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Horizon 2020 European Union Funding for Research & Innovation

Smart Parking in Manuka

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Organisation: ACT Government

Country: Australia

Level of government: Central government

Sector: General public services

Type: Digital

Launched in: 2016

Overall development time: 18 month(s)

Link to the innovation's website

Description

The Digital Canberra Action Plan 2014-18 outlined five priority areas, which included the introduction of a technologically smarter city through the provision of more digital services to the community. The development of this strategy involved seeking views from the public and businesses about opportunities to introduce digital technologies. During this consultation, the public expressed a desire for digital parking technologies.

Why the innovation was developed

- The Australian Government's Bureau of Infrastructure, Transport and Regional Economics (BITRE) estimated that in 2015 traffic congestion cost Canberra $200 million.
- After consultation with the local community and businesses, the ACT Government drew upon the experiences of other cities using new technology to improve parking systems, to deliver a better user experience for its citizens.
- In particular, we were interested in vehicle detection sensors that can provide real-time parking availability. Any trial of parking technology had to align with the newly implemented CBR-free WiFi network being rolled out as part of the Digital Canberra initiative.
- In April 2016 the ACT Government introduced Smart Parking Limitedtechnology to Manuka, a trial which will run until April 2017. It includes the deployment of 460 infrared bay sensors, 5 dynamic parking availability street signs and the introduction of the ParkCBR smartphone app.

Objectives

Improve access, Improve service quality, Improve social equity, Improve user satisfaction

- The main objective in conducting a trial in Manuka is to assess and learn about the available smart parking technologies, to support consideration of a full implementation of smart parking across Canberra,and to continue to develop and deliver world class innovation, citizen experience and digital services. Theobjectives of smart parking include: • business benefits through improved patronage; • higher parking revenue through improved occupancy rates, reduced leakage and demand responsive pricing; • consumer benefits and improved productivity associated with improved travel times and reduced congestion; • environmental benefits of reduced emissions and vehicle pollution; • reduced need for capital investment; • customer satisfaction with smart parking; and • more efficient enforcement.
- Enhancements to the technology have enabled it to be more on-street ready (not Canberra specific) allowing it to be applied to the wider smart city sector. Smart Parking's RFID tag technology provides Governments with an opportunity to explore automatic prepaid parking transactions based on the actual length of time vehicles occupy the space, as well as disabled badge or residents permit management. The SmartSpot gateway primarily works as a data receiver for the vehicle detection sensors, but also provides a common IoT gateway platform flexible enough to accommodate a wide range of connectivity requirements within a smart city agenda, ranging from common Ethernet and WiFi compatible devices(such as video surveillance, lighting control and air quality) to vehicle smart parking detection sensors andopen standards such as Zigbee/802.15.4, LoRaWAN, 3G, 4G, and the upcoming 5G.

Main beneficiaries

General population

Results

Results not available yet

- A street intercept driver parker survey was performed before deployment and will be conducted upon completion of the Trial, to gauge impact.
- An app based survey will ask users to identify impacts Usagedata analytics will report on the usage, average stay times, overstay times to inform suitability and service delivery reforms, and the basis for possible introduction of dynamic pricing.

Development

Design

The Canberra community identified the need for digital solutions to parking in 2014. In March 2015 the ACT Government community engagement program identified feedback reflecting strong support for smart parking technology and an ACT Government discussion paper "Smart Parking – transforming parking in the ACT" was issued. The ACT Government Statement of Requirements ensure that the Smart Parking trial takes into account advice from industry on technology and opportunities for innovation. The procurement process commenced in June 2015, with the trial commencing April 2016. The ACT Government also engaged Datat61 as a Strategic Advisor for the Smart Parking trial. Data61 is Australia's information and communication technology centre of excellence and a key partner in the ACT Government's drive to establish Canberra as a smart city and centre for research and innovation. Data61 play a significant role the design of the smart parking trial, ensuring a positive outcome for the project.Design time: 6 month(s)

Testing

- The 12 month trial will measure performance and suitability of available smart parking technologies to support consideration of a full implementation of smart parking across Canberra, and to continue to develop and deliver world class innovation and citizen experience.
- The evaluation criteria include a schedule of KPIs and parker driver surveys measuring time saved, behaviour changed, satisfaction, along with feedback from enforcement and planning line areas within ACT Government. Trial objectives: • business benefits through improved patronage; • higher parking revenue through improved occupancy rates, reduced leakage and demand responsive pricing; • consumer benefits and associated with improved travel times and reduced congestion; • environmental benefits of reduced emissions and vehicle pollution; • reduced need for capital investment; • customer satisfaction; • more efficient enforcement.

Testing time: 1 month(s)

Implementation

Tools used:

- A detailed network design and site survey was performed. Engineers and developers from multiple organisations integrated the smart parking network with the WiFi network, power source, lightpole assets,road signs, ParkCBR app and payments and enforcement systems.
- A detailed Project Plan was agreed and implemented within three weeks, establishing the smart parking network ahead of time, exceeding expectations.
- Governance documents include: Project Plan; Risk Register; PM Logbook; Communications Plan; Evaluation Plan; Board papers and updates. A Project Management logbook is used to treat identified issues with fortnightly meeting between client and provider. A project Board oversees the Trial and provides overall direction on achieving the objectives.

Resources used:

- The project was implemented using an agile project management approach, with a Principal Project Manager supported by Government line areas including expert review by the Strategic Adviser and Smart Parking Expert andby service provider operations and development staff.
- Additional value was achieved with the contracting of two extra LED traffic control devices, directing drivers to the off-streetavailability. SPL were contracted to build, own, operate and maintain the Smart Parking As A Service, with operational costs agreed using transaction basis.

Implementation time: 12 month(s)

Challenges and solutions

- Recommendations from the Trial currently include Need for Panel of subcontractor providers, to better meet the Territory specific standards on wiring, pole design, etc
- Need for Fully integrated Procedure Manual/Playbook on agreed documentation and approval process for deploying on ACT Government roads and assets covering power upgrades, lightpoles, roadside management, sign design, AusRoads, Workcover, WHS.
- Need for contracting additional Engineering Expertise from procurement through design and implementation

Partnerships

Various Partners

Academics and Research Bodies, Civil Society, Other Public Sector, Private sector

CITIZENS We listened to citizens about their digital priorities – smarter parking was number 1 and improved the user experience, placing the driver at the centre of the service transformation and app development. DIRECTORATES We established strong governance to work collaboratively across Australian Capital Territory Government – which was challenging but necessary to drive and deliver maximum value from this proof of concept and service transformation trial. EXECUTIVE We had clear authorising environment and leadership – Chief Minister, Strategic Board, and key sensor executives across planning, roads and parking operations Directorates. ACADEMICS/RESEARCH Data61/ CSIRO was contracted as our Strategic Advisor. VENDOR Smart Parking Limited, Melbourne, Australia
www.smartparking.com
SHARED VALUE Our Request for Proposal procurement specified detailed outcomes (Statement of Requirements was 17 pages), rather than simply directing outputs and asking for a costing – we created
shared value by having the market advise us of the most appropriate solutions in the trial zone. The ACT Government contracted Smart Parking using a SAAS contract and worked closely with Smart Parking in delivering the solution during a 16 week deployment program. Working with Smart Parking during this time,
further enhancements were developed to the solution; FIRST TO USE WIFI:
Communication via Digital Canberra's CBRFree WiFi solution, mains powered from lightpole columns.

Lessons Learned

Lessons Learned

- Emphasised the need for A Smart City 'Playbook' of agreed processes and documentation for deploying in a multistakeholderenvironment Best of breed subcontractors and app developers
- Expertise earlier in the project development and Consulting Engineer over the top of the 5 integrated designs to ensure delivery to time, cost and quality
- Locally based contractors experienced in State-based legislation andstandards.
- Greater Strategic Prioritisation of resources key partners across key organisations: power company, asset managers, central agency and line areas.
- Video is the most effective form of brand awareness https://www.youtube.com/watch?v=5hf7bJM1H70 with over 10% of the Canberran population having viewed this on the Government's Facebook page https://www.facebook.com/ACTGov/

Conditions for success

- Vision and high level Champion and project delegate ability to make timely decisions
- Implementation skills, resourcing and expertise through all stages after project approval: procurement, contracting, design and deployment and testing
- Accountability and a commitment to hold the robust conversations to ensure delivery to time, cost and quality in a multistakeholder environment
- Maintaining momentum and building through outcomes via regular reporting to ensure all stakeholders know we are making meaningful progress.
- Maturity of the solution and accommodation of learnt lessons in tweaking its performance in local conditions.
- Willingness of vendor to form channel partnerships to augment the service offering
- Willingness of line areas to change business processes and redesign services and leverage the enhanced capabilities and data
- Willingness to go above and beyond to get the outcome.

Other information

WiFi What Smart Parking have proven in this installation is that supporting multiple modes (2G/3G/4G, WiFi, Ethernet, Fibre) of back-haul communications between SmartCloud and SmartZones enable flexible higher reliability, capacity, and performance options for ACT Government Smart City solutions. This flexibility delivered by the SmartSpot gateways provides all the right modes of operation for modern Smart City solutions compared to other silo, single capability approaches for communications. Get started technology only needs to be able to delivery against the current requirements and functional spec, and be scalable not meet every future possible use case or scenario. Learn by doing Fear of fast paced technological change should not be an inhibitor of innovation, nor restrain a city's leadership in the testing, trialing and use of sensor based solutions and evaluation of its appropriateness and effectiveness under local conditions.