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Is there a 'G' in e-Government? The modernising government agenda and the opportunities for GI

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1 Introduction

Wandsworth Council was one of the pioneers in e-government when it launched its on-line Planning Register in 1996. More recently the local authority has commissioned the development of an on-line planning and building control Web Enquiry System where the general public can query applications on the database, monitor progress, see planning constraints affecting the application, listing all the statutory consultees and neighbours consulted, and link to the drawings on the Register. The web-site has proved to be a great success with over 18000 hits per month being recorded.

The recent call for pathfinder projects sees Wandsworth seeking to further develop this on-line service through the introduction of inter-active map enquiry facilities. The extension of Web services will also see the ability to deliver applications online and receive consultation "letters" via e-mail with hyper links to the application drawings.

The Council's partners in the project include The Planning Inspectorate, The Metropolitan Police, MSW Health, City Learning Centre, London Grid for Learning, MVM Consultants plc, I-Documents Systems Ltd, OnDigital, and the Centre for Advanced Spatial Analysis, University College London.

Although the pathfinder project is still in its infancy, the paper reviews the experience gained to date in establishing the site and the issues being faced in the evolution of the site to meet the goals of the project. The paper provides some background to the modernising government agenda, describes the objectives of the pathfinder project in Wandsworth and looks at some of issues raised by project. As the internet is served as a medium for the delivery of information then the nature of such delivery is a key issue. Access to, and delivery of, geographic information are key components of the Wandsworth pathfinder strategy and the paper describes the application of web mapping to the project and speculates on the changing nature of software licencing and the challenges facing the tradition GIS vendors. Regarding the dissemination of geographic information the paper considers issues such as accessibility, availability and accuracy of such information, looks at delivery mechanisms and the current rules that control the delivery of this information, and speculates on how this service may change through time.

2 Modernising Government and the Pathfinder Initiative

In March 1999 the Prime Minister presented to Parliament the Modernising Government White Paper, a document that signaled the start of a transformation programme that will reset the fundamentals of the way that government in all its guises will relate to the citizens and business communities. The target, some say dream, of achieving the e-revolution by 2005 has created the inevitable split between the doubters – no time, no money, no resources, and the believers – find time, seek money, work with others. But, whichever the persuasion, it is clear that the vast majority of local authorities are accepting the need for change. With the citizen as the focus, better quality and more accessible services have become the mantra. More importantly, behind the rhetoric, processes are evolving, innovation is occurring, e-issues are rising up the agendas and promised improvements (action) are beginning to emerge.

Central Government for its part, far from being passive onlookers, are actively promoting the electronic service delivery agenda (ESD) and encouraging local authorities to commit to programme's promoting continuous improvement. In February 2001 the Government set out its proposals for supporting local government in its moves towards implementing electronic government and how it intended allocating £350m new money announced in the Spending Review 2000. A three-year investment profile was to be spear headed by £25m (2001-2) distributed to 'a small number of pathfinder authorities with a track record and capacity for further innovation in this area'

The Pathfinder initiatives (25 projects involving over 100 councils plus police and health authorities and the private sector) vary widely in scope and content however all projects have in common the need for the projects to fulfill three functions:

- as a focus for learning to enable all councils to meet the 2005 ESD target;
- to enable those Councils at the leading edge to further develop products and disseminate their learning and good practice more widely; and
- to develop products for national rollout, whether by local councils themselves or with private sector partners.

Projects are scheduled to be completed by 31 March 31 2002 and will be continually monitored against a series of pre-defined critical success criteria and key milestones. The Pathfinder teams will also be expected to act as mentors to other councils, providing advice, guidance and support to them in delivering their own Local Government Online strategies.

3 Objectives of the Wandsworth Pathfinder Project

The initial project concept was wide ranging and included the desire to deliver citizen focussed services, to work in partnership to 'join up' the provision of services across all tiers of the Council, to achieve better integration between 'front office' and 'back office' activities, and to use this project as part of a general strategy to meet the Government's target of 100% electronic service delivery by 2005.

The project covers three primary areas of interest:

- enhancements to the existing planning and building control web site – which will provide, among other things, integrated map display and query environment, on-line submission of case applications, and electronic consultation processes;
- life episode demonstrators – which will enable residents to interact with a comprehensive range of on-line services in Wandsworth integrated with the back office systems, with links to Ukonline, provide on-line registration and cancellation of services, and to provide links to the Councils Crimewatch service;
- a 'my community' facility - which will enable residents and businesses to interact with the Web Site in new ways to define their own "communities of interest" - My Community will be used for the submission and receipt of information, including consultation material, specifically tailored to local requirements.

A fourth area of interest, which encapsulates all of the above, is that of Access and the project will be looking at how to improve access to information across the digital divide.

One of the key objectives of the project has been to focus on the requirements of the citizen and to involve the citizen as much as possible in the further development of the web site. The Council has recognised that if it is to serve the local community then the local community must have a sense of ownership. Wandsworth Council is a customer led authority and has the highest number of Charter Marks of any authority in the country. Residents' panels are used extensively for consultations and levels of consultation have been widened through use of the Web Site. Working with the Centre for Advanced Spatial Analysis (CASA), University College London, the pathfinder project has built on this level of interaction and has involved local residents in workshops, the objective of which is to ensure that Council information is made more accessible to local residents. The CASA led workshops have been designed to introduce residents to some

of the concepts proposed for the project, in particular the concept of access to, and presentation of, geographic information and the control and display of such information.

In terms of 'joining up' the provision of services, the implementation of a BS7666 compliant local land and property gazetteer is viewed as a key component to bringing together disparate systems both within the Council and with external agencies such as Merton, Sutton and Wandsworth Health Authority (MSW Health) and the Metropolitan Police. The joining-up of such information will enable the service providers to package information for delivery to consumers. Looking beyond the technology, the project is intended to build on initiatives such as the Learning Matrix, which is part of the Tooting SRB6 Project, 'Young People Agents for Change', and to use the web site to form a focus for internet/mapping training provided by the City Learning Centre and schools connected via the London Grid for Learning. This initiative will introduce thousands of school children to the rudiments of mapping and introduce the concepts of geographic information display and analysis. This will be achieved without the individual schools needing to invest directly in GIS and will eliminate the requirement for individual schools to carry the overhead of learning and maintaining expensive and complex traditional GIS software.

In terms of improving service delivery in the Council, and integrating front and back office activities, the link between front and back office activities is viewed as an integral part of the Council's planning Web Site. The Statutory Register is used by members of the public, businesses, customer service Officers and professional planners. The development of the mapping front end will further enhance Customer Services' ability to provide accurate information to the public. In addition, and subject to appropriate changes in legislation, Moving In/Moving Out of Wandsworth will provide the facility to register for a wide range of services across the Council, which will automatically update the back office systems. Furthermore the project will enable the submission of on-line planning applications and a secure payment facility which will directly update the back office system.

4 Issues

4.1 Technologies

Portals, bandwidth, firewalls and Internet protocols are now integral to the vocabulary of e-government. Portals are needed to host applications, provide access to map bases, facilitate payments and manage transactions, handle security, privacy and authentication; bandwidth provides the wherewithal to handle demand, maintain performance and cope with ever increasing data volumes; firewalls protect us and internet protocols ensure we make the right connections. Technologies also play the crucial role of facilitating access and making that access to a time and ultimately a place of the users choosing.

Clearly decisions on the infrastructure need to be taken early on in the process, as it is all too easy to race up an expensive cul-de-sac. Issues such as in-house or outsource, and selecting an ISP are critical particularly if the requirement is 24 x 7 availability, requires scalability and there is a need to respond quickly to technology changes. Equally there are the individual decisions needed on how the transport medium – 'the Internet' is to be deployed, the scope and capability of the portal managing the 'application', and what citizen technologies are to be supported. Yet while the focus of the e-agenda remains primarily with the infrastructure and the technologies the focus of the e-revolution on behalf of the consumer is in disseminating information, and providing access to a wide audience, easily and without ambiguity. For the user, or the customer in this context, it is a matter of 'is it simple to access', 'can I access the information I need', and 'can I trust it'.

Is it simple to access?

Applications delivered over the Internet are the definitive 'switch on and go' solutions and therefore demand high levels of usability from the outset. While it seems that almost every desktop product has the 'save as web page' option on the file menu, and every GIS vendor will offer 'give away' map viewing tools for use with the web, a short trawl around many local government websites demonstrates that very few sites measure highly on an any usability scale. If the step change in relationships between local authorities and its citizens is to take place then it is a primary requirement that the on-line services are easy to access, simple to use, unambiguous and capable of delivering what citizens need rather than what information local authorities want to provide (or may be allowed to provide). At the end of the day citizens have to perceive

real advantages in using these new routes otherwise the investment will have been wasted. One of the primary objectives of the Residents Workshops is to ensure that the project delivers simplicity of access.

In the area of accessibility it is already becoming clear that some common denominators are emerging and these are largely GI based. Most data emanating from local authorities is address based at the property or parcel level. To optimise these data means that gazetteers and mapping will need to be an integral element of site design if the websites are to be successful. At the current time those local government sites that publish mapping will be typically limited to raster images of town centre street maps, policy areas and such like. Others, with more interactive facilities, tend to have them hidden down the menu hierarchy as part of discrete business processes. If the future is one where both individual business processes and cross-cutting 'applications' are to be the focus then the gazetteer and associated mapping capability will need to move centre stage.

Can I get the Information I need?

For all information suppliers to the web the most difficult issue to address is the packaging of information to be supplied. The more structured or regularised the data, and the more predictable the requests, the easier it is to be prescriptive. At this early stage in the e-government process it is not surprising that web access very closely mirrors that used by staff internally, however that is to see the web as little more than an extension of existing services (an all to common occurrence). Accepting that the user community is diverse in interest and capability requires that databases supporting web applications are more flexible than those supporting business processes.

Spatially enabled data or geographic information (GI) provide the best hope of delivering this requirement as it allows queries based on both point and polygon data aggregations to be accommodated through a single interface. It is also suitable for addressing both single and multiple datasets. Where an authority needs to deliver solutions that derive data from individual and multiple departments then it is unlikely that this will be achieved through the linking together of interfaces to these applications that can be operated 'on-the-fly'. A more realistic approach is to define a unique repository that is dedicated to supporting the particular requirements of the web application. The success of such solutions, as with all other application solutions, will be in the overall design. When implementing any form of GI there is also the issue of user familiarity (or non familiarity) with the interface. Examples of these include how to select areas of interest, how to select consolidated areas of interest, how to provide simple reports, and how to qualify the results of such searching and reporting? The success or otherwise of these simple processes will determine the success or otherwise of the web site.

Can I trust it?

Timeliness, accuracy and precision are the key components in this area. Transaction based systems supporting statutory processes are subject to constant change and update and this needs to be reflected in the output. Implementations based on secondary data stores need to provide users with an indication as to the currency of any data supplied, which in turn is a function of the update cycle. Whilst automatic mirroring of data from back-office systems into the web system may be desirable it may not be realistic or cost effective when compared with the development of routines that extract the relevant data at periodic intervals to update the web store.

A user retrieving data from such systems needs to be confident that the information supplied is trustworthy. This raises an issue for non-spatial data sets where key indices, such as addresses, are subject to interpretation. Citizens will not have the benefit of experience or application knowledge with which to judge accuracy. Local authorities may therefore be advised to attribute accuracy ratings (much like OS accuracy indicators) to individual data outputs. Again such issues become less important if the data is maintained spatially and queried spatially, where the geometry can provide high levels of precision into the outputs. The only issue then is how the user may be educated to 'ask the right question' and identify the appropriate area of interest.

4.2 Licensing

One aspect of the modernising government agenda which has caused a great deal of uncertainty to those who have to implement this (and indifference to those who have prescribed such implementation) is that of software licensing. There is a great deal of uncertainty in the market at the moment as the licensing of the

application software undergoes review and change. The basic rule is that of caveat emptor. The traditional model for the licence provider was that of the LA negotiating a department or an enterprise licence for a particular suite, whereby the licence fee would be based on the number of potential or concurrent users of the application. This was a relatively easy concept to understand (although we should never underestimate the capacity of vendors to make an easy concept difficult) in that licence costs would (in general terms) be related to the number of registered users. This model looked inward to the LA in identifying users.

The modernising government agenda is seeking to invert the traditional business model whereby services (and information) are to be delivered externally. This is causing the suppliers to review their licensing models and current experience is that some suppliers are viewing this as an opportunity to rationalise the licensing models. Time will tell whether this will be to the benefit of the consumer (the LA's and their customers) or to the supplier. This change is happening now and imposes a great degree of uncertainty into the project planning and financing.

Another characteristic of the pathfinder project (and of modernising government generally) will be the issue of serving geographic information to the citizen. Again, due to the inversion of the standard business model whereby the traditional market for local government was other local government departments, we may be about to experience a fundamental shift in how the GIS market is to be serviced. A basic issue, and a potential battleground for software suppliers, is that the requirement for location based services via web mapping should not be confused with GIS. In the past the traditional GIS vendors successfully sold their products into organisations via champions who were (possibly) knowledgeable in certain business areas and (probably) experts in the use of a particular product – generally they were not GIS specialists they were product specialists. The GIS software would be complex and would be used to undertake specialised tasks to support data input, data manipulation, and data output (maps, graphs and tables) and the GIS software was designed to meet these requirements. Often the selection of a GIS would be based on the technical preferences of the champion rather than the business requirements of an organisation.

The market has matured in that the complexity of the software can now be delivered in cheaper packages. This is good news to the specialised users, presents some heartache for the vendors, and generates absolute indifference from most others. This comfortable market is about to change radically. A key objective of the modernising government agenda, that of delivering information to the citizen, is likely to lead to changes in the way that geographic information is published. The market for these services is likely to become even more competitive. In addition to the traditional GIS vendors we are seeing the relative newcomers to the industry, such as MapQuest, Maporama, and even software giants such as Oracle (with i-host) and Microsoft, providing their own location based software. How will this affect the traditional GIS vendors and what will be the implications for the traditional marketplace of local government? The modernising government agenda in general, and the pathfinder projects in particular, may raise some interesting issues in this respect.

4.3 Data

Information, not technology, will be the final frontier to be overcome in the delivery of the e-agenda. Without suitable content then e-government will be just so many glossy web pages. Fortunately, for the modernising government agenda, most of the information that will be required to satisfy the 'My Community' aspect of e-government is information that will be owned by the Local Authority. Typically local residents will be interested in local issues which will be supported through access to 'local data'. To have some meaning however then this information needs to be delivered within the context of location and to achieve this at a local level the current requirement/options are the use of Ordnance Survey mapping.

While OS is currently positioning itself as an information provider, the reality is that it remains a map provider. The current OS business is that of map publishing rather than an organisation providing information to the citizen. The result of this is that we have to deal with copyright notices, watermarks and such peripheral (to the citizen) issues. OS has a requirement to protect their (our) investments in our map database and hence the requirement to apply copyright. However, the internet applications is focused on the delivery of information to the citizen and, in general, the citizen is not interested in printing quantities of OS mapping. For most purposes the requirement for an OS map is simply to provide a context for viewing the more interesting information which is what is happening in my street/locality and how will this affect

me. Based on the results of studies carried out as part of the initial research into the Wandsworth pathfinder project the citizen does not care whether a local planning application is viewed against a background of OS mapping or an aerial image. The criteria of the citizen is can they access the information they need and can they trust it. Whether this information is pasted against a backdrop of OS or other data is irrelevant.

Whether this market will mature through time and become more open to the market forces remains to be seen. One of the concepts discussed by the project team was that of inviting selected organisations to bid for the supply of map based data to support the website. Obviously in bidding for such work the OS would be at an advantage as they have access to an existing data store. Legislation would be necessary if OS are to compete on a level playing field with other data suppliers. It is possibly early days for this just yet but how long will it be before we have aerial photographs of sufficient quality to allow identification at the property level together with the necessary bandwidth to support the transfer of such information? Whatever the dreams for the future the current position is that the publishing of OS information by LA's via the web will normally be covered under existing service level agreements. However, such agreements may be prescriptive. At the time of writing, for web mapping based on OS data, the OS requires that certain criteria be met including copyright acknowledgements and licence numbers, watermarking of images, statements of publication purpose (this is to remind the recipient as to why the Web-site has been produced and why the mapping within it has been published), and, probably of most interest, the use or publishing of vector data on the internet (or in any electronic form) is NOT permitted (OS capitals).

A related issue, and a fundamental element of the 'joined-up' agenda, is the use of a standard local land and property gazetteer. Much emphasis in local government has been placed on the need for a standard structured gazetteer and initiatives such as BS7666 and the NLPG have evolved to promote consistency, comprehensiveness and coordination. The emphasis has been on improving both accuracy and precision in property referencing, and, through the UPRN, providing a mechanism for joining up departments within local government, and joining up local government with other public bodies on a consistent basis. This is the basis of the integration proposed for MSW Heath and the Metropolitan Police.

The potential problem for users is that the "tell me everything we know about 15 Acacia Avenue" is very different from the "paint me the big picture" on 15 Acacia Avenue, because this latter requirement requires contextual information beyond the very precision being imposed by a UPRN structure. The advent of BLPUs will help improve the situation in that some consistency in the interpretation of inferred boundaries can be used. However, unless GI technology, or at least access to these spatial objects, becomes ubiquitous through an organisation the problem of consistent referencing will remain. The problem with either approach is that it assumes the citizen is predictable and can be classified – a single user group. The reality is that access through Kiosks, Digital TV, Customer Service Centres, as well as the PC, will introduce a broad spectrum of capability, understanding and interest (ie a range of different communities) which will need to be satisfied if the social inclusion dimension of the e-agenda is to be met.

The goal must be to spatially enable all data sets and this will be an implicit element of the project through the use of BLPUs. Gazetteers will then operate as both point references and also navigation aids to a mapbase where names, addresses etc are relegated to attributes. When this is achieved the user then has control of the information, the 'tell me everything' and 'paint me the big picture' will become one and the same on the entry of a user defined area of interest.

5 Summary

At the time of writing (July 2001) the project is still very much in its infancy. The joined up government agenda has got off to a weak start by virtue of the fact that DTLR have not received approval for funding from Central Government and it is thought unlikely that this will be approved before the parliamentary summer recess (should this have been an e-procurement issue!). Despite this setback, the planning and research elements of the project are proceeding.

The modernising government agenda is all about joined up government and the Pathfinder project will test some of this inter-department co-operation. The political agenda for joined up government has been set and the goal now is for services to be 'online' by 2005. To date the e-initiative has been one of diversity, as witnessed by the rather fragmented nature of the targets being set by government. There has been a great

deal of energy (and investment) in the creation of programmes of work such as Pathfinder, but without, it appears, the necessary initiatives being put in place to coerce government organisations to openly share information. Local Government is very much at the heart of this initiative as it is towards local government that most consumers will look when seeking information.

Wandsworth has partnered with MSW Health and the Metropolitan Police with the intention of sharing information about people and places. This initiative is bringing together 3 disparate organisations who share a common goal - which is the access to, and sharing of, certain types of information. The Council is also a 'Signpost' authority in the planning portal programme being developed by the Planning Inspectorate. This programme has arisen from the need to make the planning system more available and understandable to the general public and businesses in England and Wales. The goal of the portal is to provide a 'joined-up' service linking all those involved in the planning process with information being shared through the use of geographic information. The implementation of GI as a means of relating or associating disparate information and as a method of identifying areas of interest is a fundamental concept underpinning the portal. The Wandsworth project will support this through the 'Where I live' element of the project.

The above are good examples of where cooperation can work (and hopefully be beneficial) however what is less clear is the concept of joined up government where individual organisations may place a value on information and where the provision of such information through a third-party could result in loss of income. For example a frequently asked question within the Partners group is whether the goals of Ordnance Survey and Improvement and Development Agency (IDeA) are the same? This does not refer to the platitudes that may be provided by the respective press offices but refers to the reality of making third party information available to the consumer (the public) as part of a collective service. Recent experience suggests the current level of inter-departmental cooperation is that of grudging coexistence rather than the all embracing model envisioned by the government.