La metrópolis controlada: porque las “ciudades inteligentes” difícilmente pueden ser creativas

The controlled metropolis: why “smart cities” can hardly be creative

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RESUMEN
Llamadas "ciudades inteligentes", los municipios conectados corren el riesgo de ser cualquier cosa menos eso. Es innegable que la digitalización de la infraestructura es deseable y necesaria, pero la forma en que se realiza exige consideración. Más allá de los datos y el análisis, las tecnologías urbanas necesitan aprovechar los flujos orgánicos que hacen una ciudad viva. La revolución digital se trata menos de la materia física de los ambientes de la ciudad y más acerca de cómo compromete a sus habitantes en una interacción virtuosa. La principal ventaja de las ciudades es la diversidad. Las personas se reúnen en los centros urbanos no solo por la infraestructura y la comodidad que brindan, sino también por ofrecer opciones y conectar diferentes puntos de vista. La forma en que se desarrollan la mayoría de los ambientes digitales en estos días, sin embargo, se centra en la relevancia. Están optimizados para determinar qué es conveniente para sus usuarios, por lo general, algo que está bien dentro de sus zonas de confort. No hay indicación de que los algoritmos de big data se comporten de manera diferente en ambientes urbanos. El ambiente digital sólo puede ser inteligente cuando se permite a sus ciudadanos a ser también inteligentes. Una de las mejores maneras de hacerlo es propiciar la reunión de los desconocidos, creando un espacio público donde las personas que vivieron diferentes experiencias puedan debatir y construir nuevas opiniones, en lugar de ser confirmado como “correcto” por los que comparten su punto de vista.

Palabras clave: ciudad inteligente, ciudad creativa, redes sociales, filosofía de la tecnología, creatividad, desencanto, entretenimiento, personalización.

ABSTRACT
Called “Smart Cities”, connected municipalities risk being anything but. It is undeniable that infrastructure digitization is both desirable and needed, but the way it is performed demands consideration. Beyond data and analytics, urban technologies need to tap into the organic flows that make a living city. The digital revolution is less about the physical matter of city environments and more about how it engages its inhabitants in a virtuous interaction. The major advantage of cities is diversity. People get together in urban centers not just for the infrastructure and convenience they provide, but also for offering choice and connecting different points of view. The way most digital environments are developed these days, though,

is focused on relevance. They are optimized to determine what is convenient to their users, usually something well inside their comfort zones. There is no sign that big data algorithms would behave differently in urban environments. The digital environment can only be smart when it empowers its citizens to be also smart. One of the best ways to do so is to provide for the meeting of strangers, creating a public arena in which people coming from diverse backgrounds can debate and build new opinions, instead of being proven "right" by ones who share their point of view. In other words, a rich urban environment should provide their citizens ways of reaching eudaimonia, not the shallow hedonism all too common in today's social media.

Keywords: smart city, creative city, social media, philosophy of technology, creativity, disenchantment, entertainment, personalization.

1 INTRODUCTION

1.1 THE MEGALOPOLIS MAY BE INEVITABLE, BUT CREATIVITY ISN'T

It is an undeniable fact that cities are nowadays the greatest engines for both economic and cultural economies; and that the megalopolis, for being teeming with opportunities and diversity, are people magnets. Their popularity, though, has been leading them to a rate of growth too big for most utilities to cope.

Trying to tackle this problem, a technological infrastructure is being developed: the smart city. Unfortunately, too many visions of the city of the future are focused on the efficiency of infrastructure projects, disregarding or diminishing the importance of their inhabitants.

This pragmatic, modernist view of the city (and its society) as a machine that can be optimized is not only outdated, but also dangerous. The threat of control is one of great importance in a time which modern society relies on computational systems for a growing share of the intellectual life, from the search for content to ways of sharing it. To be truly creative (and democratic) cities must allow – even provide for – unexpected experiences and unpredicted actions based on random encounters. This, by definition, cannot be planned.

Social movements nowadays, though, are moving to the opposite direction. A "creative economy" changes the values and goals of most arts and crafts and, by subjecting them to market logic, may ruin their very creative essence. Commercial values, which once were opposed to the arts and artists, now seek for some kind of consumer-oriented artworks, boosting the amount of available art and makings "true art" harder to identify.

In the digital realm the situation is even worse. The collection of user data and resulting customization of content delivery with entertainment in mind has a strong influence over the

perception of art, literature, and music. In the haste to find the quickest, most convenient, and most easily individualized content, sophisticated technological echo chambers are built, promoting individualism and the deadening of taste.

The customization of content and audience-oriented socialization of most online communities also has a strong impact on creativity. Although it is undeniable that society nowadays is creating and distributing multimedia content in an unimaginable volume, since it comes from a less diverse environment and has a stronger social approval need, it is not necessarily more creative than before. It, in fact, can be just the opposite.

Unlike the megalopolis, creativity is not a fact of life. Smart cities can be creative cities if they are truly smart – by putting people's needs at the center of its goals – and creative – fostering casual encounters and unexpected, diverse experiences. It is not an easy task.

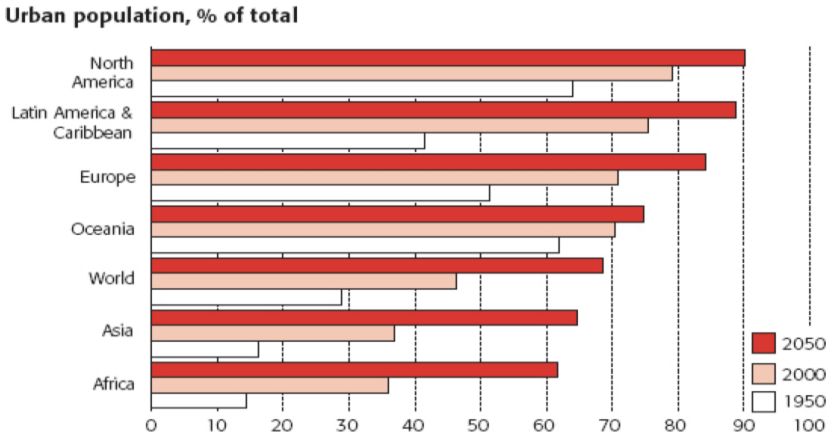
2 URBANIZATION IS CERTAIN

> *A common feature of almost all cities, regardless of global location, economic viability and stage of development, is that the people who still use city space in great numbers have been increasingly poorly treated. — Jan Gehl*[i]

Modern urbanization is happening at an unprecedented rate. Over half of the planet population now live in cities, and this figure is predicted to rise to more than 70% by the second half of the century. The human population will have increased by two billion in the same time frameii, which means that the amount of people living in urban areas by the end of this century will be more than the total population of the planet today.

Despite wireless technologies and mobility widening the possibilities for remote work, cities are still — and there is strong belief that they will continue to be — places of bigger economic opportunities, better education, greater communal safety, wider individual self-expression, improved accessibility and better health facilities. Being such attractive poles, it is of no surprise that cities are undoubtedly the world's engines of economic growth, accounting for roughly 70%iii of global GDP.

Figure 1: Urban population percentage.



Source: United Nations[iv]

Cities are networks *par excellence*. The usual structure of concrete, glass, and steel conceals a vast underworld of water mains, sewage pipes, subway tracks, telephone lines, and electrical cables, creating a versatile infrastructure for controlling the physical world. Upon this stage, a complex social act takes place, like described by Lewis Mumford (1966):

> *The city, in its complete sense, is a geographic plexus, an economic organization, an institutional process, a theater of social action, and an esthetic symbol of collective unity. On one hand it is a physical frame for the commonplace domestic and economic activities; on the other, it is a consciously dramatic setting for the more significant actions and the more sublimated urges of a human culture (p. 5).*

The popularity of cities leads, though, to a rate of growth that is happening too rapidly for many infrastructure services to cope. Authorities are sometimes being stretched to a breaking point in their endeavor to meet basic requirements such as clean water, adequate waste treatment and the adequate supply of energy and food. To make matters worse, the majority of cities are far from efficient. Contrary to the commonly held belief that densely populated urban areas should be more sustainable than less concentrated rural settlements – for everything is closer together – cities account for more than 75% of the consumption of nonrenewable resources, and create around three quarters of global pollutionv. Buildings alone account for nearly 40% of the total energy consumption in the United States, including 70% of the country's electricity, and 38% of its carbon emissionsvi. With a global population explosion underway, cities face the challenge of becoming unmanageable. In some places this already happenedvii.

From a rational point of view, most cities make little sense. According to Richard Lucas, *apud* Richard Florida (2005):

> *If we postulate only the usual list of economic forces, cities should fly apart. The theory of production contains nothing to hold a city together. A city is simply a collection of factors of production — capital, people, and land — and land is always far cheaper outside cities than inside. It seems to me that the force we need to postulate to account for the central role of cities in economic life is of exactly the same character as the external human capital. What can people be paying Manhattan or downtown Chicago rents for, if not for being near other people? (p. 32)*

In the following years, a transformation will change the way the physical world is perceived in urban areas. Sensors, robots, personal fabrication, ubiquitous computing, artificial intelligence, *big data* and machine-to-machine communications promise to create a dynamic structure distributed among resilient and interdependent networks throughout cities worldwide, turning urban infrastructure into smart, dynamic and technical environments: the *smart* city.

Too many of these visions, though, are focused on relatively conventional development and infrastructure projects that aren't much more than mere updates of eighteenth century structures[viii]. There are few initiatives in which city management turned its experience into prescriptive, re-usable guidance, capable of supporting broad goals like social mobility, economic growth and infrastructure resilience[ix], but these are exceptions. Popular applications of smart cities are like this from Araya (2015):

> *Smart cities and the digital networks that link them together are best understood as emergent automation systems supported by interdependent subsystems of scaled technological and human intelligence. (...) Building on layers of fixed Internet protocol networks and wireless satellite and mobile networks, smart cities are designed to leverage massive amounts of data generated by billions of Internet devices and services. (p. 12)*

The symbiotic relationship between cities and information technology is nothing new. It began, in fact, in the ancient world. Nearly six thousand years ago, the first markets, temples, and palaces of the Middle East served as physical hubs for social networks devoted to commerce, worship, and government. As wealth and culture flourished, the technology of writing was invented to follow transactions and social events.

Since the early modern era, technology influence on social practice has been increasing. Book printing, electronic audio and visual reproduction, and digital media are more than simple means for recording and disseminating communication, for they develop their own formats of transmission, with strong influence on public perceptionx. As early as 1966, Lewis Mumford said of the metropolitan world, that it was "a world where flesh and blood is less real than paper and ink and celluloid" (p. 258).

Even technological innovations as pervasive and transformative as the digitization of entire cities was, in a way, expected. In 1992, computer scientist David Gelernter published "Mirror Worlds", a book describing the most recent topics researched in computer science, and their probable humanistic impact. Among the many propositions it made was that

The real software revolution won't have much to do with fancy robots, computers in education or the other hot topics that dominate this month's hit parade. It will center instead on software that steps over the crucial boundary between private and public. It will have to do with "public software works," with civil software-engineering, with Mirror Worlds. (...) In the future, software will metamorphose into a something more like stone or steel or concrete. (...) You will look into a computer screen and see reality. Some part of your world—the town you live in, the company you work for, your school system, the city hospital—will hang there in a sharp color image, abstract but recognizable, moving subtly in a thousand places (p.1) .

3 SMART CITIES ARE ABSTRACTIONS. POWERFUL ONES

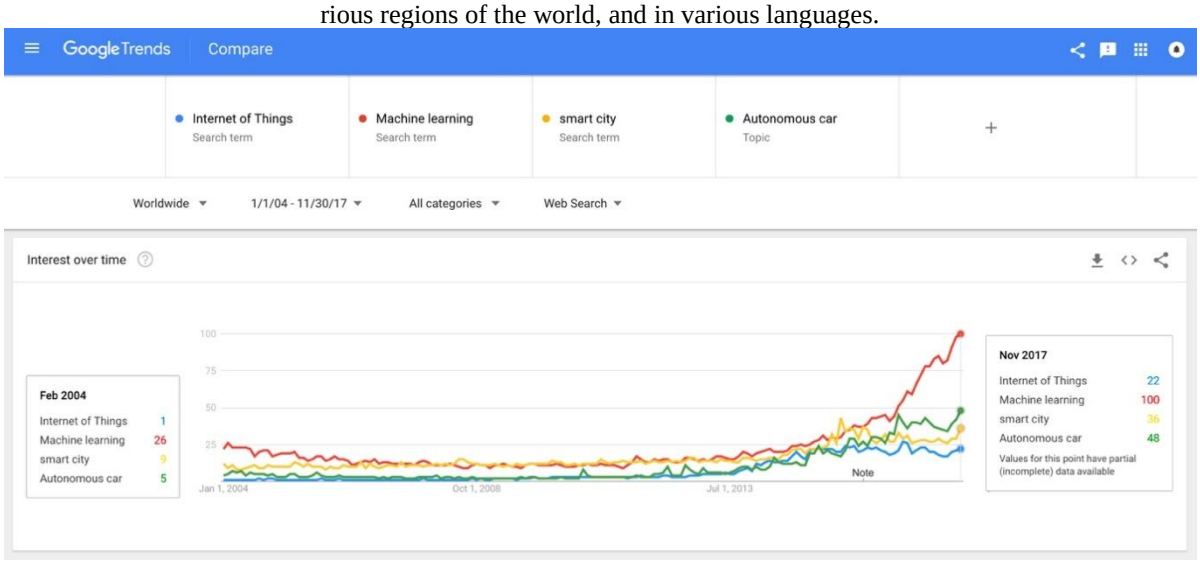
Complex assemblages of algorithms, processes, and people, smart cities can't be reduced to a single object. They are abstractions with unprecedented power upon their subjects. The single idea that most contemporary urban problems – congestion, crime, global warming, productivity, public health etc – can be "computed away" behind the scenes by ubiquitous machines, sensors, software, digital networks and remote controls, bringing efficiency to where there once was trouble, sounds like magic. Even the proposal of using complex statistics and big data analytics to lower volatility and risk with predictions and early warnings, helping to allocate funds where they are most needed, feels like a future Utopia.

The notion of a computer algorithm working as a piece of code with supernatural powers is both pervasive and poorly understood. Despite modern society being closer to fully implemented computational knowledge than ever before, computation is still a long way to be truly independent from human supervision.

An algorithmic perfection, leaving for its human companionship not much more than error, is (still) a myth. These days, behind every "magical" product, route and content recommendations, there still is a lot of human groundwork. There wouldn't be so many engineers and mathematicians working in their notebooks; so many managers meeting in their offices; so many workers toiling in warehouses; nor so many labourers struggling in assembly plants if computers were able to do all the work by themselves.[xi]

New terms like *Autonomous Cars*, *Machine Learning* and *Internet of Things* flood the press with the impact of alien concepts – all fully automatic, self-generated, efficient, synthetic, rational, and wise. What is delivered, though, are the oddities of a collective brains and brawn work, full of doubts, imperfections, biases and conflicting values, chaotically assembled, connected, and magnified by systems whose operators are incapable of understanding them in their totality.

Figure 2: comparison of search queries for the terms Internet of Things, Machine Learning, Smart City and Autonomous Cars between Jan 1, 2004 and Nov 30, 2017, according to Google Trends, a public web facility of Google that shows how often a particular search term is entered relative to the total search volume across various regions of the world, and in various languages.



Souce: https://trends.google.com/trends/explore?date=2004-01-01%202017-11-30&q=Internet%20of%20Things,Machine%20learning,smart%20city,%2Fm%2F01kl97

Contemporary society leaves the modernist thinking model, in which form used to follow function and all objects could be disassembled into their mechanical components to arrive at a symbolic realm in which forms give no clue of the many functions developed both inside the integrated circuits that build most of the new gadgets. An even bigger and more cryptic environment lies outside these little gadgets, among the supercomputers connected to their tiny antennas. These days, each task is a microscopic realization of ideas embedded in components of huge networks that build, assemble, deliver, act, expand and service every object that it is connected to.

The industrial way of thinking, with its little regard to the network composition of social institutions, reducing them into mechanical modelsxii, is not only outdated and inefficient. It is also very dangerous, for it fosters the development of power imbalances and

organizational shortcomings which, like most cities infrastructure, are in urgent need of revision.

The many mistakes of which the history of city building in the last century was prey to, though, should not be taken for granted. It is not uncommon to see unintended consequences of "disruptive" innovations dwarf their projected design. Taking motorization by way of illustration, its original proposition was to save city dwellers from piles of horse manure that clogged nineteenth-century city streets, giving city drivers fast access to the countrysidexiii. Despite reaching its original goal, the way it was developed also helped to increase noise and air pollution and intensify the contemporary need for fossil fuels.

It is important to think critically about the new technologies that are beginning to be put in place for the next generation of cities. Even if it is only to be prepared for unexpected outcomes.

4 THE ENLIGHTENMENT CURSE

The productive effectiveness of the new, connected, mechanisms is such that modern delegation of decision-making to them comes as no surprisexiv. It is not clear, however, whether these digital systems will adapt to the vagaries of human behavior and still deliver the promise of high efficiency, for there is nothing stated in a quantitative approach that makes it immune to biases. In fact, this way of thinking may lead to serious dangers, including the misinterpretation of data sets; algorithmic shortcomings ending up in systematic errors; coincidences misunderstood as correlations; and interpretation biases towards finding data points that reinforce beliefsxv.

The idea of a technical realm, apart from the "natural" world comes from the concept of disenchantment (Entzauberung in German), proposed by Friedrich Schiller and later developed by Max Weberxvi. It states that, as the powers of technology advance, those of nature recede – mysticism tends to be devalued and society becomes bureaucratic and secularized. Following the same reasoning, Jürgen Habermas argues that technology is a result of the success of Enlightenment values, being the disenchantment of the world a liberation of humanity from superstition, ignorance, a fascination with nature and its arbitrary power. According to Habermas (1971): "the experience of reflection induced by enlightenment is precisely the act through which the subject frees itself from a state in which it had become an object for itself." (p. 247)

This desire for order is, for Bauman (2013), an attribute of modernity:

> *If it is true that we, the moderns, think of order as a matter of design, this does not mean that before modernity the world was complacent about designing, and expected the order to come and stay on its own and unassisted. That world lived without such alternative; it would not be that world at all, were it giving its thought to it. (...) We can say that the existence is modern in as far as it forks into order and chaos. The existence is modern in as far as it contains the alternative of order and chaos. (p. 7)*

Max Horkheimer and Theodor Adorno (1997) also blame the effects of this thinking:

> *Enlightenment has always regarded anthropomorphism, the projection of subjective properties onto nature, as the basis of myth. The supernatural, spirits and demons, are taken to be reflections of human beings who allow themselves to be frightened by natural phenomena. (...) Humans believe themselves free of fear when there is no longer anything unknown. (...) Enlightenment is mythical fear radicalized. The pure immanence of positivism, its ultimate product, is nothing other than a form of universal taboo. Nothing is allowed to remain outside. since the mere idea of the "outside" is the real source of fear. (pp. 4-11)*

Categorization is not a bad idea in itself. It is usually related to the result of a consideration upon the world, trying to disclose some of its underlying structure by establishing categories and ascribing facts and observations to them. But when taken to extremes, it leads to apophenia, the endless hunt for meaning and patterns, that lies at the heart of the Enlightenment projectxvii. In their essence, order and classification rely on fragmentation, the continuous division of the world into ever smaller, solvable questions.

Most of contemporary smart city views are awkwardly close to the 1929 considerations form Le Corbusier (1987), in which:

> *A town is a tool. Towns no longer fulfil this function. They are ineffectual; they use up our bodies, they thwart our souls. (...) A city! It is the grip of man upon nature. It is a human operation directed against nature, a human organism both for protection and for work. It is a creation. (...) As we move higher in the scale of creation, so we move towards a more perfect order. (p. 17)*

Modern hard sciences, though, have found out what the humanities knew for quite a long time: that true, complete and outright order and control are nonexistent. Like a moving target, the ordered structure moves further away as knowledge advances. Absolutes may act as useful generalization thinking tools, but they usually break down when magnified to the level of the individual.

Smart city proposals shouldn't fall into the old modernist trap. A society is not a machine, and is too complex to be "solved" by developing a business plan, by applying technology to the existing infrastructure, nor by building new Utopias. The threat of control is one of great importance in a time which modern society relies on computational systems

for a growing share of the raw materials needed for intellectual life, from the search for content to ways of sharing it.

5 CULTURE UNDER CONTROL AND THE *DISENCHANTMENT* OF THE ARTS

"Culture" and "control" seem to be, at first glance, opposing concepts. Modern technologies, notwithstanding, are closing the gap between them. It all started with the TV remote control. A device of Pavlovian straightforwardness, it shifted control power over the content received from the publisher to the audience, transforming communications ever since.

The remote control not only changed viewing habits, but also rearranged what is consumed on television. In trying to prevent Channel Surfing, a turnover behavior enabled by the remote control, programs had to change, appealing to psychological techniques to deal with a shorter attention span. The little device that started as a luxury, a superfluous accessory to television succeeded in transforming the very television content in its essence.

Its influence was such that it is not hard to see "content independence", the main value derived from it, applied to most of the "revolutionary" consumer electronics products launched from the second half of the twentieth century on. The Walkman, Audio and Video Cassette Recorders, PCs, Video Game Consoles, Digital Video Recorders (such as TiVo), iPods, iPads, iPhones and the like all helped to create a world in which an individual control over the content, style, and timing of what is experienced is nearly absolute. Following their lead, software services like Netflix and "user-generated" content platforms like YouTube and Instagram reshape the cultural product arena. These days the audience expects television, music, movies, and books to be customized "on demand", and embrace accordingly the digital technologies that enable them to fetishize these preferences.

The long term effects of an increasingly individualized and highly technologized (meaning: opaque in its essence) culture are unforeseen. Nowadays social networks influence literacyxviii, political debatexix, thoughtful criticismxx, and many aspects of contemporary culture. Their impact, although noticeable, is difficult to discern. It is nevertheless worth exploring how these technologies have already succeeded in changing our habits and pursuits, and how their embedded philosophy may act on "smart" objects and infrastructure.

6 A "CREATIVE EXPLOSION"?

The same way that happened with remote controls, the mirror worlds developed by social media environments began as redundant conversation tools, an accessory to "real"

conversations, appealing to small groups of fans like the ham radios they came to replace. Suddenly they became the major components of social interactions, pervading corporeal, social and perceptual relationships with unexpected strength. From simple text tools, they metamorphosed into experience environments, embodied into "virtual" and "augmented" realities and soon to be embedded in the very physical structures that build modern life.

Among the many singular features of the digital/social channel, one that is truly remarkable is the sheer amount of content generated by its outlets. Close to 90% of the world's data has been generated over the last few yearsxxi, and this volume is increasing. It is easy to believe that some sort of an "explosion of creativity" is happening, enabled by the modern free arenas, empowering almost everyone to free the inner creative spirits, now that the artificial publishing constraints are gone.

A best explanation may be the fact that new electronic means, by easing access to content creation and distribution, built a gateway for the sequential production of vast bundles of signs over time. This can be applied to the impact of electronic publishing on the news industry, to cable channels on new television series and, especially, to user-generated media on the Internet. Every new media package lays claim to novelty over and against previous bundles, offering up new items rivalling for attention. Being sequential, these periodical media have an inherent tendency to age, demanding different editions in a compulsive regime of novelty. Moreover, since it is technically possible for several sequences of media products to coexist at the same time, all asserting their newness in opposition to the past and to other concurrent items on offer, creativity had become the general rule. According to Andreas Reckwitz (2017),

> *mass media provide a technological precondition for the emergence of the creativity dispositif in general and the system of the creative star in particular. They do so by an inherent preference for novelty of the cognitive and aesthetic variety. There is a reason for this preference. The technical capacities of the text- and image-based mass media allow them to provide audiences with an overabundance of signs and sensuous impulses. They open up a whole new sphere of possibilities for mediated perception and communication as a supplement to direct perception and face-to-face communication in everyday dealings. This surplus engenders competition between media and non-media events as well as between different media events, with all parties vying for audience attention. Accordingly, the mass media develop strategies for attracting attention. The most important strategy – the production of events that can be presented as novel – is so fundamental that it is almost never examined. This preference for novelty is expressed in 'news' as well as entertainment, new hit records, new publications, and the parade of ever-changing, unusual celebrities. This endows the mass media with a systematic tendency to age quickly. (p.158)*

In such a diverse media ecosystem, creativity was turned into a legitimizing branding tool. Of it is expected to raise the ecstasy of the formidable, the great and the beautiful. In other words, it should provide an experience beyond ordinary life. It has taken, somehow, the place and path of the ideal life once kept for religion.

Even artists, who until very recently were a minority of outliers, individuals for which the collective patterns provided by the culture did not work, suddenly were dragged to central stage.

The vast demand for creative products turned the arts, artists and the idealized world embodied by them (creativity, mobility, authenticity, motivation, commitment, self-determination etc), into management models for the business world of innovationxxii. Nineteenth century bohemian values (hedonism, self-realization, authenticity, search for experiences) were seized, becoming the dominant values celebrated by consumer capitalism.

As creativity gets to be overestimated, it suddenly becomes assigned to a specific category of arts professionals, in the opposite direction of the critique made by Nietzsche (1986):

> *Every human activity is marvellously complicated, and not only that of genius, but it is no "miracle". Now whence comes the belief that genius is found only in artists, orators, and philosophers, that they alone have "intuition"? (...) artists of representation are especially held to be possessed of genius, but not scientific men. In reality, however, the former valuation and the latter under valuation are only puerilities of reason. (p. 111)*

The arts, longstanding opponents to market economies, were persuaded by Capital to become the forefront of the experience business. A "creative economy" makes the number of professionals engaged in art-related crafts grow in numbers and income, reaching earnings unimaginable even a few decades beforexxiii. Crafts which until recently were considered mere decorations – such as fashion, photography, illustration and design – became infused with the same characteristics of the work of art (rarity, distribution in galleries, systematic promotional work etc). In the meantime, what was once called "high Art" became subject to market values, turning itself into anything but "art for art's sake".

This does not mean that Art is dead, but that commercial values, which once were opposed to the arts and artists, now seek for some kind of consumer-oriented artworks, boosting the amount of available art and makings "genuine" art harder to recognize.

In this disenchantment of the artistic system, art "celebrities" are not expected to provide ecstatic experiences, but ones of easily understandable aesthetic nature, not much

different from consumer goods. Subsumed by society, the Arts now feel like just another occupation of life, an accessory with no bigger purpose than to animate, decorate, and sensitize the ordinary.

Max Weber (2005) said that "the Puritan wanted to work in a calling; we are forced to do so" (p. 123). Today this could be said of creative occupations, which are required from almost everyone, even if only in their spare time. In the Creative Economy, one is free to try any desired creative venture. The only forbidden attitude is to refrain from being creative.

With everyone striving to be creative, the expected result would be some kind of "offer surplus", with corresponding effects on its demand. Overwhelmed with requests, the general public tends to react with apathy and insensitivity, becoming numb for new ways of thinking, and leaving content providers with few alternatives than the appeal to the extremes of the spectacular and of the violent, in an increasingly mindless, though excessive, spiral. It is a sad irony that the more modern society becomes immaterial and virtual, the more their members witness the rise of a sensory culture that supervalues sensualization, erotization, and an hedonistic, though "safe", approach to existence.

7 COMPULSORY CREATIVITY AT THE SOCIAL MEDIA REALM

The digital realm is the new arena where culture takes shape. Unlike preceding media, electronic content outlets not only speak to many, but also collect a great amount of information about every member of their audience. Each small interaction is recorded, classified and analyzed to generate custom content with the specific goal of keeping every user connected for the longest time possible.

In the first pages visited, the content provider usually knows very little about their public. But as long as the relationship improves, so does user intelligence. The richness of the compiled databases, coupled with the sophistication of their content selection algorithms, defines, in a rather paternalistic way, what should (and should not) be read by each user. By giving each member of the audience the illusion of perfect control, these technologies risk making their users incapable of being surprised, disappointed or perplexed and, in this process, of developing critical taste.

"Improvement", it is important to remark, is not a neutral term. It gravitates toward specific ends, and these ends have a strong influence on human condition, especially when they are specified by business corporations. At the cultural realm, it can either mean the

refinement of taste and the critical spirit by means of the hard work in science, art and education – or its exact opposite, the numbness of taste via repetition and fetish.

The more convenient the entertainment, the weaker the resolve to meet the challenges posed by difficult or inconvenient expressions of culture. "Comfortable" situations, in this context, usually reinforce biases and preferences by restricting access to different viewpoints to avoid discordance. When too frequent, the customization of content into what is "acceptable" tends to obstruct the view of the real world, leaving people with no choice but to be immersed in themselves, in an egocentric and instrumental approach to human relations.

Peter Berger and Thomas Luckmann (1991) state that "values are shaped by the social environment around us, by changing our perception of what is normal and acceptable" (p. 149). The authors claim that every society defines and shapes its own normality according to their dominant narratives – usually popularized by the celebrated contextual media of choice – and seek to make their members comply with it, excluding the ones who don't. In social interactions people not only 'understand' each other's momentary subjective thought, but also try to grasp the kind of world in which the other lives, building some sort of an ongoing mutual identification. Everyday life presents itself as an interpreted reality, subjectively meaningful as a coherent world: "The world of everyday life is not only taken for granted as reality by the ordinary members of society in the subjectively meaningful conduct of their lives. It is a world that originates in their thoughts and actions, and is maintained as real by these" (p. 33).

Worldview assemblers, both on individual value formation and on the redefinition of collective life, social media services such as YouTube, Facebook, Instagram, Twitter and Tinder are responsible for most of new social relations. The single fact that their usage is frequent and growingxxiv would be worth of consideration as a change of the public arena. But the transformation is much more significant, once proprietary algorithmsxxv determine what is deemed "relevant" to their user, based on their preferences and interests. When facts change, perception usually follows suit.

Herbert Marcuse (2002) warned against this kind of *one-dimensional thought*:

> *products indoctrinate and manipulate; they promote a false consciousness which is immune against its falsehood. And as these beneficial products become available to more individuals in more social classes, the indoctrination they carry ceases to be publicity; it becomes a way of life. It is a good way of life-much better than before- and as a good way of life, it militates against qualitative change. Thus emerges a pattern of one-dimensional thought and behavior in which ideas, aspirations, and objectives that, by their content, transcend the established universe of discourse and action are either repelled or reduced to terms of this universe. They are redefined by the rationality of the given system and of its quantitative extension (p. 14).*

As the customization of the social context increases, society in itself is in growing danger of fragmentation. This threat is spread out far beyond social and political environments, for personalization technologies also have a strong influence over the perception of art, literature, and music. In the haste to find the quickest, most convenient, and most easily individualized content, sophisticated technological echo chambers are built, promoting individualism and the deadening of taste. Herbert Marcuse (2002) warned that this kind of Society without opposition would risk developing a paralysis of criticism: "The result is not adjustment but mimesis: an immediate identification of the individual with his society and, through it, with the society as a whole. People recognize themselves in their commodities. (p. 12) "

Through social media, people indeed recognize themselves in commodities such as pages, tweets, followers, profiles, shares etc. But to present oneself in this dynamic environment is not, as it were in preceding forms of socialization, a way to engage in a patient, voluntary and methodical search for identity, but to expose oneself in the immediacy of life experiences as they are lived, with little restrictions and no modesty. It is no longer an intimate, extensive, and private journey, but a continuous demonstration of the self in all tastes – aesthetic, emotional, and transient impressions.

These "confessions" happen through a context of collective media which has a public reach. But unlike preceding mass media, the intention of all this uncovering is no longer to direct one-way messages to a passive audience, but to challenge it, aiming to create emotional closeness and a complicity bond, like Gelernter (1992) predicted in Mirror Worlds: "The thick, dense, busy sub-world that encompasses you is also, now, an object in your hands. A brand new equilibrium is born" (p. 3).

The apparent hedonism of these audience-oriented exibitionists is extrinsic, contingent upon the perceptions of others. Since it doesn't seek true identity, but admiration (in the form of likes, followers etc), it tends to be an edited, sanitized, controlled and anxious form of hedonism, with growing concerns with health and appearance, opposed to the former carpe diem.

The excesses "revealed" by the collective interaction tested by social media show that this is a model that cannot be just relocated to smart cities, for it can make differences stronger and even risk shattering the common ground on which communal reasoning and cordial social life is built. In truly complex cities, shaped by many agendas and diverse populations, shared

purposes would arise only among narrowly like-minded individuals, inherently diminishing any worldview differences that could encourage greater diversity.

8 CONCLUSION: CREATIVE, SMART CITIES

Technological tools used as interfaces between people and the environment surrounding them usually lead to a significant shift in their way of thinking. Mumford (1966) describes how the mechanical clock, when popularized in the fourteenth century, "dissociated time from human events, which helped to create the idea of an independent world, based on measurable sequences" (p. 13). According to him, since the invention of the mechanical clock the abstract picture of divided time has become a point of reference for both action and thought.

Until now, most smart city visions tend to be about control. The failure to put people's needs at the center of their schemes risks, in the best scenario, rendering them useless or replicating failed designs of the twentieth century. At worst, they risk extending the shortcomings of today's social media to physical structures, increasing balkanization, isolation, inequality and social hatred. It seems to be the opposite of what Fromm (2008) called a Sane Society,

> *That which corresponds to the needs of man – not necessarily to what he feels to be his needs, because even the most pathological aims can be felt subjectively as that which the person wants most; but to what his needs are objectively, as they can be ascertained by the study of man. (p. 20)*

Like the Stone Age and the Space Age, a Social Media Age may say plenty about artefacts, but very little about society. The reluctance to acknowledge the potential excesses resulting from the usage of technology influence and control – individualism, selfishness, passivity, fetishization, a vast cultural impatience, and the triumph of individual choice over critical standards – is dangerous. If machines and personalized networks set the critical frame in search of the "effectively computable," disregarding almost anything beyond these markers, the individual risks ceasing to be important, becoming a mere node in a huge network, whose main task would be to keep it stable. Marcuse (2002) warned that "the second period of barbarism may well be the continued empire of civilization itself" (p. 261).

By emphasizing the efficiency of the technology, rather than what technology renders more efficient, essential society shaping queries are ignored. Moral questions such as what is considered success? What are the variables examined and their weight? What importance is

given to the human component? Are the processes open, transparent and editable? By anyone? How are they publicized and taught? In other words, what are its ethical principles?

The city of the future needs to be thought of differently from how cities were considered in the past. Its new technology may need to be efficient but also to safeguard opportunities for spontaneity, serendipity, and sociability. If most of the randomness is programed out, they will be turned from rich, living organisms into dull, mechanical automatons. This, Fromm (2008) warned, could be the social problem of the future:

> *In the nineteenth century the problem was that God is dead; in the twentieth century the problem is that man is dead. In the nineteenth century inhumanity meant cruelty; in the twentieth century it means schizoid self-alienation. The danger of the past was that men became slaves. The danger of the future is that men may become robots. (p. 352)*

Technology may not be, like some utopians think, a different realmxxvi nor an electronic version of the Rapturexxvii. There are, according to him, some aspects of it that demand consideration. Heidegger (1977) points out that "technological objects are means for ends, built and operated by human beings. The essence of technology, however, is something else entirely. Not being technological, it demands an essential reflection that "must happen in a realm that is, on the one hand, akin to its essence and, on the other, fundamentally different from it" (p. 35).

This realm, for Heidegger, is Art. For the ancient greeks, the term technè meant both art and technology. It was seen as a form of creation that was not challenging. An artwork is a human product that is not a Gestell (framing), meaning that it is not a means to an end, but rather a mode of human existencexxviii. In Heidegger's philosophy, technology can be regarded neither as a means nor as a human activity, but as a way of disclosing reality.

So what is there to do? Can cities be truly creative and smart, The short answer is yes, provided that they are truly creative – by avoiding customization while fostering diversity; and smart – by making serendipity more important than efficiency. It is therefore essential to change the ways technologies are regarded, in what Kuhn (1962) calls a Meta-paradigm shift, considering the subject in a more comprehensive and overarching way: "a completely new way of ordering reality and conceptualizing the world" (p. 162).

Maybe a good model for this shift is to regard a city as an emerging system, a living network. In such a structure, components must live in harmony, instead of competition. This kind of harmony is well embodied in Aristotle's vision of Eudaimonia. According to him, the good life is one of "virtuous activity in accordance with reason" (Aristotle 2004, p. 12),

considering that rationality is unique to humans and that the ideal task for a person is to make the most awe-inspiring exercise of reason.

This is by no means an easy, nor a straightforward task. But it is, by no coincidence whatsoever, one of the main goals of art: to turn the challenges of daily life into a bright envisioning of possible future utopias. Even if the best (or maybe the only) way to reach it would be to hack the system.

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i Gehl (2010), p. 3

ii Data from the United Nations, DESA - Department of Economic and Social Affairs, July 10, 2014. Retrieved from http://www.un.org/en/development/desa/news/population/world-urbanization-prospects-2014.html

iii McKinsey Global Institute Report, March 2011: Urban world: Mapping the economic power of cites. Retrieved from https://www.mckinsey.com/global-themes/urbanization/urban-world-mapping-the-economic-power-of-cities

iv UN data, available at http://www.oecd.org/regional/regional-policy/44232251.pdf. Chart from Franklin, D., & Andrews, J. (2012). P. 7.

v KAMAL-CHAOUI, Lamia, ALEXIS Robert (eds.) (2009), Competitive Cities and Climate Change, OECD Regional Development Working Papers N° 2, 2009, OECD publishing. Retrieved from http://www.oecd.org/regional/regional-policy/44232251.pdf

vi According to the U. S. Green Building Council, in a report retrieved from http://www.eesi.org/files/climate.pdf

vii In 2013, 11 million inhabitants of the Chinese city of Harbin were forced to face a citywide shut down due to poor air quality, reported by Reuters in https://www.reuters.com/article/us-china-smog/china-smog-emergency-shuts-city-of-11-million-people-idUSBRE99K02Z20131021

viii Several urban administrations explore data dashboards and citywide sensing projects to address issues around traffic congestion, when what they really need is an improved public transport system, according to the June 2015 NESTA Report "Rethinking Smart Cities From The Ground Up", retrieved from https://www.nesta.org.uk/sites/default/files/rethinking_smart_cities_from_the_ground_up_2015.pdf

ix Since July 2016, Singapore's Housing Development Board announced plans for the research and development of materials designed to absorb, reflect or reduce the transmission of noise between urban apartments in close quarters. Retrieved from http://www.hdb.gov.sg/cs/infoweb/press-releases/hdb-inks-three-new-agreements-with-industry-partners-11072016

x "The War of the Worlds" was an episode of the American radio drama anthology series The Mercury Theatre on the Air. It was performed as a Halloween episode of the series on Sunday, October 30, 1938, and aired over the Columbia Broadcasting System radio network. Directed and narrated by actor and future filmmaker Orson Welles, the episode was an adaptation of H. G. Wells' novel The War of the Worlds. The broadcast was presented as a series of simulated news bulletins. The first news update interrupted a program of dance music to report that a series of odd explosions had been spotted on Mars, which was followed soon thereafter by a seemingly unrelated report of an unusual object falling on a farm in New Jersey. Martians emerged from the object and attacked using a heat ray during the next interruption, which was followed by a rapid series of news reports describing a devastating alien invasion taking place across the United States and the world. The illusion of realism was furthered because the Mercury Theatre on the Air was a sustaining show without commercial interruptions, and the first break in the program came almost 30 minutes into the broadcast. It became famous for allegedly causing mass panic, although the program had relatively few listeners. Retrieved from http://www.slate.com/articles/arts/history/2013/10/orson_welles_war_of_the_worlds_panic_myth_the_infamous_radio_broadcast_did.html

xi Data provided by Evans Data Corporation suggest that the total number of computer developers in the world is 21 million. Retrieved from: https://evansdata.com/reports/viewRelease.php?reportID=9

xii Cobley, E. (2009). Modernism and the Culture of Efficiency: Ideology and Fiction deals with the "Culture of efficiency in fiction" (p.248)

xiii In "The great Horse Manure Crisis of 1894", Ben Johnson tells the story of this London crisis. Retrieved from: http://www.historic-uk.com/HistoryUK/HistoryofBritain/Great-Horse-Manure-Crisis-of-1894/

xiv Like trusting traffic routes to Waze, internet content search from Google, and most of the information taken for granted coming from applications and social networks.

xv A growing number of empirical researches show that the analysis of large databases is still full of various ethnic biases and defects. The website ProPublica analyzed the risk of recidivism of crimes in one of the main applications used by the US criminal system, showing racist distortions in determining the potential social risk. Retrieved from https://www.propublica.org/article/how-we-analyzed-the-compas-recidivism-algorithm/

xvi Weber, M. (1971). The Sociology of Religion. Boston: Beacon. p. 270

xvii Hiebert, T. (2012) deals with the relationship between the Enlightenment and Apophenia on p. 177.

xviii See Jandric, P. (2017). Learning in the Age of Digital Reason. Roterdam: Sense.

xix See Richardson Jr, G. (2016). Social Media and Politics: A New Way to Participate in the Political Process. Santa Barbara: ABC-CLIO.

[xx] See Miller, D. et. al. (2016). How the World Changed Social Media. London: UCL Press.

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xxiv Statistics websites like Statista show how big Social media is – and how much it is still growing. Retrieved from https://www.statista.com/statistics/272014/global-social-networks-ranked-by-number-of-users/

xxv Recommendation algorithms like Google's Pagerank and Facebook's Edgerank are information filtering system that seek to predict the 'rating' or preference that a user would give to an item. These algorithms are applied in a variety of applications, preselecting movies, music, news, books, search queries and consumer products. A general overview on the subject can be found in RICCI, ROKACH and SHAPIRA (2011)'s Introduction to Recommender Systems Handbook, retrieved from http://www.inf.unibz.it/~ricci/papers/intro-rec-sys-handbook.pdf

xxvi Kevin Kelly, a former editor of Wired agazine and technology analyst, coined the term to refer to what he calls "an emerging system, also called 'Technology' with a capital 'T', which has its own goals and demands, as any large and complex system, even as life itself. " Retrieved from https://www.edge.org/conversation/kevin_kelly-the-technium-and-the-7th-kingdom-of-life

xxvii The computer scientist and inventor Ray Kurtzweil proposes a technological "singularity", that the evolution of artificial intelligence would reach a point in which it would surpass the combined intelligence of all humans on the planet, resulting in a superorganism with divine powers. His hypothesis was retrieved from http://singularity.com/themovie/#.WaQ8ZpN962w

xxviii According to Mitcham, C. (1994). Thinking Through Technology: the path between Engineering and Philosophy. Chicago: University of Chicago Press, p. 52