

ASSOCIATION FOR GEOGRAPHIC INFORMATION

RESPONSE TO THE CABINET OFFICE CONSULTATION ON TRANSFORMATIONAL GOVERNMENT

1. EXECUTIVE SUMMARY

The Association for Geographic Information (AGI) welcomes overall the strategy on transformation government to set a vision for delivering citizen and business centred shared services. However, transformation as described in the strategy goes much further than just implementing or using new technology. It requires a fundamental transformation in how government interacts with citizens, implements change and leads others to change. Furthermore, Transformation Government can only be achieved if the technology is built on a foundation of high quality data and a joined up data infrastructure which involves citizens, businesses and public sector actively in its design, implementation and use.

The Association is pleased that reference is made to geographic information but also recognises that with it comes the responsibility for leaders to understand the processes, barriers, challenges and opportunities associated with the management of not only geographic information but information overall if shared services are to be delivered effectively. This response will therefore focus on the experience gained by the AGI's wide membership in the use of information and in particular geographic information (GI).

The AGI sees an opportunity for linking government, citizen and business information with geographic information via shared web services such as DirectGov and Business Link. This response provides further details of services such as Google that combines internet searches to geographic locations wherever relevant.

The AGI supports the approach to shared services outlined in the strategy but points in more detail to the challenges faced through data sharing and intellectual property rights, data and technology infrastructure, standards, information management and leadership. In this respect the AGI welcomes the announcement in the consultation document to provide guidelines for the governance and funding of shared services, the development of a GI strategy, the creation of a Service Transformation Board to challenge standards and set design principles, the appointment of a Shared Service Director and the leadership by Chief Information Officers.

To achieve the ambitious vision for citizen- and business-centred shared services the AGI recommends:

- Development of a national GI Strategy under strong leadership, with significant participation from users and business.
- Development of a common, joined up spatial information architecture and infrastructure.

- The early establishment of a definitive National Spatial Address Infrastructure (NSAI).
- Better standards for defining processes and information content to facilitate a shared service culture.
- Introduction of sanctions for non-compliance and financial rewards for compliance with standards and data sharing protocols where market forces fail
- More emphasis on information management (processes and professionalism) to ensure that the infrastructure is both well built and well used.
- Rationalisation of web services to primary on-line information access and transaction points (including DirectGov, Business Link), possibly provided in partnership with business (e.g. Google) which will also provide seamless GI coverage.
- Revision of public sector policy and practice with respect to intellectual property rights to facilitate the sharing and reuse of public sector information, both geographic and other.
- Stronger leadership, especially from stakeholder groups, to bring and promote innovative ideas from other sectors and countries to the CIO and Transformation Boards

2. AGI ORGANISATION

The Association for Geographic Information (AGI) is the umbrella organisation for those with an interest in geographic information (GI). The membership comprises individuals and organisations, the latter including government departments and agencies, local authorities, other national organisations, educational institutions, commercial companies and data suppliers. The mission of the AGI is to maximise the use of GI for the benefit of the citizen, for good governance and for commerce. Because of its wide and diverse membership, the views expressed by the AGI may not reflect the views of all its individual members.

3. GENERAL RESPONSE

The Transformational Government Strategy presents at high level an overall assessment of the current situation of Modern Government and its use of technology. It sets some reasonable objectives to the delivery of citizen- and business- centred, shared services.

However, transformation as described in the strategy goes much further than just implementing or using new technology. It requires a fundamental transformation in how government interacts with citizens, implements change and leads others to change. The vision of transformation and modernisation set out in the strategy will not be achieved without fundamental changes in how government itself operates and in how it involves citizens and businesses actively in the creation, management, access and reuse of information and the delivery of information technology.

The modernising and e-government agenda has clearly facilitated both access to information and use of transactional services within the last six years but processes in government have not changed fundamentally in order to meet the demands of an open information society. The report by the Adam Smith Institute (2006) on "Rewiring democracy: Better e-government for the UK" provides a fundamental review not only of how to deliver e-services better but also of how to open up government to enable citizens and businesses to take part in government.

Given the significant investment in information systems across government, re-engineering them will present challenges and incur substantial costs. More importantly, the information which they process must be transformed to provide the content (as opposed to carriage) infrastructure to support the aims of the Strategy.

The next stage in the development of the strategy will be to assess the barriers to achieving any or all of these goals. The report identifies a key issue (14) where it says:

Many systems were designed as islands, with their own data, infrastructure and security and identity procedures. This means that it is difficult to work with other parts of government or the voluntary and community sector to leverage each other's capabilities and delivery channels. It also leads to customer frustration, duplication of effort (for instance on customer change of address) and failure to make timely interventions, as the Bichard Inquiry showed. Choice requires services to be able to talk to each other.

Achieving many of the strategic goals will require such islands of information to be joined up. The AGI can provide a pertinent perspective from its experience of managing spatial data and geographic information.

The following barriers need to be overcome in a successful move towards "Transformational Government" and a shared service culture:

- Lack of leadership to overcome the resistance to change
- The constraint of intellectual property rights and its associated costs
- Fragmentation of responsibility among local authorities (LAs) who lack a clear lead or guidance (see Adam Smith Institute report on rewiring democracy)
- Economy of scale to implement new technologies for small local government organisations
- Lack of sanctions if changes which benefit users are not implemented because they do not benefit the owners of data or technology
- A focus on technology rather than processes and the management of information (20)
- Systems designs not meeting the needs of users because they are not involved (IT centric versus user focused)
- Lack of an integrated information architecture which supports interoperability both between different datasets and between different systems (front with back office, back to back office)

- Lack of an understanding of the role of information management and of the required skills including cataloguing, recording and matching
- A plethora of identifiers which cannot readily be related to equivalent or similar identifiers used by other sections of central or local government, by business or other countries, e.g. addresses and citizen/client references
- Lack of standards for information content, semantics and processes¹

The AGI welcomes that the reference in the Strategy to the importance of geographic information (GI) in policy making and service delivery (10) and the development of a GI strategy by the GI Panel (39(8)). The AGI will focus their response on issues around geographic information and related systems. It will cite best practice examples where GI and related technology have contributed to the delivery of citizen and business centred services, to a shared service culture and/or to professionalism in planning, delivery, management, skills and government. In addition, this response will identify specific challenges to transformational government and make recommendations to develop citizen- and business-centred, shared services.

The Strategy as presented is at a very high level and will require more detailed work if it is to guide the required transformation. We note that this consultation does not have a detailed set of questions on which to base our response – the next stage of development must identify and clarify those questions. We suggest that the issues for further consultation should concentrate on the *opportunities* and *challenges* identified in this and other responses. The next sections expose some of these issues in more detail.

4. DETAILED RESPONSE

4.1 Citizen and Business Centred Services

The AGI welcomes the rationalisation of web services achieved by Directgov and Business Link and would support the development of services to provide seamless geographic information.

Currently, there are many individual examples in the public and private sector where Geographic Information Systems (GIS) is used to provide citizen-centred services. For example: As a result of the national priority outcome for e-government (G5) many Local Authority websites now provide interactive GIS linked to many services on the website, so citizens can find their nearest library, school, childminder, etc. A few authorities have successfully worked together to provide linked services to their neighbours across local boundaries (Derbyshire, CABI, Empress). Central government agencies have also created many vital information portals

¹ There are schemas (see BS7666) but also two contending address databases: the OS address layer which licenses Royal Mail postcode address file (PAF) for use in its product and the local government land and property gazetteer (LLPG)

which facilitate access to information by business and citizen alike (Magic, planning portal, sports council, neighbourhood statistics, public rights of way)². However, none of these are linked up so the AGI welcomes the convergence of the websites on Directgov and Business Link to improve efficiency, effectiveness and customer Value (33).

The commercial sector has long provided mapping services such as multimap.com, and upmystreet.com. The recent development of Google have taken these services further by linking searches on the internet to geographic locations wherever relevant (http://en.wikipedia.org/wiki/Google_earth). There is a huge opportunity for linking government, citizen and business information with geographic information via shared web services.

4.2 Shared Services

The AGI welcomes the approach to shared services outlined in the strategy (39). However, a shared service culture faces enormous challenges which are addressed below.

4.2.1 Data Sharing and intellectual property rights

The strategy emphasises the need in data sharing to achieve a balance between privacy and more efficient, higher quality services. Government is starting to make guidance available for sharing services especially in respect to data protection as part of the children index³.

However, one of the biggest constraints to sharing geographic information is the intellectual property rights and associated costs. If LAs provide copyright data free to citizens, they must pay the rights holder. The AGI therefore welcome the Treasury's work with the National Audit Office and Audit Commission, Cabinet Office and public service delivery organisation on guidelines for the governance and funding for service sharing (40(4)). However, we recommend that OPSI (Office for Public Sector Information) is involved directly (not just as part of the Cabinet Office) and that note is taken of recommendations 5 in APPSI's (Advisory Panel for Public Sector Information) 2005 annual report⁴.

We doubt whether the trading fund model based as it is on payments for use of intellectual property, will assist with the development of a shared services culture. A culture of shared public services requires the unimpeded flow of information between agencies - a culturally difficult challenge even without financial or IPR issues to deal with. This issue is compounded when viewed in conjunction with database copyrights under the European Union Directive on the Legal Protection of Databases which introduces a sui generis right to prevent the unauthorised extraction or reutilisation of contents of a database. This database right does not extend to the contents of the database, and so recent court rulings show

²see case studies on AGI website (www.agi.org.uk)

³ (<http://www.everychildmatters.gov.uk/delivering-services/information-sharing/>)

⁴ <http://www.appsi.gov.uk/reports/annual-report-2005.pdf>.

that the Directive has eroded the public domain and raised new barriers to data aggregation⁵.

Contributing to a shared service culture can improve value for money which is exemplified by the Local Government Mapping Service Agreement (MSA). All local authorities in Great Britain (except for one) have signed up to procure geographic information jointly so that the data can be shared across boundaries. A similar Pan Government agreement covers the central government sector. However, the greatest benefit from, and culture change through, the MSA is the further development and improvement of the National Land and Property Gazetteer (NLPG) as a cooperative effort by Local Authorities which will also be shared with local government partners such as police and fire. The detailed land and property information in the NLPG will be a vital intelligence source about localities and properties as regional fire contact centres are introduced. Grouping the resources regionally will mean that the local intelligence held by individuals will be lost unless it is pooled in common electronic intelligence sources. However, further sharing of information outside the agreement with, for example, citizens, the voluntary sector and the private sector is constrained by IPR costs.

4.2.2 Data and technology infrastructure

The AGI fully endorses the need for a common infrastructure. However, the common infrastructure should not be limited to the technology; it should encompass the information which the citizen or business requires to access or reuse as specified in the freedom of information act and public sector information regulations. There are two developments to consider: first, information architectures to define the structure of information with respect to its processing by technology; and second, data infrastructures which define and hold core datasets to be shared, standardised extended and improved

The AGI welcomes here the announcement of the GI Panel to develop a GI strategy to foster the development of a common data and technology infrastructure. A GI strategy will provide the opportunity to develop an encompassing National Spatial Data Infrastructure (NSDI). Currently, some individual spatial data infrastructures exist locally, regionally or as industry initiative such as the Digital National Framework promoted by the Ordnance Survey which sets principles and demonstrates best practice in the development of data management, processes and structures. Sadly, the opportunity has been missed recently to develop one of the key foundation stones to a NSDI: a National Spatial Address Infrastructure (NSAI) (see section 5).

The strategy should reflect, influence and support the proposed European spatial data infrastructures for geographic information (INSPIRE). This provides a basis not only for the UK but across Europe for a common

⁵ **Geographic Information Science – Mastering the Legal Issues** George Cho, John Wiley & Sons Ltd 2005

information architecture which would support the interaction of citizens, government and business.

In the GI community, there are several examples of solutions for creating an information infrastructure:

- The recent winner of the AGI Local government best practice award, Islington Borough Council, has built its customer services infrastructure around an information architecture, centralising all core data and linking the applications to the core instead of keeping the information in individual systems. For example the core street data can be: linked to environment services such as street cleaning and winter gritting; used to identify public transport routes or road works or to measure distances required for schools admissions; the fundamental building block for addresses. Although a commitment had to be made to provide initial funding for the initiative, the information architecture has improved efficiency and effectiveness and reduced duplication⁶.
- The UK Hydrographic Office has built a multi-agency information infrastructure to serve the global market for marine data. It is based on a partnership of data providers and users who all feed their information into a common infrastructure.
- gigateway provides a data infrastructure which facilitates access to geographic information by creating a "discovery-level" metadata service using national standards. gigateway has been vital in bringing e-GMS and NGDF standards together⁷.
- The Office for National Statistics, as a by-product of the neighbourhood statistics service has promoted a common infrastructure by the use of SVG (scalable vector graphics and a form of graphical XML). SVG is used for visualising data while at the same time making use of XML for the exchange of data⁸.

Further examples of savings as a result of sharing geographic information are provided in the appendix. The figures are reproduced with the permission of the Ordnance Survey.

4.2.3 Standards

Data sharing requires national data standards (29(5)) to promote shared data management of customer information. Currently, too many diverging standards and standards bodies exist (BSI, LeGSB, etc.). Furthermore, there is a need to enforce existing standards (especially national and international standards) by introducing sanctions for non-compliance, thereby avoiding the creation of yet more differing data sources. The AGI would, therefore, welcome better coordination and enforcement of standards through the CIO and Transformation Board (28 (c)). Central

⁶ (see AGI web site, local government case studies)

⁷ (www.gigateway.org.uk)

⁸ (www.statistics.gov.uk/neighbourhood) (best practice examples (including neighbourhood statistics) are available in the IGGI publication 'Towards Best practice for Web Mapping Services 2005' <http://www.iggi.gov.uk/publications/index.htm>.)

government's leadership in standards can be very influential unless it diverges from international consensus (as it did when promoting the Government Open Systems Interconnection Protocol against TCP/IP).

Furthermore, there is not only a need for standards that describe the structure of data (as is the case for BS7666 for spatial referencing) but also the content, semantics, and processes. This is specifically apparent in the three major address databases in the UK (the Royal Mail's Postcode Address File, the Ordnance Survey Address Layer and the Local Government National Land and Property Gazetteer). All three will possibly be compliant with the new BS7666 standard but will differ in content and the way they are derived.

4.2.4 Information management

The importance of information management to provide the right information, at the right time, to the right person is often overlooked (15). Too much emphasis is placed on the technology rather than on the information and how it is created, managed, stored, etc. The AGI recommends a strengthening of information management in transformational government. Information management delivers benefits to the information sharing community as a whole, rather than to a single department. The wider that community, the greater the benefit, so government needs to recognise the value to users, business and the voluntary sector.

Any project to relate all central and local government identifiers for citizens and clients will be a major task and raise many policy issues, e.g. regarding "big brother" government. Yet delivering "joined up" customer-centric services requires some degree of joined up data management behind it. This challenge needs to be on the agenda of the CIO and Transformation Board now being put in place. They will need to ensure that it is addressed also by Ministers and by Parliament because the issues are much broader than the effective exploitation of enabling technology.

4.3 Leadership

Developing a shared service culture requires strong and committed leadership to change processes, enforce standards and support the creation of common databases. Culturally, many professional staff have disengaged from the development of technology and information to best meet customer requirements. This becomes obvious when a service area does not take strong responsibility for its information and for the innovative and joined up developments that are possible in these circumstances. (See for examples of what can be done, the development of the neighbourhood statistics website and the Islington information architecture, already mentioned).

The leadership challenge is ultimately presented by unwillingness and inflexibility with respect to change. The transformational government agenda requires willingness by partners and stakeholders to work

together, to adopt common standards, to commit to good information management and to agree mutually acceptable charging models. These models may be based on provision of the common technology on the one hand and of data on the other.

Unfortunately, the recent example of the failed National Spatial Address Infrastructure exemplified both the lack of leadership and the unwillingness of the stakeholders to change in order to find a common solution which would meet the needs of the citizen and business. (See section 5). The AGI has campaigned tirelessly for stronger leadership in addressing the information needs of users in the private and public sector and as individuals, in finding an acceptable solution to the address infrastructure and in developing a GI strategy. The AGI welcomes the role of the GI Panel in developing a GI strategy but also recognises that this role is only advisory. To implement the GI strategy in government requires strong leadership by the CIOs. It also needs the advice of respected leaders of opinion from all sectors including users in central and local government, in business and the community. Both those whose advice is sought and everyone else outside government will be making their choices in a rapidly evolving, competitive, global marketplace.

5. GEOGRAPHIC INFORMATION IN A SHARED SERVICES INFRASTRUCTURE

Geographic information is a key contributor to a shared services infrastructure. The AGI emphasises the importance of the National Spatial Address Infrastructure and of the GI strategy to the development of citizen- and business-centred services.

5.1 National Spatial Address Infrastructure (NSAI)

Any "service-oriented" approach to citizens will require back-end systems to provide information through the appropriate delivery mechanisms (web portals etc.) in a way which enables it to be related quickly and easily to their needs. One example of the challenges thereby presented is the work to date on providing a standard address/property gazetteer. An announcement by the ODPM in May 2005 raised the hopes for a National Spatial Address Infrastructure to facilitate the use and sharing of address data in the UK. It was intended to bring together the address databases provided by the Ordnance Survey address layer using licensed Postcode Address File in their product and the local government National Land and Property Gazetteer. Progress on this has been hampered through unresolved issues of data ownership, unclear legislative structures and responsibilities and competing "top down" and "bottom up" approaches.

However, the failure to agree opens the door for contending address databases and the cost falls on the users because different agencies may use different address sources with different IPRs. In addition, significant information management work will be required to align address information stored in legacy systems if and when agreement is reached on a "definitive" gazetteer. The same concerns will apply to other key

service-oriented transactions, e.g. those to do with citizens and businesses, visitors from abroad, product and service classifications and the contents of Bills of Lading⁹. The provision of a definitive address is key to the success of the 2011 census, it is also recognised as an issue in the provision of ID cards as raised in the House of Lords on 16 January 2006.”

The AGI strongly advocates¹⁰ a National Spatial Address Infrastructure as the definitive, standardised, uniquely referenced, complete, accurate and current base for address data. It can be linked with other entities (street) as a basis for citizen and business centred services and it can be checked easily against numerous sources, such as the records of utilities, home information packs, parcels carriers, canvassers, academic and market researchers, charities and more.

5.2 GI Strategy

The consultation document invites a review of, and innovation in, how services are structured and delivered to citizens and business. This provides an opportunity for the development of the GI strategy to rethink how geographic information is created, updated, maintained, accessed, used and shared in the UK. The current centralised, top down approach to the creation, maintenance and supply of geographic information by government agencies needs to be challenged; all levels of government, citizens and business should engage in the design of databases and of the processes by which GI is created and maintained, and in facilitating the sharing and reuse of data across organisations including the voluntary sector, business and citizen (see IPR, section 4.2.1). Central to the GI strategy should be: the identification of key geographic information requirements, datasets, processes, standards and information sharing protocols, including the coordination of legal and commercial compliance; wider awareness and understanding of GI; and improved access to GI. Central to the success of that strategy are the commitment from government and private-sector stakeholder groups to the implementation of the strategy and an appropriate, delivery oriented governance process¹¹. 'The GI Panel already has representatives of all groups including users and business, but this model might suggest greater representation from the private sector, if we want to implement transformational government as indicated in the strategy

⁹ SITPRO, the organisation responsible for promoting the simplification of international trade procedures, has been wrestling with these issues for more than thirty years.

¹⁰ (see www.agi.org.uk)

¹¹ see briefing paper on the consultation of the GI strategy for England, www.agi.org.uk

6. CONCLUSION AND RECOMMENDATIONS

To develop and implement citizen- and business-centred shared services, the AGI strongly recommends:

- Development of a national GI Strategy under strong leadership, with significant participation from users and business.
- Development of a common, joined up spatial information architecture and infrastructure.
- The early establishment of a definitive NSAI.
- Better standards for defining processes and information content to facilitate a shared service culture.
- Introduction of sanctions for non-compliance and financial rewards for compliance with standards and data sharing protocols where market forces fail
- More emphasis on information management (processes and professionalism) to ensure that the infrastructure is both well built and well used.
- Rationalisation of web services to primary on-line information access and transaction points (including DirectGov, Business Link), possibly provided in partnership with business (e.g. Google) which will also provide seamless GI coverage.
- Revision of public sector policy and practice with respect to intellectual property rights to facilitate the sharing and reuse of public sector information, both geographic and other.
- Stronger leadership, especially from stakeholder groups, to bring and promote innovative ideas from other sectors and countries to the CIO and Transformation Boards

The AGI offers its support for the further analysis and implementation of the above recommendations. In particular, the AGI wishes to draw on its broad and professional membership among users and the public and private sector to support:

- the development of a GI strategy;
- the establishment of a National Spatial Address Infrastructure;
- the use of common portals utilising GI (for example, using gigateway);
- the wide use of GI in citizen- and business-centred services enabled by technology and the transformation of public services.

APPENDIX A: REFERENCES

- Adam Smith Institute, 2006: Rewiring Democracy: Better e-government for the UK, London. www.adamsmith.org/
- Advisory Panel for Public Sector Information, Annual report 2005, <http://www.appsi.gov.uk/reports/annual-report-2005.pdf>.
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- Keith, Gavin 2004: AGI report on GI strategy consultation, [www.agi.org.uk/gipolicy/initiatives/pdf/Report to the GI Strategy Working Group.pdf](http://www.agi.org.uk/gipolicy/initiatives/pdf/Report%20to%20the%20GI%20Strategy%20Working%20Group.pdf). Published by the AGI.

APPENDIX B: AUTHORS

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APPENDIX C:

Unquantifiable Savings Achieved by Other Local Authorities through information sharing

Authority	Project	Findings/Process	Improvements
Salisbury District Council	Comparison of Land Terrier to Grass Cutting Routes	Found that grass was being cut on land not owned by the council	Stop maintaining non-council owned land for free
Coventry City Council	Capture Road extents	Enabled much better asset management for highways and transportation	Time saved maintaining register, and better information available for corporate use
Milton Keynes	Valuebill (N.B. this is started but not yet complete at SBC) - Data cleaning the council tax register against the corporate address gazetteer	25% of completed developers properties not listed on council tax. Large number of properties found for valuation purposes.	Large increase in possible Council Tax collections - ODPM estimates 2% uncollected nationally
Birmingham City Council	Polling district boundaries were digitised on screen against colour-coded electoral addresses	A number of anomalies, including addresses in locations detached from the polling district to which they belonged, were identified.	Adjoining polling districts with electoral statistics on a digital map achieved an electorate within a 5% tolerance
East Midlands Partnership	East Midlands Partnership Regional e-Government Spatial System (EMPreSS)	Seamless services for the citizen using a map interface. The initial pilot service provides access to road works information aimed at the travelling public	Information Management Award for Excellence, joining up local and central government and utility companies information

Quantified Savings Achieved by Other Local Authorities

Authority	Project	Other benefits	Savings
Denbighshire CC	On site fault reporting for street lighting, removing duplicate data entry requirements	Average time to repair reduced to 1.8 days.	£3,000+ annual savings
East Riding of Yorkshire	Using GIS for better access to information for rural customers and internal customer services	Encouraged e-technology use, winner of Local Government IT Excellence Award	£48,640 per month estimated on the basis of 16,000 calls and a reduction of cost per contact from £7 to £3.96
Forth Valley	Analysed vulnerable road sub surfaces.	Have corrected lack of funding and can now counteract road subsidence	£500,000 extra funding awarded
Teignbridge District Council	Optimisation of refuse collection routes	Perceived potential to achieve further savings of £110,000 per annum by reduction of routes by one. Better environment due to less emissions and shorter routes.	£20,000 annual savings: £15,000 due to and cessation of overtime, and £5,000 from the reduction in fuel and maintenance
London Borough of Sutton	Optimisation of special needs transport routes.	Transport better suited to the needs of the pupils where possible. Only 24 vehicles now needed instead of 47.	£30,000+ annual savings
Portsmouth City Council	Implementation of an integrated GIS system.	Up to 95% of all calls now dealt with in one hit.	50% reduction in callbacks from the public

3 February 2006