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### Pay to play? Subverting the digital economy of Pokémon Go in the smart city

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## Pay to play? Subverting the digital economy of Pokémon Go in the smart city

### Abstract

Location-based games (LBGs) on smart mobile phones are challenging people's conceptions of public and private space and, in the process, opening up windows of opportunity for subverting the neoliberalisation of urban space associated with the smart city. In the context of the smart city, urban control by corporate, neoliberal interests exerts pressure on players to interweave digital gameplay with everyday life in hybrid urban space. However, players do not passively comply. Rather their subversions and transgressions are integrated into the realisation of the smart city. Drawing on an in-depth empirical study of the popular LBG Pokémon Go, this paper critiques the dynamics inherent in the game design aimed to produce profit from gamers' exercise, exploration and interaction. We trace how smart citizens exploit ambivalences in game design to unleash a form of 'gamification-from-below'. The paper's insights enrich understandings of the workings of transgression in experiences of digital technologies and mobile media. Finally, it provokes further attention to the paths, possibilities and limits to reconfigure trajectories of the corporate smart city.

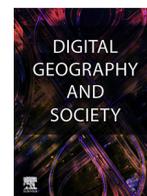
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## Pay to play? Subverting the digital economy of Pokémon Go in the smart city

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## ABSTRACT

Location-based games (LBGs) on smart mobile phones are challenging people's conceptions of public and private space and, in the process, opening up windows of opportunity for subverting the neoliberalisation of urban space associated with the smart city. In the context of the smart city, urban control by corporate, neoliberal interests exerts pressure on players to interweave digital gameplay with everyday life in hybrid urban space. However, players do not passively comply. Rather their subversions and transgressions are integrated into the realisation of the smart city. Drawing on an in-depth empirical study of the popular LBG Pokémon Go, this paper critiques the dynamics inherent in the game design aimed to produce profit from gamers' exercise, exploration and interaction. We trace how smart citizens exploit ambivalences in game design to unleash a form of 'gamification-from-below'. The paper's insights enrich understandings of the workings of transgression in experiences of digital technologies and mobile media. Finally, it provokes further attention to the paths, possibilities and limits to reconfigure trajectories of the corporate smart city.

## 1. Introduction

'Real-world events are core to the Niantic mission of exploration, exercise and social interaction' (Statt, 2017 no pagination). As John Hanke (Niantic CEO and originator of Pokémon Go) makes clear in this excerpt from a media interview, this US tech company, alongside many others, conceives of itself as having a mission: to affect society and culture through their software products. Much the same as the welfare interests of elite industrialist reformers in 19th century England attempted to tackle 'moral laxity and social unrest' through economic progress (Painter & Jeffrey, 2009 p. 30), 21st century 'smart' corporate actors aspire to encourage or dissuade citizen-consumers' behaviours, habits and social practices (Gabrys, 2014). Their products and services are capable of altering the ways users enact their lives.

Our analysis focusses on Pokémon Go (Feldman, 2018) a haptic videogame involving ambient play and digital co-presence (Apperley & Moore, 2019). In the game, the player meanders through the city simultaneously eying the world around them and their smart-phone's screen to collect digital assets in what Woods (2020) terms an 'heterotopic inscription', referring to the way an idealised version of reality is inscribed on top of the physical world in the game through a combination of animation and augmented reality. Scholarly appraisals to date of the location-based game (LBG) Pokémon Go highlight its benefits to citizens' 'happiness' (Williams & Slak-Valek, 2019) through playful encouragement of exercise (Ni et al., 2019), exploration of nature (de Oliveira Roque, 2016; Dorward,

Mittermeier, Sandbrook, & Spooner, 2017; Edwards & Larson, 2020), and social interaction via physical and digital networking with other players (Ghazali, Mutum Dilip, & Woon, 2019).

Dampening this trend for optimism somewhat, this paper joins a growing number of critiques (Feldman, 2018) that seek to offer criticality on the LBG's growing ubiquity. We tie the LBG to what philosopher Henry A. Giroux terms 'neoliberal authoritarianism' (Giroux, 2015), citing its underlying game logic of violence, competition, and profit-making as cause for concern. In making this move, the paper focuses on the subversion of centrally organised neoliberal authoritarianism by players of the LBG for personal profit and protest. A core feature of the LBG's 'meta'—a term meaning the conventions of a creative work's genre—is a crude Darwinism in line with a heritage in computer gaming of turning violence into entertainment through the 'survival of the fittest'. After Giroux, '[w]ith the rise of new and highly advanced computer-generated digital and screen technologies, the space between images and the consequences of real violence becomes more distant and less meaningful, just as the exercise of real violence becomes easier to perform' (Giroux, 2012 p. 267). In the case of Pokémon Go, this heritage of competition and violence operates in the background with important, and detrimental, consequences for Niantic's ideal of fostering exercise, exploration and interaction in undermining fair use of the digital, and real-world, commons.

Competition (Zsila et al., 2018) is a cardinal motivation in the design of the LBG Pokémon Go and the overarching franchise of film and television entertainment from which it has emerged as a spin-off. The competitive

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gameplay is a major cause of player attrition causing anxiety through addictive practices and a psychological compulsion to play and win (Butcher, Tucker, & Young, 2020). Firstly, competition between people directly occurs in peer-versus-peer battles, where individuals from anywhere in the world are algorithmically pitted against one another, a feature of gameplay introduced in 2020. In order to progress through a league table of winners displayed on the Internet and updated regularly, players strategically deploy their collections taking into account their move-sets, types and statistics. Secondly, players also indirectly compete against each other with collections of fictional monsters found in the 'wild' or traded with others, that earn them digital currencies, status and place-based properties. The chief foci of this paper are, first, how such direct and indirect competitiveness influences the *culture* of the smart city to reinforce market-based and neoliberal forces already at play in the urban cores of world cities. Second, we focus on how such influence is reworked or redirected in the practice of location-based gaming in the 'actually existing' smart city.

Through nurturing a competitive spirit, the game seeks profit through the sale of digital assets in a marketplace environment that affords players an advantage over others and a greater chance of winning status and power. A 'tragedy of the digital commons' ensues wherein the LBG's players takes excessive advantage of the resources of the smart city without paying attention to the consequences of this behaviour for other players and citizens (Greco & Floridi, 2004). The incitement of competition in order to create profitmaking opportunities for the LBG's corporation is part and parcel of a neoliberal vision of the digital economy. Yet, as we explore empirically, this incitement to competition is neither simply realised nor straightforwardly enacted by players.

The background to this paper is the smart city. In order to appraise the incursion of neoliberalism, we frame our analysis around Pokémon Go's digital economy and its intersections with the smart city. Given the LBG is most effectively played within dense, urban, digitally connected areas, citizens are actively competing against each other for 'datafied' (Bonde Thylstrup, Flyverbom, & Helles, 2019) assets and locations within the game's simplified vision of reality via touch-screen enabled devices that geolocate the players' bodies to in-game locations and venues where competition represents interaction.

Increasingly the transition to the smart city is being imagined as one led by citizens interacting willingly and voluntarily with data flows between individuals and governance systems in the hybrid digital/physical spaces of the city (de Souza e Silva & Sutko, 2011). One method smart city advocates are turning to in order to invoke the citizenry's involvement is through techniques gleaned from digital gaming platforms as inspiration for urban design (Potts & Yee, 2019), so-called 'serious' games, particularly LBGs (Cavada & Rogers, 2019). Drawing inspiration from private organisations where the gamification of labour is heralded as a possible motivator of productivity, smart city planners envisage the gamification of a range of urban interactions: shopping (Sari, 2019), leisure (Williams & Slak-Valek, 2019), mobility (Ma et al., 2018) and so on. Within work contexts the creation of competition between colleagues; the enmeshment of workers within systems that privilege neoliberal values of self-interest and subservience to power; and the dominance of profit-making over other activities, concerns and values, are all positioned as detrimental effects of gamification (Kamasheva, Valeev, Yagudin, & Maksimova, 2015). The gamification of labour also attracts critique as a further method of exploitation through electronic monitoring and the heightening of tensions between workers pursuing metrical self-advancement over collegiality (Elena, 2016).

Following this line of argument, in this paper we attend to problematic aspects in the gamification of smart cities. Crucially though, we also deploy Woodcock and Johnson's (2018) concept of 'gamification-from-below' through research that highlights the possible importance of digital subversion to the smart city's future. Corporate power in the smart city is not simply imposed from above. Rather, following Latour (1986) its power is an effect, subject to reworking and interruption. To paraphrase Hart (2009), the neoliberal vision of the digital economy exemplified in LBGs such as Pokémon Go does not have that economy all to itself.

The structure of the remainder of the paper is as follows. In the next section, we consider the relevant literature from digital and urban geography on the smart city. In section three, we provide further details about Pokémon Go's central features and briefly surmise its history of development. An appraisal of the qualitative methods underpinning this research project is given due diligence in section four. In the findings section, we explore the phenomenon of gamification-from-below as players subvert game logics, and as game developers seek to secure the game's commodificatory logic. Finally, we conclude by reflecting on the revelation in our analysis of the capacity of LBGs both to contribute to smart city extensions of markets and the digital commodification of the urban and to rework such logics. Moreover, we raise new critical questions around the role of conduits such as Pokémon Go in enlisting entrepreneurial actors and amateur urban citizenry in setting the parameters of the right to the smart city.

## 2. Digital geographies of the smart city

Geography has been declared to be 'in the midst of a digital turn' and much scholarly attention is now being paid to neoliberalisation through datafication and online systems (Ash, Kitchin, & Leszczynski, 2016 p. 1). The proliferation of this digital turn in everyday urban life is said to be found especially in the rise of ubiquitous computing (Galloway, 2004), which takes two forms: 'sentient urban environments' that record data via sensors hidden in the background of cities (Aurigi, 2006; Crang & Graham, 2007 p. 792) and the 'mobile web', enabled and mobilised by smartphones and socio-spatial media applications. These two forms 'augment a whole series of activities such as shopping, wayfinding, sightseeing and protesting' (Ash et al., 2016 p. 8). Data are also increasingly spatialised and geo-referenced (see Elwood, Goodchild, & Sui, 2012; Leszczynski & Wilson, 2013). One result of geo-located urban big data (see Graham & Shelton, 2013) enabled by smart technologies via 'routine sensing' (Batty, 2013) and collected by city systems from surveillance, explicitly collected from citizens, is its use by corporations for profit-making in partnership with government or otherwise (Elwood et al., 2012).

Since the inception of the concept of the 'smart city', interactivity between citizens and infrastructure has been couched as a benchmark for its maturation. In the early days of the term's use it was reserved for areas facilitating highly-trained professionals, the 'technopolis', operating within distinct suburbs or districts of the city (Gibson & Kozmetsky, 1993). Many have warned of the smart city project's capacity to operate as a 'mask for entrepreneurial governance' (Wiig, 2015 p. 259) and a handmaiden of further urban neoliberalisation via providing a technical fix for corporate capitalist expansion (Rossi, 2016; Vanolo, 2014). Critical studies of 'the smart city' push analyses beyond those focused on the smart city ideal promoted by global tech corporates, to attend to the specifics of their 'actually existing' enactment and practice, technically and materially, politically and socially, grounded in the digital commons (Shelton, Zook, & Wiig, 2015). Yet others insist that what the smart city will become is not pre-determined but contingent and diversely constituted, based on varied urban imaginaries, political contestations and practices (Marvin, Luque-Ayala, & McFarlane, 2016; McFarlane & Söderström, 2017a; Shelton, 2017), including location-based gaming.

Digital neoliberalism arises in the context of the global dissemination of 'smart city' policies (Hollands, 2008; Söderström, Paasche, & Klausner, 2014; Vanolo, 2014) that interpret 'smart' in terms of ubiquitous computing built into the urban fabric or in terms of the ubiquity of the knowledge economy, underpinned by innovation, creativity and entrepreneurship. Both interpretations are fed by big data, the real-time collection of which is the 'stuff of smart cities', inherently tied to their planning and operation, and to urban systems functioning in the short term (Batty, 2013). Such data capture has been enlisted to provide sets of digital services for citizens and governance alike (Kitchin, Maalsen, & McArdle, 2016): for instance, managing real-time flows of traffic (Kitchin & Dodge, 2011), crowds of people, or short-term crises facing the city (see Shelton, Poorthuis, Graham, & Zook, 2014). Equally big data has been sutured to the pursuit of 'sustainable city' ideals and practices through the pursuit of eco-efficiencies and the

crafting of 'citizen sensors' via what Gabrys (2014 p. 36) terms 'biopolitics 2.0' (see Marvin et al., 2016). Equally, big data and smart analytics have a potent function in shaping 'smart' city agendas of inclusive citizenship, community engagement, and political participation (Ash et al., 2016; Gordon & Manosevitch, 2010).

Notwithstanding contributions to sustainability, efficiency and public engagement, (digital) neoliberalism and the extraction of profit has always been a facet of the development of the Internet and ICTs, and smart cities. Until recently, it has not been obvious how profit is to be made from intangible knowledge products existing solely in the digital realm, yet knowledge is rapidly emerging around how the digital innovation, big data, and teleplastic technologies of smart urbanism may represent fresh affordances for privatisation, reregulation and marketisation associated with neoliberalism, as smart urbanism literally takes shape through the specific logics of corporate agendas (McNeill, 2015) and free enterprise offers citizens an exchange of personal and financial data for services often associated with mobile devices that mediate citizen's interactions with the city (see Hollands, 2008; Luque-Ayala & Marvin, 2015; Söderström et al., 2014). A focus on LBGs provides a rich opportunity both to explore the mechanics of how digital neoliberalism addresses the city and how it may be reconfigured both by citizens and by corporate interests.

LBGs, such as the global phenomenon of Pokémon Go, are one such teleplastic technology—that is, a technology that pre-shapes the potentials and possibilities for human action—the effects of which unfold as users perambulate and interact with others in the smart city (Ash, 2010b). LBGs work alongside, and are enmeshed with, a suite of other smart city innovations: big data, augmented reality, sensors, ubiquitous computing and artificial intelligence, in what could be termed smart assemblages. They produce a kind of code/space through which the urban is experienced and re/produced (Kitchin & Dodge, 2011). They are, equally, a domain in which citizens engage with urban places via mobile digital technologies and flows of data.

The paper contributes an argument about the uncertainty and multiplicity of the smart city, its agenda, actors, enactment, reconfigurations and performance in response to efforts seeking urban control (Kitchin, Coletta, & McArdle, 2017). We seek to build, empirically and theoretically, on McFarlane and Söderström's (2017b) claim that there are opportunities now for critical urban scholarship to critique how the smart city is currently constituted and give shape to a globally-oriented alternative smart urban agenda. The analysis reveals, first, the complex ways in which corporate interests (themselves variegated) are enacted along with those of playing citizens in forging an ambiguous and indeterminate smart city.

Second, it identifies how citizen players' deploy creative tactics in, and resistance to, playing Pokémon Go in terms of how they defy being reducible to digital selves that are simply 'customers' (Wyly, 2014 p. 682) or consumers of commodified digitalised image-objects. In this regard, users of LBGs demonstrate localised transgressions, subversions, criticisms and non-compliance with the digital commodification that might be embedded in the game and that derive from its entanglements with urban space.

Third, it suggests how game developers respond to resistances and the methods they use to restore profitability, sometimes working with the grain of gamification-from-below. As the urban landscape is increasingly instrumented with digital technologies, wherein access is increasingly mediated via mobile technology interfaces, and transformed into 'smart cities', there is merit in articulating how these technologies evolve, degenerate and morph as citizens spend time, effort and money on them, engage with and rework them and, in turn, these technologies are responsively reconfigured by their corporate developers and owners. The resistances and creative reworkings—forms of performance and mobility—traced in this paper in part reveal how commodificatory logics are woven into the fabric of LBGs such as Pokémon Go and illustrate the successes and ubiquitous adoption of digital infrastructures. But also, they reveal the ambiguities and indeterminacies that result from the struggles, crises and iterative responses that shape the process. Moreover, they suggest the need to continually explore the extent to which the enactment of the smart city necessarily results in

deepening commodification and marketisation of the city, its spaces and its sociality.

### 3. Pokémon Go

The corporate owner of Pokémon Go is Niantic Labs (formerly Keynote Inc.), a spin-out of the multi-national company Google, originally the developer of Google Maps and Earth. Keynote Inc.'s first foray into gaming was the niche LBG app Ingress, which allowed users to utilise satellite data to collect items and participate in capturing 'portals' on smart phone maps. Niantic's major foray into LBGs is Pokémon Go. Since the launch of Pokémon Go on the 6 July 2016 the corporation's profits have risen steeply, with the game generating US\$3.6B revenue to July 2020. The app has been highly lucrative for the US company, which until recently had only 20–30 employees, with more first week downloads in the Apple App Store than any other app in history. The game reached critical mass in April 2017 and, although the original media hype has died down, the LBG grew to 311 million users globally in 2020 (Statista, 2020).

Pokémon Go is a 'hybrid' (Consalvo, 2006) of American and Japanese cultural tropes and was launched in 2016 as a multiplayer online game specifically for play on smart phones and has become globally popular due to its imputed (and disputed) ability to create 'positively affective encounters' in prosaic life (Ash, 2010a p. 653). In this videogame the experience of space and place is dictated through a locative smartphone application that combines the physical environment with digital data in a composite virtual reality: so-called 'augmented reality' (Saker & Frith, 2019). The LBG's success depends upon an admixture of nostalgic marketing (c.f., Newman, 2002), a lean business model, and the careful balance of free play with online shopping and merchandising.

Pokémon Go styles gamers as scientific researchers rather than trophy-hunters and in this sense commodifies biodiversity (Büscher, 2016). Monster collections are crucial in accumulating status through battling with other players—via stardust—or colonising Pokégymms to amass Pokécoins—the game's alt-currency—to be spent in the Pokéshop. Recent innovations in the game include the introduction of peer-versus-peer battling and the trophy-hunting for 'shinies', differently coloured Pokémon characters found randomly or in themed 'community days'. Shiny Pokémon serve as a rare commodity object in the game, bestowing status and power on their owners, and representing a core motivational tool for ongoing gameplay.

In the game, a desire to accumulate rare, mythical or legendary monsters, caught in the wild or hatched from an egg, compels users to carry their devices as they move across urban or densely populated landscapes. Stylised on the popular children's franchise (Horton, 2012), Pokémon Go utilises the geography of public locations for profit. This logic blends elements of the game's franchise with the urban commons not only in the built environment but within biological ecosystems (Stinson, 2017). The underlying narrative of the game orients around the typology of each character's 'species'. Although the identity of Pokéstops shares an affiliation with the location, the specificities of the site are irrelevant to the gameplay. They operate as cosmetic features that the LBG acquires by appropriating the urban commons (Wasser & Jobes, 2008), a means through which smart corporations have been finding a foothold in urban landscape through 'municipal mercantilism' (Leon, 2017): the expanded corporate acquisition of the city.

Pokémon Go can be conceived as an instance of net locality, wherein locative media enables interaction with surrounding space and social connections to proximate people (Gordon, & De Souza e Silva, 2011): trainers battling together in Pokégymms; teams of players banding together (marshalled via social media alerts) to collectively capture elusive 'legendary' Pokémon. But in another sense the game enables the creation of individualised, personalised identities for players and their in-game AR avatars, reflecting the 'personalising tendencies of location based social networks that allow users to determine the types of legibility they want to represent' (Frith, 2012 p. 138). In Pokémon Go users freely elect to labour to amass prestige and status within the game mechanics. We thus analyse

the digital games industry's commitment both to profit-making and to their own, nuanced, world shaping ideologies (Kingsley, 1997). Here players diverge from the commodifying articulation of in-game rules advanced by the game designers through subversive nuances of mobility and performance that resist, to differing degrees, neoliberal control over the urban form.

#### 4. Methods

In this section, we advance a structured analysis of empirical research that involved detailed documentary research on Niantic and Pokémon Go and qualitative empirical research involving Pokémon Go players alongside observational research by one of the authors. The first phase of the empirical research involved qualitative unstructured interviews with 14 players. The second phase involved walk-along interviews with a select number of these participants observing their play and the nature of this 'alt-real world', discussing their tactics. The third phase involved 'watch-backs' with the participants as they explained and reflected upon events in the journeys. Our analysis works across the actions of corporate developers and through the practices of its 'smart urban citizen' players, to reveal how each overlay is enacted, resisted, reworked and hybridised. Finally, one of the authors created an account at the inception of the project and participated in group and community 'raids' and events in order to observe gameplay and group dynamics amongst players.

In our analysis, we draw on these qualitative interviews, videoed walk-along interviews and structured 'watch-backs' with research participants to reflect on the LBGs used in the smart city environment. We probe the LBG's attempts to repurpose public space and co-opt gamers' ludic wayfaring for profit through a theoretical lens derived from human geographical scholarship and echoing other critical scholarly appraisals (c.f., Grandinetti & Ecenbarger, 2018). Furthermore, we investigate the ambiguities and indeterminacies of location-based gameplay in urban space by exploring both players' subversive practices within the LBG that resist conventional gameplay driven by corporate interests in shaping profit-making opportunities from people's everyday activities and how game developers respond to 'gamification-from-below'.

#### 5. Subverting exploration, exercise and interaction

A principal objective in the LBG's aspiration for catalysing change is to motivate physical movement and social interaction, with three explicit goals being 'exercise' (defined here as curated movement for profit as a form of commodifying mobility) through rewards for physical mobility, 'exploration' or 'to see the world with new eyes' by discovering real-life landmarks and historical sites, and 'interaction' or 'breaking the ice' through giving people 'a reason to spend time together' (Weinberger, 2016 no pagination). The to-and-fro between developers and gamers suggests degrees of indeterminacy in the flux of relationships between actors and subjects, the extent to which these relationships transmit commodification, consumption and marketisation, with consequences for how the smart city will operate.

##### 5.1. Subverting exploration

Walking around the nascent smart city to catch digital creatures certainly provides a motivation to engage with, explore and move around in urban space in the 'real world', as the app developers promote in their advertising. The game deploys digital strategies to encourage exploration of local places and the many iconic features that abound throughout the built environment. Moreover, the various events ranging from small legendary raids involving up to 20 people to largescale conferences attracting thousands, certainly encourages exploration and a sense of community and camaraderie, albeit in a fleeting and overtly competitive manner. In this section, we consider how players disrupt expectations of exploration by the corporation by transcending space and disconnecting personhood from physical location.

##### 5.1.1. Account swapping and teleporting

Pokémon Go attempts to segment its markets by enforcing regional variations and borders through region-blocking: ensuring that specific creatures are only available in certain regions: Asia (*Kangaskhan*), North America (*Tauros*), European Union (*Mr Mime*), Asia (*Farfetch'd*), South America (*Heracross*) and between the latitudes of 31 N and 26S (*Corsola*). In Generation 3 of the game two hemispheres had region-locked Pokémon: *Zangoose* exclusive to North America and Africa, and *Seviper* occupying Europe, Asia and Australia. In January 2018, these monsters flipped hemispheres, demonstrating the transitory attachment of digital assets to place in practice with Niantic being able to reallocate region-blocks and regulate access to them at will.<sup>1</sup> The LBG thus seeks to monetise territorial access by creating artificial borders that map onto the real world, commodifying proximity by equating it to rarity of assets, and representing physical travel globally as the sole method of legitimately completing the digital menagerie or Pokédex.

Some trainers indeed take advantage of international travel to engage with this regionalisation:

I know people who have gone overseas and caught heaps of the exclusive Pokémon because they're like "I know trading is going to be a thing and I'll just give one to all my friends when I'm back". I think that part of it is cool.

[(Interviewee 4, M, 20s)]

Yeah, so when I was in China from England my plane stopped at Shanghai. I didn't have any Poké Balls or incense but, (I thought) "oh, I'm sure to get a *Farfetch'd*", so I bought (wifi access) just for that.

[(Interviewee 10, M, 20s)]

Region-blocking offers globalised users the benefit of catching rare monsters and completing the Pokédex: a signifier of individualised status in the gaming world. However, gamers unable to travel internationally, unable to explore Pokémon's commodified alt-world and, thus unable to disrupt its status hierarchy, have responded to region blocking with account swapping:

I think I've got to build my Pokédex up to *Farfetch'd* and I want to—I don't know, I don't like paying money on premium games (but) I would happily pay somebody who had gone to Japan, caught one and then come back here, providing it wasn't a decent amount of money.

[(Interviewee 11, F, 20s)]

Players can also wander across regions using the practise of 'teleporting', a term describing the virtual mobility of an in-game character across space that diverges from the physical location of the actual player via, for instance, logging into an account on another phone elsewhere. One option for users to undermine the LBG's efforts to promote exploration via regional blocks is to simply 'lend' their account details to an associate in the country where the monster is freely available:

The Regionals, you can only get overseas. So... (my brother) ... joined some group and what they did is they swapped. I don't think you're supposed to do it, in terms of the rules of the game... Basically, he found someone in another country to say, here's my account, catch this for me, and I'll catch this for you.

[(Interviewee 5, M, 30s)]

Although it is not strictly 'cheating' in Niantic's terms of service, account-swapping is hardly sanctioned by the game designers. Yet it suggests ways in which gamers are engaging with Pokémon Go via means of virtually moving through space in a manner that subverts the game's design yet meets their own desires: to complete the Pokédex, to gain status in the game, or simply find pleasure in its ludic dimensions.

<sup>1</sup> In, 2019's Generation 5 there were five more region-locked monsters across the major continents: *Pansage*, *Pansear*, *Panpour*, *Heatmor* and *Durant*.

## 5.2. Subverting exercise

Pokémon Go exhorts its trainers to exercise by moving through space on the trail of its elusive monsters. Woven through the LBG's architecture is the requirement for trainers to exercise proximate gameplay: the need to be physically close to a Pokémon to capture it is a core feature of the algorithm. The 'intended' mode of play is 'wayfaring' at random on foot. The game's designers distribute Pokémon on mobile, or migratory, 'spawn' sites to encourage players to walk to different places. So, the capture of Pokémon depends on users exploring a wide range of public and, sometimes, private places from which Niantic extracts profit through the marketisation of these places on which gameplay relies. Niantic, thus, layers alternative scripts of place onto urban space, drawing in real territories and land uses, redefining and reterritorialising the mobilities of gamers to compel them to exercise their bodies in public and private places, for profitable purposes. The game encourages trainers to visit major shopping and tourism precincts since the game benefits from corporate support, advertising and the density of in-game activity. Indeed, the organising logics of Niantic Labs blur consumption and real life via the digital 'lure': real businesses overlaying lures and profiting from gameplay (Frith, 2017). However, players transgress the idealised corporeal practices of 'normal' gameplay through performing online walking on their own terms around the city, in an unpredictable way, and at odds with the game's logic. We highlight two cases to illustrate this point.

### 5.2.1. Driving not walking

Seeking to actualise proximate gameplay, the game designers implement speed limits on players' avatars, to deter private car or public transport. If the game detects speed, it automatically stops the monsters appearing (spawning), and disables Pokéstop and Pokégym interactivity. This feature was implemented in October 2016 in response to concerns about users playing while driving and increasing the incidence of accidents and fatalities, estimated by economists at Purdue University as in the range of \$US5.2M to \$US25.5M over only the 148 days following the introduction of the game with extrapolation at the nation-wide level yielding a total ranging from \$US2B to \$US7.3B for the same period (Faccio & McConnell, 2020):

Because now it's got that silly thing where it can detect if you're going over 20 km an hour. You can't cheat it anymore. So yeah, so there's really no point unless you're crawling through traffic or you're walking.

[(Interviewee 1, M, 20s)]

One method that players adopt that resists 'normal' play is to drive slowly in an automobile, allowing them to cover more ground and attain comfort for longer periods of gameplay, while also avoiding detection by the game's speed limits. Spawning sites are selected by users on a basis that allows driving at slow speeds, or that are near to car parking spaces. The incentive to move, inherent in the gameplay structure, requires users to colonise public spaces to capture Pokémon and accumulate individual status and virtual wealth; however, this can be done much more effectively in an automobile. The results of this incipient dependence on private automobiles has been troublesome for the company, and for urban policymakers and legislators concerned about pedestrian safety and motorists' distraction while driving. Players collect monsters throughout their everyday activities, balancing these with other leisure and work activities such as commuting or eating. Driving in automobiles while engaging in gameplay allows them to stay cocooned in a private space, resisting both purposeful walking and the lures of additional consumption in the for-profit spaces integrated in the game's landscape.

### 5.2.2. Location posting and sharing

Niantic interweaves public space with in-game events through algorithms that seed monsters randomly in public, with the capacity to channel player movements in urban space. In response, players resist via a series of tactics to share and aggregate data to resist, disrupt and rework the game's

capacity to control movement and to dispute the mode of walking it privileges. For instance, players share online the patterns of spawning, and learn where nests of specific Pokémon are located to circumvent the need for random physical exercise to add to their Pokédex:

I haven't really even paid attention to where nests are. I did know there was a nest of *Clefairy* [a species of Fairy type Pokémon] which are a bit harder to find, like on my drive home from work I used to stop on the side of the road there and just get the *Clefairy* every time so I knew one spot. I knew one on my street as well. But also, ... knowing exactly where all the nests are kind of ruins that spontaneous element of it.

[(Interviewee 2, F, 40s)]

Players also enlist the services of third-party application programming interfaces (APIs), notably 'trackers', which either intercept data from the API directly via logged accounts or aggregate user observations in real-time. This includes the use of automated software 'robots' to check many accounts across the globe to trawl for valuable Pokémon, which are then posted on tracker systems (including Necrobot, MyGoBot and PokéSensor) or social media (Facebook, Discord). Trackers complement other third-party social networking services where users are able to post spawns and raids in proximity to them, often crucial to proficient gameplay, with legendary raids being the most common reason, since groups of over 5 people are required to meet together. Trackers work through aggregating user-generated reports of site-specific monsters:

Like a lot of people, I read Pokémon Go on Twitter, other websites on Twitter that post about it. The Poké Radar companies post about it and then they share it in a group. That's how I find out.

[(Interviewee 1, M, 20s)]

Intriguingly, users are quick to comment that the tracker offers features that the LBG should incorporate into the game architecture, to replicate social networking tools for organising social events around the game. Sharing data on whether users are online is a new feature in 2020 alongside trading of Pokémon between players, but the LBG continues to prohibit users to communicate directly within the game's architecture, with social interaction directed to occur in physical ways at events or according to the strict parameters of battling or trading. In the next section we consider how users are disturbing the anticipated ways that social interactions occur in the game.

## 5.3. Subverting interaction

We now turn now to the way Pokémon Go gamers practice what can be understood as forms of performance. Rather than opposing and subverting the ways in which the game's design seeks to shape and commodify gamers' engagement with and consumption of urban space, how do they engage with the game's technologies and objects in non-prescribed ways, creatively disfiguring and potentially transforming the forms of regulation and practices the game seeks to impose on its players? Niantic enacts forms of regulation of the use of its products according to its own standards of governance. In the virtual-cum-physical 'alt-real world' of Pokémon Go, the LBG exercises influence with the semblance of a state entity with power of legislation and regulation over its members.<sup>2</sup> In what follows, we describe specific cases of performance with technology where users respond creatively, monopolising gyms and hacking geolocations, and undertaking digital identity swaps ('spoofing') to creatively reconfigure the intended workings of the game.

### 5.3.1. Monopolising Pokégyms

PokéGyms are designed to encourage users to diverge from individual gameplay and congregate at specific locations to train together, interact

<sup>2</sup> In some cases, LBG users have conflicted directly with actual state regulation. For instance, in Russia a user was imprisoned for playing in a church and sentenced for 'inciting religious hatred' (Cresci, 2017 no pagination)

and battle their monsters to earn prestige and in-game assets. Ultimately this activity was imagined as generating a revenue stream for Niantic since the gyms awarded Pokécoins for social interaction and this introduced users to earning and spending the alternative currency. Nuances in the game then lead users to exchange their real-world money for Pokécoins to ensure ongoing social participation, for instance, by buying 'revives' that renew monsters who have been defeated in battle or avatar customisations and limited-edition event features, such as prize packs.

Indeed, one method Pokémon Go uses to generate profit is by compelling users to make purchases and trade formal currencies for alternative (alt) ones: Pokécoins. At the time of the LBG's release in mid 2016 the alternative currency functioned as a method to acquire in-game assets only occasionally available from Pokéstops such as storage upgrades, lure modules and incense to attract monsters, egg incubators for hatching Pokémon via walking them, lucky eggs to boost experience points, not to mention additional red (basic) balls for catching Pokémon. Trainers are often enticed by these market opportunities:

I spent a little bit of money on just a few balls and stuff. I've probably spent about \$AUS10. Maybe \$AUS15 all up on just balls, nothing crazy. Just when you'd run out of ... Pokéballs and there was something good there that you really needed.

[(Interviewee 7, F, 20s)]

Yet others are adamantly opposed to the idea of spending 'real-world' money on digital gaming thus rejecting the commodification of social interaction: 'I have spent zero; I'm proud about that' (Interviewee 4, M, 20s). Some sense the encroachment of market opportunities into the LBG since its inception, with a greater number of items being made available to buy in the Pokéshop including items that allow users to gain advantages over frugal players:

(I've spent) I'd guess around \$AUS60 over the course of playing or something like that. I was pretty conscious as I was paying; I'm not opposed to paying money for games. But I'm a bit ethically opposed to the idea of a game that has an unlimited capacity to take your money.

[(Interviewee 8, M, 30s)]

But trainers also seek to earn Pokécoins to enhance their status, customise their avatars' identities, and participate in the game and its opportunities for social interactions to the utmost. The more Pokécoins a user accumulates, the greater capacity they gain to establish a unique identity since the customisation of avatars is also possible through the Pokéshop. Pokécoins can be spent on various competitive assets or aesthetic products, such as clothes and other apparel for virtual avatars. Within the Pokéshop it is also possible to exchange real-world currency for Pokécoins, in effect normalising the alternative currency. Moreover Pokégyms, where users gather both virtually and in the real world at collaborative Pokégym events, function as places to earn Pokécoins and create a market economy around competitive gaming between groups of users, in contrast to individual gameplay. Pokégyms co-opt users into earning and spending Pokécoins, drawing players into spending alternative and real-world currency as users meet and pit their collections against each other for profit:

With the little Pokémon Coins, you get, you get about 10 for every Gym you're in. It's like a protector's fee or something like that which I think is pretty good except I haven't got into any Gyms recently because battling for them is a bit tough.

[(Interviewee 6, F, 20s)]

However, by early 2017, the functioning of Pokégyms as hubs of social interaction for all players to earn Pokécoins through collaborative battling, 'prestiging', and holding gyms was widely discredited by users and commentators and there was wide concern that the Pokégym system was 'broken'. Through a series of tactics, a handful of elite players who had managed to gain elite monsters through subversions such as teleporting and account swapping were able to dominate gyms and accrue vast wealth

in Pokécoins, dominating the infrastructure and excluding the majority of users, including many who were new to the game. From its inception, Pokégym defense via 'battling' for a set time limit was a privilege of those players able to procure certain types of Pokémon understood to be 'tanky' or difficult to remove. However, elite players who had managed to collect exemplary Pokémon were able to disfigure Pokégyms' intended purpose, monopolising them and excluding all other players, thereby accruing vast sums of alternative currency and status in the game's ludic hierarchy. Ultimately, this state of affairs led to many users opting out of earning Pokécoins altogether or seeking to battle to control gyms:

So, the people who do use maps and have a sh\*t load of *Dragonite*, and a sh\*t load of *Snorlax* ... Yeah, so (the gyms) get levelled up to level 10 by people with all these big rare Pokémon and I'm just playing with myself. I can't take down a level 10 gym.

[(Interviewee 9, F, 20s)]

A second player elaborates further:

I do (earn Pokécoins) occasionally but it's only if there's one Pokémon left in that gym. Because if there's two or more, I'm not going to take it on because I just don't have the time to build my Pokémon up to what a lot of people do. So, they have way higher combat power than me and I'm like "I just don't have the time or the money to put into really powering up a Pokémon like so many others do".

[(Interviewee 1, M, 20s)]

Thus, elite players were able to disfigure the designed Pokémon functions of Pokégym and threaten the 'meta', or conceptual architecture, of the game.

### 5.3.2. Global Positioning System (GPS) spoofing and time zone hacking

Gamers' creative reworking of Pokémon Go's intended steering of their engagement with urban space and mobility also extended to various form of 'spoofing' and 'hacking'; tactics that allow users to circumvent the game's intention of promoting the curated (and commodified) exploration of urban space.

A formal definition of spoofing is '[a] deliberate attempt to cause a user or resource to perform an incorrect action, generally by exploiting poor authentication measures in order to masquerade as someone else' (Butterfield & Ekmbe Ngondi, 2016 no pagination). Trainers accepted that 'spoofing' stretched the rules but justified the practice:

It (does stretch the rules), but you almost literally can't legitimately complete it unless you either hack your phone or you change your phone's location to like America and Europe and Japan and you get the exclusives.

[(Interviewee 1, M, 20s)]

Different to above, users also engaged in teleporting via so-called GPS 'spoofing', where users manipulate location data moving to and from their devices, effectively enabling them to pretend to move while staying in one place. In the case of spoofing GPS data, users can accrue considerable in-game benefits ranging from acquiring rare and powerful monsters, to dominating a large number of Pokégyms thereby accumulating Pokécoins and XP. Such techniques largely bypass the need for physical exploration: Virtual Private Networks (VPNs) allow users to disrupt the capacity of LBGs to establish their proximity to game assets. While spoofers attract notoriety, they are sometimes welcomed by gamers. In legendary raids, where larger groups are needed to defeat powerful Pokémon, spoofers are referred to as 'air support'.<sup>3</sup>

Many of our research participants claimed that spoofing was the norm amongst advanced gamers due to Pokégyms being dominated by high level players who did not appear to need to be in proximity to sites to

<sup>3</sup> In these instances, the limit on 20 participants per battle means people who are physically proximate can be excluded by spoofers if a large group materialises.

take them, indicating they were so-called ‘sofa players’ able to circumvent Niantic’s efforts to regulate and bound territory, to monetise access to territory, through ostensibly nurturing exploration. Indeed in 2020 players are now able to battle remotely through a special tool, the remote raid pass, thus in effect formalising a technique many users were using anyway for their own benefit.

Another tactic emerged in response to Niantic’s attempt to prevent users amassing exorbitant amounts of Pokécoins through monopolising the gym system by enforcing a limit on the amount of currency a user could earn a day. One of the most lucrative tactics users adopted in response was to alter the time zone setting of a smart device to trick the application into resetting the daily earnings cap. The hack worked by changing the actual ‘timezone’ to a place in another day (technically ‘spoofing’) before the defending monsters return from the gym.

## 6. Conclusions

As shown in this paper, players are not just passively complying with profit-focused gaming companies, but actively resisting and creatively reworking a logic of urban control, corporate power and commodification. What we uncover in this paper is both the potential of LBGs such as Pokémon Go to deepen the commodification and marketisation of engagements with and movements through urban space, and the mutability, contestation and ongoing reconfiguration of this commodification in practice, as it is rolled-out via the logics of smart city technologies such as LBGs.

There should be no surprise that the themes in this paper present often perturbing, sometimes promising implications for the smart city. Taking into account the resistance of users to pressures from LBG developers to engage in cycles of consumption facilitated by the game, there are multiple instances where, for instance, exercise, exploration and interaction are enhanced due to Pokémon Go and there are welcome implications for urban communities in this. Our analysis of digital commodification via the LBG reveals the indeterminacy at the interface between virtual and ‘real’ worlds, indicative of on-going, contested mediation of digital technologies and their effects. Incongruences and disconnects abound. Corporate interests and the citizen-consumers who utilise their products are not simply passive recipients and enactors of the commodification of urban experience per se. Instead, both sides enact, resist, rework and create ambiguities in the smart city’s overall composition and indeterminacies.

Our analysis provides empirical insights into how location-based gaming and related mobile media interface with urban space and can intercept the roll-out of smart city logics of competition and digitalised commodification. It details how LBGs can contest seemingly hegemonic power and appropriation of space, and provide opportunities for diverse lines of human expression, with wider lessons for how we understand the influence of mobile media (see Frizzera, 2015). Additionally, it highlights how attempts to reorganise our use of urban space via the manipulation of hybrid urban spaces via mobile media inevitably must interact with existing urban structures, practices and habits (de Souza e Silva & Sutko, 2011). In this regard, LBGs suggest the possibility of an alternative trajectory (and alternative materialisation) for the smart city as one emerging from the activities and experiments originating from the ‘amateur urbanism’ (Merrifield, 2015) of gamers, rather than solely corporate monopoly and governance interests, or pre-determined to be shaped around market precepts. Gamification-from-below (Woodcock & Johnson, 2018) thus represents a productive conceptual entry point to underpin potent analyses of the realisation of the smart city. Moreover, our empirical insights provide productive provocation for wider work on how mobile media are entailed in the reorganisation of movement through urban space and our lives in public spaces (Carah & Louw, 2015).

Finally, our analysis suggests the importance of continuing to critically examine and empirically investigate the potential for producing urban consumer-subjects through engagement with the smart city. Gamification-from-below demands attention from planners and policymakers, even if unpalatable to corporate or neoliberal interests. Our paper, through its revelation of the ‘hacker ethic’ resplendent amongst Pokémon Go gamers’

contestations and reworking of the game, suggests this is not a foregone conclusion. Yet this contestation is not ultimately deleterious—perhaps due to its basis in individualised practice, removed from a wider hacktivist sensibility of organised protest—to urban commodification through LBGs, but rather part and parcel of how developers imprint their products into urban landscapes, enlisting citizens to ‘test’ software, trialling new game strategies, and reacting to user’s interactions and digital responses by developing new product. The paper contributes to the critical polemic of the smart city as a neoliberal project, offering a method both for unpacking the wider realisation of the smart city and for subjecting it to critical appraisal.

## Declaration of interests

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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