Interrogating urban projections in audio-visual ‘smart city’ narratives

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Abstract

Heeding calls to broaden the scope of smart city discourse analysis to include visual representations and building on Regina Queiroz's notion of "publicity without a public", this article scrutinizes audio-visual smart city narratives from an actually existing (aspiring) smart city. A meticulous analysis of the interplay of different expressive modes within those narratives is followed by a contextual analysis and discussion with a view to reconstructing underlying notions of sustainability and security as key aspects of increasing claims to citizen-centred smart urbanism. The results provide concrete illustrations of the maxim of "pursuing neoliberal goals by letting people think (wrongly) that other legitimate goals are being pursued".

1. INTRODUCTION: SMART CITY (VISUAL) RHETORIC

Building on Regina Queiroz's notion of "publicity without a public" (Queiroz, 2017), this article examines audio-visual smart city narratives from the "actually existing" (aspiring) smart city (Shelton, Zook, & Wiig, 2015) of Antwerp and its semi-corporate partner imec. This introduction is followed by a short exploration of neoliberalism and "publicity without a public" in the context of the smart city paradigm and a section on our case selection. Next, a detailed cross-modal analysis of audio-visual features of the selected materials precedes a more contextual analysis and discussion of underlying notions of citizenship, sustainability and security. The conclusion summarises main findings and considers policy recommendations.

Smart cities have climbed up high on urban policy agendas across the world during the last two decades, where they have been "informing and shaping the work of urban planners, architects, infrastructure operators and real-estate developers, transportation officials, as well as mayors and entire industries" (Morozov & Bria, 2018, p. 2). Söderström, Paasche and Klauser (2014) situate the smart city notion within a range of predecessors such as the creative, sustainable and liveable city as part of "contemporary language games around urban management and development" that "frame how cities are understood, conceptualized and planned" (Söderström et al., 2014, p. 307).

Today, one could describe a smart city as one that fosters economic growth through innovative and creative technologies and entrepreneurship and/or uses 'real-time' systems driven by data, IT infrastructures and technologies to rationalize governance (Kitchin, 2015, p. 131). Still, the term applies to brand-new large-scaled urban developments such as Masdar in the United Arab Emirates and Sidewalk Toronto in Canada, as well as to a plethora of large and small-scale cities seeking to implement technology and data-driven 'solutions' in their existing urban fabric (Shelton et al., 2015, pp. 13-14). As such, the universal discourse and "placeless imaginary" (J. M. White, 2016, p. 573) of the smart city offers little insight into the outcomes in different, individual "actually existing smart cities" (Shelton et al., 2015). A term which, much like the original notion of "actually existing neoliberalism", has been necessitated by a gap between a dominant narrative and its concrete outcomes on the ground (Peck, Brenner, & Theodore, 2018, p. 3).

In spite of such discrepancies, the neoliberal discourse is said to be a key aspect of its success (e.g. Colombo, 2014; Krzyżanowski, 2016; Majhanovich, 2013; Queiroz, 2017; Salter & Phelan, 2017) and has proven to be difficult to challenge (Coleman, 2003, p. 37). In the case of smart cities, too, discourse seems to reign over actual "spatio-physical articulations" (Joss, Sengers, Schraven, Caprotti, & Dayot, 2019, p. 5). This lack of tangible expressions warrants further investigation. Indeed, the emerged academic attention for smart city discourses should be expanded to include visual representations (Joss et al., 2019, p. 25).

Visual social science has an important role to play. Recognizing that even invisible or purely conceptual subjects often exert considerable influence on society (Pauwels, 2015, p. 280), visual analyses can uncover patterns in their visualisations and offer explanations in the

context of societal and normative processes and structures (Pauwels, 2015, p. 50). The image is important in any given power structure (Traue, Blanc, & Cambre, 2019, p. 334), and the visual – including the moving image (Crawford, 2017) – has been an important element of the neoliberal narrative as well. Schroeder refers to an "image economy", where the image precedes the product, and the latter is made to fit the first (Schroeder, 2004, p. 234). Böhme's "aesthetic economy" involves creating appearances, auras and atmospheres around things, people and places (Böhme, 2003, p. 72). However, that which is presented as aesthetic is in fact often instrumental and serves political ends (Thrift, 2004, p. 58). The continuous selling of products, services and concepts in this way requires careful consideration of the economic, psychological, political and other implications (Schroeder, 2004, p. 230).

2. NEOLIBERALISM AND THE SMART CITY

David Harvey has defined neoliberalism as follows:

> *Neoliberalism is in the first instance a theory of political economic practices that proposes that human well-being can best be advanced by liberating individual entrepreneurial freedoms and skills within an institutional framework characterized by strong private property rights, free markets, and free trade. The role of the state is to create and preserve an institutional framework appropriate to such practices.* (Harvey, 2005, p. 2)

The preference for state-guaranteed individual entrepreneurial and market freedoms clearly has economic and political implications. However, even its fiercest political proponents have deserted the term neoliberalism (Peck et al., 2018, p. 3), often even presenting themselves as "apolitical" (Hursh, Henderson, & Greenwood, 2015, p. 301). Neoliberalism indeed differs from, for instance, socialism and liberalism in that it "refers not only to the political realm, to an ideal of the state, but to the entirety of human existence" (Read, 2009, p. 26), and seeks to articulate "the nature and meaning of the political, the social, and the subject" (Brown, 2006, pp. 693-694). This all-encompassing scope, together with an understanding of neoliberalization as a *process* (Peck & Tickell, 2002, p. 383), helps to explain why neoliberalism "seems to be everywhere", exerting a compelling but intangible power (Peck

& Tickell, 2002, p. 381) in normalizing and depoliticizing its specific take on economic management (Peck & Tickell, 2002, p. 389).

Regina Queiroz has argued that in order to reorganise the whole of society while avoiding too much democratic scrutiny or backlash, neoliberalism relies on a specific strand of "publicity without a public", central to which is the repeated public profession that "there is no alternative" (TINA) (Queiroz, 2017, p. 5). This repetitive claim has helped to enable the "active construction of consent" needed to push the "neoliberal turn" in democratic societies (Harvey, 2005, p. 40). As Quiroz puts it, TINA's role is to disempower citizens while reinforcing "the despotic power of the neoliberal order":

> *The fact that neoliberals loudly and visibly profess that "there is no alternative" reveals not only their lack of fear concerning the possible frustration of their policies as a result of their being made public, but also, and mainly, their political intention to crush peoples' political choices. (Queiroz, 2017, p. 7)*

Presenting itself as the only way to serve the common good, while in fact facilitating the maximal pursuit of private and individual interests, neoliberalism "relies fundamentally on secrecy" (Queiroz, 2017, p. 2). And thus, the neoliberal politician's maxim must be "'pursuing neoliberal goals by letting people think (wrongly) that other legitimate goals are being pursued'" (Queiroz, 2017, p. 9). A clear example of this is greenwashing, which entails presenting profit-driven projects as initiatives to "enhance human welfare" (Harvey, 2014, p. 249).

The particular role of cities and urban (development) policies in the advancement of neoliberalism and the "destructive link between finance, capitalism, and urban development" (Rossi & Vanolo, 2015, p. 13) have long been recognised (e.g. Harvey, 1972; Lefebvre, 2003 [1970]). Indeed, Brenner and Theodore have described how cities form "institutional laboratories for a variety of neoliberal policy experiments", and as such offer manifestations of actually existing neoliberalism (Brenner & Theodore, 2002, pp. 367-368). Smart cities can be considered as urban laboratories *par excellence.* They seek legitimacy by explicitly promoting participation in and public awareness of urban experiments (Cowley & Caprotti, 2018, p. 10) and keenly use social media to promote various smart city-related events (Molinillo, Anaya-Sánchez, Morrison, & Coca-Stefaniak, 2019; Rose & Willis, 2018).

3. CASE SELECTION: ANTWERP AND IMEC AS NON-CANONICAL AND HYBRID SUBJECTS

Avoiding “canonical examples” of smart cities (Kitchin, 2015, p. 133), the selected materials relate to the Belgian city of Antwerp’s relatively recent campaign to become “Capital of Things” (Investdesk, 2017). Antwerp is the largest city of Flanders (the northern, Dutch-speaking part of Belgium), which is mainly known for its port, diamond trade and fashion scene. Although not (yet?) renowned for its smart city policies, the city has a young but fairly strong urban planning tradition, which took off in the 1990s, flourished in the mid-noughties due to the launch of various city marketing campaigns and the strategic Spatial Structure Plan for Antwerp (Lorquet, 2017, p. 14; 22). This trajectory has earned the city multiple international planning awards since 1992 (Lorquet, 2017, pp. 266-267).

In the first months of 2017, the city agreed on a covenant with Belgian (semi-) governmental organisation imec to create a “living lab” in the city centre. The project would be financed by the city for 650.000 euro over three years, while the Flemish department of economy committed to investing 4 million euro per year in the implementation of the "City of Things" throughout the region of Flanders (Antwerp, 2017b, p. 1). Five smart city priorities were defined: mobility, safety, efficient governance, smart citizens and, finally, energy and resource efficiency (Antwerp, 2017b, p. 13). In May 2017 Antwerp decided to locate its living lab – now referred to as a “smart zone” – in Sint-Andries (Antwerp, 2017a, p. 2), a lively, mixed neighbourhood in the city centre.

Imec stands for “inter-university centre for micro-electronics”. According to its website, imec is “the world-leading R&D and innovation hub in nano-electronics and digital technologies” (imec, 2018a). It is a registered trademark for the activities of imec international, imec Belgium, imec the Netherlands, imec Taiwan, imec India, imec San Francisco office and imec USA - Florida. Imec international is a Belgian (semi) public interest foundation (Dutch: “stichting van openbaar nut”) and imec Belgium and the Netherlands are – respectively – a Belgian non-profit association supported by the Flemish government and a Dutch foundation supported by the Dutch government (imec, 2018c).

Central to the cross-modal analysis (section 4) is a promotional film that introduces the smart zone in Sint-Andries to the public (*smart zone film*). Its length is one minute and

thirteen seconds and it can be accessed in Dutch (imec, 2018b) and English (imec, 2018e) via the city of Antwerp's smart zone website (www.antwerpsmartzone.be) and imec's city of things website (www.imeccityofthings.be). It can also be viewed in English at imec's corporate website http://www.imec-int.com (imec, 2018d). A further three out of almost 200 videos featuring on imec's Vimeo-channel (imec, 2018h) will be involved in the contextual discussion in section 5. The one minute and twenty-seven second long *flooding film* (imec, 2017b) predates the *smart zone film,* but uses some of the same shots and scenes. The end titles credit the city of Antwerp and the Flemish government. The final two films are imec's one minute and thirty-one second long *corporate film* (imec, 2017c) and a fully animated, two-minute smart city introductory film (*animated film*) (imec, 2017a).

4. A CROSS-MODAL READING OF THE AUDIO-VISUAL NARRATIVES

Detailed findings were listed chronologically per shot in seven categories: voice-over, location, cinematic aspects, people, activities, objects and music/sounds. This inventory concerned the level of the depicted (representations of verbal/written elements, people, activities and material and graphic objects), the level of depiction (formal characteristics of the image frames and shots, editing aspects and post-productive additions) and auditive elements (voice-over, music, sounds and sound effects). In the subsequent analysis attention is given to the interplay between the various visual and auditive elements (Pauwels, 2015, pp. 78-79).

First impressions

The *smart zone film's* length and style would put it somewhere between a long tv commercial and a short music video. Most of the scenes are shot outdoors in daylight and feature happy-looking people engaged in various activities. The settings include a museum, shopping streets, a river and a park and panoramic cityscapes, which encourage suggestions of futurity (Jansson & Lagerkvist, 2009; Lagerkvist), internationalism and competitiveness (Skrede, 2013, p. 11). Throughout the film there is a voice-over that sounds friendly and

mildly enthusiastic. The voice most likely belongs to a woman. There is background music and there are all kinds of sounds and sound effects.

Verbal/written elements

The visual narrative makes use of standard-looking subtitles. Other written signifiers are sketches, words, numbers, symbols and formulas written on an animated transparent blackboard that reappears throughout the film. Combining different forms of representation in this way is typical of a discourse that seeks to be "scientific" (Pauwels, 2015, p. 281). The blackboard scenes thus may reflect the smart city paradigm as the latest in a series of ongoing efforts to promote "more scientific" urban futures and encourage naive understandings of data (Shelton et al., 2015, p. 22).

The bright blue end screen features a written invitation to "Join in at http://www.antwerpsmartzone.be. The logos of the project partners – the city of Antwerp and imec – encourages viewers to view the content as public information: a positive policy tool that encourages participation, but nevertheless also "a form of ideology production" (Gelders & Ihlen, 2010, pp. 59-60).

People

There are four types of characters: actors who play specific roles in the narrative, extras picturing particular professions, passers-by posing for the camera in a shopping street and multiple unaware passers-by. Three actors are male and two are female. Three extras are male and one is female. Three men and two women are posing for the camera. Based on a crude assessment of darker and lighter features, three to five active participants seem to have African, North-African or Asian backgrounds. All of the fourteen mindful participants are able-bodied and seem to be in their twenties or early thirties at the most.

Two consecutive scenes in a busy shopping area focus on large groups of people who do not notice the camera while crossing the street. Various other people in the film are only subtly present in the background. The diversity among accidental participants is remarkable compared to the fourteen cognizant participants, especially in light of their ages. This may

be explained by the preference for youth and happiness in commercial and political advertising to suggest the idea of a better future (Hernández Olmedo, 2017, p. 123).

Activities

The conscious participants are either walking, standing, sitting down, cycling, doing a sportive activity or drawing on an animated transparent blackboard. Most are walking leisurely, combined with taking in cityscapes, shopping, crossing the street and using a mobile phone. These scenes sometimes resemble live versions of urban development renderings where nothing much happens except "happy strolling, shopping, and sipping of coffee by apparently affluent inhabitants" (Rose et al., 2016, p. 2). Other aware participants are working, namely the waitress, the firemen and the postman. People sitting down are enjoying drinks and working on laptops. While we have clearly moved on from times when women working on computers were pictured as clerical workers (C. White & Kinnick, 2000, p. 403), one could say that there is an overall underrepresentation of professional women.

Material and graphic objects

The video features objects such as a traffic light, bicycles, a basketball and hoop, drinks, a car, a firehose, some sort of (anti-)parking device, a headphone, laptops, a mobile phone and the animated transparent blackboard. Most of these objects support the narrative through their use by the actors, extras and passers-by. The city of Antwerp itself features prominently throughout the video. Many of the locations will be recognisable or even iconic to people who know or have visited Antwerp. Locations include the River Scheldt, the MAS museum ('museum by the stream'), the Meir shopping boulevard, the botanical garden, exclusive shopping zones Hopper and Nationalestraat and neighbourhood squares Sint-Andriesplaats and Mechelseplein. All these locations are situated within a two-square-kilometre rectangle in the most commercial part of the city – the 19th-century inner city belt.

	Fourteen aware participants (in order of appearance)	Female/ Male	Darker /lighter features	Age	Able-bodied
1	Main female actor **0:05**	F	L	20s-30s	y
2	Main male actor (Jogger) **0:08**	M	L	20s-30s	y
3	Second male actor (basketball player) **0:35**	M	D	20s-30s	y
4	Third male actor **0:40**	M	L	20s-30s	y
5	First extra (fireman) **0:46**	M	L	20s-30s	y
6	Second extra (fireman) **0:46**	M	L	20s-30s	y
7	Third extra (postman) **0:51**	M	?	20s-30s	y
8	Posing man **0:51**	M	D	20s-30s	y
9	Posing woman **0:52**	F	L	20s-30s	y
10	Posing man **0:52**	M	?	20s-30s	y
11	Posing man **053**	M	L	20s-30s	y
12	Posing woman **0:53**	F	D	20s-30s	y
13	Fourth extra (waitress) **0:54**	F	L	20s-30s	y
14	Second female actor **0:58**	F	L	20s-30s	y
	Total	**5/9**	**5/9 (3/11)**	**14/14**	**14/14**

Table 1. *Gender, ethnic features, age and able-bodied-ness of aware participants*

Formal characteristics of the shots

Most scenes were filmed during daylight and are bright and crisp. The only night-time scene was filmed at neighbourhood square Sint-Andriesplaats and features a basketball player. The only indoor scenes were filmed inside the MAS museum and in a (business) restaurant near the botanical garden. Various scenes capture people on the move, followed by the camera. At other times the camera moves towards and around static people and objects, as

if to draw the viewer in. However, an overall calm and composed feel is preserved by the use of slow-motion effects throughout the film.

Statically filmed with the viewer looking over the shoulder of the actor, the blackboard scenes seem to represent moments of thought and reflection. Other static moments are the shots portraying participants in a busy shopping street, but their rapid succession enhances a dynamic feel and suggests variety and spontaneity. Finally, there are two similar portrait-like shots of the jogger posing with his headphones on and the basketball-player posing with his ball under his arm.

Editing and post-production elements

The editing contributes to quite a balanced and controlled whole, with seamless transitions rather than hard cuts from shot to shot. As post-production additions, the recurring blackboard and the subtitles further reinforce suggestions of continuity and coherence. In addition to facilitating hearing-impaired viewers and, for instance, online muted views in public places, same-language subtitles have been found to enhance brand memory and verbal information recall in television commercials (Brasel & Gips, 2014, p. 334).

Auditive elements

The music at first sounds minimalistic, slightly mysterious and perhaps somewhat melancholic. In some respects, it seems to mimic the minimalistic Vangelis soundtrack of the dystopian urban science-fiction film *Blade Runner* (Scott, 1982), which is aimed at evoking nostalgia in the face of a bleak future (Hannan & Carey, 2004, p. 163). Halfway through the second part of the film, the music bursts into a more joyous tune.

The voice-over in the *smart zone film* is female. Most commercial audiovisual advertisements use a male voice-over to reinforce “authoritative pronouncements” (Pedelty & Kuecker, 2014, p. 257), especially on topics which are regarded as masculine such as science, technology and the economy. However, in *political* promotional films, a female voice-over is often a deliberate choice to increase the appeal of a message in spite of its perceived masculinity (Strach, Zuber, Fowler, Ridout, & Searles, 2015, p. 196). And

maximizing audiences is exactly what popularized smart city imaginary aims to do (J. M. White, 2016, p. 573).

The voice-over suggests three major parts in the narrative. A first part builds up to the question of what the city of tomorrow will look like. The voice-over consistently uses the word “we” – which in fact it is the opening word of the video. It seems to appeal to collective memories and affinities, stressing the words “live”, “love” and “work” as the city is introduced to viewers as a familiar place where “we” belong forever. The word “live” is accompanied by a scene of the female actor walking with her bike on her hand and with traffic noises in the background. The word “work” coincides with a shot of her working on a laptop, accompanied by keyboard sounds. The word “love” coincides with the shot of the female and a male actor together, arm in arm and laughing.

The second part consists of a series of questions about the city of tomorrow. While the activities referred to are in themselves unremarkable, the tone of voice and a change in music suggest an atmosphere of accomplishment. The sounds of traffic, a dribbling ball and running water heighten the viewer’s involvement. The voice-over wonders if *each* one of us will be able to safely cross the street, whether cyclists will be able to *just* enjoy their ride, and whether there will be *more* fresh air to breathe. In contrast to mostly literal relationship between voice-over and depicted activities, shots of a basketball player are combined with the question if we will be able to improve ourselves and never let our goals out of our sight. The disjuncture between lyrics and images and the rhythmic conjunction between the camera and the basketball-player’s moves evoke the feel of a popular music video (Sedeño Valdellós, Rodríguez López, & Acuña, 2016, p. 346).

In the third part, the question-form is traded in for categorical statements about the city of tomorrow. The word “you” now mostly replaces the word “we”. The words “a city you can rely on” are combined with shots of a postman carrying packages and a delivery van pulling into a parking space. “Where your opinion counts” coincides with the waitressing scene. The sentence “where your voice is heard” is accompanied by the rapidly succeeding portrait-like shots of people in a shopping street. The sentence “where you get a say” coincides with the camera revolving around a female actor looking at her smartphone. While the city is said to “listen”, the jogger poses smiling at the camera and puts on his headphones. Finally, the

answer to the original question ("What will our city look like in the future?") is given: "It is a smart city", the voice-over says, while the basketball player is writing on the blackboard, "designed by all of us".

	VOICE- OVER	SOUND/MUSIC
PART I 0:00	*We have known this city our entire lives. It's where we **live**, where we **work**, where we **love**. We're are a part of it now, and we'll be a part of it always. But what will our city look like in the future?*	**Eerie music** Traffic, car-horn, keyboard, wind-rush (fast camera movement
PART II 0:19	*Will it be a city where **each** one of us can safely cross the street? Where we can breathe in **more** fresh air while jogging? A city where we can continue to improve ourselves and never let our goals out of our sight?*	**Eerie music** Digital bleeps and pen sliding on blackboard, breathing, dribbling
	*Where we can jump on our bicycle and **just** enjoy the ride? A city where we can predict and prevent problems before they arise?*	**Joyous music** Running water
PART III 0:48	*A city you can rely on. Where your voice is heard. Where your opinion counts. Where you get a say. The city of tomorrow listens, understands and adjusts itself to our lives. It is a smart city, designed by all of us.*	**Joyous music** Digital bleeps and pen sliding on blackboard

Table 2. *Auditive elements supporting the narrative*

5. CONTEXTUALIZED ANALYSIS AND DISCUSSION OF THE NARRATIVES

Increasingly criticized as top-down, technocratic and solutionist policies serving corporations and governments rather than actual citizens, tech companies and governments are today quick to boast "citizen-centred" approaches to urban smartification (de Waal & Dignum, 2017, p. 263). As the actual implications of citizen-centered smartification are rarely detailed (de Waal & Dignum, 2017, p. 263), much depends on one's definition of citizenship. And if most aspiring smart cities are indeed "caught up in the regulatory apparatuses of neoliberalism" (Morozov & Bria, 2018, p. 8), it is important to note that neoliberalism projects its own images of citizenship (Houdt & Schinkel, 2014, p. 2).

Traditionally understood as "a social process through which individuals and social groups engage in claiming, expanding or losing rights" and – as such – as a prerequisite for political engagement (Isin & Turner, 2002, p. 4), neoliberal notions of citizenship move "away from inalienable rights and the common good" (Kitchin, Cardullo, & Feliciantonio, 2019, p. 11), towards individual responsibility (Houdt & Schinkel, 2014, p. 5). Such concepts of citizenship have implications for the further content of smart city policies.

For example, as seamlessly as “smart” seems to have replaced “sustainable” in the new urban paradigm, recent discourse analysis reveals that environmental aspects are discussed far less than one would expect (Joss et al., 2019, p. 20). Smart policies are typically justified by looming prospects of urban population growth and ecologic and economic disaster (Sadowski & Bendor, 2018, p. 549). But the question is whether policies that claim to address these global insecurities solve actual problems faced by real people, such as persisting and rising inequality, climate change, ecological degradation, and the plight of refugees and asylum seekers (Burke, 2017, p. 7).

Intensifying neoliberal (and smart) urban policies have been linked to the 2008 financial crisis, both as a cause (e.g. Harvey, 2010; Harvey, 2012) and in terms of the austerity programmes that have since been imposed all over the world (e.g. Leontidou, 2015; Oosterlynck & González, 2013; Pollio, 2016). This enduring insistence on neoliberal recipes in the face of their decreasing credibility (Burke, 2017, p. 6) is accompanied by new forms of authoritarianism (Fabry & Sandbeck, 2018; Jessop, 2015) and surveillance (Levenda et al., 2015). Notions of security are reduced to safety[1] from crime and nuisance, discounting fears of eviction, marginalization or gentrification (Listerborn, 2015, p. 12).

Citizenship

Notions of citizenship are clearly and directly linked to what is accepted in terms of people’s treatment and living conditions (Kitchin et al., 2019, p. 14). Any view of citizenship publicized through and underlying smart city narratives therefore significantly affects what is understood to constitute a more sustainable and secure urban environment and for whom. Indeed, closely related to notions of citizenship are those of diversity and equality. Neoliberal versions of these concepts have been shown to focus on equal market access without offering full citizenship and political agency (Kymlicka, 2013, p. 119) or to employ the language of empowerment to expand pools of potential consumers, debtors and cheap

[1] According to the Oxford English Dictionary (www.oed.com), security means “freedom from care, anxiety or apprehension; absence of worry or anxiety; confidence in one's safety or well-being”, while safety means “the state of being protected from or guarded against hurt or injury; freedom from danger”.

labourers (Boyd, 2016, p. 146). Looking progressive at face value, such notions acually help "shape and neutralize political opposition" while reinforcing existing hierarchies (Hale, 2005, p. 10).

At first sight, the *smart zone film* (imec, 2018b) portrays a fairly diverse picture of the citizens, workers and visitors of Antwerp. A closer inspection reveals that the aware participants are all able-bodied and in their twenties or early thirties, most are male and white, especially those presented as professionals. Also published by imec but for different purposes, the *flooding film* (imec, 2017b) and the *corporate film* (imec, 2017c) paint remarkably different pictures. The *flooding film* explains how combined data from sensors can help predict flooding and features only white, male firemen and technicians or IT specialists. In contrast, the imec *corporate film* (imec, 2017c) spares no effort to underline the diversity of imec's personnel. Rapidly succeeding portraits of an indeed diverse-looking set of smiling, mostly young women and men drive home a message about imec as an employer of – as the voice-over puts it – "3500 unique people from over 70 nationalities".

Figure 1. *In its corporate film, imec prides itself on the diversity of its employees.*

In the *smart zone film*, the basketball scene stands out, as it features the only black man and the only night-time scene in the otherwise bright and sunny film. The location stands out as well. The relatively uncommercial setting of neighbourhood square Sint-Andriesplaats is partly surrounded by social housing blocks. Other filming locations are recognisable or even

iconic touristic places. The otherwise fairly literal relationship between the words of the voice-over and the portrayed activities is interrupted for a message about continuing "to improve ourselves and never let our goals out of our sight". After the basketball player scores, the music bursts out into a joyous tune. This entire set-up makes it hard to resist interpretations of the basketball scene in light of the (American) cliché of urban male minorities escaping poverty and crime and 'improving' themselves through excellence in sports (Harrison, Lawrence, & Bukstein, 2011).

Another remarkable scene is the one that combines shots of crowds of people crossing the street with a close-up of a count-down traffic light while the voice-over wonders if the city of tomorrow will be one "where each one of us can cross the street safely?" The words "each one of us" seem to present safe street-crossing as an issue of equality. The expectation would be that the smart city will answer the particular needs of vulnerable pedestrians, very old or young people, people with physical or eyesight problems ... However, the fact that such citizens are entirely missing from the cast of the film does not support this understanding of the scene, and neither does the close-up of the count-down traffic light. Further implications of both these scenes are discussed below in terms of what is considered a sustainable and secure environment.

Throughout the film we see actors drawing and writing on the graphic blackboard, which invokes the particular "multimodal semiotic system" of scientific discourse (J. Lemke, 2012, p. 82). However, whereas scientific discourse often promotes the idea of science as notoriously difficult or even impossible to understand for ordinary people (J. L. Lemke, 1990, p. 129), the choice to present the signs as handwritten by the actors in the film may be intended to suggest that the smart city puts science (and technology) into the hands of citizens, who are restored from their erasure from science as "active agents" (J. L. Lemke, 1990, pp. 130-131). However, the so-called neutrality of science and implies a white, Western, male perspective (Marcus Foth, Odendaal, & Hearn, 2007, p. 8), ignores and exaggerates injustice done to disadvantaged groups of citizens and risks achieving the opposite of what smart cities claim to aspire to. Diversity has long been acknowledged as a driver of urban economic prosperity and innovation (Wood & Landry, 2008, p. 219) and diverse cities are recognized as incubators for creative ideas (Duranton & Puga, 2000, p. 553).

In the third part of the film, the viewer is invited to join in and visit the website www.antwerpsmartzone.be, where under the header “Maak mee/Co-create”, one learns that one can apply to be part of the imec “Maakdatmee-community” at www.maakdatmee.be. This means becoming part of a pool of 15.000 people who receive an email when deemed eligible to contribute to a certain project. Candidates need to accept the general conditions and be 16 or older or acquire their parents’ permission. Participants are expected to provide feedback about “innovative products and services [own translation]” by means of surveys, field tests, group discussions and other smart zone-related events. Candidates must also authorise the “commissioners of our scientific research projects to use this feedback for developing or commercialising products or services” while wavering their own right to “any recognition or reimbursement [own translation]”.

In any case, this is completely contrary to the actual meaning of participatory planning, which “involves the systematic effort to envision a community’s desired future, plan for that future, and involve and harness the specific competencies and inputs of community residents, leaders, and stakeholders in the process” (Marcus Foth, 2009, pp. 58-59). That this brand of participation resembles a series of data transactions rather than such a sustained process is confirmed at imec’s website, where an invitation to a smart city workshop promises potential participants a 25-euro voucher from a large online store (imec, 2018g).

Sustainability

If neoliberal citizenship moves away from the common good and towards personal autonomy, responsibility and choice (Kitchin et al., 2019, p. 7), this must affect smart concepts of sustainability. The complete absence of any reference whatsoever to public transport in the *smart zone film* is the first remarkable finding in this respect. A striking omission, considering how public transport could actually impact each of the issues and ambitions put forward in the *smart zone film*, from safe street crossing and air pollution to timely deliveries and smooth parking. This is of course reminiscent of Söderström, Paasche, & Klauser’s (2014) exposure of the smart city narrative as “corporate story telling”, a

strategy to channel urban development strategies through the solutions of technology companies. This in turn relies on the representation of the city "as a system of systems" combined with "a utopian discourse exposing urban pathologies and their cure" (Söderström et al., 2014, p. 308).

Figure 2. *The smart city narrative rephrases environmental issues in terms of available technological solutions (shot shared by smart zone film and flooding film).*

Other relevant *smart zone film* scenes are those focusing on flooding and air quality. Combined with shots of overflowing gutters and firemen, the voice-over seems to allude to preventing water *damage* rather than flooding. An emphasis on prediction is confirmed in the *flooding film*, which introduces sensors that measure water levels in sewers. Similarly, the jogger is filmed breathing in while the voice-over wonders if the city of tomorrow will be one where "we can breathe in more fresh air". Using the word "more" here seems to rephrase the problem as a diminishing quantity of fresh air, rather than an excess of air pollution. The *animated film* rather confirms this, as the voice-over promises air quality improvement, only to then focus solely on *measuring* air pollution. In fact, hundreds of sensors and wireless communication will create "a digital city, intertwined with the actual town" and translate location, traffic, weather and pollution data into "knowledge that forms the basis on which a smarter and a more pleasant city in particular will be created".

This formulation seems to confirm the above-noted reductive version of citizen participation as volunteering personal data. Moreover, the *corporate film's* voice-overclaims that, at imec, "we form science", and by combining data and maths with brain power, "we create possibilities. Possibilities that shape our future". Confirming, rather, that available technologies will determine policies, rather than citizens or pressing environmental issues. As determining common goals is crucial for any participative process (Marcus Foth, 2009, pp. 58-59) and the democratic right of citizens to affect change hinges on accessible and reliable knowledge (Hearn, Foth, & Stevenson, 2011, p. 360), TINA-rhetoric about the inevitability of growth combined with conflating and confusing solutions that prevent, improve or merely measure its detrimental effects further hinder meaningful citizen participation.

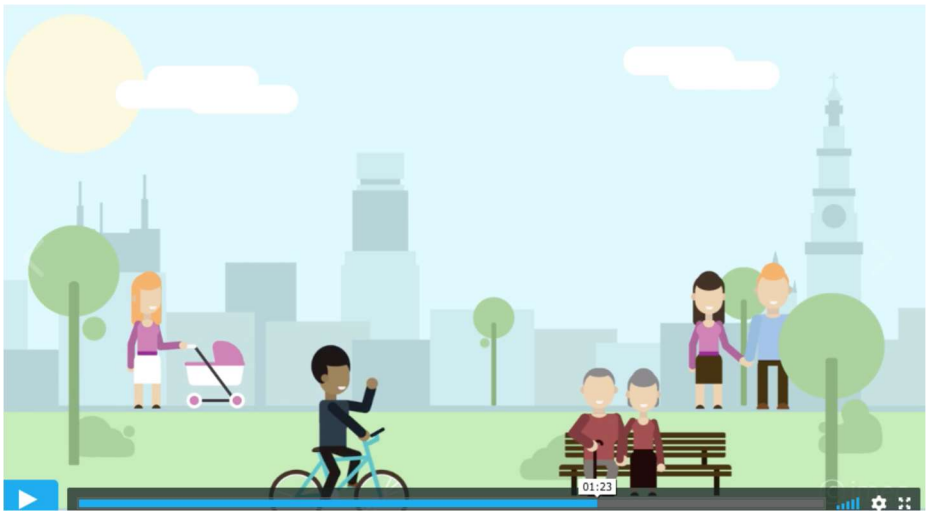

Figure 3. *The animated film explains how data obtained from sensors all over the city will provide the basis for a better urban future.*

Security

Smart policies are often seen as necessary to counter uncertainty and risk in a global context of (urban) population growth, environmental change and austerity (Kitchin & Dodge, 2019, p. 47). In the *smart zone film*, this message is reflected rather subtly in the structure of the three-part narration, where the voice-over first evokes collective nostalgia about "our" city and then triggers a sense of insecurity by asking: "But what will our city look like in the future?", to finally conclude : "It is a smart city, designed by all of us". The *animated film* is less subtle, with its opening statement that 75% of the population will be

living in cities by 2050, and that this brings “major challenges” as well as “unprecedented opportunities”. The voice-over in imec’s *corporate film* even cites avoiding human extinction in its claim that “accumulation of digitisation for the continuation of our population, is our destination”, while rather ironically emphasizing the words “accumulation”, “continuation” and “destination” by close-ups of paper dictionary definitions.

Surveillance, however, is not mentioned in the *smart zone film*. If viewers want to find out anything about this aspect, they have to consult other sources. The smart zone website, for instance, seems to explain the location and darkness of the basketball scene: public lighting around the square will contain movement sensors to allow people to play basketball in the darker hours (Antwerp & imec, 2018). Noble intentions that seem to counter stereotypical interpretations of the scene. However, regional news items reveal that the lights will contain sound sensors and shine brightly if people produce too much noise after 10 PM. One article announces this as a new “weapon” in the fight against street nuisance (GvA, 2018). Regional broadcaster ATV describes it as a means to scare off “troublemakers” (ATV, 2018). At the time of writing, neither the *smart zone film* nor the smart zone website mention these sound sensors (Antwerp & imec, 2018). But apart from possible privacy issues, there are compelling questions about social justice with regards to policing sound. Teenagers, for instance, use sound to carve out a secure place for themselves in public space, where they are always in danger of attracting “technological and human attention” and being “moved on” (Keeffe & Kerr, 2015, p. 3573).

The smart zone website also offers more insight into the street-crossing scene. Cameras at a busy crossing in Sint-Andries quarter will “calculate” the number of pedestrians ignoring the red light. The number is to be displayed on a screen, which will also display quiz questions about Antwerp to entertain waiting pedestrians (Antwerp, 2018b). Rather than a project to empower vulnerable pedestrians, this, too, turns out to be a policing issue.

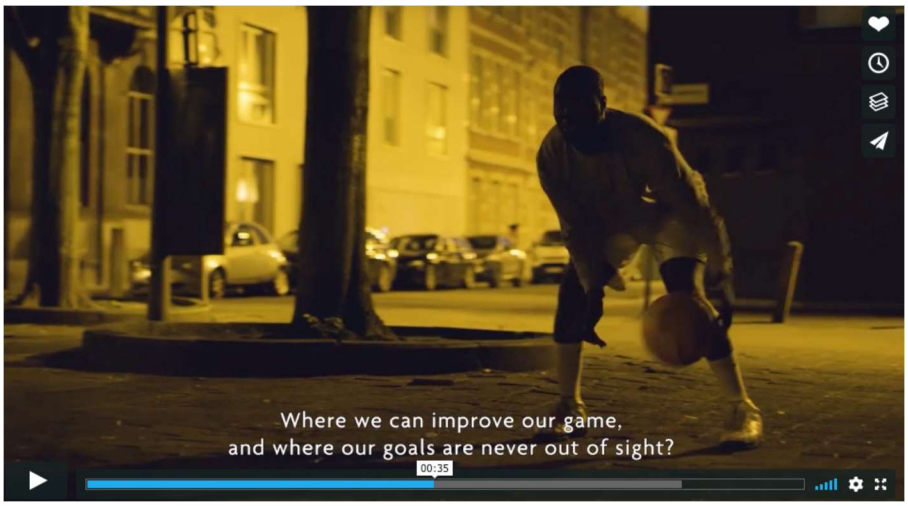

Figure 4. *A recent news item reveals plans to police noise after 10 PM through using sound sensors.*

Dystopian fears of ending up in a Chinese-inspired system of Social Credit are not entirely irrational. Especially when the ease of obtaining data about citizens contrasts with the efforts required from citizens to find out how these data are used and shared (Liang, Das, Kostyuk, & Hussain, 2018, p. 435). The City Council decision to increase the number of cameras in the smart zone does not seem to offer too much assurance. After stating that standard police cameras do not suffice in a smart city and must be combined with smart technologies in order to tackle "other" (unspecified) urban problems, the Council argues that there is currently no law that *forbids* multiple goals for such cameras and that it is up to individual smart zone partners to ensure compliance with the laws on camera use and privacy (Antwerp, 2017a). The identity of these partners was unknown at the time of the decision, as individual data agreements are to be concluded between the partners and the City Board (the executive branch) as the project progresses (Antwerp, 2018a, pp. 2-3).

	VOICE-OVER AND VISUALS IN THE SMART ZONE FILM	INFORMATION OBTAINED AT SMART ZONE WEBSITE	INFORMATION OBTAINED FROM OTHER SOURCES	EFFECT
STREET-CROSSING SCENE (0:19-0:28) MEIRBRUG	*a city where each one of us can safely cross the street* people crossing - camera zooms in on count-down traffic light	Public camera at crossing will "measure" red-light negation (Antwerp, 2018b)	Council Decision: *Multiple use of police cameras is not forbidden* (Antwerp, 2017a)	Equality issue becomes policing issue
JOGGING SCENE (0:28-0:35) BOTANICAL GARDEN	*a city … where we can breathe in more fresh air while jogging* jogger approaching and breathing in		The *animated film* rather confirms this, as the voice-over promises air quality improvement, only to then focus solely on *measuring* air pollution (imec, 2017a) Figure 3	Environmental improvement issue becomes issue of personal choice/freedom (choosing least-polluted times and places to go out)
BASKETBALL SCENE (0:35-0:40) SINT-ANDRIESPLAATS Figure 4	*a city where we can continue to improve ourselves* camera moves along with black man playing basketball in the dark	Movement sensors in street lighting will enable games in the dark (Antwerp & imec, 2018)	Sound sensors in street lighting as *a new "weapon" in the fight against street nuisance* (GvA, 2018) *a new means to scare off "troublemakers"* (ATV, 2018)	Self-improvement metaphor becomes policing issue
FLOODING SCENE (0:44-0:48) HOPLAND Figure 2	*A city where we can predict and prevent problems before they arise* Flooded gutter Firemen		The *flooding film* introduces sensors that measure water levels in sewers (imec, 2017b)	Flood prevention becomes early intervention and damage control
END SCREEN (1:06-1:13)	"Antwerp Smart Zone" Join in at www.antwerpsmartzone.be Logos of city of Antwerp, city of things and imec	Joining in means filling out online form & accepting legal conditions at www.maakdatmee.be	Imec.linvinglabs promises online shopping vouchers to participants	Invitation to participate becomes volunteering data

Table 3. *A confrontation of different sources of information. From minor quirks or discrepancies to making people believe that other than neoliberal goals are being pursued*

6. CONCLUSION: "SMALL RIPS THROUGH WHICH CHANGE CAN BE EFFECTED"

Over the past decades, the smart city paradigm seems to have smoothly and universally replaced that of the sustainable city – its corporate image tweaked by emerging claims of citizen-centeredness and its air of inevitability emphasized by persisting global insecurities. Heeding calls to broaden the scope of smart city discourse analyses to include visual representations (Joss et al., 2019, p. 25), this article has analysed and discussed concrete audio-visual smart city narratives from an actually existing (aspiring) smart city as an illustration of the maxim of "pursuing neoliberal goals by letting people think (wrongly) that other legitimate goals are being pursued" (Queiroz, 2017).

At first sight, the smart zone film offers an inoffensive, positive message about the smart city. It is, for example, not immediately obvious that all participants are in their 20s or early 30s and able-bodied, that there are almost twice as many male and lighter-featured than female and darker-featured participants, or that the filming locations all lie within a two-square-kilometre patch in the commercial centre of a more than 200 square-kilometre large city. If noticed at all, minor quirks in the narrative or discrepancies between voice-over and shown activities or objects do not have to imply any serious underlying issues.

However, as a neoliberal paradigm that stands for maximising individual and market freedom through (small) state intervention, the underlying concept of citizenship impacts what is understood in terms of diversity and participation and (therefore) of what constitutes a sustainable (climate, pollution …) and secure (wellbeing, safety …) environment, and for whom. On its own, the *smart zone film* offers little to no insight into these aspects. It combines techniques from commercial and political audio-visual advertising and from popular music videos to communicate ambitions rather than agreed upon or even concrete policies and therefore risks being labelled as propaganda rather than public information (Gelders & Ihlen, 2010, p. 59).

It is here that Regina Queiroz' notion of "publicity without a public" comes into play (Queiroz, 2017) and the maxim "make people believe that other than neoliberal policies are being pursued" is illustrated quite literally. When further consulting sources external to the film, preventing disasters in fact just involves measuring water levels in sewers. Being able

to breathe in more fresh air only means being able to choose the least polluted times to go outside. Enabling safe street-crossing becomes monitoring pedestrians' regard for red lights. A metaphorical message about improving oneself ultimately stands for sound-policing public space. And, finally, participation becomes giving up one's data in return for an online store voucher.

At best, these are examples of neoliberal-inspired "communicative planning" (Olesen, 2012, p. 6), the professionalisation of participation (Moini, 2011, 2017), or what Wiig has termed "the empty rhetoric of the smart city" (Wiig, 2015). At worst, they reveal a "pseudo-democratic" agenda (Morozov & Bria, 2018, p. 53). What is clear, is that these are not answers to David Harvey's long-standing plea for "humanizing social change" (Harvey, 1973, p. 145) or Kitchin's more recent call for a "genuinely humanizing smart urbanism" (Kitchin, 2019, p. 196). Nor are these examples of what urban critics such as Forlano (Forlano, 2016) mean by "decentering the human in urban design", which may help to achieve "truly smart, sustainable, and equitable" smart cities (Yigitcanlar et al., 2018, p. 149), because such "more-than-human" design approaches recognise humanity's crucial entanglement with nature's ecosystem and planetary health. While Forlano advocates such a posthuman approach, she also calls for further reserch attention to be paid in order to "simultaneously support equality and justice for humans an nonhumans alike" (Forlano, 2017, p. 29).

Well-intending actually existing (aspiring) smart cities that are not (willingly) invested in the neoliberal maxim should avoid the urge to replace public communication with city marketing as well as the so-called bottom-up, co-creative narratives that cast citizens as "makers" and "do-it-yourself (DIY) scientists" (Zandbergen, 2017, p. 540). Such experimental governance "challenges the institutional basis and normative project of planning the future city" (Cowley & Caprotti, 2018, pp. 2-3). Barcelona's Digital Plan for technological sovereignty may encourage counter-narratives from other actually existing (aspiring) smart cities (Morozov & Bria, 2018, p. 28) and inspire genuine citizen-engagement (Ferrer, 2019, p. 74). Even the actually existing smart city's counterpart – "the idealised but unrealised vision that often dominates the social imaginary" (Shelton et al., 2015, p. 14) is not immune. The 1500-pages Sidewalk Labs plan (www.sidewalktoronto.ca) for the heavily contested new smart city development in Toronto seems to have at least raised further concerns with governmental organization Waterfront Toronto (Deschamps, 2019).

Small counter-narratives, too, may help to bring about "small rips through which change can be effected" (Kitchin, 2019, p. 8). Participatory initiatives such as the UbiOpticon project may provoke people to think about aspects of surveillance which are usually taken for granted (Marcus Foth et al., 2014, p. 52). Provided that they incorporate critique and avoid "falling into corporate publicity", design fiction experiments like the "Future IKEA Catalogue" may have equally though-provoking effects (B. Brown et al., 2016, p. 3).

7. REFERENCES

Antwerp. (2017a). *Cameratoezicht - Camerabewaking niet-besloten plaats. Advies - Goedkeuring*. Antwerp: City Council Retrieved from http://ebesluit.antwerpen.be/

Antwerp. (2017b). *Smart City - Visie en prioriteiten - Goedkeuring*. Antwerp: City Board Retrieved from http://ebesluit.antwerpen.be

Antwerp. (2018a). *Smart City - Smart Zone. Convenant. Addendum - Goedkeuring*. Retrieved from http://ebesluit.antwerpen.be

Antwerp. (2018b). Veilig oversteken. Retrieved from https://antwerpsmartzone.be/nl/projecten/7b28ed4c-5bdd-4b4b-8087-56cb2284455d

Antwerp, & imec. (2018). Slimme verlichting. Retrieved from https://antwerpsmartzone.be/nl/projecten/ce8640c1-4db0-4f36-97f7-1b067df4eea4

ATV. (2018). Slimme straatverlichting om overlast tegen te gaan. Retrieved from https://atv.be/nieuws/video-slimme-straatverlichting-om-overlast-tegen-te-gaan-63980

Böhme, G. (2003). Contribution To The Critique Of The Aesthetic Economy. *Thesis Eleven*(73), 71–82.

Boggs, J. M. (1991) *The Art of Watching Films*. Mountain View, California/London/Toronto: Mayfield Publishing Company.

Boyd, G. G.-D. (2016). The Girl Effect: A Neoliberal Instrumentalization of Gender Equality. *Consilience: The Journal of Sustainable Development, 15*(1), 146-180.

Brasel, S., & Gips, J. (2014). Enhancing television advertising: same-language subtitles can improve brand recall, verbal memory, and behavioral intent. *Journal of the Academy of Marketing Science, 42*(3), 322-336. doi:10.1007/s11747-013-0358-1

Brenner, N., & Theodore, N. (2002). Cities and the Geographies of "Actually Existing Neoliberalism". *Antipode: a radical journal of geography, 34*(3), 349-379. doi:10.1111/1467-8330.00246

Brown, B., Kaburuan, E., Karlsson, A., Vaara, E., Laaksolahti, J., Lampinen, A., . . . Johnson, E.-C. B. (2016). *The IKEA Catalogue. Design fiction in academic and industrial*

collaborations. Paper presented at the Proceedings of the 19th International Conference on Supporting Group Work - GROUP '16.

Brown, W. (2006). American Nightmare: Neoliberalism, Neoconservatism, and De-Democratization. *Political Theory, 34*(6), 690-714.

Burke, A. (2017). Introduction. From Collective to Global Security. In A. Burke & R. Parker (Eds.), *Global Insecurity Futures of Global Chaos and Governance* (pp. 1-19). London: Palgrave Macmillan.

Cisco. (2017). Smart City, Intelligent Community. Retrieved from https://www.youtube.com/watch?v=eAq27TziYcg

Coleman, R. (2003). Images From A Neoliberal City: The State, Surveillance And Social Control. *Critical Criminology, 12*, 21-42.

Colombo, D. (2014). Environment and neoliberalism: a critical discourse analysis of three Italian cases. *Journal for Communication Studies, 7*(1), 19.

Cowley, R., & Caprotti, F. (2018). Smart city as anti-planning in the UK. *Environment and Planning D: Society and Space*. doi:10.1177/0263775818787506

Crawford, B. (2017). Moving Image as Political Tool: The impact of neoliberalism on the role of the moving image in postmodern warfare. *TransMissions: The Journal of Film and Media Studies, 2*(1), 21-36.

de Waal, M., & Dignum, M. (2017). The citizen in the smart city. How the smart city could transform citizenship. *Information Technology, 59*(6), 263–273. doi:10.1515/itit-2017-

Deschamps, T. (2019). Google Sister Company Releases Details For Controversial Toronto Project. *The Guardian*. Retrieved from https://www.theguardian.com/world/2019/jun/24/google-toronto-smart-city-sidewalk-project-alphabet-redevelopment

Duranton, G., & Puga, D. (2000). Diversity and Specialisation in Cities: Why, Where and When Does it Matter? *Urban Studies, 37*(3), 533–555.

Ehmsen, S., & Scharenberg, A. (2018). Another Kind of Smart. In E. Morozov, F. Bria, S. Ehmsen, & A. Scharenberg (Eds.), *Rethinking the Smart City. Democratizing Urban Technology* (pp. 1). New York: Rosa Luxemburg Stiftung.

Fabry, A., & Sandbeck, S. (2018). Introduction to special issue on 'authoritarian neoliberalism'. *Competition & Change, 23*(2), 109-115. doi:10.1177/1024529418813827

Ferrer, J.-R. (2019). Barcelona's Smart City vision: an opportunity for transformation. *Field Actions Science Reports*(16), 70-75. Retrieved from http://journals.openedition.org/factsreports/4367

Forlano, L. (2016). Decentering the Human in the Design of Collaborative Cities. *Design Issues, 32*(3), 42-54. doi:10.1162/DESI_a_00398

Forlano, L. (2017). Posthumanism and Design. *She Ji: The Journal of Design, Economics, and Innovation, 3*(1), 16-29. doi:10.1016/j.sheji.2017.08.001

Foth, M. (2009). *Handbook of Research on Urban Informatics. The Practice and Promise of the Real-Time City*. Hershey and New York: Information Science Reference.

Foth, M., Heikkinen, T., Ylipulli, J., Luusua, A., Satchell, C., & Ojala, T. (2014). *UbiOpticon*. Paper presented at the Proceedings of The International Symposium on Pervasive Displays - PerDis '14.

Foth, M., Odendaal, N., & Hearn, G. N. (2007). *The View from Everywhere: Towards an Epistemology for Urbanites*. Paper presented at the 4th International Conference on Intellectual Capital, Knowledge Management and Organisational Learning (ICICKM), Cape Town, South Africa. http://eprints.qut.edu.au

Gelders, D., & Ihlen, Ø. (2010). Government communication about potential policies: Public relations, propaganda or both? *Public Relations Review, 36*(1), 59-62. doi:10.1016/j.pubrev.2009.08.012

Giannetti, L. (2007) *Understanding Movies*. 11th ed. Englewood Cliffs, New Jersey: Prentice-Hall.

GvA. (2018). Slimme straatverlichting moet overlast tegengaan. Retrieved from https://www.gva.be/cnt/dmf20180819_03671752/slimme-straatverlichting-moet-overlast-tegengaan

Hale, C. R. (2005). Neoliberal Multiculturalism. The Remaking of Cultural Rights and Racial Dominance in Central America. *PoLAR, 28*(1), 10-28.

Hannan, M., & Carey, M. (2004). Ambient Soundscapes in Blade Runner. In P. Hayward (Ed.), *Off the Planet: Music, Sound and Science Fiction Cinema* (pp. 149-165). Herts: John Libbey.

Harrison, C., Lawrence, S., & Bukstein, S. (2011). White College Students' Explanations of White (and Black) Athletic Performance: A Qualitative Investigation of White College Students. *Sociology of sport journal, 28*, 347-361. doi:10.1123/ssj.28.3.347

Harvey, D. (1972). Revolutionary and Counter Revolutionary Theory in Geography and the Problem of Ghetto Formation. *Antipode, 4*(2), 1-13.

Harvey, D. (1973). *Social Justice and the City* (1988 ed.). Oxford: Basil Blackwell.

Harvey, D. (2005). *A Brief History of Neoliberalism*. New York: Oxford University Press.

Harvey, D. (2010). *The Enigma of Capital and the Crises of Capitalism*. New York: Oxford University Press.

Harvey, D. (2012). The urban roots of financial crises: Reclaiming the city for anti-capitalist struggle. *Socialist Register, 48*, 1-35.

Harvey, D. (2014). *Seventeen Contradictions and the End of Capitalism*. Oxford and New York: Oxford University Press.

Hearn, G., Foth, M., & Stevenson, T. (2011). Community engagement for sustainable urban futures. *Futures, 43*(4), 357-360. doi:10.1016/j.futures.2011.01.002

Hernández Olmedo, J. L. (2017). Axiological relationships between audio-visual political and commercial messages in Spain from 2008 to 2015. *Catalan Journal of Communication & Cultural Studies, 9*(1), 105-126. doi:10.1386/cjcs.9.1.105_1

Hewlett-Packard. (2000). HP Cool Town. Retrieved from https://youtu.be/U2AkkuIVV-I

Hoelzl, I., & Marie, R. (2016). Brave New City: the image in the urban data-space. *Visual Communication, 15*(3), 371-391. doi:10.1177/1470357216642638

Houdt, F. v., & Schinkel, W. (2014). Crime, Citizenship and Community: Neoliberal Communitarian Images of Governmentality. *The Sociological Review, 62*(1), 47-67. doi:10.1111/1467-954x.12115

Hursh, D., Henderson, J., & Greenwood, D. (2015). Environmental education in a neoliberal climate. *Environmental Education Research, 21*(3), 299-318. doi:10.1080/13504622.2015.1018141

IBM. (2010). IBM Smarter Cities. Retrieved from https://youtu.be/TULPgblz-UA

IBM. (2014). How It Works: Smarter Cities. Retrieved from https://youtu.be/yJVK25wWvbE

imec. (2017a, 7 November 2018). Animation City of Things project in Antwerp (Belgium). Retrieved from https://vimeo.com/198164488

imec. (2017b, 7 November 2018). Flooding. Retrieved from https://vimeo.com/235886045

imec. (2017c, 7 November 2018). Imec Corporate Movie. Retrieved from https://vimeo.com/241826838

imec. (2018a). About imec. Retrieved from www.imec-int.com/en/about-us

imec. (2018b). Antwerp Smart Zone NL. Retrieved from https://youtu.be/6Scq2-is0xc

imec. (2018c). Disclaimer. Retrieved from https://www.imec-int.com/en/disclaimer-imec

imec. (2018d, 7 November 2018). Imec - City of Things - ENG International. Retrieved from https://vimeo.com/268772323

imec. (2018e, 7 November 2018). Imec - City of Things - ENG National. Retrieved from https://vimeo.com/268772350

imec. (2018f). Imec - City of Things - NL. Retrieved from https://vimeo.com/268772364

imec. (2018g). Imec livinglabs - Projecten - Flooding - slimme waterbestrijding. Retrieved from https://www.imec-int.com/nl/livinglabs/gebruikerspanel/projecten/flooding-slimme-waterbestrijding

imec. (2018h). imec Vimeo channel. Retrieved from https://vimeo.com/imecnanotube. Retrieved 19 November 2018 https://vimeo.com/imecnanotube

Investdesk. (2017). Antwerp is developing a Capital of Things. Retrieved from https://businessinantwerp.eu/news/antwerp-developing-capital-things

Isin, E. F., & Turner, B. S. (2002). *Handbook of Citizenship Studies*. London, Thousand Oaks, New Delhi: Sage publications.

Jansson, A., & Lagerkvist, A. (2009). The Future Gaze: City Panoramas as Politico-Emotive Geographies. *Journal of Visual Culture, 8*(1), 25-53. doi:10.1177/1470412908100902

Jessop, B. (2015). Political Capitalism, Economic and Political Crises, and Authoritarian Statism. *Spectrum Journal of Global Studies, 7*(1), 1-18. Retrieved from

http://spectrumjournal.net/wp-content/uploads/2014/04/Bob-Jessop-Vol.7-Issue.1.pdf

Johnson, G. D., & Grier, S. A. (2012). "What about the Intended Consequences?". *Journal of Advertising, 41*(3), 91-106. Retrieved from https://search.ebscohost.com/login.aspx?direct=true&db=ufh&AN=85985336&site=ehost-live

Joss, S., Sengers, F., Schraven, D., Caprotti, F., & Dayot, Y. (2019). The Smart City as Global Discourse: Storylines and Critical Junctures across 27 Cities. *Journal of Urban Technology, 26*(1), 3-34. doi:10.1080/10630732.2018.1558387

Keeffe, L. O., & Kerr, A. (2015). Reclaiming Public Space: Sound and Mobile Media Use by Teenagers. *International Journal of Communication, 9*, 3562–3582.

Kitchin, R. (2015). Making sense of smart cities: addressing present shortcomings. *Cambridge Journal of Regions, Economy and Society, 8*(1), 131-136. doi:10.1093/cjres/rsu027

Kitchin, R. (2019). Towards a Genuinely Humanizing Smart Urbanism. In P. Cardullo, C. Di Feliciantonio, & R. Kitchin (Eds.), *The Right to the Smart City* (pp. 193-204). Bingley: Emerald Publishing.

Kitchin, R., Cardullo, P., & Feliciantonio, C. D. (2019). Citizenship, Justice and the Right to the Smart City. In P. Cardullo, C. Di Feliciantonio, & R. Kitchin (Eds.), *The Right to the Smart City* (pp. 1-26). Bingley: Emerald Publishing.

Kitchin, R., & Dodge, M. (2019). The (In)Security of Smart Cities: Vulnerabilities, Risks, Mitigation, and Prevention. *Journal of Urban Technology, 26*(2), 47-65. doi:10.1080/10630732.2017.1408002

Kress, G. and T. van Leeuwen (1996) *Reading Images: The Grammar of Visual Design.* London: Routledge.

Krzyżanowski, M. (2016). Recontextualisation of neoliberalism and the increasingly conceptual nature of discourse: Challenges for critical discourse studies. *Discourse & Society, 27*(3), 308-321. doi:10.1177/0957926516630901

Kymlicka, W. (2013). Neoliberal Multiculturalism? In P. A. H. M. Lamont (Ed.), *Social Resilience in the Neoliberal Era* (pp. 99-126): Cambridge University Press.

Lagerkvist, A. (2007 2007 Annual Meeting). *Futurity Replayed: New Media and Collective Memory in Shanghai*.

Lefebvre, H. (2003 [1970]). *The Urban Revolution* (R. Bononno, Trans.). Minneapolis; London: University of Minnesota Press.

Lemke, J. (2012). Multimedia Discourse Analysis. In J. P. Gee & M. Handford (Eds.), *The Routledge Handbook of Discourse Analysis* (pp. 79-90). New York: Routledge.

Lemke, J. L. (1990). *Talking Science: Language,Learning,andValues*. Norwood: Ablex.

Leontidou, L. (2015). «Smart Cities» of the debt crisis: Grassroots Creativity in Mediterranean Europe. *The Greek Review of Social Research, special issue, 144 A΄, 2015, 69-101, 144*(A'), 69-101.

Levenda, A. M., Mahmoudi, D., & Sussman, G. (2015). The Neoliberal Politics of “Smart”: Electricity Consumption, Household Monitoring, and the Enterprise Form. *Canadian Journal of Communication,, 40*(4), 615-636.

Liang, F., Das, V., Kostyuk, N., & Hussain, M. M. (2018). Constructing a Data-Driven Society: China's Social Credit System as a State Surveillance Infrastructure. *Policy & Internet, 10*(4), 415-453. doi:10.1002/poi3.183

Listerborn, C. (2015). Feminist struggle over urban safety and the politics of space. *European Journal of Women's Studies, 23*(3), 251-264. doi:10.1177/1350506815616409

Lorquet, A. (2017). *Antwerp, City of Tomorrow: The Renewal of Urban Renewal*. Antwerp: Stad Antwerpen, bedrijf Stadsontwikkeling.

Majhanovich, S. (2013). How the English Language Contributes to Sustaining the Neoliberal Agenda. Another Take on the Strange Non-Demise of Neoliberalism. In S. Majhanovich & M. A. Geo-JaJa (Eds.), *Economics, Aid and Education* (Vol. 4, pp. 79-96). Rotterdam, Boston Taipei: Sense Publishers.

Manovich, L. (2006). The Poetics Of Augmented Space. *Visual Communication, 5*(2), 219-240. doi:10.1177/1470357206065527

Moini, G. (2011). How participation has become a hegemonic discursive resource: towards an interpretivist research agenda. *Critical Policy Studies, 5*(2), 149-168. doi:10.1080/19460171.2011.576524

Moini, G. (2017). Participation, Neoliberalism and Depoliticisation of Public Action. *Societamutamentopolitica-Rivista Italiana Di Sociologia, 8*(15), 129-145. doi:10.13128/Smp-20853

Molinillo, S., Anaya-Sánchez, R., Morrison, A. M., & Coca-Stefaniak, J. A. (2019). Smart city communication via social media: Analysing residents' and visitors' engagement. *Cities, 94*, 247-255. doi:10.1016/j.cities.2019.06.003

Monaco, James (2000) *How to Read a Film. The World of Movies, Media, and Multimedia: language, history, theory*. 3rd edn. New York/Oxford: Oxford University Press.

Morozov, E., & Bria, F. (2018). *Rethinking the Smart City. Democratizing Urban Technology* (Vol. 5). New York: Rosa Luxemburg Stiftung.

OED. (Ed.) (2018a) OED Online. Web: Oxford University Press.

Olesen, K. (2012). *The neoliberalisation of spatial planning*. Paper presented at the AESOP 26th Annual Congres, Ankara.

Oosterlynck, S., & González, S. (2013). ‘Don't Waste a Crisis’: Opening up the City Yet Again for Neoliberal Experimentation. *International Journal of Urban and Regional Research, 37*(3), 1075-1082. doi:10.1111/1468-2427.12064

Pauwels, L. (2015). *Reframing Visual Social Science. Towards a More Visual Sociology and Anthropology.* Cambridge: Cambridge University Press.

Peck, J., Brenner, N., & Theodore, N. (2018). Actually existing neoliberalism. In D. Cahill, M. Cooper, M. Konings, & D. Primrose (Eds.), *The Sage Handbook of Neoliberalism* (pp. 3-15): SAGE Publications Ltd.

Peck, J., & Tickell, A. (2002). Neoliberalizing Space. *Antipode: a radical journal of geography, 34*(3), 18. doi:https://doi.org/10.1111/1467-8330.00247

Pedelty, M., & Kuecker, M. (2014). Seen to Be Heard? Gender, Voice, and Body in Television Advertisements. *Communication & Critical/Cultural Studies, 11*(3), 250-269. doi:10.1080/14791420.2014.926015

Pollio, A. (2016). Technologies of austerity urbanism: the "smart city" agenda in Italy (2011–2013). *Urban Geography, 37*(4), 514-534. doi:10.1080/02723638.2015.1118991

Queiroz, R. (2017). From the exclusion of the people in neoliberalism to publicity without a public. *Palgrave Communications, 3*(1). doi:10.1057/s41599-017-0032-1

Read, J. (2009). A genealogy of homo-economicus: neoliberalism and the production of subjectivity. *Foucault Studies*(6), 25-36.

Rose, Gillian (2016) *Visual Methodologies: An Introduction to Researching with Visual Materials*. 4th Ed. London: Sage.

Rose, G. (2014). Visual Culture, Photography and the Urban. An Interpretive Framework. *Space and culture, India, 2*(3), 4-13. doi:https://doi.org/10.20896/saci.v2i3.92

Rose, G., Degen, M., & Melhuish, C. (2016). Looking At Digital Visualizations Of Urban Redevelopment Projects: Dimming The Scintillating Glow Of Unwork. In S. a. L. Jordan, Christoph (Ed.), *Cities Interrupted: Visual Culture and Urban Space* (pp. 105–120). London: Bloomsbury.

Rose, G., & Willis, A. (2018). Seeing the smart city on Twitter: Colour and the affective territories of becoming smart. *Environment and Planning D: Society and Space, 37*(3), 411-427. doi:10.1177/0263775818771080

Rossi, U., & Vanolo, A. (2015). Urban Neoliberalism. In *International Encyclopedia of the Social & Behavioral Sciences* (pp. 846-853).

Sadowski, J., & Bendor, R. (2018). Selling Smartness: Corporate Narratives and the Smart City as a Sociotechnical Imaginary. *Science, Technology, & Human Values, 44*(3), 540-563. doi:10.1177/0162243918806061

Salter, L. A., & Phelan, S. (2017). The Morality and Political Antagonisms of Neoliberal Discourse: Campbell Brown and the Corporatization of Educational Justice. *International Journal of Communication, 11*(1), 3030-3050. Retrieved from <Go to ISI>://WOS:000411096600010

SÁNchez-Olmos, C., & ViÑUela, E. (2017). The Musicless Music Video as a Spreadable Meme Video: Format, User Interaction, and Meaning on YouTube. *International Journal of Communication (19328036), 11*, 3634-3654. Retrieved from https://search.ebscohost.com/login.aspx?direct=true&db=ufh&AN=126813101&site=ehost-live

Schranz, C. (2018). Commons for Mapping: How Social Computing changes the Design of Interfaces. *Interface Critique Journal, 1*. doi:10.11588/ic.2018.0.44740

Schroeder, J. E. (2004). Visual Consumption in an Image Economy. In H. B. Karin Ekstrom (Ed.), *Elusive Consumption* (pp. 229-244). Oxford: Berg.

Scott, R. (1982) *Blade Runner*. Warner Bros.

Sedeño Valdellós, A., Rodríguez López, J., & Acuña, S. R. (2016). The post-television music video. A methodological proposal and aesthetic analysis. *Revista Latina de Comunicación Social*(71), 332-348. doi:10.4185/RLCS-2016-1098en

Shelton, T., Zook, M., & Wiig, A. (2015). The 'actually existing smart city'. *Cambridge Journal of Regions, Economy and Society, 8*(1), 13-25. doi:10.1093/cjres/rsu026

Shim, R. (2002). HP founds CoolTown in Internet territory. Retrieved from https://www.cnet.com/news/hp-founds-cooltown-in-internet-territory/

Skrede, J. (2013). The issue of sustainable urban development in a neoliberal age. Discursive entanglements and disputes. *FORMacademisk, 6*(1).

Söderström, O., Paasche, T., & Klauser, F. (2014). Smart cities as corporate storytelling. *City, 18*(3), 307-320. doi:10.1080/13604813.2014.906716

Strach, P., Zuber, K., Fowler, E. F., Ridout, T. N., & Searles, K. (2015). In a Different Voice? Explaining the Use of Men and Women as Voice-Over Announcers in Political Advertising. *Political Communication, 32*(2), 183-205. doi:10.1080/10584609.2014.914614

Thrift, N. (2004). Intensities of feeling: towards a spatial politics of affect. *Geografiska Annaler: Series B, Human Geography, 86*(1), 57-78. doi:10.1111/j.0435-3684.2004.00154.x

Traue, B., Blanc, M., & Cambre, C. (2019). Visibilities and Visual Discourses: Rethinking the Social With the Image. *Qualitative Inquiry, 25*(4), 327–337.

Tyco. (2017). Smart City Video - London. Retrieved from https://youtu.be/T4_pLs4GYdk

Varan, D., Nenycz-Thiel, M., Kennedy, R., & Bellman, S. (2019). The Effects of Commercial Length On Advertising Impact. *Journal of Advertising Research*, JAR-2019-2036. doi:10.2501/JAR-2019-036

White, C., & Kinnick, K. N. (2000). One Click Forward and Two Clicks Back: Portrayal of Women Using Computers in Television Commercials. *Women's Studies in Communication, 23*(3), 392. doi:10.1080/07491409.2000.11735775

White, J. M. (2016). Anticipatory logics of the smart city's global imaginary. *Urban Geography, 37*(4), 572-589. doi:10.1080/02723638.2016.1139879

Wiig, A. (2015). The empty rhetoric of the smart city: from digital inclusion to economic promotion in Philadelphia. *Urban Geography, 37*(4), 535-553. doi:10.1080/02723638.2015.1065686

Wood, P., & Landry, C. (2008). *The Intercultural City. Planning for diversity*. London and Sterling: Earthscan.

Yigitcanlar, T., Foth, M., & Kamruzzaman, M. (2018). Towards Post-Anthropocentric Cities: Reconceptualizing Smart Cities to Evade Urban Ecocide. *Journal of Urban Technology, 26*(2), 147-152. doi:10.1080/10630732.2018.1524249

Zandbergen, D. (2017). "We Are Sensemakers": The (Anti-)politics of Smart City Co-creation. *Public Culture, 29*(3 83), 539-562. doi:10.1215/08992363-3869596