



e-government interoperability framework

VERSION 3



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**Foreword by Rt Hon The Lord Macdonald of Tradeston CBE,
Minister for the Cabinet Office**



We introduced the **Interoperability Framework** in September 2000 to address the challenges of today's diverse systems and position ourselves for opportunities in the future. Since the introduction, it has been a continuous story of success, with the Framework receiving wide acceptance by both the public and private sectors in the UK, and great interest being shown in it from around the world. This new version continues our policy of updating the Framework, to keep pace with the fast moving world of e-business, its new technologies and market developments.

The Framework prescribes the technical specifications and policies that will act as the foundation of our **e-government strategy** and help get the UK online. These standards will allow information to flow seamlessly across the public sector and provide citizens and businesses with better access to government services. In addition, by adopting Internet and World Wide Web standards, the Framework aligns government with the rest of industry and serves as a basis for reducing the costs and risks associated with carrying out major IT projects.

The electronic world is changing rapidly but thanks to our Internet based change management process, we are not only keeping pace with this change, but where necessary, leading in the adoption of innovative solutions. The UK GovTalk™ website allows you to check the very latest public sector specifications and comment on these, and also provide us with proposals for solving some of our generic IT problems.

We will continue to update the Framework, following continuous consultation, and make it, and supplementary advice and guidance, available on the UK GovTalk™ website. I look forward to your involvement in the development and implementation of this Framework.

A handwritten signature in black ink that reads "Gus Macdonald". The signature is written in a cursive, slightly stylized font.

Contents

Page No

Executive Summary	6
1 Overview.....	7
Introduction.....	7
Changes to Previous Version.....	7
Issues under review.....	7
Scope	7
Main features	8
Relationships with other initiatives	9
Your involvement.....	10
2 Policies and Technical Specifications	11
Introduction.....	11
Key decisions and drivers	11
Interconnection policies	11
Interconnection specifications.....	12
Data integration policies.....	14
Data integration specifications.....	14
Information access policies	16
Information access specifications.....	16
Content Delivery	18
Mobile access specifications.....	19
3 Implementation Support – UK GovTalk™.....	20
Introduction.....	20
Priorities.....	20
UK GovTalk™ role and membership.....	20
XML schemas production	20
Membership.....	21
4 Management Process.....	22
Introduction.....	22
Governance.....	22
Management groups	23
Public Sector Communities	25
Change management	25
Consultation and innovation	25
Updates to the e-GIF.....	26
5 Complying with the e-GIF.....	28
Introduction.....	28
What does complying with the e-GIF mean?.....	28
Timetable	29
Stakeholders	29
Compliance Responsibilities	30
Maintaining compliance with new versions of the e-GIF.....	30
Failure to Comply	30
Additional Guidance.....	31
Appendix: Abbreviations and Acronyms used in e-GIF.....	32

Tables of Components and Specifications

Table 1	Specifications for interconnectivity	12
Table 2	Specifications for data integration.....	14
Table 3	Basic specifications for information access - browsers and viewers.....	17
Table 4	Additional specifications for information access - browsers and viewers	17
Table 5	Specifications for information access - mobile phones	19

Executive Summary

1. Better public services tailored to the needs of the citizen and business, as envisaged in the Modernising Government White Paper and subsequently in the UK online strategy, require the seamless flow of information across government. The e-Government Interoperability Framework (e-GIF) sets out the Government's technical policies and specifications¹ for achieving interoperability and information systems coherence across the public sector. The e-GIF defines the essential pre-requisite for joined-up and web enabled government. It is a cornerstone policy in the overall **e-government strategy**.

2. Adherence to the e-GIF specifications and policies 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. It will be for the organisations themselves to consider how their business processes can be changed to be more effective by taking advantage of the opportunities provided by increased interoperability.

3. The main thrust of the framework is to adopt the Internet and World Wide Web specifications for all government systems. There is a strategic decision to adopt XML and XSL as the core standard for data integration and management of presentational data. This includes the definition and central provision of XML schemas for use throughout the public sector. The e-GIF also adopts specifications that are well supported in the market place. It is a pragmatic strategy that aims to reduce cost and risk for government systems whilst aligning them to the global Internet revolution.

4. Stipulating policies and specifications in themselves is not enough. Successful implementation will mean the provision of support, best practice guidance, toolkits and centrally agreed schemas. To provide this, the Government has launched the UK GovTalk™ initiative. This is a Cabinet Office led, joint government and industry forum for generating and agreeing XML schemas for use throughout the public sector. Schemas can be found at <http://www.govtalk.gov.uk/interoperability/xmlschema.asp>. UK GovTalk™ is also now being used for wide consultation on a number of other e-government frameworks and documents.

5. The site also provides best practice guidance, FAQs, advice on training and toolkits, and outlines the UK GovTalk™ management processes.

6. 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. These processes, including the roles and responsibilities of key stakeholders, committees, management and working groups, are outlined in the document.

7. It is also essential to ensure that the e-GIF remains up to date and aligned to the requirements of all stakeholders and able to embrace the potential of new technology and market developments. The e-GIF introduces an Internet based change management process which has been designed to engage and serve the stakeholder community in a dynamic way and to bring in innovations from industry on a global basis.

¹ The term Specifications used in the document includes Standards approved by recognised standardising bodies. Where the specification refers to such a standard and alternatives are being offered as part of a procurement, then purchasers are obliged by EC law to consider such alternatives provided they offer equivalent functionality.

1 Overview

Introduction

1.1 Modernising government and joined-up government demand joined-up information 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.

1.2 At the same time, clearly defined policies and specifications for interoperability and information are also key to staying connected to the outside world and aligned to the global information revolution. This revolution is fuelled by the explosive growth of the Internet and its technologies.

1.3 The e-Government Interoperability Framework (e-GIF) sets out the Government's policies and specifications for achieving interoperability and seamless information flow across government as well as the wider public sector. The e-GIF is a fundamental Framework Policy for **the e-government strategy** published in April 2000.

Changes to Previous Version

1.4 The significant changes from the previous version of the e-GIF which this version addresses are:

- Alignment with EC procurement rules, see Executive Summary
- Advice on the protection of sensitive information, see Table 1
- Guidance on the move from IPv4 to IPv6, see para 2.7
- Guidance on emerging specifications, see para 2.13
- Support for access by ethnic minorities and the disabled, see para 2.21
- Revisions to Basic and Additional Browser specifications, see Tables 3 and 4
- Changes to the Management Groups, see paras 4.9 et seq
- Further details of the compliance processes, see Section 5.
- New appendix of abbreviations and acronyms

Issues under review

1.5 The following aspects are under review but do not require changes to this version of the e-GIF:

- Specifications for Video Conferencing and IP Telephony
- Specifications for Voice (XML and IP)
- Identification and linkage to public sector communities' frameworks
- Specifications for each type of delivery channel
- Specifications for wireless communications
- W3C XML protocol specifications
- The impact of the Semantic Web, SOAP, UDDI and other emerging technologies and specifications
- Further detail on the implementation strategy.

Scope

1.6 The scope of the e-GIF comprises the exchange of information between Government systems and the interactions between:

- UK Government and citizens
- UK Government and businesses (world wide)
- UK Government sectors and other UK Government sectors
- UK Government and foreign governments (UK/EC, UK/US etc)

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

1.7 “UK Government” includes central government departments and their agencies, local government, the devolved administrations as voluntary partners, and the wider public sector, e.g. non departmental public bodies (NDPBs) and the National Health Service.

1.8 The e-GIF specifications are mandated on all new systems that fall within the scope defined in paragraph 1.6 above. In order to take advantage of the new services being provided through UK online (ukonline.gov.uk and the Gateway), the Knowledge Network, or other systems which are part of electronic service delivery targets, legacy systems will need to comply with these specifications. For systems that fall outside the scope and mandate, the e-GIF is recommended in all public sector procurements and major upgrades to other departmental legacy systems. Guidance on complying with this mandate is given at Section 5.

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

Main features

1.10 The e-GIF comprises three major components: policies and specifications, a strategy for XML schemas provision (the UK GovTalk™ initiative) and management processes. These are outlined below.

Policies and specifications

1.11 The technical policies and specifications for interoperability across the public sector are specified in Section 2 of this document. These are the minimum set necessary to support the range of transactions and services provided by government and to integrate information systems within government. These policies and specifications have also been chosen to interconnect and align government to the Internet and its future development.

1.12 The policies and specifications in the e-GIF cover three key areas of technical policy, which are essential for interoperability. These are Interconnectivity, Data Integration and Information Access.

1.13 In all of these areas, the main thrust has been to adopt the Internet and World Wide Web specifications for all government systems. There is also a strategic decision to adopt XML as the main standard for data integration. This strategy includes provision of XML schemas for use throughout the public sector based on a set of agreed data standards, e.g. BS 7666 for property addresses.

Implementation support - UK GovTalk™

1.14 The adoption of XML (Extensible Mark-up Language) and XSL (Extensible Stylesheet Language) form the cornerstone of the government data interoperability and integration strategy. However adopting these specifications, in themselves, is not sufficient.

1.15 Achieving data coherence across government means that government organisations need schemas that have been agreed for use throughout the public sector. They also need information, best practice guidance and toolkits to make implementation easier. In order to meet these demands, the government, in partnership with industry, has set up the UK GovTalk™ initiative. This initiative will publish on the Internet the draft and agreed XML schemas which can then be applied to any public sector system. The site will also

provide advice on toolkits, and guidance and information on XML implementation
<http://www.govtalk.gov.uk/interoperability/bestpractice.asp> .

1.16 Section 3 of this document gives further details on the UK GovTalk™ initiative and other implementation projects.

Management processes

1.17 The work of integrating and evolving information systems across the public sector is a complex on-going process. The e-GIF approach and policies must not only support and enhance government's business processes but also ensure that it stays tuned to the possibilities of new technological advances and innovations.

1.18 The e-GIF management processes are described in Sections 4 & 5. These cover:

- a governance process that describes the roles and responsibilities, committee structures and compliance processes
- an Internet based change management process that is designed to introduce a global consultation and change process for capturing maximum stakeholder involvement and innovation.

Relationships with other initiatives

1.19 The e-GIF is one of the policy frameworks for the **e-government strategy** of which it is an integral part. For the other frameworks see http://www.e-envoy.gov.uk/publications/frameworks_index.htm. Its relationship with other initiatives is described below.

Security Framework

1.20 ISO 17799 (formerly BS 7799) is being mandated across central government departments and is recommended across the wider public sector as a framework for Information Security Management. For more detailed information on Information Age Government security, refer to the overarching IAG Security Framework and the supporting frameworks on Authentication and Smart Cards see http://www.e-envoy.gov.uk/publications/frameworks_index.htm. Trust Services and Confidentiality, see http://www.e-envoy.gov.uk/publications/consult_index.htm.

For other policies under development (such as Business Security Services Network Defences, Biometrics) please monitor for when they appear on www.govtalk.gov.uk and www.e-envoy.gov.uk.

GSI

1.21 The policies and specifications specified in this framework are consistent with the Government Secure Intranet (GSI). Future developments of the GSI will also be kept consistent with the e-GIF policies and specifications.

Electronic service delivery

1.22 Following the publication of its e-commerce strategy in the e-commerce@its.best.uk report (<http://www.cabinet-office.gov.uk/innovation/1999/ecommm.shtml>), the Government is now looking at strategic options and priorities for services to the citizen and how government should be organised to deliver these. These citizen focused services, once defined and agreed, will act as major drivers for the types of schemas that will need to be agreed and delivered through the UK GovTalk™ initiative.

UK Online

1.23 UK Online (ukonline.gov.uk and Government Gateway) provides an easy to use, trusted and personalised service allowing the citizen to deal with government on a one-to-one basis, whilst presenting government as an integrated organisation. It aims to be the citizen's 'personal window' on government and the preferred method for the public to engage with the public sector. UK Online delivers a major element of the Government's Information Age agenda.

1.24 The e-GIF policies, specifications and schemas provide the foundation for the UK Online technical architecture. The e-GIF specifications are applicable to all future portal developments in government and also give the specifications for private sector portals wishing to link up to government portals.

Metadata Framework

1.25 The e-Government Metadata Framework (e-GMF), see <http://www.govtalk.gov.uk/interoperability/metadata.asp>, sets out the Government's policies for establishing and implementing metadata specifications across the public sector. Where the e-GIF lays down the technical specifications for information connectivity, the e-GMF is concerned with the particular facets of metadata intended to support resource discovery and records management.

1.26 The e-Government Metadata Standard (e-GMS) will cover the core set of 'elements' that contain data needed for the effective retrieval and management of official information. The e-Government Metadata Framework (e-GMF) outlines the policy that will lead to the e-Government Metadata Standard (e-GMS) being used across all of our information systems. The main thrust of the e-GMF is to adopt the Dublin Core (see e-GMF for details), expand it to provide a set of metadata elements suitable for the needs of the UK Government, utilise the Government Data Standards catalogue as appropriate at <http://www.govtalk.gov.uk/interoperability/egif.asp> and to develop a Pan-Government Thesaurus.

1.27 A project to develop a metadata standard for Europe has been set up under the auspices of the EC IDA programme. It should help achieve the standardisation of metadata structures across Europe, saving each government from having to develop its own system and improving the flow of information internationally. Details of the project, known as MIReG, can be found at <http://europa.eu.int/ISPO/ida>.

Knowledge Network Project

1.28 The Knowledge Network Project provides a step change in the production and availability across government of fast, modern flows of knowledge, facts and figures, see references in the report at <http://www.cabinet-office.gov.uk/knowledgenet/default.htm>. It provides a powerful boost for developing common metadata structures and interoperable knowledge management systems. The Knowledge Network will be consistent with the e-GIF policies and specifications.

Your involvement

1.29 Continual engagement of all our stakeholders in the development and implementation of the e-GIF is a fundamental policy objective. Government departments and their agencies, NDPBs, local government, the NHS, industry and the citizen are all encouraged to comment and suggest ways of improving the strategy, and providing support and implementation of the e-GIF. Our preferred way is through the Internet on the dedicated UK GovTalk™ web site. Please use the UK GovTalk™ web site at <http://www.govtalk.gov.uk/interoperability/interoperability.asp> to make your input into Request for Proposals and Request for Comments.

2 Policies and Technical Specifications

Introduction

2.1 This section of the e-GIF defines the minimum² set of technical policies and specifications necessary to achieve interoperability and seamless information flows across government and the public sector.

2.2 The current specification for the e-GIF is given below and covers the areas of interconnectivity, data integration and information access. Each area is presented in two parts, first the key policy decisions and then a table containing the specification including version numbers and notes. Government is, however, committed 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. Please consult the web site for the latest version of the e-GIF specification at <http://www.govtalk.gov.uk/interoperability/egif.asp>

Key decisions and drivers

2.3 At the highest level, the e-GIF has been shaped by three key policy decisions; these are:

- **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 presentation tools for all public sector systems
- **browser as the key interface** – all public sector information systems to be accessible through browser based technology. Other interfaces are permitted but only in addition to browser based ones.

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

- **interoperability** – only specifications that are relevant to systems interconnectivity, data integration and information access 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 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.
- **open** - the specifications are documented and available to the public at large.

Interconnection policies

2.5 The policies for systems interconnection are defined below:

UK Government policy for networks

- Departments are to interconnect using IPv4, noting that UK Government is considering the adoption of IPv6 in due course. See notes on migration to IPv6 in para 2.7.

UK Government Security Policy

- Protectively marked data will be handled and transmitted in accordance with the provisions of the Manual of Protective Security
- Non-protectively marked data will be handled and transmitted in accordance with the IAG Security Framework

² Additional specifications may be necessary to support certain requirements; for example the NHS may use DICOM V5 for types of graphic information.

UK Government policy for e-mail

- To use a product that supports interfaces which conform to the SMTP/MIME.

Within government, the norm will be to use the intrinsic security provided by the GSI to ensure e-mail confidentiality. Outside GSI and other secure government networks, S/MIME V3 should be used for secure messaging.

UK Government policy for Directory

- Use of the GSI Directory schema to support a range of communication services including message handling, telephone and facsimile services as well as interactive access to a range of other applications.

UK Government policy for Domain Naming

- Projects are to follow the UK Government domain naming policy
- DNS is to be used for Internet/intranet domain name to IP address resolution.

UK Government policy for File Transfer Systems

- FTP should be used where file transfer is necessary within Government Intranets. Restart and recovery facilities of FTP are to be used when transferring very large files.

UK Government policy for Terminal Emulation

- Web based technology is to be used in applications that previously used Terminal Emulation whenever possible³.

Interconnection specifications

2.6 The UK Government specifications for interconnectivity are:

Table 1 **Specifications for interconnectivity**

Component	Specification
Hypertext transfer protocols	HTTP v1.1 (RFC 2616) Hypertext specifications include on-line wide-area publishing services.
E-mail	E-mail products that support interfaces that conform to the SMTP/MIME. This includes RFC 2821; RFC 2822; RFC 2045; RFC 2046; RFC 2646; RFC 2047; RFC 2231; RFC 2048; RFC 3023; RFC 2049 NB. E-mail attachments may conform to the file types for browsers and viewers as defined in table 3. The file types in table 4 may also be attachments when support for the extensive functionality provided by such components is essential.
E-mail security	S/MIME V3 shall be used where appropriate for pan government messaging security unless security requirements dictate otherwise. This includes RFC 2630 to RFC 2633.

³ products exist which can provide browser access to legacy systems without having to change those systems; typically these products can provide either direct access to the legacy screens or complete replacement GUIs

Directory	X.500 core schema as defined in GNC Technical Notice 1/2001 (Populating the GSI Directory). LDAP V3 is to be used for general-purpose directory user access.
Domain name services	DNS (RFC 1035) The UK Government domain naming guidelines are at http://www.ogc.gov.uk/naming/domains.html . GSI domain-naming follows this guidelines as far as possible. GSI e-mail addressing specifications are defined in GNC Technical Notice 2/2001. (Domain Names, DNS and E-mail Addressing).
File transfer protocols	FTP (RFC 959) (with restart and recovery) and HTTP (RFC 2616) for file transfer
Newsgroup services	NNTP (RFC 977) where required, subject to security constraints
LAN/WAN interworking	IPv4 (RFC 791)
Security	Central government departments should refer to the Manual of Protective Security Other parts of the public sector should refer to the IAG Security Framework at http://www.e-envoy.gov.uk/publications/frameworks_index.htm

The following specifications are to be used to meet the requirements of the IAG Security framework where appropriate.

IP security	IP-SEC (RFC2402/2404)
IP encapsulation security	ESP (RFC2406)
Transport security	SSL v3/TLS (RFC 2246)

Certain e-Government information is 'sensitive' in that it might contain personal or commercially confidential information, but it does not fall within the definitions of Government classified information. For the protection of such information, e.g. data and private keys, the following specifications are advised:

Encryption algorithms - 3DES, AES, Blowfish
For signing - RSA , DSA
For key transport - RSA , DSA
For hashing - SHA-1, MD5

The above is not exhaustive and is intended as a guide. For advice on specific implementations or specific algorithms please contact the Office of the e-Envoy at security@e-envoy.gov.uk.

Transport	TCP (RFC 793) UDP (RFC 768) where required, subject to security constraints
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Note: Copies of the IETF RFCs can be found at www.ietf.org/rfc.html

2.7 Migration to IPv6

The e-GIF policy is to migrate to IPv6 when there is competitive support for IPv6 in mainstream network and application products. Current assumptions are that by the end of 2002 newly deployed networks could be IPv6 enabled, and operating system and application vendors could start to support IPv6 soon thereafter. A co-existence approach is recommended and IPv4 will endure for some time, at least 5 years or more.

However, our advice is to begin to plan for IPv6 integration in advance of any actual deployment, and to build the need for co-existence of IPv4 and IPv6 into current procurements.

Data integration policies

2.8 UK Government policy is to use:

- XML and XML schemas for data integration⁴
- UML, RDF and XML for data modelling and description language
- XSL for data transformation.

2.9 XML products will be written so as to comply with the recommendations of the World Wide Web Consortium (W3C). Where necessary the government will base the work on the recommended W3C specifications but will avoid the use of any product specific XML extensions that are not being considered for open standardisation within the W3C.

2.10 Centrally agreed XML schemas are approved through the UK GovTalk™ processes (see Section 3). To view these go to <http://www.govtalk.gov.uk/interoperability/agreedschema.asp>.

Data integration specifications

2.11 The UK Government specifications for data integration and transformation are:

Table 2 Specifications for data integration

Component	Specification
Metadata/Meta language	XML (Extensible Markup Language) as defined by W3C www.w3.org/XML
Metadata definition	XMLschema Government XML schemas as held in http://www.govtalk.gov.uk/interoperability/agreedschema.asp
Data transformation	XSL (Extensible Stylesheet Language) as defined by W3C www.w3.org/TR/xsl/
Data Modelling and Description Language	UML (Unified Modelling Language) http://www.omg.org/gettingstarted/specsandprods.htm

⁴ Legacy systems which are tightly integrated or systems that are internal to departments (such as batch processing systems) may use other processing environments.

	RDF (Resource Description Framework) as defined by W3C www.w3.org/TR/REC-rdf-syntax/
Data definition and schema standardisation process	As per UK GovTalk™ processes in section 3 Government Data Standards, see http://www.govtalk.gov.uk/interoperability/egif.asp
Minimum interoperable character set	Transformation Format – 8 bit UTF-8 (RFC 2279), which support the exchange of the full character set. Individual items in the XML schema may be further restricted in character set on a case by case basis.
Geospatial data	GML (Geography Markup Language) as defined by Open GIS Consortium (OGC) www.opengis.org/techno/specs.htm

Note: Copies of the W3C specifications can be found at: www.w3.org/TR

2.12 Notes on XML and middleware:

- not all systems are required to be directly XML enabled
- where appropriate it is acceptable to use middleware as illustrated below.

Note: although the configurations below present potential solutions, it should be clear that new procurements should strive to use the direct XML model as shown.

Figure 1 Direct XML Model

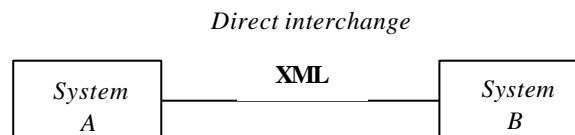
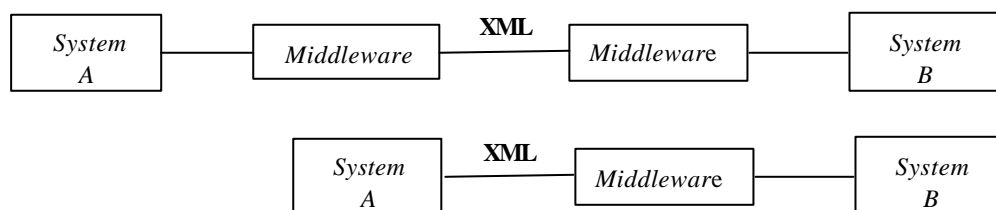


Figure 2 Interchanges via middleware



2.13 Notes on other evolving specifications

There are various standards bodies, business communities and other groups working on XML based specifications for the exchange of specific content related information. Specifications generated by these groups are at a wide range of maturity levels, but currently none meet the stringent requirements to be mandated as part of the e-GIF. To be part of the e-GIF the specifications must be very mature, but even more importantly they must be widely supported by implementations in the market and the clear market leader for the transaction type.

Two broad classes of schemas have been developed within XML specifications. One represents particular business objects, such as invoices or resumes. The other class defines a transaction, for example the submission of an invoice or a deposit into a particular account. Some specifications focus on common business objects and some on standardising complex transactions. Further, some proposed specifications include a single schema for a single business object, while others are frameworks that propose rules and structure for classes of schemas and may include more than a hundred individual schemas.

It is expected that over the next year it will become clearer which of the possible content specifications will be mature enough to be part of the e-GIF. In the meantime interim guidance and advice on using any of these specifications will be available on UK GovTalk.

Information access policies

2.14 UK government policies for information access and manipulation are:

- government information systems will be designed so that as much information as possible can be accessed and manipulated from common commercial browsers through utilisation of functionality freely supported and available within the browser community.
- government information systems will be designed to be available, as appropriate, on the Internet, either directly, or via third party services
- government information systems will support the specifications listed for the browser in mandatory table 3 using, where necessary, freely available browser plug-ins or dedicated viewers
- additional middleware or plug-ins are to be used, when necessary, to enhance browser functionality as per table 4
- government information systems will be designed to provide protection against security risks of connection to the Internet, including the ability to protect against the vulnerability of downloading executable content code that is not authenticated
- browser specifications adopted for conformance should support those features that a business or citizen may be assumed to have available or can easily download without incurring a licensing fee
- not withstanding the policy requirement that all public sector information systems be accessible through browser based technology, other interfaces are permitted in addition to browser based ones
- government information access systems will be designed to provide the ability to support the citizen in their own time and at their own pace i.e. for asynchronous operation as well as synchronous
- government information systems will be designed to be accessible to the citizen via multiple channels to suit the specific needs of the citizen
- government information systems will be designed so that essential information of a service is accessible to the citizen via browsers with limited capability, using appropriate personalisation technologies like transcoders.
- government information systems will be designed to meet UK legislation and support channels that provide accessibility for disabled people, ethnic minorities and those at risk of social/digital exclusion.

Information access specifications

2.15 The UK Government specifications for information access, browsers and viewers are defined in tables 3 and 4 below.

2.16 The services to be delivered to the citizen will dictate the expected specifications required to be supported by the browser. Some browsers may only support the basic specifications listed in table 3, for example low cost devices with embedded World Wide Web browsers. Devices with limited capability may result in a more restricted set of e-government services being offered via such browsers. As such, the essential minimal level of information required to be accessed and viewed by the citizen should either be

conveyed or be capable of being converted using personalization technologies, e.g. transcoders, through the use of the basic specifications in table 3.

Table 3 Basic specifications for information access - browsers and viewers

Basic Component	Specification
Hypertext interchange formats	HTML v3.2
Document file types	Rich Text Format as (.rtf) files Plain/Formatted Text as(.txt) files Other product viewer as (.htm) files where the HTML generated conforms to the standard for Hypertext interchange format components
Spreadsheet file types	Proprietary product viewer as (.htm) files where the HTML generated conforms to the standard for Hypertext interchange format components
Presentation file types	Proprietary viewer products as (.htm) files where the HTML generated conforms to the standard for Hypertext interchange format components
Character sets and alphabets	UNICODE ISO/IEC 10646-1:2000 Transformation Format for 16 planes of group 00 (UTF-16)
Graphical/still image information exchange specifications	Joint Photographic Experts Group /ISO 10918 (.jpg) Graphics Interchange Format (.gif) Portable Network Graphics (.png)
Scripting	ECMA 262 Script

2.17 Some services to be delivered to the citizen could make use of more extensive functionality in the browser, for example browsers running on personal computers and workstations. Where such extensive functionality is provided then the specifications to be used are to be selected from those listed in table 4.

Table 4 Additional specifications for information access - browsers and viewers

Additional Component	Specification
Extended Hypertext interchange format	Those parts of HTML v4.0 and XHTML v1.0 commonly implemented by Netscape Navigator v4 or later, and MS Internet Explorer v4 or later, plus their interoperable extensions
Extended Document file types	Adobe Acrobat as (.pdf) minimum viewer version 4 Microsoft Word viewer/reader (.doc), minimum support word97 format

	Lotus Notes Web Access (.nsf)
Extended Spreadsheet file types	Delimited file as (.csv) files
Extended Graphical/still image	For images that will not tolerate information loss use Tag Image File format (.tif)
Vector Graphics	Scalable Vector Graphics (.svg) Vector Markup Language (vml)
Moving Image and audio/visual information exchange specifications	Moving Picture Experts Group (.mpg) MPEG-1/ISO 11172 Conversion is provided by most mainstream packages
Audio/video streaming data	Real Audio Real Video Shockwave Windows media formats (.wmf, .wmv and .wma) Apple Quicktime Waveform Audio File Format (.wav). 8µ Law H263
Animation	Macromedia Flash (.swf) Dynamic html (.dhtml)
Extended Programming	Java Virtual Machine – for browser enhancements
General purpose files and compression	File types (.zip), (.gz), (.tgz) and (.tar)

Content Delivery

2.18 The design aim is for the content to be independent of the delivery mechanism, hence the strategic direction is to use XML and XSL (see table 2).

2.19 The full range of services to be delivered to the citizen will dictate the specifications required. Content management techniques and personalisation technologies can be used to support various delivery channels e.g. low function web browsers, public kiosks, Digital TV, WAP phones, etc.

2.20 Transcoding services, as an example of personalisation technologies, can deliver web content to a variety of destination environments within greatly reduced timescales and at significantly reduced cost. The principle is that transcoding can be used to dynamically filter, convert and reformat web content to match the requirements and display capabilities of the destination device. Transcoding technology is server-side software that modifies Web page content based on data protocols, markup languages, device and network parameters and user preferences.

2.21 Personalisation technologies may also be used to support groups such as ethnic minorities or visually impaired or blind people (i.e. by using text translation, larger fonts and graphics, audio, etc. via a transcoder). Such aspects are covered by the Web design guidelines, see http://www.e-voov.gov.uk/publications/guidelines_index.htm.

2.22 A government channels policy framework is under development. Content management techniques, personalisation technologies and transcoding should be used to support the various delivery channels defined in the framework.

Mobile access specifications

2.23 The specifications for the delivery of services to the citizen via mobile phones is dependent upon the evolution and availability of new technologies like 3G. If there is a need for current service provision via mobile phone then the WAP Specification Suite published by the WAP Forum is appropriate.

2.24 The OeE is undertaking a wider mobile communications study and the outcome of this will be reflected in future versions of this framework.

2.25 The issues of security relating to transactions undertaken through mobile phones are complex and depend on emerging industry specifications. Work in this area will be undertaken in due course. In the meantime the lack of specifications does not imply that security issues can be ignored. Decisions will need to be made on a case by case basis depending on the nature of the transaction in question.

Table 5 Specifications for information access - mobile phones

Component	Specification
WAP specifications	The specifications to be used are defined by the WAP Forum, see www.wapforum.org/what/technical.htm

3 Implementation Support – UK GovTalk™

Introduction

3.1 Section 2 of this document specified the technical specifications and policies required for the achievement of interoperability across the public sector. But detailing policies and specifications in themselves is not enough.

3.2 This section describes the UK GovTalk™ initiative, which forms a fundamental part of the e-GIF implementation strategy. UK GovTalk™ provides implementation support through the production of centrally agreed, freely available, XML based schemas that can be reused throughout the public sector to reduce the costs and risks of developing data interchange systems. The initiative helps developers by providing information, best practice guidance, FAQs and advice on toolkits for the conversion of legacy data. UK GovTalk™ is also now being used for wide consultation on a number of other e-government frameworks and documents. It is intended to make adoption of the e-GIF policies and specifications simple, attractive and cost effective.

3.3 Achieving data interoperability and coherence across the whole of the public sector is a major task. Although UK GovTalk™ will eventually provide XML schemas for all services, the programme for delivering schemas and agreeing further interoperability specifications will be primarily driven by the needs of citizen and business facing services.

Priorities

3.4 Priority will be given to schemas that serve the requirements for services or processes that are generic across many departments. Facilitation of new, joined-up services and inter-departmental process developments will also be given precedence.

UK GovTalk™ role and membership

3.5 UK GovTalk™ is a government initiative led by the Cabinet Office. It is designed to get UK public sector organisations and private sector companies to work together in agreeing XML schemas and providing associated support to the UK public sector.

3.6 The initiative is managed by the Interoperability Working Group. The group will liaise with international initiatives and specifications groups such as W3C, IETF, OASIS, UN/ECE and other XML interest groups.

XML schemas production

3.7 The primary role of the Interoperability Working Group is to promote the production and management of the XML schemas necessary to support data interoperability requirements of the **e-government strategy**.

3.8 XML schemas will be developed by specialist groups (see Government Schemas Group below), or by open submission to the UK GovTalk™ web site either in response to a Request for Proposals or as an unsolicited proposal. In each case, the Government Schemas Group will manage the acceptance, publication, and any subsequent change requests for the schema. XML schemas that have been accepted by the group will be published and found at <http://www.govtalk.gov.uk/interoperability/agreedschema.asp> and are open for anyone to make a Request for Comment.

3.9 The Government Schemas Group sets the design rules to be used by the XML schema developers and will use these to validate schemas proposed for publication. The rules include compliance with W3C specifications as described in 2.9.

3.10 The Government Schemas Group will track international XML specifications development through links with W3C, IETF and with organisations such as OASIS, the Electronic Government Framework (EGF) and others. These links will provide provisional schemas, which will be taken as one of the inputs for government wide consultation and adoption if appropriate.

www.govtalk.gov.uk

3.11 A primary component of the UK GovTalk™ initiative is the web site www.govtalk.gov.uk. The site supports the whole initiative and incorporates the management processes so that government can consult and take decisions using the power and speed of the Internet. As already described, the web site will be used to seek proposals for schemas, publish them for comments and receive requests for changes to them. The site is designed to encourage widespread participation in the development of the schema set and is completely open for the submission of proposals and comments to encourage innovation from the public sector and industry.

3.12 The web site will also be used to provide help and guidance for XML schema developers. This will include best practice guidance, case study material, and advice on toolkits to support the production of XML schemas, and specifically to help with the conversion of legacy system data.

Membership

3.13 Public and private sector organisations working on UK Government interoperability projects may be invited to become full members who attend group meetings and take part in decision making and direction setting for the group. The list of full members will change over time as new interoperability projects are started and existing ones are completed. All organisations involved in public sector XML based projects and any other specifications forming part of e-GIF may become associate members who have information about new proposals and changes pushed to them by e-mail.

3.14 The current membership can be found at <http://www.govtalk.gov.uk/interoperability/egif.asp>

4 Management Process

Introduction

4.1 As the **e-government strategy** rolls out, technology and specifications will continue to develop rapidly. The e-Government Interoperability Framework must be managed as a long-term, ongoing initiative that is responsive to this fast developing “e-environment”. This section describes governance of the framework and how change will be managed. Governance covers roles and responsibilities of various stakeholders and committees. Change management describes how the e-GIF will be updated and introduces a process for open, global consultation. The change processes are designed to foster innovation and involve stakeholders in government and in industry whilst managing evolution of the e-GIF at Internet speed.

Governance

4.2 The e-GIF embraces government, business and the citizen. Each has a role to play in the development of the framework. This section outlines the roles and responsibilities for key groups. It also outlines the decision-making structures.

Roles and responsibilities

4.3 The roles and responsibilities for central government, public sector and industry organisations are outlined below. Whilst this is not meant to be exhaustive it does indicate the main functions.

Office of the e-Envoy

4.4 The Office of the e-Envoy in the Cabinet Office is the lead authority for implementing and maintaining this framework. In collaboration with departments, local authorities and other public sector bodies, the Office of the e-Envoy will:

- lead the development and maintenance of the e-Government Interoperability Framework and provide the management infrastructure to support the processes
- act as the focal point for co-ordinating interoperability efforts throughout government and ensuring a rapid response to proposals and priorities of government
- manage co-ordination with other governments and international bodies
- lead and manage the UK GovTalk™ initiative and, through it, co-ordinate the provision of:
 - agreed XML schemas for use throughout government
 - advice on toolkits for interfaces and conversions
 - best practice guidance
- manage the government and industry wide consultation process
- manage the www.govtalk.gov.uk web site
- maintain a register of known users in the public and private sector
- manage the Government Processes Group
- manage the Government Schemas Group
- manage the compliance process and ensure that interoperability policies and roles are adhered to
- manage interaction with similar initiatives and specifications bodies elsewhere across the world including W3C, IETF, EGF, OASIS and others.

Public sector organisations

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

4.6 Although central direction will be provided where required, much of the action will take place in individual public sector organisations that will need 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 the organisation's conformance with the framework
- work with users of their services or data to identify those services that can usefully be made available to others
- ensure that they have the skills to define and use the specifications needed for interoperability
- establish a contact point who understands the impact of 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.

Industry

4.7 This framework is based on government working in open partnership with industry and has been developed through close working with our 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. Specifically, the following roles will need to be filled:

- application of the policies and specifications agreed in this framework to systems delivered to the public sector
- participation in the consultation process through the Request for Comment (RFC) and Request for Proposals (RFP) processes
- introduction of innovations in technology and business to continually improve this framework and the delivery of its objectives 'at Internet speed'
- participation in the Office of the e-Envoy's various working groups.

The Citizen

4.8 e-Government is essentially about Government better serving the needs of the Citizen. The e-GIF is an enabling framework for delivering the services seamlessly and coherently. The Government welcomes and encourages the citizen to provide comments, suggestions and indeed innovations which may help it to improve information access and service delivery. The UK GovTalk™ site at www.govtalk.gov.uk is available for these consultations.

Management groups

4.9 This section describes the management groups involved in taking forward the e-GIF.

e-Champions e-Government Group

4.10 The e-Champions e-Government Group are senior government officials within central, local government and the NHS. They are the overall management committee that owns the e-GIF. More information about this Group can be found at www.e-envoy.gov.uk/ukonline/champions/egov_tors.htm

Technical Advisory Group

4.11 An independent government and industry Technical Advisory Group has been established to provide a longer-term view of technology trends and how they may influence the work of the Office of the e-Envoy. The membership of this group has been selected so that the very best leadership can be brought to bear in driving the overall direction and strategy for the e-GIF and other policy frameworks.

4.12 Terms of Reference for the Technical Advisory Group can be found at <http://www.govtalk.gov.uk/interoperability/egif.asp>.

Interoperability Working Group

4.13 This group operates under the e-Champions e-Government Group. The Interoperability Working Group produced this document and is responsible for all aspects of the framework including policies, specifications, implementation and management. Membership of the group is open to all public sector bodies as represented in the e-Government Group. Additionally, industry members may also participate in the group on a permanent or call off basis.

4.14 Terms of Reference for the group are published on <http://www.govtalk.gov.uk/interoperability/egif.asp>.

Government Processes Group

4.15 A key input to the production of an XML schema is the schema requirement. This sets out from a business perspective the process(es) and data requirements that the schema is required to support. This group, which reports to the Interoperability Working Group, draws together representatives from across the public sector to produce schema requirements for the Government Schemas Group. As part of their work they will also look to identify opportunities to rationalise processes and data handling where this would benefit the citizen or the machinery of government.

4.16 Terms of Reference for the group can be found at <http://www.govtalk.gov.uk/interoperability/egif.asp>

Government Schemas Group

4.17 The primary roles of the group are to set the specifications for, and coordinate the production of, XML schemas for use across the public sector. This group, which reports to the Interoperability Working Group, draws together representatives from across the public and private sectors to develop schemas requested by the Government Processes Group, and endorse schemas produced elsewhere in the public sector. Schemas produced and endorsed by this group pass through the UK GovTalk™ approval process and are published on the UK GovTalk™ website to be available for use by other projects throughout the public sector.

4.18 Terms of Reference of the group can be found at <http://www.govtalk.gov.uk/interoperability/egif.asp>.

Public Sector Communities

4.19 The compliance rules for these basic specifications apply to all public sector bodies but the public sector includes identifiable communities who exchange some types of information with their own members. Examples of this are the exchange of detailed clinical documents within the health sector using the DICOM standard and the Z39.50 standard for the exchange of bibliographical data between libraries. Any specialised data interchange specifications must be in addition to, and must not conflict with, the e-GIF interoperability requirements. In particular, the use of such specifications should not be a barrier if there is a possibility of future interchange of the information outside the community.

Change management

4.20 The e-GIF specifications will inevitably change and will have the capability to change quickly when required. The change management process must ensure that the e-GIF remains up to date and is aligned to the requirements of all stakeholders and to the potential of new technology and market developments. The following paragraphs describe an inclusive Internet based consultation process that will encourage participation and innovation. They also describe how changes to the specifications will be managed.

Consultation and innovation

4.21 The overall strategy for Information Age Government identifies three basic forms of dialogue: public sector to public sector; public sector to business; public sector to the citizen. If interoperability specifications are to fully support the strategy then they must be open to the widest form of consultation that involves all these players. The e-GIF consultation process will target organisations that are known to be interested in the specific specifications, having been identified as participants in the service, or users of existing specifications, but will be open to all who may wish to comment. Unsolicited comments and suggestions will be encouraged over the web site.

Request for Comments (RFC)

4.22 All draft policies, specifications and XML schemas will be posted on the UK GovTalk™ web site with a Request for Comments on the proposed draft or change. Registered stakeholders and members of UK GovTalk™ will be notified by e-mail of the RFC but the web site offers an invitation to anyone to comment on the draft document. All comments received will be acknowledged and the outcome of the RFC will be published on the site. The RFC process does not preclude unsolicited comments on currently agreed policies and decisions, which are also encouraged.

Request for Proposals (RFP)

4.23 Whereas the RFC process asks for comments on proposed solutions, the government also requests innovative solutions to problems where the solutions are not clear. In this case, a Request for Proposals will be posted on the web site, outlining the requirement. The aim is to attract innovation and the most cost-effective solution to the problem, using the worldwide industry and the population base. If a particular proposal is taken forward, this will be published on the site.

e-GIF specifications change management cycle

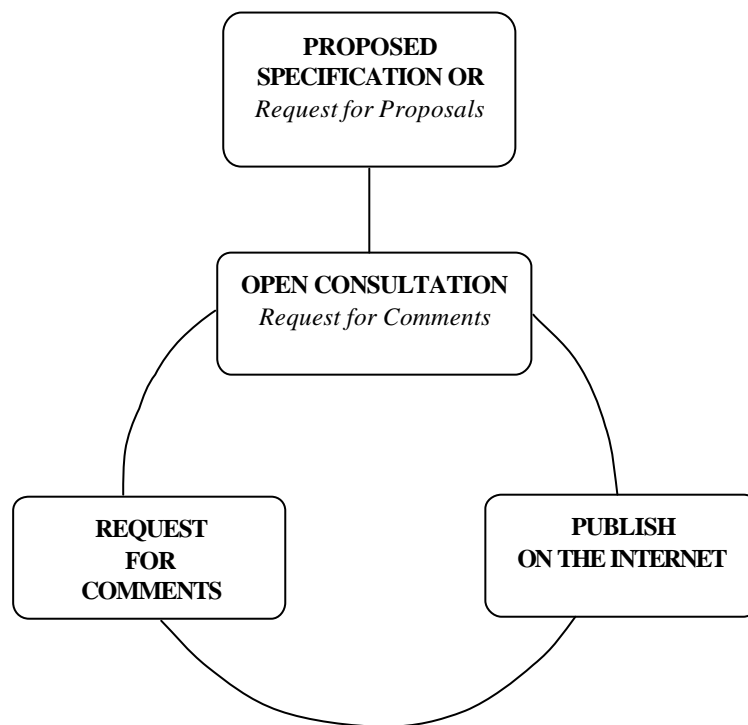
4.24 A proposal for a new specification may come from any stakeholder, including industry, who has identified an opportunity for interoperability. Examples may be the identification of a new process for the government portal or an unsolicited proposal through the UK GovTalk™ web site. If the proposer can

produce a clear requirement that the UK GovTalk™ team can progress then a draft specification will be prepared. Otherwise the Request for Proposals process will be activated.

4.25 The proposed specification will then be published on the Internet for open consultation using the Request for Comments process. All the comments will be reviewed and the Interoperability Working Group will publish the final version of the specification on the Internet.

4.26 Following publication, the specification is open to requests for change. The Interoperability Working Group will periodically review specifications to assess their take up and value. Anyone may propose a request for change to a published specification, which enters the consultation/comment/review/publication cycle. The processes are illustrated in figure 3 below.

Figure 3 The consultation/comment/ review/publication cycle



4.27 An important feature of the change management process is that members of UK GovTalk™ and registered users of specifications are e-mailed with proposed changes to the specifications.

Updates to the e-GIF

4.28 The e-Government Interoperability Framework will be formally updated every six months, subject to guidance from the e-Champions e-Government Group and the Technical Advisory Group. Supplementary guidance will be issued between formal updates where this is considered necessary.

Issue 1 was published in September 2000

Issue 2 was published in May 2001

Issue 3 was published in October 2001

Issue 4 will be published in Spring 2002

4.29 Published issues will be available at <http://www.govtalk.gov.uk/interoperability/egif.asp>

4.30 The site will also contain working drafts of the document giving advance information on government direction and the possible content of the next issue of the e-GIF to show how the framework is developing, and to invite comments on it.

5 Complying with the e-GIF

Introduction

5.1 Adherence to the e-GIF is mandatory as stated in paragraph 1.8 and this section provides general guidance on what compliance means in that context and how it will be enforced. It is intended to inform all those involved in the development and provision of public sector systems and services of their responsibilities and the timetable for conforming to the e-GIF. Throughout this section use of the term “system” is taken to include its interfaces, which are the prime focus of the e-GIF policies and specifications.

5.2 The scope of the e-GIF is set out in paragraphs 1.6 and 1.7 and also includes those functions within private/commercial organisations that develop and/or deliver licensed government services. However, the prime responsibility for ensuring compliance rests with the government purchasing or licensing authority.

What does complying with the e-GIF mean?

5.3 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.

These three elements are fundamental but equivalent standards and additional interfaces are permissible. For example, the majority of government users and all public users will use a browser interface, although departments will have the additional option of Notes client access to a .nsf facility for knowledge management and workflow internally within the Knowledge Network.

5.4 The ultimate test for interoperability is - can any component or product used within an interface be replaced by another of a similar specification and the functionality of the system still be maintained. If it can then the system can be regarded as truly interoperable. If it can't then the system is not e-GIF compliant.

5.5 At a detailed level testing for compliance needs to be done against the policies and specifications listed in the e-GIF. The scope of systems will vary tremendously 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'.

The aspects of the system where the tests need to be applied are detailed in the following paragraphs.

5.6 **Interconnection** – the policies are set out in paragraph 2.5 and the specifications set out in paragraph 2.6.

5.7 **Data Integration** – the policies are set out in paragraphs 2.8 to 2.10 and the specifications set out in paragraph 2.11.

5.8 **Information Access** – the policies are set out in paragraph 2.14 and the specifications set out in paragraphs 2.15 to 2.25.

5.9 **Use of XML schemas and Data Standards** - Systems are expected to use agreed XML schemas and agreed data standards listed in the Government Data Standards Catalogue, both of which are available on UK GovTalk™. Should suitable schemas or data standards not be available, or those available deemed

inadequate in some way, the system purchaser/sponsor should invoke the UK GovTalk RFP/RFC processes immediately.

Timetable

5.10 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's specifications. The compliance rules and timetable are that:

- All new systems that fall within the mandate shall 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. Should changes be made to the e-GIF thereafter which impact the system development, then a full assessment should be made of the cost and benefit of accommodating the changes before the system goes live or subsequently.
- Legacy systems that fall within the mandate will need to provide interfaces that comply with the specifications or equivalents within the following timescales:
 - for systems that are part of meeting Electronic Service Delivery targets then the timetables for meeting those targets will be acceptable.
 - for systems that need to link to UK Online and Knowledge Network, the timetable for making those connections will be acceptable.
 - for other legacy systems within the mandate, the interfaces should be provided on demand or through replacement.

5.11 Systems that fall outside the scope and mandate will generally be internal administration legacy systems, i.e. those that have no interface to external customers or connection to external systems. For these systems it is recommended that every opportunity should be taken to comply with the e-GIF that arises through upgrade or enhancement activity. This may involve commissioning additional work from suppliers.

Stakeholders

5.12 The stakeholders who need to know and understand what complying with the e-GIF means are identified in the following paragraphs.

5.13 e-Business Strategists – who should ensure that their e-business strategy mandates compliance with the e-GIF. They should be aware that compliance with the e-GIF will be part of the conformance check for the release of funding by the e-Envoy and HM Treasury.

5.14 Senior Responsible Owners/Business Project Managers/Sponsors – who are responsible for ensuring the relevant e-GIF policies and specifications are applied.

5.15 Project Approval Bodies including Funding Officers and Gateway Reviewers – who are responsible for ensuring that their approvals process includes a sign-off for e-GIF compliance.

5.16 Government procurement officers – who are responsible for ensuring compliance with the e-GIF is included in procurement procedures and contracts.

5.17 Suppliers, e.g. software vendors, consultants - who need to be aware that they are required to adopt the e-GIF policies and specifications or equivalents if they wish to supply their products or services to government.

5.18 Project auditors, e.g. departmental auditors, NAO, Audit Commission, Parliamentary committees – who need to ensure their systems audits and reviews includes a check for e-GIF compliance.

Compliance Responsibilities

5.19 The ultimate responsibility for compliance rests with the system's Senior Responsible Owner or Sponsor. Compliance is by self-regulation using normal departmental checking arrangements throughout the systems development life-cycle. It will be for service organisations themselves to consider how their business processes can be changed to be more effective by taking advantage of the opportunities provided by increased interoperability.

5.20 The approval authority and final arbiter on all questions relating to e-GIF compliance is OeE (Technology Policy) who will provide help in defining departments' internal compliance regimes where required. They will monitor compliance through the Interoperability Working Group and other liaison groups.

Maintaining compliance with new versions of the e-GIF

5.21 The e-GIF is relatively new and will evolve for some considerable time as new policies and specifications are adopted and new areas of interoperability addressed. This will make it difficult, if not impossible, for systems to always be fully compliant with the e-GIF. The e-GIF is formally updated every six months and as part of that update cycle departments will be consulted through the work of the Interoperability Working Group and the public consultation processes on the changes to be made in each new version. The OeE will only introduce new policies and specifications following these full consultations with departments and other stakeholders, and thus seek to minimise the burden of change on departments whilst at the same time maintaining the principle of effective and open interoperability.

5.22 A pragmatic approach will need to be taken and only if an acceptable business case can be made should a new system in development or an existing system be changed to adopt a new standard immediately it becomes mandated. New specifications may have to be introduced when the system is replaced, or undergoes a major enhancement unless its interoperability is critical to the delivery of e-services or joined-up government

5.23 This could also have an impact on suppliers' contracts, and it will be necessary to ensure that new long-term contracts do not go out of date.

Failure to Comply

5.24 If a system fails the test on any of the aspects listed above then a migration strategy will need to be produced and agreed by OeE (Technical Policy) to move to use of them in the future. Failing to comply and the absence of an acceptable migration strategy will lead to the following courses of actions:

- 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 e-Envoy and HM Treasury. It should be recognised that failing to comply will make it very hard to produce a strategy that does all it needs to do.
- New systems failing to comply with the e-GIF will not get project approval and funding from the appropriate bodies within their organisations.

- Legacy systems seeking to link to UK Online or Knowledge Network and failing to comply with the e-GIF will be refused connection.
- Suppliers that 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 specification.

Additional Guidance

5.25 Whilst the above provides general guidance of the e-GIF compliance requirements, many situations will need to be assessed on a case-by-case basis and detailed questions of compliance in these situations should be addressed to OeE (Technology Policy), (e-mail: ukgovtalk@e-envoy.gsi.gov.uk). Additional guidance will be made available in the form of Best Practice, Case Studies and FAQs on the UK GovTalk™ website.

Appendix: Abbreviations and Acronyms used in e-GIF

3DES	Treble Data Encryption Standard
3G	Third Generation mobile phones
AES	Advance Encryption Algorithm
BS	British Standard
.csv	Comma Separated Value format
DICOM	Digital Imaging and Communications in Medicine
DNS	Domain name services
DSA	Digital Signature Algorithm
.dhtml	Dynamic Hypertext Markup Language
EC	European Commission
ECMA	European Computer Manufactures Association
EGF	Electronic Government Framework
e-GIF	e-Government Interoperability Framework
e-GMF	e-Government Metadata Framework
e-GMS	e-Government Metadata Standard
ESP	Encapsulation Security Protocol
FAQs	Frequently Asked Questions
FTP	File Transfer Protocol
.gif	Graphics Interchange Format
GML	Geography Markup Language
GNC	GSI Nerve Centre
GSI	Government Secure Intranet
GUI	Graphic User Interface
.gz	GZIP compression file format
HTML	Hypertext Markup Language
HTTP	Hypertext transfer protocols
IAG	Information Age Government
IDA	Interchange of Data between Administrations
IETF	Internet Engineering Task Force
ISO/IEC	International Standards Organisation
IP	Internet Protocol
.jpg	Joint Photographic Experts Group
LAN	Local Area Network
LDAP	Lightweight Director Access Protocol
MD5	Message Digest 5
MIReG	Managing Information Resources for e-Government
mp3	MPEG (Moving Picture Experts Group) Audio Layer 3
MPEG	Moving Picture Experts Group
.mpg	Moving Picture Experts Group file format
MS	Microsoft
NDPB	Non Departmental Public Body
NHS	National Health Service
NNTP	Network News Transfer Protocol
.nsf	Notes Storage File
OASIS	Organization for the Advancement of Structured Information Standards
OGC	Open GIS Consortium
.pdf	Portable Document Format

.png	Portable Network Graphics
RDF	Resource Description Framework
RFC	Request for Comments
RFP	Request for Proposals
RSA	Rivest-Shamir-Adleman
.rtf	Rich Text Format
SHA-1	Secure Hash Algorithm 1
S/MIME	Secure Multipurpose Internet Mail Extensions
SMTP/MIME	Simple Message Transfer Protocol/Multipurpose Internet Mail Extensions
SOAP	Simple Object Access Protocol
SSL	Secure Socket Layer
.svg	Scalable Vector Graphics
.tar	Tape Archive File Format
TCP	Transmission Control Protocol
.tif	Tag Image File Format
TLS	Transport Layer Security
UDDI	Universal Description Discovery and Integration
UDP	User Datagram Protocol
UN/ECE	United Nations
UML	Unified Modelling Language
UTF	Universal Transformation Format
VML	Vector Markup Language
WAN	Wide Area Network
XHTML	Extensible Hypertext Markup Language
XML	Extensible Markup Language
XSL	Extensible Stylesheet Language
WAP	Wireless Access Protocol
.wma	Window Media Audio
.wmf	Windows Metafile Format
.wmv	Window Media Video
W3C	World Wide Web Consortium