Abstract

This invention applies to the field of smart infrastructure management – also known as Smart City solutions.

Smart City – smart management of infrastructure

Widely growing adoption of digital technologies to manage cities, a.k.a Smart Cities, with the goal of enhancing performance of city operations, reducing cost and improving service to citizens (end-users of systems), by having a closer engagement with them, demands a sophisticated approach to infrastructure management. These infrastructures include both physical systems such as energy and water supply, transportation, etc., and software systems such as supervisory and data acquisition (SCADA), maintenance management, lease management, etc.

Managing infrastructure systems in isolation to make them 'run' is no longer adequate. Infrastructures should be 'aligned' with one-another to serve the needs of the city and its citizens. This demands that data and system silos be broken down, and that their operations be integrated.

The complexity of smart city implementation comes from two fundamental challenges: first, a smart city is a 'living system', which must constantly evolve to serve city needs and to reflect constantly changing and moving citizenry/population; and secondly, people and skills involved in modeling city services are different from people and skills involved in system implementation and integration.

Engagement of end users – hence 'user journey'

Further, mobile users are growing their expectation of user experience when engaging with smart city solutions. Solutions must be highly intuitive, as nobody is expected to 'learn' to use new software. Mobile users have a very short operation/attention timespan. They expect system to provide ONLY what they need to carry out their operation.

Smart City solutions need to address this by modeling 'user journeys' – providing a template containing the anticipated exact steps that a particular type of user carries to interact with the system to achieve an objective.

Neat solution – metadata model of IoE for the city

The present invention solves the problem by separating the problem into two tasks: implementing a "metadata model of IoE" of the city; and using it to implement citizen engagement through 'user journeys' and system intelligence through automated response logic.

More specifically, the present invention enables system integrators to build a metadata model of IoE, which enables city managers to implement user journeys and system intelligence, in incremental fashion, as business needs of the city evolves.