

Folding and Unfolding the Smart City – encounters, quirks and tics

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Introduction: The intertwining between place, technology and human beings

Levels of non-smartness pervade and seep into the structures and tenants underlying the operation of the smart city. By the very inhabitation and using of the smart city, its structural and technological, algorithmical premise is challenged.

Information and communication technologies used as grounding principles intend an efficiency in the workings of the city, particularly regarding its infrastructure. This provides organisational stability, a way to count on things operating and working ‘as they should’, and carries with it a promise of frictionless modernity. But, as geographer Nigel Thrift asserted, “no technology is ever found working in splendid isolation [...] It is linked—by the social purposes to which it is put—to humans and other technologies of different kinds.”¹

In reality, technology embeds in a physical locality, and with the engagement of users, an intertwining occurs between technology, place and human beings.

In the intertwining that we unfold, the primacy of the scripted smartness of systems is called into question with manifold results of unscripted encounters, as well as quirks and tics, happening within the system. While the term *encounter* in the context of this reportage covers all manner of meetings between automation, city and life on the ground, *quirks* describe unexpected, human-generated surprises, and *tics* describes smaller instances - details - that create new ways of perceiving and new practices - that diverge from the intended scripted behaviour. Encounters, quirks and tics emerge as a result of life happening within the ‘smart’ systems of the city.

Reporting from the Smart City

The notion of the smart city and the systems co-ordinating it, with a focus on technology as the fast lane to efficiency perpetuates an outsider view of the city. This is a distanced and potentially objectifying viewpoint that considers the city as a dataset that can be optimised. A great amount of control is required to organise, structure and maintain technological systems generated to run things and this is most often maintained through an overview. In this sense it is comparable to a kind of Foucauldian *panoptica* – a view extending from an all-seeing eye that keeps everything under control by creating (the illusion of) a constant and unblinking 360-degree overview. This implies not only that something needs to be controlled – but also indicates a watchfulness towards the instance that something could go wrong and throw the whole conglomeration into chaos. When operating as an analyst in an urban context, this surveillance-related gaze corresponds to a cartographic view and the pursuit of a total urban overview. A cartographic view, however, is most often represented via a flattened, two-dimensionality that while effectively illustrating organisation, structure and location, falls very short in relaying the experiences, perceptions and practices taking place within lived urbanity. The distance from the object that tends to manifest through the panopticon and through cartographic practices renders impossible a deep dive and focus on the actual workings, placings and peoplings – on the interactions between technology, place and people and the relational aspects of

urbanity. In this respect, the use of a perceptual and experiential gaze provides more insight to the workings of cities – smart or not - and here Bruno Latour's concept of the *oligoptica*² can provide a useful tool for examination:

"...[T]he 'panoptica' [...] has remained a utopia, that is, a world of nowhere to feed the double disease of total paranoia and total megalomania. We, however, are not looking for utopia, but for places on earth that are fully assignable. Oligoptica are just those sites since they do exactly the opposite of panaoptica: they see much *too little* to feed the megalomania of the inspector or the paranoia of the inspected, but what they see, they *see it well* - hence the use of this Greek word to designate an ingredient at once indispensable and that comes in tiny amounts... From oligoptica, sturdy but extremely narrow views of the (connected) whole are made possible – as long as connections hold."³

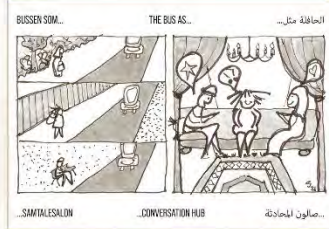
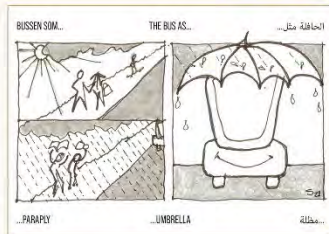
Additionally, an oligopticon view bears resemblance to the landscape architect James Corner's concept of 'extracts' as units of discovery in a 'field', and the subsequent operation of 'de-territorializing' these extracts, that he unfolds in *The Agency of Mapping*⁴: "We call them extracts because they are always selected, isolated and pulled out from their original seamlessness with other things; they are effectively 'de-territorialized'" They include objects but also other information: quantities, velocities, forces, trajectories. Once detached they may be studied, manipulated and networked with other figures in the field."⁵ In his essay, Corner also made a distinction between *tracing* and *mapping* as two different types of urban cartographic operations.

Both Latour's oligoptica as a 'narrowed view' and the notion of de-territorializing extracts that Corner introduces, provide a particular focus on smaller pieces of larger conglomerations. In this sense, they are both relational approaches that examine various aspects of individualised situations and their connection to a context, but also their experiential connections 'on the ground'.

The pieces of the Smart City we present for deeper examination are found within the larger context of a research project conducted over a period of 4 years, aiming to build capacity among policy makers and planners on the automation of road transport. Research study on the smartbus⁶). This reportage more precisely addresses the case study of a little green, self-driving shuttle that traversed Astrupstien (Astrup path) – a short route in Aalborg East, Denmark in 2020 and 2021 - from north to south and back again. The shuttle was the test case of a new self-driving technology inserted into the physical context of the path, and into the lives of the people living along it. The shuttle, denominated a 'Smartbus', contained 8 seats – 4 seats arranged bench-style in the front and back of the bus facing each other. Although it was self-driving, a steward was present on each bus, standing between the front and back facing seats and across from the doors, to monitor and smooth out any potential technical - as well as social - hiccups during the test period (so-called SAE level 3 automation). In preparation for the bus, Astrupstien, which existed as a narrow bike and pedestrian path, was made wider, re-paved and outfitted with 10 bus stops. In parallel, and as part of a larger strategic urban transformation, changes were made to both buildings and places along the path – renovating and focusing them inwards towards the path, creating a new kind of public space of which the Smartbus, people – including passengers, path users, and the bus stewards, as well as the spaces the bus passed through, all became intertwined.

Following is a series of three collages that map the presence of this smart technology and its 'intertwinedness' with place and people. They are comprised of pieces extracted from the momentary presence – now a memento – of the Smart City, and catalogue some of the encounters, quirks and tics discovered co-existing there. Each collage addresses perceptions and experiences,

contains both scripted and unscripted narratives and is comprised of material gathered during the time the smartbus was in operation. In addition, the material generated from the study, provided, in extract form, the material for an exhibition at the local community centre that coincided with the end of the test period and the removal of the smartbus from the route.



The smartbus and its designed infrastructure, including materials for efficient use on both bus and route, give instruction for use – either implicitly or explicitly. Users are told how to behave and how to interact with the technological aspects of the bus, the route is a script composed of acts in the line – each stop with a name, a location, an island to wait on with information. As such, the smartbus follows upon a well-established transport agenda of efficiency and command. This is a functionalist agenda that, as Lanng and Borg have argued, superimposes infrastructural scripts that tend to draw tightly around us, seeking to push us into specific user roles. The functionalist script however, does not persuade local travellers to only play the roles imposed upon them. Instead, there seems to be a “paradoxical looseness” to the intersection between the scripting of life and life itself that in its urban and social embeddedness, manifests as relational encounters, quirks and tics - creating experiential situations that transcend an experience of simply being transported from A to B.⁷

The *spatiality* of the bus, and of its route, provided the scene for unscripted encounters between the users of the bus and the bus itself, as well as the experiences of the route that the bus became a catalyst for discovering. It was observed that users, particularly young users gathered in the bus as they were transported, interacting with each other and the steward. It was also observed that other users found other uses for the bus than mere transportation. The smartbus became a conversation hub and a haven from rain, that superseded the intended functionality of the bus and the efficiency of its automation, finding new functions, new uses and encouraging a sense of community in the process. Many were on a first name basis with the steward. The layout of the interior of the bus, and the presence of the steward, lent itself to conversation, to social interaction, and its size created an intimate environment – a bubble in the automated world that moved along, inhabited by humans – and giving shelter, creating a welcoming atmosphere, and generating exchange, suggesting that a sense of community was extended into - and hosted by – perhaps even magnified within the smartbus.



While in the bus, the route became a panorama, a film passing by the windows of the bus that showcased idyllic landscapes in the utilitarianism and functionality of the programmed route. The large bus windows, the way in which the seats had been arranged, provided a raised and clear view forwards and backwards, and out the sides. From this vantage point the landscapes and urbanscapes seemed to ask to be named so that their narratives could be witnessed as they waited for their stories to be told. *The Pony Ranch, The Old Hedgerow, The Birch Copse, The Canyon, The Farm* passed by becoming smaller narratives on the path.

In addition, small quirky stories started to emerge that indicated unseen potential and unscripted acts. For example, dogs with their accompanying humans seemed to recognise, and certainly reacted with a sense of expectation and excitement to approaching smartbuses. The reason was to be found in the pockets of one of the stewards. A dog lover who reached into her pocketed stock of treats at the sight of a dog close to the stops. As the Smartbus doors opened, a flurry of deliciousness exited and quickly disappeared into a diverse range of Fidoes. Peculiarly, the steward in the driverless bus is a paradoxical figure. This human is of course not present in the smart vision, which assumes the absence of a paid professional in the bus. As of now (s)he/they is/are needed as a temporary tic on the way to full automation of the transport service. This perceived 'driver' of the driverless bus, then, is currently the one *who* interacts, engages, fixes, smoothes in continuous complex negotiation with all the nitty-gritty real-life situations constantly occurring in the smart city, and is slated to be rendered redundant. One can wonder what happens when the steward is removed from the smartbus. Will the bus 'lose' its 'humanity' or will other acts of quirkiness and other forms of interaction and human investment take place?

It was observed that people walking along the route waved to the bus as it drove past also. The distances between the bus and the wavers were often too great for them to be able to identify the steward, the human inclusion in the bus, which would be the expected greeting destination. So, were people waving at the bus itself? Had the bus taken on an identity with a personality, becoming a kind of 'living' entity within the system? A young respondent to the researcher's questions about this, meant absolutely not. 'No, I'm not waving to the bus. That would be the same as waving to your cell phone!' So, if it isn't the bus being waved at, was it then the stewards, and in this an acknowledgement of them as (unsmart) fixtures in the smart system? The stewards are not an intended presence in the smart vision, but as the at least temporary 'contact' point between technology and user, the steward has become a tic on the way to a form of full smartness that is synonymous with full automation.

In other forms of usage and interaction, a local resident entered the bus with a moving box of her belongings. A new home from one place along the route to another, transformed the smartbus into a moving van, a safe carrier of possessions and a conversation about this during 'the move'. And in another instance, young Pokémon Go practitioners, used the Smartbus to gain more hits in a shorter period of time as Pokémon Go - intended to be a smart pedestrian system - could not distinguish, because of the relatively slow tempo of the bus, between a walking participant and one sitting in the bus. In this instance savvy users utilised one smart system to outsmart another.

These exchanges bear witness to unexpected, and certainly unscripted uses of the bus and its route and to a kind of personal contact with humans (and animals) that created new practices – and expectations. They demonstrate how the automation technology and the infrastructural scripts participate in shared conditions with the place and with people. Like other technologies, this smart piece of infrastructure is shaped in context. Its design, existence, and development are not controlled by the system logic alone, but enter into multiple encounters with people and place, producing all manners of old-fashioned ambiguity and common disorder.



Conclusion: Getting Smart (?)

Although the test period is now over and the smartbuses and their stewards no longer drive along the path, the choice to locate the smart bus in Aalborg East initiated change and has left imprints on the local district. A range of actions, experiences and meetings occurred that warranted witnessing as the intertwinings of technology, people and places unfolded. The road as a line formed an organising structure, a system of intended efficiency; a bus route, connecting places, but also connecting people. This reportage has unfolded some of the bonds formed and experiential capacities revealed between people, places and technology in the brief span of a test case. It has also revealed a wonderfully messy meeting – a rich instance of the *momentary place* that occurred while the bus was drove along the route, setting the conditions for a range of human actions in response to, approximation and contestation of the technology:

‘Regardless whether they are routinised and unreflexive or new and creative, these actions reflect to varying extent the ways in which humans process, relate to and negotiate the technological and its agency. Put differently, these actions can be seen as a function of human and non-human agencies, where neither are given a priori but are temporally and spatially emergent in practice. Focusing on actions will, therefore, illuminate how people make sense of their interactions with technology as well as how agencies intertwine in space and across time.’⁸

The smartbus and its route were most certainly scripted, a product of mobilities efficiency and new technology, as were the renovations of existing buildings to conform to a new orientation towards the path, and new installations that supported the notion of the path as public space. However, the co-mingling of people with the scripts provided a number of unexpected encounters – the quirks and tics that come about when human activity, interpretation, use and desires become a part of the mix.

In the city, technology is embedded in real life contexts - with diverse mobility patterns and needs, with pedestrians and cyclists - and with the spatial, cultural, social and historical richness of urban environments. Through the duration of the test case we saw how the concrete urban and transport context interacted with the smartbus and how people used and experienced these as parts of their city and everyday life. A richness of interactions, adaptations and contestations of the technology took place in and around the smartbus, and between smartbus users, path users and smartbus stewards. Although in a strictly technological sense this messiness could be seen as a form of potential inefficiency, from an embedded perspective, it exemplifies the relationality of intertwining. Yeo and Lin suggest that “sensation, action, and encounter are productive because they point us towards the unfolding relations between technology and society, spaces where human agency may be found despite the structural grammar set by automation.”⁹

The actions and interactions described could not have been foretold, nor were they intended in a solely technological or for that matter, place-based point of departure, but their unscripted happening provided new experiences and vantage points that, conversely would not have occurred without the inclusion of the smartbus along this particular stretch of path in Aalborg East. The lived experience of this intertwining does not happen from afar, from a cartographic perspective, a dataset or through overview. It is the view from the street, *in* the system, seen most clearly - “seen well” - in the individual and individualized pieces – the encounters and quirks and tics - of technology embedded in places and life folded into that.

¹ Thrift, N. (1996). New urban eras and old technological fears: reconfiguring the goodwill of electronic things. In: *Urban Studies*, 33. P. 1468

² Latour, B xxx

³ Latour, B. (p. 181, *Reassembling the Social. An introduction to Actor-Network-Theory*)

⁴ (Corner 1999)

⁵ (ibid., xx) Corner

⁶ EU Interreg project *Art-Forum* (art-forum.eu), report on qualitative study of Aalborg AV shuttle bus pilot: Lanng, D. B., Villadsen, H., Hougaard, I. B., Frejlev, C. A., Borg, S. R. (2022) A qualitative study of a trial with driverless shuttles in Aalborg East – Meeting of city, people and technology. A&D Files.

⁷ Lanng, D. B. and Borg, S. R. (2021) Multistable Infrastructure: The Scripted and Unscripted Performance of a Functionalist Pathway. *Postphenomenology and Architecture: human technology relations in the built environment*, edited by Botin, L. and Hyams, I. B. Lexington Books, pp. 19-43.

⁸ Yeo and Lin P. 4

⁹ Yeo and Lin P. 5