How changing attitudes toward data sharing could accelerate smart city adoption

The pandemic seems to have prompted people to rethink their attitudes toward sharing personal data, particularly when it is used to manage public health and provide essential services. Can this shift serve as a catalyst for smart city adoption?

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Can changing attitudes toward sharing personal data through the pandemic period serve as a catalyst for smart city adoption? Based on an in-depth survey of more than 50 senior professionals and investors working in the smart city space, **Tim Hickman**, **Daren Orzechowski**, **Adam Pierson** and **Earl Comstock** of global law firm White & Case LLP look into the key roles of data, technology and regulation in effective smart city rollout.

There are some signs that the COVID-19 pandemic has prompted people to rethink their attitudes toward sharing personal data when it is used to manage public health and provide essential services and infrastructure. Greater willingness to provide personal data could open up new opportunities and political will to accelerate the implementation of the smart city—an urban planning strategy that harnesses technology, artificial intelligence and data analytics to run cities more efficiently and sustainably.

But although the outlook around personal data may have shifted, there is still a long way to go to secure universal buy-in from all citizens, which will be needed for the potential of smart cities to be fully realized. Many remain reticent about making their personal details available for analysis.

In a recent in-depth, global survey by White & Case of more than 50 senior professionals and investors working in the smart city space, opinion was split almost down the middle. Some 40 percent of respondents said they are comfortable with sharing/allowing access to personal data for the purposes of developing/improving smart city technology, with 40 percent saying they are not comfortable doing so and 20 percent undecided. The survey also found that 42 percent said they would be willing to accept reduced privacy for better services, versus a third who said they wouldn't, with 24 percent undecided.

Data: The foundation for success

Securing access to large volumes of personal data from city inhabitants, and having a clear framework in place for its use sits at the center of many smart city projects. Smart cities rely on the collection and analysis of mass data from citizens, their devices, urban sensors and utilities that can be used to manage traffic, transport networks, and power supply and public services more efficiently.

"I don't think we can progress to further stages of smart city development without an improvement in data acquisition and handling…

40%

of respondents said they are comfortable sharing personal data to improve smart city technology

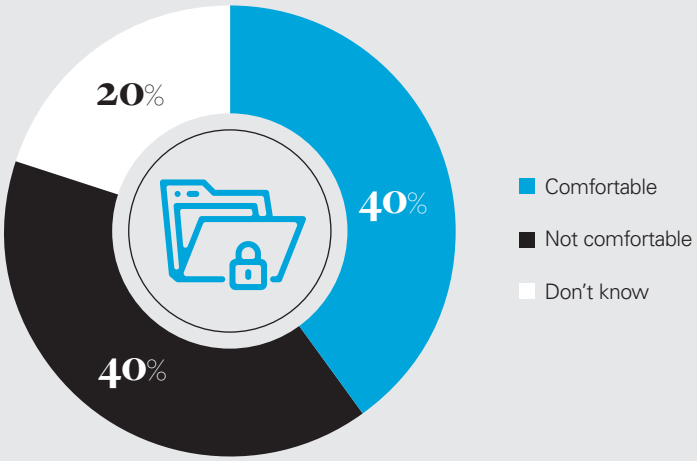
Source:
White & Case smart cities survey, 2021

> **There are signs that the pandemic has prompted people to rethink their attitudes toward sharing personal data**

I think a push in improving real-time data collection and analysis will drive the smart city initiatives," one survey participant said. Using the analysis of huge slices of data, gathered in real time, gives cities better information to make decisions. According to McKinsey, smart city concepts have the potential to reduce carbon emissions by up to 15 percent, lower water consumption by close to a third in some cases, and improve emergency services response times by between 20 percent and 35 percent. On the transportation front, McKinsey forecasts that smart cities could cut average commuting times by between 15 percent and 20 percent. The White & Case survey shows that respondents see a range of mobility options playing a role in reducing congestion and emissions. When asked to rank the top-three forms of mobility in their cities over the next five years, public transport (27 percent), electric and personal vehicles (13 percent each) and biking (12 percent) topped the ratings.

Utilizing smart city methods to improve the way cities are run, and to make urban spaces more habitable, has become ever-more important as city populations have swelled and the pressure on city infrastructure has increased. According to the

How comfortable are you personally with sharing/allowing access to your personal data for the purposes of developing/improving smart city technology?



Source: White & Case smart cities survey, 2021

United Nations Population Fund, the world is in the midst of the largest wave of urban growth in history. More than half of the world's population now lives in towns and cities and, by 2050, this figure is expected to rise to 68 percent.

Access to the amounts of data required to deliver smart cities, however, has been an ongoing challenge. Data privacy laws, such as the EU's General Data Protection Regulation (GDPR) and the California Consumer Privacy Act (CCPA), have put tight restrictions in place on consent and usage of personal data. In highly regulated jurisdictions like the EU or the UK, the situation is particularly complex. Even when people are willing to share data, especially health data, companies may not be able to use it, as regulations are highly prescriptive and limited to only specific purposes. In the US, the 1996 Health Insurance Portability and Accountability Act (HIPAA) specifies similarly rigorous standards for how personally identifiable healthcare information should be protected and maintained by health insurers and healthcare providers.

68%

of global population is expected to live in urban areas by 2050

Source: United Nations Population Fund

In the White & Case survey, sharing data to enable the use of new technology was cited by close to a fifth of respondents (17 percent) as the third-biggest obstacle to smart city rollout, with liberalizing data policies seen as a key enabler of smart city implementation.

Clarifying exactly what aspects of city management and planning can be addressed with data-led smart city methodologies is an important foundational step when assessing what data is in fact required to deliver on urban planning objectives.

The smart city is a broad, amorphous concept that captures everything from basic traffic management to complex, sophisticated urban environments where signage and advertising shifts and adapts to passing individuals according to their personal preferences and needs. Certain smart city solutions will not require the same level of access to personal data as others. Access to personal data is not a necessity for the implementation of a number of smart city methodologies. Assessing the issues that a smart city model is there to solve in the first instance determines the type of data that has to be collected, and what infrastructure and connectivity is required to collect and collate that data.

Managing traffic flows and lowering power and water consumption, for example, can be implemented using technologies and sensors that have low bandwidth and power requirements, and may be installed in some urban areas already. Radio-frequency identification (RFID) tags are already used ubiquitously on toll roads and can have other traffic management applications. Basic motion sensors can be implemented to turn lighting on only when needed, and sensors in waste bins can pass on information about when they need to be emptied without collecting personal information. Urban planners may find that many smart city solutions, that serve the wider public good, can be delivered without having to invest huge sums of capital and establish complex data handling protocols, by avoiding the collection of personal data.

"The drive of Big Data and use of technology, and the move to have

COVID-19 has brought to the fore the debate around data sharing for the public good. For many, this is the kind of extraordinary event that warrants relaxing policies in an attempt to keep people safe

Survey respondent

persons move their transactions online, and more aspects of their daily lives being digital, is crucial," one respondent said.

COVID-19 catalyst

Even if smart city models can be implemented with basic anonymized data sets, the urgency of the COVID-19 crisis has nonetheless seen governments, companies and individuals re-appraise positions on where the balance between personal privacy and serving the wider public good sits. COVID-19 has given all stakeholders the impetus to use and share data more frequently and widely than would have been the case pre-pandemic.

Government agencies, for example, have been more willing to share sensitive, proprietary data with each other to fight the virus. In Taiwan, for example, the national health insurance database and customs data were cross-referenced to identify movements in and out of COVID-19 hotspot areas.

Data sharing between the private and public sector has also been more fluid. The UK government, for example, shared National Health Service (NHS) patient records with tech groups Google, Amazon, Palantir and Faculty, who were contracted to collate data from healthcare and social care groups and build a COVID-19 datastore. In Australia, ANZ Banking Group fed anonymized transactional data into the New South Wales Government's Data Analytics Centre (DAC), which was used to understand the economic and social impact of COVID-19.

Sharing data through the pandemic has been an essential pillar of the defense against the virus and has created more awareness among the public of how data sharing can benefit society. The COVID Symptom Tracker, for example, used data shared by just under four million individuals to discover that loss of taste and smell were among the main symptoms of infection.

27%

of respondents see public transport as the main form of mobility in their cities

Source: White & Case smart cities survey, 2021

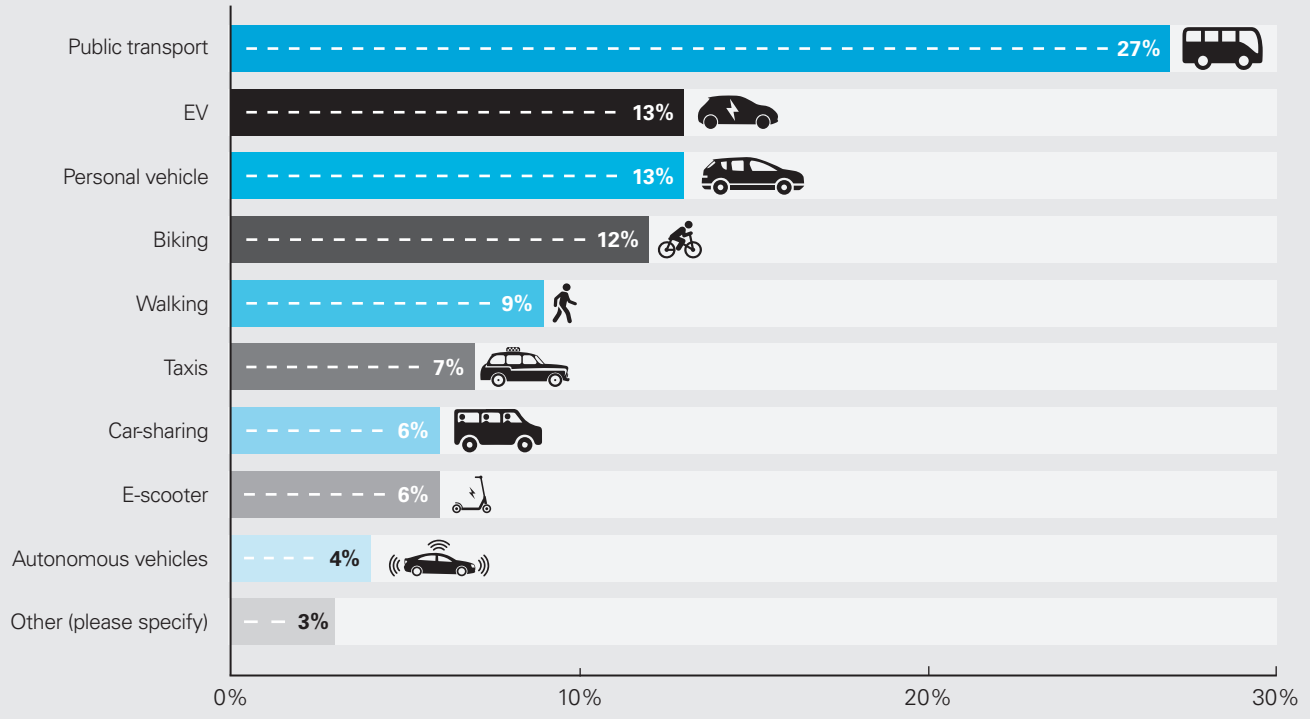
Building on data momentum

The hope for smart cities is that the successful data sharing case studies that emerge from COVID-19 will spark a long-term openness to sharing data for the public good.

"COVID-19 has brought to the fore the debate around data sharing for the public good. For many, this is the kind of extraordinary event that warrants relaxing policies in an attempt to keep people safe," one respondent to the White & Case survey said.

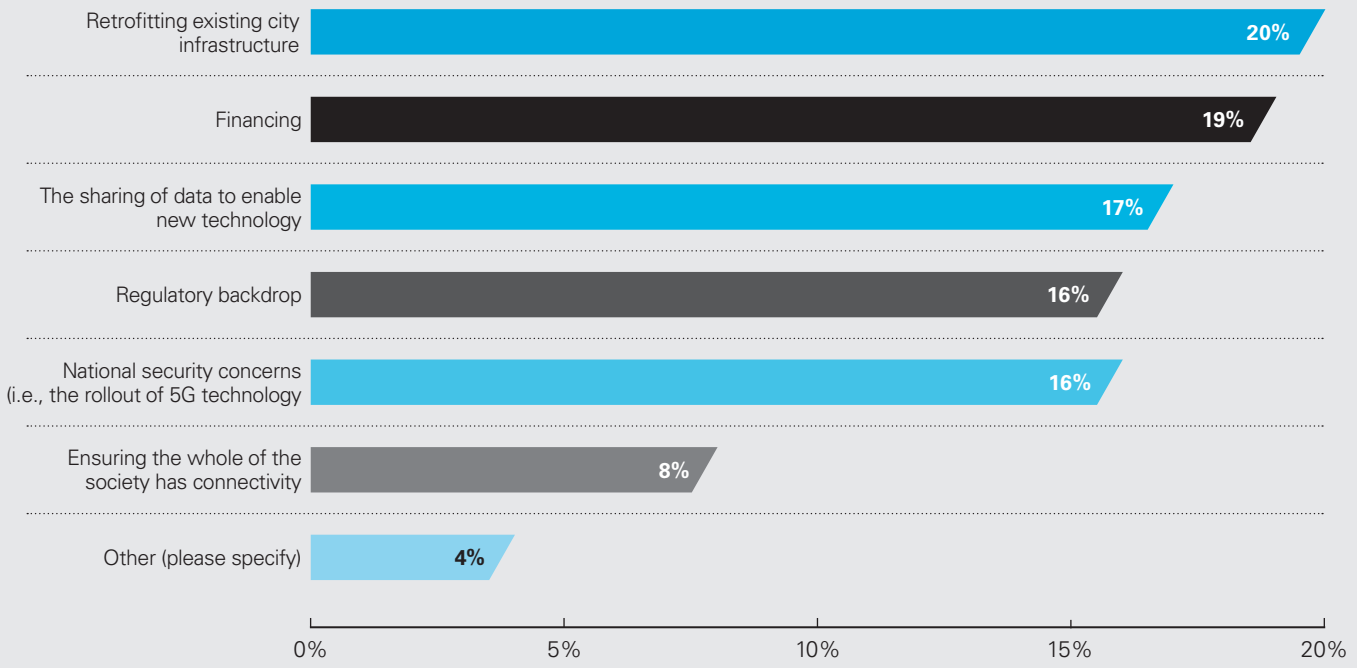
As vaccine programs are rolled out and societies are able to begin reopening, the challenge will be to capitalize on the momentum behind data sharing and put the legal frameworks in place to facilitate mass data transfer and availability.

What do you see as the top-three forms of mobility in your city in the next five years?



Source: White & Case smart cities survey, 2021

What do you think are the biggest obstacles to smart city rollout?



Source: White & Case smart cities survey, 2021

Approaches to accessing and leveraging personal data have varied across different jurisdictions. In the Asia-Pacific and Middle East, where governments already had wide scope to access private data pre-pandemic, the use of personal information to track and trace individuals and monitor the spread of COVID-19 has been relatively easy to implement.

In South Korea for example, the state faced little pushback when it used the bank statements and mobile phone records of people who had tested positive for COVID-19, and then published this information online so that the public could trace their own movements to see if they had come into contact with someone showing symptoms.

In western democracies, however, where personal privacy is a political priority, government policies involving the mass harvesting of individual data have encountered opposition. In the US, the use of vaccine passports has polarized opinion, with some open to the use of passports for large outdoor events, concerts and weddings, while others have opposed the idea on personal privacy and civil liberties grounds. Similarly, the possibility of trialling "vaccine passports" in the UK, which would require people to show proof of a vaccine or a negative test when attending restaurants, pubs and public events, has faced cross-party opposition, with fears that this would erode civil liberties.

Western countries have been able to steer around such concerns in the initial response to the pandemic, by granting temporary relaxations of data rules to fight COVID-19, but long-term solutions will have to be found if smart city projects are going to be able to gather and use the personal data they will need to operate.

Setting precise parameters for how data can be used, and for how long it will be available, is one option for moving forward. For the COVID-19 datastore, for example, the NHS made it explicit that data could only be used for COVID-19 purposes, that only relevant details would be collected, and that data would be returned or destroyed by contracted firms upon the project's completion.

There is also scope for personal and sensitive information to be scrubbed from data sets. Mobile phone companies in Italy, Germany and Austria, for example, supplied anonymous, aggregated pools of location data to health authorities to help them gauge compliance with lockdowns and restrictions on movement.

Governments could also facilitate easier data flow between organizations, as observed when competition authorities eased rules for inter-company information sharing to sustain supply chains through

42%

of respondents said they were willing to trade reduced privacy for better services

Source: White & Case smart cities survey, 2021

the COVID-19 disruption period. The open banking initiative, which has allowed for the opening of customer account information and transactions to trusted third parties, could serve as a model for moving forward.

Opinion is still divided on whether such initiatives will be enough to sustain data sharing at scale into the future, or whether a rethink and rollback of existing data rules is necessary. The White & Case survey found that 43 percent of participants believed data privacy laws would have to be relaxed to proceed with rollouts, with 39 percent saying this wouldn't be necessary.

In either scenario, winning public trust that data will be used appropriately and for wide public benefit will be essential for smart city buy-in.

Bridging the digital divide

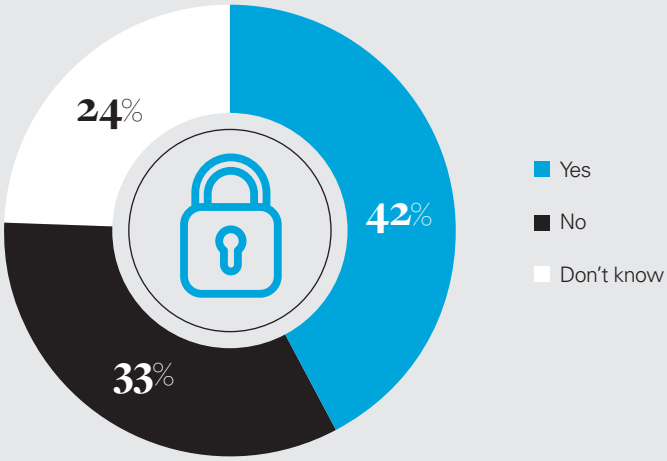
Aside from establishing a regulatory and legal framework for smart city data sharing, disparities in digital availability have widened gaps in society through the pandemic and will also have to be addressed to move the smart city take-up forward.

"I think that technology is hindering our development of smart cities as opposed to physical infrastructure, and we should be focusing on the development of data systems," one respondent to the White & Case survey said.

Widespread access to technology is a key enabler of smart city adoption. A fifth of survey respondents to the White & Case poll cited technology as the main driver of the development of smart cities around the world, more than any other reason.

Survey respondents highlighted a range of technologies where uptake will accelerate in smart city projects. When asked which technologies will take off in smart cities, 15 percent cited AI/machine learning, with the same number choosing the Internet of Things. Mobile phone apps were chosen by 16 percent with 13 percent opting for 5G and 12 percent selecting biometrics.

Would you be willing to trade reduced privacy for better services?



Source: White & Case smart cities survey, 2021

With technology so integral to the progress of smart city projects, bridging the digital divide will be crucial, not only to ensure that smart cities benefit all citizens, but also to make sure that people without connectivity are not excluded from data sets and decisions on where to allocate resources. Large-scale deployment of smart cities will have to be done in concert with investment in pervasive high-speed broadband and 5G connectivity.

City planners are sensitive to the inclusivity point and have taken steps to ensure that smart city development is in step with digital access. Kansas City, for example, has built a "smart corridor" that includes sensors, screens, network-connected street and traffic lights, and public Wi-Fi. The city has also embedded universal digital connectivity into its tenders for smart city project managers. In its request for a proposal for partners to expand its smart city infrastructure, improving digital equity and connectivity infrastructure was listed as the main objective for the program.

In addition to the primary question of ubiquitous connectivity, there are other investments in infrastructure that will be necessary to enable smart cities to function.

4.72 billion

people have access to internet globally, only 60.1% of the total population

Source: DataReportal

> **Disparities in digital availability have widened gaps in society through the pandemic and will have to be addressed to move the smart city take-up forward**

In greenfield projects, the sensors and data collection nodes that feed data into smart city mainframes can be built into the fabric of buildings. But when cities have to be retrofitted with sensors, the additional power and data they require can overwhelm network and energy infrastructure. Installing and running the necessary cellular wireless network capacity is costly.

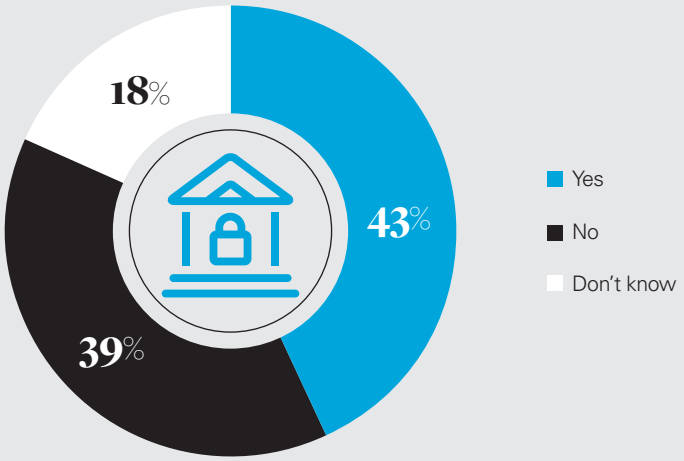
Smart cities need to use a variety of tools to capture data. Cellular technology will be an important part of the answer, but in areas where access to power is limited and smaller amounts of data throughput are sufficient, low-power wide-area networks could also be used to gather data for smart city operations.

Mass smart city rollouts may still be a way off, but the lessons learned through the pandemic have provided practical examples of how smart city methods can be implemented to improve the operation of healthcare, transport and utilities.

If protocols for data sharing can be agreed and investment in connectivity accelerated, the utilization of data to fight COVID-19 could catalyze the pace of smart city adoption globally.

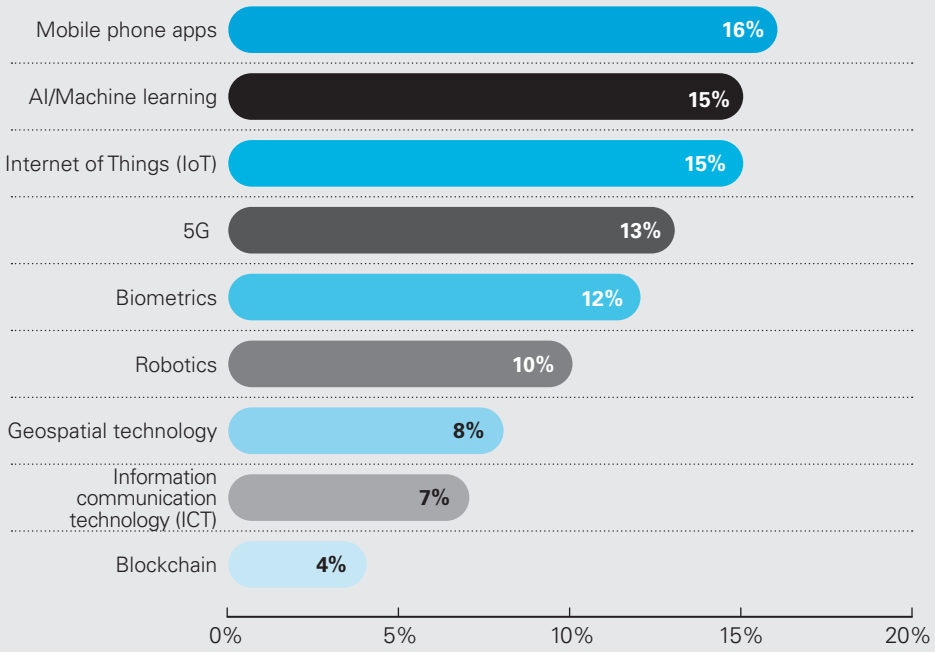
Mass smart city rollouts may still be a way off, but the lessons learned through the pandemic have provided practical examples of how smart city methods improve the operation of healthcare, transport and utilities

Do you think laws governing privacy and personal data need to relaxed if smart city rollouts are to progress?



Source: White & Case smart cities survey, 2021

Which technologies will take off in smart cities?



Source: White & Case smart cities survey, 2021

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