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IS GAMIFICATION MAKING CITIES SMARTER[1]?

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[1] Some of the ideas and opinions presented in this article partly draw on the content of my last book *Games, Powers & Democracies*, Bocconi University Press (2018).

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1. TECHNOLOGY, DATA, EFFICIENCY, OR INCLUSIVITY : WHAT MAKES A CITY SMART ?

Streets embedded with sensors to manage traffic congestion, public spaces monitored by high-tech command centres to detect suspicious activities, real-time and publicly accessible data on energy, transportation and waste management – in academia, there is still no generally agreed definition of 'smart cities'. But in the collective imagination, the connotations are clear: smart cities are seen as efficient machines governed by algorithms[3].

For decades, the combination of technology and data has been a key feature of smart urban management. Under this scheme, what branded a city as smart was the efficiency of (digital) public services. Private companies – to which public functions were outsourced – implemented digital technologies to solve urban problems[4]. Over time, concerns have grown over this privatization of public services. Who owns the data processed by private companies? Who guarantees that data are treated ethically? How inclusive are the public services provided by increasingly privatised smart cities? In a now-famous article published at the turn of the century, Brinton Milward and Keith Provan coined the expression 'hollowing of the state' to define the progressive replacement of the

[3] A.M. TOWSEND, '*Smart Cities: Big Data, Civic Hackers, and the Quest for a New Utopia'*, Norton 2013; A. COCCHIA, '*Smart and Digital City: A Systematic Literature Review'*, Springer 2014.

[4] S. RANCHORDAS, '*Cities as corporations? The privatization of cities and the automation of local law'*, AdminLaw Blog, 2018.

public sector with a network of third-party providers and services and to highlight issues around the (perceived) legitimacy of the public sector[5].

In response to such criticism, urban management has progressively shifted the focus from the efficiency of public services to citizens' concerns[6]. This new approach puts inclusiveness at the centre of public services design. Citizens are actively engaged in all phases of urban management, from planning to service provision[7]. Seoul, with the 'Sharing City' initiative[8], and Barcelona, with the 'Fab initiative[9] have been at the forefront of efforts

[5] H.B. MILWARD & K.G. PROVAN, *'Governing the hollow state'*, Journal of Public Administration Research and Theory, 10, 359-379 (2000).

[6] Mckinsey Global Institute, '*Smart Cities: Digital Solutions For a More Liveable Future'*, 2018. See also G. SGUEO, M. ALLULLI, *Interessi comuni? L'inclusione di attori privati nelle politiche locali, tra lobbying e partecipazione, in IV/V Comuni d'Italia*, 2013.

[7] At the Techfestival in 2017, an annual event dedicate to the relationship between technology and humanity, 150 practitioners (including technologists, designers, philosophers, educators, and artists) came together for 48 hours and drafted a document they titled '*The Copenhagen Letter'*. The letter mirrors their commitment, starting a conversation on the values and principles that guide technology. One of the principles endorsed by the letter suggests moving from "human-centred" to "humanity-centred" design. In academic discourses on urban management, the concept of "Citizens planners" epitomises the idea that urban planning practices should engage trained professionals as well as ordinary citizens. See V.A. BEARD, 'Citizen Planners: From Self-Help to Political Transformation', in R. CRANE, R. WEBER (eds.), *The Oxford Handbook for Urban Planning*, 2012. On the evolution of urban planning See P. EVANS, '*Liveable Cities? Urban Struggle for Livelihood and Sustainability'*, University of California Press, 2002.

[8] The 'Sharing City Seoul Project' was launched in 2012 to create new economic opportunities, to restore citizen-to-citizen relationships, and to reduce the wasting of resources. Sharing City includes 50 projects that provide people with an alternative to owning things they rarely use, and given grants to a number of these projects. For a brief overview See NESTA UK, '*Sharing City Seoul'*, available at: *https://www.nesta.org.uk/feature/10-people-centred-smart-city-initiatives/sharing-city-seoul/*. In 2016 the municipality of Seoul published its vision for becoming the world's leading digital city by 2020. The strategy has two core components: the first is empowering residents to be connected through technological devices; the second concerns the encouragement of city engagement through a voting system app.

to incorporate collaborative and distributed decision-making processes to catalyse innovative solutions to urban problems. Similar efforts have also been made in Chicago. In a recent publication with the "Innovation for Successful Societies" at Princeton University, Gabriel Kuris discusses some of the approaches that the municipality of Chicago, which in 2018 had won acclaim as a smarter city, developed to address challenges of fairness, and manage the societal implications of cutting-edge technologies[10]. These included the creation of civic, academic, and private-sector partnerships, and the favour for open-source data and software, which could be used and redistributed freely in order to lower barriers to collaboration and enable people outside government to independently pursue projects that used the data.

2. DIMENSIONAL, REGULATORY, FINANCIAL, AND RELATIONAL CHALLENGES TO INCLUSIVE URBAN MANAGEMENT

However, the quest for inclusive urban management is confronted by four challenges. The first is dimensional, the second regulatory, the third financial, and the fourth relational. From a dimensional perspective, inclusiveness is confronted by urban sprawl. In little over a century the number of people living in cities has tripled[11]. In response, urban architects have taken steps to develop spatial structures within cities that support sustainability. However contemporary megalopolises remain characterised by

[9] The Fab City Global Initiative (*https://fab.city/#intro*) is a distributed community of civic leaders, makers, urbanists and innovators working on shifting he industrial urban paradigm to one that better supports life on Earth. The roadmap was launched in 2011 in the city of Barcelona. In 2014 the municipality of Barcelona launched the FAB City project.

[10] G. KURIS, '*Making a Smart city a Fairer City: Chicago's Technologists Address Issues of Privacy, Ethics, and Equity 2011-2018*', Innovations for Successful Societies, 2018, available at: *https://successfulsocieties.princeton.edu/sites/successfulsocieties/files/Chcago_Smart%20Cities_Final%20SET_2_0.pdf*.

[11] UN-HABITAT, '*World Cities Report 2016'*, available at: *http://wcr.unhabitat.org*.

profound cultural, social and economic tensions among residents. Reformist ideas – "new urbanism", "compact city", "smart growth" – have been proposed to encourage harmonious and inclusive urban development; but in reality, a unitary and transferable model for inclusive urban management sounds, at the very least, visionary. As noted in the 2018 Cities in Motion Index[12], the smartest cities in the world are grappling with the issue of social cohesion. In fact, when ranked on this specific benchmark, these cities place in the bottom of the ranking. Hence, the challenge for city managers: how to escalate civic engagement beyond the neighbourhood-level?

The dimensional perspective has regulatory implications. Urbanisation has scaled up city issues, making them more complex. Traditional bureaucratic problem solving is too slow, and not adequately designed, to address them on its own. In order to cope with regulatory issues, municipal bureaucracies have to be dynamic and adaptive, and capable of developing synergies between ideas and competences. Yet paradoxically, the replacement of traditional regulatory means with more innovative tools of urban governance has made regulatory outcomes less predictable. Commentators have pointed out the risk that new forms of inequality could arise. Digitally illiterate citizens and marginalised communities, for instance, are at risk of exclusion from participation. Here lies the problem: how to encourage innovation and avoid regulatory failure?

A third challenge is financial in nature. On the one hand, budgetary pressures, with public sector staff capacity at a historic low, have sped up the process of replacement of out-dated existing resource-intensive models with innovative tools of governance. Yet, innovative policy-making does not come without a cost. This includes the expense associated with designing, attracting experts, sampling, and communication. In a spending review rationale, promoting innovative forms of urban management to engage citizens in

[12] Center For Globalization And Strategy – Iese Business School, Cities in Motion Index, Barcelona 2018, available at *http://www.ieseinsight.com/doc.aspx?id=2124&ar=&idi=2&idioma=2*.

local decision-making may clash with the need to cut expenses. So the question arises: is low-budget innovation possible?

The fourth and last challenge to inclusive urban governance is relational. It is well known that the spread of electronic devices has radically lowered social interaction costs. A communication technology such as the Internet allows anyone to communicate information from any location simultaneously[13]. Technological progress has allowed citizens to interact via networks, reciprocate favours, build trust, engage in 'connective action[14]', and eventually turn into 'communities of practice' or 'trust communities[15]'. Increased convergence, however, translates into higher expectations. Contemporary audiences are demanding, and public regulators struggle to keep pace with their requests. We have reached the point where government leaders blame citizens' expectations as a key reason for the lack of trust in governments, complaining that the public expect them to solve all their problems.

3. CAN SMART CITIES BE INCLUSIVE?

The moment we combine these four challenges together, uncertainty arises: can a smart city be inclusive at the same time? It goes beyond the scope of this article to thoroughly delve into this question. My aim is to contribute to reflections on where the quest for inclusiveness is leading smart urban management. To this end, this article focuses on one specific form of innovative urban management: a combination of technology and fun design described as 'gamification'.

[13] A. LUPIA & G. SIN, '*Which public goods are endangered? How evolving communication technologies affect the logic of collective action'*, Public Choice, 117, 315-331 (2003).

[14] On the concept of 'connective action', See L.W. BENNETT & A. SEGERBERG, '*The Logic of Connective Action Digital Media and the Personalization of Contentious Politics'*, Cambridge University Press, 2013.

[15] I. WU, '*Forging Trust Communities. How Technology Changes Politics'*, Johns Hopkins University Press, 2015.

One may ask: why gamification and not another form of innovative urban governance? Two reasons motivate this choice: one realistic, the other ideological. Realistically speaking, the attention paid by public regulators (local, national, and supranational) to the motivational and behavioural effects of game mechanisms, and their 'proceduralisation' in policy-making, is unprecedented. The records show a dramatic expansion of gamification within the public sector. When the phenomena was first acknowledged by research and advisory firm Gartner in 2012, it forecasted that, within two years, more than 70% of the top 2,000 public organisations worldwide would have at least one gamified application in place[16]. Since 2013, the company has included gamification among their top-ranking prospects in the 'Hype Cycle for Digital Government Technology' – a cycle that identifies promising technologies for future social innovations[17].

The second reason for highlighting gamification in testing the inclusiveness of smart cities is ideological. In the eyes of urban managers, gamification seems to offer an easy, inexpensive and potentially highly remunerative way of engaging demanding audiences while maintaining high levels of trust in the institutions. Obviously, it is a lot more problematic than it looks. The introduction of gamification in urban policy-making embodies a number of weaknesses, both practical and theoretical in nature. Gamification is a perfect exemplar of an ideologically charged policy-tool, which has benefited from (still) poor empirical testing. It is worth remembering that gamified governance's legal, societal, political and cultural challenges remain unexplored. Few studies have attempted to determine what kind of capabilities public regulators must develop to leverage the benefits of gamification and deliver public outcomes effectively.

[16] B. BURKE, *'Gamification 2020: What Is the Future of Gamification*?', Gartner, 2012.

[17] According to the 2014 Hype Cycle for Emerging Technologies, gamification has surpassed the '*Peak of Inflated Expectations*' and is expected to reach the '*Plateau of Productivity'* in the next five to ten years. Together with robotics, artificial intelligence, biometrics and data, (serious-) games are recognised among the technological paradigms that are shaping the evolution of public administrations.

The following paragraphs will review the use of gamification at the municipal level. After describing seven case studies of gamified urban governance, we will analyse three shared traits of these initiatives, namely: the structure, the design, and the purposes. This will give us the opportunity to discuss the (potential) benefits and (actual) drawbacks of gamification in urban environments. We will conclude by assessing the contribution that gamification is making to the evolution of smart cities. It will be argued that gamification offers a meaningful solution to more inclusive urban decision-making. But it will also warn about three common misconceptions in discourses on the future of smart cities. The first is the myth of inclusive technology; the second consists of the illusion of the democratic potential of games; finally, the third points at the downsides of regulatory experimentalism.

4. SEVEN CASES OF GAMIFIED URBAN GOVERNANCE

Our journey begins in the United States, in Raleigh, the capital of North Carolina. With a population of nearly 500,000, Raleigh is one of the fastest-growing cities in the United States[18]. In 2017, the municipality released a web-based 3D visualisation tool named InVision Raleigh. This tool allows urban designers and planners to develop and envision a variety of development scenarios within the urban environment. Users of InVision Raleigh can add potential buildings by defining location, height, width and orientation, and observe the resulting changes to the physical characteristics of city streets, shadow patterns and density. By using simple navigation tools, users can see how development (or other changes) in the use of land would impact the city. InVision Raleigh, currently in beta, has a stated goal: to lower the bar of citizen participation. To this end, the team of developers is currently at work to engage users with enhanced storytelling features about what the future urban environment could be designed to be[19].

[18] United States Census Bureau, '*2017 Population Estimates'*, available at: *https://factfinder.census.gov/faces/nav/jsf/pages/community_facts.xhtml#.*

[19] K. SIRK, '*Guest Blog: InVision Raleign'*, Next Century City, 2017, available at *https://nextcenturycities.org/guest-blog-on-raleighs-invision-raleigh/.*

The second case – Macon Money – is located in Macon, the fourth-largest city of Georgia. Macon Money was initiated in 2011. Few simple rules governed this initiative. Over $65,000 in free local currency was distributed among residents. This money, however, was locked in bonds – namely, the 'money of Macon' – redeemable for an unknown value between $10 and $100. The virtual currency depicted symbols of communal value, such as a picture of Otis Redding, a native of the town, and could only be spent at local businesses. Interestingly, each bond had been cut in half prior to circulation. Those who wished to cash their bonds were required to first find the missing half, held by an unknown community member. The organisers of the initiative had intentionally distributed the two halves of the bonds on opposite ends of the city, and across neighbourhoods with different socio-economic status. The idea was to encourage the residents of Macon, who would not normally interact, to rethink social boundaries, get to know each other, and to collaborate for a common purpose. Players could find each other and liaise through a dedicated website, or via social media platforms[20].

Third case: CityScore, in Boston, aggregates key performance metrics about the city into a single numerical score[21]. There are twenty-four metrics covering almost every aspect of city life, including energy consumption, crime, Wi-Fi availability, traffic and trash collection. It is not only cabinet chiefs, department heads, and city employees who are involved: the general public is also engaged in the process of improving CityScore, through sharing data and information they have, and with suggestions for additional metrics. Albeit Cityscore aims at positively impacting the entire urban area of Boston, it is strategically designed to arouse citizens' interest at the neighbourhood level. Bostonians are encouraged to share the information they have about the areas of the city they know better, either

[20] S. VERHULST, '*Macon Money: A serious game for civic engagement'*, GovLab Digest, 2014.

[21] For further details, See City Of Boston, CityScore, available at: *https://www.boston.gov/cityscore.*

because they live there, or because they work or spend their leisure time in those areas[22]. Since CityScore's public launch in January 2016, the city has held monthly performance meetings with the mayor to address issues highlighted by the scores. Improvements have followed – e.g. an 18% increase in streetlight outage repairs.

The fourth case, Bike Angels, was implemented in New York in 2015 (and later in Los Angeles) to solve a common issue of bike-sharing initiatives: the shortage of bicycles during rush hours. Asymmetric traffic demand causes imbalances in the availability of bikes, with bike-sharing stations empty or full, and customers unable to rent or return bikes. Typically, municipalities use trucks to redistribute the vehicles across stations. This solution, however, is slow at matching demand with offer, and it also impacts negatively on traffic congestion and air pollution. Through Bike Angels cyclists earn points by using or returning bikes at certain high-need stations. High scores are posted on a leader board. Points earned may be added up to free rides and other prizes. An algorithm continually updates the pattern of stations of which users earn points[23].

Moving on to South America. The fifth case is Gallinazo Avisa ('Vultures Warn')[24]. Gallinazo Avisa was ideated in 2014, during the COP20 climate change summit held in Lima. The nearly nine million residents of Lima produce more than 8,000 tons of trash a day, totalling 240,000 tons each year. The city landfills are unable to accommodate

[22] Something similar to CityScore has been experimented with in Chicago with the Array of Things initiative. Launched in 2016, the project consists of a network of interactive sensor boxes mounted on lamp posts to collect real-time data on Chicago's environmental surroundings and urban activity. When fully implemented, Array of Things will consist of 500 sensor boxes installed around the city. The data will be made available to anyone who is interested (residents, researchers, urban managers) who will be able to proactively monitor and engage with the data.

[23] H. CHUNG, D. FREUND, D.B. SHMOYS, '*Bike Angels: An Analysis of City Bike's Incentive Program'*, COMPASS '18 Proceedings of the 1st ACM SIGCAS Conference on Computing and Sustainable Societies, 2018.

[24] For further details, See the official website of the initiative: *www.galinazoavisa.pe*.

such large amounts of waste. As a result, they only around 20% of waste is processed, with the rest ending up on the street or polluting the air and water. According to the World Health Organization Lima holds the unenviable record of worst air pollution of all Latin American cities. Gallinazo Avisa was created by the Peruvian Ministry of Environment, in cooperation with the US Agency for International Development, to respond to this critical situation. Ten vultures were equipped with a solar-powered GPS device and a GoPro camera attached to their chests. They were trained to track down garbage scattered throughout the streets of Lima. The pictures taken, together with the locations, were then published on an online map. Thanks to this initiative, the residents of Lima were informed about the pollution problem of their city; and they were encouraged to report areas with illegal dumping. Not long after the beginning of the initiative, citizens started to take their own photos and post it on the website of the initiative.

Our next cases take us to Europe and Russia, respectively. In 2017 the municipality of Turin, in Italy, inaugurated a web portal named 'Decidi Torino' ('You choose Turin'). Based on the open-source software 'Decide' (developed by the municipality of Madrid[25]), Decidi Torino is a participatory platform aimed at, first, fostering the direct engagement of the citizens of Turin in local decision-making and, second, at improving the transparency of the municipal administration[26]. The platform is divided in three areas. The first one is dedicated to residents' proposals. Once registered, users of the platform can present their ideas on issues regarding local public services, or about improving community life, and rate those of others by supporting or opposing them. Ideas that gather the support of at least 5,000 registered users are moved to the attention of the municipal administration for a cost-benefits analysis, prior to implementation (for which is

[25] Interestingly, also the municipality of Buenos Aires has used the same software to create Buenos Aires Elige. According to the city's mayor, since its creation in 2017 more than 26,000 ideas have been proposed on the platform.

[26] The official website of the initiative is available at *www.dedicitorino.it.*

due political consensus in the municipal Council). Registered users may also participate in debates. Interestingly, the mechanism through which they can support or oppose ideas under debate are reminiscent of the Facebook 'like' and 'dislike' buttons. The third section of Decidi Torino consists of consultations on projects promoted by the municipal administration.

Seventh and last case is the Active Citizen app promoted by the Municipality of Moscow. Initiated in 2014 by the Moscow Mayor Sergey Sobyanin, Active Citizen allows Muscovites to vote on non-political city decisions, such as naming a new subway station, expanding bike lanes, supporting a band to play in a park, or setting the speed limits in urban areas. Under the motto "The city entrusts you to decide" the platform awards points for every vote casted by its users. Points can be redeemed with prizes available on an online store. The mechanism is simple: the more votes, the higher number of points (with city-wide votes afforded more points than district-level ones), and therefore the better prizes, including tickets for a ballet performance, a bestseller book, branded merchandise, or a breakfast with Moscow's mayor. According to data released by the municipality of Moscow, thus far Active Citizen has worked successfully. Since its launch it has hosted nearly 2,800 polls, gathering 1,9 million users – with the most popular polls attracting an average of 500,000 citizens. At the end of 2017 the municipality of Moscow announced a pilot project to migrate the Active Citizen's voting system to the blockchain. With the new system citizens' answers will be threated as a transaction, stored and sent to the network. A government-controlled node would be the sole authority voting on the validity of transactions within blocks. In a system that uses cell phone numbers to verify user identity, and in the case of a highly important poll, requires voters to provide certain passport data and to go through identification via state and municipal services platform, users' anonymity will be protected through an unique ID assigned to each user.

5. THE PNYX AND THE AGORA

The seven cases of urban governance illustrated above have clear differences in duration, scopes, and outreach; they share, however, three common traits. The first is structural. The second relates to design, and more precisely with the use of fun-design

elements. This will be analysed in Paragraph 4. The third common feature (to be discussed in Paragraphs 5 and 6) concerns the two purposes of these initiatives: first, eliciting greater citizen responsiveness; and, second, collecting citizens' expertise to co-ideate solutions to urban issues.

In structural terms, all cases illustrated above present two, overlapping, virtual spaces. The first prepares citizens for debate – a function that in ancient Greece was performed by the agora[27]. Typically, this is the task conferred on a forum for discussion incorporated in most participatory platforms, where citizens are encouraged to share their ideas on improving the city. Alternatively, this function may be performed by a blog. It is the case of Bike Angels. On the official blog of this initiative there is a space for users' profiles, a section dedicated to news, and a community space.

To be promoted to the phase of implementation, however, ideas need to be widely supported. This is served by the second virtual space: the Pnyx. In ancient Greece, this was a physical location with the scope of organising the visual attention required for decision-making. In the cases analysed in this article, it is exemplified metaphorically by the voting systems hosted by the respective websites. The Pnyx space can have different degrees of sophistication. In its most rudimentary form it comes has a section where users can share contents. Think as an example at the section of the website of Gallinazo Avisa that hosts the photographs taken by residents of Lima. The more elaborated the Pnyx space becomes, the more options are made available to citizens to interact, support ideas, and vote.

The combination of the functions performed by the two virtual spaces is aimed at fostering virtuous interaction among residents, and consequently making the municipal administration more accountable, and its policies more legitimate. Interestingly, this is the same approach that inspires Graham Smith's 'democratic innovations' theory. Democratic

[27] A. KAASA, J. BINGHAM-HALL & E. PIETROSTEFANI (eds.), '*Designing Politics: The Limits of Design'*, London School of Economics, 2016.

innovations, explains Smith, are institutions 'that have been specifically designed to increase and deepen citizen participation in the political decision-making process[28]'. The innovation is consequential to the fact that these institutions represent a departure from the traditional institutional architecture of advanced industrial democracies. Participatory budgeting, citizens' assemblies, town meetings, online citizen forums, and direct legislation are all classifiable as democratic innovations, according to Smith's taxonomy. Yet, to be classified as democratically innovative, concludes Smith, these institutions must possess two key features: the first is that they are designed to democratically engage non-organised or partisan citizens; the second is that they consist of institutionalised forms of participation, that is, they provide citizens with a formal role in policy, legislative or constitutional decision-making.

There are no doubts about the innovative potential of the initiatives described in this article; and about the fact that they incorporate democratically designed features. Yet the institutionalisation element is missing. Initiatives like City Score or Bike Angels pursue scopes that are ancillary to participation: informing citizens, for instance, or promoting civic culture. Even in cases where the goal of local administration seems to be that of fostering civic participation – as, for example, with Decidi Torino or Active Citizen – it may well be the opposite. In other words, these initiatives may serve the scope of "filtering", or containing, further pressure from civic actors. We will discuss this point in the remainder of this article. For now, it is important to keep it in mind the similarities, but also the differences, between innovative urban management and Smith's democratic innovations.

6. POINTS, BADGES AND SCOREBOARDS

A second common feature of the initiatives analysed in this article concerns the design. In addition to the two virtual spaces for discussion and for deliberation, all seven

[28] G. SMITH, '*Democratic Innovations'*, Cambridge University Press, 2009.

cases make use of game-design elements. These include badges, points, levels, rankings, challenges, and virtual currencies. Fun-design elements are entrenched into the respective initiatives with the scope of making them more enjoyable, and therefore participated[29]. According to some authors, the sense of playfulness occurs under three conditions: first, the perception of a non-trivial goal that can be reasonably pursued; second, the desire to pursue that goal under behavioural rules that differ from the behavioural rules that one would normally apply; third, the voluntariness of the decision to pursue that goal[30]. Other scholars claim that a gameful system must contain at least some of the nine key features of games – namely: player, environment, rule, challenge, interaction, goal, emotional experience, quantifiable outcome, negotiable consequence[31].

[29] S. DETERDING, D. DIXON, R. KHALED & L. NACKE, '*From game design elements to gamefulness: defining gamification*' in Proceedings of the 15th International Academic MindTrek Conference: Envisioning Future Media Environments, ACM Press, 2011; B. BURKE, '*Gamify: How Gamification Motivates People to Do Extraordinary Things*', Bibliomotion, 2014.

[30] R.N. LANDERS, E.M. AUER, A.B. COLLMUS, M.B. ARMSTRONG, '*Gamification Science, Its History and Future: Definition and Research Agenda*', 1 Simulations & Gaming 2018.

[31] A.R. YOANNIS, '*Defining gamification: from lexical meaning and process viewpoint towards a gameful reality*'. Paper presented at the 2014 International Conference on Information Technology Systems and Innovation, Indonesia 2014.

The gamification of urban management combines the approach of 'games with a purpose' – i.e. systems that invite individuals to collaborate in performing tasks that require skills that humans possess better than computers (as, for instance, with the practice known as 'image recognition') – with the methodology of 'serious games' – that is, games aimed at teaching or training individuals to perform particular tasks. The balance between the two components, however, may vary. The users of Decidi Torino or Active Citizen, for example, are engaged as much to contribute to policy-making as to be informed about the initiatives promoted by their municipalities. With Macon Money, Bike Angels or Galinazo Avisa, on the contrary, the informational/training component is prevalent.

This clarified, it is important to keep gamified urban management separated from initiatives that pursue the same aim – i.e. citizens' engagement – without using game-design elements. The New York University GovLab has listed one hundred examples of local legislatures and national parliaments that are experimenting with web-based initiatives to involve the public in legislative drafting and decision-making. The GovLab labels these initiatives 'crowdlaw[32]'. Some of the cases analysed in this article could be labelled as crowdlaw initiatives – Active Citizen is a case in point. Crowdlaw and gamified urban management, however, are not necessarily the same thing. The difference between the twos lies precisely in the design approach.

To substantiate this point, let us look in more detail at a few non-gamified platforms: Parlement & Citoyens, Mi Senado, and Urna de Cristal. The French-speaking platform Parlement & Citoyens and the Colombian Mi Senado are based on the same logic. Users can provide inputs for legislative drafting, take part in one-time consultations (Parlement & Citoyens) or react and vote on parliamentary sessions in real-time (Mi

[32] According to the GovLab, crowdlaw is distinct from any and all form of online engagement in that it focuses primarily on legislative bodies. Crowdlaw can refer to the full gamut of law-making activity, including legislation, regulation, constitution and even policy-making. For further details, see *www.thegovlab.org/project-crowdlaw.html.*

Senado). Through Urna de Cristal Colombian citizens can participate in online consultations, but also notify the government of grievances pertaining to any government department or agency. All these examples remain excellent cases of digitalised and innovative policy-making, but they lack a gamified approach. The rating system they incorporate, taken alone, does not sufficiently qualify. In properly gamified platforms there are several fun-design elements combined together. Take the examples of this article: we find a ranking system, a competition among participants, a sort of progression across "levels", and prizes. It is due to these elements that we can classify these cases as gamified urban management.

7. GAMIFIED URBAN GOVERNANCE AND CIVIC CONSCIOUSNESS

The third and last common trait uniting the initiatives analysed in this article are the goals pursued by municipal actors. When experimenting with gamification, urban managers pursue two scopes: the first is to elicit greater citizen civic consciousness, the second consists of gathering citizens' expertise into policy-making.

Let us begin with civic consciousness. We know that political participation and civic engagement are decreasing in all Western democracies. Approval ratings for democratic institutions are at near-record lows in several European and non-European countries. Analysts consider this 'democratic recession', as Larry Diamond called it[33], the new reality of democracies, rather than a momentary disruption of existing patterns. According to many, we have entered 'the era of disbelief', to quote a famous Washington Post article[34]. Research shows that, compared with their national counterparts, local administrations are performing better on citizens' trust. This is likely because of the direct

[33] L. DIAMOND, '*Facing up to democratic recession'*, Journal of Democracy, 26 (2015).

[34] ROBERT J. SAMUELSON, We entered the era of disbelief, Washington Post, February 26 2017, *https://www.washingtonpost.com/opinions/the-era-of-disbelief/2017/02/26/e4fa3786-faac-11e6-be05-1a3817ac21a5_story.html?utm_term=.8410cc0aa953*

interaction between residents and city council members[35]. Yet local administrations are not strangers to the challenge of engaging local communities. According to a 2016 survey run by Governing magazine and Living Cities many cities struggle with following up on their efforts to engage residents with tech tools[36]. Although 90% of the surveyed cities reported that they were using some kind of citizen engagement technology, 40% admitted that they needed to improve the ways they use that input. And even when citizens' inputs are actually used, 41% of respondents said that they lack regular communicative efforts to let residents know they made a difference[37].

Hence, the experiments with gamification in urban management. City managers look to redesign participatory processes in such a way that they become more captivating – thus fostering civil society engagement, tackle the decline of trust in the public sphere, and possibly even revive democratic legitimacy. Question in point: are we denying what we said few pages before, when we explained that local administrators with gamification may be aimed at limiting participation? Not necessarily. We could compare the hypothesis of gamified urban governance used to limit civic participation to Ricardo Blaug's 'incumbent democracy' – a form of democracy that is primarily interested in channelling, simplifying, and rationalising participatory inputs. This, in Blaug's vision, is opposed to 'critical

[35] J. MCCARTHY, '*Americans Still More Trusting in Local Over State Government'*, Gallup 2016, available at: *https://news.gallup.com/poll/195656/americans-trusting-local-state-government.aspx*.

[36] GOVERNING, '*Equip to Innovate'*, available at: *http://www.governing.com/equipt*

[37] Decide Madrid (the platform that the municipality of Madrid uses to consult residents, and that contains gamified elements) is a case in point. Since its launch, in 2014, the platform gathered thousands of policy proposals from residents; yet only two moved forward to be considered by the city council. For this reason, out of the 482 Madrileños surveyed by the municipality among those who had not registered on the platform, 11% judged participation in Decide Madrid pointless. See Municipality Of Madrid, Acción de Gobierno del Ayuntamiento de Madrid (2015–2019), available at: *www.madrid.es/UnidadesDescentralizadas/UDCMedios/noticias/2016/07Julio/05%20Martes/NotasdePrensa/DebateEstadoCiudad/ficheros/ACCIÓN%20DE%20GOBIERNO.pdf.*

democracy', which is characterised by increased participation and empowerment[38]. Our claim is that such "distractive" forms of gamified urban governance do not completely exclude participation; they rather try to keep it under control. Local administrations are interested in fostering civic responsiveness, but are less willing to automatically translate citizens' ideas and opinions into actual policies.

Graham Smith is clear on this point, when he explains that exclusion pervades much of democratic practices; and this is not necessarily due to design principles of innovation, he adds, but rather to the manner that sponsoring authorities enact democratic practices[39]. The reasons for these choices, we claim, are very pragmatic. To reduce costs is one. Budgetary constraints limit public administrators' freedom of action. Another reason may be efficiency, that is, to ensure that the number of participants in a certain policy-making process is manageable. A third, related, reason may consist of the attempt to attract only certain types of participants. Why would urban managers want to do that? The answer lies, again, in resource scarcity. Due to constraints in time and resources, public regulators cannot possibly speak to every interest group. A study authored by Thomas Bryer, Terry Cooper and Jack Meek supports this assumption. Bryer, Cooper and Meek explain that greater engagement of citizens drain resources from professional administrative work[40]. The consequence is straightforward; regulators need to figure out which group most closely approximates the targeted constituency, and provide the most accurate representation of the interests and preferences of this particular societal segment.

[38] R. BLAUG, '*Engineering democracy*', Political Studies, 50, 102-122 (2002).

[39] SMITH, *Democratic Innovations*.

[40] T.L. COOPER, T.A. BRYER & J.W. MEEK, '*Citizen-centered collaborative public management'*, Public Administration Review, 66 (2006).

One last question before moving to the second aim of gamified urban governance: does this 'participatory makeover' work[41]? Albeit some might criticise the notion that the legitimacy of democracies depends on real links between the public and public policies[42], the majority of academics answers in the affirmative. A strong body of academic work points out the benefit that friendly and captivating designs may bring to civic engagement[43]. With regard to gamification, Juho Hamari and Jonna Koivisto select three. The first is 'utilitaristic' – users have an external goal and the purpose of the gamified service is to make the goal more efficiently attainable. The second is 'hedonistic': users are intrinsically motivated because they feel stimulated in their autonomy, competence and relatedness. A third consists of harnessing the 'social benefits' that are produced by interactions among users[44].

8. SYNERGIES BETWEEN IDEAS AND COMPETENCES

There is a second reason that motivates city managers to experiment with gamification: gathering the knowledge and skills provided by citizens and use it to deliver more informed decisions. The practice, known as policy-crowdsourcing, has developed only recently in the public sector. Crowdsourcing is an umbrella concept used to describe a model of distributed problem-solving and production that leverages the collective efforts of

[41] The expression 'participatory makeover' was coined by C. HENDRICKS & A. KAY, '*From "opening up" to democratic renewal: Deepening public engagement in legislative committees'*, Government and Opposition, 1-27 (2017).

[42] C.H. ACHEN & L.M. BARTELS, *Democracy for Realists: Why Elections Do Not Produce Responsive Government*, Princeton University Press, 2015.

[43] In particular, BOAVENTURA DE SOUSA SANTOS (ed.), Democratizing Democracy: *Beyond the Liberal Democratic Canon*, Verso, 2005.

[44] J. HAMARI & J. KOIVISTO, '*Why do people use gamification services?* ' International Journal of Information Management, 35, 419-431 (2015).

online communities for specific purposes set forth by a crowdsourcing organisation, be it public or private[45]. The primary general goals of crowdsourcing are cost saving and efficiency. Put simply, crowdsourcing helps organisations to handle tasks that would be difficult to perform without collective support.

Experiments with crowdsourcing in the public sector rely on the incentives that collective participation can produce. Expected benefits include better crisis management and enhanced fundraising for public investments. Not surprisingly, later experiments with crowdsourcing in policy-making included gamified elements, as an attempt was made to redirect the motivations of crowdsourcees from rational gain-seeking to self-purposeful and intrinsically motivating[46].

To better understand the motivations of citizens that are offered the opportunity to provide their expertise into urban management, we will refer to the concept of prosumerism and collective intelligence. The theory of prosumerism was coined in the 1980s to describe an emerging trend in consumers' choices. In a market in which the basic needs of consumers were already satisfied by mass production, companies initiated processes of mass personalisation through mass-producing highly personalised products[47]. Prosumers participate both in the design (as producers) and in the consumption (as consumers) of products through mass customisation. All things being equal, prosumers of public policies contribute to the 'creation' of policies, the same policies that will affect their individual spheres.

[45] D.C. BRABHAM, '*Crowdsourcing as a model for problem-solving: An introduction and cases, Convergence: The International Journal of Research into New Media Technologies*, 14.1, 75-90 (2008). See also J. HOWE, '*The rise of crowdsourcing*', Wired Magazine, 1 June 2006.

[46] B. MORSCHHEUSER, J. HAMARI, J. KOIVISTO & A. MAEDCHE, '*Gamified crowdsourcing: Conceptualization literature review, and future agenda*', International Journal of Human-Computer Studies, 106, 26-43 (2017).

[47] A. TOFFLER, *The Third Wave*, Bantam Books, 1984.

Co-creation develops through the active flow and exchange of ideas and information between and across citizens and public administrators. This flow facilitates both engagement and empowerment of civic actors in all stages of policy-making. To exemplify the case of prosumerism one can look at two examples. The first is called Making Sense. This is a European Union funded Project that has been experimented in Amsterdam, Barcelona and Pristina[48]. The idea of Making Sense is to empower citizens through personal digital manufacturing and co-designing. Citizens affected by environmental issues, for example, produce sensors to collect data about pollution, and in a latter stage are used to coordinate collective action and awareness interventions. The second example is KCStat, developed by the municipality of Kansas City to measure the city's progress towards achieving a citywide business plan. Citizens are involved in the monitoring of the progresses made by the administration on each of the performance indictors, and are enabled to suggest the use of additional data.

The concept of crowdsourcing is strictly related with that of collective intelligence[49]. Public institutions that experiment in crowdsourcing, in fact, rely on the collective intelligence of experiment participants. Collective intelligence suggests that large groups of contributors that are appropriately independent, motivated and informed can collectively make better judgments than the individuals that make them up. Actually, the larger is the crowd, the better the chances of finding the correct solution to a problem. In 2010, a team of researchers in Zurich estimated that if a million individuals were to

[48] For further information, See the website of the initiative: http://making-sense.eu

[49] On collective intelligence, See J.B. SMITH, '*Collective Intelligence in Computer-Based Collaboration'*, Laurence Erlbaum Associates, 1994; C.R. SUNSTEIN, '*Infotopia: How Many Minds Produce Knowledge'*, Oxford University Press, 2006.

contribute towards answering a problem via crowdsourcing, they would have a 97.7% likelihood of solving it correctly[50].

A number of empirical studies have assessed the idea of collective intelligence (or wisdom of the crowd) in deliberative processes. John Dryzek, for instance, writes of 'citizen competence' in his studies on citizen deliberation[51]. James Fishkin describes individuals composing citizens' panels as 'better informed and good at taking decisions[52]'. Similar conclusions are drawn by research conducted by John Gastil[53]. Another author, Pierre Lévy, describes collective intelligence as an alternative source of power[54]. Collective intelligence, according to Lévy, allows grassroots communities to respond effectively to public powers. In collective intelligence, explains Lévy, everyone knows something and nobody knows everything, thus it is the group as a whole that can tap into what any one person knows.

[50] T. BUECHELER, J.H. SIEG, R.M. FUECHSLIN & R. PFEIFER, '*Crowdsourcing, open innovation and collective intelligence in the scientific method: A research agenda and operational framework'* in H. FELLERMANN ET AL. (eds.), Artificial Life XII: Proceedings of the Twelfth International Conference on the Synthesis and Simulation of Living Systems, MIT Press, 2010.

[51] J.S. DRYZEK, A. BACHTIGER & K. MILEWICZ, '*Toward a deliberative global citizens' assembly'*, Global Policy, 2 (2011).

[52] J.S. FISHKIN, '*When the People Speak: Deliberative Democracy and Public Consultation'*, Oxford University Press, 2011.

[53] J. GASTIL, '*By Popular Demand: Revitalizing Representative Democracy Through Deliberative Elections'*, University of California Press, 2000.

[54] P. LEVY, '*Collective Intelligence: Man's Emerging World in Cyberspace'*, Plenum Trade, 1997.

9. THE MYTH OF INCLUSIVE TECHNOLOGY

We began this article with a question: can smart cities be inclusive? To answer, we first described seven cases of gamified urban management. We then reviewed the common traits of these initiatives, and explored the (expected) benefits that might arise from them. These benefits include enhanced attractiveness for residents to participate in urban governance, and in consequence the improved quality of urban policies due to the inputs provided by citizens. Our initial question, however, remains unanswered. In this concluding section, we move to analysing the most pressing issues related to the use of gamification in urban governance. There are three: the first includes the interdependent issues of digital division and exclusion; the second concerns the democratic potential of games; the third consists of the drawbacks of regulatory experimentalism. With these issues defined, we will go back to the questions raised in the introduction, and determine whether gamification is actually making cities smarter and more inclusive at the same time.

The first set of issues relates to technology. We previously mentioned the multiplication of opportunities for public institutions to communicate with their constituencies for brought about by new technologies. A large sector of academia has extoled the benefits of technology for democratic systems. Promoters of e-participation assumed that 'going online' would have lowered the threshold of political participation, with the consequence of more citizens participating to civic and political actions held online. Speculations were made on how quickly dictatorships would have been eradicated and cultures homogenised. Roger Cohen of the New York Times, for instance, declared Facebook founder Mark Zuckerberg to be the true leader of the protests spreading in North Africa[55].

[55] R. COHEN, '*Facebook and Arab dignity'*, New York Times, 24 January 2011, available at: *www.nytimes.com/2011/01/25/opinion/25iht-edcohen25.html.*

But technology can also be a source of risks for urban regulators experimenting with innovative tools of governance. There are two risks that are particularly important. The first is digital division. The second regards digital exclusion. Let us begin with the risks of digital division. Biases in availability may limit participation only to those with appropriate technologies, while leaving those without access out in the cold – a problem that scholars describe in terms of a 'digital divide[56]'. None of the cases of gamified policies are designed to engage both online and offline communities. Only Macon Money had a substantial base on offline activities. More generally in the field of gamified urban management, its rare to encounter cases that are not entirely digitalised. Manor Labs provides an example of best practice. In 2009 the City of Manor, in Texas, partnered with the University of Stanford to foster the use of persuasive social and mobile technologies to increase constructive collaboration between citizens and the local government. Manor Labs received input from over 800 participants on its ideation platform and evaluated eighty ideas, of which five were implemented. Participants of Manor Labs were awarded with 'Innobucks', another type of virtual commodity. Just like the bonds distributed in Macon, the Innobucks could be used to receive discounts from local shops and restaurants, as well as more enjoyable activities, like a police ride-along, or a day as mayor of the city. To engage locals of all ages and without access to the Internet, the leader boards with the most voted proposals were published in local newspapers.

Indeed, as Internet penetration improves worldwide, concerns about the digital inequalities will become less pressing. At present, however, access to the Internet is far from being universal. Differences in access may reinforce existing political inequalities

[56] On digital divide, see P. NORRIS, '*Democratic Phoenix: Reinventing Political Activism'*, Cambridge University Press, 2003; B. BARBER, '*Three scenarios for the future of technology and strong democracy'*, Political Quarterly, 113:4, 573-589 (1998); L.E. CEDERMAN & P.A. KRAUS. '*Transnational communication and the European demos*' in R. LATHAM & S. SASSEN (eds.), Digital Formations: IT and New Architectures in the Global Realm, 1-35, Princeton University Press, 2005.

between social groups[57]. We should never forget that even when access to the Internet is guaranteed, participatory rights are not a certainty. Twenty-seven percent of all Internet users live in countries where people can be arrested for having published or shared content online. In 2016, this happened in thirty-eight countries. A recent report of the MIT Media Lab identifies a number of perils related to the Internet, one being 'exclusion'[58]. There are certain groups – the LGBT community or indigenous people, for instance – that are systematically under-represented in (if not excluded by) online political and social discourses. In spite of what some may think, this is not a marginal issue. Now, considering the fact that less than 5% of the world's population currently lives in a 'full democracy[59]' – while nearly a third live under authoritarian rule – and that fundamental rights have diminished in almost two-thirds of the 113 countries surveyed for the 2018 Rule of Law Index, you can easily conclude that digital exclusion is a matter of global concern[60].

[57] B. BARBER, '*Strong Democracy: Participatory Politics for a New Age'*, University of California Press, 1984. A recent investigation conducted by the non-profit Center for Public Integrity found that even though internet access in the US has improved in recent years, families in poor areas are almost five times less likely to have access to high-speed broadband than the most affluent American households. The study reveals that in the US families in neighbourhoods with a median household income below $34,800—the lowest fifth of neighbourhoods nationally—are five times less likely to have access to broadband than households in areas with a median income above $80,700—the top fifth. The full study is available at www.publicintegrity.org/2016/05/12/19659/rich-people-have-access-high-speed-internet-many-poor-people-still-dont.

[58] C. BARABAS, N. NARULA & E. ZUCKERMAN, '*Defending Internet Freedom Through Decentralization: Back to the Future?* ', MIT Media Lab Report, 2017.

[59] The Economist Intelligence Unit, '*Democracy Index 2018'*, available here: *https://infographics.economist.com/2018/DemocracyIndex.*

[60] World Justice Project, '*Rule of Law Index 2017–2018'*, available here: *https://worldjusticeproject.org/our-work/wjp-rule-law-index/wjp-rule-law-index-2017–2018.*

10. THE ILLUSION OF THE DEMOCRATIC OTENTIAL OF GAMES

As tempting as it may be to say that gamified governance is destined to revolutionise civil society participation in policy-making, we should keep in mind that games are far from being democratic. Game dynamics are designed and modelled to meet the needs and please the expectations of certain categories of users. Players are in competition with each other for most of the time they play.

The competition aspect, which characterises all the examples analysed in this article, is one of particular importance. Moving from the assumption that not every citizen is equally attracted by game-elements and competitive venues, we should conclude that gamified urban management may ends up nurturing interactions only with certain types of citizens. A classic distinction is the one between 'hard-core participants' and 'unqualified masses[61]'. Hard-core participants are people who participate a lot. Thanks to their commitment, they become extraordinary experts on specific issues and dominate participation. They are, however, a minority. Only those citizens with preferential access to three fundamental resources – time, money and knowledge – can be included in this category. The hard-core participant's identikit is easy to sketch: male, college-educated, middle-aged and wealthier than the average citizen. Unqualified masses are on the opposite end of the spectrum. This is a large social group. It includes citizens who participate occasionally, who generally do not commit for long periods, and show little interest in engaging in conventional forms of participation. Unqualified masses include women, racial and linguistic minorities, and people with low-paid jobs and poor education. When we accept that gamified urban governance encourages competition among residents, we can only conclude that it unqualified masses are at risk of exclusion, due to the lack of the necessary resources to engage in participation.

[61] See, for instance, J. LERNER, *Making Democracy Fun: How Game Design Can Empower Citizens and Transform Politics*, MIT Press, 2014.

Let us look at the bright side: the separation between hard-core participants and unqualified masses is out-of-date and may be criticised on both logical and empirical grounds. The logical argument considers the sole quantitative criterion unrealistic to assess the willingness of citizens to participate. Confronted with a barrage of media (and, more recently, of scholarly) essays on the issue, it is easy to forget that gamification still generates a minute portion of participation in governance. A qualitative dimension, the logical argument goes, is also necessary. The empirical premise confirms this assumption. We know that several participatory platforms (both online and offline) are explicitly designed to trigger a response only when the number of participants reaches a pre-set benchmark. The higher the numbers of signatories of online petitioning initiatives, the more likely municipalities are to respond[62]. The criteria to define how many participants is 'enough', however, are subjective, and thus impossible to define a priori.

Two examples may help to clarify this point. The first is Active Citizen. Of the approximately eleven million residents of Moscow, nearly two million have participated in the polls administered through the platform since 2014. Not much, quantitatively speaking. But we know that the majority of participants are enthusiastic about the service and that the number of new participants is rising. The second example is provided by Decide Madrid, the participatory platform of the Spanish city of Madrid. The two ideas that in 2017 passed the 1% threshold set by the platform, collected approximately 27,000 votes each (Madrid has 2.7 million eligible voters). Shall we consider this an appropriate threshold? Interviewed on this topic, Miguel Arana, director of the Proyecto de Participación del Ayuntamiento de Madrid, explains why the 1% threshold is low only in appearance. Those who support a proposal are citizens who have shown a strong commitment throughout a

[62] T. PEIXOTO & J. FOX, *When Does ICT-Enabled Citizen Voice Lead to Government Responsiveness?* World Development Report, 2016

long process: from registering, to reading proposals, up to supporting those they consider relevant, and informing other people about them[63].

What do these examples tell us? That breaking free from quantitative assessment is beneficial in three ways. First, it opens up to accepting, and classifying, sporadic participation as meaningful participation. Alongside citizens who have the resources (and the motivation) to impact on municipal policy-making, and beside those who neglect participating, there are citizens who activate only when they perceive a threat to their personal interests.

Second, it provides added value to the distinction between conventional and unconventional forms of participation. Using the binary distinction of hard-core participants/unqualified masses would lead us to consider only conventional participation as relevant. We know instead that these citizens engage in unconventional forms of participation, which in turn supports the assumption that they could be attracted by gamified forms of governance.

Third, and subsequently, escaping quantitative accounts paves the way to accepting that democratic systems are composed of multiple types of publics. In this respect, this paper agrees with Nancy Fraser's claim, in that it recognises, and favours, a 'multiplicity of publics' over a 'single public'. 'Subaltern counter-publics', as Nancy Fraser named them, are important too. These include minor voices that coalesce around common issues, circulate counter-discourses and formulate oppositional interpretations of issues[64].

[63] M. DESERIIS, '*Limits to the scalability of online participation in the 15-M and Podemos: An interview with Miguel Arana*', Scalable Democracy, 14 January 2018, available at *https://scalingdemocracy.net.*

[64] N. FRASER, '*Rethinking the public sphere: A contribution to the critique of actually existing democracy'*, Social Text, 25/26, 56-80 (1990).

11. THE DRAWBACKS OF REGULATORY EXPERIMENTALISM

What if gamified governance does not bring about the expected results – whatever they are? Embracing failure as an integral (and binding) part of policy experimentation is the third challenge urban managers must overcome.

Policy labs are well aware of this and have developed solutions aimed at encouraging experimental collaboration, while limiting the risks of policy failure. One example is the New Urban Mechanics in Boston. This lab does not widely disclose the governmental entities involved in new initiatives. The idea is to make policy-makers less hesitant to engage in innovative behaviours. Others have focused on ways to help policy-makers accept, or even benefit from, failures. The Centre for Public Impact, a non-profit foundation funded by the Boston Consulting Group, has done excellent work to classify failures in the public sector and to identify functional responses to such failures. It distinguishes between two forms of policy failure. Productive failures are those resulting from genuine experimentation, in complex environments, where it is impossible to determine likely outcomes. In contrast, unproductive failures include instances where failing resulted from error, oversight or poor judgment, and is thus avoidable. The challenge for policy-makers is to maximise the productivity of failure and avoid unproductive failures. Maximisation of productivity, suggests the Centre for Public Impact, comes from a number of features. The first is that failures need to be front-loaded, in order to maximise learning opportunities. Explicit learning phases included into policy programmes, the Centre suggests, may help to encourage this mentality.

To maximise productivity, failure must also be adapted to a continuous learning approach. Re-adaptation is key. Michael Saward, a political scientist, posits that democratic devices show their full potential not when used in isolation, but when used in sequence (or combination) with each other. He calls this process of re-adaptation ‘sequenced innovations’. Empirical studies seem to confirm the validity of Saward’s intuition. One is the 2018 report published by a Danish governmental agency tasked with the role to foster creativity in the Danish public sector. The study (the first world’s nationwide survey on

government innovation) tells us that 73% of public sector innovations in Denmark are inspired (or copied) from others' solutions.

The same holds true for gamified governance. Decidim – the gamified participatory platform used by the municipality of Barcelona – is a case in point. A section of the platform hosts Metadecidim, where citizens can contribute to improving the portal for future initiatives in participatory decision-making. In so doing, Decidim is basically trying to self-generate. More broadly, the sharing of the free software-based technology, procedures and protocols used to gamify policies among different regulators may also be considered as re-adaptation. A third and final feature suggested by the Centre for Public Impact to maximise the potential of policy failures is that failing should be small—that is, failures should be experimented with smaller programmes, in order to decrease costs. The non-profit Nesta names this last feature 'beta' and describes it as a powerful idea to apply to public policy-making. Beta approaches to policy-making helps to transform failures and complaints into opportunities[65].

[65] J. CHRISTIANSEN, L. BUNT, *'Innovation in Policy: Allowing for Creativity, Social Complexity and Uncertainty in Public Governance*', Nesta, 2012.

12. CONCLUDING REMARKS. RE-IMAGINING THE CONCEPT OF CIVIC ENGAGEMENT IN SMART CITIES.

Delving into gamified governance is like opening Pandora's box. What we have found has been both encouraging and deeply concerning. On the one hand, gamified urban management seems capable of nurturing civic engagement. However it comes with substantial costs in terms of accessibility which seems to hamper inclusiveness. Fun-designed incentives help municipal administrations to motivate citizens – yet paradoxically they may also deprive individuals of motivation.

We recognise that gamification alone in urban management is not a 'game-changer'. From evidence examined in this paper it seems that gamification has not yet had any real impact in advancing the quality and quantity of interactions among citizens and local administrations. Whether this remains the case will be revealed in time. In short, gamification, in combination with the right policy tools and cautionary approaches, could help local administrators to achieve concrete institutional changes.

This, however, will come at a cost – and we are forced to examine the true nature of civic engagement. Clicking 'like' for someone's idea, swiping left to dislike a project, or giving your municipality a five-star rating because it keeps the neighbourhood clean: this is, in a nutshell, the kind of engagement nurtured by gamified governance. But does it also count as genuine participation? Or shall we argue that insights from cases of gamified governance means that traditional definitions of democratic participation no longer hold? Opting for the former option is objectively unrealistic. Yet opting for the latter option

would implicitly lead us to admit that weaker, or simpler, forms of participation exist next to stronger, or more complex, forms of civic engagement – and thus accept that gamification, at best, nurtures a second-class civic spirit.