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The Smart City—No Risk, No Reward

Smart city collaborations are complex initiatives that often fail; yet, valuable lessons can be taken from these failures.

By Sim Shuzhen – A smart pillbox that logs when a user opens it is an ingenious invention for monitoring whether elderly people living alone are taking their medication. But one could easily imagine equally ingenious seniors gaming the system—by opening and closing the box without actually swallowing any pills.

“We have certain assumptions of human behaviour—oftentimes we think technology covers it all, and we don’t have enough of an appreciation for people and their behaviour,” said Professor Ramayya Krishnan, Dean of the Heinz College of Information Systems and Public Policy at Carnegie Mellon University.

This gap between technology and the unpredictability of human behaviour is just one of the many challenges researchers and policy makers face when developing smart city technologies, said Professor Krishnan, speaking at a discussion titled ‘Navigating the Pitfalls and Risks of Smart City Collaborations’.

The discussion, moderated by Professor Archan Misra, Associate Dean (Research) and Director of the Centre for Applied Smart Nation Analytics at Singapore Management University (SMU), was held as part of the QS in Conversation seminar organised by SMU and QS Asia on the theme of ‘University-Public Sector Partnerships: Smart Cities’.

Interdisciplinary innovation

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The need to not only build a sensor-containing pillbox, but also to understand how the elderly interface with the technology illustrates another challenge for smart cities—that of interdisciplinary collaboration. While academics are experts in their own fields, bridging disciplines often doesn't come naturally to them, agreed the panel.

"Academics are trained to operate within their sandboxes… it's very natural for people to stick together with their own flock," said Professor Misra.

"It takes a long time to get mastery [of a discipline], and during that period, your colleagues within your discipline are your global academy, and so you engage them rather than anyone next door or down the corridor… that's a fact of life," added Professor Caroline McMillen, Vice Chancellor and President of the University of Newcastle, Australia.

One 'nudge' to get academics on board with new initiatives is simply to start the ball rolling. At the University of Newcastle, the pros and cons of offering massively open online courses (MOOCs) were the subject of debate for months; it was only after the first MOOC—on natural history illustration—gained popularity that the courses took off, said Professor McMillen.

"What people don't necessarily always get is the concept, but they get the prototype," she added. At the University of Toronto, Canada's School of Cities, Associate Director for Research Professor Mark Fox incentivises interdisciplinary research with a simple requirement—projects at the School have to be proposed by five researchers from five departments from at least three different faculties, he said.

"If you don't satisfy those criteria, we won't accept your project," he added.

Market forces will also play a role in bringing academics together to come up with creative solutions, said Professor Krishnan. "I think it's not so much carrots and sticks; the world outside is demanding [interdisciplinary work]," he explained. To get smart city projects off the ground, universities can also tap academics and alumni with strong ties to the local government, he added.

Besides their colleagues, university academics can count on another source of good ideas—their students.

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Above (left to right): Professor Mark Fox; Professor Hiroshi Esaki; Professor Archan Misra

“The privilege of faculty members is being able to talk with the new generation. They can provide us very tricky, interesting or naive questions and ideas that are not based on legacy experience,” said Professor Hiroshi Esaki of the Graduate School of Information Science and Technology at the University of Tokyo, Japan, adding that he views students as collaborators.

Negotiating differences

Another essential partner when it comes to building smart cities is the private sector—for example, industry funding can support the co-development of technology in a university lab; that technology can then be field-tested in cities with backing from the government.

Yet, the three-way conversation between universities, industry and governments can be tricky to navigate, said the panel. The issue of who owns the data collected for a project, for example, can be contentious.

“Mandating public ownership in some cases causes private enterprises to get cold feet and hold back, because they think they can monetise it better,” said Professor Misra.

Such issues could stem from a difference in priorities—while the public sector and academics may place more value on creating knowledge that may not have immediate applicability, the private sector typically needs to see a return on its investment, said Professor Krishnan.

“Usually, [the private sector’s] objective is to fund work that they can’t themselves do internally, but at the same time fund work from which they can extract value, and for which there is a market.”

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For Professor Fox, finding an industry partner whose interests align with those of other project stakeholders is key.

“What is really significant is picking the right development partner who cares about affordable housing, social justice and so on… it’s about the character and culture of that partner.”

Sometimes, public sector processes may also have to adapt to certain realities of the tech industry, said Councillor Nuatali Nelmes, Lord Mayor of Newcastle, Australia. Her city government has had to make representations to the state to revise procurement processes in order to roll out certain smart city solutions that are only offered by one supplier or by suppliers outside the country, she explained.

“It’s a bit of a brave new world for government because of the procurement process,” she said.

Above (left to right): Professor Caroline McMillen; Councillor Nuatali Nelmes; Professor Ramayya Krishnan

Failing to succeed

While successful smart city initiatives are often held up as case studies and highlighted at public forums, many lessons can also be learnt from projects that failed, said the panel, agreeing that stumbling blocks are important to unpack so that future projects don’t fall into the same trap.

For instance, projects may not even get off the ground because of a delay in getting the concept down on paper; may fizzle out when highly capable people hesitate about getting involved because of a “nervousness of the new”; or may be stymied during implementation by the many competing stakeholder interests involved, said Professor McMillen.

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“It’s an art form to get something moving in a contested space, followed by having it happen in an efficient way that’s valued by all the participants.”

For Councillor Nelmes, failure is a natural part of the process, and should even be seen as a prerequisite to success.

“I don’t think you can have any successful project—particularly not one that is dealing with future technology and the unknown—that doesn’t accept failure as part of your success story,” she summed up.

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