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Joining forces in Scotland

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Introduction

Recent Government initiatives have sought to realise the Modernising Government agenda through effective knowledge sharing and increased use of geographic information. However, this agenda is not the sole impetus for change in the way geographic information is used and shared across Scotland. Since the establishment of the Scottish Parliament the demand for information, particularly geographic information, from all sectors of Scottish Government has increased substantially. At the same time, government policy on issues such as Social Justice, is demanding improved flows of information between partner agencies. Although the Modernising Government agenda is in its third year, its impact with respect to geographic information remains relatively unrealised. This paper draws upon the experience of two closely allied and ambitious Modernising Government initiatives in Scotland involving geographic information to illustrate the constraining factors and successes that have been experienced to date.

The initiatives in question are the Scottish Enterprise K-map project and Scottish Homes Webmapping pilot project. Both use geographic information and common Internet technologies to inform and support their own agendas - economic development and social inclusion respectively. Both projects are now demonstrating how 'web mapping', using interactive map viewing functionality, is able to provide convenient and easy access to arrays of otherwise disparate information holdings. However, they have also demonstrated that issues relating to information sharing, cost recovery, data integrity, communications infrastructure and current working practices will need to be addressed if such initiatives are to become a practical long-term reality. The paper concludes with a summary of lessons learned and a view of what the future holds.

Realising the Modernising Government agenda

The Modernising Government agenda was established to transform the face of public services. Its aims include 'putting citizens first by ensuring public services are accessible to all. Overcoming barriers by shifting the focus of public services to the user's viewpoint. By joining government up to deliver better policies and seamless, quality services, thanks to public servants working better together. By using information age approaches to do this – and valuing public service at its true worth' [1].

Enabling increased levels of public sector information sharing and improved understanding of locational issues through more effective use of geographic information, are two means of achieving some of the goals of this agenda. The Scottish Parliament generates a large number of geographically based queries about urban and rural Scotland. Community representative organisations, partnership groups and other public sector bodies also require access to current spatial information to effectively plan and deliver their own agendas. Implementation of current government policies on issues such as social justice and economic development, is dependent on reliable information derived from a variety of sources that invariably collect data for some other more specific purpose. Within Scotland several initiatives have been established with the express aim of delivering a joined-up government. However, these initiatives have yet to make a marked impact. Why is this the case? To determine why, it is pertinent to examine the realities of 'joined-up

government' through the joint experiences of the Scottish Enterprise K-map and Scottish Homes Webmapping projects.

Web mapping

Scottish Enterprise is the economic development agency responsible for lowland Scotland and Scottish Homes is Scotland's housing agency. Both organisations have established their own Intranet based web mapping capability. Scottish Enterprise's K-map¹ project uses web mapping technology to collate and depict data to inform and support a range of economic development activities such as area regeneration, local development, inward investment, business growth, provision of development grants, skills and lifelong learning. The Scottish Homes Webmapping pilot project² demonstrates how web mapping technology can be used effectively to collate data to identify social exclusion in geographical terms and to inform and support the implementation of social justice policies. Both initiatives are highly dependent on third party data derived from organisations such as National Statistics, the Scottish Executive, Scottish local authorities as well as the private sector and various other sources.

The K-map project's use of a web-based interactive map browser enables rapid and dynamic retrieval of data from databases that relate to depicted map features (e.g., property details, company activities, unemployment rates, demographic profiles, training provision *etc.*). The current map browser capability has been established as a support tool and is used by organisations responsible for delivery of economic development services. Its users can select an area (or areas) of interest (e.g., a Local Enterprise Company, unitary authority or arbitrary drive time area) and then rapidly retrieve information relating to depicted map features within the selected area(s). It is being deployed over the Extranet so as to provide a viable and cost effective means of facilitating widespread access to geographic information and promoting understanding of its relevance to different business disciplines. It is hoped that this in turn will engender a willingness and enthusiasm on the part of data users and custodians to geo-reference their data regardless of whether they actually work for the Scottish Enterprise Network.

The Scottish Homes Webmapping initiative was established to explore the ability of Extranet based geographical information system (GIS) to meet the real business needs of government (national and local) by improving access to geographic information and helping to break down barriers to data sharing. The Webmapping pilot project culminated in the development of a prototype web-based mapping site. Like K-map, a prime objective of the Webmapping facility is to encourage public bodies, including local authorities, to volunteer access to their geographic data through the Webmapping site. Further, the project aims to assess the extent to which a web-based GIS can overcome problems that have traditionally impeded the distribution of geographic information between public agencies - impediments such as the reluctance of organisations to share information.

It was recognised from the outset that the success of both initiatives is dependent on the establishment and subsequent maintenance of data flows. Both initiatives aim to increase data sharing, widen access to geographic information and promote understanding of geographic information. To this end both have been successful. However, as both projects approach fruition it is clear that more work remains, in particular, to break down barriers to data sharing and flows of data within and between organisations.

The findings

To date, the success of both the K-map and Scottish Homes Webmapping pilot project has been variable. The time and effort needed to identify and secure data has, in some instances, outweighed that required to undertake technical implementation. In the absence of a government mandate or legal data acquisition remit, both projects are reliant on the co-operation and goodwill of partner agencies from whom they seek data. Even when dealing with a common data set derived from a number of local sources, the barriers to data sharing do not disappear. Rather, they become the concerns of the donor organisation rather than concerns about the data itself. The three most commonly cited concerns relate to the Data Protection Act, Ordnance Survey copyright and commercial confidentiality. However, in practice such concerns can

¹ www.k-map.co.uk

² www.webmapping.scot-homes.gov.uk

normally be addressed in a straightforward manner without compromise to legal integrity. Once such problems have been addressed, the true barriers to data sharing can be tackled. For most organisations, with the exception of national agencies who have a clear data dissemination remit, the time and effort needed to maintain currency and make data available to another public body is a chore that they could do without. A problem that could be exacerbated if they were called upon to contribute to several web mapping projects.

By virtue of their Extranet deployment, both projects are seeking to extend access to their respective sites outside their own organisations and in so doing provide a return benefit back to organisations who have donated data. Both web mapping sites provide a high degree of map browser functionality in the form of a decision support tool for staff. However, this capability is not always received favourably by IT departments on account of communication bandwidth requirements, use of a 'plug-in' module, secure Internet implementation or the fact that some may already be committed to developing their own 'in house' web mapping capability. Such problems are exacerbated by Government 'Invest to Save' and 'Challenge' funding to encourage and facilitate 'electronic delivery'. Currently, these schemes are being assigned on an organisation by organisation at the potential expense of investment in data quality and underlying technology - a situation that could lead to yet further fragmentation. Further, the maintenance and dissemination of data incurs real costs which somehow need to be absorbed or recouped if quality is to be assured. Government directives to share data freely and at no cost, conflict with the expense incurred by data providers. It is being left to organisations with an understanding of the underlying issues to argue the case for concepts such as a 'National Spatial Data Infrastructure' and 'High speed backbone' - terminology and arguments with which political leaders have little or no empathy.

Despite the fact that neither K-map nor the Scottish Homes Webmapping project have been fully implemented, both projects are proving their worth. There have been successes and failures from which lessons can be learned and recommendations made. Successes include breaking down some of the barriers to data sharing, providing easier access to geographic information and improving data flows between public and private sector organisations across Scotland. Lessons learned to date are threefold. First, over the longer term, the productivity and sustainability of such projects is questionable if data sharing is not further improved. Second, to be successful, it is essential that projects are well planned and tightly focused. Third, it is necessary to demystify geographic information through education and the facilitation of wider access to geographic information.

Discussion

It is clear that improved data sharing and data flows within and between organisations is essential to the success of projects such as K-map. These issues are currently being addressed. A key element of the K-map project is the intended establishment of a data exchange or data clearing house service to underpin sustainable data flows, not just for K-map but potentially any implementation of a web mapping portal. In the future, it is likely that organisations will require a variety of different web mapping portals to cater for the needs of different audiences and agendas. Indeed, a given data set could potentially appear in many different portals, as is currently the case with Ordnance Survey and other spatial data. However, such an initiative requires the joint backing and support of data providers as well as commensurate funding. It is also recognised that the National Statistics Neighbourhood Statistics Service and its Scottish derivative is a platform that could provide an effective exchange service for a range of socio-demographic data sets.

The establishment of effective data flows is an all consuming task which requires the co-operation of many organisations. However, once achieved, it is important to ensure the work is not repeated for every web mapping initiative. In the absence of a distinction between provision of web mapping portal services and underpinning data flows, there is a danger that ensuing duplication and inadequate resourcing will be the ultimate downfall of broad based web mapping portal services that seek to be all things to all people. By separating the two, web mapping portal services can remain tightly focussed on their specific agendas. Ultimately this requires current initiatives such as K-map and the Scottish Homes Webmapping Project to clearly demonstrate their beneficial contribution to current political agendas. It is clear that both initiatives are trying to tackle specific agendas (e.g., for Scottish Homes Webmapping its social justice) whilst trying to fulfil the joined-up government agenda. However, what exactly is the social justice agenda? How best can it

be tackled? Each application needs to be refined and focused to ensure it successfully meets user requirements rather than trying to be all things to all people.

Unfortunately, building a robust, maintainable project is not enough. Indeed, simply putting a map on the Internet and expecting it to be a panacea is just not realistic. Should data always be accessible via a map? Probably not! It is important to realise that the majority of population have little knowledge of (and probably not much interest in) longitude, latitude or similar concepts. The geographic information community must wake up and realise this. There is a need to simplify the ideas and concepts behind initiatives like K-map to make them open to all.

Clearly, lessons can be learned from both initiatives but from the failures come recommendations for future work. To date, both the K-map and Scottish Homes Webmapping projects have struggled to add considerable value to the sum of their component parts. The reluctance of organisations to share data is partially responsible for the failure of both initiatives to produce value-added product. Therefore, the next challenge is to determine the means by which current temporal and geographical inconsistencies can be circumvented to provide true multi-variant reporting.

As both projects develop, it is clear that geographic information management needs to be closely integrated within the mainstream corporate information environment. Metadata should be simplified and integrated as any other data would be. This, in combination with the demystification of geographic information, will ensure that such data is easily understandable and available to all. Initiatives such as the National Geospatial Data Framework (NGDF) should take note. Currently, NGDF is a useful tool for the geographic information community. However, it could be useful to a larger and more diverse audience if its metadata could be expressed in more simple terms.

In the light of the findings of K-map and the Scottish Homes Webmapping projects, what does the future hold? How can the success, failures, lessons learned and recommendations be taken forth to the benefit of other initiatives? It is hoped that National Statistics, Neighbourhood Statistics Service and its Scottish derivative (Scottish Neighbourhood Statistics) [2], will take into account the findings of both initiatives. Indeed it is anticipated that the Scottish Neighbourhood Statistics Service will address the problems articulated in this paper with respect to socio-demographic data.

The future?

It is envisaged that the Neighbourhood Statistics Service will allow users to access ‘a vast range of social and economic aggregate data for consistent small-area geographies and provide a range of powerful analytical tools with which to turn the raw data into relevant and comprehensive information’ [2]. Its Scottish derivative aims to make a significant contribution to the social justice and area regeneration programmes. It is endeavouring to transform the production, dissemination and use of social justice and area regeneration data at a local level so as to enable effective delivery of key Scottish Executive programmes [3]. Potentially, this is of significant benefit to both the K-map and Scottish Homes Webmapping projects. Even though both projects are demonstrating their worth, the current lack of local data is a significant constraint. Therefore, it is important for the new service to address such data related issues. The project has got off to a promising start; data for Scottish National Statistics will be collected on a unit postcode basis, and there is recognition of the potential role for web mapping as a data dissemination tool.

If Scottish Neighbourhood Statistics proves successful, the benefits will include the provision of the data needed to better inform decision making at the national and local level through the inclusion of information on health, education, poverty, unemployment, housing, population, equalities and social / community issues. The information will be accessible to a wide range of users, through the web and in other ways. It will provide tools to help users to analyse the information. However, the greatest benefit will be improvement in data sharing, flows of data and data quality as well as investment in the underlying technology required to support such improvements. All of which should lead to a truly joined-up government [3]. However, this paper expresses its concern that if Scottish Neighbourhood Statistics is overtly focussed on policies such as social justice, it will do so at the expense of data to address other equally important agendas.

By its nature, Scottish Neighbourhood Statistics can only go part way to creating a data exchange service. To this extent Scottish Enterprise are currently investigating options for provision of some form of data exchange service on private / public partnership basis. However, the initiative does hold the possibility of being the impetus to change in attitudes to data flows and data sharing across Scotland.

Conclusions

Recent Scottish-wide initiatives have sought to realise the Modernising Government agenda through effective knowledge sharing and widespread use of geographic information. These initiatives in combination with the establishment of the Scottish Parliament and recent government policies (e.g. Social Justice), have accelerated the demand for geographic information which in turn has forced a rapid improvement in the flows of information (knowledge sharing). Despite this, the government has not yet joined-up. This paper has drawn on the experience of two initiatives to illustrate the obstacles to and constraints on the development of a truly 'joined-up' Government.

The initiatives in question use geographical information and common Internet technology. The Scottish Enterprise K-map project delivers a range of geographic information to address specific Scottish Enterprise agendas. The Scottish Homes Webmapping initiative is a pilot project seeking to inform and support the social inclusion agenda. As both projects reach fruition, the successes and failings of both are becoming clear. Successes include the partial break down of barriers to data sharing, the improvement in ease of access to geographic information and the improvement in the linkages and flows of data within and between public and private organisations across Scotland. Further, both projects have highlighted the obstacles to the creation of a fully joined-up government. Over the longer term the productivity and sustainability of projects such as K-map are questionable if data sharing is not radically improved. Success is dependent on a well planned and a tightly focused project. The demystification of geographic information through education and the facilitation of wider access to geographic information is essential to success. This paper suggests that current funding schemes to encourage and facilitate 'electronic delivery' are doing so at the expense of investment in underlying technology and reliable data. Although it may be in the public interest not to charge for government information, it must be realised that effective data maintenance and dissemination incurs real costs for which adequate provision must be made with respect to the benefits that can be derived. This applies equally to underlying IT and to the promotion of data sharing if initiatives such as the K-map and Scottish Homes Webmapping projects are to meet with long term success.

Finally, it is recognised that the Scottish Neighbourhood Statistics initiative has the potential to address some of the issues raised.

Bibliography

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