Structured Abstract

Citadel-on-the-Move: Creating a European Open Data Innovation Ecosystem

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Abstract
Citadel on the Move seeks to deliver on the key objectives of both Malmo and the Citadel Statement by empowering citizens to use open government data to create 'smart' mobile applications that can be shared across European cities – large and small. **Citadel on the Move** aims to advance this goal through the creation of an Open Data Commons (ODC), or open innovation ecosystem, which will serve as a focal point for knowledge exchange and collaborative working. The ODC will feature, amongst other things, practical guidelines for public administrations on how best to open data in accessible and easy to use formats and mobile application templates that make it easier for citizens to transform this data into new service innovations.

Introduction
On November 18, 2009, EU Ministers signed the Malmö Ministerial Declaration outlining a forward-looking eGovernment vision to be achieved by 2015. A key platform of the Malmo Declaration was to empower businesses and citizens through 1) eGovernment services designed around users' needs, 2) better access to information and 3) active citizen involvement in policy making. At the same time, Malmo also aimed to facilitate mobility in the single market. [1]

Despite numerous policy documents and 'how to' manuals on local eGovernment, over three year on, the 'Malmö Vision' is still not being translated down to the local level where citizens have the greatest day to day contact with government. Smaller communities in particular are finding it difficult to implement innovative ICT projects that engage citizens and drive innovation.

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[1] *The key 'Malmö' objectives that EU Member States have pledged to achieve in the next five years are:*

- *To empower businesses and citizens through 1) eGovernment services designed around users' needs, 2) better access to information and 3) active citizen involvement in the policy making process;*
- *To facilitate mobility in the single market by providing seamless eGovernment services for setting up business, studying, working, residing and retiring in Europe;*
- *To enhance the effectiveness and efficiency of government services by reducing the administrative burden, improving the organisational processes of administrations and using ICT to improve energy efficiency in public administrations.*

On December 14, 2010 Geert Bourgeois, Vice-Minister-President of the Flemish Government and Flemish Minister for Administrative Affairs, Local and Provincial Government, announced the launch of the Citadel Statement – a pan-European declaration that outlines the key things local government really needs to deliver on the vision set forth in the Malmo Declaration. The Citadel Statement gathered input from 64 organisations – including every major local government association in Europe – representing over 200 cities across five continents. Following an extensive online consultation, the Citadel Statement called upon EU and national decision makers to provide tangible support for local eGovernment in three key areas:

1. Common Architecture, Shared Services and Standards
2. Open Data, Transparency and Personal Rights
3. Citizen Participation and Involvement

Citadel on the Move is a 3 year CIP-PSP Smart City project co-funded by the European Commission that is intentionally designed to advance the objectives of the Citadel Statement by uniting Europe's leading local government organizations with Living Lab experts, ICT specialists and researchers and expert SMEs in a common effort to harness the power of 'Open Data' and User-Driven Innovation Systems to develop new service innovations that can be shared by citizens across Europe.

Opportunity and Challenge
Nowadays, mobile devices, especially smart phones, are widely used across Europe, and hold the key to ensuring e-inclusion of every European citizen. They provide the European citizens on the move with access to data, and the resulting potential to access any service, anywhere. At the same time, Social Media and the Open Data Movement are rapidly joining together to unleash the tremendous innovation potential of citizens to build the type of mobile services they want and need.

Three major gaps must be still filled to realise the full potential of these trends: 1) **TECHNOLOGY**: there is a need for standard mobile applications that citizens will ultimately be able to access easily and use anywhere, 2) **INNOVATION**: there is a need to create a specific link between co-creation methodologies, the Open Data movement and the Mobile world to create a user driven innovation ecosystem and 3) **OPEN DATA**: there is a need for clear guidelines on how best to open data in accessible and easy to use formats – or, in other words, *to move beyond 'open data' towards 'open access.'*

The Citadel on the Move Approach
Citadel on the Move aims to make it easier for citizens and application developers alike from across Europe to use Open Data to create the type of innovative mobile applications that they want and need. At present, Open Government Data is often difficult to access and use by even the developer community, let alone the average citizen. **Citadel on the Move** aims to fulfil this need by 1) promoting guidelines to make it easier for local government to release data in useable, interoperable formats and 2) creating templates that make it easier for citizens to create mobile applications that can be potentially used and shared across Europe.

Solution development for Citadel on the Move entails the following key steps:

Part I: DATA

1. Identify open access data publication i.e. data that is accessible to the non-developer world and in full compliance with data protection and privacy directives (See B3.4 and WP3).
2. Raise awareness of existing standards which support the broadest interoperability, and advises cities to follow clear pragmatic steps to ensure they publish open data in a way which is 'friendly' to interoperability middleware.
3. Promote these standards via the open innovation ecosystem: existing open data networks, Living Labs, city administrators and public policy makers across Europe. [2]

PART II: TECHNOLOGY

1. Agree most appropriate technology to facilitate development of mobile applications that are interoperable and can potentially be used anywhere.
2. In-house development of template mobile applications for use of open access data resources in two target areas: tourism and transportation areas.
3. Release templates to the open innovation ecosystem for feedback, improvements, beta applications.

PART III: INNOVATION

1. Closed User Group: Up-skilling and inclusion of 'citizen developers' on use of the templates - via Living Lab methodology - in four partner cities –Ghent, Manchester, Issy-les-Molineaux and Athens.
2. Open User Group: Open call by all partners for the developer, Living Lab and nascent 'citizen developer' communities to access and use open data and mobile templates to help foster the creation of citizen and SME generated applications and services.
3. Proof of Concept: Promote the rapid uptake of the open innovation ecosystem/common space and resulting innovations (templates, applications) across Europe through collaboration with partner city organisations, the Living Lab Community, the 'Smart City Working Group,' and other innovation networks.

Preliminary Findings

Citadel on the Move has just completed the first year of a three year project. During year one, the project has found the following:

DATA:

- Standards for Open Data are relevant but cannot be defined top-down as they result from social adoption and technology convergence processes.
- Standards tend to define a path towards a coherent vision.
- A limited set of standards is starting to emerge within the Open Data realm around the Web of Data.

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[2] *For example: 1) The working Group on Open Knowledge in Developement http://wiki.okfn.org/wg/development 2) European Network of Living Labs, 3) The Global City Dialogue network and the 3) Linked Organisation of Local Authority ICT Societies.*

TECHNOLOGY:

- Building apps for mobile devices poses considerable development challenges as apps must be customised for specific devices.
- The development of HTML5, which is non-propriety and open source, simplifies the complexity associated with so many different mobile operating systems and offers a new opportunity for creating mobile applications that can be used on any platform.
- Citadel uses HTML5 to create simple template mobile apps that can be used with standardised open data.

INNOVATION ECOSYSTEM:

- Citadel has identified the creation of a common space in the public domain as key to uptake of Open Data.
- Citadel has created an Open Data Commons to facilitate the publishing of accessible data sets and serve as an on-going collection of shared tools and resources.
- The Citadel Open Data Commons is based on a partnership of the data and development communities and promote the emergence of standards and sharing standards of practice

Conclusions:

The goal of **Citadel on the Move** is to demonstrate that it is possible to combine Open Data Mobile Application tools to create 'smart,' innovative citizen-generated services that can be used in differing European Cities.

At the outset of the project, the Citadel team believed that the key challenges to success lay in technology and standards. During the first year, the team quickly learned that the key challenges actually lie within the realm of stakeholder engagement and governance.

To unleash the true potential of Open Data and Mobile Applications, local government cannot simply rely on ICT tools and trends alone. Instead, public administrations must do part of the work themselves by not only opening data in accessible formats but also proactively helping citizens to use this data to create new public service oriented applications.

Although doing so may sound easy, many local governments simply do not know where to even start let alone how to progress on this journey. **Citadel on the Move** hopes to address this need by using a newly created Open Data Commons, or open innovation ecosystem, to serve as a focal point for knowledge exchange around best practice standards and collaborative working around the development of mobile applications that can be shared and used anywhere.

Through the Open Data Commons, **Citadel on the Move** ultimately seeks to advance nothing less than digital materialisation of European integration by facilitating the development of innovative citizen-created services for a truly cross border market.

Keywords: Open Data, Open Innovation, Mobile, Innovation, Local Government