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Journal of
Land Use, Mobility and Environment

This Special Issue of TeMA - Journal of Land Use, Mobility and Environment, collects twenty-seven contributes of international researchers and technicians in form of scenarios, insights, reasoning and research on the relations between the City and the impacts of Covid-19 pandemic, questioning about the development of a new vision and a general rethinking of the structure and urban organization.

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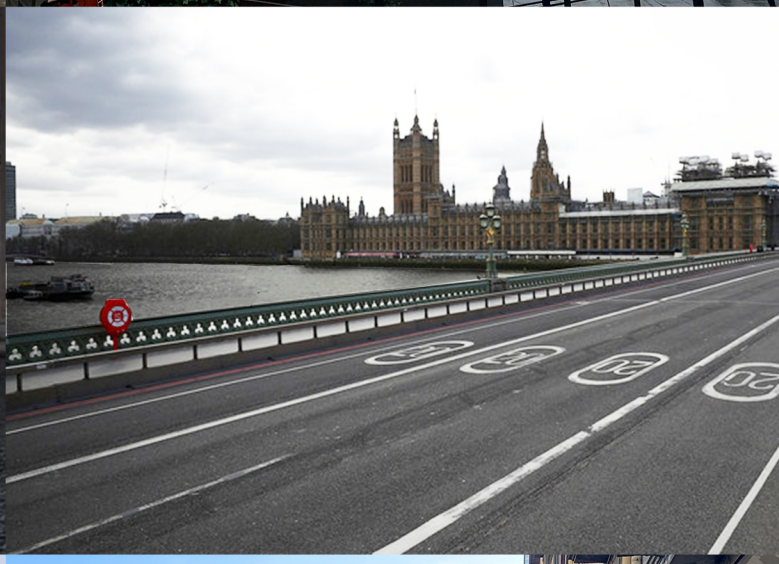
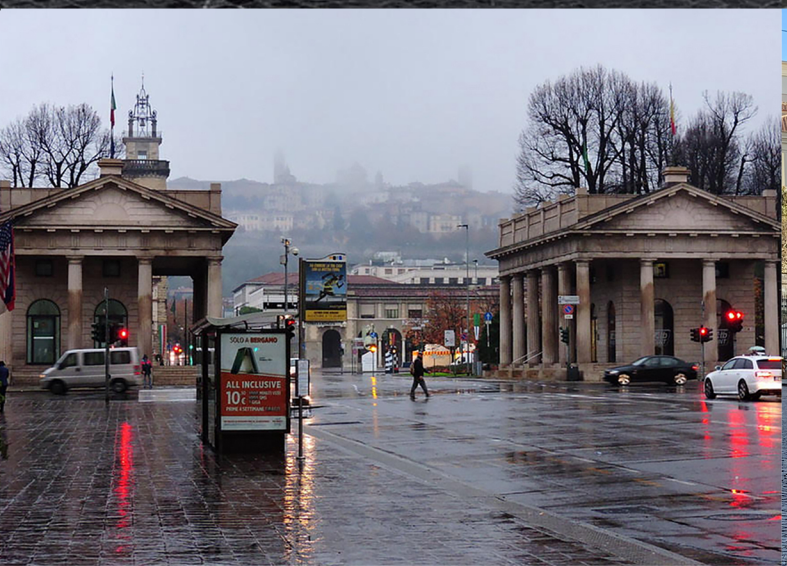
Special Issue

Covid -19 vs City -20

scenarios, insights, reasoning and research





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COVID-19 vs CITY-20
SCENARIOS, INSIGHTS, REASONING AND RESEARCH

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Given the short time to produce the volume, the Editorial Board of TeMA Journal carried out the scientific quality audit of the contributions published in this Special Issue.

The cover image is a photo collage of some cities during the Covid-19 pandemic quarantine (March 2020)

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Virucity. Rethinking the urban system

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Abstract

The paper focuses attention on three fundamental points. The first one concerns an analysis of the urban condition perceived and detected directly by the observation of the city suddenly deprived of the fruition component and characterized by the functional reset of urban activities with the exception of health functions. The second element is attributable to a systemic interpretation of the phenomenon through the analysis of the effects on urban subsystems produced by the pandemic, recalling the holistic approach to the study of urban phenomena. The third element concerns the envisaging of possible post-virus urban scenarios for which a significant bifurcation is foreseen: on the one hand, if the virus produced a rethinking of life models and the need for new ways of acting and interacting in the city we could imagine an urban future characterized by a general rebalancing of anthropic contexts; on the other hand, if the desire to return to entropic and energy-consuming models will prevail, we will continue to witness the slow degradation of human and natural habitats that will lead to the "right" extinction of human beings. These alternatives underlie a series of dilemmas that the paper emphasizes as structuring elements of possible future urban scenarios, highlighting the fundamental role of urban scientists and planners.

Keywords

Covid-19; Urban system; Post-pandemic scenarios; City risk.

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1. Introduction

We were hit in the heart of our anthropic settlement that we thought was unassailable; within which our artificial time was spent safely, marked by unwavering commitments and personal anxieties.

A sneaky, transparent, deadly enemy is now inside the megacities and man has turned out to be weak, vulnerable and perhaps defenseless.

The deafening silence of the empty city at peak times underlines the change; if "the city is listened to as a piece of music" (Lefebvre, 2009) then today there is no more music because the musicians are missing.

The only possibility of fighting is a new form of domestic resistance, in an urban context in which the functions are radically and suddenly transformed, consequently changing the image of the city and the perception of anthropic space. Suddenly citizens were denied the use of urban space, the right to "dwell" in the city: "Mortals live when they lead their lives in conservation and use" (Heidegger, 1976).

This is an urban pandemic that plagues metropolitan concentrations and constantly spares rural settlements and villages. The urban space is suddenly "contracted" in the *domestic space*, close distances, paths and places of daily use of the city. The metropolitan block has triggered a sudden and unexpected need to manifest the levels of urban resilience. Deserted cities are reconquered by spontaneous flora and pseudo-wild fauna, which becomes a new urban population.

The inner and old districts of the great historical and art cities, such as Rome, Florence and Venice, are regaining their dignity and their decorum, now that they have freed themselves from the hordes of mass tourism that expelled their legitimate inhabitants. Attending this change, as well as those that determine the clean-up of air, water and the new clarity of the sea in coastal cities, amazes us pleasantly, but only at first. Subsequently, we forced urban respirators of smog, we feel a feeling of invasion and usurpation of our own space, built by us and which is being "invaded" by species that we had banished from our places and suffocated with a consumption of senseless soil.

The virus is carrying out, as always in history, a cleaning operation of overcrowded urban systems by eliminating entropic agents. The transformation and adaptation of the natural space for the creation of anthropic habitats has long passed the natural thresholds. Megacities today appear as human concentrations where the life of those who produced it is often difficult, articulated in times of high concentration, in high density spaces, in mobility channels with paralyzing congestion, in anthropized contexts where often the main resources like air and water which are polluted and often unusable.

The growing anthropic entropy leads to an increase, often uncontrolled and unnoticed, in the vulnerability of urban systems and its component subsystems. The holistic specificity of the urban settlement, understood as part of a territorial system, which is part of a global environmental system, also leads to considerations relating to the extreme vulnerability; this is generated in these conditions due to the increase in entropy, but with a difficult effective perception. One of the highest risks is attributable to the composition, integration and synergistic effect of environmental risks with those generated by the pandemic.

Climate change is probably the greatest and most widespread cause of risk to which anthropic systems are currently exposed and their synergistic composition with conditions of high general entropy could produce irreparable damage in the socio-anthropic system.

In the event of a natural disaster (think of the extreme events affecting Indonesia), one should choose whether to remain outside exposed to the risks of atmospheric agents or to take shelter in overcrowded interiors risking a spread of the infection. Unfortunately, as it continues to happen for scientists' warnings about the irreversible effects of climate change that remain guilty, unheeded or stupidly underestimated, even the warnings launched over the years relating to the risk of a world pandemic have been ignored.

From one side, powerfully challenging the rhetoric of modernity, it has shown that city strengths (social and production resilience and resistance) and weaknesses (high exposure to natural and social attacks) have

structural and ancient origins independent from industrialism and modern technology. While from another side it has shown that city forces powerfully incorporate and depend on human technology, that they are eminent examples of both opportunistic and sophisticated abilities that humans have in orienting natural and artificial processes toward the reproduction of their own species.

2. The systemic view

In the urban system, the virus primarily attacks the socio-anthropic subsystem and in particular its structure of interactions. The ways of acting and interacting in the city are suddenly eliminated. The interaction between individuals, transactions, and exchanges become prohibited activities. Much of the *raison d'etre* of urban existence is abolished. Sharing spaces, interacting in places, meeting, recognizing, rendezvous and tightening become actions that are not allowed. Residential activity is mandatory and exclusive.

The disease has entered the cities upsetting the systemic balance. The sudden crisis of the socio-anthropic subsystem, pervaded by the invisible assassin, has quickly "infected" the other systems in an unprepared, uncertain national context, often on the verge of structural crises, this is characterized by funding for vital functions (such as health) frequently "affected" by illegal agreements, intrigues and robberies. The socio-anthropic system has reacted in general by understanding the uniqueness of the moment and the seriousness of the threat. We have returned to consider the primary elements, but sometimes confuse the basic need, as in America where the queues to get in the arms shops are longer than those in the supermarkets. The socio-anthropic sub-system is one of the generative systems of human settlement and its destabilization generates entropic interactions on the other sub-systems (Fig. 1), but also a definable phenomenon of "self-impact" readable, for example, in the lockdown which requires residential stay.

In many megacities and spontaneous cities (from South Africa, to India, to Latin America) the invitation to return and / or return home is simply inapplicable because the home is not there.

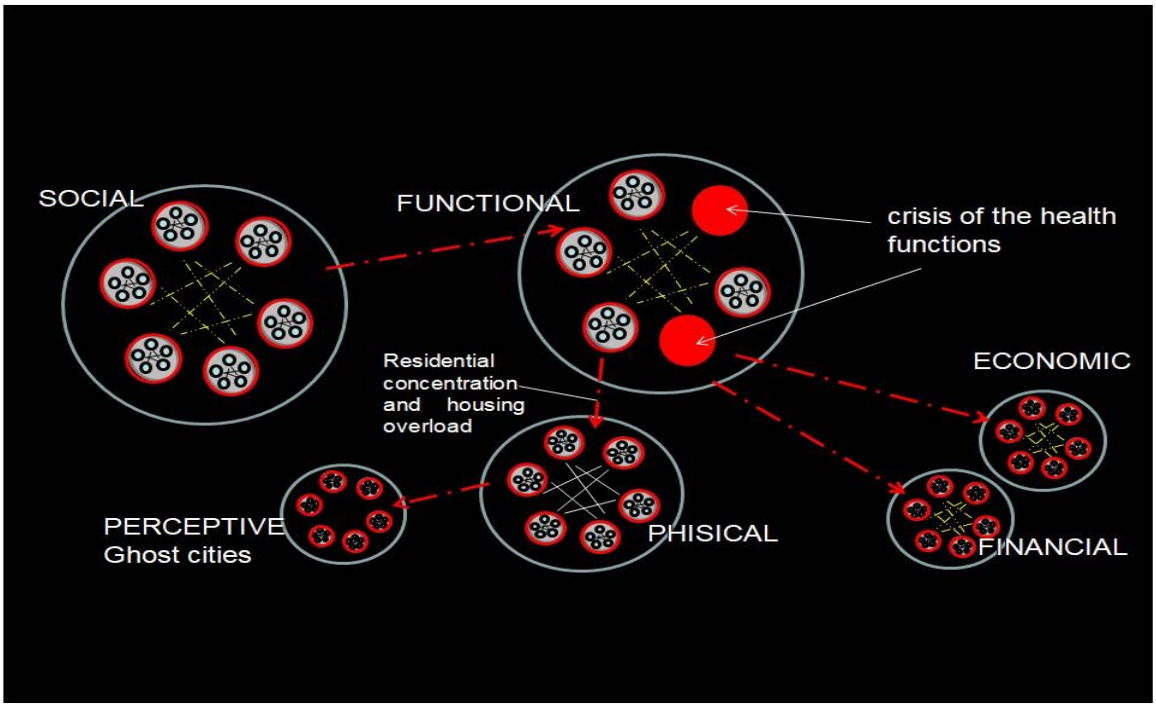

Fig.1 The Covid-19 impact on the urban sub-systems

The polarizing power of the big city has been suddenly canceled by the viral load and many inhabitants abandon the big cities to return to their villages of origin (Lèvy, 2020). The complexity is drastically reduced to a functional dualism which mainly sees residential and healthcare activities becoming characteristic of urban systems. The city is still, deserted, but tries to transfer much of its relational system to the new digital interactive space.

3. The role of the technology

ICTs gave good means and potentials of remote working to many social activities (see the intentional disarticulation of social production, particularly evident in the case of service activities, from education to administration) while basic social organization under risk (return to individual and/or small group agencies, family and community resilience) functioned as an optimizing agent in a multiscale space of possibilities.

Technological innovation intervenes to maintain relationships, save ties, to rebuild interactions and to connect. It is as if in urban contexts the city has been synchronously, brought back to the years in which the activity and the domestic economy of self-production, recovery and attention to the use of fundamental goods (in particular food) characterized the life of family groups and at the same time projected forward in a time in which almost all human activities (information, relationship, learning, transaction, etc.) are virtualized in the network of networks and mediated by the displays of personal devices.

The complexity is reduced, the flexibility stiffens, the vulnerability increases and with it the risk of being hit in the meta-system: the physical one of the residence and the digital one of the network. The new urban, unnatural, coercive, forced condition will reveal the difficulties of the most fragile individuals, as in an "unnatural" selection. Those who fail to resist isolation will trigger the social conflict that, due to the systemic structure of the city, will quickly impact and "infect" the other subsystems.

The recovery of the clarity of the skies and waters in the cities, which see the inhabitants confined in the home, corresponds to a drastic drop in the costs of fossil energy, but also a sudden process of economic recession and global impoverishment. Reflection on the correlation of these phenomena can lead to several conclusions: the first leads to predicting and putting in place as soon as possible actions that allow different nations to restart their production engines to resume the process of "growth".

A second could lead to a rethinking on the economic models of exploitation of the resources adopted by humanity, given that when these models are inactivated, the planet quickly recovers and regenerates, even within highly concentrated urban settlements, the resources necessary for man to survive.

In other words, the anomalous condition could generate a positive effect of collective rethinking on the models of existence so far adopted in the Anthropocene. Human behavior which have produced the destruction of much of our natural environment (which welcomes us) and the degradation of our living habitats.

From the Fordist city onwards, a progressive process of poisoning of anthropic settlements was triggered, substantially attributable to industrial functions, residential activities and emissions of mobility. In the American counties with the highest pollution from emissions due to vehicular mobility, there has been a greater spread and mortality of Covid-19 which, being a virus with effects on the respiratory system, finds fertile ground for its diffusion and pathological manifestation (research by Harvard TH Chan School of Public Health).

Many observers have also noted the "positive" effects of the pandemic attributable to the so-called "psychic results" and to the perception of loss that everyone has experienced in domestic confinement.

Loss is a strong feeling, which individuals perceive as crucial for the development of their biological existence: the loss of loved ones for those affected by mourning, the loss of freedom for inmates, but also small losses such as the inability to pick up a glass because of a banal thumb dislocation.

4. Some dilemmas of analysis on futures of cities under risks from social extreme events

The 2020 pandemic from Covid-19 has confirmed many interesting things for urban studies and urban scholars. Rovelli remainded us that numerous events of infectious diseases run in parallel with social and urban evolution: this from the ancient social and urban realities narrated by writers or historians (Homer for Mycenae or Thucydides for Athens), where rational and divine reasons alternate each other, to the empirical science of the last millennium (Newton for London). Millions of deaths (in 1920, one hundred years ago, roughly fifty in the Spanish flu pandemic) which makes the 2020 Covid-19 pandemic with its half a million of deaths a ridiculous competitor. Developments in health care organization have strongly pruned social disasters from pandemics (Rovelli, 2020).

The continuous general growth of human population, which makes irrelevant some local cases of demographic containment, and with it the spread throughout the planet of urban regions and megacities and of human interaction and movements, coupled with pollution and contamination of the natural environment, makes highly probable a situation of recurrent local and global infection diseases and of containment efforts similar to what we are registering in the current days. This while substantial changes in the modes of human living and in particular of human settlements production will probably be highly inertial and unsuccessful.

Manoeuvres to increase densities of population in cities in order to reduce soil consumption, preserve agricultural spaces and potentials, and preserve natural common goods as deserts, forests, polar glaciers, and oceans will increasingly compete throughout the planet with global warming and climate change, biodiversity loss, physical-chemical contamination, artificiality and artificial life, social and environmental extreme events, and entropy disorder. Thinking to the current infection disease, to make the urban and regional planning situation even more complex, an increase of urban densities attained by big and tall buildings could make social distancing and quarantine impossible and create spatial hotspots of infection. In some sense we should look at the 2020 Covid-19 pandemic as a marker and precursor of a near future of urban population trends.

Forecasting futures, in particular far futures is hard. But staying close to the current situation of cities under the Covid-19 pandemic, a superficial analysis has shown that urban population can also in some sense passively and voluntarily accept powerful political restrictions of freedom imposed by different macro and micro levels of the government system (see home confinement), despite the urban studies rhetoric of cities from Marx to Weber as human multiagentive spaces and systems (Borgo, 2019) that are powerful magnets of population attraction because of their virtuous diversity from the political intolerance of the small community of countryside villages or of corporate social aggregation of peers (Marx, 1993; Weber, 1986).

Even in the completely artificial spaces of small apartments (in the most case with no dedicated space for homework) in the low-middle classes of the welfare societies of European countries, in home working and in living at home people has shown interesting and in some sense also environmentally distorted attitudes to tentative re-creation of human resilient behaviors, accepting substantial separation from more natural external spaces with movements confined in the totally artificial proximity corridors of urban canyons to breathe and/or to buy something to eat or drink. At the same time the lack of care for individuals or groups external to the home niche has confirmed the egoistic spatial and ontological organization which is typical of cities.

Nature in the surroundings of cities have anyway reappeared in cities in many ways, for instance in the collapse of mechanical sounds in the city, cleaner air, reduction of the urban heat island phenomenon, reduction of urban waste, and so on: what is obviously the bright side of the coin while the dark side has been represented by the collapse of industrial production of goods, of the merchandising of goods other

from food products, the collapse of the small and ill-structured activities diffused in the territory that develop at the margins of the city and of its articulated societal body, in many cases with the more or less sincere emergence of people lamenting loss of their habitual works, poverty, impossibility of buying food etc., etc..
In some cases with sieges of the local town hall: while reminding of old stories of rural-urban insurgence and radical poverty, this has created intra- and inter-scale conflicts involving urban and regional and national and supranational (see conflicts among European countries) governments for local and non local distribution of financial resources.
Despite the inadequacy of most city settlements to a rapid conversion from concentrated workplaces (office buildings, schools, etc.) to distributed workplaces (networking operated from sending and receiving agents and/or interacting multiagents confined in places each from the other remotely located with insufficient availability of ICT tools and connections to the web), people in cities have showed good abilities of networking: the gradual shift in the last few years to remote services has evidently been a relevant factor of success of the new socio-productive organization.
When the barriers to people circulation were relaxed with the declining rates of the infection disease, roughly three months after the starting of the rigid home confinement, people have shown tendencies to return to normal behaviors even in an intriguing framework of fears and uncertainties in coming back to the old order, according to consolidated psychological models of human resilience after strong stresses.
In some countries ICT intelligent devices highly distributed throughout individuals and groups of city population have generated powerful abilities to analyze and control the infection disease propagation through the mapping of multiagentive movements and interaction and the profiling of individual and groups and places, challenging the fears of loss of privacy that are typical of the alleged spirit of freedom of cities.
Countryside rural contexts in Europe where people still live and produce (intriguingly by making large use of chemicals) according to the old tradition of the local community and family organization were substantially untouched by the disease and seen with a deep sense of desire, not really different from what happened for the surroundings of Florence in the Middle Age in the Boccaccio's Decameron tales of Black Pestilence, when they were observed and imagined by people infected or under risk of infection. When the regional governor of Puglia, Italy, stated one month and half after home confinement that regional residents no matter if they had or not a status of workers in agriculture could travel daily to and from their own small piece of land for horticulture, the media reported a peak of political consensus to the reelection of the governor while the regional polls were approaching.

5. Conclusions: envisaging the urban future

The city has always been the place of exchange.
How will it change with forced exchange at a distance? How will the places of being together, of social gathering and public spaces be transformed? An urban system for which, after the season of urban sprawl, which multiplied the waste of soil, the costs of transport, pollution, etc., did we recommend densification and functional mix forecasts? If public transport has to drastically reduce the number of transportable individuals, how will we move to the large metropolises where (even) new professions of employees were born to compress passengers in subway cars to allow the doors of convoys to be closed? How can urban tourism be transformed in particular in Italian cities of art or in world cities such as New York which count 40 million visitors a year? Will we have to completely rethink the functioning of the human settlement?
The question which summarizes the previous is: how will we live together?
In the end, the Covid-19 pandemic has shown everywhere a lot of contradictory phenomena which deserve analytical attention from research and/or decision making agents involved in urban studies in the domains of

both spatial organization and socio-political organization. It would be worthwhile to pursue an in-depth analysis of some dilemmas.

Countries which decided to follow the laissez faire way of the herd immunity in fighting against the flu pandemic (see Sweden) got performances not substantially worse than those of countries which enforced draconian measures of social distancing and home confinement (see Italy)

Countries which were characterized by a convergence on a certain typology of political decisions in some cases got good (China) and in other cases bad (Italy) results.

Rich regions (Lombardy, Italy) were hit much worse by the infection disease when compared to poor regions (Calabria, Italy). In Italy, again, cities that according to some conventional socio-technical view are well reputed at least in an Italian context for their organization (Milan, Turin) performed very poorly in fighting against Covid-19 pandemic while other Italian cities with comparable numbers of residents that are usually considered as victims of creative disorganization (Naples, Palermo) were completely safe.

Urban regions having plenty of public transport (again Milan metropolitan area) performed very bad when compared to urban regions lacking of public transport, this in an evident dualism of intraregional behavior in the pandemic season between northern regions and southern regions in Italy, which seems to deal with some peculiar mix of system components of urban objects, events, processes, and ontological agents, some complex frame of traditional/non-traditional urban and socio-technical systems organization.

In this moment of uncertainty the role of urban scientists and town planners is fundamental. To say it with Forester it is necessary today to "serve people in need" (Forester, 1998). It is difficult to think that a series of single measures will never provide for the control of all the variables that make up the innumerable urban complexity. Probably in the early stages of the "return to the city" some precautions will be observed which will dilute with time, allowing the virus to spread, perhaps with less deadly effects and perhaps already in the presence of therapies and vaccines.

Maybe something will change for those who already had a different idea of urban life. Some areas of intervention for new town planning seem to emerge naturally. Probably it will be necessary to reduce the intensity of use of overcrowded urban areas and rethink new suburban models.

The times of the city will have to be completely redefined to avoid functional concentration and that of travel during peak hours. Perhaps some variation of time or functional cycle could be implemented (Lynch, 1977). The shift from home to work, which can no longer be fully supported by local public transport, must necessarily include personal micro-mobility systems, such as the bicycle (in particular electric) or the electric scooter, hitherto ill-seen in the major urban areas of our country, which must even be tangibly incentivized. The provision of neighborhood co-working areas and containers, where you can go keeping distances and separations between the users, equipped with all the info-telematic technologies to carry out any type of activity, will be necessary.

The building must be thinned out trying to recover green spaces capable of oxygenating the urban system (Esopi, 2018). The large urban functions will also have to accelerate their virtualization processes, allowing telematic use which must also apply to the healthcare function which will implement domestic telemedicine in a drastic and fast way.

For commercial locations they must necessarily be considered controlled uses. Urban supermarkets will be able to provide online reservations for entry that eliminate queues and minimize the simultaneous presence of customers. For megamalls, big retail centers and hypermarkets, the use and protected thinning will be fundamental for their survival, which already showed signs of decadence.

On the other hand, a possible action to re-launch the transaction economy may materialize in the forecast, and rapid preparation, of "free zones" distributed throughout the territory.

The wide sport arenas will have to rethink the ways of use by reducing the influxes and distancing the spectators. Maybe a new wave of "tactical urbanism" will drive to a social rethink of urban spaces and to a real bottom-up redesign of the cities: "A city can only be called such when its streets belong to people" (Friedman, 1998).

Now's the time to rethink time and the spaces of the city.

Design a new time of use of the urban functions and recover and reuse the abandoned buildings, deprived areas and deserted industrial buildings for a new idea of public space. But actually, we will have a different city where, at least in the early days of the "recovery", people will change side of sidewalk when meeting fellow citizens who come in the opposite direction, where it will not be possible to recognize each other because of the protective devices that each must wear to move, where everyone will be classified "digitally" as belonging to a group and its movements will be controlled remotely.

Borrowing a term representative of the climate crisis, it is possible to say that perhaps we will see a new dimension of the greenhouse effect, considering the mini habitats and plexiglass barriers that many urban functions are preparing for use in the post-emergency phase.

Are we going to a *plexiglass sociality* or will we accept the risks of contagion by returning, prudently, to repopulate urban contexts?

If we stop for a moment to think about the urban quarantine prisoners who yearn for simple actions: retrace the spaces of the city, cross the historical places, read the monuments and architecture, meet acquaintances or simple peers, enjoy the green spaces again, view the sea again. Maybe, the invisibility of the enemy and the fatalism of many populations could also lead to the recovery of life and pre-pandemic habits, the passage of which would be denoted only by the face mask, worn in various "ways" and of doubtful efficacy.

Considering the relatively short history of man on this planet, the wonderful transformations but also the catastrophes, the destruction, the wars, which not even the viral threat seems to be able to stop It is difficult to have confidence in the ability of the so-called "sapiens" to face the big changes; the fear of what is invisible will gradually dilute over time, such as information coverage and daily bulletins on the number of victims and victims.

The fatalism dictated by personal finitude, will end up prevailing, especially in those parts of the world and in those cities used to living with natural and anthropic risk.

In the end, cities show their well known art of "muddling through" (just to remember the sociological agentive figure by Lindblom), with unexpected traits of socio-technical resilience and of rapid adaptation to sudden dismantling of some highly reputed urban machinery (transport and mobility by private and/or public transport) for instance through opportunistic re-tuning of the social life at individual and group level on some innate human-spatial measures and distances (see the neighborhood contexts) that allow easier movements to local people.

Arguments and dilemmas which give room to technical hopes in a possible pause of the continuous growth of the artificial and pollutant side of cities of today and of the near future, if it is true that in the very short time of two or three months a sudden change in technological organization has generated enormous outcomes in terms of stopping well rooted trends to the growth of artificiality of cities.

However, this first period of "loss" could lead many of us to rethink their "urban existence" and to reactivate processes of raising social capital also by rediscovering neighbourhood relationships hitherto ignored. Loss can lead us to reflect on the reasons for life, which can be reduced to two elements: knowledge and relationships. The fear of the disease could perhaps lead to new dimensions of reflection on the purpose of the time granted to each, in which the presence on the planet is factualized. Now's the time to rethink the urban system and remould the Anthropocene. Many of the described issues have been developed and proposed by urban scientists for a long time but have been unheard; on the other end, it is needless to say:

"we had already said it", maybe the scholars and town planners have to take the occasion to promote a new urbanism. This is probably the best hope we can make to ourselves in this time; but if we consider, as a return to normality, the re-adoption of the dominant and connotative models and behaviours of our pre-Covid society, then there is a strong risk that fear and the feeling of loss passes in vain, without leaving a change behind (Giordano, 2020).

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Image Sources

Fig.1: The scheme has been created by R. Fistola

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Associate professor of Urban Planning at the University of Sannio (Dept. of Engineering), he teaches in the course of Town and Country Planning and in the course of Territorial Transformation Management. He continues to develop (since more than 25 years) research about the urban complexity, the systemic approach, the relationship between technological innovation and territorial transformations, the smart city, the sustainable urban development and the urban risk. One of the most interesting topics of his current research activity, developed with the AURUS Research Group (coordinator), concerns the use of augmented reality for envisaging of urban changes. He is author of over 130 national and international publications.