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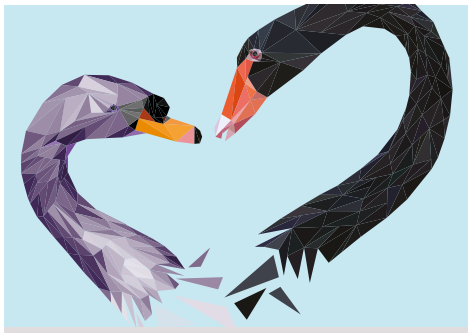

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comment

Our cover of this edition depicts growing malaise around governance, leadership, technology and trust.

Why are these issues so important in a crisis context? Put simply, because of the consequences that poor, malicious, narcissistic or corrupt governance can have on our daily lives, communities, livelihoods, safety and quality of life.

Denise Thompson (p64) explores the importance of governance in regulating the actors and processes around disaster risk reduction. Weak governance is a disaster risk driver, linked to other drivers, such as poverty, inequality, poor planning and development.

And other actors are always ready to fill the vacuum left by poor or weak governance, including those with criminal or malevolent intent, all too willing to capitalise on the opportunities this presents.

Humanity has inexhaustible supplies of ingenuity and creativity; none so evident as in the technology field. If applied correctly, the solutions have immense potential for good. Yet, as climate is a risk amplifier, if applied unwisely, technology can be a risk enabler.

Other articles examine governance and technology. On p14 Maha Hosain Aziz describes a 'global legitimacy crisis' which, she says, is linked with a headlong rush for technological domination. Meanwhile on p18, Andrea Bonime-Blanc presents a view of the megatrends that every leader – of nations, business, institutions, local governments or humanitarian organisations – needs to be aware of. She discusses the collapse of global trust, the ethical leadership paradox and how unscrupulous actors could commandeer technology to further their own agendas.

The Fourth Industrial Revolution is set to fundamentally change the way we live. On p58 Laurence Marzell calls for citizens to be placed at the centre of smart cities, emphasising that cities are for people. Vincent Mosco supports this on p66: "Genuinely intelligent cities start with a vibrant democracy, support for public space and a commitment to citizen control over technology," he says.

Constant monitoring, sensors and data gathering all present threats and opportunities. It would be naïve to expect Utopia, but we do have the opportunity to harness burgeoning technological developments for the benefit of our resilience, livelihoods and security. In this new, disruptive landscape, with emerging protagonists and technology, we need to be careful in what – and in who – we place our precious trust.

Putting humans at the centre of smart cities

Both the promise and the peril of smart city technologies require a set of principles to guide the appropriate applications of technology for everyday and emergency uses, says **Vincent Mosco**. The goal of smart city technology applications is first and foremost to improve the quality of life and the capabilities of those who live in cities, not to expand the profit and power of businesses or the control of government over its citizens

Smart cities are increasingly showing up in the news, particularly because supporters believe they will strengthen the governance of urban life, including the effective management of crises.

The smart cities movement began in 2008 when, in the wake of the global financial meltdown, businesses converged on cities around the world to sell technology, harvest valuable data and contribute to help govern rapidly expanding urban areas throughout the world. They have partnered with governments to promote what, on the surface, look like unalloyed benefits to city dwellers.

These include safe streets, clean air, efficient transportation, instant communication for all, and algorithms that take more of the governance out of the hands of flawed human beings. Rapid response to emergencies typically finds a place in the promotional literature.

Flawed human beings

But another story lies beneath that surface. Technology-driven smart cities also deepen surveillance, increasingly shift responsibility for urban management to private companies and create opportunities for malicious hackers. As a result, critics insist that human governance still matters, that it is people who make cities smart, and that genuinely intelligent cities start with a vibrant democracy, support for public space and a commitment to citizen control over technology. Whatever the point of view, it is essential to understand what powers the global smart cities movement.

Three technologies – literally connected through wired and wireless high-speed telecommunications – provide the IT infrastructure for what is anticipated to be the leap to smart cities. These include the Internet of Things (IoT) – the connected sensors embedded in objects such as streetlights and traffic signals, which can monitor and report on everything within the reach of their surveillance capabilities.

The IoT depends on cloud computing facilities, especially the data centres that store and process what the sensors monitor. Finally, big data analytics turns the data into useful information and decision-making algorithms. Together these provide the backbone for the Next Internet.

By making use of these systems, the smart city movement is spawning an entire industry comprising engineers developing technologies and applications, as well as tech-savvy city planners and designers responsible for their integration into existing or entirely new urban areas.

Reports on the economic prospects for smart city technologies tend to agree that this is an industry that is about to hit explosive growth. One study has concluded that the smart city market is now worth about $1.2 trillion and will be valued at $2.75 trillion by 2023. By 2020, forecasters say that there will be 600 smart cities throughout the world, half of which will be located in China alone.

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Managing the vast array of urban technology applications that make up smart cities is an enormous challenge, particularly to ensure the efficient operation of crisis management activities. To do so, technology companies have urged civic officials to build centralised monitoring and decision-making facilities. IBM was the first to succeed in this endeavour, constructing a centre for Rio de Janeiro, which has become the model for many smart cities. Called the Rio Operations Centre and resembling a military war room, it became operational at the end of 2010.

As is so often the case, it was a crisis that precipitated the opportunity for authorities to centralise monitoring and control in the region. A massive storm led to flooding in Rio that killed 70 residents and many more outside the city. In the wake of this tragedy, the city's mayor teamed with IBM to integrate the data processing and monitoring activities of some 30 municipal and state agencies, as well as utilities, in a single, unified, technology-rich structure.

The official aim of the Rio Operations Centre is to enable the city to run more efficiently, especially during emergencies. The centre integrates key departments, such as police and firefighting, and enables the centralised monitoring of emergency situations, as well as surveillance of weather, traffic, electricity, recycling, gas, water, refuse collection, and disease outbreaks. The facility also contains a crisis room that allows the mayor to meet with advisors and make executive decisions when faced with security threats.

The centre's staff of some 70 analysts – all dressed in white jumpsuits – sits before banks of screens. An enormous wall monitor is divided into grids containing live video feeds from surveillance cameras, along with other data. Google satellite and street view maps are integrated into the system, enabling analysts to overlay additional data and obtain close-ups. The facility has the capacity to locate and identify every public vehicle (such as a city bus), at any time, and to find and track the movements of both citizens and visitors.

Centralisation of key urban functions has its merits, but the Rio Centre is notable for its tall gates, tight security and near-complete lack of transparency. Data from monitoring devices – including video cameras stationed throughout the city – enters the facility and feeds into a centralised decision-making process that has practically no citizen input.

The centre was used to monitor protests against the 2014 FIFA World Cup and the 2016 Olympic

Genuinely intelligent cities start with a vibrant democracy, support for public space and a commitment to citizen control over technology

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The goal of smart city technology is not principally to expand the profit and power of businesses, or the control of government over its citizens

Games, both held in Brazil. The former mayor of Rio de Janeiro, who has promoted the project on the TED lecture circuit, boasted about these surveillance capabilities in a promotional film: "The operations centre allows us to have people looking into every corner of the city 24 hours a day, seven days a week."

However, a research assessment of the centre has raised serious concerns, noting: "While the use of these systems in Brazil is quite recent, it would appear that smart-city technologies are not being used to solve problems of radical inequality, or systemic poor governance, or compromised urban planning agendas – all of which continue to be the 'dumbest' elements of Rio de Janeiro."

The Rio government responded to criticisms with a few modifications (it subsequently built an accessible website). Nevertheless, the first fruit of IBM's smarter city initiative, a $4 billion urban surveillance operation, is still shrouded in controversy.

In addition to concerns about surveillance, there are those who worry that the centre offers more flash than function. According to smart cities expert, Anthony Townsend: "Urban security experts who I have spoken with are sceptical that it will have any significant impact on law enforcement and technology experts point out that beyond the video streams, there has been little investment in new infrastructure to feed real-time data to the centre."

It appears to Townsend that looking smart is often more important to civic officials than actually being smart, and that this need to appear smart drove the mayor and other elected officials: "Into the arms of engineers."

The idea of a centralised command centre for smart city applications has spread to other locales.

The German tech company Siemens, which has invested heavily in urban technology, built what it calls a City Cockpit for Singapore, saying that it enables real-time government: "Here, state-of-the-art information and communication technology (ICT) enables the mayor and other decision-makers to track and analyse processes in their city in real time. All of the important information flows into a central system that

processes the data for convenient display and indicates to what extent specified objectives are being met."

According to the company, the launch of the City Cockpit was followed by 200 groups of visitors (including crisis management teams) from around the world, eager to learn about the best ways to integrate the vast stores of data produced by their growing monitoring systems. This step was followed up by another joint Siemens-Singapore project that produced a 'digitalisation hub'. Launched in 2017, it centralises the development of smart city applications for the city-state and the entire Southeast Asia region.

Like Rio, Singapore has raised alarm bells about surveillance and centralisation. Some places have paid closer heed to social policy concerns. In 2014, when technology companies – including Google – convinced the city of Oakland, California, to create a centralised facility to co-ordinate police, crisis management and other surveillance operations in the eerily-named Domain Awareness Centre, mass protests led to cancellation of the project.

Profit, power & potential for mischief

Both smart city supporters and opponents acknowledge that the IoT, cloud computing, and big data analytics, create significant surveillance opportunities. These provide enticing opportunities for governments interested in deepening control, for corporations that want to market technologies, services, and data, as well as for hackers looking to make mischief.

So, what makes a city smart? Both the promise and the peril of smart city technologies require a set of principles to guide the appropriate applications of technology for everyday and emergency uses.

- **People make cities smart:** The collective experience and intelligence of those who live and work in cities, along with those who visit them, are what make cities smart. The goal of smart city technology applications – especially Next Internet systems like the IoT, big data analytics, and cloud computing – is first and foremost to improve the quality of life and the capabilities of those who live in cities. It is not principally to expand the profit and power of businesses or the control of government over its citizens.
- **Smart cities are democratic cities:** Citizens must be involved in decision-making about smart city applications from the beginning of each project through to completion, as co-participants with governments, private companies and public non-governmental organisations. Citizens should have the right to access all information, including plans, policies and debates, about the smart city development process. A key index of a successful smart city project is the extent to which it helps citizens to expand democracy, ie to achieve the fullest possible participation of citizens in the decisions that affect their lives.
- **Smart cities value public space:** Public space comprises areas where individuals and social groups are free to come together to communicate openly, which includes exchanging ideas about social problems and political action. It is to be distinguished from commercial space, whose primary purpose is to sell products and services. Smart city technologies make it easier to turn exchanges into market transactions, thereby threatening spaces outside the commercial sphere. Because public spaces are central to supporting the free flow of ideas and democracy, smart cities must protect public space, both on and offline. This includes public communication through universal access under public control, essential public utilities that provide energy and water, as well as public institutions such as schools, parks, libraries and public meeting places.
- **Smart cities share data:** Data gathered from smart city projects belongs to the people it is collected from. People have the right to retain, remove or place in a citizen-controlled public trust, all data collected on their activities in smart cities. Data gathered on citizens should not belong to the private companies or government agencies that collect it. Citizens can agree to have private and public institutions make use of their data, but only when all parties are fully informed and when there is a guarantee that, if someone chooses not to share data at any time in the process, there will be no repercussions.
- **Smart cities defend privacy:** People have the right to personal privacy. That means any smart city data-gathering system must de-identify data at the source of collection and must take full responsibility to ensure that personal data does not go to third-parties (for sale to advertisers or other interested entities).
- **Smart cities do not discriminate:** Smart city projects – whether aiming to improve transportation, energy delivery, communication or security – must be carried out without gender, race or social class discrimination. This includes the algorithms used in the decision-making process. These must be subject to public review and oversight, with the goal of ending the replication of historical social divisions.
- **Smart cities preserve the right to communicate:** People have the right to communicate, not just to receive communication. It is essential for public authorities to create universal and affordable citizen access to high-speed communication and extend access to information, especially when it comes to the operation of municipal governments and their private sector partners.
- **Smart cities protect the environment:** People have the right to a healthy planet. At every stage of each smart city project, it is essential to place at the forefront the goals of meeting the challenge of climate change, reducing and eliminating the use of non-renewable energy resources, and maintaining a healthy biosphere.
- **Smart cities and their streets are about people, not cars:** The design of city streets and pavements is smart only if it begins with pedestrians, whose use of both breathes life into cities. Smart pavements are built to be filled with people and lined with trees. An empty pavement is like an empty theatre – both demonstrate that there is something wrong with the production. Smart streets are best designed to accommodate the needs of pedestrians and those who travel on non-motorised vehicles first.
- **Smart cities deliver services:** Abiding by these principles, particularly the commitment to citizen control over technology, it is reasonable to expect that smart city applications will strengthen the efficient management and delivery of all municipal services, especially emergency operations. These include public transportation and energy systems, as well as fire safety, policing, waste removal, water and sewers.

Furthermore, they can help in the delivery of public health services, as well as the management of public housing and public education. Smart cities can improve crisis management, but only if they are built so that public service comes first. CRJ

Author

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- The Smart City In A Digital World *by Vincent Mosco is available through Emerald Books, ISBN: 9781787691384*

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