

Transforming e-Government to Smart Government: A South Australian Perspective

Akhilesh Harsh and Nikhil Ichalkaranje

Abstract Over the last few years, the concept of e-government has enabled governments to serve the public using the Internet. It also allowed governments to capture, process and report on data efficiently and improve on their decision making. However, the advances in smart technologies, better informed and connected citizens, and global connected economies have created opportunities, forcing governments to rethink their role in today's society. The governments are beginning to take the concept of e-government to a new level by realising the power of data they hold to improve their services, to enable an integrated, seamless service experience, to engage with citizens, codevelop policies and implement solutions for well-being of the community and transforming themselves into 'smart government'. The emergence of social media, mobile apps, big data analytics and mashup technologies is empowering citizens to connect with government in new way. This paper discusses the steps taken by South Australian (SA) Government to transform itself into a modern, smart government through its initiatives such as open data and modern public service. The views expressed in this paper are observation of the authors, and not of the government of South Australia.

Keywords Open government • Smart government • Open data • Big data • South Australia • South Australian Government

A. Harsh (✉) · N. Ichalkaranje
Office of the Chief Information Officer, Government of South Australia,
Adelaide, Australia
e-mail: aharsh@alumni.carnegiemellon.edu

N. Ichalkaranje
e-mail: nikhil.ichalkaranje@sa.gov.au

1 Introduction

‘Finding smarter ways of operating is a challenge for any large organisation and South Australia’s public sector is no exception’ [9]. South Australia (SA) is one of the few places in the world which fits with the sentiment of big enough to be good but small enough to be great due to its size, geographic location, climate, widespread availability of goods and services, low personal risk, an effective infrastructure and most importantly its people. This creates right nurturing condition for innovation. True to above sentiment, recently the South Australian Government continued its commitment to create a modern and open public sector through its Modern Public Service Policy. This policy sets a transformational agenda for the future of SA government through five perspectives: responsive, open, productive, collaborative and innovative government [4], each having its own initiatives for government agencies to lead. Open government and open data are among key initiatives which aim to provide government with social and economic benefits. To achieve this change, government is applying the right combination of technology, leadership, an engaged workforce and a culture of creativity and innovation.

2 Open Data: Social and Economic Benefits

Tim Berners-Lee known as the ‘father of the Internet’ endorsed the notion of sharing and distribution of data to empower the general public in a form ‘that allows for the direct manipulation for various analysis, mapping, visualisation or other initiatives’ [5]. There are significant developments underway by UK, US and Australian governments to release and publish datasets to the general public by dedicated online data portals. These governments have realised the social and economic benefits this may have on their policies and economies. The emergence of open technologies such as XML, JSON and GeoJSON has fuelled this trend of ‘open, smart and digital government’ which empowers general public to gain insights, to coproduce services and to some extent know their environment (smart cities initiatives).

Governments have been leveraging the benefit provided by the development of mobile apps by entrepreneurs, created from the data supplied by governments. Customers are willing to pay for useful apps that are service oriented and have a positive impact on their day-to-day lives. This, in turn, provides social benefits to the community and saves government resources in investing in major service industries. This coproduction trend will shape the future of government services in health, education, transport, etc. In South Australia, an ‘open data declaration’ was signed that commits the government to proactively release data and is seen as one of the key election issues. There are wide-ranging political impacts as this can be viewed as governments trying to open up, and allowing the public to raise questions that would not have been possible in the past. The public becomes better informed about whether the government is performing and conforming to highest ethical standards.

Currently, governments across the world are struggling with a framework to measure and understand the social and economic impacts of open data. ‘The choice between either giving access to data inexpensively and widely, or restricting access and managing data as a source of revenue is widely discussed amongst the international government communities’ [6]. ‘The direct impact of Open Data on the EU27 economy alone was estimated at €32 Billion in 2010, with an estimated annual growth rate of 7 %’ [1].

Several countries, and their jurisdictions, have matured considerably in their capacity to publish datasets and have developed guidelines and procedures to assist government agencies in publishing. Figure 1 shows the level of maturity of open data in various jurisdictions around Australia, and around the world. Currently, UK open data portal, data.gov.uk, has 17,837 datasets that are either linked or stored. The Australian data portal, data.gov.au, has 3,362 datasets. Several other jurisdictions within Australia have their own open data portals; for example, the South Australian Government’s open data portal data.sa.gov.au has 233 datasets and is constantly being enhanced to accommodate more datasets with diverse range of formats including geospatial data as shown in Fig. 2.

3 Developing Smart Government Through Open Data

Smart government is ‘the implementation of a set of business processes and underlying information technology capabilities that enable information to flow seamlessly across government agencies and programs to become intuitive in providing high quality citizen services across all government programs and activity domains’ [8]. Open data are instrumental in the transformation from e-government to smart government.

Open data portals usually provide access to data in two ways: stored or linked. Some datasets are stored on the data portal, whereas some datasets are linked to various government agency sites. Normally, it is up to the government agencies to identify which datasets should be published, as they are the custodians of the data. The challenge for open data Web portals such as South Australia’s data.sa.gov.au is to ensure that the growth in the numbers of dataset continues, along with the real-time linked datasets. Another challenge is to empower citizens to be able to combine datasets seamlessly to create unique insights.

Around the world, governments are faced with a cultural challenge to implement their open data and open government initiatives. The closed culture within government, which is caused by a general fear of the disclosure of government failures and any resultant democratic impact, is the biggest challenge for transforming into an open government. To overcome this barrier, successful governments are taking measured actions in the following areas:

- Community Engagement and Coproduction
- Financial Investment

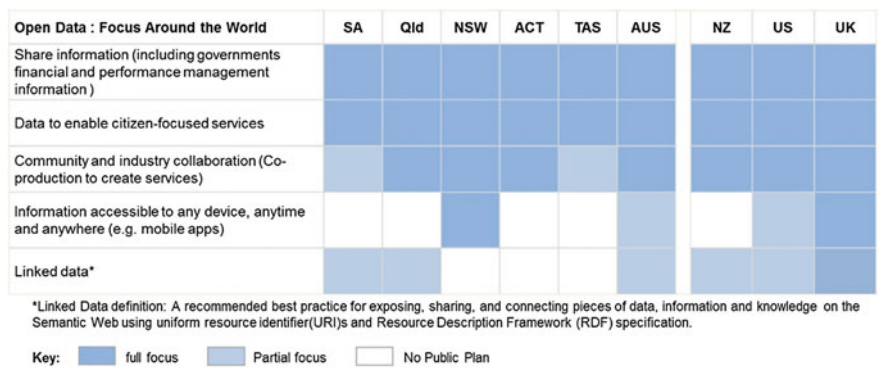


Fig. 1 Open data focus around the world

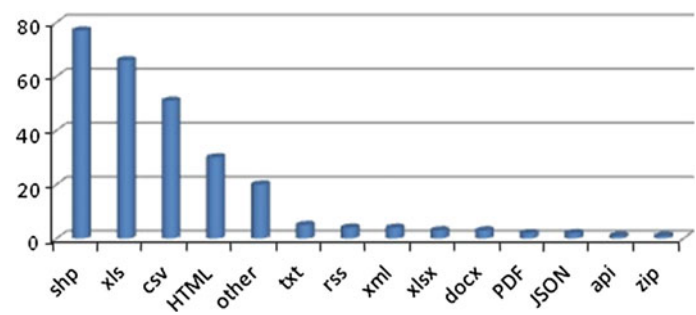


Fig. 2 Number of formats published on data.sa.gov portal

- Automation
- Collaboration
- Governance

3.1 Community Engagement and Coproduction

Community engagement is one of the most powerful ways of improving and transforming governments’ services. It allows government agencies to identify the needs of the people and provide their services accordingly. It is where customers drive the solutions, not the government. It also motivates government agencies to allow customers to develop innovative solutions. One of the marketing methods that has been highly successful not only for customers is events such as Unleashed and GovHack, where over a single weekend, an event provides an ‘opportunity for web and application developers, open data and visualisation gurus, user experience folk, accessibility peeps, augmented reality-ists and mobile masters to create new

mashups, data visualisations and apps.’ [10] using licensed open data, released by the governments.

At times, government agencies can be very protective and secretive about their data due to various reasons such as privacy, confidentiality, intellectual property, etc. The graph below shows the growth in number of datasets on the South Australian Government Open Data Portal [2]. Initially, there was a slow growth in the number of datasets as South Australian Government agencies were not sure of the advantages of publishing their data. However, just prior to the ‘Unleashed’ event held from 11 July 2013 to 13 July 2013, there was a sharp increase in the number of datasets published. This is because the South Australian Government agencies realised the potential of getting something created that could assist in providing Governments’ services. This also allows customers to provide feedback of what their needs and requirements are Fig. 3.

3.2 Financial Investment

Government agencies around the world have been facing the challenge of finding new ways to fund the open data exercise. It is quite easy for government agencies to publish datasets as once-off. However, smart governments would provide endless supply of real-time data that can be used in a variety of government services such as e-transport, e-health or e-education. To satisfy this, government agencies require resources to maintain, and further develop strategies to ensure that they meet the changing demands of users. Currently, in South Australia, government agencies are funding the publishing of datasets without any additional funding and are investigating various funding models to sustain this, whereas the Canadian Government recently announced funding to support an initiative that will

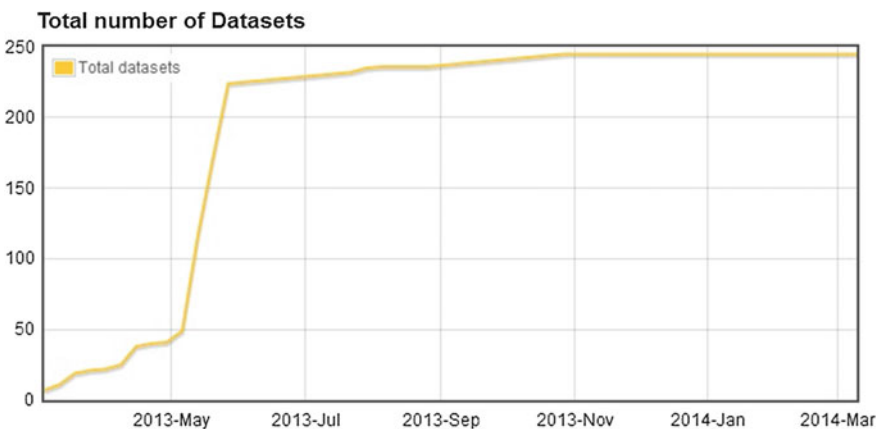


Fig. 3 Total number of datasets

assist all levels of Government to publish datasets. ‘The Open Data Institute will work with governments, academic institutions and the private sector to solve challenges facing Open Government efforts and realise the full potential of Open Data. These partners will work on development of common standards, the integration of data from different levels of government and the commercialisation of data, allowing Canadians to derive greater economic benefit from datasets that are made available by all levels of government’ [3].

Apart from conducting further research, individual government agencies that produce and supply data require adequate resources to maintain the infrastructure and produce newer datasets. There are a range of costs associated with maintaining and supplying data including hardware, software licensing, etc. To address this issue of ongoing costs to deliver and maintain datasets, government agencies must foresee and plan. Every business case for a new system should incorporate strategies to automate the release of data, as well as strategies to ensure that controls are in place to ensure the validity and integrity of data is maintained.

3.3 Automation

Automation is crucial in identifying and maintaining datasets, to make the process more efficient in updating data, and hence improving the data quality. Automation is the only method to provide real-time data that can be relied upon. Appropriate automated mechanisms can be implemented in data repositories and data registers that can identify and validate datasets which can be published. For example, if a dataset qualifies against a range of set requirements such as licensing, copyrights, third party, privacy, intellectual property, etc., then these datasets can be automated to be published. This reduces the timeframe in identifying and publishing datasets.

Automation can also assist in ensuring that data are up to date and provides users confidence that the dataset is refreshed periodically. If the users lose confidence in the quality and integrity of data, then there is a risk of losing ongoing users of open data. There is a greater chance of an error in manually extracting, manipulating and then publishing a dataset. Some government agencies such as South Australian Tourism Commission provide a facility called application programming interface (API) to automate the refresh and download of data for the ease of the users.

3.4 Collaboration

Collaboration is required between all levels of government, as well as with the private industry to give the government best chance possible of transforming their services. For users to mashup data or develop a product that provides integrated

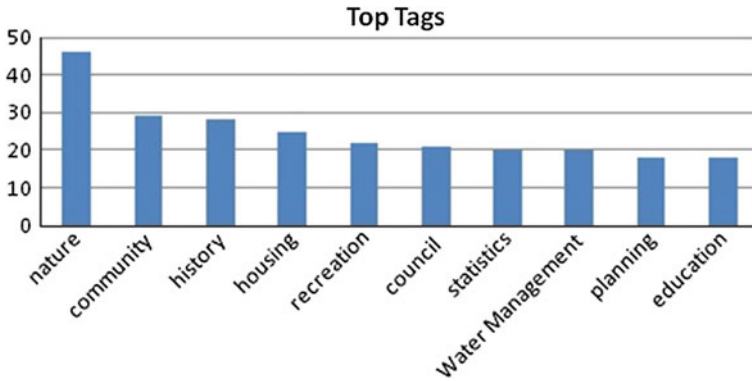


Fig. 4 Top tags with each datasets

service, it is important that appropriate data are available from various domains. Currently, as shown in Fig. 4, the South Australian Government data portal has variety of datasets, with ‘nature’ being the top tag. ‘Tags’ are keywords or terms that are associated with each dataset. Each dataset can have one or more ‘tags’. However, there are hardly any datasets related to ‘health’, which reduces the possibility of conducting any ‘health’-related analysis, and develop any meaningful services using these data. To transform from e-government to smart government, agencies must collaborate to provide a seamless integrated service to its citizens across all its domains.

3.5 Governance

It is extremely important to ensure that appropriate governance models are in place to ensure that specific areas or individuals are accountable for certain aspects of publishing data. For ongoing publishing, it is important to identify and allocate the roles which include data authority, data owner, data custodian, data steward, data publisher, etc. Appropriate governance practices can help government agencies collaborate and assist each other. As open data portals contain datasets from various agencies including education, health, spatial and community data, it is extremely important to have a cohesive and a unified governance model. ‘Agencies and inter-agency groups must review and, where appropriate, revise existing policies and procedures to strengthen their data management and release practices to ensure consistency’ [7].

4 Conclusion

This study shows that open data can be instrumental in the transformation to a smart government. The traditional closed culture of governments comes in the way of transforming themselves into a more transparent and an open government. Open data portals provide opportunities to the wider community to self-serve, and to personalise their experience in accessing government services. The benefits are significantly beyond just social and economic benefits. Various jurisdictions have made significant progress in this space including the UK, the USA and Australia. South Australian Government has taken several steps to eliminate self-imposed barriers, and to transform itself into smart government. These include community engagement and coproduction, funding, automation and governance.

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