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Corporate = Lessons learned in Defence Estates

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1 Introduction

Defence Estates reviewed their current GIS solutions against the new pressures on the business. It was found that the current regional based solutions would not meet the emerging requirement for corporate data. This paper describes the new vision that was defined for land and property Information Management and the lessons that are still being learnt as that vision is implemented.

1.1 Background to Defence Estates

1.1.1 What do we do?

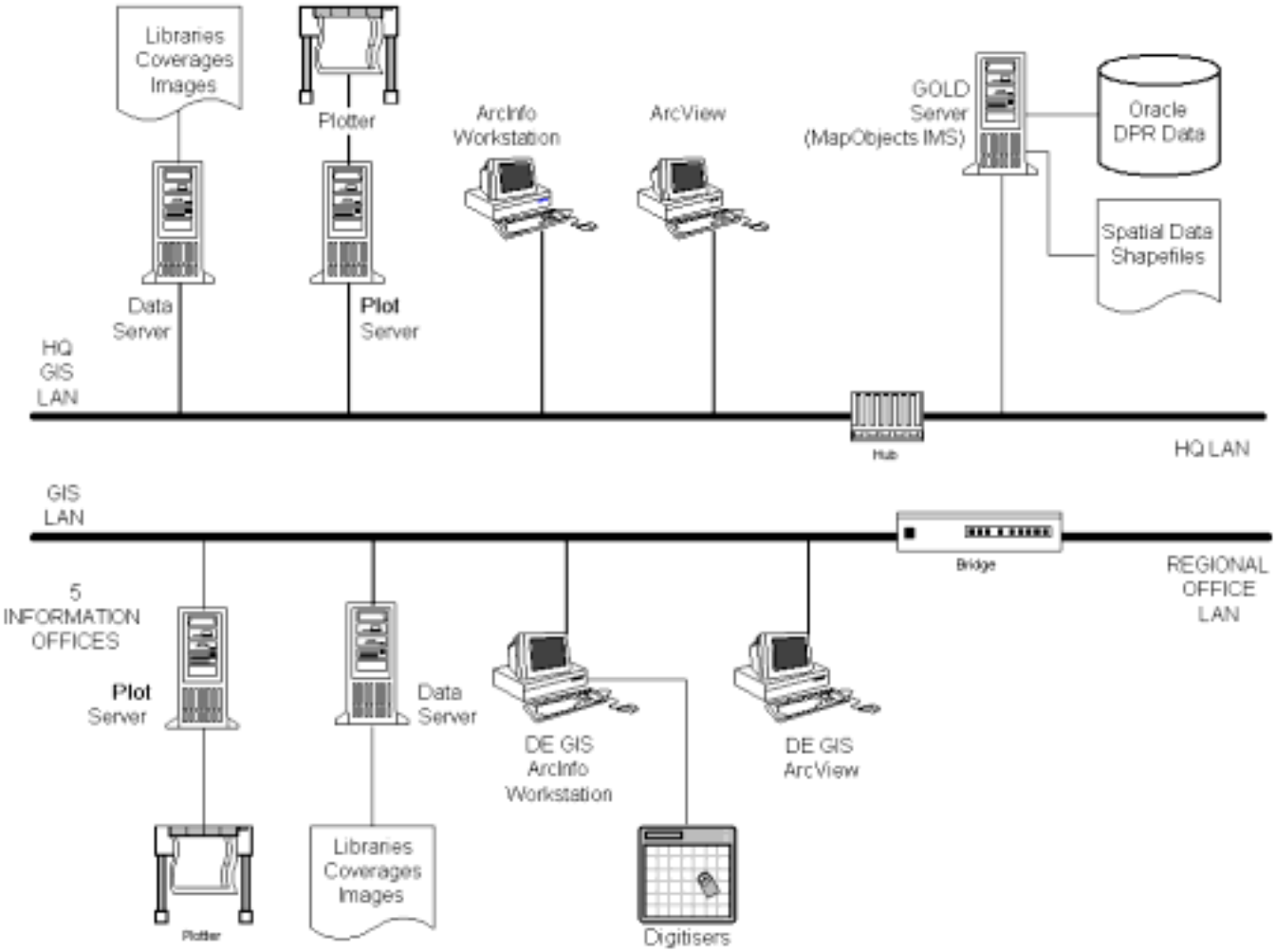
1.1.2 GI in Defence Estates

1.1 2 1 Original drivers for investing in GIS

1.1.2.2 Current GIS architecture and business support

The current GIS solution is provided by regionally based, standalone systems. The systems are located in 5 DE offices throughout the UK and are used primarily by specialist cartographic staff. The Head Office at Sutton Coldfield provide central technical support

Architecture of Current DE GIS Solution



The systems were installed with standard themes and data sets, but there has been local variation in the way the standards have been applied. For example, all regional systems have an MoD boundary theme, but some offices have digitised at 1:10,000 while others have used Landline.

The regional systems also have the ability to create local datasets. This was important because offices have different local business needs, e.g. Salisbury has a large amount of countryside data to support their management of environmentally sensitive areas, while Aldershot has more building plans to support their significant property disposals programme.

So the existing arrangement of regional systems has been successful in meeting local needs, but does it meet the needs of the changing business environment in Defence Estates?

2 Changing Business Environment

As in many organisations Defence Estates is subject to a high level of change. There are currently a number of forces creating these radical changes.

2.1.1.1Internal drivers for change

In 1998 the Strategic Defence Review recommended "the defence estate needs to be managed more as a corporate asset to support the delivery of defence capability". This has led to a number of national projects that cross existing service boundaries and organisational boundaries within Defence Estates:

- **Prime Contracting Initiative**- Currently preparing to let multi-million pound contracts for the maintenance of the Defence Estate in Great Britain;
- **Project Alexander** - "establishing new pan MoD estate processes that, with the introduction of Prime Contracting, will deliver improved estate management"; and
- **Estate Strategy Implementation** – one of its aims is to ensure that the MoD has a department-wide view on which sites are most suited to its long-term business, and that long-term military requirements should be linked to "Core Sites" on which future use and investment can be focussed.

2.1.1.2 External drivers for change

Externally there is increasing pressure for standardisation and inter-working across government, including:

- **Standards** like the National Street Gazetteer and National Land and Property Gazetteer;
- **Joined up government**. DE already exchange data with a large number of government organisations including environmental, heritage and planning bodies. Use of standards such as GML will facilitate data transfer and reduce software and staff costs;
- **E-government**. The government is aiming to have a significant portion of its services on-line by 2005;
- **E-business** The DECs initiative will facilitate e-procurement within MoD. It aims to make the process of supporting our Armed Forces faster, more responsive and cheaper. It will include sharing information with partners.
- **OS MasterMap© and the Positional Accuracy Initiative** will have a significant impact on the geographic data currently held in the GIS – a significant proportion of the defence estate is in peri-urban areas.

2.1.1.3 Technical drivers for change

The availability of Intranet / Extranet technology will completely revolutionise the use of GI in Defence Estates. It enables Defence Estates to bring GI out of the specialised Information Office and make it available on users desktops throughout DE and MoD. This means that data has to be understood by a wide range of users who are not cartographers and that the regional data has to be collated into a unified corporate data source.

2.1.1.4 How do the existing systems measure up to these changes?

The existing regional based GIS solutions have been designed to meet local needs rather than the corporate needs created by the new pressures on Defence Estates to radically change their business and involve external partners. This has exposed a number of weaknesses in the current solutions, including:

- Initiatives such as Prime Contracting and Estate Strategy Implementation cross regional and functional boundaries, but the systems are standalone and are based on different administrative areas;
- National datasets are needed to support corporate initiatives, the Intranet dissemination of corporate information and joined up government. However, the data is inconsistent amongst the regional based GIS solutions;
- National standards should be supported, but data and software have not been developed with this specifically in mind; and
- The data needs to be intelligible to a range of MoD staff, but it has been created by cartographers to meet specialist, sometimes professional, requirements.

3 Vision of Managing GI in Defence Estates

A strategy for the defence estate land and property information management was created with the following guiding principles:

- **Standards** are to be adopted for corporate data sets for national consistency and harmonisation with national / international data standards, where possible;
- **Corporate data sets** are to be created in key areas and based where possible on regional data sets;
- **Data management plans** are to be created that define who owns the data, how data will be updated, the timescales for update and the resources required. The plans are to be audited to make sure that they are being implemented;
- **Desktop, browser access** solutions are preferred to make the data available as widely as possible, both within Defence Estates and its customers (across MoD and externally)–the users of the estate; and
- **Business applications** are to be **spatially enabled, where appropriate.** Once standard, core data sets are in place, business applications can be linked to spatial information and the foundation provided for Management Information Systems. For example, uniquely numbered land parcels can be linked to maintenance spending and environmental information. This will be the first time that information about a facility is available from a range of disciplines – the estate can be managed holistically.
- **Metadata** is to be an integral component of information management– The size and diversity of the MoD organisation means that it can be difficult to find out if data is already held by groups. In one case, 12 databases holding similar information have been identified. Only a handful of these had processes for keeping the information up to date. A meta-database, available on the web, will promote standardisation and encourage data re-use.

4 Lessons Learned in Achieving the Vision

4.1 Business

4.1.1 Raising the awareness of Information Management with senior management

Senior management can perceive that Information Management is simply installing hardware and software. In reality, Information Management is defining how data is to be gathered and updated, defining quality thresholds and timescales with other users of the data and defining staff roles –especially between departments. These are issues that the business should lead on, taking responsibility for the data that they own. If senior managers want reliable, timely information then information management cannot be a casual, “when I get a moment” task.

4.1.2 How to formulate and agree an Information Management policy framework

Agreement on some basic principles will help to build understanding of Information Management and define IT team / user roles. For example:-

- Defining the project management process - who should be involved in managing the project, who defines objectives, resolves issues, approves budgets and project stages?
- Defining data owners –who decides if it is HMS Heron or RNB Yeovilton?
- Requiring data management plans – databases should not be created with no thought of how they are going to be maintained.
- Agreeing on the quality and timelines of datasets with their users.
- Designing business processes to include how they interact with information systems.

4.1.3 How to finance corporate Information Management activities

Within Defence Estates budgets are allocated to regional business units. This makes it difficult to fund central corporate Information Management Activities. For example how should costs be allocated for OS mapping? Or how are corporate software standards enforced when it will mean increased costs for regions that require more Information Offices?

Creation of corporate systems will require strong central leadership to ensure contributions to corporate Information Management budgets.

4.1.4 What elements of Information Management should be outsourced?

The Prime Contracting Initiative will sub-contract many areas of property and estate management to a single supplier in each of five regions. This raises issues over the information management. Defence Estates require enough regular information to evaluate performance between contractors, ensure value for money and fraud prevention. They also need a "sunset" clause to ensure continuity of data and knowledge to any subsequent contractor. However the Prime Contractor will significantly reduce the risk premium if they are able to deploy their own systems. Which elements of Information Management can be outsourced and which need to be kept in-house?

In order to balance these, often conflicting, requirements it is essential to keep focussed on what the contractor is going to deliver –and then ensure that the information flows enable monitoring against these deliverables. There is a vast amount of information that could be demanded from the contractor –but as always more data does not always make better information.

4.2 Standards

4.2.1 Defining the standard

Standards are detailed, time consuming and usually boring. They are defined in endless meetings with long drafts and interminable re-drafts. However, they are key to achieving the vision.

"Never neglect details. When everyone's mind is dulled or distracted the leader must be doubly vigilant"

General Colin Powell[1]

It is essential to involve the daily users and maintainers of the data in the standards definition process. The IT support has to be a facilitation exercise rather than presenting a solution for approval. Involving users with the process encourages their ownership and ensures that standards are realistic.

4.2.2 Making data standard

Once the standard has been defined, existing data has to be migrated into the new standard. However, there are a number of pitfalls. There are several layers of meaning (semantics) at which the data must agree.

For example, the regional and the corporate system both value a building as 5,000:-

Is it the same data type?	Integer 5,000? Decimal 5,000.00?
Is it the same value?	£5,000 sterling or 5,000 Euros
What does it mean?	Replacement value? Open Market Value? Value in 1995? Value in 2000?

[1] *"A Leadership Primer"* General Colin Powell, Chairman(Retd) Joint Chiefs of Staff

This means that performing an audit on the data currently available to design an effective data migration path will take a considerable amount of time, from people as well as systems.

4.2.3 Keeping data standard

Once defined, standards have to managed and compliance policed. Vigorous user groups that have enough authority to mandate consistency across a potentially diverse organisation are essential.

Data management plans will make sure that the data is maintained at the quality you have struggled so hard to achieve. In one of MoD's data management plans it is estimated that over 300 members of staff will be involved in the process. Many are at remote locations without a communications link and some staff may only complete the process once in the four or five years that they are in post. This takes months of presenting ideas, circulating drafts, reworking and gaining agreement, but without them data will become valueless.

4.2.4 National/International Standards

The adoption of national/international standards can be a bit like motherhood and apple pie. –"Defence Estates are fully committed to the implementation and support of national/international standards in information systems". However the reality is rather more difficult. Defence Estates want to be "main stream adopters", but have great difficulty understanding the future prospects and inter-relationships of national initiatives such as the National Street Gazetteer, NLPG, BS7666, OS MasterMap© and when to fully adopt these initiatives. More best practice guidelines are required to support organisations, such as Defence Estates.

4.3 Organisational

There were a number of important organisational lessons.

4.3.1 Data Ownership

One of the most important lessons to learn is that users own their data. They are responsible for the quality and timeliness of data and need to allocate resources to data maintenance.

There are two commonly used euphemisms in this area:-

"Everyone needs this data"

which means

"I want this data, but not enough to pay for it"

and

"This data should be maintained corporately"

which means

"I'm not able to put the hard work into maintaining the data that I use"

4.3.2 Focus on the positives and the larger picture

The new corporate vision will mean a big change in the role of the specialist cartographers who have looked after the regional based GIS. A large part of their job has been the production of hard copy maps. However, it is clear that the intranet solution will significantly diminish that role. The change management process should have made it clear to these stakeholders that their future role was actually going to expand, not disappear; more spatial data sets to maintain, a key part defining standards and expansion of services to include data analysis. Their role is moving from cartography to information management.

4.3.3 Training a large user community

Making GI information available over the intranet means that training has to be changed from off-site courses from the software supplier and internal specialised training courses. Defence Estates are looking

to use computer based training, enabling staff to learn on the task, at their own pace and put the knowledge to work straight away.

4.4 Technical

4.4.1 Technology no longer calls the shots

GI software has developed to the point that the software is no longer dictating our organisation; for example, requiring local staff with local data to produce local maps. This means that the decisions on location and staffing no longer need to be dictated by the technical team and are pushed back to the business. It becomes a business decision with the usual requirement to weigh hard benefits (of fewer staff centrally) with soft benefits of closer relationship with customers and local experience of the data.

4.4.2 The application of spin

Initially it was thought that standard core datasets could be made directly available over the Intranet to all Defence Estates staff, but hard experience indicates that "spin" has to be applied to published data. For example, MoD owns the land under a large number of public roads including the M4. Should this land be published on the Intranet and reported in national statistics as MoD land? The specialist view of complex land ownership will be maintained, but the published data will be more intuitive and reduce the possibility of error.

5 Summary of key success factors

If Defence Estates had to start again what are the key factors they would keep in mind?

- **Think corporate early on**. Plan for it early and **police** it to ensure that there is true Corporate Information Management;
- **Clear business involvement** This should be defined through the information management policy framework and should ensure that information meets business requirements;
- **Single responsible officer** for the project. A corporate system has many users, with different needs, but one individual has to have the authority to make decisions between priorities;
- **Communication** This is key to ensuring that the organisational/cultural changes are achieved and that the (often large) group of stakeholders support the project and become involved. A communication plan defining stakeholders and the information that they require can be a helpful way of formalising what is required; and
- **Leave (considerable) time for buy in** and for bringing the organisation with you.

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