentlemen,*

In my hand I am holding a brick. The sort of material that cities are made of. Hard materials like stone, steel, asphalt and cement, alongside softer materials such as clay, mud, turf and wood. The first urban societies emerged about 6,000 years ago, between the Euphrates and Tigris rivers in Mesopotamia. These cities were built of clay and mud. They included Uruk, Ur, Eridu and, slightly later, Babylon.

Historically, cities often came into being at geographical interchanges, places where rivers merged or were passable, or at the foot of a mountain pass. Accordingly, cities were always places of encounters and confrontations: of languages, music, religion, of customs and habits. Confrontation meant that cities were also places where new things were always being created. Cities therefore also became the cradle of academia, whether it be alchemy, astronomy, algebra or law.

Through the ages, people have made their way to the city looking to improve their lives. They have been driven by necessity – to escape from hunger or thirst – or by ambition, because innovation has always been concentrated in the city. This applied to Babylon in 3000 BC, just as it applies to Accra, Kumasi, Shanghai, Milan, Rotterdam or Utrecht today.

Cities not only embody materiality, they also embody culture. Those arriving in a city find themselves in another culture. Urban culture is based on the division of roles, and on exchange: ‘you do this, I’ll do that’. And that is why cities require collaboration. It is not surprising that writing has its origins in cities, and that cities are the birthplace of government and law.

This urban culture revolves around the relationship with dynamism. Dynamism means friction, and friction will sometimes result in creativity, at other times in animosity. Sociologists like Georg Simmel, Louis Wirth and Erving Goffman have demonstrated how

city-dwellers develop certain strategies regarding their relationship with dynamism and diversity. Over the years, this urban sociology has resulted in a normative theory which advocates 'urbanity' as a way of dealing with what is sometimes called the city's 'double-faced head'. Urbanism is an ethic for a vital urban society, always looking to balance the threat and opportunity inherent in diversity.

However, cities have always been vulnerable. The cities in Mesopotamia were deserted when the river basins shifted and sufficient water was no longer available. Cities that are not able to properly manage their water supply will be irretrievably lost, no matter how creative or economically successful they once were or currently are. The material and biophysical aspects of the city (the materials and flows of water, waste and air) and the cultural and social order (how we cohabit) belong together.

My field of study at this university is called Urban Futures, in the plural. My aim is to research *potential* urban futures. In doing so, I would like to link the two dimensions of the city I just mentioned: its biophysical elements and its urbanity as a form of social order.

## **The challenge**

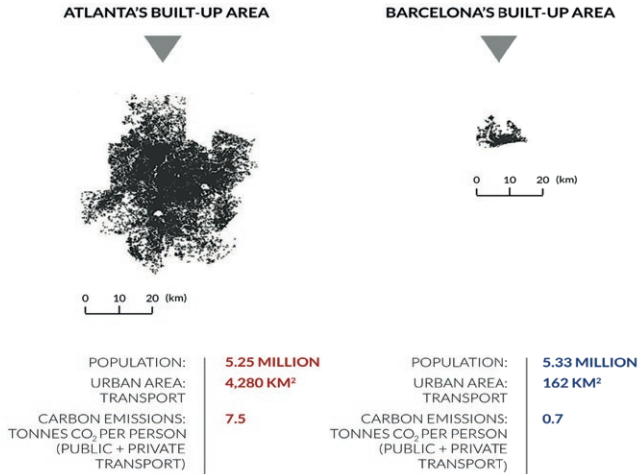
My work will be grounded in what I view as the challenge of the century. In the decades ahead, we need to curb global warming. Scientists have demonstrated that emissions of greenhouse gases such as CO<sub>2</sub> and methane – for which humans are to blame – are a major contributory factor behind the rapid rate of global warming we are currently witnessing.<sup>1</sup> If we take these scientific insights as our point of departure, we – the human race – are facing the challenge of radically reducing these emissions within just a few decades. The Paris Climate Agreement of 2015 outlines what has already been achieved in this regard. This is, incidentally, by no means sufficient to realise the proposed objective of limiting further warming to 2, or even 1.5 degrees Celsius.<sup>2</sup>

This climate challenge is directly linked to the city. In biophysical terms, climate change and increasingly scarcer resources such as water, ores and nutrients demand an alternative perspective of the city and urbanisation. The brick embodies the challenge. Firing clay produces CO<sub>2</sub>. Even larger amounts of CO<sub>2</sub> are released when producing steel, cement and asphalt. Together with Mark Swilling, I head the research conducted by the United Nations International Resource Panel into resource requirements and the environmental effects of urbanisation come 2050. Based on UNDESA statistics, researchers have calculated that more than 40% of the material urbanisation of 2050 *still needs to be built*.<sup>3</sup>

If we continue to use the current approach to building cities, we will not be able to limit the increase in global warming to two degrees Celsius. Urbanisation is also impacting ecological balances in other areas. In the last 20 years, Singapore has expanded by 20%. To achieve this growth, it imported 517 million tonnes of sand, primarily from Indonesia – where, as a result, entire islands have been levelled.<sup>4</sup> Between 2010 and 2013, China got through as much cement as the United States used in the entire 20th century.<sup>5</sup> The current way of building cities is ecologically untenable, both with regards to construction and to the consequences of the socio-spatial organisation of cities.

In socio-cultural terms, we need to think about how we can develop our cities in such a way that they retain and strengthen all the good that cities have brought us. At the UN, they talk about ‘socially inclusive’ cities. This is one of the Sustainable Development Goals (SDGs) which have been adopted worldwide. It is also a major challenge. In the past, I have argued that cities increasingly develop themselves into an ‘archipelago of enclaves’.<sup>6</sup> In the Netherlands, this is exhibited in a socio-spatial arrangement in neighbourhoods, and is also manifested increasingly emphatically in a division in education. Elsewhere in the world, this archipelago development can be seen in private gated communities; vertically in high-rise buildings in New York, London or Asia, or horizontally with urban sprawl in Africa, the US and Australia. This ‘enclavism’ undermines the city’s potential as a societal form that gives people the opportunity to make the most of their talents, as a place where diversity and social mobility result in economic prosperity, where change can be experienced and continually responded to.

The biophysical and socio-cultural aspects obviously interlock: sprawling cities have a much larger CO<sub>2</sub> footprint than cities that are more integrally and compactly developed. This is aptly illustrated by the renowned comparison of Atlanta and Barcelona, two cities with slightly more than 5 million residents. In Atlanta, the 5 million people are spread over an area of 4,200 km<sup>2</sup>; while Barcelona’s built-up area is only 162 km<sup>2</sup>. The transport of a resident of Atlanta accounts for more than 10 times as much CO<sub>2</sub> as of a resident of Barcelona.



*Density and CO<sub>2</sub> emissions of transport of Atlanta and Barcelona compared.<sup>7</sup>*

## The city as a monster

The city has emerged from the hope that people have of it being a place where they can improve their lives. City air is liberating. However, the city is also a gluttonous monster. A monster that guzzles incredible amounts of fuel, that burps and breaks wind, ruins landscapes, takes away its residents' breath and often disappoints people, with all their dreams and desires. The city is at once our most impressive act of cultural creation and a monster threatening to devour us. Can we tame this monster and channel its energy? Oddly enough, I think we can. This is under the assumption that we 'think big': that we look further back than is customary, and further ahead, and with a little more pluck. It is under the assumption that we use a city's complexity as a point of departure. And under the assumption that we dare to think outside of the existing frameworks.

Thinking outside of the existing frameworks is precisely an area in which we are currently only having limited success. We look to the future with eyes tarnished by the present. And from the present, everything seems huge and insurmountable. There are two ways of changing our perspective of the present. The first is to think big through the history of the future. Lewis Mumford wrote: 'Without a long running start in history, we shall not have



the momentum needed, in our own consciousness, to take a sufficiently bold leap into the future'.<sup>8</sup> If you look back, you realise what has been achieved in the past. Consider the 'kingdom of slums', as Auke van der Woud characterises the 19th-century city.<sup>9</sup> The major sanitation works in the 19th century – the installation of sewers, waterworks and waste processing – ripped cities like Vienna, London and Paris apart. It was certainly not a trifling task. And what about the 20th century, when we thought that cities were the future, with a car for everyone? We altered the entire infrastructure of the city and region and a large part of our housing stock to suit this vision.

**The second option** is to consciously bring the future into the present. This is, of course, no easy task. You can reflect on the past, but a fundamental aspect of the future is that it is unknowable. In this sense, it is impossible to study the future. But what we can examine is how the future appears in the present. In other words, how the future sometimes determines what we do in the present. This enables empirical examination of the future while creating the prospect of fresh perspectives on how to proceed.

## **Fictional expectations**

Images of the future are extremely influential, a matter that I believe is insufficiently recognised. A clear majority of social scientists use the past to try to explain the present (through concepts such as 'path dependency', for example), or look at actions in the present and explain developments based on an analysis of the interaction and relative powers of actors. In *Imagined Futures – Fictional Expectations and Capitalist Dynamics*, German sociologist Jens Beckert demonstrates how it is in fact the future that plays a role in the present. His primary concept is of 'fictional expectations' which enable actors to make decisions in situations of extreme uncertainty.<sup>10</sup> This is how companies develop new business strategies: using certain 'fictional expectations'.

In effect, imagining is a social practice: we form communities based on sharing a future. Shared imaginaries help us deal with insecurity. I would like to incorporate this way of looking to the future of the city in my research into urban futures. The concept of fictional expectations enables an empirical examination of the future. Which fictional expectations can we find in the present? Which fictional expectations are dominant? What gives the expectations their power and influence? How do concrete imaginaries spread? In short, how does the power of imagination work? A couple of years ago, I worked with colleagues from PBL (the Netherlands Environmental Assessment Agency) to bring the power of the then burgeoning concept of smart cities up for discussion.<sup>11</sup> That vision was – and is –

extremely influential, but the critical discussion of the shared future implicit in the notion lacked association with the political debate.

## **The Urban Futures Studio**

American architect Louis Kahn is acclaimed for his pleasing aphorism about a brick: 'Even a brick wants to be something. A brick wants to be something. It aspires.' Kahn appealed to the designer's calling. Bricks have been used to build cathedrals, temples, libraries, schools and bridges. 'A brick wants to be something'. We now need to mobilise this creativity, this power of imagination, to find alternatives for the unsustainable city. In the coming years, I would like to delve deeper into this subject by more actively forging a link with the design disciplines. To do so requires a new type of research.

My arrival at Utrecht University paved the way for the foundation of the Urban Futures Studio, for which I am very grateful to the University, the Ministry of Infrastructure and the Environment, and the Ministry of the Interior. The Studio is an independent unit focused on testing and implementing research innovation. Through its work, the Studio aims to connect various disciplines. I would like to explain our approach. Allow me to start by introducing the primary concepts.

In the Studio, we research urban imaginaries first and foremost using Sheila Jasanoff's definition of the concept of 'imaginaries' as 'collectively held and performed visions of desirable futures'.<sup>12</sup> Research into imaginaries attempts to examine how the future manifests itself in the present, knowing, naturally, that these imaginaries are also deliberately created for political ends. A 'politics of the imagination' is always present. Indeed, controlling people's imagination is perhaps the most extreme form of exercising power.

Take neo-liberalism, for example. In the 1980s of Reagan and Thatcher, neo-liberalism experienced its heyday. It was supported by Margaret Thatcher's aphorism 'There is no alternative'. The 'market', a fictional abstraction, became the solution for nearly all major social issues. Looking back, it is painful to see the extent to which that view of the future has dominated our imagination in recent decades. The ecological consequences of this dominant ideology have been catastrophic. And social inequality has also increased dramatically.

We want to understand the dynamics of imagination, how a 'performed vision' is created, how we should understand the performative power. In order to help, I would like to

introduce the concept of ‘Techniques of Futuring’ (ToF), outlined in the literature: *practices aimed to create shared fictional expectations*. This second primary concept allows us to empirically examine how governments, companies and other actors mobilise the future in the present. This is naturally something of a hopeless task, as an endless number of variants of ToFs can be devised, at a range of levels of abstraction. We will concentrate less on the well-known ToFs such as scenario studies, backcasts and cost-benefit analyses, instead focusing keenly on techniques in which imagination is actively utilised.

A third important concept is that of ‘transformative capacity’. How do we progress from the current situation to a better future? Where can the potential for change be found? In the wider environmental discussion, cities are surprisingly often identified as actors.<sup>13</sup> This primarily stems from a frustration at the lack of power to change, demonstrated by the order of nation states. But cities can obviously not act independently. Indeed, ‘Mayors cannot rule the world’.<sup>14</sup> In the Studio, we do not necessarily examine actors, rather *institutional practices* that increase the change potential of cities. In this sense, we fall back on my earlier work on discourse, discourse coalitions, dramaturgy, agents of change and institutional void.

My research will not be purely analytic. The Urban Futures *Studio* is not a laboratory. I expressly see the Studio as a place where the university actively contributes to considering social processes. This is the tradition of *transdisciplinary research*, i.e. not only do we collaborate with various disciplines, but social actors are also directly involved in the dynamics of the research. I hope that here at Utrecht University, our methodology will become more robust in the years ahead. In addition to the ToFs that are already in use, the Studio will focus on the active development of new ToFs: what we call *prospective* ToFs. I would like to offer you an example to illustrate my working method.

## **‘2050 – An Energetic Odyssey’ as a transdisciplinary experiment**

In February 2016, landscape designer Dirk Sijmons and I were joined by a group of 60 high-ranking European officials, CEOs and Directors of NGOs and knowledge institutions in a darkened hall at the huge Shell Laboratory in Amsterdam. Lighting up the floor before us was an imaginary of how the Netherlands could potentially achieve the 2 degree Celsius target; ‘2050 – An Energetic Odyssey’. In a little over 13 minutes, a post-fossil fuel future was revealed. It became an imaginary that assisted the assembled guests in their reorientation.<sup>15</sup>

The Odyssey came into being in the context of the International Architecture Biennale Rotterdam (IABR), of which I had the honour of being Chief Curator in 2016. Supported by the Ministry of Infrastructure and the Environment, this platform uses research-based design to explore new futures and make them conceivable. In 2016, we placed additional emphasis on the experiential quality of these ‘imaginaries’.

The example illustrates the power of imagination. However, the suggestion here is by no means that this intervention suddenly changed the world. What did happen was this: the intervention resulted in what I would like to call ‘ontological expansion’.<sup>16</sup> The Odyssey not only made a new future conceivable, but also attractive to stakeholders. Years of meetings were held on the subject of the North Sea. High-ranking officials were endlessly travelling to meetings at striplite offices in Brussels. And now, on this evening, the very same officials were gathered somewhat awkwardly around a vision of the future. On 10 April, they enthusiastically presented the vision to their political superiors in the muted surroundings of the five-star hotel The Grand. And on 6 June, the ministers even signed a political declaration to accelerate work on the project. Dutch Minister for economic Affairs Kamp quite literally said: ‘It is possible. We have stood around it’.<sup>17</sup> Broad legitimacy for thinking big had been created.



Photo: Martin Grootenboer

How can we explain the power of imagination in this instance? Why was it possible to make progress on such a crucial issue? Why is it that more or less the same groups of actors were able to move forward now, but not earlier? These are questions that intrigue me.

Reorientation in the business world was obviously important. Offshore business in fossil fuels was declining dramatically. New options needed to be found. But what happened here was a moment of ‘willing suspension of disbelief’. Without ‘suspension of disbelief’, there would be no breakthroughs in thinking regarding a sustainable future. Stakeholders need to be willing to put their everyday scepticism aside. Realism and routines can hinder the search for positive futures. And they needed to experience it together.

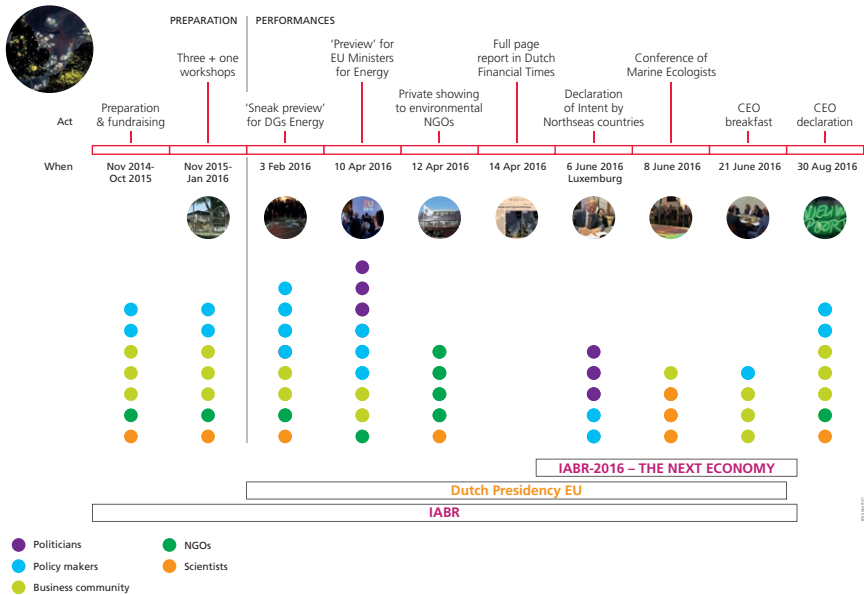
I think that the dramaturgy of policy making plays a significant role in this regard. The existing dramaturgy hampers innovation and fresh approaches can create new opportunities for innovation. I would like to experiment further with these variables in the future, elaborating on my analysis of the dramaturgy of policy, proposed as ‘a sequence of staged performances’.<sup>18</sup>

How exactly does this work? Let’s reflect on the Odyssey:

- We actively united a new, or partly new, coalition of actors.
- The interventions were organised in a series of new locations.
- The interventions were driven by scientific expertise, but this scientific expertise was unusually implicit.
- The physical design formed a point of orientation for the discussion, functioning as a boundary object.<sup>19</sup>
- The meetings were sequenced. The Odyssey was portable, enabling us to connect new groups to the vision of the future at different locations.

I believe that these types of dramaturgic factors make a notably substantial contribution to the creation of new shared imaginaries.

The best illustration of what this dynamic approach is capable of is the manner in which tensions between wind turbines and Natura 2000 areas were addressed. When TenneT (the national electricity grid operator) and installation company Van Oord argued in favour of an island on or close to Dogger Bank, Sijmons and I actively involved environmental groups and ecologists from the North Sea countries with Odyssey. Out of these additional, previously unplanned meetings, new expertise emerged that appears to make such an approach possible, if conducted responsibly.



It is this meandering, allowing the image to travel in a culture of interest and openness, which allows for the creation of a potent shared imaginary. Others can subsequently take the Odyssey on the next stages of its journey. A new phase emerged with the transition coalition, which later resulted in a coalition of more than 70 companies being called together to accelerate the energy transition in the Netherlands.<sup>20</sup> A new shared fictional expectation was created of 'climate policy as business', which propelled the coalition and its activities forwards.

But it also became more than simply a business case. The design intervention had outlined the ecological aspects of bird migration and the interaction with Natura 2000 areas in this imaginary. Employment effects had been incorporated in the vision of the future. And the policy was handed social support for the acceleration of the transition as if on a silver platter.

## **‘Soft spaces of politics’**

In the past, I have expressed strong opinions regarding issues of control. I am convinced that change in our time will not result from governmental control, but through collaboration between unexpected agents of change. Governmental organisations will certainly be part of these coalitions. This is also how the *Odyssey* was born, the product of collaboration with the Ministry of Economic Affairs, companies and NGOs. So-called ‘soft spaces’ play an important role in establishing such collaborations: free space in which innovative initiatives have a chance to prosper.

I view these ‘soft spaces of politics’ as the catalyst of change, vital when major breakthroughs are required. A series of routines perpetuates what already exists. Soft spaces connect various organisations, bridging the existing institutional void, albeit often temporarily. These often informal organisational forms sometimes lead to innovation and acceleration of thought and action.

The trick here is to interweave vision development, knowledge development and democratic legitimacy. I believe that research-based design is an approach with plenty of potential. It is an example of a work form that thrives in such a soft space.<sup>21</sup> In a general sense, I think the major advantage of research-based design is that it does not pursue the generally applicable principles and regularities. Instead, it is focused on finding joint, localised solutions. The primary concern is reaching consensus within the coalition of actors, who are in fact considered to be capable of taking action. The research practice of ‘research-based design’ thereby interweaves the research process with stakeholder participation. One of the major benefits is that the concerns of all stakeholders can be identified at an early stage, meaning that they can be taken into account when the plans are developed.

I will provide a striking example. As part of IABR 2016, an imaginary was developed for the future of Groningen: *Nordic City*. At the exhibition in May 2016, I witnessed an extraordinary discussion regarding the future of the city of Groningen and the surrounding countryside. Yes indeed, Groningen of the earthquakes, of demographic shrinkage. Groningen where citizens have lost faith in politics. Residents of Ouderendam were there, as were mayors, activists, aldermen and –women, and even Hans Alders, the national coordinator. It was not about compensation, but about an intriguing and ambitious idea regarding the future of the city and its countryside. It was a creative discussion about a positive future for Groningen, expressly involving the area affected by the earthquakes. The *Nordic City* imaginary gave the meeting an alternative, positive twist.<sup>22</sup>

If well implemented, research-based design is in fact an expression of John Dewey's pragmatic approach. He supported the development of 'ends-in-view' in a joint deliberation process.<sup>23</sup> Here, I see a work form that can interweave knowledge development and stakeholder participation through research-based design. It is also a work form that can effectively handle the current situation, characterised by numerous loose connections. Research-based design can contribute to a new democratic legitimacy based on what, in democratic theory, is known as the deliberative model. A precondition is that it is an open process that ensures that those affected by the consequences of certain solutions are involved – or become involved – in the process. As in my earlier example of the ecologists and environmental groups regarding the idea of wind turbines on Dogger Bank.

My ambition is to better understand this approach and clearly formulate its success and failure factors. This is necessary, as a practice like 'research-based design' is by no means a universal cure, in the same way that by definition designers are not magicians. More than that, up until now, I have missed a sound analysis and substantiation of when design-centred work does deliver positive results and when it does not. Research of this nature is vital for enduring legitimacy.

## **Designing urban futures**

In the context of my *Urban Futures* chair, I will apply this approach of soft spaces and research-based design to the future of the city. If we really want to achieve the objectives outlined in the Paris Climate Agreement, the city will be the site of huge challenges. I cannot focus on this challenge in detail in this address, but I will offer three primary components. Firstly, the energy infrastructure. After we have said farewell to coal and oil, we must wave goodbye to gas. Electricity and heat will take their place, requiring drastic changes to our energy infrastructure. Heating grids instead of gas grids, a new electricity grid, fed from multiple sources, with increased capacity and flexibility.

Secondly, climate neutral living. There are more than 7.3 million houses in the Netherlands. If we are to meet the Paris objectives, they will all need to become climate neutral, whether via optimal isolation or via heating using specific available heat sources. And if we want to achieve this within 40 years, we need to tackle about 180,000 homes every year. Our current focus is on zero-energy houses (homes that generate at least as much renewable energy per annum as they use). Currently, just a few hundred houses are being tackled every year.



And thirdly, mobility. I anticipate that the triple revolution in car mobility will upend the broader system. We will switch from petrol to electricity or hydrogen. In time, cars will become increasingly autonomous, and car ownership will be replaced with car-based services. This will blur the lines between private and public transport.

This is, all in all, a massive challenge. What I now fear is not that the challenge is insurmountable; what I fear is that – fearing too much uncertainty – we will address the challenge in a segmented, sectoral fashion. My alternative is actually to make the challenge more complex, but in doing so, making it easier to achieve our objectives. Thinking big, if you will. And to do so, we need imaginaries, to counterbalance too much uncertainty. We need to count up the developments and ask ourselves: what could the city of tomorrow look like?

Early in my address, I outlined my ambition to link the city's biophysical elements and urbanness as the city's social order. In this sense, it means connecting the climate challenges with the development of a new notion of urbanness. This represents a major design challenge. We need to design a new notion of urbanity that reduces CO<sub>2</sub> emissions and puts an end to the linear use of resources on the one hand, and gives meaning to what socially inclusive urbanity can be on the other.

While this challenge translates to numerous aspects of the city, there is a challenge to which I attribute extraordinary meaning. That is the notion of the 'neighbourhood of the future'. Curiously enough, the Netherlands is home to multiple extremely centrally-located – yet half deserted – areas that could be assigned a new purpose in this century. Utrecht Central Station, from the Jaarbeurs to the Merwede canal zone. The Binckhorst in The Hague. The Overhoeks zone to the Hembrug in Amsterdam Noord. These are substantial areas that the country could utilise to accommodate the high demand for new houses, new business environments and neighbourhoods offering housing, work, education and recreation within short distances.

Broad, shared imaginaries have huge potential at the neighbourhood level. At the moment, we are talking about zero-energy houses and 'gasless' neighbourhoods – not exactly notions that fire up the imagination. A fine new challenge would be to captivate people with an imaginary of a well-integrated, new urban environment, based on the principles outlined here.

Neighbourhoods are large enough to allow for decent progress, but convenient enough to be viewed as a daily living environment. As it is, we are regularly stuck because academics

depict reality on a global scale. We speak in terms of '400 parts per million', 'CO<sub>2</sub> equivalents', and so on. The business community pushes the 'smart city' including contracts to sign to ministers and urban governors. Such language is making its way into politics and policy. For all that, the Boretti gas cooker is the symbol of a successful household. The neighbourhood occupies the space between these scales of public administration on the one end and the citizen on the other. And that is why this level of scale lends itself particularly well to shared imaginaries of urban futures. Research-based design of the neighbourhoods of the future, with much higher density but also much more urban comfort and quality, is a potential means of providing substance to new urban ideals.

## **The modernist pitfall**

Much of the 20th-century urban development has magnified the city's voracity. Of course, the irony is that this stems from an extremely potent imaginary, that of the modern city, the city of automobility, the functional city. With my appeal for new imaginaries, am I not heading for precisely the same pitfall? Is my emphasis on the urgency of the challenge not a step towards the politics of aiming too high? Is this project not equally doomed to be consumed by hubris and visionary overconfidence?

In recent years, I have propounded the imaginaries and ToFs of the modern movement in numerous lectures and essays. The Futurama at the 1939 New York World's Fair, Le Corbusier with his 'modulor' man, Van Eesteren and Van Loohuizen with their rational 'survey – analysis – plan' planning methods, modernist architect Van Eesteren in his white lab coat. These are all illustrations of imaginaries and the modern techniques of futuring. And a great starting point.

The modernist approach was based on a strong state and a traditionally hierarchical role for the expert. That time has passed. In the modern order, we have sought solutions in what Weber called 'functional differentiation'. Dividing the world into clearly distinguishable parts was an attempt to make it manageable. This is how we have arranged our government, and how our university order operates. This way of thinking still dominates. And if we cannot depart from this way of working, repetition lies ahead. But I predict that we will not be able to successfully leave the major challenge that we face behind us.

I am convinced that the challenge of climate change cannot be solved through the sectoral approach. And little will come of a grand design or an all-encompassing climate ministry, as if major challenges demand a centralised approach.<sup>24</sup>

Instead, what we need is an approach that dovetails with the complexity that characterises the city. Solutions require *connections between organisations*, particular *policy incentives* and *scope for experimentation*. In my approach, the urgency of the challenge therefore does not equate to a centrally operating actor with a commanding power to rule. The ghost of Robert Moses stays in the closet, and if it were up to me, the spirit of Jane Jacobs can stay out on the street. It is much more likely that the solutions for the current urban problems will be found through linking objectives and the improved exchange of good ideas and insights.

Allow me to return to the start of my address. I began my story with the double challenge we now face: climate change and socially inclusive cities. This link should be safeguarded. Based on an analysis of earlier successes, I argue in favour of a ‘double objective’: let cities work towards both objectives, in an integrated fashion. If the city succeeds in uniting biophysics and urbanness, we can look forward to truly robust cities.

This is not purely a policy agenda, but also a complex research agenda. It argues in favour of a new form of normatively oriented urban science. This science will need to be nourished with analytical research. I actually only believe we will be successful if we work on the challenge in larger international networks. These networks will need to be of a transdisciplinary nature: close to the actors responsible for policy, and close to the other agents of change, such as companies and NGOs. Thankfully, we already operate within a pretty strong network. The task at hand is also to develop new work forms. Work forms that connect, that are capable of quickly identifying effects, and even of anticipating them. I will be working together with postdoc researchers Peter Pelzer, Jesse Hoffman and Wytse Versteeg to explore this subject in greater detail.

Our modern age enables us to learn from each other’s successes and mistakes much quicker than in earlier periods. This is an era in which ‘radical incrementalism’ has a chance. That presupposes lots of experimentation and the application of mutual learning at system level. Edgar Pieterse has argued in favour of such an approach for the informal city, a euphemism for the slums that – according to UN estimations – nearly one billion people call home. Personally, I have propagated this perspective for a north-western European context.<sup>25</sup> Other people refer to a ‘massive small’, a multitude of more localised interventions that radiate far and wide. Approaches such as this are much more suited to the use of complexity than the notion that the pressing problems of cities require a sweeping, coordinated, centralised approach. My argument in favour of the centrality of the neighbourhood level is in keeping with this.<sup>26</sup>

Our design competition for the post-fossil fuel city is a modest but illustrative example. In the Urban Futures Studio, we problematise the lack of imaginaries of a city without fossil fuels. Instead of studying it ourselves, we launched a competition. The deadline for submissions was 24 February. We received 250 submissions, which arrived from all over the world. From Australia to Zimbabwe, from Canada to Columbia and from Wageningen to Utrecht. The energy! 250 proposals! Responses to a question posed by a Studio that had only recently been founded. The proposals were of varying quality, but they represented a great achievement within a couple of months. Yesterday, we announced the top 10. And on 15 June, we will select the winner and exhibit the top 10 designs.

The example illustrates the transformative capacity of the world of networks in a nutshell. I think that we need to make much better use of the potential of horizontal network configurations. Not of the established modern system of what Herman van Gunsteren called 'analysis and instruction', but of the system of 'variety and selection'.<sup>27</sup> Not thinking in terms of interventions based on general regularities, but in terms of cross-pollination and 'leapfrogging' of creative solutions. Not a solid, hierarchical state, rather an entrepreneurial state à la Mariana Mazzucato, which sets clear objectives, offers guidance and creates markets.<sup>28</sup>

A special theme for the Studio is the role that formal and informal city networks are playing or could play. We are witnessing the formation of an increasing number of collaborating cities, such as C40, ICLEI, UCLG, the Urban Agenda for the EU, EuroCities and 100 Resilient Cities from the Rockefeller Foundation. How do these networks impact the potential for change of cities? And are imaginaries implicit in the way city networks look to the future? Are there specific configurations that offer greater future value? These are questions that Suzanne Potjer is addressing in her PhD research for the Studio.

The challenge facing us today is to create new configurations. Facilitating collaboration between actors who are unaccustomed to each other. Not seeking certainty in advance, but working towards solutions along the way. Organisational forms such as task forces or interdepartmental work groups are the classic expression of this. We have appointed innumerable ambassadors and special envoys, who work 'in between' organisations. Nevertheless, this work between organisations and officials often fails. Why is this? How can we make this crucial work between organisations more effective? Can we also be imaginary and connecting at the institutional level? Within the Studio, Martine de Jong will be examining these issues in her doctoral research.

Today's paradox is that all of these new institutional forms already exist. But they are still underpinned by an adamantine, modern, sectoral institutional logic, based on functional differentiation. In the coming years, we will need to gradually shift our weight from the one foot to the other.

I hope that our university will take the lead in this field. Not by ceasing to perform existing disciplinary research, but by adding new junctions to our institutional set-up, the domain of the 'in between'. Utrecht University is a powerhouse of biophysical expertise, modelling, urban studies, governance and innovation science, and that is only scratching the service. This university is already extremely active in the field of transitional concerns, but can make an even more substantial contribution to the transition to sustainable, inclusive cities. By working towards work forms that quickly enable the identification of underlying causes of success or failure, and also by helping to formulate solution-oriented strategies that are at the cutting edge of science while offering the prospect of broad support. It is precisely a 'research university' that could make a name for itself in this field.

Additionally, I hope that in the Studio we will be able to openly compare our approaches with others. In particular, I look forward to the 'studio sessions', meetings of researchers with various lines of approach, for example between those with a more interpretative urban studies approach and the complexity researchers with more mathematical approaches to the urban issue. I am also very much looking forward to the interdisciplinary cross-pollination as part of the university's strategic theme of Sustainability.

## **Words of thanks**

Drawing to the end of my inaugural address, I would like to take the opportunity to thank Rector Magnificus Bert van der Zwaan and Piet Hoekstra, who is the Dean of the Faculty of Geosciences, for their faith in me. I also thank the Ministry of Infrastructure and the Environment for jointly founding and supporting the Urban Futures Studio, as well as the Ministry of the Interior and Kingdom Relations for their contribution to launching the Studio.

I thank all of my intellectual friends, many of whom are here today, especially Mark Swilling. We have been leapfrogging creative ideas together for several years now. In close intellectual friendships, it is sometimes no longer clear who thought of what. In light of the enormous challenge facing us, that is perhaps the least important thing to consider. I thank the Centre for Complex Systems in Transition at Stellenbosch University for

allowing me to draft my address there. I thank the numerous colleagues from the research and professional fields who have helped to realise the Imagining Urban Futures Fest during the past two days, an event which also marked the official launch of the Urban Futures Studio. I would also like to thank the other ‘Studiosi’ who have signed up for our adventure. In addition to the aforementioned researchers, they are Chantal Campman and Richard Pelgrim. I thank Esseline van de Sande for her critical consideration of the form and substance of this story and Peter, Jesse and Wytke for their comments on an earlier draft of this address.

Finally, I would like to thank all of my family, friends, colleagues, contacts and other interested parties who took the time to attend my inaugural lecture today. And especially my father, Rob Hajer. I am delighted that you can once again attend my address in good health. 88 years old and still offering critical praise and alternative insights. It is a privilege that I cherish deeply.

I like to dedicate this inaugural address to my beloved children, Minke, Louke and Sebastiaan. They embody for me the hope for a better future.

Ik heb gezegd.

## Notes

- 1 IPCC, 2014: *Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*, Core Writing Team, R. K. Pachauri and L. A. Meyer (eds.), IPCC, Geneva, Switzerland, pp 151.
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- 12 Jasanoff, Sheila, and Sang-Hyun Kim, eds. *Dreamscapes of Modernity: Sociotechnical Imaginaries and the Fabrication of Power*. University of Chicago Press, 2015, p. 19.
- 13 UN-Habitat (2013), *State of the World’s Cities 2012/2013 – Prosperity of Cities*, Nairobi/London: UN-Habitat/EarthScan; Harriet Bulkeley et al. (2015), *An Urban Politics of Climate Change – Experimentation and the governing of socio-technical transitions*, London: Routledge; or James Evans, Andrew Karvonen & Rob Raven (eds. 2016), *The Experimental City*, London: Routledge; WBGU (2016) *Humanity on the Move: Unlocking the transformative power of cities*, Berlin: WBGU.

- 14 Benjamin Barber (2015), *If Mayors Ruled the World – Dysfunctional Nations, Rising Cities*, New Haven: Yale University Press.
- 15 I initiated '2050: An Energetic Odyssey' as head curator of the IABR 2016. Commissioned by the IABR, the Odyssey was created by landscape architect Dirk Sijmons (H+N+S Landscape Architects) and media agency Tungsten, based on calculations completed by Ecofys and various workshops with experts. The Odyssey can be viewed on the IABR website: [www.iabr.nl](http://www.iabr.nl).
- 16 This is a translation of my Dutch term 'ontologische blikverruiming', which in turn is based on the term 'ontological expansion', introduced by Finnish innovation scientist Ilkka Tuomi. Tuomi, I. (2012), *Foresight in an unpredictable world, Technology Analysis & Strategic Management*, 24 (8), pp 735-751.
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- 20 See <https://www.argumentenfabriek.nl/nl/voorbeeldwerk/de-transitiecoalitie/> (consulted on 12 March 2017).
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- 22 *Nordic City* was created by a consortium of designers, headed by atelier master Jandirk Hoekstra (H+N+S Landscape Architects) as part of IABR 2016 – THE NEXT ECONOMY.
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Hajer is the author of many books and articles. Best known are *The Politics of Environmental Discourse* (Oxford UP, 1995), *Deliberative Policy Analysis* (Cambridge UP, 2003, eds. together with Hendrik Wagenaar), *Authoritative Governance* (Oxford UP, 2009) and *Smart about Cities – Visualizing the Challenge of 21st Century Urbanism* (NAi/010, 2014, eds. together with Ton Dassen).

