

SMART CITY PLATFORMS

*the Intelligent Core of
Smart Cities*



Towards Cities as IoT Environments

Since its beginning, the debate on the smart city has wavered between a vertical approach and a holistic approach to cities. The vertical approach looks at the smart city project with a focus on solving specific city problems such as traffic and pollution. Several projects on smart parking and pollution monitoring can be seen in that way. Those reflect an M2M approach to the city, solving a specific problem dealing with a specific set of data.

By contrast, the holistic, or horizontal, approach looks at the city as a system of systems. In this case, the Internet of Things vision is applied to the city. Here, the city is composed of different systems – transport, waste, water and so on. Each system produces different sources of data. Those sources can be integrated, enabling a systemic view of the city, and thence a systemic approach to city problem solving. The data produced is also used to develop applications, and those applications are used to solve city issues and provide better services to citizens.

As the industry is moving from an M2M-centric approach towards an IoT-centric approach, from vertical to horizontal, smart city projects based on the vertical approach tend to become more horizontal, bringing together different systems such as using sensors for parking, surveillance, and waste management at the same time. In other words, a move towards the holistic approach in smart city design and deployment can be observed. In this move, the need for middleware enabler platforms becomes greater. While M2M platforms – Beecham Research uses the term Service Enablement Service (SES) Platform – are appropriate for specific applications, a holistic approach to the smart city requires an IoT Platform able to manage different technologies and devices, and enable different applications and services for different systems of the city. We call this platform the “Smart City Platform”.

Introducing Smart City Platforms

A smart city platform can be defined as a framework for sensing, for communications, for integration, and for intelligent decision making. The Internet of Things will be central to this structure, being made up of a multiplicity of diverse use applications.

A smart city aims to provide a unified platform for city operations and services. M2M technology is

well established in several industries, particularly transportation and industrial automation. In contrast with industrial M2M and IoT projects however, cities have a far broader range of requirements and application types. This raises challenges in terms of resources and skillsets.

There is no fully smart city yet in existence. However the ultimate aim of a smart city is an entity that will be sensing to all environmental stimuli, with the ability to connect all these up and respond like a living organism. The response will take the form of delivering up to the minute information and services that citizens need, based on the information received. By providing on-line information in real time, cities can optimise the use of resources for various operations e.g. parking, traffic management, lighting, all with the aim of improving efficiencies and reducing costs.

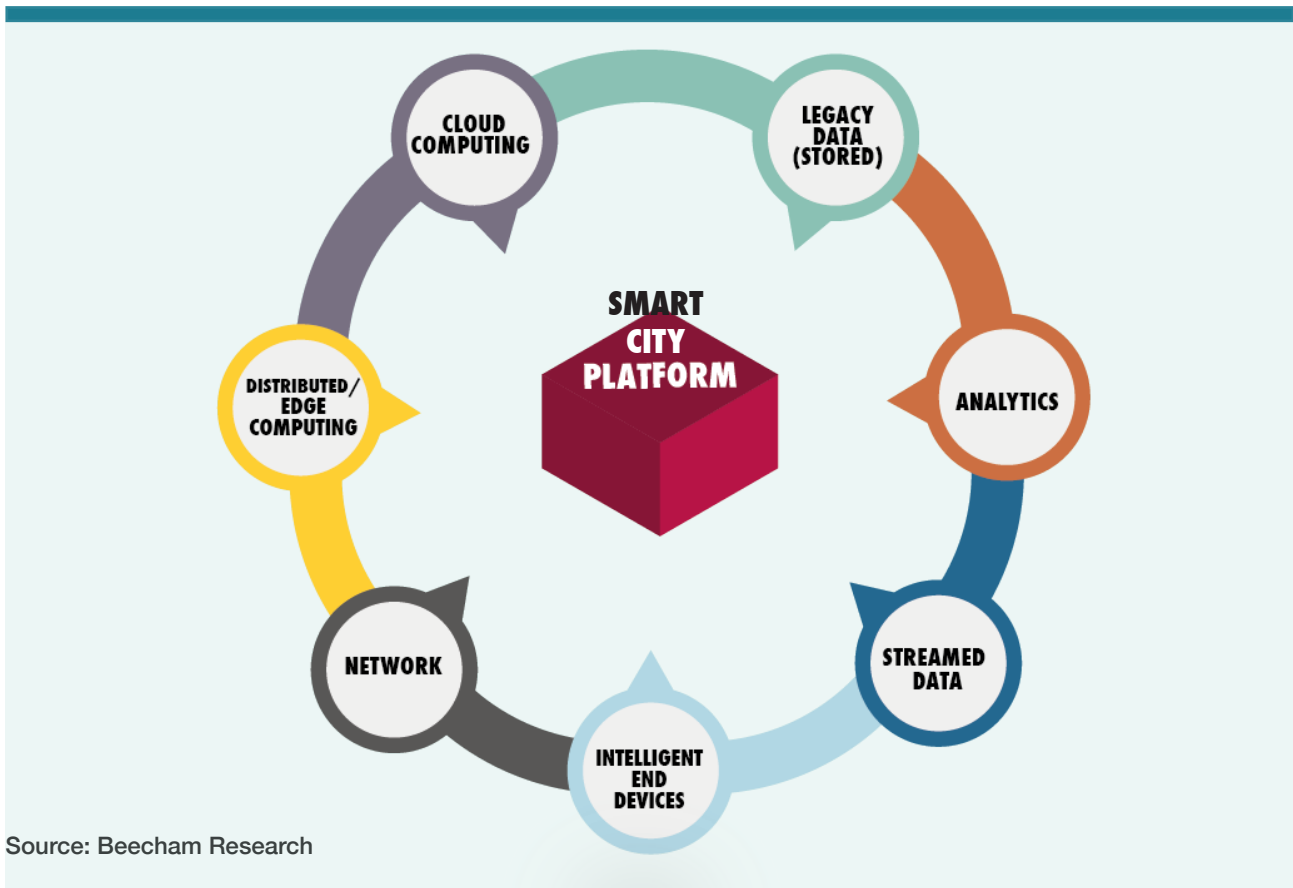
M2M-based applications have evolved from systems that connect remote assets for monitoring purposes, to an ever widening range of applications. These applications are however mostly not connected to each other. The concept of a smart city infrastructure will bring together a range of diverse applications all under the same umbrella, into ‘smart spaces’.

Smart City ‘spaces’ will be orders of magnitude more complex than an M2M implementation; they are tending towards multiservice environments that range beyond enterprise processes, or single M2M-based monitoring implementations. They must be of industrial strength, scalable, not only able to scale to accommodate and process more data of the same type, but also from a variety of sources and of different types.

This complex set of applications is possible if key technologies are brought together through the smart city platform as shown in Figure 1.



Figure 1. Smart City Technologies and the Centrality of the Smart City Platform



Source: Beecham Research

This report, largely based on interviews with smart city platform vendors and holistic smart city projects, will explore the role of the Smart City Platform in current smart city design and deployments.



ABOUT BEECHAM RESEARCH

Beecham Research is a leading market analyst and consulting firm that has specialized in the development of the rapidly-growing M2M/Internet of Things market worldwide for well over a decade, since 2001. Based in London UK, Cambridge UK, and in Boston US, we actively participate in initiatives aimed at achieving M2M market development and growth. We are internationally recognised as thought leaders in this market and have deep knowledge of the market dynamics at every level in the value chain. As a result, our clients come from all parts of the value chain including components and hardware, network operations, system integration, application development, distribution and enterprise adopters. We are experts in M2M/IoT services and platforms and also in IoT solution security, where we have extensive technical knowledge. We are also the leading analysts in satellite M2M, where we have worked with all the network operators and also with the European Space Agency (ESA). In addition, we see Wearable Technology as a key part of bringing the individual closer to the Internet of Things and this is also a primary area of activity for us.

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