Artículo

Ciudades superpuestas: El aumento transurbano en la era digital de las ciudades occidentales

Overlapping cities: Trans-urban augmentation in the digital era of western cities

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Resumen: La revolución digital ha producido y sigue creando nuevos estilos de vida que se reflejan en nuevas posibilidades urbanas que se basan en la superposición de diferentes entornos para enriquecer su experiencia y responder a las necesidades emergentes. La introducción de la capa digital lleva a una disolución de los espacios y usos estrictamente definidos para crear lugares híbridos que colonizan el entorno urbano. Las dualidades de lo público y lo privado, del exterior y el interior, del trabajo y el ocio, del hombre y la mujer, de la casa y la ciudad, están entonces cambiando, y con ellas también los pilares tradicionales de la sociedad moderna. Lo digital se superpone a lo material, cambiando la estructura organizativa urbana mediante una nueva relación entre las personas, la ciudad y la tecnología en una nueva realidad recientemente llamada "metaverso". La mayoría de las necesidades espaciales se transforman entonces, abriéndose a un profundo replanteamiento de la estructura de los lugares y del propio significado del entorno urbano. El articulo analiza la relación actual entre lo material y lo virtual individuando las posibles emergencias espaciales resultantes.
Palabras clave: revolución digital; ciudad aumentada; metaverso; domesticidad

Abstract: The digital revolution has produced and is still creating new lifestyles that are being reflected in a new urban revolution which sees the overlapping of different environments to enrich the urban experience and respond to emergent necessities. It leads to a dissolution of the strictly defined spaces and uses to create hybrid places that colonize the urban environment. The dualities of public and private, of exterior and interior, of work and leisure, of man and woman, of house and city, are then changing, and with them also the traditional pillars of the modern society. The digital is overlapping the material, changing the urban organizational structure through new relationship between people, city and technology in a new reality recently dubbed the "metaverse". Most of the spatial needs are then transformed, opening up to a profound rethinking of the structure of places and of the meaning itself of urban environment. The article analyses the current relationship between the material and the virtual by identifying the possible resulting spatial emergencies.
Keywords: digital revolution; augmented city; metaverse; domesticity

1.   Introduction. Digital individuals

The digital revolution creates a new kind of human being (Braidotti, 2013; Sloterdijk, 2013) who relates to the city in a different way: he/she is now capable of of superimposing an individualized virtual context onto the material one. There is no epic image that symbolizes this change.

It is a change without bank roars, without oil wars or physical deaths. It is a subliminal transformation, parallel to epic changes, inadvertent, such as the erosion of the clink of a drop on the stone (Zafra, 2010).

The digital revolution not only transforms the individuals, but it relates them with a broader context that often coincides with the urban scale. In fact, this new being is able to create a different urban environment, that can be augmented through the digital layer and, as such, is no longer rooted exclusively in its materiality and form. As a consequence, a radical change is happening in the way of conceiving the domestic environment, the workspace and the consequent architecture of the city, i.e. the traditional pillars of the modern society. The perceived urban experience is now twisted through the mediation of devices and their ability to project the person into a personal microcosm, where to comfort their daily needs.

In contrast to the classical rationalist paradigm, the digital identity replaces the modernist ideals of harmony, purity, perfection and nature with those of network organization, decentralization, interchangeability and continuous transformation. Its architecture is then produced by networks of affinity groups; it is made of semi-autonomous components interconnected in networks similar to those of information and communications. From a political point of view, this architecture replaces the ideas of identity, hegemony, hierarchy and spectacle, with those of hybridization, plurality, horizontality and performance (De Lama, 2020).

This paradigm shift is found in all urban contexts, but is particularly visible in those cities where access to new technologies is relatively homogeneous and thus able to influence everyday life.

In fact, the digital self can materialize today through most of the contemporary urban daily routines. Getting in touch with people, socializing, getting general and specific information, buying groceries and objects, studying, seeing locations, but also working, having fun, playing, having sex, …all these actions, today, can occur through the interaction of a physical body and a digital one, expanding the limits of reality into augmented environments.This revolution, very promising in many respects, also carries some dangers: digital identity may be associated with risks such as mental health disorders and cybersecurity, among others (Stavropoulos et al., 2022).The paper studies the main social, political and economic changes related to the digital sphere of western cities, which are transforming the way of living and perceiving the domestic environment and the workspace, and leading to the configuration of new urban relationships and spatial needs.

To better delimit our discussion, we have decided to focus on Western cities, although the paper addresses a phenomenon that occurs, in similar ways, in many cities around the world.

To conduct the research, we used a qualitative methodology based on grounded theory, which investigates the relationship between the digital layer and the city holistically, avoiding established opinions.

2.   The contemporary domestic environment

Individuals' sense of domesticity, which in Western contexts has traditionally been linked to an enclosed space - the house - is now opening up to the digital public environment. Home is increasingly becoming a hybrid space, depending on the overlap between the material and the virtual world. For this new domesticity, the city is not an antagonist, but an ally, where to expand its domains and discover new rituals, possibilities, space for actions.

The digital revolution, helps to convert the bedroom into a new multimedia/office living room; the kitchen into a semiurban space, through delivery services of all kinds; the living room into an ambiguous space, at once public and private, domestic and urban, omnipresent in the city; the bathroom in a place that rediscovers its own sensuality and its relationship with the body, as well as into a new extension of the office.

It is for this very reason that in many Western cities the bed and the sofa are slowly converging: in 2014 the bed overcame the sofa for the first time as the most used furniture in British homes (Bose, Self and Williams, 2016).

Bedroom culture (Livingstone, 2007) represents an increasingly generalized perception of the bed as a centre of cinematic entertainment and an individualized leisure culture, with the possibility to spend time watching movies on Netflix and similar, watching and editing videos for YouTube and Vimeo, expressing the digital self through Facebook, Instagram and Reddit, or play videogames.

For many new users the kitchen is losing its original use (Steegman, 2017), to become mostly a place of small food storage where to socialize. Especially in Western cities, the entire urban environment is now substituting the kitchen through the presence of daily menus, pre-cooked food, street food activities, food offer apps such as The Fork, or the increase of the food delivery companies such as Deliveroo, Just Eat and Uber eats. These apps completely reconfigure the urban environment to satisfy the alimentary necessities of an increasing part of the population, that prefers to use the kitchen occasionally and just for small tasks (Puigjaner, 2014).

Figura 1. Precooked meals in a citymarket in Madrid's city centre.

Fuente: Photo by the Authors.

The living room is now an integrated part of most of public and semi-public places, such as coffee shops, restaurants, pubs, offices, stations, airports and plazas. It is the place that mostly enables a physical domestic condition outside the house, and thanks to its deterritorialized condition, it was the symbolic place where to augment the individual environment (Martella, 2018).

The change in the meaning of home is fundamental for the emergence of new forms of living, as the house has always been the pillar around which personal everyday life was structured. Traditional routines are now broken; new ones are created which are completely dependent on new life patterns linked to the speed of action, to the possibilities of the individual devices and on the expanded urban relationships. All these phenomena have led to a different use of space, both in the city and domestic environments. Spaces can now continuously change, through the constant passage of people who establish ever-changing relationships with the surrounding environment (La Cecla, 1995). Contemporary spaces actively and continuously interact with each other through the digital layer, enabling a new symbiosis between people and the city through a technological omnipresence. This new "augmentation" of the physical environment goes beyond the material skin and brings to a complete rediscovery of the urban as the scenery of daily life.

A symbiosis like never before is then created between the inhabitant, the place, and personal devices that leads to a continuous re-modelling of the architectural program according to the needs of its users. Spaces are increasingly plural, rather than singular, and rely on many more factors than just themselves. They are part of an hyperconnected hybrid whole enabled by trans-urban devices; a condition that must be taken in consideration while designing and thinking the contemporary city. Every subject with a digital device can augment the material environment to redefine its main uses, changing the perception of the space and opening up to new behaviours.

For example, lately the term "metaverse" (i.e., "beyond universe") has been used to characterize a possible future iteration of the Internet made up of collective 3D virtual places linked together into a continuous digital world.

The metaverse, also known as a "collective virtual shared space", is thought to be the foundation for the future generation of the Internet, which will incorporate all virtual worlds. The metaverse could be a further step in the digital revolution, a step that, if not thoroughly prepared, could also be accompanied by risky social, political, and also environmental implications (Rillig, 2022). For individuals, it could imply a possibility of expansion of human boundaries beyond material limitations.

With the advent of globalization, worldwide communication and collaboration between nations is becoming more common. However, physical distance remains a barrier that may raise costs throughout the process. In addition, the COVID-19 pandemic has demonstrated how, in some situations, many events and activities may have to be suspended, or migrate online, due to health protection measures. In this regard, the metaverse could increase accessibility to a variety of social situations. The University of Berkeley held its graduation ceremony on Minecraft in 2020; in the same year, Travis Scott held a concert in Fortnite. The metaverse already become an expansion of contemporary daily lives, with the potential to meet some social needs at lower prices - even if security remains a major concern (Wang et al., 2022; Di Pietro, Cresci 2021). Due to corporeal constraints (such as geography, language, and so on), physical, material places cannot always meet the needs of many individuals at the same time. The metaverse, on the other hand, offers infinite extension and seamless scene alteration, allowing for effective diversification at the same time (Molinari, 2020). In the metaverse, a variety of intriguing scenarios may be played out. In fact, various activities, such as education, playing, shopping, political campaigns, artwork, sharing knowledge, pets, haunted houses, and so on, may all be found in the metaverse. The metaverse is not, nor should it pretend to be, a substitute for real, physical life or relationships. As different studies show, digital life can lead to alienation, anxiety and other forms of mental health problems (Frost, Rickwood 2017). However, if this individual augmentation of the physical environment is carried out consciously, some interesting opportunities arise: it is possible, for example, to mix programs and to dissolve the traditional dichotomies of public/private, settler/nomad and home/work (Matsuda, 2010).

Figura 2. Domestic interior of a Starbucks in Madrid's city centre.

Fuente: Photo by the Authors.

Digital augmentation allows a new type of 'soft' occupation, in which the power to define program in a space is partially returned to the user. This 'soft' occupation of space empowers the electronomad (Mitchell, 2004) to individually impose program on to a space, leading to urban hybrid, mixed-use spaces. Coffee shops (like Starbucks and many others) for example, may simultaneously accommodate multiple programs by providing a flexible environment with seating, toilets, refreshments and network connectivity. New uses are thus made possible, from office works to streaming movies, from romantic dates to job interviews.

3. The organization of work

The access to multiple realities, together with the reduction of distances, has meant that personal time is now "dominated", both in individual daily routines and at the level of social organization, "from the myths of mobility and speed.

Transport and telecommunications are now two major infrastructures of everyday life; people, ideas, capitals, goods move faster and faster, according to the fundamentalism ofhe race that seems to be the categorical imperative of development" (Giaccardi and Magatti, 2001).

In the digital era, time is increasingly perceived as something that compresses or even annihilates space (Rosa, 2015).

We try to live faster (by increasing the number of actions per unit of time, or by doing more things in less time) we eat faster, sleep less, talk less with family members. The spheres of personal life, in fact, are continuously invaded by distant events, relationships and experiences: they constantly meet symbolic and cultural worlds that are completely outside their range of action, relating them to the other spheres, even when they are not physically present. This abstraction goes in the dual direction of a dematerialization of experience, since the mediated communication involves a loss of clues and symbolic elements, "and of its delocalization" (Tomlinson, 1999), in the sense that the physical context of the subject it is no longer a constraint and is thus easily bypassed. Different environment could be potentially built in every material context, depending on the moment of the day and on the device that is used in that specific moment; domesticity could be found while commuting to the workplace, work could hit while sitting on the WC, leisure while working, etc. Human beings are no longer discrete units plugged into the material infrastructure of their contiguous habitat; rather, they are nodes of a global network that supports remote and asynchronous interactions (Mitchell, 2004; Mastuda, 2010).

The physical and virtual mobility multiplied by the media, together with the progressive deterritorialization of space, make it possible to outline the global condition in terms of a "geographical promiscuity" (Heller, 1994): a condition that consists in the impossibility of knowing how to indicate the center of one's own life (Pellizzetti, 2015). Contemporary digital inhabitant is constantly in motion, from home to work, from one house to another, in the web. The contemporary individual becomes "The Derridian parasite (1988), the nomads of Deleuze and Guattari (1986) or the figure of the Lyotard's hobo" (1993).

> *"We can acknowledge that we inhabit more than one possible world at a time, that life is multi-tasking. We can learn to overlap worlds. The worlds of the primary body and the cyberbody need to reinforce one another"* (Heim, 1995).

This condition of perpetual transition, of interstitial situations, have modified and recombined the spaces of everyday life. Georges Teyssot's (2013) Threshold concept canbe juxtaposed with Third Space by Homi K. Bhabha (2004), where the Third Space is a situation of passage, of exchange, of contamination and in continuous negotiation. Spaces of the self, of waiting, of meeting, of temporary, of absence, closed, open, semi-public, hybrid spaces, etc, in which diasporic, nomadic subjects act and move (Fiorani, 2009).

The digital individual is thus obliged to live only in the present, as it is constantly 'bombarded' by information, events, actions, decisions, contacts, sharing, travel, entertainment, etc.
The fast pace and the total absence of time needed to put existence into perspective allow the individual to fill one's days and "live many lives in the span of a single lifetime" (Roig, 2014), but at the same time open the door to what Chul Han (2010) has called the Burnout Society. A society devoted to immediacy and availability, without the capacity and time for introspection and slowing down.

Figura 3. People mixing uses in a coffee shop.

Fuente: Copyright free picture.

This condition of relentless speed is well suited to western capitalist production dynamics, which is why digital daily dynamics also affect the work environment. In fact, the dissolution of physical boundaries introduces a condition of "immaterial labour" (Aureli and Giudici, 2018) and a potential omnipresent production.

Every place could now be recognized as a productive place in capitalistic terms: the bar, the trains, the airplanes, the benches, the grass, the restaurants, the car, and especially the home (Martella, Amann, 2022). Every location with an internet connection is potentially a productive place (Mitchell, 2004). The eight-hour day, born at the end of the eighteenth century to curb the tendency of industrialists to force unsustainable working hours, ideally dissolves. In its place, the 24/7 lifestyle emerges, where labour, care, leisure, and sometimes also sleep, coincide at all times (Crary, 2013).

As a consequence, the traditional form of full-time work, with well-defined tasks throughout a life-long career, tends to be increasingly rare in the informational society (Sustersic, 2013).

The disappearance of the clear distinction between the workplace and the leisure place through the incorporation of communication technologies set the entire urban environment as the potential new epicentre of the production system, necessitating a new and rigorous rethinking at both regulatory and spatial levels.

This implies that new spatial needs arise that radically differ from those that have built the modern city. The body and most of the leisure places, especially the house, are now increasingly "colonized" by professional devices, deriving directly from the working world; very often the PC or laptop, now recognized as "domestic", are accompanied by laser printers, scanners, ergonomic keyboards, office chairs, 3d printers, AI assistants, etc (Sheller & Urry, 2003; van Dijk, 2019). These devices currently fit into the actual configuration of spaces, amplifying the need for continuous flexibility.

For example, inside the house, the new digital productivity is forcing a continuous hybridization of traditional domestic areas, sometimes even causing new spatial trends. Digital workers can colonize their houses according to their needs and those of the other tenants, carrying out production activities wherever the hardware allows them.

Therefore, more and more flexible spaces are needed, able to transform themselves according to temporal needs, winking at the medieval house (Sennett, 1977). However, the definition of a physical, specific, domestic area where to place this equipment to continuously work can be problematic as it inevitably will coincide with the need to host other activities during the day (Crosbie & Moore, 2004).

Figura 4. Neo-nomad using digital devices to work from the bed.

Fuente: Copyright free picture.

In fact, in the contemporary city there are abundant places where you can potentially place a computer, but the issue of digital working is not solved only by finding a physical space where to place the hardware, but by creating an environment that is conciliatory for the concentration. The solution for working in a space shared with other functions may only be accepted when the group routine clearly prevents overlap between many conflicting activities (Vittersø et al., 2003), or negotiate an internal balance.

It would therefore be appropriate to equip contemporary places with a space without a specific definition, without a typology, where people can carry on continued work activities; a space that is increasingly assuming a key role within daily dynamics.

4.   The architecture of the city: the augmented city

The urban experience of the Western city is increasingly augmented through the digital sphere. The material and virtual layer overlap, creating a new perception of the urban environment that brings new urban possibilities according to the new lifestyles of the electronomads. The augmentation of the city is not yet physically visible, as in many science fiction movies or as in AR tv spots, but it is physically perceptible, perhaps even more clearly than in its fictional self.

The augmented city allows the immersion in an immaterial world and the restructuring of its own (dislocated) spaces and times as new biopolitical scenarios of time, where life and power meet. They are the scenarios where to re-administrate the public and private, even subvert it; where to reformulate the idea of being alone and of labor, affective and identarian bonds; where to get carried away (or take part) in the subjective construction and in the common ideation of identity and epoch (Zafra, 2010).

The union between the digital layer and the material one influences the very perception of individual and collective space. In fact, every individual, perpetually connected with a community that can potentially be global, acquires an urban understanding on different scales, from the micro to the macro. The digital layer, augmenting the city, acts as a direct mediator between the individual and the urban/global environment in a silent but evident manner, that actively affects the production of space.

This is the case, for example, of the architectural impact that Grindr had on London (and on other developed cities in general).

> *"Grindr became the city. It is also itself a form of architecture, one based on the collaboration between heterogeneous technologies operating at different scales. One that has redefined what being in a room means, the notions of proximity we live by, what density is about. One that requires aesthetics, interfaces, and memberships to be sensed. One so successfully integrated in daily life that it is rarely noticed. Grindr is an archiurbanism, a form of environmental design that articulates scales of proximity and the large scales of digital data"* (Jaque, 2017).

As shown by Jaque, some neighbourhoods of London, especially those near transit areas, such as financial neighbourhood, were activated by the population of Grindr.

Entire areas, previously destined for the London upper middle class, were completely transformed by the new uses derived from different lifestyles, which generated new urban flows and transformed architectural interiors. The traditional family model gave way to more individualized forms of living.

Companies like Grindr (Tinder, Deliveroo, Glovo, Uber, GoToMeeting, Instagram, WhatsApp, LinkedIn, Meetup, Twitter, Facebook, Car2Go, PokemonGo, Airbnb, etc ...) understood the ongoing change and started to connect users with the city itself and beyond. This connection was unthinkable before, and is capable of generating new flows, new uses, and even new architectures, showing how, today, digital and material sphere are in symbiosis: change in one inevitably influences the other as well.

Figura 5. New kind of works that merges the urban environment with the digital one.

Fuente: Copyright free picture.

These companies, and the activities they foster, are already affecting the composition of neighborhoods - the way Grindr changed London is, in this sense, a valid example; they are creating new routes, meeting points and urban behaviours – it is the case of food delivery and meeting apps (Deliveroo, Just Eat, Tinder, Grindr, etc); the hospitality apps (Airbnb, etc) are affecting the entire structure of most of the city centres, creating new touristic routes and domestic behaviours; the car/bike/scooter sharing apps (Car2Go, Ecooltra, etc) are affecting, together with the taxi apps (Uber, Lyft, etc), traffic flow and urban circulation *(non direi che queste app, in generale, favoriscono modi piú sostenibili di trasporto individuale; se ho la possibilitá di andare in uber magari non prendo il metro o l'autobus, che dal punto di vista ambientale, e della circolazione del traffico, sono entrambi*

più sostenibili); videogames, such as PokemonGo and others, are affecting the perception of the entire material world through the insertion of an augmented reality layer; social-photography apps (Instagram, etc.) are changing how we perceive and we portray the city; apps such as Fernish, delivering furniture for rent, are influencing the interior of the electronomad house. Most of these new uses foster the creation of new kinds of "digital" jobs, that exists in the interstation between the material and the virtual.

Contemporary city is not a place that passively, or by imposition, accepts its structure: it is rather an environment capable of transforming itself and being transformed according to the current changes.

People can access the city in many more ways than in the past, when architectural form was the predominant device for perceiving space. (Sennett, 1977). Today, form no longer follows function (or vice versa): they interact in highly fluid ways.

5. Conclusions

Contemporary cities are augmented environments that increasingly feel, act and behave like a living being made up of a community of technological devices. In their spaces, people and uses constantly overlap, and, by doing so, continuously rewrite and reconstruct the urban reality. As such, the urban reality is no longer unique, but multiple:

> *"The Augmented City is a post-technological smart city, it's a human smart city. An Augmented City is a connecting device for the sustainable city and it can be considered a vibrant organism which connects places and services, data and information, local and global economic resources, social sensors and actuators, in a permanent human and urban metabolism. Cities were born and have resisted all alternative proposals – and the storms of post-urban – becoming the prevalent form of human settlement due to their ability to continually create a platform for innovation, allowing the greatest number of spare parts, offering recyclable materials with which to build new relationships, or semi-finished places on which to complete the process of metamorphosis"* (Carta, 2014).

The augmented city is a radically new place, which therefore raises new challenges, possibilities and risks. At its best, it could be a place for citizens to feel free from imposed social construction; a place where to experience a renewed freedom in an urban context that adapts to any need and desire.This freedom would lie in the increased individuality of

the single, but also in the greater collectivity of the many. The digital layer fosters ever-changing collective interactions, which in turn are capable of shaping spaces outside of traditional typologies.

Figura 7. The augmented city.
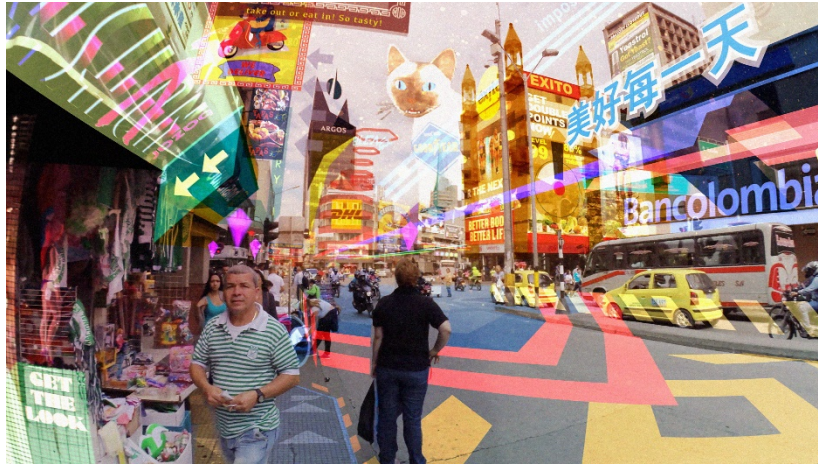
Fuente: Keiichi Matsuda, 2016.

It is not then just a matter of flows, but, above all, a matter of how the digital revolution is changing lifestyles and thus the way we perceive and build the city. Digital citizens could interact with the city through many layers, thus enabling rapid transformations of urban spaces, uses, and meanings. They can "program" the city according to their needs; the smart city is giving way to the smart citizen.

A city capable of seeing and feeling is a revolution in many ways: above all, in its interaction with the community that inhabits it. The emergence of this city calls for a rethinking of its structures and hierarchies. It also calls for a rigorous rethinking of the potentials and limits, meanings and scopes of the urban environment.

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