From Security to Social Innovation: The Business Case for Public Safety

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POINT OF VIEW

Public safety has evolved from security to collaboration and innovation.

Previously, public safety was defined by access control, CCTV, and cybersecurity, all of which are important. But we are seeing a fundamental shift in how these technologies are being used and reused, especially in the context of the Internet of Things (IoT). Gartner estimates that the number of connected devices will reach 20.4 billion by 2020.[1]

But public safety is about more than technology; it can transform our communities. This is how Hitachi defines Social Innovation. We see use cases emerging that go beyond security and illustrate major social benefits for citizens and communities. Governments as well as the private sector are beginning to embrace opportunities for collaboration and co-creation.

Smart cities, whether built from scratch or transformed by augmenting existing infrastructure with advanced technology, focus first and foremost on keeping people and communities safe. The global smart city market is anticipated to surpass US$1 trillion in 2019 and to leap to US$3.48 trillion by the end of 2026.[2]

While several separate devices – such as video cameras and gunshot detectors – are available for monitoring and surveillance, often these systems operate in silos.

Bandwidth can be another challenge, especially when accessing bandwidth-intensive video data for analysis. You need smart solutions that scrape the relevant metadata and store it as close to the edge as possible. And while technology is moving quickly, data security and privacy are important considerations that need to be adequately addressed. Seeing the benefits of public safety beyond security demonstrates the true value of these technology systems in areas such as customer experience, asset utilisation, and research opportunities.

[1]Gartner - Forecast: Internet of Things — Endpoints and Associated Services, Worldwide, 2016 | [2]Persistence Market Research - "Smart Cities Market: Global Industry Analysis and Forecast 2016-2026

Three Stages of Transformation

The transformation to smart cities follows three stages.

Stage 1: Traditional physical security is typically made up of a collection of solutions including CCTV, video management, access control and command centres. These services are based on deterrents and reactive measures. Guards and cameras act as deterrents while incidents are reviewed in retrospect.

Stage 2: Intelligent video is where video analytics are utilised to provide automation and proactive information through situational awareness. Functions such as intrusion detection, object detection, activity analysis and other analytics are used to create alerts to the command and control centre. This moves security from a reactive (and retrospective) operation to a proactive and real-time response function.

Stage 3: A new wave of evolution is where video analytics, IoT sensors, and multiple data feeds are harnessed to drive business outcomes such as customer experience, campus utilisation and improved work procedures.

The New Face of Public Safety

Public safety has changed dramatically in recent years – from heavy-handed physical surveillance and enforcement to digital strategies that deliver unobtrusive strategies that make communities safer while delivering cost savings to tax payers. But public safety doesn't stop there. One thread united the comments at the recent panel discussion at the Hitachi Social Innovation Forum: how technologies deployed initially for public safety can be creatively exploited for social innovation by harnessing and coordinating different systems and finding applications beyond those for which the systems were initially designed.

Smart solutions, not barriers

Jacinta Carroll, Head of the Counter Terrorism Policy Centre at the Australian Strategic Policy Institute, argued that smart solutions not barriers were needed to combat the growing terrorist threat.

"The worst thing we can do is put barricades up all around Sydney and change the nature of the beautiful city we live in," she said. "Some of that is necessary, but the best thing we can do is to harden the way we live in a smarter way, in a softer way, and facilitate the ease of movement."

Making life easier, and safer

Ms. Carroll made the point that the terrorists responsible for the attack on the Bataclan centre in Paris were caught thanks to technologies deployed by businesses for purposes other than security. "If you dig into where the information came from, it was CCTV put in place by businesses that could give really good readings of peoples' faces. It was number plate technology. It was tolls. It was things put in place to make our lives easier."

Improving the airport experience for travellers

Making lives easier for people using the Gold Coast Airport is very much front of mind for Beau Tydd, General Manager People and Technology for Queensland Airports Limited, as is combining different technologies to achieve that goal. One of his main areas of focus is overlaying multiple data sets from different sources to improve the customer experience.

CCTV, biometrics and analytics

"In the past we looked at CCTV as isolated images," Tydd said. "Now CCTV is being combined with biometrics and we're capturing data and using data analytics, and overlaying the CCTV images and data with other information to provide a better customer experience."

Tydd also made the point that not only is an airport a large and complex ecosystem in which the individual systems — airlines, customs, security, retail etc — need to communicate and collaborate effectively to ensure safe and efficient operation and optimal service to travellers, it is also an important part of wider ecosystem.

Optimising the end-to-end journey

For example, the journey for travellers starts not when they arrive at the airport or board the plane, but when they leave home or hotel, and Tydd said the airport was now looking at how it could work with local councils to help travellers predict and optimise journey times to the airport.

How to monitor 10 million dead trees

A rather different perspective on combining technologies came from Iain Puddy, Co-founder and Director of Meshnet. His company has developed technology for monitoring the stability of wooden power poles using an accelerometer combined with wireless communications technology and patent pending algorithms.

Non-destructive testing

This technology is designed to replace the damaging and labour intensive practice of taking residual strength samples from the pole every few years, but as Puddy explained it can also be used to create a huge network of mini weather stations to monitor rainfall, wind, etc., and can even provide emergency services with smoke levels in both urban and remote areas.

"If someone taps on the pole in Morse code, we can pick that up," said Puddy. "We were approached by Tas Networks and asked that question. They often have hikers that get lost where there is absolutely no signal."

Labour and cost savings

Meshnet offers its technology to power companies on an Information as a Service basis with no upfront costs and, Puddy said, the cost is 10% to 15% less than the current test-by-drilling system, but also includes more information with many additional benefits.

He also made the point that Meshnet technology is not limited to just power poles – it could just as easily used on street lights, or to measure the moisture content of the soil on large remote farms.

Enhancing the student experience with a smarter campus

David Stephens, Digital Transformation Solutions Business Manager, Hitachi Data Systems Australia, has been working with a large university for the past 18 months. He has been helping the university make the most of CCTV technologies enhanced with facial recognition and data analytics capabilities from HDS.

Fewer first semester dropouts

He, too, demonstrated how technologies deployed and designed for one purpose can bring many other benefits: for example, facial recognition can detect which students are missing lectures and enable the university to take early steps to try and stem the very high rate of first-semester dropouts.

He related how the HDS involvement with the university had started with a pre-sales demonstration of the technology to university executives looking for a public safety solution. "They said, 'Hey you are able to detect people and be accurate about who that is and tell us where they are and when they were there?' And I said, 'Yes of course we can.' That was the beginning of an adventure for us."

Public Safety Panel at
Hitachi Social Innovation Forum

The first Hitachi Social Innovation Forum in Sydney, Australia brought together the country's leading experts to discuss the status quo of public safety in Australia and to shine a light on the diverse use cases for public safety technologies across industries.

Jacinta Carroll, Head of the Counter Terrorism Policy Centre at the Australian Strategic Policy Institute

Jacinta Carroll has a long history in the Australian Government Departments of Defence and Attorney General's, including on Australia's involvement in the Middle East and Afghanistan and serving in Iraq, and now provides consultancy and advocacy on counterterrorism issues to government and commercial organisations.

Beau Tydd, General Manager People and Technology for Queensland Airports Limited

Beau Tydd has the unusual role of being head of both human resources and technology for Queensland Airports. The company owns and operates the Gold Coast Airport at Coolangatta, one of Australia's main tourist gateways, along with the Longreach, Mount Isa and Townsville airports.

Iain Puddy, Co-founder and Director, Meshnet Pty Ltd

Iain Puddy is an experienced resource, infrastructure and utility professional who has held senior management positions in major mining, engineering and construction companies. He co-founded Meshnet in 2014 and he explained how Meshnet's revolutionary technology can change the maintenance environment for power distribution.

David Stephens, Digital Transformation Solutions Business Manager, Hitachi Data Systems

David Stephens has extensive experience in enabling advanced public safety and smart city initiatives around Australia. He showed how technologies originally deployed to meet specific public safety requirements in a university can be used to provide many other benefits, in particular to help identify and hopefully forestall those students at risk of abandoning courses and to enhance the student experience. With first-semester dropouts typically at 30% to 40%, this is a major headache for all universities.

Queensland Airports

The Gold Coast Airport at Coolangatta is one of Australia's busiest, handling some six million passengers every year. It is looking at how CCTV, facial recognition and other data sources can be combined and used with data analytics to improve security and the experience of customers using the airport.

In particular, the airport is doing a lot of work to alleviate the main customer stress points: check-in, security and the boarding gate. Video monitoring of queues in these locations enables congestion levels to be assessed automatically and additional staff allocated to ease congestion.

"We have always looked at CCTV as isolated images," says Beau Tydd. "Now CCTV with biometrics offers the possibility of overlaying the CCTV images and data with other information. One of the big areas for me at the moment is overlaying multiple data sets to make sure the customer has a better experience."

Where to next?

Innovation takes many forms. As this expert panel demonstrated, technological innovations can produce new and better ways to meet established needs, whether to improve people flows through an airport, monitor the health of power poles, or manage room usage in a university.

When those innovations are combined creatively with others and with outside-the-box thinking, when there is collaboration and cooperation across disparate organisations with shared interests, we see true Social Innovation in the form of smart cities and smart communities.

Public-private collaboration

Often a camera belonging to a hotel, store, utility company or other private entity has a view not shared by the cameras that hang from public poles. Imagine an open marketplace where stakeholders and entrepreneurs share their data in order to innovate citywide solutions to local challenges.

Data creates visibility

In a world with billions of internet-connected sensors and devices, we need to think how we can make better sense and use of that data. The latest visualization analytics technologies turn big data into meaningful information.

Keeping millions of fans, visitors and city safe

Places with high security requirements – such as airports, banks, commercial buildings, high-security public spaces, and other datasensitive institutions – require proactive threat detection that keeps millions of people safe while identifying with certainty suspects and convicts in large crowds.

How can Hitachi Social Innovation and public safety solutions help transform your operations? Find out more here.

HDS at a Glance

Digital transformation improves enterprises' cost-efficiency, time to market, customer experience, and revenue through better data management. Hitachi Data Systems uses data to power the digital enterprise.

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