

Attachment I Net-Centricity, the Global Information Grid (GIG) and the Net-Centric Data Strategy

This section will provide an overview of the Data Strategy developed by the Department of Defense (DoD) in support of the GIG and Net-Centricity. The DoD Net-Centric Data Strategy dated May 9, 2003 has been used as the basis for this section.

Net-Centricity is the realization of a networked environment, including infrastructure, systems, processes, and people, that enables a new approach to warfighting and business operations. The foundation for Net-Centricity is the Department's Global Information Grid (GIG). The GIG is the globally interconnected, end-to-end set of information capabilities, associated processes, and personnel for collecting, processing, storing, disseminating, and managing information on demand to warfighters, defense policymakers, and support personnel. Net-Centricity, by securely interconnecting people and systems independent of time and location, supports a substantially improved military situational awareness, better access to business information, dramatically shortened decision cycles and dependable and effective decision-making. Users are empowered to better protect assets, more effectively exploit information, more efficiently use resources, and create extended, collaborative communities to focus on the mission. Figure 12 depicts the GIG Enterprise Architecture.

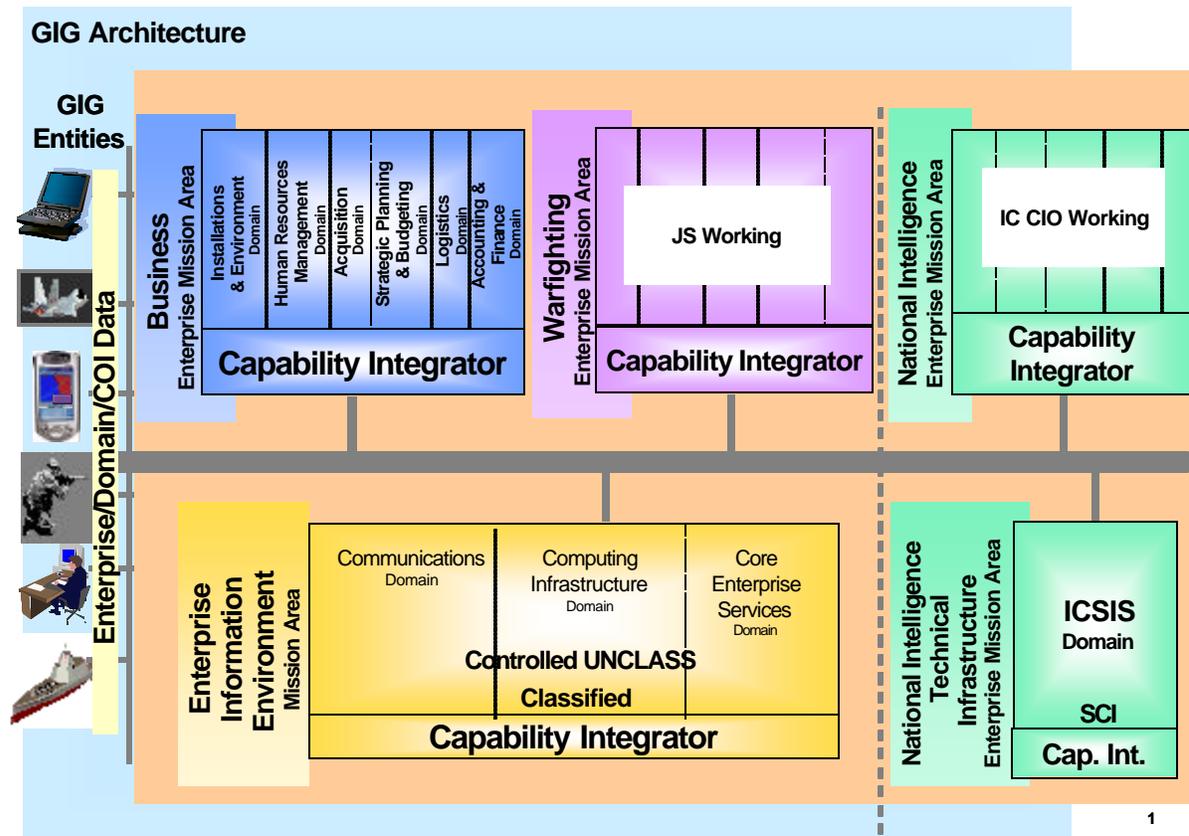


Figure 1: GIG Enterprise Architecture (Graphic originally included in the DoD CIO Memorandum dated 9 May 2003, DoD Net-Centric Data Strategy)

The approach to implementing the GIG uses communications, computing, and applications technologies and also recognizes that the cultural barriers against trust and data sharing must be addressed. To this end, the Department is using a comprehensive, integrated approach to deliver the foundation for Net-Centricity. This approach combines the overall Net-Centric Data Strategy and an Information Assurance (IA) strategy with the implementation of the layers of the GIG as indicated in Figure 13.



Figure 2: Integrated Approach for Delivering a Net-Centric Environment (Graphic originally included in the DoD CIO Memorandum dated 9 May 2003, DoD Net-Centric Data Strategy)

The traditional DoD approach to data has been data administration. That approach attempted to standardize and control data elements, definitions, and structures across the Enterprise, requiring consensus among and across organizations. Data administration was intended to promote interoperability through standardization of data elements, minimize duplication of data elements across the Department, and reduce the need for data element translation. However, this traditional approach, focused on standardizing data elements, has proved to be too cumbersome to implement across an enterprise of the scope of the Department.

This Net-Centric Data Strategy defines a modified paradigm for data management within the Department. This Strategy expands the focus to visibility and accessibility of data rather than just standardization. It also recognizes the need for data to be visible and usable for unanticipated users and applications, as well as for those that have been predefined. The Strategy identifies approaches that will improve flexibility in data exchange, supporting interoperability between systems without requiring predefined,

pair-wise interfaces between them. This flexibility will be essential in the “many-to-many” exchanges of a Net-Centric environment. The objective in a Net-Centric environment is to increase the potential for many other systems to leverage the same data without having to anticipate this use in the development cycle. In an environment in which systems are continually being developed, deployed, migrated, and replaced, making allowances for unanticipated interfaces is essential. The goals of the Net-Centric Data Strategy are:

- **Make data visible:** Users and applications can discover the existence of data assets through catalogs, registries, and other search services. Data Assets can be intelligence, non-intelligence, raw, and processed, and are advertised or “made visible” by providing metadata, which describing the asset.
- **Make data accessible:** Users and applications post data to a “shared space.” Posting data implies that (1) descriptive information about the asset (metadata) has been provided to a catalog that is visible to the Enterprise and (2) the data is stored such that users and applications in the Enterprise can access it. Data assets are made available to any user or application except when limited by policy, regulation, or security.
- **Institutionalize data management:** Data approaches are incorporated into Department processes and practices. The benefits of Enterprise and community data are recognized throughout the Department.
- **Enable understandable data:** Users and applications can comprehend the data, both structurally and semantically, and readily determine how the data may be used for their specific needs.
- **Enable trusted data:** Users and applications can determine and assess the authority of the source because the pedigree, security level, and access control level of each data asset is known and available.
- **Support data interoperability:** Many-to-many exchanges of data occur between systems through interfaces that are sometimes predefined or sometimes unanticipated. Metadata is available to allow mediation or translation of data between interfaces, as needed.
- **Respond to user needs:** Perspectives of users, whether data consumers or data producers, are incorporated into data approaches via continual feedback to ensure satisfaction.

The core of the Net-Centric environment is the data that enables effective decisions. In this context, data implies all data assets such as system files, databases, documents, official electronic records, images, audio files, web sites, and data access services. One

of the Chief Information Officer (CIO) goals, as confirmed by the Deputy Secretary of Defense in Management Initiative Decision 905¹, is to populate the network with all data, and change the paradigm from “process, exploit, and disseminate” to “post before processing.” All data is advertised and available for users and applications when and where they need it.

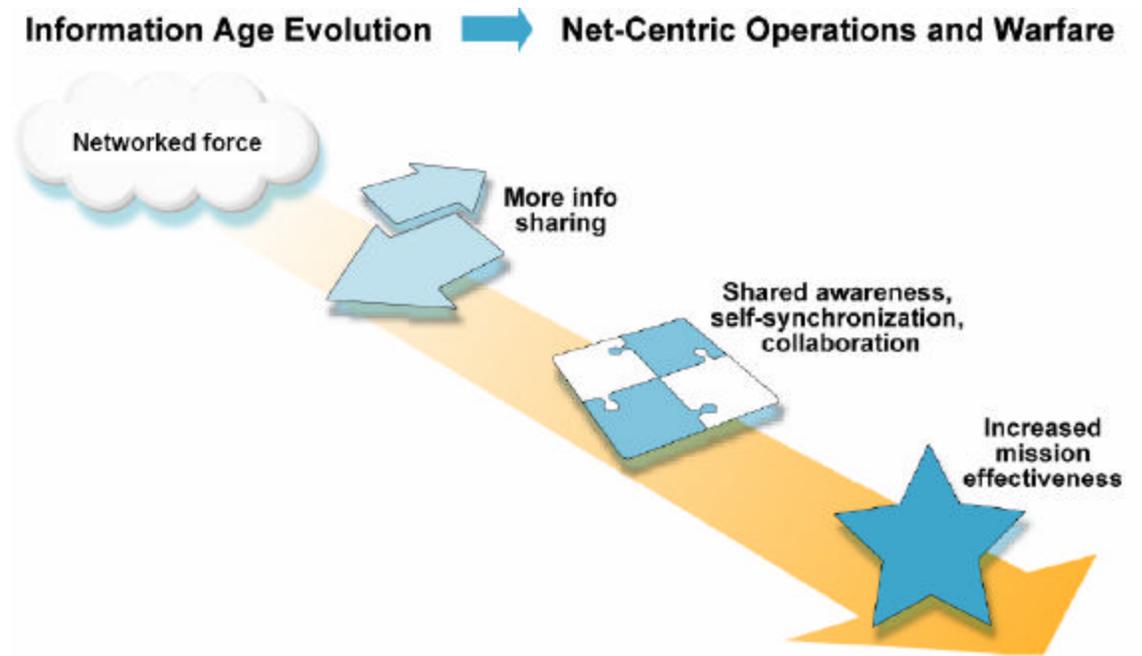


Figure 3: Net-Centricity is the enabler that will empower users to discover, access, integrate and fuse data to meet mission objectives (Graphic originally included in the DoD CIO Memorandum dated 9 May 2003, DoD Net-Centric Data Strategy)

In this environment, users and applications search for and “pull” data as needed. Alternatively, users receive alerts when data to which they have subscribed is updated or changed, i.e. publish and subscribe. Authorized users and applications have immediate access to data posted to the network without processing, exploitation, and dissemination delays. Users and applications “tag” data assets with metadata to enable discovery of data. Users and applications post all data assets to “shared” space for use by the Enterprise.

This data vision is predicated on several key elements:

- COIs to address organization and maintenance of data

1. ¹ Management Initiative Decision 905, Net-Centric Business Transformation and eGovernment, December 24, 2002, p. 4.

- Metadata, which provides a way to describe data assets and the use of registries, catalogs, and shared spaces, which are mechanisms to store data and information about data
- GIG Enterprise Services that enable data tagging, sharing, searching, and retrieving