

PERSPECTIVE COLUMN

The World Has Changed: The Smart City in the Post-COVID-19 World

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By Morris Ellison

The world has changed! The news of the hour commands our attention as we react to the COVID-19 crisis. Some changes will certainly outlast the current pandemic. Stay-at-home orders and the current crisis's economic impact have changed the way we view real estate.

Technology has made location less important. Obtaining and analyzing reliable data almost in real time seem to be the key in reacting appropriately to the crisis itself. The concept of Smart Cities, cities that use data to improve delivery of city services, has been around for years. This article argues that data's importance supports swift implementation of 5G networks and that Smart City technologies can help address the current crisis in both the immediate and longer terms.

The article then explores some of the possible long term impacts of the current crisis on real estate and the importance of data to real estate uses and values.

However, use of these technologies may come with a price. The article shows how the current crisis has brought into sharper focus the inherent tension between access to data and privacy. How we strike that balance requires significant public debate and remains a very open question.

SMART CITIES AND TECHNOLOGY

So, what's a "Smart City?" Smart Cities use technology



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(cloud, analytics and IOT [Internet of Things]) to collect and use data to expand capacity and improve delivery of public services. For example, a Smart City can use technology linking vehicles, smartphones and traffic signals to send traffic signal count information to nearby vehicles, warning drivers of potential hazards.

Many experts have suggested that earlier access to data regarding the extent, and rapid spread, of COVID-19 could have allowed for ramping up production of treatment/remedy options, masks and ventilators as well research into vaccines. A city can use smart technologies to analyze infection patterns and improve response. For example, one report has suggested that governments

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could harness smart technology to monitor vehicle and pedestrian traffic, to check whether we're observing social distancing rules and to trace our contacts.¹

5G

If data is the Smart City's "currency of the realm," the transmission network is the backbone. In the United States, that currently means the existing fourth generation (4G) network which is being replaced by fifth generation (5G) technology. Sensors are a key source of data and 5G enables cities to collect more data faster.

5G has not yet fully arrived in the United States but will critically speed up data collection and analysis.

Eric Schmidt, former CEO and executive chair of Google, has written that "if we are to build a future economy and education system based on tele-everything, we need a fully connected population and ultrafast infrastructure. The government must make a massive investment—perhaps as part of a stimulus package—to convert the nation's digital infrastructure to cloud-based platforms and link them with a 5G network."²

Time was, and is, mission critical for the current and future public health emergencies or other widespread similar disasters. How much better would the response have been had 5G and Smart City technologies been more readily available?

REAL ESTATE AND THE IMPORTANCE OF DATA

The importance of access to data as we work and shop remotely has diminished the importance of location in the way we think about real estate.

Office

COVID-19 has de-emphasized physical location while placing a premium on being able to work remotely. For some, working remotely is possible - a norm or an inconvenience. For others, such as restaurant or hotel workers, working remotely is an impossibility. Access to bandwidth is critical to remote workers.

Since the declaration of COVID-19 as a national emergency, home internet use and wireless connectivity

in the United States have largely withstood unprecedented demands.³ One study estimated that average data consumption per household in March increased approximately 11% over the previous monthly record.⁴ Another report estimated that 59% of American cities had shown signs of potential network strain for the week ending March 28, 2020 with 13.5% of cities seeing dips of 20% or more below their usual range in median download speeds.⁵

Resilience has depended in part on a series of temporary patches, reconfiguring networks to reflect the shift away from intensive internet use in commercial centers to a more distributed pattern of pressure on bandwidth as workforces disperse. Regulators in some jurisdictions (including the United Kingdom) have issued guidelines calling for limits on streaming and online gaming during core working hours, while reserving powers to ration bandwidth should networks begin to falter under the strain.

After having most of their workforces work online, office tenants will likely question the need for some of their existing office space, putting downward pressure on office rents and future office space demand. Landlords and businesses must ensure that they have access to this bandwidth at any location in order to maintain the steady flow of data.

Manufacturing and Health Care

Crisis shifts demand: supply must adjust. For years, supply chains have relied on "just in time" deliveries in order to minimize inventory and other costs. This system works well when the supply chain fully functions, *but the COVID-19 crisis has illustrated how this method fails in a crisis such as a public health emergency.* Had we had sufficient facilities in the United States to deal with the rapid increase of patients or sufficient masks and ventilators in stock, that capacity would have lied fallow prior to COVID-19. How do we create the flexibility, and product supplies, to respond to a drastic unanticipated spike in need? The answer, again, is data.

Crises, such as World War II or the current pandemic, result in demand increases and require production ramp ups, placing a premium on swift reaction to trends, i.e.,

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reacting and meeting the increased demand in hours or days rather than months or years. Real-time data helps manufacturers identify trends and react more quickly and directly that would have otherwise been possible.

Schmidt suggests that specialists in big data analytics should turn to modeling distribution networks for life-critical medical equipment to develop real-time tracking and data visualization platforms.⁶

There are also significant ongoing implications for insurance and liability stemming from the emergency reallocation of manufacturing capacity. While many businesses are willing to switch production to medical visors, masks and other personal protective equipment, few are comfortable with the risks stemming from defects in design or manufacture that might result in infection. Concerns about prospective litigation might deter both immediate resource reallocation and ongoing commitment to retaining and developing the know-how gained from responses to the current emergency.

The current crisis illustrates the importance and rapid analysis of hyper-current data. Cities (and real estate) with access to data, particularly available through 5G networks, will have a significant leg up in competing for businesses, manufacturing, supply chain logistics, and other, and workers in the post-COVID-19 world.

The need for developing flexibility to meet unanticipated need applies to hospitals and similar facilities as well as supply chains. Public health systems will need to determine how to maintain rapid new capacity *without building it*.

Telemedicine supplements, but does not replace, inpatient care. The COVID-19 crisis will likely increase the emphasis on telemedicine, particularly remote patient monitoring. The Smart City will need to help reset the balance between telemedicine and inpatient care.

Retail

Consumers' shift to ordering even more goods online raises additional questions concerning the future role of bricks and mortar retailers. The shift to online retail

is certainly not new, but the COVID-19 crisis has accelerated this trend, perhaps permanently. Amazon has announced a plan to hire an additional 100,000 workers⁷ while Macy's and Gap have furloughed most workers.⁸

The COVID-19 crisis will likely mean that consumers will rely much more heavily on deliveries of goods than previously thought. When we are once again allowed to assemble, retail centers focusing on creating an experience for consumers, are much more likely to thrive.

In the current crisis, many landlords and tenants have focused on *force majeure* and compliance with applicable law lease provisions to determine whether rent is to be excused. Longer term leases with percentage rent provisions will likely face more pressure where sales migrate to the internet.

Residential

COVID-19's impact on residential real estate is less clear. "Social distancing" and "stay at home" orders have become the norm. Assemblies of more than ten (or even two) people have been prohibited. Over the longer term, fears generated by living and socializing with neighbors may result in a retreat from multi-family developments. However, such a reaction would fly in the face of the trend to increased urbanization and density.⁹

IMPACT ON STATE AND LOCAL GOVERNMENTAL BUDGETS

The COVID-19 crisis has dramatically impacted city and state budgets. Busted budgets on the expense side can be expected from substantially higher government expenditures.

But the crisis will also likely create a revenue problem. Most local governments depend heavily on revenues from ad valorem property taxes. One article suggests that the crisis will blow "massive holes" in cities' budgets with 96% of cities seeing budget shortfalls due to unanticipated revenue declines.¹⁰

As discussed above, the values of office and retail properties almost certainly will decline, at least in the

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short run. Similarly, the shift to intangible value from the value of tangible bricks and mortar assets will also likely accelerate and reduce tax revenues.

THE INCREASED OPPORTUNITIES AND DANGERS POSED BY CYBER

As more workers work remotely, businesses will need to rethink security protocols. Working from one's kitchen table is not likely to replace office work completely but it appears highly likely that there will be more of it.

Even before the COVID-19 crisis, many professional services firms allowed professionals to work remotely, often requiring multi-factor authentication ("MFA") to assure the security of applications. The COVID-19 crisis forced many firms to instantaneously expand the capability of staff to work remotely and to adopt new security protocols, often on the fly. Whether MFA sufficiently protects data from hackers with more workers now working from home is an open question.¹¹

And it's not as if the hackers are not trying. Barracuda networks estimates that between March 1 and March 23, 2020, phishing attacks increased 667%.¹²

Many have adapted to the current crisis by holding virtual classes and meetings using Zoom. However, questions have been raised about unresolved cyber¹³ and privacy issues.¹⁴ Zoom and some of its competitors have not let the security problems, including "Zoom-bombing," go unnoticed, and have increased the security of their platforms and services – the ongoing battle between hackers and providers continues.¹⁵

In the post-COVID-19 world, we will likely see a shift away from more traditional jobs to technology based jobs such as cybersecurity. Prior to the COVID-19 pandemic, one source estimated that more than 500,000 jobs were available¹⁶ with another source estimating starting salaries ranging from \$36,000 to \$130,000 per year.¹⁷

PRIVACY CONCERNS

Privacy concerns have dogged some Smart City projects such as Sidewalk Labs in Toronto.¹⁸ Similar concerns have been voiced with some of the responses to the

COVID-19 crisis. Over the past few decades, users of internet services and technology have been willing to relinquish some significant degree of privacy in exchange for technology's benefits. The COVID-19 crisis has brought this tension into sharper relief.

There is much to suggest that earlier availability of data would have allowed a prompt, more effective response to COVID-19. For example, had the temperatures of workers been monitored upon entering offices or stores, would the coronavirus have spread so rapidly? At this writing, some retailers are discussing requiring workers to have their temperatures taken before entering the workplace. Taking temperatures is likely of limited help since asymptomatic infected people may infect others during a significant incubation period; i.e. be "carriers" and shed the virus a week or more before having symptoms including fever! We may logically anticipate other, more reliable, "testing" methods better than taking temperatures.

Some countries have allowed access to personal information to curb COVID-19. Israel has approved the use of mass surveillance of cell phones to identify persons who may have come into contact with infected individuals. Authorities in Taiwan and Singapore have used cellular phone data to ensure that citizens are abiding by quarantine orders. These measures have evidently been effective in holding down the spread of the virus when compared to other countries.

In contrast, some American governmental authorities have been reluctant to release data on the locations of citizens who have tested positive for the coronavirus. For example, the South Carolina Department of Health and Environmental Control has been tallying numbers based on zip codes. State health officials have also been reluctant to share the addresses of known cases with emergency dispatchers.

Earlier in April, Apple and Google announced a partnership to launch a technology tool designed to facilitate consent-based contact tracing of the coronavirus. The technology would leverage Bluetooth technology (which can be turned on and off by the user) to enable mobile users to voluntarily use apps to provide

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information on whether they have been infected with the coronavirus.¹⁹

There is also the question of the “exit” from the current social distancing environment and return to economic normalcy. It’s not simply a question of accumulating the data but, perhaps more importantly, interpreting it. Will data be used in order to determine who is allowed to go back to work and when? What if part of the “price of admission” into a crowded college football game is having the Google/Apple app on one’s phone? Will some form of AI (artificial intelligence) be used to monitor compliance centrally in order to insure against a reoccurrence? And, if such a system is used, who stores the data and who makes these decisions?

The “public safety vs. privacy” debate has gone on for years, having a major introduction with the advent of inspections, metal detectors and X-Rays, required before boarding airliners.

COVID-19 has further blurred the lines between public safety and privacy. There are clear trade-offs between security, or health as the case may be, and privacy. Faced with a public health emergency, some have accepted increased surveillance of temperature, or even cell phones, to protect themselves and their families. They may not be willing to make such a tradeoff in normal circumstances, but can we, and do we want to, put the toothpaste back in the tube? We would be incredibly naïve to think COVID-19 is the world’s last pandemic.

CONCLUSION

After the current public health crisis passes, and it will, we will face a transformed landscape. When that time comes, we should be asking how Smart City technologies can, and should, be used to improve our daily lives and minimize the impact of the next crisis. •

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