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Successful Smart Cities Start with an Integrated Strategy

Integrated planning is crucial for positive smart city IoT outcomes

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Summary

Catalyst

Smart city initiatives are important in the push for government transformation. Limited budgets and fragmented approaches mean that cities often limit themselves to small, targeted smart city initiatives covering only a single application or neighborhood. But there is only so much that can be achieved through point solutions and quick wins such as limited smart parking, connected rubbish bins, and smart street-lighting deployments. As digital initiatives gather momentum across government, there is growing pressure for smart city initiatives to be driven in a much more structured way.

City authorities cannot afford to see such initiatives as just technical considerations, somehow separate from mainstream city administration. Instead, smart city plans must become more closely integrated into the core of a city's ongoing strategic investment strategy.

Ovum view

- Smart city initiatives should not be seen as just technical initiatives, somehow separate from mainstream city administration.
- The lack of an organization-wide strategy is one of the top inhibitors for digital government initiatives, as is the lack of citizen and other stakeholder engagement.
- Smart cities are not a new concept, and IoT-based solutions are a core element. However, many cities continue to report challenges related to the lack of standards and packaged solutions, as well as the lack of business case, which results in the risk that projects stall at the proof-of-concept stage.
- There is little guidance on which solutions are appropriate, and little appetite to learn from other cities that superficially are deemed to be too different to one's own.

Key messages

- A strategic plan is needed to guide successful smart city initiatives.
- Construct a framework through a methodical, inclusive process.

Recommendations

Cities and would-be smart city solutions providers should:

- Resist the temptation to adopt quick, ad-hoc solutions that just focus on a single problem of short-term concern to a select constituency.
- Ensure smart city initiatives are built on the foundation of a vision, developed in a clear and methodical way through identifying drivers as the first step. Take care to involve stakeholders in each phase.
- Embed business cases in any smart city strategy, as well as looking at a proof-of-concept to demonstrate long-term value.
- Investigate lessons learned from other cities. Service providers can also assist in facilitating introductions and engagement with other stakeholders or partners.

Smart cities need a well-articulated, wholistic plan in order to succeed

Ad-hoc solutions, though tempting, are not the answer

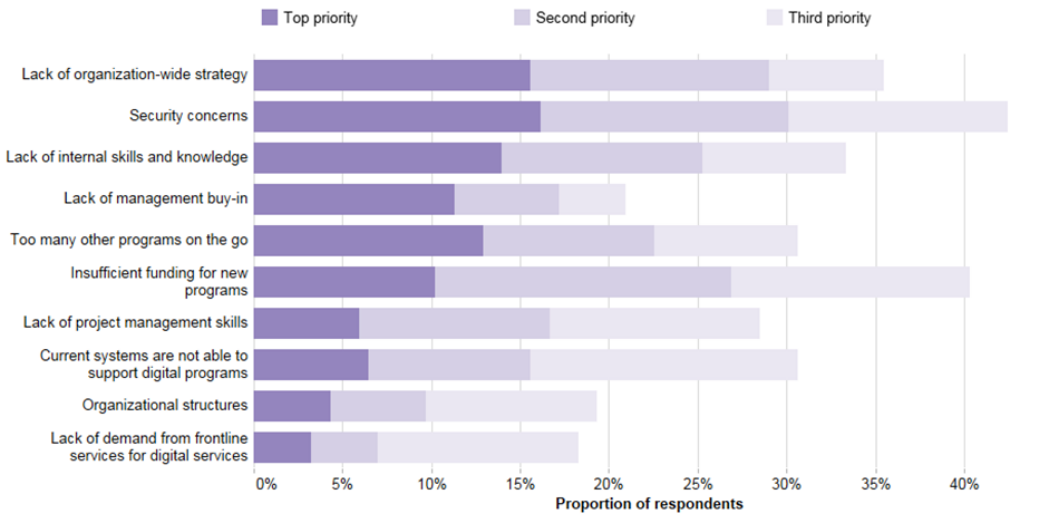
Most countries around the world need to address the growing challenges brought about by rapid urbanization. These include traffic congestion, economic and tourism development, citizen engagement, resilience, downtown renewal, aging populations, and public safety.

Although technology exists that provides new and innovative solutions for dealing with these challenges, pressure to deliver quick outcomes can deliver unintended consequences. Ad hoc solutions may stall at the proof-of-concept stage, or technology initiatives that are successful at the beginning may in reality be hiding potential downstream problems. Some of the challenges have been illustrated in Columbus, Ohio, the winner of the US Department of Transport's Smart Cities Challenge in 2016. A traffic collision prevention project using camera sensors on city buses to detect oncoming pedestrians and vehicles did not work at night, when most collisions occurred. In another example, an application for delivery truck drivers to reserve times for loading and unloading on streets could not be enforced without prohibiting the public from using those spaces. City authorities subsequently 'paused' deployments to allow time for more feedback and citizen consultation – which, as discussed below, is key to success.

Successful smart cities follow organization-wide strategies

To be successful, smart city initiatives need to have a well-thought out vision, as a recent Ovum global government survey clearly shows (see Figure 1). The lack of an organization-wide strategy was identified by respondents as one of the top-three inhibitors for digital government initiatives. The other two major inhibitors were concerns about cybersecurity and insufficient funding for new programs; addressing these two factors should necessarily form part of a smart city strategy.

Figure 1: Top challenges holding back digital government initiatives



Source: Ovum's ICT Enterprise Insights 2017/18 – Global: Government

Use a robust process to create a strategic framework for a smart city

Moving away from ad hoc solutions to an explicit strategy results in a strong foundation for smart city success. There are certain steps that should be taken in order to address the factors that constitute the plan, including inclusion of stakeholders, partners, and lessons learned from other jurisdictions. Importantly, the plan must recognize that the first step needs to address what the challenges and drivers are for the city. The answers to these challenges will form the outcomes for the plan. They will also indicate what types of technologies and applications need to be pursued.

Figure 2: Smart city planning: A four-step framework

Source: Ovum

Identify which city-specific drivers need to be addressed

Smart cities are not new to IoT-based solutions. However, many cities continue to report challenges related to the lack of standards and packaged technology solutions. As a result, it is difficult for both

cities and service providers to determine which IoT applications will deliver the best outcomes both now and as the city grows.

Of course, cities have the added challenge of political pressure to create something to show value to taxpayers and voters. As a result, there is often a focus on high-visibility, ad hoc point solutions.

But if cities do not solicit citizen engagement or other stakeholder buy-in before solution execution, projects may fail to show the desired results, or to win budget renewal approval. A further risk is that the key champion fails to be reelected.

Successful city authorities need to determine the most important drivers and challenges for their cities, and then seek smart city solutions to address each. These tend to fall into common groups:

- Demographic sustainability: Population growth, urbanization, inner city decline, aging populations.
- Economic development: Attracting business investment, tourism, quality-of-life indices.
- Environmental: Pollution, waste and water management.
- Mobility: Transportation, ride sharing, multimodal transport, autonomous vehicles, fleet tracking and management.
- Financial/operations: Efficiencies, alternative financing, budgetary constraints.
- Resilience: Disaster preparation, cybersecurity.

This list is by no means comprehensive. The key is to determine which are the city's priority outcomes, and then work back to what needs to be done in the context of smart city deployment to enable these.

Focus on stakeholder engagement

Due to the nature of their services, city governments are far more visible to tax payers and voters than any other layer of government. If citizen/stakeholder engagement is not given sufficient attention upfront, key smart city initiatives can easily fail, despite their technical advantages.

To be successful, a smart city strategy must have stakeholder engagement as a core requirement. There is a potential role for the service provider to be actively involved in participating in citizen engagement, as well as in deployment.

Create the strategy

Many cities have publicly available plans that detail their most pressing issues and what they wish to accomplish in the future. These plans can ultimately serve as both frameworks and playbooks for successful smart city deployments.

Choice of technology is crucial. Some cities have chosen to deploy connectivity backbones to support IoT smart city applications. This is a key issue for service providers to engage in; again, their involvement does not necessarily need to stop just at network deployment level. Vendors are already engaged with cities to create 'living labs' to pilot smart cities applications and services. Google is doing this with Toronto and Bosch with San Francisco, for example. Service providers are engaged in partner ecosystems with cities, as well for their living labs, such as KPN with Amsterdam.

Citizens can also be engaged in testing smart cities applications in working and living environments, to provide real-time crowdsourced data and collaboration. Ovum's research on government

approaches to smart city projects in the Asia-Pacific region indicates widespread and increasing use of crowdsourcing as a key part of testing regimes.

Implement lessons learned from others during the execution stage

Cities cannot afford to be insular when looking at their challenges. They must acknowledge that urbanization issues have no geographic barriers. A city in the US undergoing urbanization can have similar demographic issues and use similar solutions to one in the UK. A Latin American city employing antiseismic sensors and citizen notifications can utilize a similar solution to that is used by governments to warn citizens of impending tsunamis in Asia. Equally, a failure in implementing a parking solution can be a learning process for cities everywhere who face the difficult balance between driving revenues, and creating intangible value through improved citizen experiences and public service provision. Lessons from both success and failure can be learned and shared by cities and vendors, regardless of location. Being aware of these lessons, as well as regularly monitoring progress, will serve to create a strong feedback loop that serves to ameliorate smart city applications and plans as they are being implemented.

Appendix

Methodology

Analysis and conclusions were derived from analysts' secondary research and primary research consisting of general discussions on smart cities with industry stakeholders at events, as well as one-to-one meetings. These data points were quantitatively backed by the Ovum survey indicated in this report.

Further reading

ICT Enterprise Insights 2017/18 – Global: Government, PT0099-000008 (September 2017)

2017 Trends to Watch: IoT Verticals, TE0019-000031 (February 2017)

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