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Commentary

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There will be no Post-COVID city

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It is 23 June 2025, and at long last, after years of discussions and delays and budget overruns, the largest, most extraordinary COVID-19 Museum in the world is open to the public. Built on top of a small hill, it is visible from many vantage points in the surrounding metropolis that suffered so much during the pandemic. The first two days were reserved for officials and major donors. But this morning, crowds of ticket holders who had waited for months for this moment are arriving at the museum's gates by any means available. They arrive on foot or by bicycle, on e-scooters and Segways, by Metro or bus, or are dropped off by AVs circling the city center. There are few museum parking spaces, reserved for the handicapped.

The Museum's mission is to help people remember, understand, and (re-) experience what it was like to be living at the time of a pandemic, and more specifically, the COVID-19 one of 2019–2020, considering that this very likely was the last pandemic to befall humanity for the next century and beyond. There are exhibits from around the world for all age groups and interests. (See the Museum's catalog for a full listing of the collections.) A special exhibition showcases the top 10 submissions to the 2021 international competition on "Imagining the Post-Pandemic City." The diversity of conceptions is remarkable, yet all seem to be motivated by the same few underlying assumptions. As a result, all 10 projects are developed around the notion of an impending or eventual flight from the large, dense, crowded metropolis towards smaller settlements in more salutary environments closer to nature.

This first week of the Museum's opening there is also a daily raffle, and the winners will be invited to a dinner with one of two very special teams: The surviving members of the team that developed the first and most successful COVID-19 vaccine (2022 Nobel Prize in Medicine), or the 2024 team of Nobel laureates, who, using CRISPR and deep learning on a quantum computer, were able to generalize the method used in the production of that vaccine into a procedure for developing successful vaccines for any novel virus.

I wish. But the above flight of fancy may not be total science-fiction. SARS-COVID-2 is a very nasty virus, but it is a member of a known group. In terms of severity the resulting pandemic is surely not the worst humanity has survived, though the disruption it is causing is commensurate with the unprecedented complexity at all scales of today's global urban system. The damage to local economies and global supply chains is incalculable. And for millions of people, life will never be the same.

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Yet even as I write, the great Mediterranean cities of Spain, Italy and Greece are reopening to tourists arriving from currently less impacted countries. There is risk involved in that step deemed necessary to begin reviving moribund economies, but the fact that this is actually taking place right now is very encouraging. Remember that two of these three countries were only recently among the worst hit in the world, and they have now largely recovered. On the medical front, based on new estimates of the prevalence of asymptomatic infections, evidence is emerging that the virus may be up to an order of magnitude less deadly than feared, resulting in mortality rates comparable to those of the seasonal flu. Further: Treatments that actually save lives are beginning to appear. There is a good chance that before the end of this year or a few months beyond, an effective vaccine will be available. And the current level of progress in genomics was unthinkable even a decade ago. This all suggests that at least in OECD countries, COVID-19 qua disease should be less of an issue about a year from now, though its impact on the world economy will be felt for much longer. As for future pandemics, there is hope that lessons learned from the current one will stick long enough to allow for better organized responses. Scientists are already cataloguing the millions of viruses found in wild and domestic animal species, trying to identify the ones most likely to infect humans (The Economist, 2020a). That's good to know, because Chinese researchers just announced the discovery of another swine flu virus with "pandemic potential" (CNN World 2020).

So the urbanism projects displayed at my COVID-19 Museum must all be wrong. The city as we know it will survive. This opinion may go counter to several educated speculations on the subject found in the media, most of which are extrapolating from current conditions. The key points tend to be (1) the conversion of most office work to remote work from the employees' homes; (2) the massive substitution of ICT for physical movement, thus enabling (3) the flight from the big city towards small towns and semi-rural settlements (e.g., The Economist, 2020b).

These same arguments were actually made before, in great detail, not on the occasion of a pandemic but relating to the rise of the internet. Graham (2004: 4–5) provides a perceptive overview of the "death of distance" dream going back to the early days of the information age. He gathers and briefly discusses these speculations under seven rubrics: (1) the dissolution of cities; (2) the extensible individual; (3) a much-reduced need for mobility; (4) physical networking will be substituted for by virtual; (5) spatial homogenization; (6) the transmission of place; (7) casting away our material bodies. He also illustrates each of these points with a characteristic quote taken from the work of some respected scholar, dating from the 1960s through to the 1990s. Couclelis (2006) returns to these seven "myths," expanding each argument to demonstrate its fallacies.

This is not the place to reopen these discussions, but here are some current observations. On the remote work front, there have been recent reports about employees working from home being more creative or productive. However, this is most likely due to the Hawthorne effect, and the improvement should fade away as soon as these workers are no longer in the spotlight. Indeed, major US companies such as IBM, Yahoo, the Bank of America, and many others have tried teleworking in the past but had to call their remote workers back to the office (Spector, 2017).

Regarding the substitution of ICT for physical movement, this is certainly happening during the current, totally unnatural conditions of self-isolation. Yet even our digital-native children and grandchildren cannot live without hugging their friends, and their gregarious behavior in already crowded, barely reopened downtowns is filling older folks with COVID dread. Also recently, rather than keeping people at home, social media radically simplified organizing and coordinating large groups of protesters around the world, resulting in several weeks of very physical street demonstrations.

As for the flight from the dense city, this has been around a very long time, both as fact and as ideal. Avoiding polluted air and disease, the Garden City movement, Frank Lloyd Wright's Broadacre City, a desire for more land, for safer places to rear children, fear of being the target of nuclear bombs, and the love of open nature, have all been expressions of one-half of the love-hate relationship people have with cities. Cities continued to thrive, regardless.

Finally: The title of this essay, "There will be no post-COVID city" may mean three different things. There will be no city post-COVID because big, dense cities will explode into myriads of small towns and scattered settlements; there will be no generic kind of post-COVID city just as there is no generic kind of city around the world; or, there will be no post-COVID city much different from the pre-COVID city. Allowing for technological, environmental, and socioeconomic trends already underway, and with a nod to the wonderful diversity of cities around the world, I will put my money on the last interpretation. The optimistic one. Yes, cities are in trouble, but this too will pass. Long live the smart, resilient, inventive city! (Batty, 2018).

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The post-Corona city: Virus imprints and precautions

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In his recent editorial, Batty (2020) commented on cities during the interim period characterized by the spread of low or second-wave Coronavirus, before any suitable vaccines might become available and then widely adopted. In this commentary, I would like to focus, albeit briefly so, on the Corona-vaccinated city, which is expected to emerge in 2021, at least for cities in the developed world. Two specific aspects will be addressed here: any possible imprints of the Corona pandemic remaining in cities following its disappearance, coupled with the possible emergence of precautions towards the bursting out of any future virus pandemics.

Both the imprints and precautions relate to several major dimensions of the Coronavirus pandemic, which can be assumed to be relevant for future routine behaviours. First is the global timing appearance of the Coronavirus and its spread. The appearance of the virus was, for the first time, simultaneous worldwide, with a time lag among countries and continents measured only in days or weeks. Second, Nature has reminded us of its potentially global hazardous presence as are other invisible viruses, in comparison to the rather gradual development of crises such as global climate change. Third, cities experienced for the first time, the exclusive operation of virtual mobilities, as compared to the supremacy of physical ones which have dominated cities during pre-modern times, followed by mixed usage of physical and virtual ones which were emerging before the Coronavirus pandemic began. Fourth, the abrupt cessation of routine social and economic activities, enforced by international and local lockdowns, became effective at once, following governmental decisions taken in this regard. Fifth, and finally, the role of uncertainty has increased as compared to that of risk. In their recent book, King and Kay (2020) differentiate between risk and uncertainty in economics: risk is measured quantitatively which is in high usage, whereas the evaluation of uncertainty regarding potential political, social or natural events involves narratives which are much less dominant. This differentiation can be applied to epidemiology as well, in its quantitative measurement of the expected number of casualties at any phase in the spread of the pandemic as risk. The Coronavirus has exposed the role of uncertainty vis-à-vis lockdowns as the only possible 'cure' when vaccines are not

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yet developed. The uncertainty relates to the degree of popular obedience of the population to lockdowns, with changing experiences in this regard amongst many different countries.

These dimensions have brought about numerous changes in individual as well as in governmental activities, implying some fluctuations in the invisible, previously existing, borderlines between activities carried out in physical and virtual spaces, as well as between globally oriented and domestically oriented activities. The hesitation of many people to function and act through the Internet prior to the Corona crisis has had to be overcome by these changing circumstances, and governments have had to cope with new challenges regarding the balance between the domestic and the global, at times of global lockdown. These changes may continue to prevail, fully or partially, in post-Corona cities worldwide. Specifically, these changes lie within the following urban arenas: work, shopping, technological infrastructure, tourism, production and trade, and we will deal with these in turn.

Work

Until the Corona pandemic, the percentages of full-time teleworkers were internationally quite modest, normally reaching only single-digit rates (Kellerman, 2019), though part-time teleworking was becoming ever more popular (Batty, 2020). During the Corona pandemic, many office workers have been able to continue their work, fully or partially, from home, for a period extending for at least two months. This change in work location and habits may continue in the post-Corona city, since the savings in transportation, parking, and office costs, side by side with a cut from the office environment, have been tested by some practical experimentation during the crisis. The growing popularity of teleworking that we have experienced may obviously carry significant changes in commuting pressures, as well as in the nature of business centres. Another impact of Corona is video conferencing which has been widely adopted, and which may possibly continue to be in popular use, so that virtual platforms for workers may replace joint physical ones.

Shopping

Online shopping, coupled with online banking, e-government, e-health and other online urban services were available already before the Coronavirus pandemic began. The growth in online shopping and online banking has brought about the closure of stores and branches, respectively, but most of people's shopping was still carried out physically (Kellerman, 2019). The increased reliance of clients on online services during the Corona lockdowns has possibly become a routine that may increase the share of online services, as compared to physically supplied ones, thus possibly bringing about additional closures of shopping malls, stores, bank branches, etc. The almost complete lack of international merchandize shipping during this period has strengthened the status of domestic suppliers. This preference for the domestic might possibly be reduced again once global leaders of online shopping such as the US Amazon company and the Chinese Ali Express return to full service.

Technological infrastructure

Information transmission turned out as the only undamaged mobility type during the Corona lockdowns and this has affected local, domestic and international traffic alike. Thus, information transmission flourished during the Corona crisis, with platforms for video business and pleasure group meetings, such as Zoom, Skype, Webex, and the like,

becoming extremely popular. The growing use of Internet traffic has created many pressures on infrastructures. It is, thus, expected that 5G (fifth generation) communications for mobile traffic will be much faster installed and adopted, side by side with fibre optic networks. In addition, one may expect that the available platforms for video group conferencing will be upgraded, notably as far as security is concerned.

Tourism

The economic activity that has been hit most by the Corona crisis is tourism, being halted both domestically and internationally. However, since people need some form of escape from the routine of work, pleasure tourism is expected to be restored. However, it will be easier to restore domestic tourism than international, given the international expansion of the Pandemic through people's international flights. International tourism has become a leading economic sector in many countries, so that it is reasonable to expect that proper procedures will make it possible for tourism to return to previous levels, if a vaccine for Corona is found and then widely adopted. The restored international tourism activity might involve numerous new precautions implemented in airports and airplanes. It seems that automatic temperature checking for travellers and their submission of some health declarations and probably some form of social distancing will be imposed at least for several years. Air-conditioning systems for airplanes will have to become more effective for cabins, and changing seating arrangements may also be required in order to impose distancing, possibly just as a precaution, at least temporarily.

Production and trade

The almost complete cut in international trade during the Corona crisis, given the shutdown of most factories and the cancellation of most flights, may bring about governmental policies for the production of medical supplies domestically, and in the case of future virus crises, this will be coupled with the onshoring of production as well. In addition, governments may also impose wider emergency food accumulations. These trends do not seem to carry any significant urban changes for most cities. The question is, though, whether the globalization of production and trade will gradually return to the pre-Corona rather extensive levels, bringing about a ranking of cities by their levels of global activity in finances, harbour and airport sizes, touristic attractivity, and the like (Kellerman, 2020). The infrastructures for global human, material and information exchanges are still there, and the necessary organs for their operations still available. Thus, it will probably be more of a political question rather than an economic one, in terms of which level will restored globalization reach, and this is also mainly in the light of the American–Chinese conflict.

In summary, then, the post-Corona city will not be a revolutionized one, compared to the pre-Corona one. The most important change will actually constitute a wider move of activities to virtual channels, which on their part may bring about changes in urban land-uses. Commerce and services will become less prominent in urban landscapes, but it is still too early to speculate on the alternative land-uses which may possibly replace them.

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Trillion dollar streets

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Cities are islands of private property connected by public space. But even though public space represents a substantial amount of a city's surface, its uses are limited mostly to the circulation of cars.

Forty-nine percent of the land in Manhattan is public, not because Central Park is big, but because streets represent 36% of the island. That means that in Manhattan alone more than $500 billion worth of land is dedicated almost exclusively to cars (*Bloomberg.com*, 2018).

Of course, streets are necessary. But our current allocation of public space may be far from optimal. In the US, trillions of dollars of land in prime locations are dedicated to streets and parking spots. But it doesn't have to be this way. Compare Tokyo to New York. The Asian mega city dedicates only 29% of its surface area to streets. This 7 percentage-points difference is due in part to Tokyo's restriction on on-street parking.

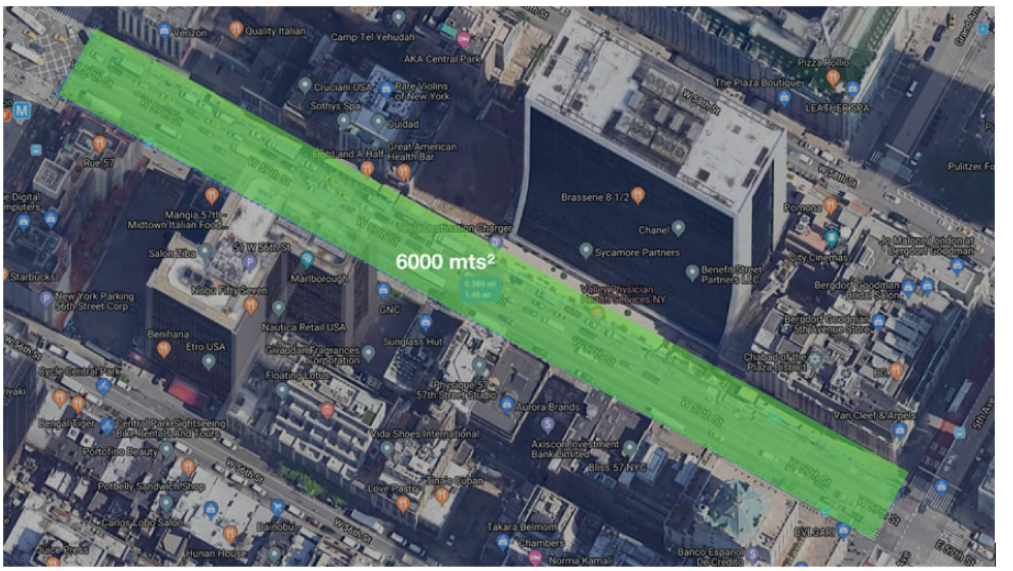
Covid did not evolve to change our cities, but is certainly giving us an opportunity to do so. One place where the disease has put enormous pressure is on the excessive allocation of public spaces to cars. Cities across the world have closed hundreds of miles of roads in an effort to open streets to their residents (*Streetsblog USA*, 2020). But to reduce the spatial footprint of cars, cities will need more than goodwill and orange cones. They will need to solve supply side and demand side problems.

On the supply side, public transportation is the obvious substitute to private vehicles (although they do not solve the problem of package delivery). But for a change, I would like to focus on the demand side of the problem.

The demand side question is: who wants to keep cars out of the streets and actually has the power to do so? Here the obvious solutions are to increase the space dedicated to bicycles, sidewalks, and cafes (Manjoo, 2020). But once we consider the land value of streets, more radical alternatives come into play.

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Consider a single segment of 57 street in New York (let's say between 5th and 6th avenues). This is ~6000 square meters (1.48 acres) of land in Midtown Manhattan. The land alone is worth hundreds of millions of dollars, but transforming that single street segment into parks and a single skyscraper (occupying 20% of the street), would result in billions in new property.[1] That's millions of dollars in new tax revenue for the city and hundreds of new residential and commercial units.



Of course, this idea seems far-fetched. We are now in a depressed economy with people retreating from cities. But the agglomeration forces that gave rise to megacities will not vanish with the pandemic (Balland et al., 2020; Diodato et al., 2018; Ellison et al., 2010; Mulligan, 1984). Before the pandemic began, traffic in midtown Manhattan was not much faster than walking (5 to 7 mph) (Manjoo, 2020). It is hard to justify streets with such low transportation efficiency. The demand for real estate will return, and when it does, the lobby of developers may be more powerful than that of Detroit.

If you accept the idea that some streets should evolve into parks and buildings, the question is then how to do it responsibly. Transforming 1% of Manhattan's streets into real estate is an enormous market opportunity, but it is one that will not self-regulate. It will require thinking carefully about the use of this opportunity to create mix used neighborhoods that accommodate people from diverse incomes and backgrounds. It will require thinking how to use the new real estate tax revenue in ways that support these communities, with added transportation, health, and education services.

Opportunities are fleeting. Covid is giving us a chance to rethink everything. It is up to us, to think creatively and explore new ideas as best as we can.

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Note

1. 50,000 square meters or real state in midtown Manhattan are worth about a billion dollars.[1] For reference, Trump tower has nearly 90,000 square meters.

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Policy challenges for the post-pandemic city

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2020 was meant to be a relatively uneventful year in the global transition to a largely urban world. Half the world's population was already living in cities, projected to rise to two-thirds by 2050. The world's urban centre of gravity was moving, or rather returning, East. Moreover, in many parts of the world, a new type of urban structure had emerged – the polycentric mega-region: groups of cities in which populations and economic activities are linked over a wider geographical area, facilitated by improvements in transport (high-speed rail), technology (high-speed internet) and global connectivity (airports and seaports).

But 2020 didn't follow the script. A global pandemic, on a scale not seen for a century and with echoes of earlier plagues, has upended established economic, social and physical norms, and seems to threaten the rise of the city. Are we now headed for a new Age of Dispersal – an era marked by lower population densities, lower rates of mobility – especially long-distance mobility – and the growing importance of smaller cities and towns?

Over the last 30 years, an elite group of cities has thrived as key nodes of the global economy, attractors of talent, ideas and wealth in an ever-more-connected system. But in the last few months, we have glimpsed a looking-glass world where the very benefits of global cities – high degree of connectivity, density and agglomeration – have been found also to be vulnerabilities.

Building on the work of Jean Gottmann (1961) in his study of the Boston–New York–Washington 'megalopolis', Peter Hall, working with Kathy Pain, defined the term 'polycentric mega-city region', and characterised it as arising from the long-term process of very extended decentralisation from big central cities to adjacent smaller ones, old and new (Hall and Pain, 2006). This process was accelerated by late 20th century regional developments in East and South-East Asia, in places like the Pearl River Delta and the Yangtze River Delta in China, the Tokyo-Osaka corridor in Japan and Greater Jakarta. Each city and town within the network is both its 'own place' and also part of a wider functional urban region, held together by 'dense flows of people and information carried along motorways, high-speed rail lines and telecommunications cables'.

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Polycentric, mega-region structures may have some advantages over the traditional urban pattern in which a dense centre of concentrated economic activity is surrounded by successive rings of mainly residential development. A polycentric model might be more flexible in accommodating necessary post-COVID changes, by spreading out economic activity while retaining connectivity and some aspects of centrality. If high-speed rail has to carry many fewer passengers per carriage to allow social distancing, then two-way or multi-way commuting may, along with home-working, be part of the solution. A multi-polar mega-city could allow more scope for people to live closer to decentralised employment, while still facilitating central agglomeration for those 'apex' economic activities which most require it.

It is far too soon to understand fully what the medium and long-term impacts of the COVID-19 pandemic might be. But we can already see how both the pandemic itself and the non-pharmaceutical interventions taken in response to it have accelerated existing trends. In sectors of the economy such as financial and other business services, technology and government, we have seen a huge rise in working from home. This experience of 'telecommuting' will have long-term consequences, speeding up both digital transformation within firms, and the attitudes and behaviours of both firms and workers.

Nevertheless, agglomeration economies still hold: proximity brings economic benefits in terms of creating and developing ideas, diffusing innovations, reducing costs, deepening labour markets and maintaining institutional resilience and trust. Most of us (there are outliers) value some balance between the independence of working from home and the social contact that a work environment provides. Cities have coped with and responded to pandemics and other natural and man-made disasters for centuries. Previous pandemics had economic and social effects, some long-lasting – but do not appear to have fundamentally changed the direction of economic and social development.

However, many firms will now re-consider (or consider for the first time) the balance of costs and benefits for distributed versus concentrated working, and the bottom-line value of expensive large national or international meetings and conferences as against online events. Skilled workers may choose to live in more affordable or higher amenity locations relatively distant from their workplace if the daily commute is replaced by working from home supplemented by weekly or monthly in-person meetings. On the supply side, social distancing may be with us for some time, reducing the capacity of offices and other workplaces, as well as public transport networks. Mass commuting cannot be assumed to return to past levels, in the light of behavioural change from workers and employers.

The habit of online shopping will now be engrained with many consumers who might not otherwise have had the experience, and it seems likely that at least part of the shift to online will persist. High streets may become home to a wider range of uses, including more employment and housing.

The picture is much less clear regarding urban mobility. We have seen two contradictory trends in many places over the last few months. On the one hand, action by mayors and city leaders to provide more walking and cycling by re-allocating roadspace – under-used by vehicle traffic in the lockdown – to walkers and cyclists. On the other hand, a continuing 'fear of transit' on the part of the public leading to an increase in car use (Wright, 2020) as activities resume. It is not clear how these contradictory trends can be resolved; it certainly raises again the arguments for greater use of congestion charging and road pricing.

For the leisure, hospitality, culture, night-time economy and events sectors that are a vital part of many global city economies, social distancing is not just an additional cost factor but a possible threat to the viability, or at least the size, of these sectors. Adaptations are possible – the use of screens and masks, limiting attendance, strict social distancing,

making better use of outdoor spaces such as car parks. But if social distancing is to remain for any length of time, there will be long-term impacts on these sectors.

It was already the case that declining air quality, rising costs and lack of affordability, traffic congestion and other urban ills were checking the attractiveness of large cities. As William Frey (2020) of the Brookings Institution has shown, in the United States, the major metropolitan areas grew faster than the rest of the country in the first half of the 2010s, but in the second half of the decade, they suffered slower growth and even declines in population. Meanwhile, smaller cities, suburbs and rural areas had more modest declines and even population gains.

The pandemic accelerates this trend and perhaps points towards a flatter hierarchy of cities, with a stronger role for medium-sized and smaller cities, where urban benefits can be better balanced with increased demand for space (both internally and externally) and non-urban amenities.

In the UK, London's economic productivity and success has continued to outpace all other regions (Anderson et al., 2020). Much of the UK increasingly relies on fiscal transfers from an ever-growing and ever more successful London (or, rather, Greater South East). This is not desirable and is probably not sustainable. Some relocation of economic activity, within a growing national economy, out of the central area to other parts of London and to second- and third-tier cities is probably both feasible and desirable. But on present trends and policies, this economic decentralisation is likely to be small- and medium-sized cities in the Greater South East and to provincial cities that are well-connected to London, rather than to economically lagging areas. In this context, it might be more useful to think about the current investment in high-speed rail (HS2) in the UK not as part of 're-balancing' the UK economy, but rather as assisting the evolution of much of urban England into a single mega-city region focussed on London. Is this a desirable goal for policy?

What about changes *within* cities? There might be some re-balancing of activity and investment between the Central Business District and secondary centres within the same large city. Market mechanisms – changes in demand, prices and rents – will drive this but could be helped (or hindered) by government policies. Crises can be a spur to action, and even an opportunity to develop a more equitable and sustainable city. But there is just as much risk or more of an (even) more unequal city. We are already seeing that the pandemic and its aftermath clearly impacts differentially on different social groups and economic sectors.

The lure of the city remains, and successful cities adapt and change. In the Great Plague of 1665, Newton left Cambridge to 'work from home' in his native rural Lincolnshire on calculus, optics and of course gravity. But later he moved back to Cambridge to continue his work, and then to London to become warden (later Master) of the Royal Mint, and after that, President of the Royal Society. Three centuries later, in the decades after the Second World War, London's manufacturing base dwindled to a fraction of its former self, and the Docks, the hub of the world's goods-trading economy, were closed. But London was reborn as a city of services – financial, business, educational, creative, cultural, scientific, technological and more.

We do not yet know the long-term impacts of the COVID-19 pandemic. It may be that our BC (Before Covid) era will give way to a new era AD (After Density). But cities – in perhaps a different form now – will still be an important part of the picture.

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Big yellow taxi

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The coronavirus pandemic presents profound ironies for urbanists, as urban form finds itself playing a leading role in "what's to become of our cities?" conjecture. At the epicenter is the topic of density: is too much harmful because we can't distance ourselves? Or is too little harmful because it lessens access to facilities like health clinics? There are renewed debates about service inequity (what neighborhoods have adequate public space? And essential services like grocery stores?). And environmental racism has been glaringly exposed—chronic exposure to polluted air leads to more severe respiratory illness, putting people at risk for complications from COVID-19. Why have we allowed housing next to highways and power plants, and why is this housing predominantly occupied by people of color?

I've been thinking a lot about the concept of "social distancing" as it relates to good urban form. Social distancing is especially paradoxical for urbanists because it comes up against a long-held urbanist principle: that urban social diversity and the inter-mixing that occurs is something to cultivate, not flatten. How are we supposed to think about the goal of neighborhood-based social mixing at a time when we are being told to stay in our household bubbles, stick with our own social group, and avoid "others"?

A century ago, the sociologist Robert Park wrote about the phenomenon of "social distance." What he was referring to was that people in diverse, dense cities tend to find non-spatial ways of keeping their distance. Proximity alone, in other words, does not achieve a meaningful type of social integration. In an ironic twist of phrase, social distancing in pandemic-speak has come to mean the opposite: social distancing in otherwise dense, diverse settings is not about social morays and staying aloof and being unfriendly, but about actual, physical distancing. This is a dynamic that is the near inverse of what Robert Park was writing about.

Let me offer an optimistic view of what this might mean for urbanism in the future. My hope is that, in the long run, forced physical distancing will mean that urban residents will acquire a more acute sense of their local surroundings—their neighbors and their neighborhoods. This will be both a gradual and a dramatic change, since for at least the past 50 years the neighborhood has tended to be very loosely understood. The neighborhood idea has been obscured because we can obtain services and goods anywhere, have

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fluid, non-proximal social contacts, and perceive our local environment as being complex and geographically broad. Everything a localized social grouping might have been based on seems to have long-lost relevance: extended families living in the same locale, face-to-face communication as the main form of social connection, the close integration of work and residence, daily shopping at the corner market.

But—and here is the potential silver lining—as we are now forced to double-down on internet-based social connection—*on top of physical distancing*—I think this might force many of us to start appreciating what a localized sense of place and a physically enabled form of social connection actually means in our lives. Before, we had the *luxury* of virtual social connection, augmented with a completely optional form of social interaction (on the street or at the local shop) when we happened to be in the right mood. With third-place social interaction severely constrained or even taken away, we might develop a renewed sense of its importance. In other words, if those interactions are taken away from us by force, might we learn to appreciate them acutely, in the spirit of "you don't know what you've got til it's gone?"[1]

A different but related outcome is being postulated for urban retail. As more and more people continue to work from home, the theory goes, main streets will be increasingly relied upon to service home workers throughout the day. A closer integration between workspace and the public realm—"pop-up offices, meeting pods, and technology centers linked to town squares"—will motivate more investment in public space (Woods, 2020). The rise of neighborhood-based co-working will stimulate main street retail, especially for businesses that had already been integrating online delivery and storefront operations. There will be an emphasis on localizing and staying away from everything "big" (e.g., large workplaces like office towers), which is likely to be good for main streets. Shopping and working on a retail street might start to feel like "an act of civic engagement" (Wilson, 2018).

In the U.S., we have a long tradition of idealizing local attachment. Many Americans would say that caring about the places around us—streets and sidewalks, parks and schools, shopkeepers, and institutions—is the very root of democracy. Alexis de Tocqueville's *Democracy in America* chronicled this American spirit—the importance of local place, participation, and the uniquely American ethos of active commitment to it.

And yet this localized existence has always seemed just out of reach. We seem to lack the right apparatus for its effectuation. The local place/local participation root of American democracy has instead swirled around in our psyche as an untethered, idealized, and impractical notion. Elsewhere (Talen, 2018) I have wondered whether the effectuation piece that is missing is a concrete sense of neighborhood, a way of bringing together ideals about place, participation and social connection and anchoring them to the land. Now I'm wondering if COVID-19 is handing us the motivational spark that was needed.

I am not the first to recognize that the pandemic is energizing "collective infrastructure."[2] What I am hoping is that a more potent force will emerge—a widespread constituency that will come to see the value of the place-based neighborhood as a tool of community activism and empowerment. The situation pre-pandemic was that a handful of dedicated individuals carried the neighborhood activation load. Could the pandemic have the effect of broadening and deepening commitments and caring? Could it ultimately be the antidote to complacency?

Urbanists with an urban design bent often argue that the form and design of the neighborhood, if it adheres to certain principles, promotes neighborhood identity and potentially, civic identity and spirit. And by the same token, a physically deteriorated neighborhood or a widely dispersed neighborhood works against neighborhood and civic identity. Rather than treating the neighborhood like a convenient geographic locator, or, as Jane Jacobs

lamented, a "valentine," we need to become more invested in neighborhood spaces, places, built forms—and neighbors. When we emerge on the other side of the pandemic, will we retreat once again to neighborhood irrelevance and obscurity, or will we orient ourselves in locally place-based ways to combat isolation and exclusion, and promote empowerment and connection within and without?

Along with the importance of good neighborhood design principles, it will be necessary to develop better skills of self-governance—the ability of residents to come together to form a collective response. Biologist David Sloan Wilson (2011) has elevated this to a science. He stresses the power of events—a neighborhood gathering, a contest to renovate a vacant lot, or any number of opportunities for "collective action"—all "richly informed" by scientific principles about self-management and spontaneous social control. When social distancing is finally lifted, let's be ready to act on whatever pent-up demand for collective action that might now be taking root under our imposed, stay-at-home isolation.

When all is said and done, when we are back to urban life as usual, maybe we will have learned to care more deeply about collective, neighborhood-based action, to value our neighbors and to value our public spaces. Or at least, maybe we will come to be less interested in "social distance" in the Robert Park sense of the term.

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Notes

1. Joni Mitchell, *Big Yellow Taxi*.
2. See www.yesmagazine.org/social-justice/2020/07/07/new-york-immigrant-community/

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The enabling conditions of post-pandemic city government

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Most visions of the post-COVID-19 city concentrate on opportunities and expectations of the urban future, rather than why cities across the world have managed this and previous pandemics so badly or how an alternative pandemic-proofed city might be achieved. Perhaps we are an inherently optimistic species, or more likely, issues of public administration, institutional reform and state systems are boring to most people and even to many urban scholars. Yet, over the last year, widespread failure of effective government preparation and response to a predicted outbreak of disease is a stark warning that, for even a very basic post-pandemic recovery, all cities (big and small, rich or poor, progressive or conservative, old or new) have to be governed better and governed with very different outcomes in mind. We will need to reset the parameters and expectations of urban government, refocusing on issues of bureaucracy, state craft, public administration, planning and urban public policy.

Central to making cities, where COVID-19 and many other pandemics have concentrated, safe from diseases is the imperative to protect the public good as a foundational principle of all state action, including at the city scale where local understandings of the built environment, social protection, environmental and economic dynamics underpin the deep contestations that mark out local from national political practice. The normative positioning of (local) states will require scrutiny but the point of this intervention is more pragmatic – I argue that building capable states that can action the urban commitments of the global body politic is essential. Paradoxically for some, the question of post-pandemic urban government emerges not only as a purely local concern but goes to the heart of international problems of government in the twenty-first century.

For COVID-19 reconstruction to work, all of government has to become more active and visible not just in rolling out stimulus packages but in making the much long-term commitment to reshaping how urban systems function for the public-good and how money and power are distributed at the sub-national scale to provide protection to the vulnerable and uphold safety and security for all. Pandemic proofing cities, like urban climate proofing or

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localizing the Sustainable Development Goals (SDGs), requires major adjustments in the rationale, operation, capacity and power dynamics of the government of cities. When these long-term goals and their implementation plans are considered in concert as they must be at the city scale, synergies and contradictions will emerge and the delivery mechanisms will have to be adjusted. National urban policy and city strategies, led by government, will need to be amended, and aligned to navigate incommensurability across the multiple aspirations and competing demands (Keith et al., 2020). The state is the hub of this form of strategic integration and prioritization, acting as it does both as a political and technical arbiter. Moreover, it is government that must co-ordinate temporal sequencing, spatial and fiscal targeting, legal reform and technology choices linked to the implementation of large-scale change in development trajectories of the kind that pandemic mitigation and recovery and other global challenges demand.

Government cannot define urban strategy or run cities alone, but healthy cities (like resilient cites, climate proofed cities or inclusive cities) cannot be achieved without well-informed and effective government that has credibility, capacity and good information at the local scale. To achieve pandemic resilient urban places, the instruments of national and local government have to be repurposed to address the pressing challenges of the day. Current urban fiscal systems have to be upended to ensure locally viable tax revenues, access by local government to capital to deal with infrastructure and investment needs must be enhanced – cities need enough fiscal capacity to drive subsidies and sustain operations on which healthy populations depend. In response to local needs, cities are well placed to drive local redistribution programs and provide social safety nets. Improved intergovernmental co-operation and high levels of expert advice is essential if biomedical, infrastructural, economic and social imperatives are to be aligned; and for most contexts, greater decentralization to ensure locally appropriate risk preparation and response will need to be advanced.

Post-pandemic reworking of urban government entails not just the reform of law, finance and the powers and functions of the state, but also a major reskilling of the civil service. It is not sufficient to simply expand the size of the state in response to the COVID crisis, though in some contexts, especially in cities of the global south, a bigger, stronger and well-financed local state is imperative if city government is to effectively serve and protect all residents before, during and after the pandemic. To properly respond to the scale and complexity that crafting post-COVID city government implies, there must be radical adjustments made to the qualification frameworks of civil servants, professional standards and the training emphasis of the millions of service providers who make cities work on a day-to-day basis. In short, a fundamental reworking of key elements of how we govern cities is required – though the form this will take will vary hugely from Detroit to Dakar.

Post-pandemic visions of governments' imperatives must embrace and not displace other transformative urban agendas – a tricky balancing act that demands good leadership and state capacity across the urban system alongside a functional multi-lateral system (Acuto, 2020; Connolly et al., 2020). If we want a more secure urban future, the government of cities, all cities and their interconnections, must be made fit-for-purpose. In a post-COVID era, and so the role of 'development' finance and is obliged to take more seriously the global urban question. What post-pandemic fit-for-purpose city government means is reworking the fundamental modes and practices of urban government to achieve universal rights and standards that safeguard human health. This was always the morally defensible position, now that the reminder that city, national and regional boundaries are no barrier to virus transmission, it is again clear that upholding universal aspirations for every city to be well enough governed, that it is possible to ensure that no one or no place is left behind, is also a strategic decision.

Conclusion

While there is no question that the global experience of disease has highlighted that what government does matters, the focus has fallen largely on global and national health governance and risk management and not on the local prism of regulation and enforcement – a corrective is due. The utopian reconfiguration of city networks, sidewalks, public transport systems, health and safety regulations and social safety nets, however, presupposes investing massively in building a capable state that functions in and for the city. Central to the global post-COVID-19 reconstruction of urban government capacity is a recoupling of the health and planning agendas and the foregrounding of the governance imperatives for realizing long-term public good objectives in cities. Building state capacity for realizing post-pandemic cities in ways that also work to advance the SDGs and other crucial developmental agendas might focus on (i) the governing imperatives of affordable, sustainable and universal built environment functions (water, waste, transport etc.); (ii) ensuring multi-scale and multi-sector state functionality at the city scale (devolution and cooperative government); (iii) generating effective government through mobilizing the interfaces between urban experts, administrators and political actors; and (iv) building robust data and analytic capacity to help mediate the complex decisions that governments must make to rebuild, literally, the places in which we live to make them less exposed to risk.

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A "Smart Lifestyle" for the re-design of the "After Corona" urban form

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As COVID-19 spreads around the world, many cities have shut their borders, and digital capabilities for dealing with this issue within the city boundary have become fatally important. Due to the unexpected scale of the impacts and the lack of experience with this threat, cities are struggling to find appropriate ways to respond. Cities that could successfully control the virus spreading, at least temporarily, will soon start looking at a long-term policy that would make their cities more resilient. Some innovative ideas need to be tested to realize a "Smart Lifestyle" using digital technologies such as Big Data and Artificial Intelligence. Based on the discussions that are being coordinated between urban researchers and policy makers, it is hoped that a "Smart Lifestyle" will be successfully implemented for recovering economic activities while maintaining appropriate social distancing. For this research purpose, there is a huge demand for the use of near-real-time Big Data that would guide city governments in understanding what is actually happening and to discuss the appropriate actions that need to be taken to revitalize the economy safely. Global cities need to develop plans for improving their "After Corona" urban resilience.

City policy makers tend to set priorities on revitalizing the economy through incentives and subsidies. However, there is also the need to recover from the social and mental impacts of Corona. Different agents show heterogeneous responses to these policies. Not only health and the economy, but also environmental and sustainability tradeoffs need to be carefully considered in the recovery process. What will be the new normal lifestyle? Perhaps it will be difficult to return to the previous lifestyle after this crisis. In this situation, it is worth exploring smarter ways to cope with the complexity of these issues by making use of digital technologies.

What should the "After Corona Smart Lifestyle" look like? What kind of urban forms will emerge from these human behavioral changes? Perhaps it is a very critical moment for urban researchers to lay out the possible dynamic urban form scenarios to challenge this once-in-one-hundred year game-changing opportunity. For starting these discussions, we

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briefly report some preliminary results from recently initiated urban analytics research on human behavioral changes due to COVID-19 in Tokyo (January–March 2020). We also discuss the opportunities for designing "After Corona" urban form scenarios.

Figure 1 (top) shows urban carbon mapping of Tokyo with the averaged CO_2 emissions at 10 a.m. during the last weeks of January, February and March in 2020. For estimating CO_2 emissions from individual buildings, we collected activity and energy intensity data from these buildings and 3D GIS data for building infrastructures, as well as the building occupancy data from the Google Maps API (Popular times). For estimating CO_2 emissions from cars, we used mobile Global Navigation Satellite System like GPS data (>250 M daily records), which were acquired from smartphone applications; the transport modes (cars, trains and walking) were then classified from the GPS trajectories using machine learning algorithms. For the associated methods and their applications, refer to Yamagata and Seya (2019) and Yamagata and Yang (2020).

During this period in Tokyo, companies and universities gradually started to work online from February. Consequently, compared with January, people's mobility activities (using cars, trains and walking) in February and March decreased by 6.1% and 18.3%, respectively. The estimated total CO_2 emission reductions, as well as the reduction in each mobility type, are also displayed in Figure 1.

For supporting the discussions about the "Smart Lifestyle" scenarios, we have simulated and visualized three possible urban form impacts on CO_2 emissions in Figure 1 (bottom). To assess the implications of these "Smart Lifestyle" urban forms, we also need to consider the interactions between the economy, society and environmental sustainability in an integrated manner. This urban carbon mapping is just one example of the key performance indicators that should be used as a tool for evaluating possible scenarios by urban planners.

As shown from these preliminary results, urban researchers can support city policy makers in understanding crisis situations by visualizing the semi-real-time human behavioral

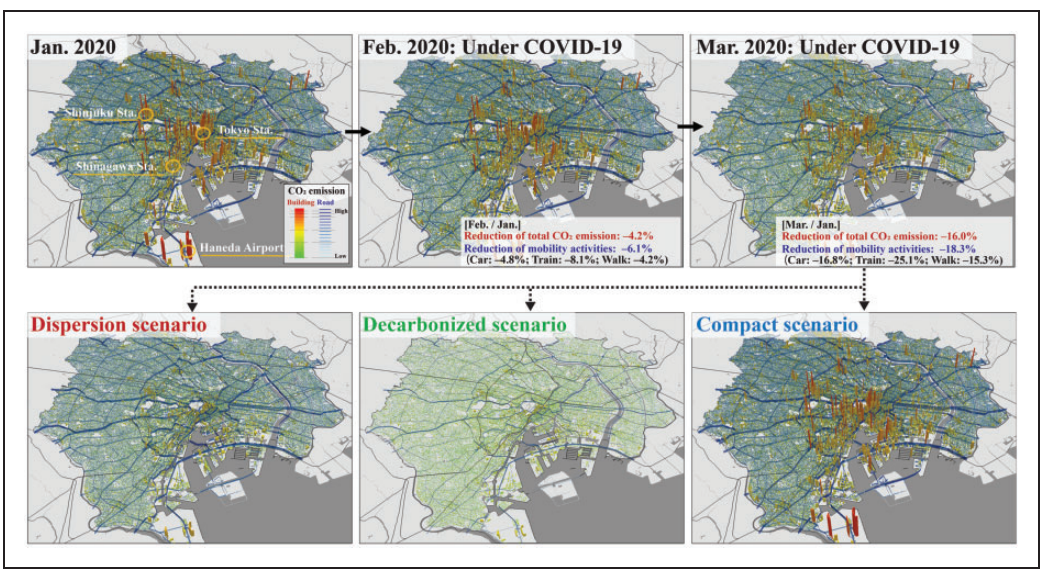


Figure 1. Urban carbon mapping in Tokyo: (Top) 10 a.m. during the last week of January, February, and March 2020. (Bottom) Possible carbon emission implications of three different "After Corona" urban form scenarios.

changes observed. Using this information, city stakeholders can brainstorm on the shape of the "After Corona Smart Lifestyle" to mitigate infection risks while revitalizing the economy. In the longer term, we should be able to help urban planners to come up with better evidence-based decisions to change urban forms that better fit the "Smart Lifestyle" and would also protect future generations in terms of climate change mitigation and achievement of the United Nations Sustainable Development Goals.

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