

# SMART CITIES

for city officials

A SOCIAL SCIENCES APPROACH



<https://smartcitiesforcityofficials.com/>



Published with CC BY-NC-ND license: Attribution-Noncommercial-No Derivatives 4.0 International License

Smart Cities for City Officials- A Social Sciences Approach, 2021.

Editors:

Guy Baeten, Institute for Urban Research, Malmö University

Chiara Valli, Institute for Urban Research, Malmö University

Research assistant and graphic design:

Adriana de la Peña, Institute for Urban Research, Malmö University

Contributors:

Germaine R. Haleboua, University Of Michigan

Andrew Karvonen, KTH Royal Institute Of Technology

Rob Kitchin, Maynooth University

Ola Söderström, University Of Neuchâtel

Published by the Institute for Urban Research at Malmö University  
with support of FORMAS grant REF. 2017-01422.

Cover picture titled "Busy Street Double Exposure" by Nick Page Photos.  
Licensed under CC BY 2.0

<https://smartcitiesforcityofficials.com/>



# MODULE 1

## Ontology and Definitions

*Has the 'smart city' become an empty signifier? What is the role of such cloudy concept in municipal work? Where does the Smart City sit in time and space? This introductory module provides an overview of debates in the Social Sciences on conflicting definitions, critiques and alternatives to dominant Smart City discourses.*

---

# Module 1

## Ontology and Definitions

---

**CHIARA VALLI**- Smart cities are notoriously difficult to define. In the introduction of her book "Uneven innovation. The work of smart cities", Prof. Jennifer Clark writes: "Almost every discussion of smart cities begins with an effort to define the term or to assert that no definition is possible or necessary" (p. 2). In fact, some people think that "smart cities" has become a buzz phrase, almost an empty signifier, just like sustainability has become one. What is the role then of smart cities as an empty signifier or as a cloudy concept? How can it be useful for municipal work? In what ways should it be used then?

In this Module, we will set the stage to go in depth with the different themes of the next modules. We will discuss around three topics: The first one will be the various definitions of smart city. Second, we will place the smart city in time and space. Third, we will provide an overview of debates in the Social Sciences on critiques and alternatives to dominant smart city discourses.

**GUY BAETEN**- Let's start with the first of our experts, [Andrew Karvonen](#), a professor at [KTH](#) who is one of the leading voices in the smart city research in the social sciences. Andrew Karvonen maintains that the conceptual cloudiness of smart cities is actually a benefit. He also thinks that the smart city concept might have partially outlived its usefulness, in favour of broader terms such as digitalisation, which he defines as "A layer of digital technologies and techniques that are changing cities in very slow but very fundamental ways".

**ANDREW KARVONEN**- In all of the reports, articles, and case studies, we see that they all start out and say, there is no agreed definition of the smart city. And that's seen as being a bad thing. From my perspective, it's actually a good thing. And what it does is that it helps us to move away from a blueprint approach, and saying "This is the smart city, here's how it needs to be applied in Malmö, or Lund, or Stockholm". And instead, if we can think of it as a group of ideas, and then we can pick and choose based on what's important to a particular context. I think it is more exciting and more useful, particularly for policymakers, politicians, and practitioners.

In all of the reports, articles, and case studies, we see that they all start out and say, there is no agreed definition of the smart city. And that's seen as being a bad thing. From my perspective, it's actually a good thing. And what it does is that it helps us to move away from a blueprint approach, and saying "This is the smart city, here's how it needs to be applied in Malmö, or Lund, or Stockholm". And instead, if we can think of it as a group of ideas, and then we can pick and choose based on what's important to a particular context. I think it is more exciting and more useful, particularly for policymakers, politicians, and practitioners.

What exactly does the smart city concept do? It doesn't prescribe a particular recipe for digitalising cities. But what it does, is that it shows that the city is taking digitalisation seriously. It shows policymakers and practitioners that they need to start reflecting on this, they need to start thinking about all the different work that they do with respect to public services and question: What does digitalisation do here? What kind of smart technologies could we potentially use for

solid waste management? For environmental protection? For citizen engagement? So, for me, the conceptual cloudiness of smart cities is actually a benefit.

But then it's the same thing as sustainability. Everybody says, "we are a smart city, we are a sustainable city". And now everybody is saying "we are a smart sustainable city", you know, the double empty signifier. But I think we don't want to lock down what smart is, and I would think that in the next 10 years, we're probably not going to be talking about smart cities anymore. I think we're going to be talking about digitalisation.

I've gotten kind of tired of talking about smart cities, because it seems like it's taken on a lot of baggage over the past five years, and every city wants to be the smartest city in the world. Stockholm is going to be the smartest city in the world in the next 10 years. It's fantastic, right? But it doesn't really mean anything. I think we're going to be moving more towards this broader concept of digitalisation. A layer of digital technologies and techniques that are really changing cities in very slow but very fundamental ways. Is that the smart city? Well, I guess it is probably a smart city.

**“Digital technologies and techniques are changing cities in very slow but very fundamental ways.”**

I think that the concept does some work of bringing people together. There are all these global networks now, that talk about smart cities, and they talk about digital innovation. But I think the important thing is to compare and contrast and to borrow ideas from different places, but then to apply them in a particular context. And recognise that there is no recipe, there's no blueprint for smart urban development, or smart urbanism, or smart cities, whatever the label you want to use.

**GUY BAETEN** - [Ola Söderström](#) explains that definitions are much more than a methodological or practical issue. Different definitions actually constitute different "modes of existence" of the smart city and also set the basis for who defines it. Narrow ways of interpreting smart cities risk hiding the diversity on the ground and the emancipatory possibilities for ordinary citizens and civil society organisations.

**OLA SÖDERSTRÖM**- In the social sciences, we have this common difference between epistemology, which refers to the way we see phenomena and the way we interpret phenomena, and ontology, which refers to how these phenomena exist, and what they are composed of. And if you look at the literature on smart cities, most of the debate is around on how we interpret, how we understand smart cities. Should we see it as a positive phenomenon? Or rather, should we worry about the smart city? And basically, the idea is that we are confronted with the smart city as a similar phenomenon. Whereas, I think, something like "THE" smart city does not exist. We have a series of differently composed smart cities. And I think, focusing on ways of understanding, ways of seeing epistemology, takes us away from the diversity of what we have in cities right now.

So, this is why I've been talking about modes of existence, to focus on the nuts and bolts if you like, of the smart city, and to try to figure out a series of *dominant ways of being* of the smart city: 1) From the dashboard oriented, sensor assembled, state driven, or state centered smart city; 2) To the platform user, data centered, driven by the data of digital platforms like Google, Airbnb, Uber, and others; 3) And the third one for me is the citizen centric smart city, composed by the often low-tech and the low technologies used by smartphones, for instance, by ordinary citizens

or civil society organisations. So, I think this distinction is important to open up the possibilities and the diversity of what a smart city is today.

**CHIARA VALLI**- Besides identifying the main actors within smart cities, according to our scholars it is also fundamental that we counteract the tendency of smart city solutions to be presented as a-historical and a-spatial, and that we re-embed smart cities in time and place. In other words, this moment of digitalisation should be seen in a historical perspective.

Technologies that fundamentally change the way we use our cities are being introduced all the time. We can take the example of automobiles in the 1930s, but we could also take telephone technology or electricity, which fundamentally altered the way we operate in cities. We asked Andrew Karvonen: is digitalisation a moment where we adapt our cities in a fundamental way to digitalisation, just like we did with the automobile? Is this a similar moment in history that will radically change urban planning?

**ANDREW KARVONEN**- I think it is, the more that I've looked at the evidence on the ground. I was very sceptical of smart city proponents saying "This changes everything. We're going to have these amazing new, shiny cities, they're going to be completely digitally connected. It's going to be so wonderful." You know, it's a sort of Star Trek future. And, of course, that has not happened.

But I think the underlying argument is that this is going to fundamentally change the way that cities function. I more and more see that as being a reality. I think that the timeframe for it is much longer than what is being promoted by smart city advocates. It's not 10 years, it's not 20 years, it's 50 years. So, I think it is much longer timeframe.

But the introduction of the automobiles in the 1930s, that is a good parallel. I think a better parallel would be if we go back to the turn from the late 1800s, early 1900s, when we got water and wastewater infrastructure, when we got communications technologies, when we got energy technologies. The rise, we call them in academia, of large technical systems. But basically, they are all the infrastructure networks that underpin cities, that are the foundation of cities. Now we're starting to digitalise those infrastructure networks. We are having this digitalisation revolution within public services. And that, very gradually, is going to change our relationship with energy, it's going to change our relationship with communications, with water, wastewater, transportation, everything is being affected by that.

If we look at any contemporary city today, particularly in the global north, we'll see that they haven't really changed that much since the introduction of the automobile. The buildings, they could have been around 100 years ago. The parks, the trees, the roads, all these things, they haven't really changed that much. But I think now, with digitalisation, we are going to see some fundamental changes in the way that cities work.

Other thing that's interesting about the automobile example, or about these large technical systems, is that we start to recognise that it's not just about the automobile, it's about the automobile plus the street, plus regulations, plus public perception, plus safety, plus environmental issues. So, what we see is that when you change a technological system, you're also changing a social system in cities.

**“When you change a technological system, you're also changing a social system in cities.”**

So, if we can work with local authorities, and say, we want to put in autonomous vehicles into a particular city, what the implications of that is going to be? What are the implications on parking? What are the implications on driver's licenses? Is this going to reduce traffic in the city? Or maybe it's going to induce more traffic in the city, because more people can use automated vehicles? It has these implications that go beyond the technology itself. And I think that's one of the things that will have these fundamental changes to cities in the 21st century.

**CHIARA VALLI**- I found this a particularly well phrased formulation, that "when you change a technological system in cities, you're also changing the social system". I think that Andrew Karvonen raises a crucial point when he says that the pace and timeframe for such changes is probably different from the ones prospected by smart city companies. And this also has implications about what we should consider as successful projects.

**ANDREW KARVONEN**- I am often asked what is a successful smart city? what is a successful program? And I'm very resistant to say, there's a successful program or an unsuccessful program, because I think it really depends on the context. And I think all smart city projects are oversold, they promise the world and then they deliver 5%, or they deliver 30%. And I think that's normal. And that's not to criticise them for failing. But more to recognise that this is an incremental slow process. And when we don't focus so much on the speed of this, you know, being the rapid change. When we just say, let's gradually implement these technologies where they make sense, and see how they work. And if they do work, then let's scale them up. I think that's a more sensible, pragmatic approach that urban planners and urban developers are more interested in, rather than the shock approach of, let's roll out a sensor network across the whole city. Generally, that's not going to work. Urban development is much slower.

There is a tension between technological developments, or innovation, that tends to be very fast. They are moving three-months, six-month timeframe, in cities that move in 20-years, or 30-years' time frame. So, there is a real tension between those two understandings of change. And if we start to think about urban development, and that kind of slow change, I think that's helpful. But then there's also the climate emergency, and we don't have 20 or 30 years to figure this out, we need to figure it out today. So that's why you see this enthusiasm for digital innovation, because it seems like it can speed these processes up.

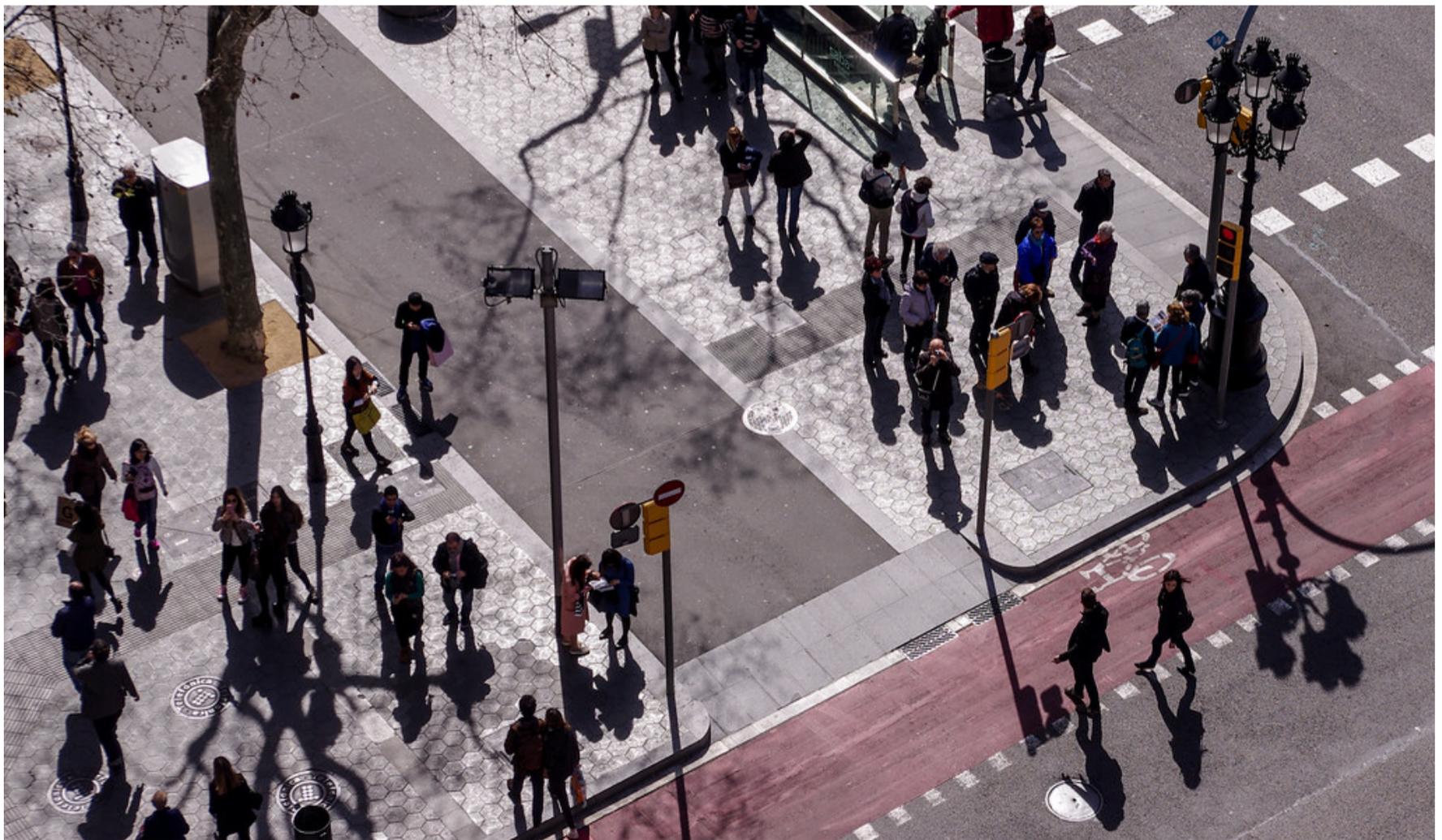
**GUY BAETEN**- Continuing with the effort to re-locate smart cities in time and space, Ola Söderström has something very important to say about the geographies of smart cities. Ola is one of the few scholars who has been conducting research on smart urbanism with a global outlook, resulting for instance in a book on Hanoi in Vietnam and Ouagadougou in Burkina Faso, and is currently involved in a research team seeking to understand smart cities in South Africa and India. We asked him to explain how smart cities are defined differently in the so-called Global North and Global South, and what that tells us about how smart cities are defined.

**OLA SÖDERSTRÖM**- I think that there are many differences and similarities between smart cities in the global north and the global south. But I think it's difficult to think in those terms. I think maybe even a bit un-wise, if may be helpful. Can we think about Cape Town or the South African smart city, and the Mexican smart city as being the global south? Or should we think about the Swedish smart city and the Hungarian smart city as being the global north? As soon as we start making these types, we figure out that we have a series of dividing lines, which are much more complex than global north and global south.

But having said this, I think that there are two main differences. And the first one is that there are important differences in what I would call the urban fabric: housing supply, infrastructures, services. And the assumption in the, what I would call, mainstream smart cities, is that this urban fabric - this housing supply, these infrastructures, the basic services- do exist and we need to improve them.

But of course, we know that outside of the global north, there are situations where very often these infrastructures are not there, simply, or are what Conrad-Bercah called a few years ago, "an archipelago". So you have small areas, elite areas, which are highly serviced in a sea of non-existent, or places where AbdouMalig Simone famously called "we the people are the infrastructure". So that is, I think, a central (first) difference. And this also means that there's a lot of work on data done on household areas, populations that the state don't know about. And this data collection, and this knowledge, is produced by other actors than state actors. So, I think this is an important difference. And it also asks the question, where is the priority? Is the priority about rolling out optic fibre? Or is the priority about basic services? That's the first difference.

And the second difference is that in the global north, we have institutions, we have European Commission, for instance, in Europe. Strong institutions, which have framed research and innovation on smart cities in, I wouldn't say, homogeneous way, but in a rather compact way. And we also have standards for smart city. Things that make the smart cities something that is more compact than in the global south, where we had a very variegated array of smart cities. So, these are the two main differences. But I'm careful with these differences.



["\[388\] 'City for people' by Rosana Grecchi; Category: Sustainable mobility \(© Rosana Grecchi, Sustainably Yours / EEA\)" by European Environment Agency \(EEA\) is licensed under CC BY 2.0](#)

**GUY BAETEN-** For Ola Söderström, the main differences are about priorities and institutional frameworks. Very useful to locate smart cities in time and space is also the fantastic work of Jennifer Clark. In “Uneven Innovation”, Clark stated something that we found particularly intriguing in this sense, that is: “uneven innovation is both where we have been and where we are going, this is not a new path”. We asked her to expand on what she means by uneven innovation, what the role of the technology in it is, and finally, what she sees as new and as old in smart city projects.

**JENNIFER CLARK-** I had spent quite a bit of time on smart cities projects as a director of a Centre for Urban Innovation within a research university. And I think the experience of many of us as specialists on technology and cities, we found ourselves pulled into the smart cities project, from the university side, and from the research side of this. And from my perspective, as I was observing this, I really thought of smart cities as being part of a broader urban technology project that has a longer history. And particularly, I think, for urban planners, for urban geographers, for economic geographers, there was an uncomfortable sense about smart cities being very new and different and ahistorical. It was very much positioned almost ahistorical and almost deterritorialised as well.

And when you start to think about it within the context of urban technology projects that have gone on for a much longer period of time, you start to see this question about distributional equity, and this question around distributional equity as it pertains to infrastructure investment. And information and communication technologies, they are infrastructure investments on some level. We think about these from the perspective of utilities, we think of these things like world electrification projects. And it is not the case that we have not had conversations about the distribution of technologies before, both in the urban context, but in the broader national distributional equity conversation.

I looked at it through the lens of a conversation that's been happening for quite a bit of time within urban geography and economic geography, around uneven development. So, this is a conversation that refers to a well-known book in the field by Neil Smith (Uneven Development, 1984).

But there has also been a conversation more recently, where a number of us in the field asked the questions, why are we not talking about uneven development anymore? What happened to the conversation? And part of what had happened in that conversation is that we've moved towards this question around regional innovation systems: entrepreneurial ecosystems and technology conversations that happened from the 2000s forward, which really left this conversation about development in the back and put technology on the front.

What I was starting to see was that we were following this path of uneven innovation in terms of how we are investing in innovation, just as we had unevenly invested in development. So, one of my efforts in the book and in the broader conversation is to say: wait a second, we know how this works when we consistently invest in the same places over and over again. They become more competitive because the private market investment follows the public sectors investment. So, of course, if you're trying to attract firms, you're trying to attract talent, you are trying to develop small and medium sized enterprises, those things work better in places where they have higher levels, better quality infrastructure. We already know that. Why do we continue to do this again, but with these technologies? Maybe we can stop and think about if we want to replicate this pattern again.

**CHIARA VALLI**- Stopping for a moment and thinking whether we want to replicate past patterns of uneven innovation but with new technologies. This certainly requires critical reflections on the limits of current dominant forms of smart cities and explore possibilities for alternative trajectories.

Germaine Halegoua, in her new book Smart Cities in the MIT Press Essential Knowledge Series, provides an excellent and accessible overview of the current debates on smart cities in the social sciences. We asked her to summarise for us what the literature sees as the main limits and problematic aspects of the current dominant discourses on smart cities.

**GERMAINE HALEGOUA**- I think one of the major limiting attributes, is the vision of the city that these dominant corporate driven, vendor driven, discourses promote. So, if you analyse the type of place and urban environments that are promoted by corporations and technology vendors that specialise in smart city construction- but also the consultants that show up repeatedly at the smart city expos- they all emphasise efficiency, optimisation, technology centred urban administration, and surveillance of the average citizen in their designs.

So, while there's nothing wrong, and I hope this isn't coming across. There's nothing wrong with trying to manage a cost-effective city, with efficient services, with effective services, especially in times of austerity, especially in times of perceived crisis. But what I am arguing is that this shouldn't be the only goal or the only goals for urban development.

And what we've seen repeatedly in smart city examples across the globe, is that these goals of efficiency and optimisation and technology centred design, lead to selective investment in infrastructures, both analogue and digital, and selective ways of knowing the city. A selective knowing and understanding urban life that often prioritise affluent and privileged populations, and urban problems that maybe have superficial technological solutions that are easy to solve, or perceptively easy to solve, and ignore social and cultural aspects and relationships of urban life that can't easily be measured or can't easily be translated into quantitative data.

These ideals of things like technological efficiency, entrepreneurship, the emphasis on buying and incorporating surveillance technologies, generating automatic, or automated data that relies on algorithms, or machine learning, they tend to ignore systemic urban problems that are really entrenched within the societies that these technologies and smart city plans are being implemented in. This plans and discourses tend to exacerbate pre-existing inequalities in terms of access to city services, or public participation. And they don't really work to build trust, cooperation, or communication and connection between residents to build things like social capital or social cohesion, or between residents and municipal governments.

And I think this is a major problem and a major limit. And it is completely understandable from the perspective of urban planners, and from the perspective of government officials, that these technological solutions to urban problems that are being sold to cities are appealing, and they're attractive. They are bandages in some cases, they are temporary fixes to the real symptoms, or superficial expressions of larger urban issues that are more complex and more difficult to solve, and might take

**“They are bandages in some cases, they are temporary fixes to the real symptoms, or superficial expressions of larger urban issues that are more complex and more difficult to solve, and might take more time, effort and money to address.”**

more time, effort and money to address.

I think there's an appeal to some of these limiting discourses because they are easy fixes in some ways, and they are prescribing certain technologies that you can plug in and play, and that you might see some sort of outcome. So, the implementation of these smart technologies— I'm talking about sensors, or AI, so artificial intelligence, or the Internet of Things, or big data analytics— are easy ways to show our gesture that something is being done to a known urban issue. Like crime rates, or pollution, or traffic congestion, these are all sort of recurring urban problems that have been identified in a variety of different cities and have been prescribed these technologies to solve these problems.

But the outcomes, and known successes, of these approaches are also very limited. I found the discourse limited, also because the discourse doesn't really produce actionable outcomes. And we haven't really measured a lot of successes with these approaches. There is not a lot of examples that I can point to transformational change, or substantial improvement in the lives of urban residents based on these philosophies and ideologies of technological solutionism or neoliberal city management practices that are promoted by these smart city technologies and consultants.

And there's a lot of measurement going on, and a lot of data generation, but not a lot of actions and outcomes. And not a lot of goals that are prescribed from the outset, that are then met by these kind of plans and roadmaps and things like that.

**GUY BAETEN**- As Germaine Halegoua pointed out, data generation and algorithms are at the core of smart city solutions. We will dedicate two full modules in discussing various ethical aspects of data technologies in governing smart cities. But we feel it is important to make some basic reflections.

Rob Kitchin is one of the pioneering scholars in the field of smart urbanism, and among his impressively vast research on the topic, he has also conducted systematic in-depth research on datasets. His research challenges the almost unquestioned assumption that big data are totally reliable and sound. He stated that "there needs to be a lot more work on the validity and the veracity, and the rigour and the soundness of these systems and the work that they do."

**ROB KITCHIN** - I am a believer in that you have to have more data to go along with the big data. I think there are people now working on this. And they come out additions like critical GIS and additions like radical statistics, that are thinking through some of the classic debates we've had in geography, methods around situatedness, positionality, reflexivity, data quality, ecological fallacies, ecological fallacies are a big issue, right? With a lot of this big data. And not really talked about at all actually, it's a kind of a silent part. There is an assumption that big data is apparently useful, and that the algorithms are inherently sound, and the interpretation of them makes sense. And when you press on that, that's not always the case. And we've been doing quite a lot of work of systematically going through datasets.

We have a new paper out in the Journal of Official Statistics - which is actually a Swedish journal- on the quality of the data. And whether you can create official statistics based on the data. And the bottom line, basically, is you cannot, because the data is not of sufficient quality. Its good enough to run the system, but it is not good enough that you want to use them for official statistics. And there's a difference between those two things.

There needs to be a lot more work around the validity, and the veracity, and the rigor, and the soundness of these systems and the work that they do. Now, some of that needs to be taken apart. The data assemblage, how it's all put together, and the politics inside of it, and what's its purpose. And what are the politics and the ideology embedded within what's going on. And some of it is around ecological fallacies and whether they actually work. But stakeholders and interests are not going to do that work, because they're trying to sell something.

And I think that was part of the pushbacks against those systems (network urbanism). From 2008, 2009 onwards, let's take IBM as the wave of trying to get cities to really embrace smart city technologies (even though goes back way before them), there is a cycle of companies pushing it, and cities seeming to embrace it because it deals with problems that are trying to deal with, and it deals with austerity and trying to cut budgets and doing more with less, all of this kind of stuff. But cities pretty quickly worked out that they were getting some snake oil, and they were getting systems that didn't actually work. And they started to become cautious around what they were buying. And to some degree, that's why IBM and Cisco and so on have rebranded their technologies, and have withdrawn from the system to a degree, because they couldn't actually deliver what they were promising, and cities pretty quickly worked that out.

**CHIARA VALLI** - We will talk more about the problems with data and methods in other modules. But the backbone of smart cities is not only made of data and numbers, it is made of words and stories as well, stories that have the power to change the places we live in and their social relations.

What has been the storytelling behind the smart city model? and by whom has it been told? According to Ola Söderström, the smart cities mainstream storytelling originates from a utopian vision of the city from IBM and other IT companies, which goes from diagnosis to a one-size-fits-all cure. Instead, Söderström proposes an alternative storytelling that shifts the focus from the smart in smart cities to the real problems in cities.

**OLA SÖDERSTRÖM** - Actually, we started working on the smart city with our project in 2011-2012. And when we started working on that I was asking myself, who is the main actor? What are the interests at stake here? Who is diffusing the idea of the smart city? And the answer we gave in this paper, and I think is still valid, is basically IBM. And when IBM launched their 2008 smarter planner campaign, they were trying to change their business model. So, they were trying to move out of the hardware business, which have been their business for a very long time, to a service consultancy software business. They had already sold their PC division to the Chinese Novo in 2004. So, we have the mutation of an IT company here. And of course, they are not the only actor out there, many other actors out there, like Cisco, Siemens, and others. But I think the difference, and this is why we focused on IBM, is that it's IBM, is the choreographer of the smart city (as Andrew Townsend put it nicely). They tell a story. And they are telling a story about what mainstream smart cities are. And it's an old story. And it's basically a utopian story.

You might know a major work - at least in French urban planning- by Françoise Choay and in 1981, I think 40 years ago, she wrote a book called *The rule and the Method* in English. And her argument says, basically, that if we look at urban treatises in history, we have two traditions, one which tries to plan the city looking at principles that generate the city. And we have the model which is the utopian vision of the city. So, what we aim to do is to follow a kind of perfect image of the future city.

The IBM utopian story goes in this way: we make a diagnosis of the problems of the city. IBM, and other companies say, the contemporary cities have problems with traffic jams and energy problems and all that, and we're going to fix it, we have the cure. So, this utopia goes from diagnosis of pathology, and to the cure, which is the utopian model. And this says a lot about this universalising, one-size-fits-all story of mainstream smart cities.

So, it works everywhere. And this is what utopian stories look, contrary to what Françoise Choay calls the rule, where you try to identify grounded solutions to the problems.

So, this is what we wrote about and what we think is the kind of mainstream storytelling. And this storytelling carries people along with this narrative. So, the alternative, of course, it comes from what I just said. It is about being critical of this technology oriented and technological solutionism, provided by smart city companies, IT companies, and to look for more grounded solutions, where of course technology and data have their place. Because this is what smart cities are about. It's about data and tech intensive cities.

But I think, and this is the argument we developed with Colin McFarlane in [another paper](#), if you look at smart cities, a lot of focus has been put on "smart". So, technologies and data, which is fine. And I'm not proposing a technology adverse vision of the smart city. But I think what we need is to focus on the *city* in the smart city, and to focus on what is the history of the city. What are the problems we have there? What is the specificity? And from there, we can perhaps use technologies if we need them to address these problems. But we need to start from that. And we need to start from a grounded analysis, which the mainstream smart city narrative takes us away from this one-size-fits-all narrative.

**GUY BAETEN**- Coming back to city messiness and specificities can help us moving away from the shortcomings of mainstream one-size-fits-all technological solutionism. We asked also Germaine Halegoua: What alternative perspectives could we consider to overcome the limitations of dominant discourse of smart cities?

**GERMAINE HALEGOUA** - An an alternative perspective that repeatedly comes up in the scholarly literature as well as in practical settings, is a human centred. The idea of a human-centred, citizen-centred approach to smart city development, where urban residents become more intentional and purposeful stakeholders in urban design and development from the beginning of these plans. Where they're consulted, and listened, and studied in some cases, and where their lives and concerns are understood and incorporated into city plans from the outset. Where they have a seat at the table to make decisions about, not just smart city implementation or initiatives, but also city government, and management, and regulation more generally. And that they aren't consulted after these plans for smart city initiatives are already decided, which is something that we see a lot in the US, where there's the sort of gestures to incorporate participatory budgeting or participatory urban design or planning, where citizens are brought in after the fact. After models are already drafter, sometimes even implemented, and where plans and decisions have already been made. And then you're bringing in the citizenry to vote on one of three choices here, that have been decided without consent or without input.

So this approach of a human-centred or citizen-centred approach, some people have called it social-cities-approach. In the book ([Smart Cities](#)), I talk about it as a social-cities-approach. This

**“This utopia goes from diagnosis of pathology to the cure, which is the utopian model.”**

approach re-centres the focus of smart city development around sociality. Around social problems, social relationships. Rather than privatisation, or entrepreneurship, or efficiency and optimisation and profit.

And sometimes they emphasise reliance on not just these corporate visions of place and cities but uncover technological visions of how technology can fix a lot of these problems. And instead, really gets at an understanding of urban life, community by community.

So, from a planning or city management perspective, the people in this course are probably hearing this and they're thinking, well, this takes a lot of time. This takes a lot of money. This takes a lot of effort. This takes a lot of staff that I'm already strapped with. My budget is tight, my staff is tight, how am I supposed to implement all these things? And maybe the expertise needed to have a more active citizenry in the decision-making process also requires a different set of skills and knowledge to implement. So sometimes it's more difficult to develop the foundations for this type of co-creation.

It is important to shift our mentalities and our logics around smart cities, from the city being smart because of the technologies being implemented, and the data being gathered and measured, to the city being smart because of the social cohesion, and the collaboration and maybe democratic processes that foster processes of participation, collaboration, co-creation, and how residents and communities might use technologies and data, or other resources and relationships to improve their cities and everyday lives.

What I'm suggesting here, and I think what other people suggested as well, is this bottom-up approach to smart city development. And if more people in diverse communities have a richer understanding, not just of what a smart city is - even though I think that's really important for what the government's plans are for implementing technologies or creating the smart city roadmaps- but also a richer understanding of how the city works, and how decisions are made within municipal governments, and that they feel and know that they can contribute and shape the direction and future of the city. I think that's smart. And that should be considered smart, more than some of these limiting visions that I talked about already.

**CHIARA VALLI** - In this module, we started by providing an overview of current dominant modes of defining smart cities, and our experts have very nicely explained why such definitions are important, and what they do. In particular, narrow, corporate-based definitions of smart cities risk hiding the diversity and messiness in our cities, and preclude possibilities for socially progressive, emancipatory possibilities that the technologies may support.

We have also been warned about universalising definitions. In the global knowledge exchanges that sustain the travelling and reproduction of smart city technologies, much more attention should be put by scholars and practitioners alike on geographical, institutional, political differences.

Moreover, there's been a call to stronger historical anchoring for smart cities. The history of infrastructural investments has led to uneven development and growing territorial inequalities. If implemented uncritically, smart city projects can amplify such inequalities.

**GUY BAETEN**- All in all, it seems to me that while it is understandable that cities use technological development to compete in a global economy, and that they want to increase efficiency and effectiveness of their services, this should not be done uncritically nor as the primary goal of urban development, according to our scholars.

In the next module we will talk about the central role that big data plays in the smart city, and what challenges and opportunities big data entail.

## REFERENCES

Choay, F. (1997). *The Rule and the Model: On the Theory of Architecture and Urbanism*. MIT Press.

Clark, J. (2020). *Uneven Innovation: The Work of Smart Cities*. Columbia University Press.

Halegoua, G. (2020). *Smart Cities*. The MIT Press.

McFarlane, C., & Söderström, O. (2017). On alternative smart cities. *City*, 21(3-4), 312-328.

Simone, A. (2004). People as Infrastructure: Intersecting Fragments in Johannesburg. *Public Culture*, 16(3), 407-429.

Smith, N. (2010). *Uneven Development: Nature, Capital, and the Production of Space* (p. 328). Verso Books.

Söderström, O. (2021). The three modes of existence of the pandemic smart city. *Urban Geography*, 42(3), 399-407.

Söderström, O., Paasche, T., & Klauser, F. (2014). Smart cities as corporate storytelling. *City*, 18(3), 307-320.