



**Consultation on directions for ICT-driven
public sector innovation at
European Union level**

Research and innovation in Horizon 2020

Draft paper



Public Services

ICT-driven public sector innovation at European Union level

Research and innovation in Horizon 2020

Vision for ICT-driven public sector innovation

ICT-driven public sector innovation refers to the use of Information and Communication Technologies (ICT) for the creation and implementation of new processes, products, services and methods of delivery which result in significant improvements in the efficiency, effectiveness and quality of public services as well as the wider operations of the public sector. It also refers to the ability of the public sector, as appropriate to its mandate and resources, to become more innovative in the way it operates and to itself support innovation in society.

The public sector is normally considered to be the main if not the only creator of 'public value', defined as goods or services which can be used or shared by many individuals or groups, and which other actors (including individuals themselves, civil organisations or the private sector) cannot or will not provide, or cannot provide as efficiently or effectively as the public sector.

Rationale

The Digital Agenda for Europe¹ aims to help Europe's citizens and businesses to get the most out of digital technologies. It is one of the seven flagship initiatives under Europe 2020², the EU's strategy for smart, sustainable and inclusive growth.

Undertaking research and innovation on ICT-driven public sector innovation within Horizon 2020 contributes also to the implementation of the European eGovernment Action Plan 2011 - 2015³, which includes, as one of its priorities, "Innovative eGovernment" under pre-conditions for developing eGovernment. The potential role of Europe's public sector is highly important given that it accounts for almost 50% of EU GDP, 20% of purchases of goods and services, and about 17% of employment⁴.

It is possible to identify a number of inter-linked drivers, trends and enablers, not as a comprehensive or complete list but one upon which your comments are welcome.

1°) Drivers and trends in ICT-driven public sector innovation

Open government and open governance – Open government is one of the pillars of ICT-driven public sector innovation based on open data, open services and open participation. However, for this to be realised, a broad open and collaborative governance framework, encompassing structures, organisations and processes, is also necessary to ensure that different parts of the public sector operate in synergy by sharing resources, infrastructures, data, content, people and competences, including offering joined-up services to users. ICT is a key enabler in making this possible.

¹ COM(2010) 245

² COM(2010) 2020

³ COM(2010) 743

⁴ Source of data: Annual Growth Survey, 2013: http://ec.europa.eu/europe2020/making-it-happen/annual-growth-surveys/index_en.htm

Government as a broad platform for public value creation – Although the public sector can create public value on its own, its potential to do so is enhanced through cooperation with other actors, or by enabling other actors to do so independently. By creating a broad ICT-supported platform and framework for collaboration across government and with many other actors like companies, SMEs, civil society organisations, communities, groups and individuals, as well as with hackers, designers and artists, the potential for innovation increases. In doing this, the public sector's role changes to one of coordinator, integrator, enabler, facilitator, arbiter, broker and regulator for the activities of others in delivering public value. However, government might not become an actor like any other as it still needs to fulfil roles which others cannot, including taking responsibility for overall regulation, quality, accountability for services and performance, responsibility if things go wrong, and for data protection and security.

Open services and new service approaches – ICT can be used by the public sector to develop services personalised to groups and individuals. Personalised services improve service quality and empower users to directly participate in their own service design and creation. Three different types of service can perhaps be recognised.

First, ICT can enable governments to observe and analyse societal developments using data to deliver quality services personalised for individuals. These could also be valuable for those who may be disadvantaged or unable to become involved in co-created services. Second, citizens or businesses, either individually or in communities, groups and localities, as well as through intermediaries of various types, can use ICT to select and create their own services.

Third, 'everyday' and location-driven services can be used, based largely on mobile devices using GPS, although web-based services are also relevant. Such services are offered or created depending on where the user is, as well as who they are and what they are doing. In all these types, there are recurring issues related to personal privacy, data protection and trust which need to be addressed.

Open participation and engagement – When ICT is used both by the public sector and by citizens, a wide vision of open engagement is possible. Users can be empowered to participate directly in service design and delivery; the workings and arrangements of the public sector and public governance widely (for example participatory budgeting); community building; dispute and conflict resolution; public and community policies and planning, etc.

Experimentation and bottom-up innovation – New forms of ICT-enabled open, bottom-up, evidence- and impact-led innovation, as well as social innovation, can be supported by the public sector. These types of innovation recognise that everybody and every group are potential innovators but this needs to be enabled and coordinated in order to have maximum effect. The public sector can create the conditions and provide resources for bottom-up innovation arising from large numbers of small experiments.

2°) Basic technology tools and other enablers

In order to facilitate above trends and visions, ICT is needed so that governments can engage the world outside and well as connect together inside. Two basic enablers are **infrastructures** and **processes**.

New types of infrastructure are needed by the public sector and its internal firewalled ICT systems to connect to and interact with the world outside. Also, new types of coherent end-to-end 'big processes' are needed to meet these needs whilst retaining the ability to support

decentralised tailored operations, and move rapidly to seize opportunities enabled for example by the analysis of 'big data'. ICT can also address two organisational trends which interplay to produce both economic and public value: the trend towards self-managed performance cells in organisations, and the trend towards loosely-coupled multi-organisational collaboration networks.

An open governance framework requires focus on interoperability (also of legacy systems), open standards, and storing data and services in the 'cloud' to enable accessibility and use by many users. It can also benefit from recent web 3.0 developments based on the automatic machine exchange of data and applications. These enable the 'semantic' integration of data so users can ask questions instead of simply searching for key words. Also, ecosystems of public sector apps can be created (often through co-creation with other actors) derived from open data and user data mashups, whilst games can be used for 'serious' purposes.

Compared to other actors, the public sector seen as generally slow at exploiting existing Web 2.0 applications like social media, wikis, blogs, etc. Similarly, smart mobile devices are insufficiently exploited by government, given it can add where, when and who I am, to online services, content and data. In support of all these technology developments, rigorous and coordinated research is needed to develop methods and tools for cyber security, data protection, identity management and privacy.

Open data and big data – A transformatory new resource for innovation is open public data, made available in machine readable linked datasets which can be searched and mashed. "Big data" refers to the huge numbers of data now becoming available for people to use and for innovators to develop new products and services, as well as hold organisations and businesses to account. There are numerous sources of big data including open data released by the public sector; physical environmental data from sensors; data from social networks and co-creation platforms; crowd-sourced data including preferences and opinions; as well as data from businesses and civil organisations.

Policy modelling and making – There has been much research on common public sector tool boxes for data analytics addressing complex societal problems using evidence-based iteration and feedback, including crowdsourced and other data. Further research might be needed, for example socio-economic simulations using scientific forecast models based on 'big data'.

Measurement and monitoring – ICT data and tools can enable measurement and monitoring of public sector performance, efficiency and effectiveness to be improved and re-thought. Three recent ICT-supported trends have emerged.

First, moving up the value chain with focus on outcomes and impacts like successful service use, administrative burden reduction, and even growth, jobs and inclusion. Second, moving down the government hierarchy, away from a focus only on central government's concerns, towards local measurement and user engagement.

Third, moving out of the government institution, recognising that everyone and every group can potentially engage in open measurement and monitoring of the public sector, including businesses, non-profits, social entrepreneurs, universities, the social partners, communities, citizens and hackers, and that this can be done either in collaboration with government or independently.

Civil servants and working practices – Applications and processes are needed which enable civil servants, many of whom are leading professionals and decision-makers, to themselves

participate in ensuring government is open and engaging, for example by being equipped with the necessary skills, tools and support.

3°) Possible focus areas for research and innovation

The above trends in ICT-driven public sector innovation, as well as the technology and other enablers, can lead to a number of focus areas for research and innovation.

In relation to the drivers and trends:

- Open governance systems and how the public sector can create open ICT-supported platforms for public value creation.
- ICT-supported co-created, personalised and high impact public services, including the use of social media and smart mobile devices.
- Open participation and engagement supported by ICT across all areas of public sector operation.
- Experiments with ICT-supported open, bottom-up and social innovation involving large numbers of actors.

In relation to basic technology tools and other enablers:

- Infrastructures, processes and interoperability integrating different parts of the public sector, and linking the public sector with other actors.
- The innovative use of open and big data by the public sector and together with other actors, including policy modelling tools.
- Measurement and monitoring tools for use by the public sector itself or other actors.
- Further development of Web 2.0 tools and the introduction of Web 3.0 methods.
- Empowering the civil servant and making work processes more efficient and effective.
- Identity management, personal data protection and data security.