Stay safe, get smart

With the right surveillance technology, you can do so much more than simply keep an eye on things. But how do you make the move from safe city to smart city in these cash-strapped times?

There's no doubt that the UK's cities are changing. There's more traffic on the roads. More vehicle offences. An increase in knife crime. And, with nearly all businesses and charities using some sort of digital services, it's never been more important to take steps against cybercrime.

It's a lot to deal with. And yet, that's exactly what the public expects. Enough parking; less pollution. Clean, safe public spaces at all times of day and night. Protection against theft and assault. Eyes need to be everywhere, but budgets are tight. It's a good time to start thinking smarter.

A new era

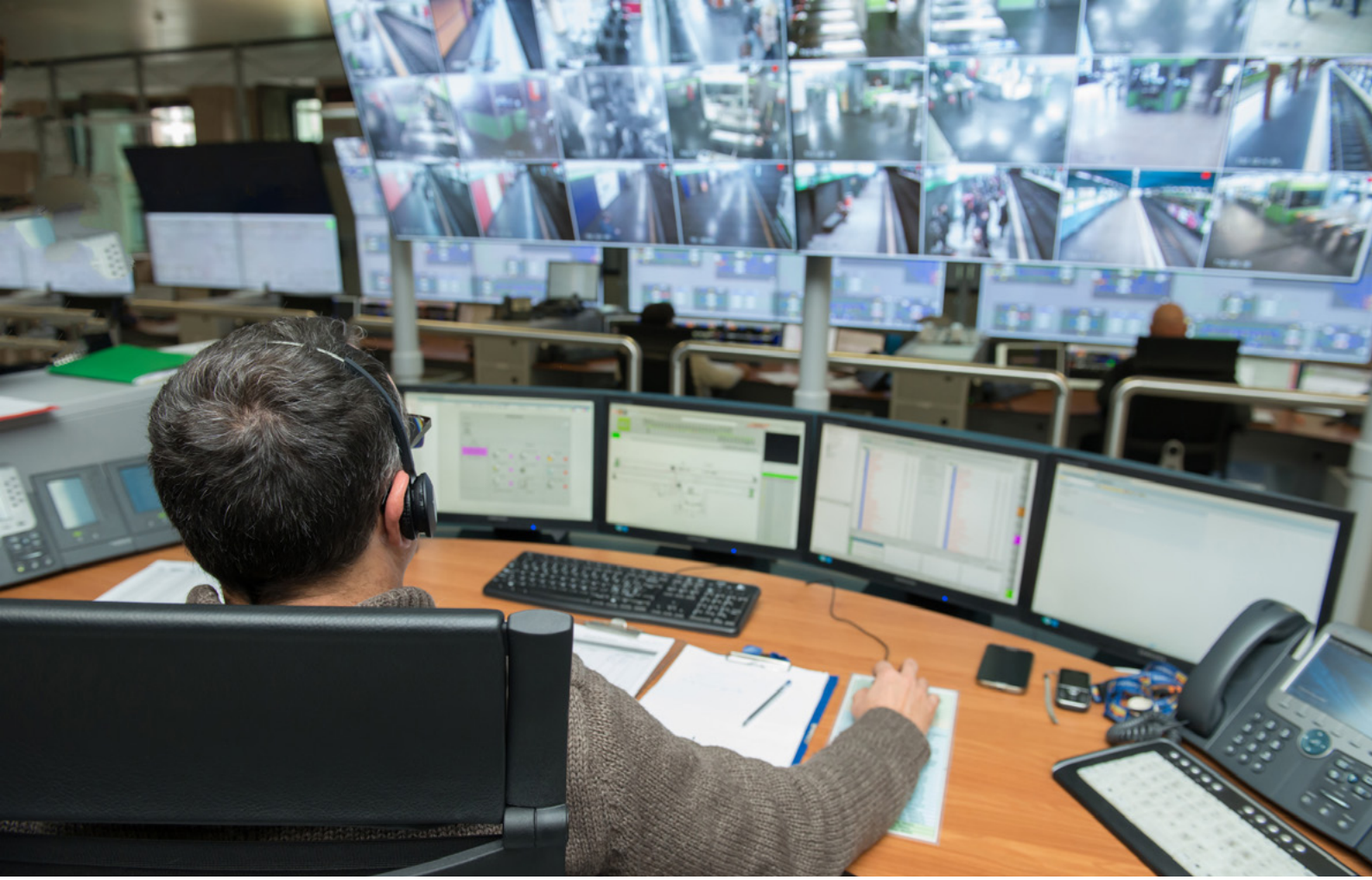
At our recent Smarter Digital Surveillance Summit, Dr Richard Jones, senior lecturer in criminology at the University of Edinburgh, observed that "we're entering an era of smart cities". It's not surprising. Cameras, sensors and the Internet of Things gather vast amounts of data. This can offer deep insight into what's going on, in real time. It's intelligence that can help you face daily challenges head-on, making life easier and safer for residents and visitors – and all in a cost-effective way. See what he has to say here.

Nearly a quarter of local authorities are already working towards becoming smart cities. They might be starting to use intelligent street lights to reduce energy costs, or controlling traffic in real time to help ease congestion. Fewer traffic jams mean less air pollution. And with as many as 40,000 UK deaths a year linked to pollution, this is a big deal.

Smart cities are evolving around the world, too. Dr Jones shared details of a scheme in China where sensors can detect and identify jaywalkers through facial recognition, and issue a fine to their phones. In Australia, the US and the UK, police are experimenting with live streaming from body-worn video cameras. Qatar is the second most polluted country in the world, but has begun tracking air quality ready for the World Cup 2022.

Any town or city with existing CCTV or surveillance equipment has already got the foundations of a smart city platform. You just need to decide what's important, be it transport management, smart parking or air quality control. You can choose to include local services and people, too. Take a look at what Cornwall has done: bringing Fire, Rescue and Community Safety Services together to create a safer community.

Once you've decided what you need, you can exploit the tech and assets already there. But how?



Get the basics in place

CCTV catches the average Londoner about 300 times a day. But with over 6 million surveillance cameras nationwide – more than in any other European country – it's not just the capital that's well equipped. Local authorities across the country can leverage this existing infrastructure as a launchpad for new opportunities.

First, you need to move to digital cameras. Their image quality now blows away old-fashioned analogue, even in the lower light cast by LED street lights. And invest in dedicated, digital, fixed fibre networks that keep your cameras connected directly to your control room. They're resilient, secure and shielded from any environmental or wireless interference. And that means they remain a reliable source of intelligence if the airwaves go down in an emergency or deliberate attack.

If you've already upgraded your CCTV, you can just add more digital tech. And not just at your camera locations. Smart street lights, EV charging points and other powered street furniture can all hold many sensors and act as concentration points for local IoT networks. It's all about sharing sites and existing infrastructure. You can even add wi-fi access points really easily: free public space wi-fi is always well received. And sensors are starting to do more than one thing, too. At our recent summit, Adrian Sutton from Vortex IoT discussed a product they're developing with BT and Swansea University: it combines a parking sensor with an air quality monitor. It provides more data, but with no extra street clutter. See what they're doing here.

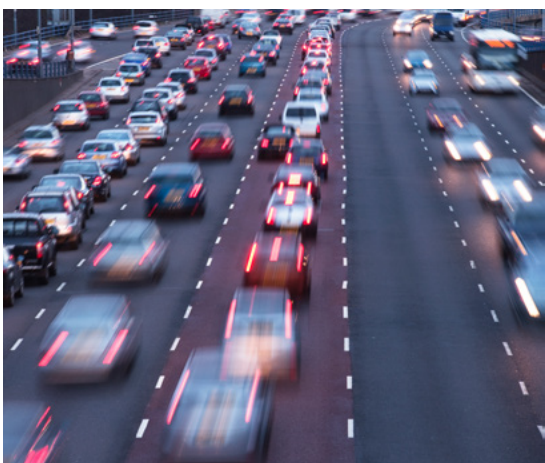
Add in features like video analytics and you'll be able to do even more. Track moving objects; identify whether you're seeing a person, bus, car or animal; recognise number plates; count people in and out of an area; detect faces; spot loitering; track abandoned objects. Just don't get too carried away: for budget reasons, and your sanity, stick to the technology that is most aligned to your specific challenges.

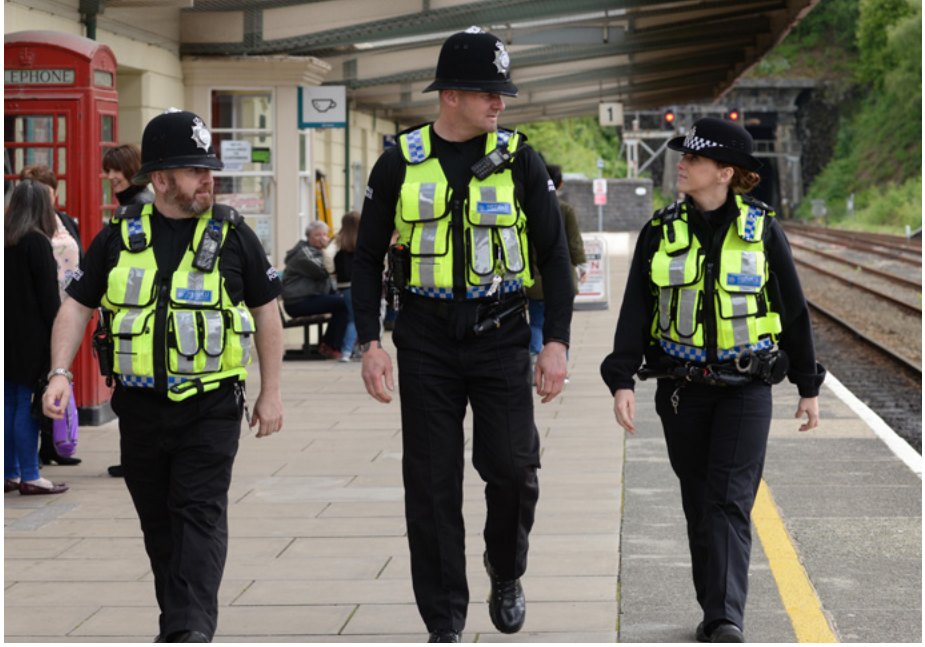
Keeping roads and rails moving

A recent survey by BT and the Municipal Journal found that the main driver behind building a smart city was to improve traffic and transport management. Whether that's reducing congestion, preventing bike theft, increasing safety on railway platforms or watching out for potential terrorist threats, there are plenty of surveillance solutions that can help.

Transport for Greater Manchester (TfGM) is a great example. They wanted to see whether real-time surveillance of traffic lights could help them ease congestion at a busy supermarket junction. To really put it through its paces, they decided to test it at Christmas.

They placed a Minicam – a portable camera that's easy to fix wherever there's a power source – at the top of the traffic lights, watching vehicles flow in and out of a car park. Traffic controllers were able to keep an eye on congestion and change timing patterns on the lights whenever they needed to. It went so well that TfGM didn't just keep the camera at the trial site, they bought 40 more to put at other traffic hotspots.





Giving back-up to the police

High-quality surveillance footage is, of course, foremost a tool for the police. It can be very persuasive, both in and out of the courtroom. Real-time surveillance can help catch offenders red-handed; mobile surveillance can livestream local CCTV images directly to the smartphones of officers on the ground. Or in the air. Smartphones, vehicles, drones and helicopters are all used to stream data and view video. It means decision-makers can work anywhere. Images and videos can form strong evidence in an investigation. And they can help police crackdown on terrorist threats too. See what Sol N'Jie from Sol Management Services has learned from the surveillance work he does with drones.

The CCTV in Sussex is the joint responsibility of the police and local authorities across the county. They used to have nine separate systems covering 30 towns. Police officers had to drive to relevant control rooms to collect video evidence, racking up 180,000 miles a year. Now they have a single control room covering the entire county, while officers can access any camera from their local station. No more driving, no more wasted time and expense.

They've also put CCTV playback facilities in their custody suites. Showing suspects HD-quality video evidence against them is leading to swift guilty pleas – cutting out time in court. Freeing up the cells quickly also saves them time and resources. They believe these early admissions are saving them over £1,000 per case. Learn more about it here.

Generating revenue for local authorities

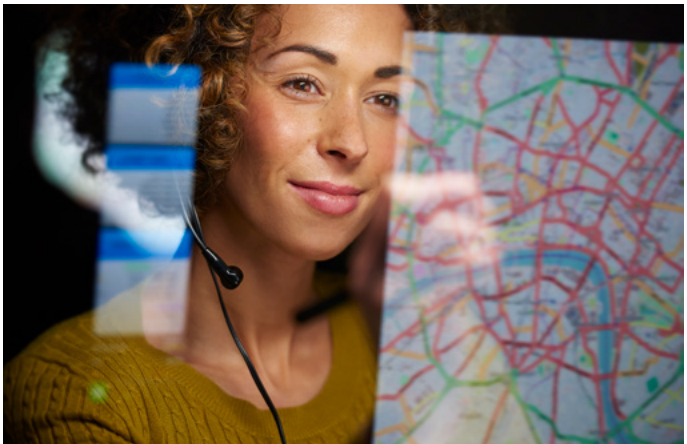
Local authorities watch out for communities in so many ways. Traffic, crime, community safety, environmental factors, social services, energy usage. And you need to keep the public safe at large-scale events in your area, whether they're one-offs or annual events. Gloucester City Council knows all about this. Its surveillance system was fading fast when it found out they'd be hosting the 2015 Rugby World Cup. That meant an influx of teams from 20 nations, their entourages and thousands of visitors. The budget wouldn't stretch to a total replacement, so the team decided to upgrade their old analogue service to digital.

The new system included an IP fibre network, high definition digital cameras, and a revamped control room. But that wasn't all. The council were the first in the UK to use the CCTV infrastructure to carry their wi-fi access points, blanketing key areas with free public wi-fi. By bundling the CCTV, control room and wi-fi together, they estimate they saved around £90,000 compared to separate initiatives. The take up of the wi-fi has increased every month, and the improved safety and wellbeing of their residents are a legacy that continues long after the roar of the World Cup crowds faded away. You can get the full story here.

We understand that, for many authorities, budgets are already stretched to the limit. But a modern surveillance system isn't just about cutting costs. It can also help generate revenue.

Calderdale Metropolitan Borough Council didn't just switch their system from analogue to digital. They found a way to make it earn its keep. Their Command and Control centre works with many different surveillance systems, meaning they can keep an eye on private sector buildings as well as their own public services. They control over 100 cameras for a nearby social housing association and provide out-of-hours CCTV coverage for a local shopping centre. Find out how they're creating a very welcome revenue stream without any extra resources required.

And remember the combined sensor for parking and air quality? Adrian Sutton told our summit that on-street parking is about 30 per cent inefficient. But parking is a local authority's second-highest form of revenue. These sensors have the power to help you fill those parking spaces, making sure you raise as much money as possible to put back into the community.



Turn your Command and Control to a City Observatory

So, where does all this data go? At the heart of any smart city management infrastructure is its control centre. And there's a lot more going on than just CCTV monitoring. All digital streams flow here. From cameras, traffic sensors, personal healthcare trackers, pollution sensors, water level sensors, water quality sensors, fire and intruder alarms. Feedback from drones. Images from body-worn video cameras.

Bring it all together, with software that can process, analyse and collate this disparate data, and you'll get the bigger picture. Insight into all that's going on. Plus, with one central hub, you know that all data is subject to the same rules and processes. And that makes it easier to tick all the boxes when it comes to data protection. You can be confident in your compliance. And there's only one place to audit, too. Quicker, easier, less of a dent in your budgets.

A single control room also helps ease the burden of more time-consuming work. Information comes directly to the right staff. You can set up automatic alerts to notify frontline services in certain situations, for example when someone leaves a bag unattended. Maybe one day, AI will take complete responsibility for monitoring the feeds. Could this be where we're heading?

Where do we go from here?

As technology develops, and the Internet of Things becomes more widespread, the opportunities for cities to make more of surveillance grows. Dr Jones foresees a future where sensors will gather data on all aspects of social and human life as we weave through our smart cities. And this could change the way the police work, traffic management and even the way local authorities interact with their communities.

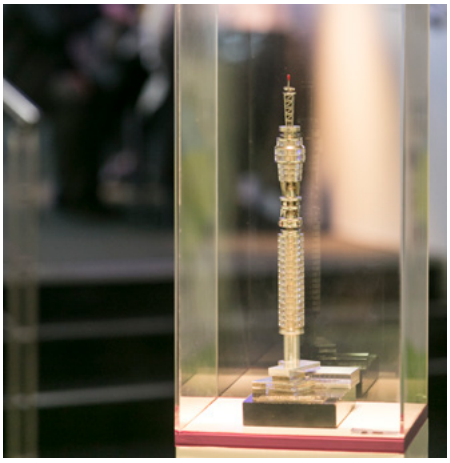
For example, you could gather data time to predict where crime is likely to happen, so resources are in place at the right time to deter it. The rumblings of social media can help determine 'citizen sentiment' – the way a community is feeling about events as they unfold in real time. It may be possible to stop an electric, self-driving vehicle, or limit where it can go, in the event of theft or dangerous driving.

In the more immediate future, 5G is going to make mobile data faster, bigger, better. It will mean lower latency and less jitter. It will improve live streaming video from minicams, dashcams and body-worn video cameras. It will complement fibre to give real-time, high-quality rapid (and re-deployable) surveillance capabilities. Your City Observatory operators will see exactly what the wearer of a body-worn camera sees, in real-time.

Just think of the safety implications. Or how remote health workers and the emergency services could receive advice. You can get 5G-ready now, by adding small cells at the end of your fixed links. Then, when it arrives in your area, you can dive straight in and start using it.

As networks become even faster, we could see more joined-up thinking across the country. At the Smarter Digital Surveillance Summit, EP Smit from Dallmeier said the technology is already there to use AI and facial recognition to identify a person of interest. It's perfectly possible that surveillance will soon let us track an individual as they move from city to city, using AI to identify their face, their clothes, their gait. Is this venturing too far into the realms of Big Brother? Some may think so. But it could be useful for missing persons, as well as suspect criminals.

Just one final word on security. We're all aware that the advent of technology leads to a growing threat from hackers. And now we're seeing certain manufacturers hitting the headlines under suspicion of spyware. So, while it makes for an uncomfortable truth, it's important to be realistic about the security of networks, cameras and sensors. At the summit, Philip Ingram MBE, a security expert from Grey Hare Media, suggested everyone should work on the principle that their networks are already hacked. Is that taking it too far? See what he had to say for yourself. Whatever your opinion, it's clear you shouldn't underestimate the importance of security within a smart city. Because, when you're confident that you've done all you can to protect your network and devices, you can fully embrace the opportunities a smart city brings.



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