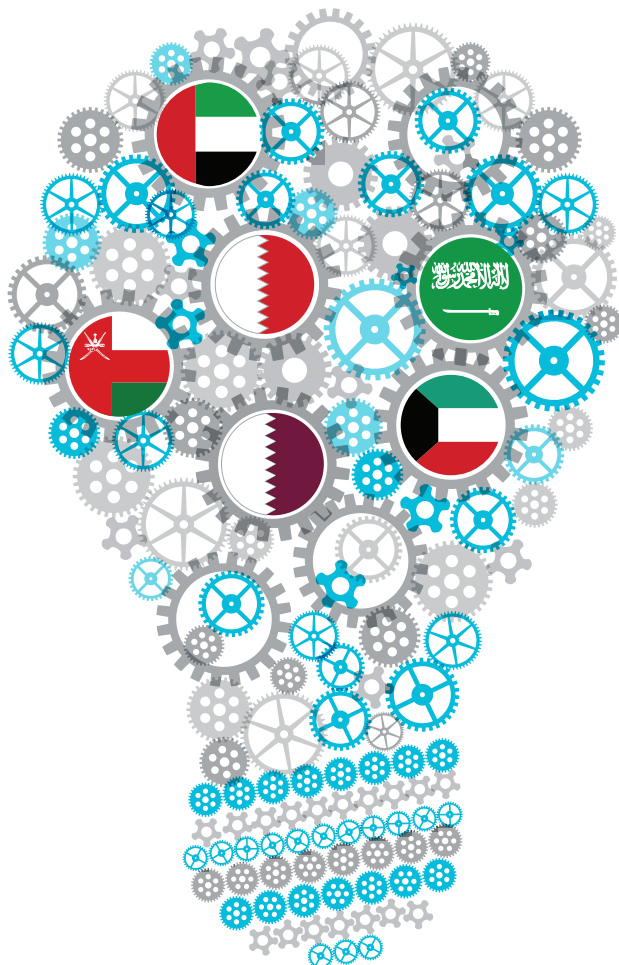The Government Summit Thought Leadership Series

An Exploratory Look at Public Sector Innovation in GCC Countries

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Foreword

This discussion paper was prepared for "The Government Summit", held by the Prime Minister's Office of the United Arab Emirates, 10-12 February, Dubai (UAE). Its aim is to take an exploratory approach towards public sector innovation in countries of the Gulf Cooperation Council (GCC). Innovation is treated in the broad sense of the word and the scope of this exercise does not allow drawing firm conclusions. It does, however, point to salient issues for more in-depth analysis of public sector innovation in this geographic region and for comparisons with innovation patterns in OECD countries.

The opinions expressed and arguments employed herein do not necessarily reflect the official views of the Organisation or of the governments of its member countries. This document and any map included herein are without prejudice to the status of or sovereignty over any territory, to the delimitation of international frontiers and boundaries and to the name of any territory, city or area.

INDEX

Issues for Discussion

Innovation in the public sector has become a necessity for many countries as they are struggling to maintain a high quality of public services in a context of reduced resources and increasingly complex socio-economic conditions. Despite growing focus on stimulating innovative approaches in the public sector, definitions, research and empirically guided policy advice are still limited in OECD countries. The OECD Observatory of Public Sector Innovation aims to advance the policy debate by developing common definitions and by building a better evidence base.

The following questions emerge by exploring cases of public sector innovation in GCC countries and juxtaposing them with experience from selected OECD countries; these questions are starting points for more in-depth discussion and analysis:

- Are public sectors channelling innovation efforts towards the support of policy outcomes? Public sector innovations in GCC countries appear to be strongly focused on improving dimensions such as service quality, user satisfaction and administrative efficiency. But GCC countries also face increasingly intricate societal challenges such as growing demands for participation, high shares of foreign residents and deeply rooted environmental pressures. Some of these challenges would benefit from innovations that are channelled towards the achievement of joint policy objectives. While the UAE's Tas'Heel system provides important lessons on the design of efficient delivery partnerships, Job Services Australia indicates how service delivery innovations can also support national policy objectives.

- Are stakeholders taking part in public sector innovation design and implementation processes? The "customer" experience appears to be a recurrent theme of public sector innovations in GCC countries. More research is however needed to scope GCC country efforts that go beyond the use of service charters, ratings and awards towards truly collaborating with key partners. Projects such as Denmark's NemID or the United Kingdom's Gov.UK illustrate the added value of early on working with key partners as a means to achieve policy objectives.

- Are governments in GCC countries striking the right balance between investing in technological and non-technological innovation? Availability of resources and the desire to stay "ahead of the curve" appear to induce large investments in technology. Experience in OECD countries however suggests that technology investments require parallel investing in individual and personal capacities to remain effective over time. Since internal capacity build-up is accelerating in GCC countries, non-technological innovation patterns merit further analysis.

- To what extent is public sector innovation in GCC countries shaped by international practices? Frequent adoption of international best practices can be perceived as an easy solution to leapfrog stages of development; and the large number of foreign nationals working in GCC country public administrations can be a rich source of innovation. Too strong dependence on international experience, however, bears the risk of overlooking important context and cultural factors, e.g. specific digital access barriers or long-term societal challenges.

- Are GCC countries moving towards anchoring innovation capacities in institutions? Spontaneity certainly stimulates innovation. However, OECD countries increasingly engage in a debate about framework conditions and dedicated tools to stimulate and channel innovation.

- Which factors are of greatest relevance to GCC countries for analysis and measurement? Although context factors and resources are often different from OECD countries, innovation patterns and results seem to share common features. Is there an added value in comparing innovation activities, enablers and barriers between GCC and OECD countries?

What is Innovation in General?

Innovation in the general sense is a driver of growth for businesses and national economies; and it is a major contributor to societal welfare. A large body of empirical evidence supports the common understanding that innovation spurs changes, both incremental and radical, that lead to better business results vis-à-vis competitors and that improve the competitiveness of a national economy. Technological progress is certainly a key component of innovation, although research in the past decades underlines that non-technological innovations, e.g. in the areas of marketing, organisation and design, can lead to changes that are just as novel and radical.

The complementary nature of different types of innovation is especially important when considering that innovation is expected to address a number of "grand" global challenges. This includes dealing with rising inequalities, lack of access to education and healthcare, ageing societies, unprecedented environmental pressures. Addressing these challenges requires innovative approaches that combine technological progress with progress in other areas, e.g. processes and organisation. Policy-makers therefore look to the analysis of innovation for guidance on how to design and implement policies that channel innovative capacity towards expected outcomes.

Defining innovation

Private sector innovation has been subject to research and policy analysis for several decades. Commonly agreed definitions of innovation therefore exist for the private sector and need to be recalled before turning to the analysis of innovation in the public sector. The starting point is the Oslo Manual, which consists of widely recognised guidelines to understand and analyse innovation. The Oslo Manual is being applied to collect data, to evaluate and compare innovation performance. In its third edition (OECD/Eurostat, 2005), the Manual provides a commonly agreed definition of innovation:

"An innovation is the implementation of a new or significantly improved product (good or service), or process, a new marketing method, or a new organisational method in business practices, workplace organisation or external relations"

The Oslo Manual also defines the terms *"innovative activities"* and *"innovative firm".* Of higher relevance to the study of public sector innovation, however, is the distinction between four basic types of innovation:

- **Product innovation** ("introduction of a good or service that is new or significantly improved with respect to its characteristics or intended uses"),

- **Process innovation** ("implementation of a new or significantly improved production or delivery method")

- **Marketing innovation** ("implementation of a new marketing method involving significant changes in product design or packaging, product placement, product promotion or pricing"), and

- **Organisational innovation** ("implementation of a new organisational method in the firm's business practices, workplace organisation or external").

The current definition of innovation evolved through continuous research and reflection of changing conditions. The first Oslo Manual focused entirely on the role of technological product and process innovation in manufacturing (1992). The growing importance of services sectors in national economies led to a revised definition that included service sector innovations (1997). The growing importance of intangible capital overall resulted in greater consideration of non-technological types of innovation. The third and latest edition of the Oslo Manual (2005) therefore expands the definition of innovation to include marketing and organisational types of innovation.

The definition did not stop evolving since 2005 either. There is greater recognition today of the role that skills and capacities play for innovation, the role of open and collaborative approaches, the role of global innovation networks, and of course there is common agreement that the Internet as a global platform is disrupting established innovation patterns (cf. OECD, 2010a). Altogether, these developments provide the context within which public sector innovation today needs to be understood, measured and promoted.

Measuring innovation

The progress in defining and analysing private sector innovation has also led to a high level of maturity for measuring innovation. Today, the Oslo Manual along with more specific guidelines, e.g. the Frascati Manual on measuring research and development (R&D) activities or the OECD Patent Statistics Manual, constitute a widely used toolkit to capture

innovation metrics and to compare them at the level of products, processes, companies, industry sectors, countries and geographic regions.

Innovation measurement largely focuses on inputs to the innovation process and on intermediate results. The indicators used most often are monetary expenditures on R&D, numbers of researchers, number of patent filings and applications. The reasons why this data is so widely used are its availability in internationally harmonised forms and the ease with which it can be used to compare innovation performance of individual enterprises, industry sectors or entire countries (cf. Figure 1).

What is lacking to a large degree are indicators on results and impacts of innovation as well as data that provides clear

policy guidance on how to leverage skills and capacities, collaboration, networks and the Internet. The innovation measurement agenda therefore focuses on designing indicators and collecting data to address some of the apparent gaps. For example, entrepreneurship and start-up activity are being analysed as to their contributions to economic growth and employment. OECD research shows that 2/3 of net job additions in the recent past come from high-growth start-up firms (OECD, 2010b). Other areas of innovation measurement require more research and analysis before conclusive policy advice can be formulated. This includes the role of innovation networks, the global distribution of innovation activities, spill-overs between different innovating sectors, and – most relevant to this report – the patterns of innovation in the public sector.
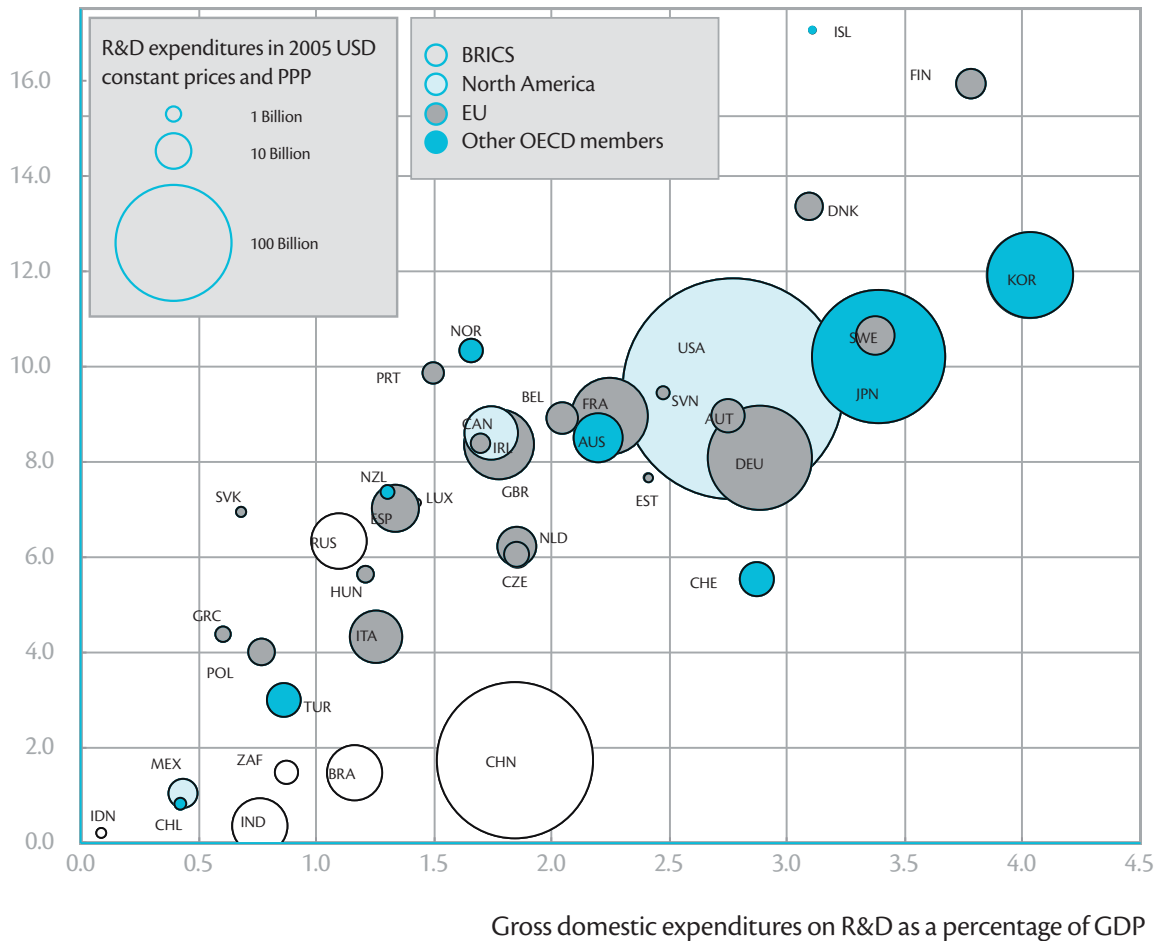

Figure No. 1
R&D in OECD and non-OECD economies, 2011 or latest available year

Source: OECD, Main Science and Technology Indicators Database, June 2011, http://dx.doi.org/10.1787/888932485196.

Why Study Public Sector Innovation?

It cannot be denied that governments innovate [1]. Innovations in the public sector can come in various forms: public goods and services, marketing or organisational approaches, public policies that address economic or societal challenges. And the fact that governments foster innovation teams, award innovation prizes, and sometimes are the ones to shape – not to adapt – private sector innovation are indicators that governments do innovate. Two prominent examples of innovations that originated in the public sector before they scaled through commercial applications are the Global Positioning System (GPS) and the Internet. [2]

The fact that governments innovate should not come as a surprise when one thinks of the weight of the public sector in most economies. Up to one half of GDP in OECD countries results from government spending and around 15 per cent of domestic employment is in the public sector (cf. OECD, 2011). This amount of economic activity can be expected to lead to innovations. The public sector also finances innovation: on average, 28% of R&D spending is borne by government and higher education institutions in OECD countries (Figure 2).
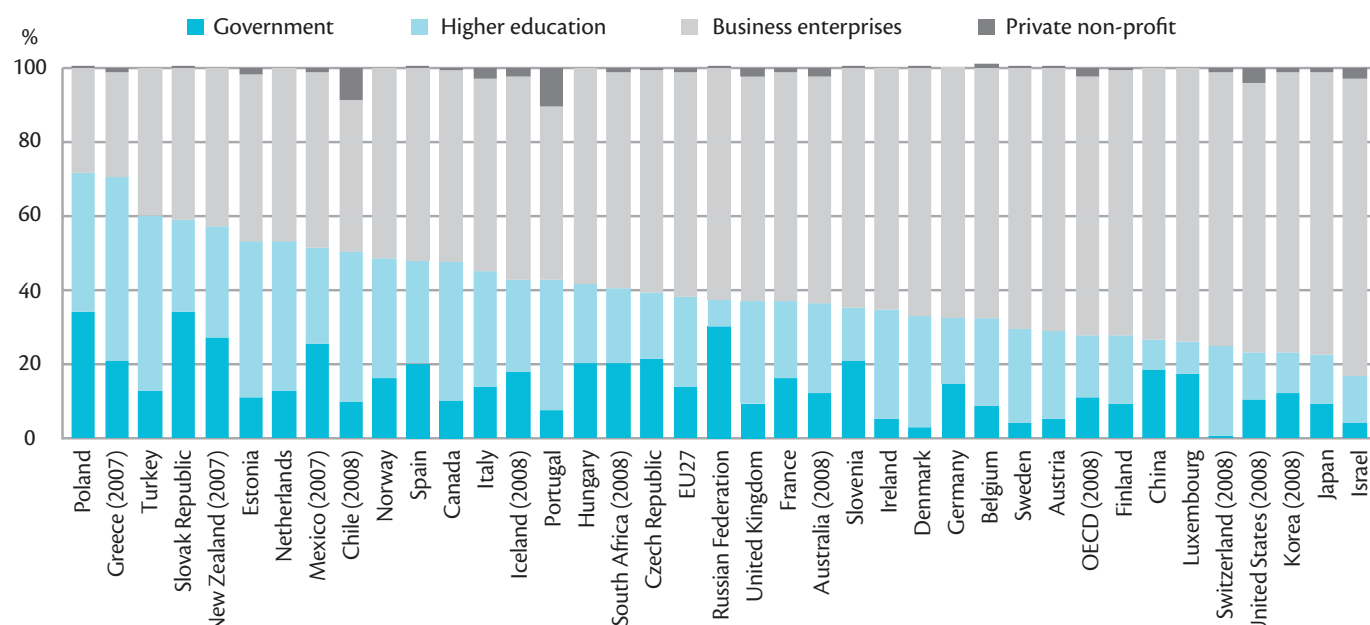
Figure No. 2
R&D expenditure by performing sectors, 2011v or latest available year
As a percentage of domestic gross expenditure on R&D (GERD)

Source: OECD, Main Science and Technology Indicators Database, May 2011, http://dx.doi.org/10.1787/888932485975.

[1] For the sake of simplicity the terms government, public sector and public administration are used interchangeably. Differences between the three are of secondary importance for the purpose of this report.

[2] The OECD Observatory of Public Sector Innovation is building a repository of public sector innovation cases to facilitate research in this area, http://www.oecd.org/gov/public-innovation/observatory-public-sector-innovation.htm.

Although governments have always innovated, the focus on government innovation in research and analysis is relatively recent. Some context factors can explain why policy and research communities now increasingly turn towards defining, understanding and fostering public sector innovation:

- An **organic evolution** of the innovation research and measurement agenda. The previous section explained that the definition of innovation developed over time, influenced by better understanding and greater public interest. International research agendas are therefore evolving, covering further sectors and new types of innovation. This is naturally leading to stronger focus on the public sector and its role as innovator and facilitator of innovation.

- Global **"grand challenges"** where individual innovations alone do not seem to have sufficient power to arrive at solutions. Government policies are expected to channel and to complement private sector innovation towards solutions that can effectively address rising inequalities, environmental degradation, ageing societies, and other challenges. Considering the scope and magnitude of current grand challenges, it is evident that innovation is needed from both the private and public sectors and needs to be coordinated.

- The **global economic crisis** and the ensuing fiscal consolidation programmes across OECD countries. Commitments by OECD governments to reduce public budgets constitute an average 6% of GDP over the timeframe 2009-2015; some governments aim for over 10% (OECD, 2012). These consolidation efforts take place while citizens continue to expect public services of high quality. Governments are therefore under pressure to innovate in the ways that public goods and services are delivered. This is particularly true in those sectors that are key for societal well-being but that also constitute large shares of public spending: healthcare and education.

- Rapid **diffusion of information and communication technologies (ICTs)** and **pervasion of the Internet** in all areas of private and public life are leading to new patterns of collaborative behaviour. Government actions can be scrutinised like never before and at the same time governments can reach citizens in entirely new ways. A lot of innovation is therefore taking place in and involving the public sector under the umbrella of "open government" initiatives. This includes trialling of new channels for public service delivery, new

platforms for providing access to information and data, new ways of engaging with citizens via the Internet.

Defining public sector innovation

Unlike for the private sector, research on public sector innovation is still limited in quantity and has not yet led to a commonly agreed definition of the term. The major difficulty in defining public sector innovation is that terminologies developed for the private sector cannot easily be transposed. Concepts such as productivity, market-based competition and profits maximisation are the main determinants of entrepreneurial activity. But they cannot easily be applied to the study of government activity because the public sector is primarily concerned with creating public welfare and public value.

The current state of research identifies three common denominators for the definition of public sector innovation: novelty, implementation and results orientation. A 2003 study in the Canadian public sector identifies cases of organisational and technological change, some of which can be qualified as innovations. The study does not provide a definition of public sector innovation, but rather builds a repository of innovative practices (Canada, 2002). Research carried out later across ten European countries uses a definition for innovation that covers "deliberate behavioural change that is expected to achieve defined objectives" (Publin, 2006). This European study influenced definitions of public sector innovation taken up by subsequent work of the OECD network of National Experts on Science and Technology Indicators (NESTI), as well as empirical studies in Northern Europe (Mepin, 2010) and Australia (AUS DIISR, 2011). In the United Kingdom, NESTA developed a methodological framework that is on the one hand aligned with business-sector innovation terms (i.e. it covers service, process, organisation and communication innovations); on the other hand, the frameworks integrates the dimensions of innovation capability, e.g. human resources and organisational management, and the specific context within which public sector innovation cases are situated, e.g. incentives and public administration cultures.

The OECD Observatory of Public Sector Innovation (OPSI) integrates the progress made in the analysis of public sector innovation to date [3]. Its working definition for the collection of public sector innovative practices comprises three key characteristics: **novelty, implementation, and impact** (OECD, forthcoming). It must be highlighted that:

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[3] See http://www.oecd.org/gov/public-innovation/observatory-public-sector-innovation.htm.

- the novelty criterion cannot always be universally applied because governments also implement practices that have been trialled elsewhere, e.g. in the private sector or in another country. The practice can still be novel though, e.g. within the national context;

- the implementation criterion means that an idea must have been implemented, or at least be in the process of implementation;

- the documentation of impacts is crucial to generate policy-relevant analysis and advice. The OPSI today focuses on three impact dimensions: service quality, cost efficiency and user satisfaction. Even impacts of "failed" innovations can provide useful information for the design and implementation of future innovations.

The definition of public sector innovation is still evolving, similarly to trends around private sector innovation. While the concept of public sector innovation encompasses a wide range of approaches, technology plays an important role in the generation and diffusion of innovation in government. The Internet and related technologies do not only work as powerful enablers of innovation in government but they also change the ways that governments innovate. Mobile Internet diffusion provides a good illustration: in 2012, over 50% of the population in OECD countries connected to the Internet via mobile devices such as smartphones and tablets; the share is lower in developing countries but is growing fast [4]. This technological trend means that citizens are becoming used to 24/7 availability of commercial services and information; so they increasingly expect their governments to display similar levels of availability and responsiveness.

And governments do respond to these requests and use the Internet as a platform to drive incremental and radical changes. They provide smartphone applications and SMS-based services, they use social media to communicate and interact (cf. OECD/ITU, 2011; OECD, forthcoming). Some governments have gone farther, e.g. by using the Internet as a platform that encourages the delivery of public services by non-government entities. The City of Chicago for example provides Internet and smartphone applications to organise community-based snow shovelling services at times and in places where the city

cannot immediately intervene [5]. Other governments use the Internet as a complementary source of policy-relevant data. In Mexico and Honduras, law enforcement agencies trial the use of anonymous incident reports via Facebook, Twitter and SMS to complement official crime statistics in geographical areas that are prone to lack of data [6]; in the United States, the Billion Prices project collects consumer prices data from online retailers to complement and in some cases anticipate the production of official inflation statistics. [7]

These cases illustrate how technologies sometimes enable, sometimes drive public sector innovation. In all these cases, however, successful use of new technologies requires interaction with other innovation factors such as change management, skills and capacities development, cultural specificities. It is important to integrate these factors into the analysis of public section innovation in order to understand that the application of technology can lead to very different results under different context conditions.

Measuring public sector innovation

The fundamental difficulty in measuring public sector innovation is the lack of commonly agreed units of measurement. Innovation in the private sector is frequently measured and expressed through changes in R&D spending, patenting activity, productivity, profits, and employment. These measures are of limited use in the public sector, in most cases different measures need to be applied.

Current measurement trends focus on the processes, contexts and impacts of public sector innovation. Measurement of processes and contexts look at incentives and barriers to innovation, the role of human resources and skills, the diffusion and adoption of innovation. The measurement of impacts sets out by looking at the given objectives of a public sector innovation. These commonly fall under one of the following categories:

- Improving the quality of public services,
- Increasing user satisfaction,
- Raising the efficiency of public service delivery or other aspects of public sector organisation,

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[4] See www.oecd.org/internet/broadbandandtelecom/oecdbroadbandportal.htm.

[5] See www.cityofchicago.org/city/en/depts/mayor/snowportal/chicagoshovels.html.

[6] See http://archive.informationactivism.org/en/citivox.

[7] See http://bpp.mit.edu/.

- Fostering accountability and transparency of the administration,
- Contributing to the achievement of government policy objectives, e.g. reducing unemployment.

The analysis of impacts of an innovation case should also account for unintended results, i.e. changes that were triggered by the innovation even though they were not initially foreseen.

Research on individual innovation cases is also paving the way towards more general studies and comparisons. In the United Kingdom, NESTA piloted a survey of the National Health Service (NHS) and local government organisations. The survey for example attempts to identify the most important sources for innovation across the national public sector (cf. Figure 3, left). The EU Innobarometer 2010 applies a similar approach to a survey of innovation across European public administrations. By surveying a sample of loosely defined public sector innovators the study arrives at a distribution of innovation sources that is broadly in line with that identified in the United Kingdom (cf. Figure 3, right).

These examples underline that analysing and measuring individual innovation cases are important steps towards conducting more general studies of public sector innovation. The OECD OPSI, through its repository of individual innovations, will contribute to the identification of patterns that can eventually be compared across organisations or countries. These comparisons will, in turn, enable the formulation of policy recommendations on how to foster public sector innovation towards the achievement of defined objectives.
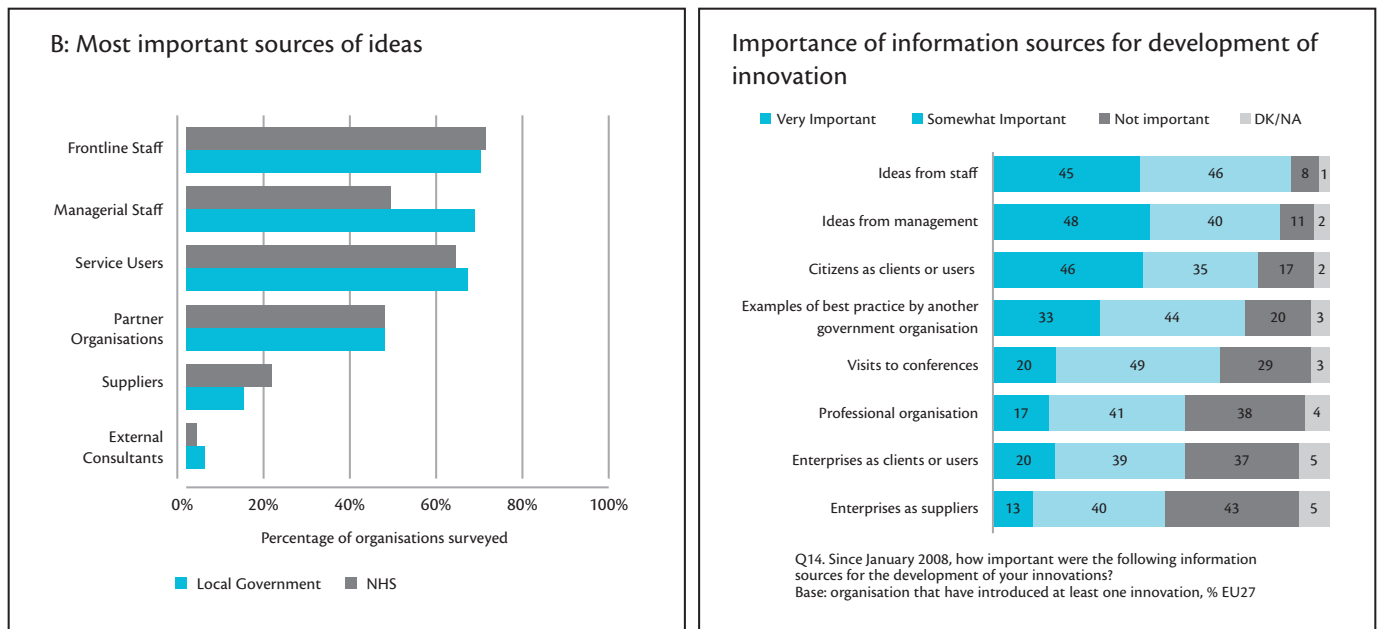

Figure 3:
Sources of innovative ideas in the public sector, United Kingdom (left), European Union (right)

Sources: UK NESTA, 2011 (left); Gallup, 2011 (right).

An Exploratory Look at Public Sector Innovation
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GOVERNMENT INNOVATION CASES IN GCC AND OECD COUNTRIES

Innovation cases over the following pages are a small sample of public sector innovation in GCC and OECD countries. The exercise consists of looking at innovation cases in similar areas of application and looking at experiences from both regions. Four application areas are selected: national e-government portals, digital authentication, public service ratings and partnerships with the private sector.

National e-government portals

The vast majority of countries today have an online portal that serves as entry point to digital public services and information. Many OECD countries started operating unified e-government portals around a decade ago and have since gone through various iterations. Nevertheless, governments continue to improve and innovate in this area because challenges remain, some of which seem to apply across most countries, e.g. regarding uptake of online services.

Bahrain: Bahrain.bh

Context

Bahrain experienced rapid economic development over the past decades. This development is largely due to the presence of fossil fuels, which today account for around 30% of GDP and 60% of government revenues, and expansion of domestic financial and services sectors. The population doubled over the past decade, surpassing 1.2 million inhabitants today. Over half of the population is composed of non-nationals, a mix of high-skilled and low-skilled migrants. Social development is visible, as the country ranks number 42 in the global Human Development Index (HDI). The Bahraini government formulated the Economic Vision 2030 to achieve a course of growth that is sustainable, competitive and fair. Challenges, however, remain regarding participation and inclusion of marginalized groups in social, economic and political life.

It is in this context that the government set ambitious e-government objectives. The first national government ICT strategy was implemented between 2007 and 2010 with the eGovernment Authority (eGA) as implementing agent. The strategy aimed to digitise the public sector, develop cross-government ICT infrastructures and digital public services.

Challenge

The e government portal Bahrain.bh is one of the most prominent projects of national e government developments. It was developed by the eGA and at its initial launch in 2006 it offered a first set of government services online.

Limitations of the portal were identified regarding the ease of use and integration of new services. The challenge was therefore to redesign Bahrain.bh in a way that would make the online services more flexible for users regardless of their capacity, context or access channel; and more flexible for the public administration in terms of expanding the scope of public services offered.

Innovation

Launched in 2007, the first national e-government strategy mandated a major overhaul of the portal Bahrain.bh in order to address the main challenges. The result of the redesign was an entirely new portal that integrated over 30 online services from different government ministries and offered users the possibility to make online payments to the government. In the following years, the eGA cooperated with partners to launch a range of new services:

- A mobile Internet version of Bahrain.bh (2009)
- Physical service kiosks across the national territory for users with limited Internet access capabilities (2009)
- A set of smartphone apps to access government information and public services (2012)
- Audio and video calling possibilities for visually impaired or hard of hearing (2012)

During the process of designing and implementing the different parts of Bahrain.bh the eGA encountered some challenges that are not uncommon in OECD countries:

- Lack of experienced ICT project managers and skilled staff. This relates not only to staff in the administration, but experts at the national level more general. As an immediate remedy, the government hired a large number of non-nationals; as a longer term solution, it initiated skills and capacity development programmes for civil servants.

- Uncertain levels of buy-in from stakeholders. To ensure commitment across the government, a new governance structure was created that involves a high-level steering committee led by the Deputy Prime Minister. Dedicated task forces for implementation of the national e-government strategy in each ministry were set up and centrally coordinated.

- New standards and policies were created to make existing online services interoperable with the national portal Bahrain.bh.

- Lack of awareness and uptake among the citizens. To raise the profile of the national e-government portal, awareness-raising and training campaigns were conducted. Physical service kiosks were established to expand access opportunities.

- Perceived insecurity of electronic payments. A digital authentication and identification infrastructure was created in 2012, e-Key (see below).

Results and next steps

Today, Bahrain.bh counts over 200 online government services. The most prominent services are administrative requests by civil servants, scheduling of appointments to receive the national ID card, and payment services for utilities, telecommunication services and traffic fines. Users can choose from a range of access channels for most digital services: web site, mobile Internet service, smartphone app, physical service kiosks. An interoperability model was developed in order to increase the easiness and speed of providing a greater number of services online.

Korea: Minwon 24

Context

Korea experienced rapid development in the second half of the 20th century. Determined industrial and trade policies, combined with ambitious social policies shaped this growth path. Technology and innovation therefore play a key role in Korea's economic, social and political development. This is illustrated by companies such as Samsung, LG, Posco, Hyundai and the SK Group who have successfully driven domestic competitiveness and global expansion.

Given the role of technological innovation in national developments, it comes as no surprise that government ICT

initiatives were launched as early as the 1980s (the "National Basic Information System"). The use of technology was firmly embedded in public sector reform plans that led to the first national e-government portal, Minwon 24.

Challenge

Before the introduction of Minwon 24 in the early 2000s, only a limited portfolio of public services was available online. Those that were online were scattered across a multitude of websites or other service channels. Most public service users still visited physical government agencies, which also kept the costs of providing administrative services high.

Innovation

Minwon 24, the national e-government portal, was launched in 2002 by the Ministry of Public Administration and Security (MOPAS). It was first developed as part of public sector reforms in the 2000s. However, major redesign efforts in 2009 and 2010 took place as part of the national "Civil Services Advancement Project". The portal now provides online access to over 3.000 public services, a mobile Internet version, smartphone apps and a large set of surrounding support services.

The redesign effort was new to the country, although not new in international comparison. MOPAS was able to build upon international experiences from countries such as the United States (USA.gov), Canada (ServiceCanada), Singapore (my eCitizen) and Hong Kong (gov.HK).

The major challenges along the process were about generating buy-in across government, generating trust in online services among users, and expanding access capacities. MOPAS set up governance structures to integrate representatives from different government departments as well as with local government respresentatives. Partnerships with the private sector ensured smooth implementation of online payments and enabled better marketing of online services. MOPAS also established secure data exchange protocols, and provided a set of dedicated support services for disadvantaged societal groups. Greater accessibility was in fact achieved through remote assistance services for people with limited access possibilities, special service channels and interaction possibilities for users with visual or hearing impairments, and by offering selected public services and information in foreign languages.

Results and next steps

Today, over 3.000 public services are available online via Minwon 24. This represents over half of Korean public services catalogued by the government. Service users and civil servants require less physical transportation and less physical documents to comply with administrative requirements.

Box 1: Outstanding government portal innovation: GOV.UK (United Kingdom)

The United Kingdom government recently redesigned its entire offer of online information and services. The official launch of the online portal www.gov.uk in October 2012 was more than the redesign of a product. The Government Digital Services team within the Cabinet Office innovated processes, organizational and marketing approaches in order to provide a rather outstanding experience to service users as well as the public administration.

Product innovation

Gov.uk is conceived as the single entry point to all public sector services and information. It substitutes DirectGov, which focused on citizens, and Business Link, which focused on the business community. The two services were not simply merged, however, but were subject to a complete rethinking of the ways in which government presents information and interacts via the Internet. The portal sets new standards for simplicity, accessibility and integration of online services.

Process innovation

The project team broke from traditional public sector approaches to procuring, contracting and developing ICT solutions. It was determined to use "agile development" approaches widely used in the private sector and to weave user feedback tightly into the process. To kick-start the gathering of feedback, a fully functional prototype (alpha.gov.uk) was made public only 12 weeks after the start of the project and with a total project spend of GBP 260.000, a relatively minor amount in this area. Two months later 100.000 visits had led to over 1.000 structured feedback items plus many comments via social and traditional media. This effort was complemented by in-depth sessions with representatively sampled user groups. All this feedback led into a second iteration of the portal made public in January 2012 (beta.gov. uk), followed again by extensive feedback collection online and offline. The official version of the portal was launched in October 2012.

Organisation innovation

The portal redesign is led by the recently established "Government Digital Services" team within the UK Cabinet Office. The team applies agile development methods in the design and redesign of public services. There seem to be visible impacts in terms of cost and time savings for ICT projects, greater availability of prototypes, a more inclusive design approach, and higher levels of interoperability.

Marketing innovation

The new portal gov.uk innovates in the way it describes government and government policies to the public. The "Inside Government" section (www.gov.uk/government) uses plain and largely jargon-free English to describe "who does what".

Digital authentication

The success of online government services depends largely on whether governments effectively tackle three challenges:

- Making services that are easy to use that are perceived as adding value,

- Establishing trust in the infrastructure and the protection of sensitive data,

- Making it easy to set up and integrate new services into existing portals and infrastructures.

Digital authentication systems are primarily targeted at creating a secure environment and a trusted relationship for the exchange of information. This is particularly important for financial transactions, e.g. government benefits payments, but breaches of privacy can also have severe consequences in other areas. However, consolidating authentication services and making them interoperable has also more direct benefits for users and the public administration. For users, it means they can use a single authentication mechanism across a range of public and private sector services, i.e. no need to deal with separate log-ins for public services, online retails, online banking, etc.; for the public administration, consolidation and interoperability can reduce the efforts needed to bring new services online and to integrate them into national e-government portals.

Bahrain: eKey infrastructure

Context

See description under "National e-government portals".

Challenge

Growing uptake of online services via the e-government portal Bahrain.bh also led to an increase of monetary transactions. About 25% of online services include payment transactions to and from the public sector. A major challenge is therefore to maintain ease of use while authenticating users and securing transactions to prevent identity theft and fraud.

Prior to the introduction of the eKey infrastructure, authentication was left to individual departments that offered online payment services. Users dealing with monetary transactions across government would typically use a different authentication mechanism in each case, which means they had to remember many different credentials. Moreover, many identification procedures required the provision of information contained in domain-specific ID cards (e.g. "smart card" for residents, "central population registration" card for employees). This information, once divulgated, would provide relatively easy opportunities to usurp an individual's identity.

Innovation

The eKey service and infrastructure were launched by the eGovernment Authority (eGA) in 2012. The main objectives eKey is expected to achieve are:

- Spread the use of secured authentication services across the economy.

- Reduce and avoid identity theft and data breaches, while maintaining ease-of-use.

- Limit the number of different authentication mechanisms imposed on users dealing with the public sector.

- Improve interoperability and ease of integrating new public services.

The eKey system provides a unified and secured way to authenticate a user for transactions via Bahrain.bh. Moreover, it can extend the authentication service to businesses and other non-government entities. Facing service providers, the eKey infrastructure allows for a choice of the level of security, depending on the sensitivity of the service in question. Three authentication levels are proposed, with incremental strength of the authentication mechanism, including fingerprint-based authentication for highly sensitive or high-value transactions.

Results and next steps

Since its launch in 2012, the eKey service is offered for 10 of the most frequently used transactions on Bahrain.bh. It is planned to expand the number of public services covered. Future plans focus on raising awareness with potential users and partners that wish to integrate eKey in their services, e.g. utilities and banks. A major line of work is also updating the country's legal framework to fully recognise eKey as a trusted authentication solution in legal terms.

Denmark: NemID (Easy ID)

Context

Denmark counts on a very innovative domestic industry. It is home to companies that lead global innovation trends across industry sectors. This includes widely recognized names Mærsk, Danske Bank, Carlsberg, Novo Nordisk, Vestas, Danfoss.

In parallel, the Danish government has long been leading e-government developments. Inspired by and cooperating with the private sector, Denmark often spearheads digital delivery as part of public sector reforms. High uptake rates confirm the popularity of these efforts: Denmark ranks within the top group of OECD countries for uptake of e-government services by both individuals and businesses. The most prominent digital services are:

- The portal borger.dk, a starting point for citizens looking for information and public services at the national and local levels.

- The portal virk.dk, a starting point for businesses looking for information and online administrative services, requirements and procedures.

- The Digital Post letterbox, which is shifting large volumes of written communication from physical mail towards an online storage and exchange system. It is widely used to secure communication between the public sector, individuals and businesses.

Challenge

Prior to the introduction of NemID the use of dispersed authentication mechanisms rendered access difficult. The government provided a digital signature, but uptake levels and integration of services were relatively low. This meant that users needed to remember different credentials for different public services. Moreover, widespread use of commercial online services meant that users had to remember additional authentication credentials for things like online banking. The Danish government also wanted to improve the ease and efficiency of integrating new digital services into its main e-government portals and was therefore looking for ways to develop an interoperable and easy-to-expand authentication infrastructure.

Innovation

In 2010 the Danish government launched NemID to provide a common authentication method for public sector, financial and commercial services. The system allows secure authentication of individuals and organizations. And it provides a standardized way to integrate new digital services.

Stakeholder involvement was identified as a key factor for success from the start. This was reflected in the project funding, which was shared by the public and private sector partners. And it made the engagement structure of the NemID project quite unique by closely integrating high-impact stakeholders throughout the entire innovation process:

- Regional and local government representatives are involved in strategic project decisions. The Danish association of municipalities ensures relevance of NemID to the large quantity of locally delivered public services in Denmark. The Danish regions steer developments of NemID in the healthcare sector.

- Banking and financial institutions are key facilitators of NemID. The option to use NemID for online banking authentication provides a strong incentive for individuals to register with the system.

- Development of the infrastructure was outsourced in order to benefit from private sector expertise. Nets DanID A/S was chosen as the development and infrastructure partner. The company also operates the Digital Post service.

- Feedback from service users was collected, including from selected representatives of marginalised groups.

Results and next steps

Over 3.5 million Danes are reported to have registered with NemID, representing around 80% of the eligible population (citizens and residents over 15 years). Two years into operation the system had already facilitated over 700 million transactions. The majority of users use it for both public and banking services. In fact, the banking sector reports that intrusions to online banking accounts fell dramatically since the introduction of NemID.

Box 2: Outstanding digital authentication innovation: Aadhaar (India)

Aadhaar means "foundation" in several Indian languages and denominates what is arguably one of the world's most ambitious national ID and digital authentication schemes. Since the project started in 2009, Aadhaar is aiming to fulfil the political mandate of achieving greater inclusion in a country with over 1 billion inhabitants, many of which are marginalized in their social and economic opportunities. Part of the marginalization is due to cultural factors, but a major reason is that many people lack official identification documents or formal bank accounts. Moreover, Aadhaar is expected to make India's enormous government apparatus more efficient and to reduce widespread corruption and fraud in the delivery of public services.

Looking at the project in more detail, one quickly understands the prime role of technology as a catalyst for Aadhaar. This is illustrated by the fact that Prime Minister Singh appointed the CEO of Indian ICT giant Infosys as head of the newly created Unique Identification Authority of India (UIDAI). Nandan Nilekani is tasked with implementing the project with its following main pillars:

• A unique identification number that enables online registration of all residents,

• Highly sophisticated de-duplication technologies to ensure no duplicate or fake IDs are delivered,

• Free choice of registration offices, e.g. ministries, the state bank, commercial banks and insurances to improve access and to stimulate competition between service providers.

As of January 2013, over 260 million individuals registered with Aadhaar, which corresponds to around 20% of the population. Registration rates are relatively balanced between women and men, which points to progress being made towards achieving greater inclusion. Challenges remain though with regards to reaching large parts of the marginalized population, stimulating use of the system, adequately securing and controlling access to the full biometric profiles of citizens, and managing the risks of a very ambitious public infrastructure project.

Public service quality ratings

Rating the quality of public services is no easy task. Methodological issues are one aspect, but the large variety of areas of service provision across government makes it difficult to design harmonized rating systems. Although some sort of evaluation does take place in most countries, few actually make the assessment results publicly available. This constitutes a missed opportunity to inform users and to stimulate identification and diffusion of innovative practices. The two examples provided here are innovative in the sense that they attempt to create such a virtuous "race to the top" through publicly available ratings.

UAE: Star Rating

Context

The UAE is a major exporter of fossil fuels and an important hub of international financial and trade activities. Its demographics are quite unique in that 80% of residents are non-nationals, a mix of high-skilled and low-skilled migrants. Long-term national priorities are outlined in the "Vision 2021" and include diversification towards a knowledge-based economy, enhancing the role of Emirati nationals in the private and public sectors, developing public service excellence and moving towards sustainable patterns of living.

The federal government of the UAE is the main catalyst for implementing the Vision. The "UAE government strategy 2011-2013" sets strong focus on improving and harmonizing the quality of public services across all seven Emirates. In fact, interactions between the federal and local levels of government are an important determinant of service quality given the federal set-up of the state.

Challenge

Public service quality naturally differs between individual providers. In the ambition to sustainably raise the quality

of services across the entire public sector, the UAE federal government identified two interrelated challenges:

- How to inform service users of the quality of service they can expect to receive from a government department, an agency or a specific point of delivery?

- How to foster a dynamic system of continuous improvement and innovation of public services?

At the outset of the "UAE government strategy 2011-2013" the use of ratings for public services was limited to specific policy areas or geographic territories. Public and private sector schools are for example evaluated in Abu Dhabi and Dubai, but less so across the remaining five Emirates. The challenge for the federal government was to establish a rating system that could be applied for any public service agency in the UAE, regardless of the specific nature or location of the institution.

Innovation

The UAE Prime Minister launched the Star Rating system in 2011. Between two and seven stars are awarded to institutions that deliver public services to individuals or businesses. The initial rating is based on set of quality criteria that cover strategic alignment of the agency's services, various service delivery factors and the use of enablers such as capacities development and technology applications. The highest rating, seven stars, requires openly sharing knowledge about the service delivery practice and consistently achieving high satisfaction scores in user and employee surveys.

The current first round of ratings is based on voluntary participation. The Prime Minister's office provides hand-on guidance for agencies and service centers that wish to be rated. Various training options are provided to service delivery agencies with the aim of generating sustainable improvement actions. Once an agency is rated, "mystery shoppers" are employed to randomly check continued compliance. A repeat assessment is programmed to take place three years from the initial rating. But sooner assessments are possible if a sudden and significant change is anticipated.

It should be noted that the Star Rating initiative is part of a set of measures the federal government initiated to raise the quality of public services. A customer service charter is available for agencies to implement, a physical and online feedback system has been put in place (MyGov), government excellence awards and service labs aim to instill continuous strive for public service innovation.

Results and next steps

A total of 23 government departments participate in the Star Rating to date. In the current, voluntary phase of the roll-out each department selected one service delivery entity to be rated. This sample is also an important source of feedback to improve the system before rolling it out across over 100 service delivery centres by the end of 2013.

France: Public Service Barometer

Context

In 2007, France engaged in a large public sector reform exercise, the "General Revision of Public Policies" (Révision Générale des Politiques ubliques, RGPP). The initial aim was to review public policies and service delivery across all areas the entire government. However, the reforms enacted almost exclusively focused on raising efficiencies in the public sector, which led to sustained and often polarizing public debates throughout the five years of the programme implementation. In spite of this, it can be recognised that the RGPP boosted the drive for modernisation in a national public administration that had long been perceived as being bogged down by inefficiencies and entrenched interests.

Challenge

At the outset of the reform programme, the government and the general public lacked an overview of public service quality in France. Efforts had been undertaken since the beginning of the 2000s to orient public service delivery towards the needs of users. The Marianne Charter (Charte Marianne) for example was introduced in 2005 and defined user satisfaction as a primary objective for service delivery agencies. However, this and related efforts were not matched by systematic evaluation of public services. There was neither a clear indication of the current status of public service quality, nor an indication of how things developed over time. The government had limited possibilities to identify good practices in a structured manner and to incentivize diffusion of good practices.

Innovation

Launched in 2010, the Public Service Barometer (baromètre du service public) aims to address some of the challenges. The Barometer measures quality of public services based on a mix of survey-based criteria and quantifiable performance measures. Surveys are for example used to evaluate the perception of friendliness and effective treatment by users that recently had

direct contact with the public administration; performance metrics are used to assess arrival times of emergency services or waiting times at service delivery agencies.

The Barometer was conducted four times between 2010 and 2012 with incremental changes to the methodology. It is published as a two-page overview that shows aggregate performance values for selected service areas of the national public administration; and it shows developments since the previous edition of the Barometer.

Results and next steps

The Barometer received a great attention at its initial presentation. The visual and intuitive overview of service quality levels was easy to understand. However, its simplicity also drew criticism that the barometer was too aggregate as to enable specific improvements. No disaggregate data was available, meaning that the rating of individual delivery agencies was unknown and could not be compared to peers as is the case in the Star Rating system of the UAE.

Following a change in the French government in 2012, the RGPP was halted and the process of public sector reform is being redesigned. The Barometer was suspended until further notice. In fact, redesign of the Barometer is part of a general restructuring of responsibilities under the new government. An office for public sector modernisation was created under the Prime Minister. It now integrates so far dispersed responsibilities for public sector reform, public sector innovation, e-government and open government data in France. A redesign of the Public Service Barometer has been announced with the aim of making it a more effective stimulator of public service improvements. It is also expected that future editions of the Barometer will publicise all underlying datasets on the national open government data portal (data.gouv.fr).

Private sector partnerships for public employment services

The provision of public employment services is undergoing changes in OECD countries. Ministries of Labour and their affiliated agencies are traditionally (and with difference between individual countries) concerned with administering unemployment benefits, channelling skills and capacities development and placing the unemployed back into employment. The economic crisis puts additional pressures on public employment service providers that had often been stretching existing resources for a long time.

But aside from cyclical factors, a more structural change has been taking place. Public employment agencies in many OECD countries have witnessed increasing levels of private sector competition "erode" government monopolies. Job intermediation efforts by the private sector, including Internet-only offers such as Monster.com, today fill the majority of vacancies in countries like Germany, France or the United Kingdom. This changes lead to questions about the efficiency of the public sector in jobs intermediation; but they also undermine the potential of the public sector to leverage employment services for the achievement of important policy objectives: activating the long-term unemployed and stimulating structural changes in the domestic workforce.

UAE: Tas'Heel one-stop shops

Context

See above.

Challenge

Before the introduction of Tas'Heel the federal Ministry of Labour (MoL) was responsible for making policies, conducting inspections, issuing work permits and registering employers. High labour turnover in the UAE was however stretching resources. The issuance of labour permits to labourers and other administrative acts were identified as major bottlenecks for effective employment service provision. The Ministry estimated that 80% of resources were dedicated to the delivery of "front-line" administrative services and only 20% on policy development and inspections. This means resources were being focused away from the prime objective of the Ministry: to formulate strategic employment policies; and to improve compliance with regulations.

Moreover, existing online services were hardly being used by smaller firms and the high numbers of low-skilled foreign labourers. This translated into large amounts of paper-based forms being processed by the Ministry.

Innovation

To respond to the challenge, the UAE federal Ministry of Labour set itself the strategic objective of dedicating 50% of resources to policy-making, 30% to inspections and only 20% to front-line service delivery. Starting in 2007, the plan was implemented through a system of physical one-stop shops for employment services, Tas'Heel (Arabic for "Make it easy").

The Tas'Heel system operates as a franchise contract between the Ministry and a private sector service provider. The franchisee operates physical service delivery centres for the handling of administrative requirements and services under national labour law. The Tas'Heel operator is entitled to a service fee per completed transaction as defined by law.

The Tas'Heel system introduced full electronic case handling. Information at service delivery centres is transferred in electronic form to the Ministry for further approval and other processing. This measure is an important component of reducing the duration of workflows at the Ministry of Labour; and it also improves reporting and accountability of the Ministry's operations.

Finally, employees at individual Tas'Heel centres are trained to deal with clients that speak neither Arabic nor English, which is common among low-skilled migrants in the UAE.

Results and next steps

In 2012, five years into the system's operation, about 85% of labour-related requests reach the Ministry of Labour via the Tas'Heel system. The objective is to reach 100% in the medium term. Since all transactions are handled electronically, significant resources are freed up at the Ministry to focus on strategic priorities: making policies and ensuring compliance.

Further measures of the system's impacts are: a) number of Tas'Heel centres and the b) number of transactions. The number of service delivery centres across the UAE stood at 25 in 2012 and it is planned to have over 40 by the end of 2013. The number of transactions has grown steeply due to the rapid economic development of the country. But the fact that the system can cope with such growth rates also suggests resilient design:

- **2007:** 25,686
- **2008:** 317,443
- **2009:** 1,737,291
- **2010:** 2,089,040
- **2011:** 4,880,388

Discussions are underway to extend the range of services offered in physical Tas'Heel centers. This could include filing of immigration-related requests to the Ministry of Interior, a process that is synergetic because it is required by many of the labourers that file requests for employment permits at Tas'Heel.

Australia: Job Services Australia

Context

Australia has witnessed two decades of uninterrupted economic growth, spurred to a large degree by the mining and financial services industries. Throughout that time unemployment fell from over 10% to only 4% in the mid-2000s. Even during the recent economic crisis, Australia's employment remained relatively stable. Pressures to modernize and improve Australia's public employment services have therefore been less pronounced over the past twenty years than in other OECD countries.

The domestic policy debate nevertheless geared towards greater demands for performance orientation in the delivery of employment services. After having trialled various partnership forms with non-government actors, the Australian government in 1998 outsourced almost all job intermediation services to private sector and community providers. The scale of the project was unprecedented and the Australian Job Network has since provided important evidence for international policy discussions about private sector involvement in the delivery of public employment services.

Challenge

The Australian government was determined to address two major challenges through establishment of the Job Network: a) to sustain effective and efficient employment intermediation; b) to be transparent about results, also as a means to encourage service improvements through competition. The Australian parliament in 2007 concluded that the Job Network was cheaper than government provision and that it increasingly outperformed the original system of public sector provision.

Nevertheless, various assessments of the Job Network identified a couple of shortcomings and challenges that had only partly been addressed by previous incremental improvements. A change in government in 2008 then triggered reforms of the Job Network to address some of the more prominent challenges:

- The Job Network was criticised for its tendency to encourage "one-size-fits-all" approaches to job seekers without sufficient reflection of individuals' needs in determining the category of service level needed;

- The incentives structure did not sufficiently encourage a stronger focus by job intermediaries on highly disadvantaged groups;

- Excessive administrative requirements on service providers were reported;

- Levels of cooperation with industry and potential employers could be improved;

- Information about performance of individual service providers was either not available or not easily accessible to job-seekers.

Innovation

In 2008 the Job Network was transformed into Job Services Australia (JSA). The system did not break with the original commitment towards cooperation with private sector and community employment service providers. What it did though was to overhaul some of the inner workings of the system:

- Harmonisation and merger of several individual programmes for labour market insertion;

- Improved attention to individual situations through use of a revised scoring system (JSCI) to determine the necessary level of service;

- Improved possibilities for a job-seeker to switch employment service providers;

- An evolution of the performance evaluation and rating mechanisms.

The improvements to performance evaluation are worth highlighting because they relate to public service ratings discussed earlier. The JSA system aims to use ratings as a means to improve user choice, but also as a way to achieve public policy objectives:

- Key performance indicators (KPIs) were developed to regularly assess efficiency, effectiveness and overall performance of individual service providers.

- The KPIs are used to calculate star ratings for service providers and individual agencies. The system is expected to improve user choices and thereby encourage competition on better service quality. Job-seekers can directly consult and compare the ratings via http://jobsearch.gov.au//default.aspx

- But the KPIs are also designed to incentivise the treatment of "disadvantaged" job seekers who either are or risk being out of employment for longer periods. The system in fact weighs efficiency and effectiveness indicators differently when calculating the overall assessment of jobs intermediation for an unemployed person. Quick job placements are prioritised for unemployed that are judged to be "work ready", i.e. having profiles that match current market needs. This is not the case for job seekers with a "disadvantaged" personal profile where long-term outcomes are prioritised in the assessment, e.g. whether the person was still in employment after an extended period of time.

Results and next steps

As of 2012, over 100 private-sector and community providers deliver employment services through over 2.000 physical centres across Australia. The KPI and Star Rating have proved instrumental to constantly assess the quality of services delivered, to orient job-seekers in their choices and to better leverage the delivery of employment services towards achievement of labour policy objectives. The simplification of administrative requirements for service providers remains an outstanding challenge to address.

A PRELIMINARY CONCLUSION

The obvious finding is that governments in GCC and in OECD economies innovate. Contexts and conditions are different, but some of the challenges end up being relatively similar. The current exercise therefore provides a number of entry points towards more in-depth analysis and comparison of public sector innovation in GCC and OECD economies.

In fact, context factors seem to be very important in shaping public sector innovation in GCC countries. After all, countries such as Qatar, Kuwait and the United Arab Emirates (UAE) are among the richest in the world, measured by GDP per capita. This endows public sector organisations with specific opportunities and challenges, many of which can be expected to shape innovation patterns:

Governments in GCC countries have considerable resources to pursue ambitious innovation agendas. The innovation cases examined here suggest a strong emphasis on the technology dimension of innovation. More analysis is needed to understand whether technological innovations are introduced at the expense of other forms of innovations, e.g. in human resources, processes and organisations. Early e-government developments in OECD countries for example illustrate that strong focus on the technological dimension alone was not sufficient to stimulate satisfactory uptake rates for online services.

Governments in GCC countries arguably have more space to trial innovations than many OECD countries because of less constraining politico-administrative factors. Of course, this also means that decision-making processes are in general less inclusive. Even where stakeholders are formally informed or consulted, their representation is relatively low because civil society representation is not as organised and institutionalised.

Governments in GCC countries do, however, recognise that demographic trends are leading to higher demands for information, consultation and participation by very young and increasingly educated populations. Stakeholder engagement should therefore be seen as an opportunity to expand the range of available sources for public sector innovation. Public governance processes are changing in that direction, also through exchange of experiences with OECD countries as part of the MENA-OECD Governance Programme.

Public sector capacities are in some areas limiting the sustainability of innovation processes in the long term. Rapid economic and social expansion doubled the population of some GCC countries over the recent past and national citizens today constitute less than 50% of Bahrain's population and as little as 20% in the UAE. This ethnic mix poses specific challenges to inclusive delivery of public services, but it also challenges the public sector's capacity to design and implement innovations that give due consideration to specific context conditions. Channelling innovation towards individual and organisational developments is therefore a prime imperative in GCC countries.

A final important factor to consider for innovation – public or private sector – in GCC countries is that governments are aware of some of the adverse effects of rapid economic development. In global comparison, production and consumption in GCC countries display the highest per capita environmental footprints. This is partly because abundance of fossil energy sources stands in contrast to pronounced scarcities of natural resources such as freshwater or arable land. Measures to tackle some of the scarcities are often energy-intensive, e.g. water desalination, and therefore provide only short-term answers. But the challenges of rapid economic growth also relate to life-styles where adverse effects on individual and collective health are becoming more frequent. Innovations emanating from the private and public sectors in GCC countries are therefore also expected to find or at least enable solutions to these challenges.

REFERENCES

AUS DIISR (2011), "Working towards a measurement framework for public sector innovation in Australia: A draft discussion paper for the Australian Public Sector Innovation Indicators Project".

Gallup (2011), "Innobarometer 2010: analytical report. Innovation in Public Administration", survey commissioned by the European Commission.

Mepin (2010), "Measuring Public Innovation in the Nordic Countries: final report", report by Carter Bloch.

OECD/Eurostat (2005), Oslo Manual: Guidelines for Collecting and Interpreting Innovation Data, 3rd Edition, OECD, Paris.

OECD (2010a), The OECD Innovation Strategy: Getting a Head Start on Tomorrow, OECD, Paris.

OECD (2010b), Measuring Innovation: A New Perspective, OECD, Paris.

OECD (2013), Government at a Glance 2013, OECD, Paris.

OECD/ITU (2011), M-Government: Mobile Technologies for Responsive Governments and Connected Societies, OECD, Paris.

OECD (2012), Restoring public finances, 2012 update, OECD Paris.

OECD (forthcoming), "Social media use by governments", unpublished working document.

OECD (forthcoming), "Overview and initial categorisation of innovative practices", unpublished working document.

Publin (2006), "Innovation in the public sector: summary and policy recommendations", Public report No. D24.

Statistics Canada (2002), "Innovation and Change in the Public Sector: A Seeming Oxymoron", report by Louise Earl.

UK NESTA (2011), "Innovation in Public Sector Organisations: a pilot survey for measuring innovation across the public sector", report by A. Hughes, K. Moore and N. Kataria.

Further reading on selected innovation cases:

Australia: OECD (2012), Activating jobseekers. How Australia does it, OECD, Paris.

Australia: Thomas, M. (2007), "A review of developments in the Job Network", Parliament of Australia, Research Paper No. 15.

Denmark: OECD (2011), "National Strategies and Policies for Digital Identity Management in OECD Countries", Digital Economy Working Paper No. 177, OECD, Paris.

Denmark: Website of the Danish Agency for Digitisation, "Digital Signature/NemID", www.digst.dk/Servicemenu/English.

France: OECD (2012), OECD Public Governance Reviews: France. An international perspective on the General Review of Public Policies, OECD, Paris.

India: Sathe, V. (2011), "The World's Most Ambitious ID Project (Innovations Case Narrative: India's Project Aadhaar)", innovations, Vol. 6, No. 2.

India: Klitgaard, R. (2011), "Designing and Implementing a Technology-Driven Public-Private Partnership (Innovations Case Discussion: India's Project Aadhaar)", innovations, Vol. 6, No. 2.

India: Aadhaar dashboard on the website of the Unique Identification Authority of India (UIDAI), https://portal.uidai.gov.in.

United Kingdom: Loosemore, T. (2011), "Alpha.gov.uk wrap-up", blog article by GDS, UK Cabinet Office, http://digital.cabinetoffice.gov.uk/2011/07/29/alpha-gov-uk-wrap-up/.