



Australian Government
Department of Defence
Intelligence and Security

DIGO Geo Strategy

2009 - 2013



See the Unseen - Know the Unknown

Contents

Message from the Director	1
Overview - <i>Keeping DIGO Customers 'in the picture'</i>	3
Definitions	4
Scope	4
Environment	5
The Way Forward	7
DIGO Values	11
Themes	
Governance	13
GEOINT and Geospatial Information	15
Interoperability	17
Architecture	19
Resources	21

Message from the Director

Defence is on the cusp of a significant change in the way it does business: geospatial data is becoming ubiquitous in many of the systems we use on a daily basis. The reality is that almost everything in the Defence inventory that flies, drives, floats or walks, produces and/or consumes geospatial data.

As delegated Coordinating Capability Manager for Geospatial Information (CCM GI), Defence Imagery and Geospatial Organisation (DIGO) needs to lead the effort to transform how Defence provides GI and services to the desktop, the user, and the warfighter. This Strategy allows DIGO to exercise its leadership role in the Defence geospatial community and ensures relevancy in an evolving environment. This approach will also enable improved delivery of GEOINT to customers using the same systems. To do this we need a radical change of focus – we need to move away from being product centric to being a service centric organisation and develop the systems and infrastructure that will support this change.

The solution we have identified to support this change and to support a fundamentally different services model within Defence is an enterprise level geospatial services system. Data and completed product (cartographic, geospatial and GEOINT) will be available on-line, in real-time. These services will be available through a Defence enterprise level geospatial services solution on every desktop throughout Defence. Individual and organisational customers will be able to access and manipulate data in response to their own needs and this data will then be made available to the network. Service centres, map warehouses and data distribution centres will be consigned to history and significant efficiency dividends will be achieved by removing people from the data and map handling process, enabling them to concentrate on more value adding activities.

We have also revised our data standards and formats and will focus on ensuring we can support a core set of formats to a guaranteed level.

We will not, however, be doing this alone. We will partner with CDG, DMO and CIOG to deliver this new architecture. We need to change the way we deal with industry – with a focus on long-term agreements, enterprise level licensing, improved customer support and responsiveness and standardisation. Nothing we need to do in this domain is unique and industry is a key partner – but that means we need to rethink the way we engage with industry as well as requiring industry to rethink the way they engage with us. We will challenge and engage industry to assist in developing and delivering the tools necessary to support the capability.

There is a great deal of work required to deliver this Strategy but we have already demonstrated how the technology will work. I am confident we have the abilities, both as individuals and as an organisation to achieve and implement the new generation geospatial architecture Defence needs to be successful both now and into the future.



Clive Lines
Director DIGO
October 2009



Overview — Keeping DIGO Customers ‘in the picture’



DIGO will satisfy the intelligence and information requirements of customers through the implementation of a Geo-Environment and Geo-Marketplace that will provide search, discovery, manipulation, retrieval and receive services for GEOINT and Geospatial Information (GI).

DIGO Geo Vision

“Enable customers, both internal and external, to search, discover, manipulate, retrieve and receive available GEOINT and GI in order to satisfy their intelligence and information requirements in a timely manner”

The DIGO Geo Strategy will guide DIGO activities towards achievement of the Geo Vision. Outcomes will be focused on a scalable geo-focused environment that addresses the needs of all customers and supports DIGO’s remit to provide GEOINT as well as non-intelligence GI. To this end, DIGO will enhance its capability to provide GEOINT and GI by exploiting the benefits of new technology.

The Geo Strategy will build on DIGO’s current tailored production activities by enhancing access to GEOINT and GI and improving availability to customers. While the intention is to improve customer access as new methods of dissemination evolve, production processes may need to be altered. In order to achieve the Geo Vision, DIGO will shift its focus to support multiple users of the same data, one solution for many, instead of repeatedly developing similar products for multiple customers.

The core elements of the DIGO Geo Strategy will set the direction for the Geo-Environment and Geo-Marketplace. The DIGO Geo-Environment, also referred to as the “Back-end”, will support the storage, structure and management of the organisation’s GEOINT and GI. It will provide the underlying infrastructure for the Geo-Marketplace, or the “Front-end”, which will facilitate customer access to GEOINT and GI through the provision of services that allow customers to conduct searches, review results, manipulate data, set-up automatic alerts and order or self-service GEOINT and GI products.

Definitions

GEOINT is intelligence derived from the exploitation and analysis of imagery and GI about features and events, with reference to location and time. GI is information that can be referenced in space and/or time to a specific location. GEOINT and GI together form the continuum of DIGO outputs ranging from intelligence analysis to geospatial foundation data. DIGO outputs include those produced by DIGO; acquired commercially; or sourced from international partners. Outputs include finalised GEOINT and GI products (e.g. intelligence reports, standardised or tailored maps, CIB, databases, etc) that stand alone to meet a specific intelligence or information requirement. Outputs also include component products (e.g. shape files, GIS layers etc) that are not stand alone and require manipulation by the user to extract meaning to meet their specific intelligence and information requirements.

DIGO’s customers, partners and stakeholders will be impacted by the changes called for by this Geo Strategy. Customers who are able to use GEOINT and GI from web sites will have greater access to the information they need in the most timely manner possible. Partners who work closely with DIGO to develop GEOINT and GI will have the opportunity to provide data into the Geo-Environment and Geo-Marketplace, enhancing the overall benefit to all customers and partners and minimising the level of duplicate production across the Defence geospatial enterprise.

Scope

Through the implementation of the Geo Strategy, DIGO will provide access to GEOINT and GI through a services-based model. This Strategy is focused on internal DIGO activities, however as DIGO is tied to national and international partners, the implementation of the Geo Strategy will need to balance equities in those other areas.

Environment

Concurrent activities within Defence, the Australian and allied intelligence communities and whole-of-government provide DIGO with an environment ready for great change. This environment offers both opportunities and challenges for DIGO. While the scope and outcomes of these activities differ considerably, they are all underpinned by common tenants promoting coordination, interoperability, easy access and information sharing.

Geospatial data has become a fundamental input for many of the Defence systems. In 2007, in recognition of the need to coordinate GI as a fundamental enabler for Defence capability, the Deputy Secretary Intelligence & Security assumed the role of Coordinating Capability Manager for Defence Geospatial Information (DEFGRAM No. 13/2008). The Deputy Secretary delegated the daily responsibility for coordinating capability manager activities to Director DIGO. This role requires DIGO to exercise leadership on Defence geospatial issues. A consistent, clear and current strategy will ensure that critical GI and services continues to be available in the evolving environment. This coordination role provides DIGO with the opportunity to service not only Defence, but intelligence community and whole-of-government activities.

DIGO will move from a geospatial data owner philosophy to that of a data custodian and a facilitator in order to meet increasing demand from Defence and the intelligence community. This will allow GEOINT and GI services to be discovered, manipulated, brokered and retrieved by both existing and future customers. The demand for GEOINT and GI across Defence is increasing rapidly due to heightened customer awareness of the benefits and increase in the number of Defence systems requiring geospatial data. To realign and improve the provision of GEOINT and GI to customers, DIGO will leverage off current developments within the commercial sector to enable efficient exploitation, interrogation and adoption of emerging commercial technologies.

Two major Defence projects, JP2064 and JP2044, will soon be entering new phases. The focus of JP2064 Phase 3 is to provide Geospatial Information and Services (GI&S) that enable Defence personnel and systems to visualise, access, use and exploit GI. As the principal provider of GI within Defence, the success of JP2064 Phase 3 relies on the critical input of DIGO. DIGO will also need to fulfil its coordinating capability management responsibilities in its contribution to JP2064 Phase 3

by coordinating producer community support through forums like the Heads of Defence Geospatial Agencies (HoDGA). This will assist the geospatial community to meet the needs of the wider Defence and intelligence communities. The focus of JP2044 Phase 4 includes improving interconnectivity between DIGO systems and those of its international partners. As these partners move towards service based approaches DIGO will need to deliver like services.

Both JP2064 Phase 3 and JP2044 Phase 4 plan to implement Service Oriented Architectures. This Strategy will position DIGO to be able to contribute to these proposed new architectures.

The activities of a number of Defence working groups have emphasised the need for geospatial web services. In particular, the recommendations of the Defence Geospatial Visualisation Services Working Group include the promotion and development of geospatial web services. The increasing demand by customers for GEOINT and GI to be delivered in a variety of ways, highlights the need for change to DIGO's current practices. Other recommendations include the development and delivery of geospatial visualisation services to include the use of Open Geospatial Consortium (OGC) standards; initiation of a basic 2-D viewer functionality that can be further developed; and DSN deployment as the priority network.

This, as with many operational Defence activities, relies on a common operating picture to manage situational awareness. Web services will simultaneously support fixed architecture, deployed elements and a short notice-to-move capability.

DIGO has a number of important relationships requiring maintenance and improvement. These include relationships with Defence, the intelligence community, whole-of-government and international partners. Customers within these organisations have differing expectations of DIGO and of how DIGO will support their needs. This diversity of expectations provides DIGO with the challenge of being able to satisfy their differing requirements at the appropriate level.

Overview

The Way Forward

Five core elements, Governance, GEOINT & GI, Interoperability, Architecture, and Resources form the foundation of the Geo Strategy. The core elements will support DIGO in achieving higher level organisational, group and department strategic goals. Figure 1 depicts how the five core elements of the Geo Strategy relate to the DIGO strategic plan and the 2009 – 2010 strategic priorities.



Figure 1. DIGO Strategic Plan and DIGO Geo Strategy Core Elements

Overview

The role of Governance is to focus DIGO's attention and resources on improving how customers are supported through the Geo-Environment and Geo-Marketplace. GEOINT and GI is focused on DIGO's outputs and comprises foundation data production, imagery and geospatial analysis. The accessibility of GEOINT and GI is key to both the Geo-Environment and the Geo-Marketplace achieving interoperability. The Geo-Environment ensures the storage and management of GEOINT and GI. The Geo-Marketplace directly supports interoperability by: allowing customers to use traditional web pages; having GEOINT and GI pushed to them; and interacting with other Defence capabilities at the system level.

The core elements: Governance, Architecture and Resources are enablers for the Geo Strategy. Not only do they underpin GEOINT and GI but they also facilitate interoperability by promoting an environment in which the DIGO Geo Vision can be realised.

Figure 2 outlines the components that will contribute to the success of the Geo Strategy.

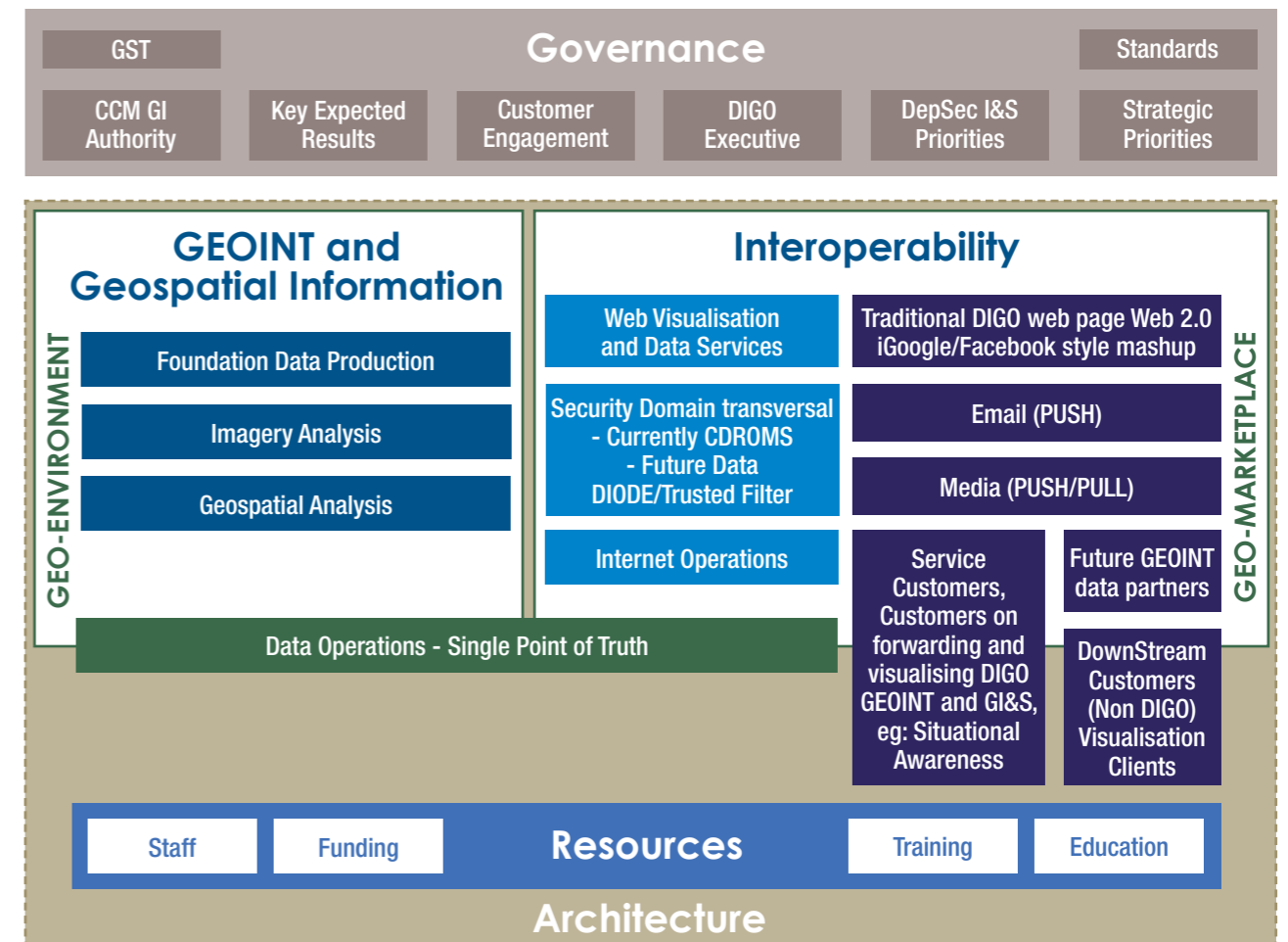


Figure 2: The DIGO Geo Strategy – Core Element Components

We Deliver Outstanding Outcomes

- We provide unique insights
- We provide timely, relevant, high quality products and services
- We are creative and resolute in addressing difficult challenges and hard targets
- We are a proactive and agile organisation

We Excel as a Team

- Our people are the foundation of our business
- We embrace diversity
- We support each other
- Our skills, motivation and leadership give us the edge

We Succeed Together

- Our customers' success is our success
- Partnerships give us global reach
- Collaboration and fusion are key to success
- Together we achieve better results

We Create Our Future

- Change is an adventure
- We push the boundaries of technology
- We engage with and manage risk
- We seize opportunities and make things happen



See the Unseen – Know the Unknown

Governance

Goal

Establish an effective governance framework that optimises the benefit of DIGO GEOINT and GI for customers.

Governance is an enabling core element of the Geo Strategy. Appropriate governance, with good leadership and direction, is essential to maintaining momentum and will provide the focus necessary to realise the Strategy's remaining core elements. Effective governance will ensure the coordination of all DIGO's activities necessary to deliver consolidated GEOINT and GI services for customers.

Corporately, the Geo Strategy will contribute to DIGO's and the intelligence group's strategic priorities and key expected results. Internally, an effective governance framework will bring together the GEOINT & GI, Interoperability, Architecture and Resource core elements of the Strategy to meet the Geo Vision. The role of Governance includes managing and promoting adherence to international standards and open architectures; discouraging proprietary solutions; encouraging industry; and coordination.

DIGO will establish an internal coordination body, the Geo Strategy Team (GST), to manage the process, priority and resource requirements necessary to implement the Geo Vision. Membership of the GST will come from across DIGO. The GST will ensure that DIGO GEOINT and GI are customer focused; appropriate resources are allocated; interoperability is achieved; and an agreed architecture is designed, implemented and supported. The GST will report to the DIGO Executive.

DIGO's role as the delegated CCM GI requires DIGO to provide direction and coordination on geospatial issues across Defence. This will necessitate the GST interacting with capability managers as part of DIGO's wider coordination role.

Action

- Establish the DIGO Geospatial Strategy Team which will:
 - Identify the options and resources and establish the priorities required to implement the Geo-Environment and the Geo-Marketplace.
 - Report on the implementation and progress to the DIGO Executive on a monthly basis.
- Enable the DIGO workforce to inform and educate customers as to the benefits of the Geo-Marketplace.
- Establish mechanisms to ensure coordination of relevant groups and forums e.g. Defence Geospatial Visualisation Services Working Group (DGVSWG).
- Develop supporting policy, business processes and a communication plan across DIGO to support the Geo Strategy's implementation.
- Comply with current standards and participate in their evolution to facilitate interoperability.
- Ensure activities are aligned with other Defence capability developments.

GEOINT and Geospatial Information

Goal

Ensure that GEOINT and GI is produced, stored and managed to support customer requirements.

GEOINT and GI consists of the foundation data, imagery and geospatial data that DIGO produces or provides for customers. This data and the accompanying systems comprise DIGO's Geo-Environment. The Geo-Environment, or the architectural "Back-end", forms the underlying basis, in terms of management and storage, for GEOINT and GI and the mechanism through which DIGO supports its customers.

The Geo-Environment will support the Geo-Marketplace, minimising the duplication of data handling and improving metadata processes. The Geo-Environment will be replicated across multiple security levels and will be scalable to meet the growing demands for data storage and an increasing user base. Pulling or viewing services from lower classification domains will be supported by the Geo-Environment.

Data will be collected, processed and managed in order to be available to internal and external customers. Metadata will be created for all data and products supporting search and discovery. GEOINT and GI will be managed so that a single search against consolidated data holdings can be performed by all customers to discover what they need. A single point of truth solution will be sustainable within existing resources.

DIGO's GEOINT and GI will remain focused on high priority issues as outlined by DIGO's GEOINT Priorities, however DIGO will move from a product focused production process to a data focused process. The intention is to produce, acquire and manage once for use by many. Under the Defence Spatial Standards Office and DIGO's coordination role, all production activities will conform to the endorsed standards. DIGO's customer engagement strategy and the customer services and planning group will coordinate DIGO's production focus to ensure it complies with wider Defence and intelligence community needs.

Action

- Make GEOINT and GI available to customers.
- Ensure data management is focused on a single point of truth solution so that one search can discover all available data.
- Develop and maintain production processes that adequately capture metadata in accordance with the standards defined by the Defence Spatial Standards Office.
- Develop a GEOINT database – to serve intelligence in a database form rather than static PDF reports.
- Develop a robust data management plan.

Interoperability



Goal

Provide GEOINT and GI services that can be readily discovered, accessed, viewed and reused for multiple purposes.

Interoperability is the main aim of the Geo Strategy. The future of GEOINT and GI is dependant on successful interaction between DIGO and its customers. DIGO's current practice of one-way delivery of tailored products needs to be supplemented with two-way information flows. Interoperability will be achieved in the Geo-Marketplace by enabling customers to discover and manipulate GEOINT and GI themselves. This will not just be a static service such as today's traditional product delivery (push/pull) but an interactive choice of data and intelligence products.

Interoperability is all about moving DIGO from a product centric organisation to a service provider that can support both traditional customers as well as other systems (eg. Situational Awareness and Command and Control) that need to interact with DIGO GEOINT and GI. This interoperability model acknowledges that interaction will occur not only within Defence but also across National and International environments. To achieve interoperability DIGO will adopt and recognise endorsed standards and formats as outlined by the Defence Spatial Standards Office. The Geo-Marketplace will also provide redundancy for services to customers while the look and feel will be consistent across security levels.

DIGO analytical output has a range of uses for a variety of customers. GEOINT and GI can support both intelligence and non-intelligence needs. The Geo-Marketplace will allow improved fusion of GEOINT and GI and will improve DIGO's ability to support its customers.

Web Mapping Services will form a major part of the Geo-Marketplace. These services are critical if DIGO is to meet the needs of customers and reduce the resource burdens caused by providing the same data to multiple customers via physical media. The provision of web services will support future Defence capabilities such as JP2064 Phase 3, Head Quarters Joint Operations Command operational planning tools, Defence estate asset management and the Defence Geospatial Visualisation Services Working Group recommendations.

While the Geo Strategy is focused on internal DIGO activities, the Unified GEOINT Operations construct provides an opportunity to leverage off partners. To this end DIGO will make its services available to international partners and make their services available to DIGO customers. Achieving interoperability will allow DIGO to operate systems without the need to hold multiple copies of data.

Action

- Make GEOINT and GI discoverable and accessible based on standards and agreed policy.
- Enable customers to value add to DIGO GEOINT and GI.
- Provide search mechanisms to allow interrogation of decentralised data storage.
- Develop DIGO's web presence:
 - Enhance DIGO's web presence through improved functionality.
 - Provide customers with web map services to view DIGO GEOINT and GI.
- Promote interoperability specifications and technologies through pilot studies.
- Continuously adapt and develop services in accordance with formal and informal customer feedback.



Architecture

Goal

Create an overarching architecture that supports and sustains the DIGO Geo-Environment and Geo-Marketplace.

Architecture in the context of the Geo Strategy does not just refer to the physical system; instead it encompasses all the contributing elements that enable the Geo-Environment and Geo-Marketplace to reach their potential. Architecture defines the entire environment from how governance directs which standards to use, through to how GEOINT and GI are managed and made interoperable with customers. It also includes the resources in terms of people, systems and budget required to achieve it all.

Information and Communication Technology systems form the cornerstone of the DIGO Geo Strategy. These systems need to provide integrated, sustainable solutions that allow continued production of current GEOINT and GI services in a manner that is sufficiently flexible to enable innovation and continuous evolution. Tracking trends and usage as well as performance characteristics for both internal users and customers is critical to improving the delivery of services for customers.

To minimise the duplication of effort, trusted gateways and filters that replicate the Geo-Marketplace services from lower classification levels to higher levels will be used. The architecture will be able to evolve with minimal manual interaction while still meeting both security requirements and the needs of customers; internal, external and deployed.

DIGO will initially focus its efforts on the delivery of systems and services to the Defence Secret Network. Once a level of maturity is established there, the services will be migrated for use on other Defence and partner networks.

DIGO will engage key Defence stakeholders including the Chief Information Officer Group, Capability Development Group, Defence Material Organisation and the Australian Intelligence Community to collaboratively work on improving the integration of the Geo-Marketplace and the Geo-Environment.

In addition to systems, DIGO will develop business practices to support the Geo Strategy. These will be aimed at ensuring the system works holistically to contribute to the DIGO Geo Vision.

Action

- Develop a redundant services based architecture that supports the Geo-Environment and Geo-Marketplace.
- Enable a Geo-Environment and Geo-Marketplace that reduces resource burdens and data duplication.
- Develop business process and system controls that support the production of metadata.
- Engage with key stakeholders to support the evolution of the Geo-Marketplace and the Geo-Environment that supports it.
- Develop internal business processes that support the intent of the Geo Strategy.

Resources

Goal

To achieve the Geo-Environment and Geo-Marketplace, resources will be reallocated to priority activities.

Skilled people are essential to the successful implementation of the Geo Strategy and DIGO must ensure its staff are suitably equipped to undertake specialised roles and responsibilities. In particular the requirement for a well resourced and robust web development capability has never been higher. DIGO will focus on developing the technical skills required to make the Geo-Environment and Geo-Marketplace a success and also the skills that enable change management and new ways of doing business.

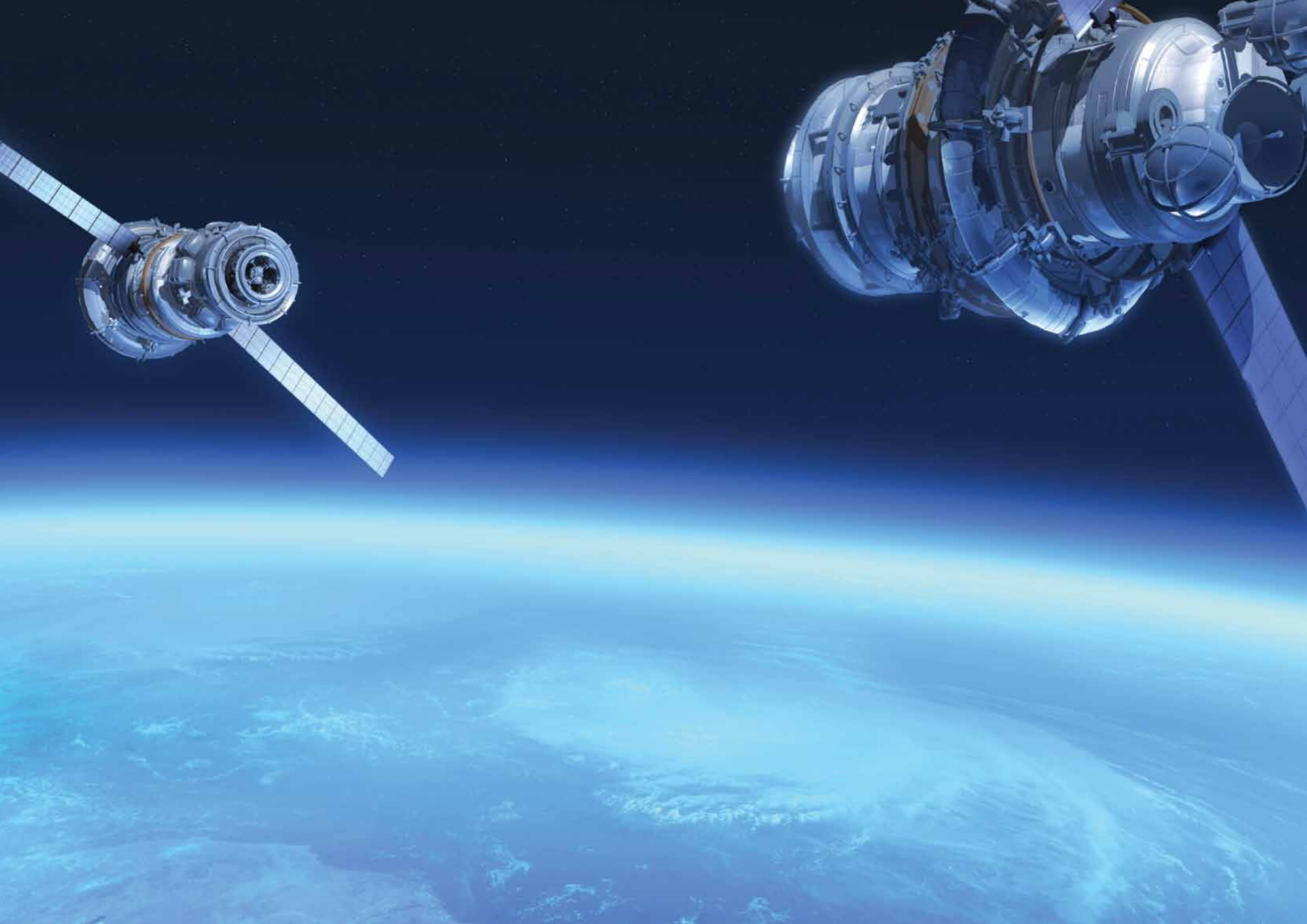
The integration of current dissemination processes into web services will improve DIGO support to customers. Improvements to business practice will provide benefits in recruitment and retention of DIGO staff.

Adequate internal process will need to be established to ensure effective management of resources. DIGO will coordinate with similar Defence projects to ensure duplication does not occur and to maximise synergies between various organisations.

The reallocation of internal personnel and financial resources will be required to support the Geo Strategy implementation and effort will need to be devoted to communicating and managing change in the workplace. As improvements to business process reduce the time staff spend undertaking their current roles, opportunities will present themselves to investigate new business possibilities.

Action

- Allocate staff and resources required to undertake actions identified by the GST.
- Adopt training to reflect our changing business.
- Develop costing in both dollars and people for proposed changes to capability.
- Raise awareness to the importance of metadata through training.
- Support staff through the ongoing organisational changes.





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