proceedings

MDPI

Proceeding Paper

Digital Games—Virtual Worlds—Real Impact †

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† Presented at the Online Workshop Digital Humanism: How to Shape Digitalisation in the Age of Global Challenges? IS4SI Summit 2021, online, 12–19 September 2021.

Abstract: This paper argues for actively engaging with current technological imaginaries by gamification of potential corresponding sociotechnical imaginaries. Digital games could allow explorations of techno-deterministic imaginaries, such as the Smart City. Moreover, ludic implementations of counternarratives could also visualize alternative futures even more tailored to the needs of the users and stakeholders of urban areas. This could be especially valuable in times when new visions of urban life are needed. Ludic engaging with sociotechnical imaginaries could accompany the process of technological invention and innovation in order to interactively explore speculative futures. In this context, digital games would be both a tool and an art form.

Keywords: gamification; sociotechnical imaginaries; smart city

1. Introduction and Overview

Digital games do not only constitute the realm of the art of agency as stated by Nguyen in his book "Games: Agency as an Art" [1] but lay the foundation for the art of interagency.

This article argues for actively engaging with current visions for the real world, e.g., for our cities, by gamification of corresponding sociotechnical imaginaries. The aim of such an approach is not to nudge urbanites to accept current visions of Smart Cities but to invite the game participants to experiment with sociotechnical imaginaries. This might be especially fruitful in this time where we need post-pandemic visions for our cities.

Thus, digital games might be used to create virtual worlds, which may have a real impact on (post-COVID) city planning.

2. Smart Cities for Smart Societies

Already in 2008, the vision of a Smart City was presented: "Several decades from now cities will have countless autonomous, intelligent functioning IT Systems that will have perfect knowledge of users" habits and energy consumption, and provide optimum service". "The goal of such a city is to optimally regulate and control resources by means of autonomous IT systems" [2] (p. 35). For Siemens and other industry leaders, this represented a picture of the future, a technical vision. The focus of this vision of providing "optimal service" was on the system not the individual. It was based on the conviction that the world was, in principle, perfectly knowledgeable, and its relevant characteristics could be meaningfully encoded without bias or distortion. It presumed that at any time a solution to the collective human needs could be arrived at algorithmically, and that such a solution could be encoded in public policy, again without distortion. Surely, it was not only Adam Greenfield in his 2017 book on "radical technologies" [3] who judged this an expression of a naive positivism. However, we have to keep in mind that this was technical vision—a picture of the future presented by the industry intending to profit from it.

Visions like the Smart City demonstrate that "sociotechnical imaginaries are at once descriptive of attainable futures and prescriptive of the kinds of futures that ought to be attained" [4] (p. 1). They are developed to form the basis for a business mission

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Citation: Thuermel, S. Digital Games—Virtual Worlds—Real Impact. *Proceedings* **2022**, *81*, 60. https://doi.org/10.3390/proceedings2022081060

Academic Editors: Wolfgang Hofkirchner and Hans-Jörg Kreowski

Published: 21 March 2022

and concrete business models. From a business perspective, the successful adaption of such a vision is driven by both a "technology push" and the "market pull". The focus of all smart systems currently under development is on process efficiency and economic considerations. This is perfectly demonstrated by the following vision of a smart harbour: "autonomous container yard and gantry crane operations can drive significant labour savings and optimise operational performance due to the removal of human error" [5] (p. 10). Thus, the goal of a smart city is not to provide optimal service to the people currently gaining their livelihoods in the city but on the cost-efficient operation of the city.

The prerequisite of any smart system is a sensor rich and datafied environment. The data gained are used by predictive algorithms to predict future behavioural patterns and optimize the resources accordingly. The focus is on providing knowledge under conditions of uncertainty in order "to know ahead and act before" trying to streamline processes towards enhanced efficiency. In the next development stage, the transition from prediction to prescription takes place: future behaviour is not only anticipated but formed. Context-specific adaptive microdirectives [6] may be incorporated in future intelligent infrastructures to guarantee optimal service from a system's perspective and nudge or even coerce the human participants towards the desired behaviour. Predictive policing demonstrates especially well how predictive practices not only form but shape the future. In many European, U.S., and Asian cities, the data collected on current burglaries are input to predictive policing algorithms. Hot spots of criminal activities are identified which are then the basis for police operations and interventions. This leads to criminal responses and new data.

Thus, such prescriptive smart systems manifest power relations demonstrating the power of technology in a Foucauldian way: "power is employed and exercised through a netlike organization" [7] (p. 98). However, in these smart systems, humans may not only behave as intended. They could also act in a subversive way demonstrating that "individuals are the vehicles of power, not its points of application" [8] (p. 98). These environments do not only restrict human autonomy, they also open up possibilities for undermining such systems. They are "dispositifs" in the Foucauldian sense possessing the dual structure of the manifestation of power and the possibility of subverting it. If the users of smart systems are discontent, civil disobedience undermining the systems from within is a potential option. However, since the anticipatory guidance provided by these systems is opaque, it might be quite difficult to fight against it. Explainable AI approaches may help make the decisions of the system more transparent and more comprehensible for its users [9]. However, one must note that Explainable AI is not a mature field yet and will need years to become one. Explainable AI interfaces for non-expert users, e.g., for the social actors participating in smart systems, are even farther out in the future.

City life, as we know and love it, is currently disrupted. For many of us living in big cities, a vibrant city life is more than being part of an efficient machinery. How we miss all the carefree outings sitting next to friends and strangers, just living in the moment, having a good time. A good life in the city means also working together, passing ideas around in an informal setting, brainstorming at the water cooler. Urban centres will change a lot due to New Work and E-Commerce. This will also impact the nature of menial work after the COVID crisis. The MIT task force on the work of the future warns that there will be too few low-wage jobs [10]. Thus, it is in our self-interest as societies to be a smart society and plan for the unknown that lies ahead.

3. Gamification of Sociotechnical Imaginaries and the Real-World Impact

The aim of anticipatory processes is "preparing for the unexpected in the world as we know it" [10]. Social anticipation and imagination may give us some indication of what our cities should look like in the future depending on the core values of our different societies and their economic possibilities.

In a pluralistic society it would be great if the stakeholders could participate in the design of smart cities. This is even more important in times like ours, where the concept of a city worth living in is undergoing fundamental changes.

The systems underlying current smart system approaches could be used to generate alternative options: One could use alternative data reflecting different behaviour patterns to generate alternative futures. This could be conducted in virtual environments. The impact of alternative microdirectives could be explored also in virtual spaces, e.g., in serious virtual games, whose primary objective is to provide a space for learning or practising a skill, e.g., the imagination of speculative futures. Thus, big data practices—already in place in many smart cities—could be used to experiment with the "not yet". Such a ludic approach could be accomplished by multiagent simulations or, to integrate the stakeholders even more, by digital games. The evaluation of the experiments should be supervised by humans and not performed exclusively by algorithms.

By playing such virtual games, speculative futures can be explored where the game designers define the degrees of freedom for the action and interaction of the players. Such games could explore existing sociotechnical imaginaries of Smart Cities or present alternative visions of urban life.

4. Conclusions

The gamification of visionary perspectives of urban life presents a novel approach to creating sociotechnical imaginaries: In game worlds, visions of smart cities could be replaced by viable fictions realized as games. So, visions for the real world for future urban environments could be linked with their digital realizations in order to let the users explore them and offer a verdict based on the actual experiences of and in their virtual counterparts. These insights could inform city planners and have a real impact.

Funding: This research received no external funding.

Conflicts of Interest: The author declares no conflict of interest.

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