Enabling the University
CIO Strategic Plan
2013-2018

"NDU will create exceptional and innovative solutions and services that enable advanced joint education, leadership and scholarship"
(NDU Strategic Plan Goal 3)

The CIO Strategic Plan is nested within the NDU Strategic through Goal 3. The thrust of the CIO mission is to enable the mission of the university. This document establishes the vision and mission of the CIO and further describes a proposed implementation plan for the FY2013 to FY2018 time period. The CIO's vision for the technical traits of the university enables the missions of the various colleges and research components of the university and directly enables the JPME mission of the university.

Vision for 2020

A learning organization <u>connected</u> to a suite of <u>cloud</u> services that enable <u>collaborative</u> educational and business processes in an <u>assured</u> information environment.

Mission

The CIO's mission is to provide a suite of integrated tools that <u>ENABLE</u>: effective collaboration; access to the right information; in an assured environment; to the correct people; in the correct form; in a timely fashion.

NDU is a continuous learning organization using a suite of tools to enable collaboration, education, organizational practices and business processes through the integrated and synchronized use of information technology.

NDU students, faculty, and staff are connected by a suite of cloud-based integrated information technology tools that enables effective collaboration, provides access to the right information in an assured environment, to the correct people, in the correct form, and in a timely fashion.

Cloud **Connected** **Collaborative** **Assured**

Cloud: provides ubiquitous, convenient, on-demand network access to a shared pool of configurable computing resources (e.g., networks, servers, storage, applications and services) that can be rapidly provisioned and released, resulting in efficiency and economies of scale.

Connected: real-time connectivity and spontaneous communication among internal and external partners and audiences with appropriate bandwidth and device independence; linking together organizations, campuses, students, faculty and staff.

Collaborative: students, faculty and staff work together efficiently and concurrently in real-time within a common contextual environment using an integrated tool set that is both flexible and intuitive.

Assured: reliability of the information stored, processed and transported via the network achieved through a balanced approach to security, including access, risk management and information assurance, and the need for ubiquity and convenience. This concept also includes the funding aspects of the information infrastructure by ensuring that the components systems and equipment are properly resourced.

Realizing the Vision

NDU has four primary populations that are supported by its information technology infrastructure: students, faculty, staff and external audiences. Students and faculty are supported with educational, research, library and administrative services. The staff is primarily supported by systems that provide efficient processes and opportunities for collaboration. In addition, external audiences require access to NDU resources via an effective web-based presence.

Education services provided by NDU produce agile and adaptive leaders for DoD, other U.S. Government agencies, industry and foreign military services. These leaders must be knowledgeable in warfare in all domains, including the cyber domain. Increasingly ubiquitous information technology will drive an expectation for instant awareness and continuous connectivity that has the potential to fundamentally change how decisions are made at all levels, especially at the highest levels. Additionally, the infusion of social media into our societies is creating levels of decision-making complexity that cannot be underestimated. Leaders are expected to thrive in that environment, and NDU plays a key role in developing their abilities to succeed in an increasingly information-centric world. Moreover, students and faculty must be comfortable with whatever "comes next" and must be able to effectively exploit, integrate, and manage devices, programs, and processes yet to be conceived. (Extracted from the *NDU Strategic Plan*, p. 6.)

The IT environment supports distributed, collaborative and mobile teaching and learning that supplements and builds upon the experiences and perspectives of students. It exposes students to use of 21st century technology and allows students to create their own personal lifelong learning information environment that continues well after graduation. As stated in the Chairman's Joint Education White Paper,

> "The members of our profession have been raised in an interconnected, "e-savvy" world where the sharing of information is automatic and nearly instantaneous. This generation absorbs and diffuses information rapidly and in

> different ways than preceding ones. Coupled with their high
> levels of operational experience is the desire to actively
> participate in their own education as life-long learners.
> Collaborative, context-based problem-solving events will have
> great appeal and consequently greater effect in achieving
> educational outcomes.   Joint educational approaches must
> adapt to stay relevant to how students learn best, while
> balancing "tried and true methods" and new techniques."
> (CJCS Joint Education White Paper, 16 July 2012)

Faculty will be able to use devices of their choice to access coordinated educational and administrative support systems from any location. Faculty innovation and improvement of educational processes will be supported by a reliable and agile network and policies that encourage experimentation.

Information is the foundation of knowledge and is powerful only when it is shared. NDU has many effective repositories of information and knowledge throughout the University; sharing this information across NDU's mission areas and supporting functions will reduce decision cycle times and close information gaps at the enterprise level. As the University and JPME evolve, access to Library services and resources also needs to evolve. 'One Virtual Library' will provide a common interface that delivers library resources and services to students and faculty at any location.   The scalable model could be used to extend library resources and services along the JPME continuum to provide support for active duty members as they continue with life-long learning.

Researchers will engage in global partnerships and knowledge sharing to publish and post timely, relevant, and focused assessments of cutting-edge national security issues to inform and enrich the debate among students and faculty, national security decision makers, and the public. Collaborative research and applied learning relationships will strengthen interagency foresight and incorporate integrated gaming into the teaching component of NDU.

Transformation of the business processes of NDU will be enabled using collaborative tools and integrated cloud-based common services for human resource management; budget, finance and accounting; procurement; logistics; asset management; etc. Faculty, staff and students will have access to the suite of tools they need to perform conduct self-service activities from any location, on a variety of devices, at any time. Internal and external communication will take full advantage of the evolving social media and web services.

Implementing the Strategy

The CIO implementation strategy focuses on configuration management as the key to enabling NDU organizational goals and operations, providing cloud, connected, collaborative and assured services to the NDU community of users.

The primary functions of Office of the CIO (OCIO) will be to ensure the availability of the suite of cloud-based tools to support the educational, research and business processes of NDU, and to ensure the systems are governable, usable, updatable and monitorable (GU^2M). This will be accomplished using a strong and effective configuration management program. As services are moved to the cloud, the OCIO will fulfill a strategic role in providing systems analysis and project management to locate, contract for, and oversee delivery and

| Governable |
| Usable |
| Updatable |
| Monitorable |

integration of the required services. Information assurance will continue to be a key responsibility of the OCIO. Direct user support will include helpdesk services and on-site support for hardware and software, as well as training on the use of the suite of tools to enhance teaching and learning and to support transformation of the enterprise. The CIO organization will evolve from focusing on the tactical environment, to managing the overall operational infrastructure, to taking a much more strategic focus for NDU. IT support is currently provided by staff and contractors located at the McNair and JFSC campuses, supplemented by Information Management Officers (IMOs) in several of the component organizations. As the CIO organization implements the "One University" model, the IT staff will be combined and consolidated, and duplication of services will be eliminated. As a single network environment (enclave) is established, the CIO will focus on enhanced visibility of the operational environment. Ability to react to user requirements will be improved through the configuration management program, which allows for flexibility and agility. Planning for integration of additional services will be centralized, while implementation and use of those services will be decentralized to faculty, students and staff.

As NDU upgrades its connectivity and completes its transition to cloud services, configuration management and security of the information environment will be enhanced. The entire information technology infrastructure will be governable, usable, updateable and monitorable. Such an infrastructure requires basic compliance on the part of the network service providers as well as the users of the network, based on governing policies. The network itself must comply with federal, DoD and industry standards in order to be monitored and updated on a regular basis. Finally, in order to be usable, the infrastructure must follow the governing policies to ensure it is up to date and can be monitored. Legacy systems will gradually be replaced by systems and services provided outside of NDU, such as DoD systems for financial and human resource management. Access to these systems will be facilitated and coordinated, simplifying the use of multiple externally-supported systems and providing a bridge between the academic and business environments for students, faculty and staff.

All users own some of the responsibility to effectively operate and use the network. This concept is inherent to this strategy. As tools and capabilities are made available, users will assume more responsibility for their use of information technology, including the protection of NDU's information. This concept relies on improved training and education to ensure that users understand the systems that they are charged with operating responsibly. Training will be coordinated and provided through the OCIO for new systems and the integrated operation of existing systems. Faculty, students and staff

will be responsible for learning how to use the tools appropriately and meeting the standards put in place by NDU.

One such suite of tools will be those put in place to manage content on the web to support student/faculty collaboration, business process improvement, curriculum delivery, etc. The CIO will establish an effective operating capability for managing web content for the internet, the NDU Intranet, and the DoD Intranet (including access to DoD systems, and NIPR and SIPR access). As a military institution, NDU requires secure access to DoD systems for some of its functions. Access to NIPR and SIPR networks will be provided for those members of NDU who require it through use of a "thin client" that restricts data from residing locally. As such services become available through DoD service providers, they will be made available to the NDU user community.

To support the mission and achieve the vision, increased investments will be required initially, but over time, the cost per user will decrease. Costs will be shifted from covering internally provided services to externally provided services where NDU can take advantage of economies of scale and receive improved IT services.

Measuring Progress

To realize the IT vision, the NDU Strategic Plan establishes a single, comprehensive goal with sub-strategic goals and objectives. There are two sub-strategic goals that apply directly to the IT mission. For each sub goal there are objectives that must be met in order to attain the goal. Finally, the strategies and outcomes necessary to achieve the goals and objectives are shown. Operationally, resource requirements and project plans/schedules will be developed. Metrics to measure progress will be defined and reported on using a balanced scorecard.

NDU Strategic Plan Goal 3

NDU will create exceptional and innovative solutions and services that enable advanced joint education, leadership and scholarship.

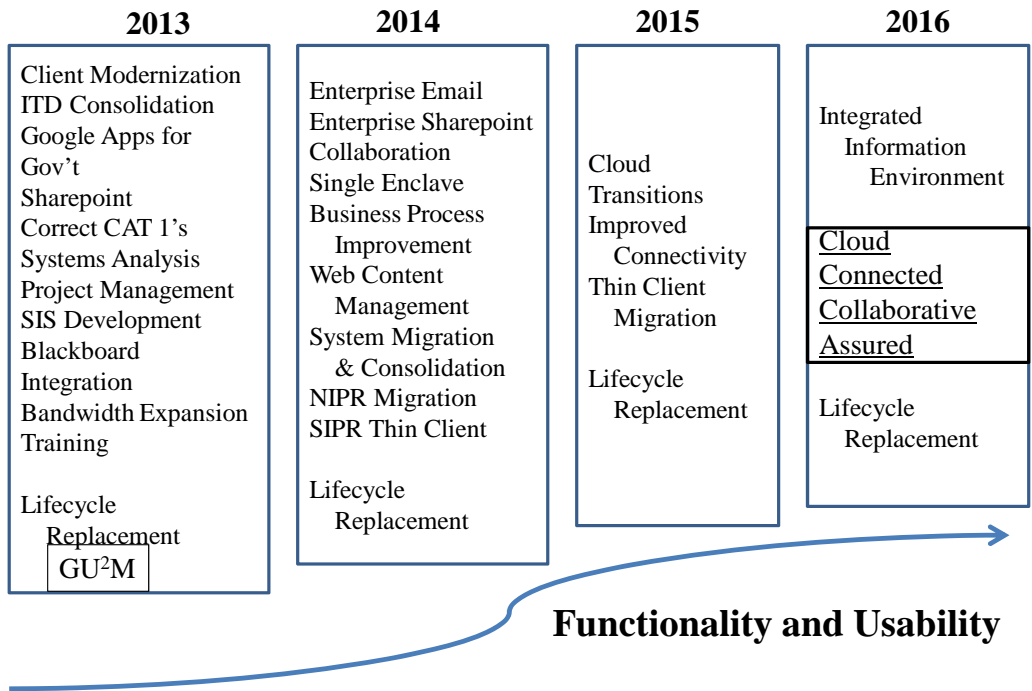| Sub-Strategic Goals	Objectives
National Defense University's information and educational technology resources systems are integrated, robust, accessible, and enterprise-wide.	NDU will establish and maintain a robust, scalable, flexible and secure information and technology infrastructure. (IT)
	NDU will establish, maintain, create and innovate dynamic, robust, scalable, and flexible education technologies. (ET)
National Defense University's library and information resources are integrated, robust, accessible and	NDU will create, maintain and innovate a dynamic virtual library and information resources system.

enterprise-wide.	NDU will create, maintain and innovate dynamic information literacy programs that support faculty, staff, students, and alumni.

Strategies	Outcomes
Develop and implement an enterprise information and technology resources strategic plan.	1. IT Strategic Plan developed
Assured: Ensure the reliability of the information stored, processed and transported via the network achieved through a balanced approach to security, including access, risk management and configuration control.	1. Develop and Execute Configuration Management Program 2. Enforce IA standards and implement compliant Network 3. Ensure Network is Governable, Usable, Updateable, Monitorable 4. Implement training plan that ensures all users have skills to effectively use the new technologies.
Cloud: Provide ubiquitous, convenient, on-demand network access to a shared pool of configurable computing resources (e.g., networks, servers, storage, applications and services) that can be rapidly provisioned and released, resulting in efficiency and economies of scale.	1. Manage Number of servers 2. Find economies of scale
Connected: Foster real-time connectivity and spontaneous communication among internal and external partners and audiences with appropriate bandwidth and device independence; linking together organizations, campuses, students, faculty and staff.	1. Increase access to University resources through use of mobile technology. 2. Implement a single enclave computing environment. 3. Maintain connection to students, faculty and alumni through modern library and alumni relations technology.
Collaborative: Develop environment where students, faculty and staff work together efficiently and concurrently in real-time within a common contextual environment using an integrated tool set that is both flexible and intuitive.	1. Implement collaborative computing environment in the internet and intranet domains. 2. Develop exercise support tools. 3. Increase distance learning capabilities.

Execution Plan

The strategies and objectives will be implemented on a proposed timeline as illustrated below. Progress toward each outcome supporting the strategies will be documented in a balanced scorecard and reported periodically.

Notional Execution Plan

2013	**2014**	**2015**	**2016**
Client Modernization ITD Consolidation Google Apps for Gov't Sharepoint Correct CAT 1's Systems Analysis Project Management SIS Development Blackboard Integration Bandwidth Expansion Training Lifecycle Replacement GU^{2}M	Enterprise Email Enterprise Sharepoint Collaboration Single Enclave Business Process Improvement Web Content Management System Migration & Consolidation NIPR Migration SIPR Thin Client Lifecycle Replacement	Cloud Transitions Improved Connectivity Thin Client Migration Lifecycle Replacement	Integrated Information Environment Cloud Connected Collaborative Assured Lifecycle Replacement

Functionality and Usability

As of this writing, the NDU is making progress on these objectives. NDU is moving to an environment of cloud, connected, collaborative and assured services. Cloud services are already being provided through student use of Google Applications and email. Wireless connectivity has been implemented to enable connectivity for student-owned devices. The Sharepoint implementation has begun to enable collaboration. And, information assurance issues continue to be addressed. While all of these modernization activities are underway, NDU must simultaneously address the fundamental steps of ensuring an environment that is governable, usable, updatable, and monitorable in order to provide the solid foundation upon which future services can be delivered. Major activities in that direction are also underway and will be the focus for FY2013. As necessary, they will be continued into 2014.