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Abstract (for dissemination) | Government authorities in Europe need to develop ways of delivering more usable and comprehensive electronic services to their citizens, cost-effectively if they are, for instance, to be able to comply with the goals of e-Europe and the related growth in national e-Government imperatives and strategies. To achieve these goals, they need to understand and have confidence in the application of technologies which can demonstrably improve electronic service delivery. The DIP case study sets out to demonstrate the potential value of Semantic Web
Services in the specific context of e-Government, initially within one large local administrative area (the County of Essex) in the United Kingdom.

This analysis of business needs in relation to the case study therefore relates closely to the specific situation in the United Kingdom. At a later stage of the project, needs will be assessed in further depth in the context of variations in market conditions (public policy and funding, user needs, technical/infrastructural starting points etc) in the 25 Member States and internationally.

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Glossary

BVPI – Best Value Performance Indicator

ECC – Essex County Council

esd – Electronic Service Delivery

e-GIF – e-Government Interoperability Framework

IEG – Implementing Electronic Government

IDeA - Improvement and Development Agency

NOF – New Opportunities Fund

ODPM – Office of the Deputy Prime Minister

NDPB - Non-departmental public body

NHS - National Health Service (NHS).

SOCITM – The Society of Information Technology Management

SWS – Semantic Web Services
EXECUTIVE SUMMARY

Government authorities in Europe need to develop ways of delivering more usable and comprehensive electronic services to their citizens, cost-effectively if they are, for instance, to be able to comply with the goals of e-Europe and the related growth in national e-Government imperatives and strategies.

e-Government policy in the United Kingdom covers the exchange of information between government systems and the interactions between UK Government and citizens, intermediaries, worldwide businesses, other UK Government organisations and other governments.

To achieve their goals, they need to understand and have confidence in the application of technologies which can demonstrably improve electronic service delivery. The DIP case study sets out to demonstrate the potential value of Semantic Web Services initially in the specific context of e-Government, initially within one large local administrative area (the County of Essex) in the United Kingdom.

There is currently a very wide variety of interactions between the agencies involved in these processes across the three ‘tiers’ of government and between them and other organisations in the private and voluntary sectors which are involved in the delivery of services.

The e-Government case study within DIP identifies a need to develop and test applications which enable a ‘supply chain’ involving a variety of data and service suppliers, supporting joint working and system integration for provision of seamless services for the citizen and local businesses.

To this end, it supposes a need to move current applications to a Web Services environment, supported by a rich citizen-focused ontology for e-public services to facilitate description, discovery and matching of services. These will in addition support the integration of enterprise applications within Essex County Council and of back-office systems and processes between the County Council and its partner agencies, necessary for the delivery of ‘joined-up’ services.

From an initial list of 5 possible scenarios, two have been identified as promising candidates for attention within DIP, namely.

- Change of circumstances
- Public Discovery of Services

Further prioritisation of activity between these two scenarios over the remaining 24 months of the project is required by December 2004.

The e-Government Interoperability Framework (e-GIF) sets out the government’s technical policies and specifications for achieving interoperability and Information and Communication Technology (ICT) systems coherence across the public sector. Adherence to the e-GIF policies and specifications is mandatory.
The e-GIF v6.0 Technical Standards Catalogue addresses for the first time (among other issues) specifications for Web Services (e.g. SOAP, UDDI, WSDL, and WS-I), where systems use a Web Services architecture. Issues that are under consideration for future versions include: standards for electronic forms; additional standards for Web Services; additional standards for Web services security; standards for registry and repository services and guidance on the Semantic Web.

Central government responsibility for local government affairs falls under the Office of the Deputy Prime Minister (ODPM) which oversees a Local e-Government programme which, building on the work of individual councils and partnerships, has launched a number of relevant programmes and initiatives. To further define the requirement and to enable measurement of progress toward the target, a list of e-Government Priority Outcomes for local authorities has been announced, including services and ‘transformation processes’.

The local e-Government value chain includes the following ‘links’: local government to end user (citizens and business); central government to local government/end-user; and local government to business supplier.

Local government in Essex and elsewhere now operates under a ‘Cabinet’ structure. A Strategic IT Partnership has been formed with BT Syntegra under a contract awarded in 2002 for a 10 year period.

A recent draft paper in Essex addresses the need to ensure that there is a clear and coherent framework for new developments, as a foundation of a technical review of any proposed solution:

“In general, a reasonable number of initiatives are being addressed in some shape or form. However, a number of the key, strategic activities that would ensure that current and future developments would meet the aspirations of the strategy studies have not been started”

Many pointers and priorities within this analysis indicate a potential for deployment of SWS. Within Essex, key stakeholders who need to be convinced of the role and benefits of SWS include: strategic decision makers and advocates within Essex IT/IM (e-Champions, BT Syntegra etc); the departments and agencies within Essex participating in the use case scenarios as they develop; and national agencies such as Department of Work and Pensions which have a role to play in the development of local joined-up services.

Resistance or uncertainty regarding the adoption of Semantic Web Services within e-GIF or implementing them at local level may conceivably arise depending upon the stakeholder perspective and the ability to demonstrate cost-benefits of SWS.

Conclusion

There is a significant market in the UK, driven by central government funding, for local e-government services based on innovative IT applications. The technical underpinning is the mandatory e-GIF which now includes core Web Services standards and proposes
to address the Semantic Web in the near future. There is active planning for the
deployment of Web Services in local government within Essex and elsewhere. The
benefits of semantic enrichment of Web Services are as yet less widely understood.

To achieve success, DIP will need to influence key stakeholders with valid and
demonstrable claims on behalf of the benefits of SWS deployment within the next 12-18
months in order to ‘catch the wave’ offered by the current funding window. A
convincing DIP case study prototype demonstrator based on either the Change of
Circumstances or the Public Service Discovery scenario needs to be created within the
first 18 months of the project. Linked to this, paradigms for establishing the
comparative benefits of SWS-enhanced services in terms of cost savings and better
services, over other solutions to the same problems need to established and promoted.

Future funding patterns beyond 2006 are difficult to assess at this stage although it is
likely that continued investment in e-Government will occur at least through the
budgets of individual local authorities.

Impact in the UK and through eGIF is likely to provide an effective route to service
emulation and SWS standards adoption at European level.
1 INTRODUCTION

Government authorities in Europe need to develop ways of delivering more usable and comprehensive electronic services to their citizens, cost-effectively if they are, for instance, to be able to comply with the goals of e-Europe [1] and the related growth in national e-Government imperatives and strategies.

To achieve these goals, they need to understand and have confidence in the application of technologies which can demonstrably improve electronic service delivery. The DIP case study sets out to demonstrate the potential value of Semantic Web Services initially in the specific context of e-Government, initially within one large local administrative area (the County of Essex) in the United Kingdom.

This analysis of business needs in relation to the case study therefore relates closely to the specific situation in the United Kingdom. At a later stage of the project, needs will be assessed in further depth in the context of variations in market conditions (public policy and funding, user needs, technical/infrastructural starting points etc) in the 25 Member States and internationally.

2 CURRENT SITUATION

This section describes the current policy drivers in the e-Government field in the UK before describing the way in which this is initially being interpreted in terms of practical implementation within the DIP case study. The stakeholders and their main requirements in central and local government and in Essex itself are then described as a prelude to an outline of the value chain which affects them and the regulatory and standards environment within which they need to work.

2.1 e-Government

e-Government is not seen as an end in itself. It is at the heart of the drive to modernise government overall. Modernising local government is about enhancing the quality of local services and the effectiveness of local democracy. The transformation of people’s experience of public services through the application of local e-government was described in the National Strategy for local e-government published in November 2002 [2]. This final document listed seven shared public service delivery priorities, agreed between the Government and the Local Government Association:

The shared priorities are:
- raising standards across schools;
- improving the quality of life of children, young people, families at risk and older people;
- promoting healthier communities by targeting key local services, such as health and housing;
- creating safer and stronger communities;
- transforming the local environment;
- meeting local transport needs more effectively;
- promoting the economic vitality of localities.
Successive UK government statements have reaffirmed and developed this principle and the required outcomes, as described later in this document. For example in April 2004, the Cabinet Office, in announcing a new Head of e-Government, stated:

‘…modern joined-up government demands joined-up ICT systems. Interoperable systems working in a seamless and coherent way across the public sector hold the key to providing better services, tailored to the needs of the citizen and business and at a lower cost. Clearly defined policies and specifications for interoperability and information management are also key to staying connected to the outside world and aligned to the global information revolution. Government information resources are not only of value in themselves. They are valuable economic assets, the fuel of the knowledge economy. By making sure the information we hold can be readily located and passed between the public and private sectors taking account of privacy and security obligations, we can help to make the most of this asset, thereby driving and stimulating our economy’.

In all there are over 450 local authorities in the United Kingdom, employing about 2 million people. In England and Wales, some local authorities are stand-alone or ‘Unitary’, others form part of a two-tier system with divided responsibilities.

Essex itself is organised on a two-tier basis with some services provided by the County Council [3] and others by District Councils such as the Borough of Chelmsford [4]. In addition, there has been growth in the number of services provided by central government either directly to users or more usually through local or regional agencies such as the pensions and employment-related services of the Department of Work and Pensions [5]. There is currently a very wide variety of interactions between the agencies involved in these processes across the three ‘tiers’ of government and between them and other organisations in the private and voluntary sectors which are involved in the delivery of services.

Partnerships between the County Council, District Councils, other public authorities and the non-governmental sector are seen as essential to the delivery of e-Government objectives and targets.

2.2 Case study processes

The e-Government case study within DIP identifies a need to develop and test applications which enable a ‘supply chain’ involving a variety of data and service suppliers, supporting joint working and system integration for provision of seamless services for the citizen and local businesses.

To this end, it supposes a need to move current applications to a Web Services environment, supported by a rich citizen-focused ontology for e-public services to facilitate description, discovery and matching of services. These will in addition support the integration of enterprise applications within Essex County Council and of back-office systems and processes between the County Council and its partner agencies, necessary for the delivery of ‘joined-up’ services.
However, the possible realm of services and interactions within e-Government is very broad indeed. The *esd-toolkit* [6], an online resource which enables local authorities to record their public facing services against a nationally recognised list currently lists some 700 service types provided by local authorities.

In order to ensure the possibility of successful proof of concept and demonstration of possible benefits within the resources and timescale available to DIP, it is essential to choose a limited number of service scenarios for SWS application.

From an initial list of the following 5 possible scenarios
- Public Discovery of Services
- Change of circumstances
- Problem notification/service request
- Confidential client data
- Single assessment process,

two have been identified as promising candidates for attention within DIP, namely.
- Change of circumstances
- Public Discovery of Services

### 2.2.1 Change of circumstances

In the first phase of DIP, the case study work (i.e. production of mock ups) has focused on one common problem, namely the handling of a ‘Change of Circumstances’, where more than one agency is involved. This scenario has potential impact because it has as one of its core processes to one of the Priority Outcomes for e-Government [7], change of address:

*Priority Outcome G25. Facilities to support the single notification of a change of address, i.e. a citizen should only have to tell the council they have moved on one occasion and the council should then be able to update all records relating to that person to include the new address.*

It is notable that this is ranked as a ‘good’ outcome (that is better than ‘required’ but not as good as ‘excellent’. Automated Change of Address is also perceived as a solid benefit in demand by many of the stakeholders interviewed for this Case Study in Essex. However, its delivery is not necessarily linked in the Priority Outcomes to the deployment of (Semantic) Web Services.

Currently a very wide variety of transactions are carried out manually involving cumbersome and frequently duplicative work and often too limited interaction between agencies. It should also be noted however that Data Protection and privacy remains a major issue to consider in planning for automation of these processes.

In the Change of Circumstances scenario developed for the mock-up, a part-time employed single woman moves into a new rented house, in the same local authority area as her previous address, in order to look after her disabled 86 year old mother, whose previous address was also in the same local authority area. Various agencies have to be
informed about a change of address and the benefits and services which are eligible to them after moving have to be determined.

This scenario triggers a sequence of activities involving a number of departments of Essex County Council (Community Care), Chelmsford District Council (Housing), the National Health Service (Doctor, Primary Care Trust) and services provided by local agencies (Pensions, JobCentre plus) of central government departments (Department of Work and Pensions).

The underlying design rationale at mock-up-stage is that then prototype will consist of a portal for Essex County Council and that the identified end user will be a case worker. The portal administers a network of registered agencies (service/benefit providers) and registered agencies will publish SWS according to an agreed scenario-driven ontology. There are a number of fixed SWS Tasks (change of circumstance) to which agencies may subscribe (publish services): agencies can make SWS (Tasks) available through the portal (by URL).

It is envisaged that an eventual demonstrator/prototype would cover the following basic functionality:
- A web-based front-end allowing citizens or social workers to enter data, e.g. regarding change of address.
- The Essex County Council Citizen Server, which:
  - controls the interaction taking place in the front end;
  - administers citizen profiles;
  - determines agencies and services to involve.
- Simulations of selected agencies and services, which
  - contain information about citizens which has to be kept up to date
  - determine eligibility for benefits
- A repository containing citizen profiles

This use case demonstrates two major characteristics of the e-Government Case Study:
- Workflows triggered by a change of circumstances can become rather complex and generally involve several agencies/services in addition to the citizen and the County Council.
- Agencies/Services use different data models, i.e. communication between the County Council Server and the various agencies requires data mediation.

In principle, the initial scenario is capable of extension either through the definition and integration of other ‘contiguous’ processes involving additional actors and further complexity; or by identifying separate, parallel processes which can later be ‘joined up’ with the initial scenario.

2.2.2 Public Service Discovery

A different ‘Required’ Priority Outcome (R3) [7] is:

“Online facilities to be available to allow one stop direct access and deep linking to joined up A-Z information on all local authority services via website or shared
telephone contact centre using the recognised taxonomy of the Local Government Category List [25].

Essex has already invested significantly in this area both through internal work on the County Council and Essex Online [8] portals and through its leadership of the seamlessUK [9] project to develop a one-stop search engine for the discovery of distributed information resources available to citizens. This work has incorporated long-term development of products a metadata application profile and an extensive, structured subject taxonomy. The latter is now to be merged with the Local Government Category List and the (central) Government Category List to form one national taxonomy for subject indexing of government information and resources, work expected to be completed by autumn 2004. Essex also has an important role in the area of development of access Community Information within a newly-funded National Project. Within the DIP case study, the Open University has transformed the SeamlessUK subject taxonomy into an ontology on a test basis.

This use case area therefore has some significantly beneficial characteristics in comparison with the Change of Circumstances scenario:

- Essex already has a high profile and investment interest in this area.
- Because of previous development, it is a less complex area to understand than Change of Circumstances.
- Stakeholder ‘buy-in’ at local level is more advanced than that for Change of Circumstances.

However, the comparative benefits of applying SWS to public service discovery are possibly less well established than those which appear evident for Change of Circumstances.

Further prioritisation of activity between these two scenarios over the remaining 24 months of the project is required at the latest by the time of the Requirements Deliverable 9.2 for WP 9 in December 2004 which will set out in detail the way in which the case study prototype service (D9.4) will function including the requirement to deploy SWS and specific DIP outputs.

2.3 The main stakeholders

The definition of e-Government in the United Kingdom includes central government departments and their agencies, local government, the devolved administrations (Northern Ireland, Scotland and Wales) as voluntary partners, and the wider public sector, e.g. non-departmental public bodies (NDPBs) and the National Health Service (NHS).

e-Government policy in the United Kingdom covers the exchange of information between government systems and the interactions between:

- UK Government and citizens
- UK Government and intermediaries
- UK Government and businesses (worldwide)
• UK Government organisations
• UK Government and other governments (UK/EC, UK/US, etc.).

The full participation of government departments, their agencies, NDPBs, the NHS, devolved administrations and local authorities is seen as essential to successfully deliver interoperability in the public sector.

2.3.1 Central government

On 27 May 2004, PM Tony Blair welcomed the appointment of a new Head of e-Government. The e-Government Unit, based in the Cabinet Office, is to work with departments to deliver efficiency savings while improving the delivery of public services by joining up electronic government services around the needs of customers and providing sponsorship of ‘Information Assurance’.

The Prime Minister said: ‘The Head of e-Government is one of the biggest and most challenging IT positions in the UK today, not only driving up use of Government services online but also driving change, reform and efficiencies throughout the public sector by using IT....his remit is to ensure that the Government capitalises on the potential of ICT to both transform service delivery and achieve a step change in operational efficiency across the public sector’.

This represents a development of the original task of the e-Envoy (which the post replaces), ‘to get the UK online’. Currently it is calculated that 71% of Government services are ‘available online’ against a target of 100% by the end of 2005. One specific initiative, Directgov [10], is seen as having a key role in changing the way that citizens interact electronically with Government, superseding the earlier UKOnline initiative.

However, the fragmentation of service-delivery agencies across tiers of government and in partnership with external agencies requires forms of policy, management and technical co-ordination which are only now beginning to becoming established.

The e-Government Interoperability Framework (e-GIF) [11] sets out the government’s technical policies and specifications for achieving interoperability and Information and Communication Technology (ICT) systems coherence across the public sector. The e-GIF seeks to define the essential prerequisites for joined-up and web-enabled government, defining the minimum set of technical policies and specifications governing information flows across government and the public sector. These cover interconnectivity, data integration, content management metadata and e-services access.

The Cabinet Office is the lead authority for implementing and maintaining this framework. A commitment is stated to ensuring that these policies and specifications are kept aligned to the changing requirements of the public sector and to the evolution of the market and technology. e-GIF coverage extends to Scotland as a result of the Scottish Executive’s Information Age Government Framework for Scotland.

The e-GIF is based on government working in open partnership with industry and has been developed through close working with industry partners. It proposes joint working and development of the policies and specifications for interoperability, relying heavily
on industry worldwide to comment and to provide innovative solutions. An independent Industry Consultation Group (e-ICG) has been established to provide a longer-term view of technology trends and how they may influence this work.

It is intended that the delivery of interoperability specifications through e-GIF will be primarily driven by the needs of citizen and business-facing services. Priority will be given to ‘schemas’ that serve the requirements of services or processes that are generic across many public sector organisations. Facilitation of new, joined-up services and interorganisational process developments will also be given precedence.

Despite this central direction, much of the action takes place in individual public sector organisations which are supposed to:

- contribute to the continuous development and improvement of this framework;
- ensure that e-GIF compliance is a fundamental part of their organisational e-business and IT strategies;
- produce a ‘roadmap’ for implementing their organisation’s conformance with the e-GIF;
- work with users of their services or data to identify those services that can usefully be made more widely available;
- ensure that they have the skills to define and use the specifications needed for interoperability;
- establish a contact who understands the impact of e-GIF requests for change and can respond within the stated time period;
- budget for and supply resources to support the processes;
- identify the relevant customer(s) or stakeholders within their organisation and ensure their interests are represented;
- take the opportunity to rationalise processes (as a result of increased interoperability) to improve the quality of services and reduce the cost of provision.

At times some uncertainties about the different roles of standards-based initiatives in terms of their applicability to central government versus local government have emerged and some are still in process of resolution.

2.3.2 Local Government

Central government responsibility for local government affairs falls under the Office of the Deputy Prime Minister (ODPM) which oversees a Local e-Government programme which, building on the work of individual councils and partnerships, has launched a number of relevant programmes and initiatives.

Some important illustrations of what it is intended that citizens be able to do electronically with their council by 2005 include:

- Submit planning applications online;
- Check Council Tax balances;
- Book sports and leisure facilities over the web;
• Check eligibility for and calculate entitlement to Housing and Council Tax benefit;
• Access all Council services outside standard working hours;
• Receive a reply to an email enquiry within one working day

To further define the requirement and to enable measurement of progress toward the target, a list of e-Government Priority Outcomes [7] for local authorities has been announced, including services and ‘transformation processes’, as follows:

<table>
<thead>
<tr>
<th>Table 1: Local e-Government Priority Services</th>
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<tbody>
<tr>
<td>• Schools</td>
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<td>• Democratic renewal</td>
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<tr>
<td>• e-Procurement</td>
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<tr>
<td>• Libraries, sports &amp; leisure</td>
</tr>
<tr>
<td>• Benefits</td>
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<tr>
<td>• Supporting new ways of working</td>
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<tr>
<td>• High take up of web-based Transactional services</td>
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</table>

It is expected that each local authority as part of its e-government investment programme will deliver these priority outcomes by December 2005. The priority outcomes provide additional focus for priority working within the target to reach 100% e-enablement of Government services by December 2005 (as measured by the Best Value Performance Indicator (BVPI) 157 [12] for local government services). They do not seek to add to the requirements measured by BVPI 157, but rather to ensure that the e-enablement of local authority services is delivered in a way that enhances the quality, convenience and availability of these services.

Outcomes for each service are ranked as follows:

1) **Required outcomes** – these refer to specific online facilities that must be in place in every area of the country for citizens, organisations, councillors and local authority staff to use by the end of December 2005. Where applicable, these online facilities should be available on a 24/7 basis. Such outcomes must be at Green stage in IEG [13] self-assessment terms by December 2005 (i.e. the work has been implemented);

2) **“Good” e-government outcomes** – the precise approach to achieving these outcomes may be locally determined, but all local authorities are expected to commit to these objectives in order to qualify for further IEG4 funding in 2005/06. As a minimum, such outcomes must be at Amber stage in IEG self-assessment terms by December 2005 (i.e. where work has been approved for funding and is actively being implemented) and at Green stage by 1 April 2006.

3) **“Excellent” e-government outcomes** – high performing local authorities that have already achieved, or largely achieved, the defined required and “good” e-government outcomes, will be asked to agree a baseline and targets for promoting
awareness and take-up of e-services, in return for greater discretion in applying IEG grant to meet locally-defined priorities.

Local authorities are being incentivised through the Implementing e-Government (IEG) [13] capital funding process for working on the local e-government priority outcomes in 2004/05 and 2005/06. In February 2004, ODPM announced further funding support for Councils of £220 million (333 million Euros), for the two years up to and including the target year of 2005, is part of the £675 million (1.02 billion Euros) total programme fund for delivering Local e-Government. All local authorities in England will receive £500K (757K Euros) capital grant over the next two years (£350k (530K Euros) in 2004/05 and £150k (227K Euros) in 2005/06 (subject to submitting satisfactory IEG progress reports) to help deliver e-government, to e-enable their priority services.

They will also be supported in delivering outcomes through the outputs from the ODPM Local e-Government National Project programme: see Table 2 below [14]. These have to date received funding of about £80 million [121 million Euros] to date, to co-ordinate ICT development in fields such as the following list, also dealing with generic areas such as Content Management and Customer Relations Management and by creation of a National Standards Body for local e-government [24].

Table 2: Local e-Government National Projects

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<th>Project</th>
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<td>Schools admissions</td>
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<td>Planning &amp; Regulatory Services Online</td>
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<td>Council Tax</td>
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<tr>
<td>Framework for Multi-Agency Environments</td>
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<tr>
<td>Working With Business</td>
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<tr>
<td>Reducing Youth Offending</td>
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<td>e-Trading Standards</td>
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<td>e-Fire</td>
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<td>e-Payments</td>
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<tr>
<td>e-Democracy</td>
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<tr>
<td>e-Citizen (Take Up &amp; Marketing)</td>
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</table>

An additional £28 million has recently been allocated to specific projects focusing on the national roll out of the National Projects Covering Take-up and Marketing, Payments and Environmental Services (in which Essex is a partner responsible for Community Information) and the take-up of e-services.

Progress in delivering the priority outcomes will be monitored through the IEG reporting process. Local authorities will be required to provide evidence that they are using IEG grant to make progress in delivering the priority outcomes.

Each local authority in England must produce an annual IEG statement describing the state of towards achieving the Government's target of 100% of services being e-enabled by December 2005. These statements began in 2001 with IEG1 and the current version is IEG3 for October 2003. Progress towards this target is measured by a Best Value Performance Indicator (BVPI),
The ODPM is discussing certification arrangements for IEG grant with the Audit Commission. Authorities not meeting IEG requirements in 2004/05 will be excluded from further IEG funding in 2005/06. There will be no mechanism to carry forward IEG funding beyond the end of March 2006. The ODPM also reserves the right to invoke retroactive ‘recovery’ of IEG grants in exceptional circumstances where there is evidence that grants have not been used to support IEG activity.

In addition to defining local e-government outcomes around the shared priorities, the ODPM also supports local government to achieve progress in terms of the electronic delivery of key high volume/high impact local government services identified as priorities in terms of user benefit and efficiency savings, i.e.

- schools admissions;
- voting;
- consultation;
- planning applications; and
- payments (including Council Tax Benefit & Housing Benefit);

An e-Innovations programme [15] has recently funded 34 ‘cutting-edge’ projects to develop the Local e-Government agenda beyond 2005, targeting four themes: e-Learning; bridging the Digital Divide; emergent technology for better government and local authority e-business; to a match funding value of £6.2 million (9.4 million Euros). A second bidding round for a remaining £7.8 million (11.8 million Euros) will take place in autumn 2004.

An Improvement & Development Agency (IDeA) [16] has also been created to support the local e-Government initiative and is expected to provide a more detailed elucidation of these requirements designed around the needs of practitioners involved in implementing the priority outcomes. The IDeA package of support will include help to local authorities through the work of a Strategic Support Unit (SSU) and Implementation Support Unit (ISU) designed to provide in-depth support for local e-government implementation. Ongoing work within IDeA’s Electronic Service Delivery (ESD) Toolkit will also reflect this initiative, including an interpretation for practitioners of the individual BVPI 157 types of service interaction falling within the remit of the priority outcomes.

Guidance to local authorities on standards is also available through the Local e-Government Standards Body

The e-Champions [17] are senior government officials within central and local government and the NHS. They form the overall management committee that owns the e-GIF.

Local partnerships

Local authorities can choose whether they wish to deliver the priority outcomes by working individually, or through partnerships. However, there is a strong expectation that where existing partnership infrastructures are viable, they represent a preferred way forward to help deliver outcomes in those priority areas that demand an integrated or
joined-up approach. Therefore, it is expected that a proportion of IEG grants to individual local authorities should be earmarked and pooled accordingly.

Local authorities already working to deliver local e-Government through partnership activity are expected to retain the viability of these infrastructures in order to support the delivery of priority outcomes and ensure:

- joined up service delivery at a local level;
- efficiencies and economies of scale in related procurement activity; and
- rapid take-up and roll-out of associated national project solutions.

Authorities that do not continue to support such existing viable partnership activity in their local area through IEG grant in 2004/05 may be asked to explain their policy position.

2.3.3 Essex

Local government in Essex and elsewhere now operates under a ‘Cabinet’ structure, where an elected councillor is responsible for the strategic operation of specific areas of activity such as e-Government.

A Strategic IT Partnership has been formed with BT Syntegra under a contract awarded in 2002 for a 10 year period.

The Department of the Council responsible for advancing DIP is Information Services and within it the Strategic Information Unit. DIP project staff report to the head of this Unit.

In terms of IEG Essex County Council scored 74% this year for BVPI 157 in 2003. The Council is considered to be on course to achieve the 2004 target of 75% of dealings capable of electronic delivery being provided electronically [18].

In Essex there is also a local e-Champions group which consists of IT-leaders in the County Council, District Councils, Fire, Health and Police etc.

Managers in individual departments and external agencies operating in partnership with or under contract to Essex will need to respond to their own various strategic service goals.

Citizens who wish to provide comments, suggestions and innovations that may help it to improve information access and service delivery are encouraged to do so through the govtalk website. User testing, consultation with representative groups and user satisfaction surveys are among methods employed to determine citizens’ needs.

2.4 Value chain

The e-Government value chain includes the following ‘links’:

- **Central government to local government/end-user**
Central government agencies have spent large amounts of money in creating e-Government resources such as UKOnline, nhs.online, JobCentreplus and other departmental online initiatives in recent years. In general, the use of these services by local government and end users is a matter of key concern.

‘e-Government resources’ are key components of the e-Government strategy. Every e-Government resource must have a designated owner (a role or organisation, not a named person). The ownership of the changes should be vested in the organisation that owns an e-Government resource. As an e-Government resource develops, changes are made informally and work progresses using revision control. The e-Government resource may be published for consultation. At this stage, the resource should come under formal change control. Procedures are described on govtalk [19].

- **Local government to end user (citizens and business)**

Local government expenditure accounts for about 25 per cent of public spending. In 2002-3 total local government expenditure [20] was £107 billion (161 billion Euros), an increase of just under 9% on the previous year. This spending is financed primarily by grants from central government or the devolved administrations, by the redistribution of revenue within each country from their national non-domestic rate, and a property tax levied on businesses and other non-domestic properties. Local authorities may charge for discretionary services and carry out trading activities [21].

Local authorities have a statutory obligation to provide certain services. In delivering these they may procure IT infrastructure, services and support.

According to the SOCITM IT Trends Survey for 2003/4 [22], the Local Authority ICT spend increases was set to increase by 25% to nearly £2.5billion as Councils made increased investment in e-Government and service modernisation. By contrast, in most non-government sectors ICT spend was ‘flat’.

The survey also found that:

- senior managers, elected members and staff are optimistic about the potential of IT to deliver better services to citizens.
- investment in equipment, software and services is expected to double.
- more IT staff will be recruited to help deliver the benefits.
- service improvements in some areas could be as much as 100% with an average of 20% across all services.
- IT managers are increasingly playing a wider strategic role in the management of councils

Currently, public information services, downloadable forms and a few online transactions are available to Essex citizens online through the Essex County Council [3] website Essex Online [8], a ‘community portal’ which is the product of a wider local partnership, and individual District Council websites. The development of this approach forms a central part of Essex’s e-Government vision.
Essex has also been funded under the NOF Digitisation programme (lottery) to develop SeamlessUK [9], search engine and underpinning standards to enable the one-stop searching of national and local e-Government community information content (19).

- **Local government to business supplier**

Supplier and consultancy contracts are awarded for implementing, maintaining and updating services which add value and exploit existing investments in e-government resources (central and local), deliver cost savings to local government and better services to citizens.

Strategic IT partnerships with the private sector, such as the one in Essex, exist in a number of local authority areas.

### 2.5 Regulations

Adherence to the e-GIF policies and specifications is mandatory (see section 3.3 for a more detailed description of these). Compliance with the e-GIF is part of the conformance check for the release of funding by the Cabinet Office and HM Treasury. At the highest level, complying with the e-GIF means:

- providing a browser interface for access
- using XML as the primary means for data integration
- using Internet and World Wide Web standards
- using metadata for content management.

These four elements are fundamental, but equivalent standards and additional interfaces are permissible. The ultimate test for interoperability is seen as the coherent exchange of information and services between systems. Furthermore, it must be possible to replace any component or product used within an interface with another of a similar specification while maintaining the functionality of the system. To be e-GIF compliant, a system should satisfy both these requirements.

At a detailed level, testing for compliance needs to be performed against the policies and specifications listed in the e-GIF. It is acknowledged that the scope of systems will vary and the test is therefore not one of ‘does the system comply with all the policies and specifications?’ but ‘does the system contravene any of the policies and specifications?’

If a system fails the test on any of the aspects listed above, a migration strategy needs to be produced and agreed by the Office of the e-Envoy (Technology Policy). Failing to comply and the absence of an acceptable migration strategy will lead to the following courses of action:

- compliance with the e-GIF is one of the criteria that will be used when assessing/evaluating departmental e-business strategies and deciding on the release of funding by the e-Envoy and HM Treasury;
- new systems failing to comply with the e-GIF will not get project approval or
funding from the appropriate bodies within their organisations

- suppliers who are not prepared to meet the e-GIF specific requirements or equivalents (which do not adversely affect functionality) raised in procurements, etc., will not meet the specifications.

In practice, it is expected that organisations will not be able to participate effectively and at minimum cost in future data interchange processes unless they comply with the e-GIF specifications. The compliance rules and timetable are that:

- All new systems that fall within the mandate will provide interfaces that conform to the specifications, or equivalents, in the e-GIF by default. They may also provide additional interfaces.

- New systems should be developed to comply with the e-GIF specifications in force on the day approval is given to the business case (i.e. the latest versions of e-GIF and its Technical Standards Catalogue).

- Should changes be made to the e-GIF thereafter which impact on the system development, then a full assessment should be made of the cost and benefit of accommodating the changes before or after the system goes live.

- Legacy systems that fall within the mandate will need to provide interfaces that comply with the specifications or equivalents within specified timescales:

An e-GIF Compliance Advisory Service is provided by the National Computing Centre.

It is recognised that compliance with the e-GIF cannot be imposed on citizens, businesses and foreign governments, but the UK Government will make it clear to all that this is their preferred method of interface.

In addition, Government information systems will be designed to meet UK legislation and to support channels that provide accessibility for disabled people, members of ethnic minorities and those at risk of social/digital exclusion.
3 CHALLENGES

This section describes the specific strategic and operational challenges faced within the Essex Information Management environment, assesses the potential contribution of SWS in addressing these challenges, the national and local. It then describes the standardisation environment within which SWS-based approaches would need to be expressed and describes the main actors within it, finally assessing possible solutions and the constraints.

3.1 Strategies and goals in Essex

A partial draft paper produced in April 2002, Progress with Implementing the Findings of the Information Management and Web Strategies for ECC, 26 April 2004 addresses the need to ensure that there is a clear and coherent framework for new developments, as a foundation of a technical review of any proposed solution:

“In general, a reasonable number of initiatives are being addressed in some shape or form. However, a number of the key, strategic activities that would ensure that current and future developments would meet the aspirations of the strategy studies have not been started”

There are at least six major independent IT systems in use across Essex County Council at this time. A map of the existing architecture/infrastructure is under development (see partial draft at Fig. 1 below).

Challenges are defined under the following broad categories:

- Information Management Strategy
  - Better Management of Information Assets
  - Improving Quality and Value of Management Information
  - Web Content Management

- Information Sharing and Joined-up Services
  - Process and Case Management
  - Knowledge Management and Continuous Process Improvement
  - Service Provision
  - User Experience and Functionality
  - Governance and Security
  - Business Process Management

There are also several requirements concerning system behaviour of the production system to be eventually deployed at Essex City Council. These include:

- Reliability: Services need to be available seven days a week, 24 hours a day to meet public need.
- Performance Requirements and Scalability: Response time should be in the range of average response time offered by web-based services. It is not yet clear how many users will have to be supported concurrently.
• Security/Trust: Neither data sharing nor authentication protocols are as yet well established between the agencies concerned in delivering the proposed services.
• A significant amount of the data to be used is confidential or otherwise sensitive to privacy/data protection laws and ethics. The system would need to assure this. Essex has a secure virtual private network which links the Boroughs/Districts and the County Council - however at the moment it does not include the external partners e.g. JobCentre+, Pensions, Police, Health etc.
• Audit trails are mandatory within Essex County Council.
• Legal transactions, e.g. signing power of attorney, will be necessary within the Case Study.
• Platform Support/Portability: Pilot/prototype services will be run from an independent server outside the County Council firewall in the short-to-medium term. None of the organisations interviewed are apparently running any Web Services applications yet. It has been discussed that the Case Study will initially set up a ‘middleware’ platform to handle SWS and then communicate with the individual systems in a more traditional way.
• Installation/Upgrade: Upgrades should have a minimal impact on the installed system e.g. it should be possible to keep any persistent data from previous versions.
• Compatibility: It should be possible to integrate the system into the existing County Council and partner infrastructures e.g. we want to reuse existing execution environments.

Some of these requirements are clearly without the scope of the DIP project as they concern properties to be provided by the production environment. However, these requirements should be taken into account when developing the overall architecture. In particular, it has to be made sure that architecture decisions do not prevent the above requirements to be satisfied.

3.2 Potential for Semantic Web Services

Many pointers within the above analysis indicate a potential for deployment of SWS for example by identification of priorities of the following type:

• sharing information with service delivery partners;
• more joined-up services;
• establishing links between ‘legacy’ databases;
• specifying an Information Architecture with a rolling programme of connectors into core systems;
• establishing an appropriate integration approach (e.g. a Web Services architecture);
• a flexible overall process architecture, for creating new services;
• establishing a core platform to achieve true information and systems integration
• ensuring interoperability between systems and services;
• including content management using standards (e.g. XML, Web Services, etc);
• setting up an e-GIF conformant metadata dictionary to include a shared corporate taxonomy, based on SeamlessUK;
• ensuring interoperability has a focus on user needs and service access;
- using shared services (with partners) where possible to deliver financial,
geographical and forms-based services;
- using a standards-based approach (e.g. Web Services);
- identification as a key benefit the elimination or minimisation of human.

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<th>Genus</th>
<th>IFS</th>
<th>PoC</th>
<th>Abacus for DOS</th>
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**Figure 2: IT Systems in Essex (partial analysis)**

### 3.3 Standardisation

The *e-Government Interoperability Framework* (Version 6.0, published on 30 April 2004) [11] is a fundamental framework policy for the e-Government strategy and offers the most obvious and
effective path for achieving widespread adoption of Semantic Web Services within the UK e-Government environment.

Adherence to the e-GIF policies and specifications is mandatory. They set the underlying infrastructure, freeing up public sector organisations so that they can concentrate on serving the customer through building value-added information and services, although it is for the organisations themselves to consider how their business processes can become more effective by taking advantage of the opportunities provided by increased interoperability.

The e-GIF only adopts specifications that are well supported in the market place: a strategy designed to reduce cost and risk for government systems whilst aligning them to the global Internet revolution.

The e-GIF architecture contains:
- the Framework, which covers high-level policy statements, technical policies and management, implementation and compliance regimes
- the e-GIF registry, which covers the e-Government Metadata Standard (e-GMS) and Government Category List (GCL), the Government Data Standards Catalogue (GDSC), XML schemas, the Technical Standards Catalogue (TSC) and the e-Services Development Framework (e-SDF).

Support is also provided in the form of best practice guidance, toolkits and centrally agreed schemas, notably through the GovTalk website [19] a Cabinet Office-led joint government and industry facility for generating and agreeing XML schemas for use throughout the public sector, also used for wide consultation on e-Government frameworks and documents.

The e-Envoy (now Head of e-Government) also manages interaction with similar initiatives and specifications bodies elsewhere across the world, including W3C, WS-I, IETF, OASIS, DCMI and others. On the international scene, the e-GIF and e-GMS have attracted considerable attention and are being considered by the EU IDA (Interchange of Data between Administrations) programme as bases for European standards initiatives such as the European Interoperability Framework [23].
The key policy decisions that have shaped the e-GIF include:

- alignment with the Internet: the universal adoption of common specifications used on the Internet and World Wide Web for all public sector information systems;
- adoption of XML as the primary standard for data integration and data management for all public sector systems;
- adoption of the browser as the key interface: all public sector information systems are to be accessible through browser-based technology; other interfaces are permitted but only in addition to browser-based ones;
- the addition of metadata to government information resources;
- the development and adoption of the e-GMS, based on the international Dublin Core model (ISO 15836);
- the development and maintenance of the Government Category List (GCL);
- adherence to the e-GIF is mandated throughout the public sector;
- interfaces between government information systems and intermediaries providing e-Government services shall conform to the standards in the e-GIF;
- interfaces between intermediaries and the public are outside the scope of the e-GIF.

The selection of e-GIF specifications has been driven by:

- interoperability – only specifications that are relevant to systems’ interconnectivity;
- data integration, e-services access and content management metadata are specified;
- market support – the specifications selected are widely supported by the market, and are likely to reduce the cost and risk of government information systems;
- scalability – specifications selected have the capacity to be scaled to satisfy changed demands made on the system, such as changes in data volumes, number of transactions or number of users;
- openness – the specifications are documented and available to the public;
- international standards – preference will be given to standards with the broadest remit, so appropriate international standards will take preference over EU standards and EU standards will take preference over UK standards.

In the last context, the preference of e-GIF for adoption of stable standards (e.g. as adopted and promoted by W3C and OASIS, is an important issue for DIP to address.

The e-GIF does not standardise the appearance of information on the human interface, which can be provided by various user channels, e.g. Internet, public kiosks, digital TV, WAP phones. The e-GIF standardises interchange requirements for the delivery of data to such interfaces and tools for the management of the presentation of such data.

The technical policies for interoperability across the public sector cover four key areas: interconnection, data integration, content management metadata and e-services access. This is seen as the minimum set necessary to support the range of transactions and services provided by government and to integrate information systems within government. The e-GIF also informs the Open Source Software (OSS) policy.
1. Introduction

2. Changes from previous version

3. Issues under consideration

4. Interconnection
   Table 1: Specifications for interconnectivity
   E-mail
   Table 2: Specifications for Web Services

5. Data integration
   Table 3: Specifications for data integration
   Notes on XML and middleware
   Figure 1: Direct XML Model
   Figure 2: Interchanges via middleware

6. Content management metadata
   Table 4: Specifications for content management metadata
   Table 5: Specifications for identifiers

7. e-services access
   Table 6: Specifications for computer workstations
   Table 7: Specifications for other channels
   Table 8: Specifications for mobile phones
   Table 9: Specifications for conferencing systems over IP
   Table 10: Specifications for VoIP (Voice over IP) systems
   Table 11a: Specifications for smart cards - data definition
   Table 11b: Specifications for smart cards - applications inc multi-applications
   Table 11c: Specifications for smart cards - electrical
   Table 11d: Specifications for smart cards - communication protocols
   Table 11e: Specifications for smart cards - physical
   Table 11f: Specifications for smart cards - security
   Table 11g: Specifications for smart cards - terminal infrastructure
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<th>8. Specifications for business areas</th>
<th>Table 12: Specifications for smart travel documents</th>
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<td>Table 13: Specifications for business areas - miscellaneous</td>
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<td>Table 14: Specifications for business areas - e-Learning</td>
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<td>Table 15: Specifications for business areas - e-Health &amp; social care</td>
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<td>Table 16: Specifications for business areas - finance</td>
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<td>Table 17: Specifications for business areas - commerce, purchasing &amp; logistics</td>
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<td>Table 18: Specifications of business areas - work flow &amp; web services</td>
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<td>9. Appendices</td>
<td>Appendix A: Abbreviations and Acronyms used in e-GIF</td>
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<td>Appendix B: Glossary of Metadata Terms</td>
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Figure 3: e-GIF v6.0 Technical Standards Catalogue
The most recent version of e-GIF addresses for the first time (among other issues) specifications for Web Services. The following standards apply where systems use a Web Services architecture.

<table>
<thead>
<tr>
<th>Component</th>
<th>Specification</th>
<th>Status</th>
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<tbody>
<tr>
<td>Web service request delivery</td>
<td>SOAP v1.2, as defined by the W3C, see Part 1 and Part 2. Guidance on the use of SOAP can be found at <a href="http://www.w3.org/TR/soap12-part0/">http://www.w3.org/TR/soap12-part0/</a> and <a href="http://www.w3.org/TR/xmlp-scenarios/">http://www.w3.org/TR/xmlp-scenarios/</a>. See the W3C web site for the latest drafts of the SOAP specifications and transport bindings. For specific guidance on the use of SOAP messaging with the Government Gateway, see 'Developer Guide to Authentication and Authorisation Web Services Secure and Public'</td>
<td>A</td>
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<tr>
<td>Web service request registry</td>
<td>UDDI v3.0 specification (Universal Description, Discovery and Integration) defined by OASIS</td>
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<tr>
<td>Web service description language</td>
<td>WSDL 1.1, Web Service Description Language as defined by the W3C</td>
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<tr>
<td>Other Web service standards</td>
<td>Other standards shall conform to the standards supported by the Web Services Interoperability (WS-I) initiative <a href="http://www.ws-i.org/">http://www.ws-i.org/</a> and the OASIS and W3C web services committees</td>
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Figure 4: e-GIF specifications for Web Services

Issues that are under consideration for future versions are:
- standards for electronic forms
- additional standards for Web services
- additional standards for Web services security
- standards for registry and repository services
- selection of specific business area related specifications
- guidance on Semantic Web
- ISO / IEC standards for XML schema languages
- W3C XML 1.0 (third edition)
- XML specifications for office applications.
- common computing environment and architecture
- biometrics

In the light of this there appears to be a significant opportunity to influence e-GIF in future through the results of DIP.
e-Services Development Framework

The Framework is intended to help implement the vision of interoperability and seamless information flow across government as well as the wider public sector. An e-Service is any electronic service involving interoperability between computer systems. It includes, but is not limited to, electronic data interchange and messaging services. The e-SDF provides a structure for developing semantic specifications and standards. The focus is on preserving the information content so that it can be used by the information receiver without loss or change of meaning.

The benefits of good standards-based e-services accruing to all stakeholders – users, suppliers, out-sourcers, government IT departments and the general public are seen as including:

- reduced duplication of data and data entry
- risk reduction and avoidance of duplication of development through the re-use of technical patterns, components and resources
- easier system integration and reduced maintenance

The e-SDF is evolving and is currently being trialled in a number of areas. The Framework for the development of specifications for e-services is described by a family of documents, which collectively form a fundamental part of the e-GIF implementation strategy including the Government Data Standards Catalogue, e-Service Development Framework and the e-Service Development Process.

3.4 Actors

Within Essex, key stakeholders who need to be convinced of the role and benefits of SWS include:

- strategic decision makers and advocates within Essex IT/IM (e-Champions, BT Syntegra etc);
- the departments and agencies within Essex participating in the use case scenarios as they develop.
- National agencies such as Department of Work and Pensions which have a role to play in the development of local joined-up services

Resistance or uncertainty regarding the adoption of Semantic Web Services within e-GIF or implementing them at local level may conceivably arise depending upon the stakeholder perspective and the ability to demonstrate cost-benefits of SWS. The ability to position stakeholder supporters and key arguments in the right quarters will be a significant determining factor in the speed and success of take-up of SWS.

At national level, public and private sector organisations working on UK Government interoperability projects may be invited to become full members of various working groups such as:

- Interoperability Working Group
- Government Processes Group
- Government Schemas Group
- Metadata Working Group
Terms of Reference for each of the groups are available on Govtalk. It is recommended that any organisation considering adopting one of the listed standards not yet marked as ‘Adopted’ should consult the appropriate working group before proceeding. This may provide a useful route to European standardisation in the e-Government via the linkage between e-GIF and EIF, which the DIP case study may be able to exploit.

3.5 Solutions and constraints

The DIP use case aims to provide homogeneous online interfaces to governmental services for the citizens of Essex, leveraging developing Governmental policy on Web Services architecture to demonstrate the value and potential of semantic web services based on the extent of benefits to citizens and reduction of cost and effort for local government.

The achievement of this goal will require an interfacing of the work of DIP with Essex and national processes and business needs described in this document, in order to obtain increasing interest and acceptance of proposed applications as they develop through mock-up, requirements specification and prototyping phases, finally linking them to adoption of key Semantic Web Services standards within the e-GIF environment.

Overall, the door seems to be open to demonstrate the benefits of automation through Web Services in the Essex e-Government environment, although there is a very limited practical basis yet to build upon. There is also acknowledgement of the potential role of semantic enrichment (e.g. through the references to the SeamlessUK citizens’ taxonomy). Effective communication and demonstration of the benefits of a conjunction between the two (i.e. to form SWS) to key national and local stakeholders is a challenge for DIP.

Current government programmes offer an opportunity to innovate, and then mainstream SWS. However, the present funding opportunity is time-constrained to the end of 2005/6 and it is not clear what will follow. A challenge for the case study is to optimise the visibility of prototype and pilot deployments of SWS to ensure maximum effect and ongoing interest beyond 2005/6.

The key will be to gain and document a local stakeholder response to the question: what are the perceived potential benefits of automating specific interactions? These will fundamentally need to be expressed in terms of improvements in services and measurable cost-efficiencies. Ideally, the means of measurement will be identified by DIP e.g. through comparative studies of achieving pilot service deployment on the one hand and by more ‘traditional’ means on the other.

Some stakeholders may see existing methods such as better control of data, more effective content management and workflow processes and the design of more attractive public interfaces as simpler alternatives. The comparative benefits of Semantic Web Services will need to be understood and ‘sold’ in this context in Essex and related to existing and emerging target dates for delivery of services until and beyond 2005.

Return on Investment will probably be most effectively expressed in terms of cost savings in relation to the delivery of mandated and strategically important e-services, enabling investment cases made through the IT Strategic Partnership in Essex.
National and European dissemination and exploitation strategies, working at least partly through e-GIF in the UK and emerging national and European Interoperability Framework processes for e-government, will then need to be deployed effectively to publicise these gains, for example by using the Internet-based consultation process for e-GIF. Imitative adoption of the prototype services developed by the Case Study will be an advantage to be sought, for example by participating in the next phase of e-Innovation activities funded by ODPM in the UK.

4 FUTURE TRENDS

The vision, set out in the e-Government strategy and supported by the e-Government Interoperability Framework (e-GIF), of interoperability and seamless information flow across government as well as the wider public sector is likely to remain valid and of active interest for some years to come.

“The aims of the e-GIF will not be achieved overnight. The strategy needs to be managed as a long-term, ongoing initiative and must therefore be supported by robust processes. It is also essential to ensure that the e-GIF remains up to date, aligned to the requirements of all stakeholders and able to embrace the potential of new technology and market developments”.

It is possible that local government may be subject to structural change over the next 2-5 years (e.g. in favour of greater regional government). It would also be advantageous for DIP to make the case successfully that these changes may be eased in terms of continuous service delivery and effective Information Management through SWS.

CONCLUSION

There is a significant market in the UK, driven by central government funding, for local e-government services based on innovative IT applications. The technical underpinning is the mandatory e-GIF which now includes core Web Services standards and proposes to address the Semantic Web in the near future. There is active planning for the deployment of Web Services in local government within Essex and elsewhere. The benefits of semantic enrichment of Web Services are as yet less widely understood.

To achieve success, DIP will need to influence key stakeholders with valid and demonstrable claims on behalf of the benefits of SWS deployment within the next 12-18 months in order to ‘catch the wave’ offered by the current funding window. A convincing DIP case study prototype demonstrator based on either the Change of Circumstances or the Public Service Discovery scenario needs to be created within the first 18 months of the project. Linked to this, paradigms for establishing the comparative benefits of SWS-enhanced services in terms of cost savings and better services, over other solutions to the same problems need to established and promoted.

Future funding patterns beyond 2006 are difficult to assess at this stage although it is likely that continued investment in e-Government will occur at least through the budgets of individual local authorities.

Impact in the UK and through eGIF is likely to provide an effective route to service emulation and SWS standards adoption at European level.
REFERENCES

[16] Improvement and Development Agency (IDEA) http://www.idea.gov.uk/
[25] Local Government Category List www.laws-project.org.uk