Hanford Information Resource Management

Strategic Plan

Fluor Hanford

LOCKHEED MARTIN

IRM Strategic Planning

Partnering for Performance…

Keith Klein, Manager, DOE – Richland Operations Office

"The amount of information generated is increasing dramatically, and keeping useful, timely information in the hands of decision makers is vital to successful mission accomplishment…The objective is to provide timely information of a type and content sufficient to promote effective decision making."

Harry Boston, Manager, DOE Office of River Protection

" The cleanup of Hanford continues to be a challenging mission. A strategically focused information management and technology program is essential for creating a strong foundation for continued success in the cleanup of Hanford."

*Bob Rosselli, Deputy Manager for Business Services, DOE-RL*

"Information is one of our strategic assets. As we advance the ball on cleanup, we need to manage and utilize this asset better than ever before. Accordingly, we need to apply the principles of knowledge management, technology relevance and cost leveraging to our IRM services at Hanford. Armed with a new IRM strategic plan, Hanford can and will support the cleanup challenges for our 2012 vision."

Darrell Graddy, Vice President and General Manager, Lockheed Martin Services, Inc.

"This collaborative IRM Strategic Plan is the foundation for integrating and innovating IRM systems and services that will maximize cost efficiencies, further enhance service quality and above all, support the achievement of DOE's Hanford 2012 vision."

Steve Manley, Chief Information Officer, Fluor Hanford

"In the future the delivery of Hanford IRM services will be re-structured using best commercial practices for IRM service delivery, resulting in a better quality of service at or below commercially benchmarked rates."

Ron Nelson, Chief Information Officer, CHG
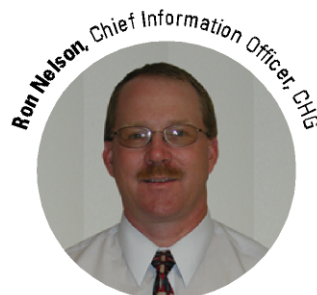
" Systems that deliver accurate and reliable information anytime, anywhere, will remove site geography as a constraint to work performance. Such systems will only result from innovative process improvements supported by the infusion of appropriate technology."

Contents

This document can be viewed at http://apweb04.rl.gov/irms/irms

Executive Summary

The Hanford Information Resource Management (IRM) Strategic Plan will be the foundation for IRM activities at the Hanford Site for the next ten years. The plan presents a clear path forward to enable the U.S. Department of Energy and its contractors to achieve the Site missions through integration and coordination of IRM activities. The IRM Strategic Plan focuses on

The Road to The Hanford Vision
Paved with IRM Strategies

the alignment and achievement of the Hanford Site mission as defined by the Richland Operations Office and the Office of River Protection. The overall Hanford Site mission is to clean up the Site, provide scientific knowledge and technology, and partner in the economic diversification of the region.

The Richland Operations Office environmental mission is ". . . cleaning up the Site while safely managing its legacy waste." This mission has led to a management approach that is focused on three distinct strategic outcomes:

- Restore the River Corridor
- Transition the Central Plateau
- Prepare for the Future.

The Office of River Protection's mission is "To build and operate the waste treatment complex to complete the cleanup of Hanford's highly radioactive tank waste."

Through the end of this decade, the Site's cleanup, technology development, and scientific research activities will create a massive expansion of onsite data, and there will be increasing pressure to effectively manage more information as characterization and waste remediation activities mature. These new demands come with the challenges of increasing productivity, reducing life-cycle costs, and changing business philosophies. Additionally, the dramatic growth in the Internet, the power of computing devices, and mobile technology present opportunities for future success by applying innovative business processes and enabling information technology.

The Hanford IRM vision as presented in the IRM Strategic Plan addresses these specific issues and is aligned with and supports the overall Hanford Site mission.

The vision will be achieved through the realization of the following strategic outcomes.

Vision

Enable the successful execution of Hanford's mission by providing information management and technology that add value to Site processes while securely delivering and protecting information of a known quality in a usable form to the people who need it, where they need it, and when they need it.

- Provide innovative solutions that meet customer needs at the best possible price.

- Divest Site assets and procure equipment and services on the market to retain technology relevance and achieve a reduction in the infrastructure mortgage.

- Commit to knowledge management by translating volumes of data into information and eliminating redundant databases.

- Expand the availability, in both quantity and ease of access, of data in the field.

- Get needed information to the decision maker at the time when a decision needs to be made.

- Use information technology to enable efficient, safe operations that are compliant with the regulations.

- Leverage IRM capabilities over a broader customer base to maximize economic return and efficiency.

- Improve partnering with customers and suppliers.
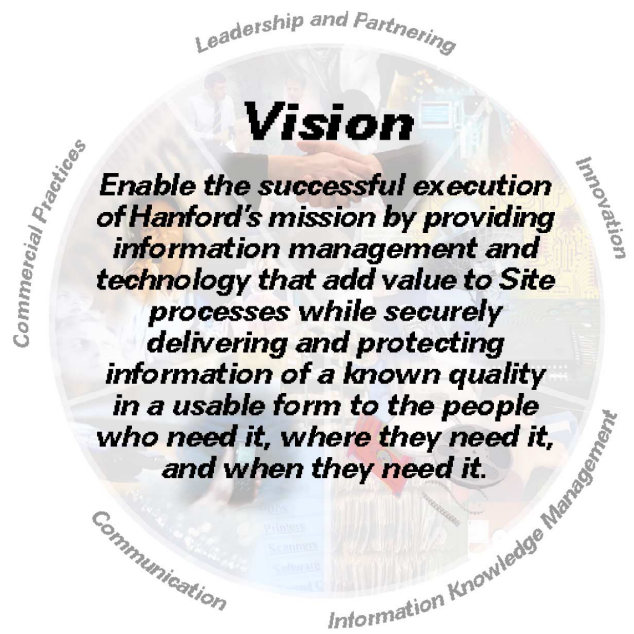
The path forward to mission success is built on the implementation and achievement of five key strategic goals. Each goal is supported by a series of strategies.

Goal Areas	Goals
Information Knowledge Management	**Deliver quality information through innovative tools and processes to manage and leverage the growing volume of project data.**
Leadership and Partnering	**Provide value to the Hanford Site through information-management leadership, expertise, and being an integral part of the Hanford Site team.**
Innovation Assessment and Planning	**Define and implement collaborative management processes and systems to align site needs with existing and emerging technologies, and foster the development of innovative solutions.**
Communication (Voice, Data, Video)	**Provide the services required to meet the communication requirements (voice, data, and video) of Hanford in a flexible, scalable, reliable, and secure manner.**
Commercial Practices	**Emphasize the use of commercial practices in all aspects of IRM service delivery**

The development of the IRM Strategic Plan was a collaborative and inclusive process that involved the key stakeholders and constituencies of the Hanford Site. Representatives from the U.S. Department of Energy; Fluor Hanford, Inc. and its contractors; CH2MHILL Hanford Group, Inc.; Lockheed Martin Services, Incorporated; and Lockheed Martin Enterprise Information Systems all made valuable contributions to the IRM Strategic Plan. The plan draws upon Hanford mission requirements, the Richland Operations Office Strategic Plan, and various planning and guidance documents from U.S. Department of Energy Headquarters. This ten-year plan will be supplemented by a five-year Long-Range Operating Plan to be produced by March 2002. The Long-Range Operating Plan, analogous to Hanford multiyear work plans, will serve as the basis for developing annual work scopes, the first to be implemented in fiscal year 2003.

Vision

The Hanford Information Resource Management (IRM) vision must align itself with the needs of the Hanford Site, which are expressed in the mission statements of the U.S. Department of Energy (DOE) Richland Operations Office (RL) and the DOE Office of River Protection (ORP).

The RL environmental mission is "...cleaning up the Site while safely managing its legacy waste." This mission has led to a management approach that is focused on three distinct strategic outcomes:

- Restore the River Corridor
- Transition the Central Plateau
- Prepare for the Future.

The ORP mission is "To build and operate the waste treatment complex to complete the cleanup of Hanford's highly radioactive tank waste."

Combined, these two missions form the Hanford Site mission. In turn, the IRM vision supports the Hanford Site mission:

IRM Vision

Enable the successful execution of Hanford's mission by providing information management and technology that add value to Site processes while securely delivering and protecting information of a known quality in a usable form to the people who need it, where they need it, and when they need it.
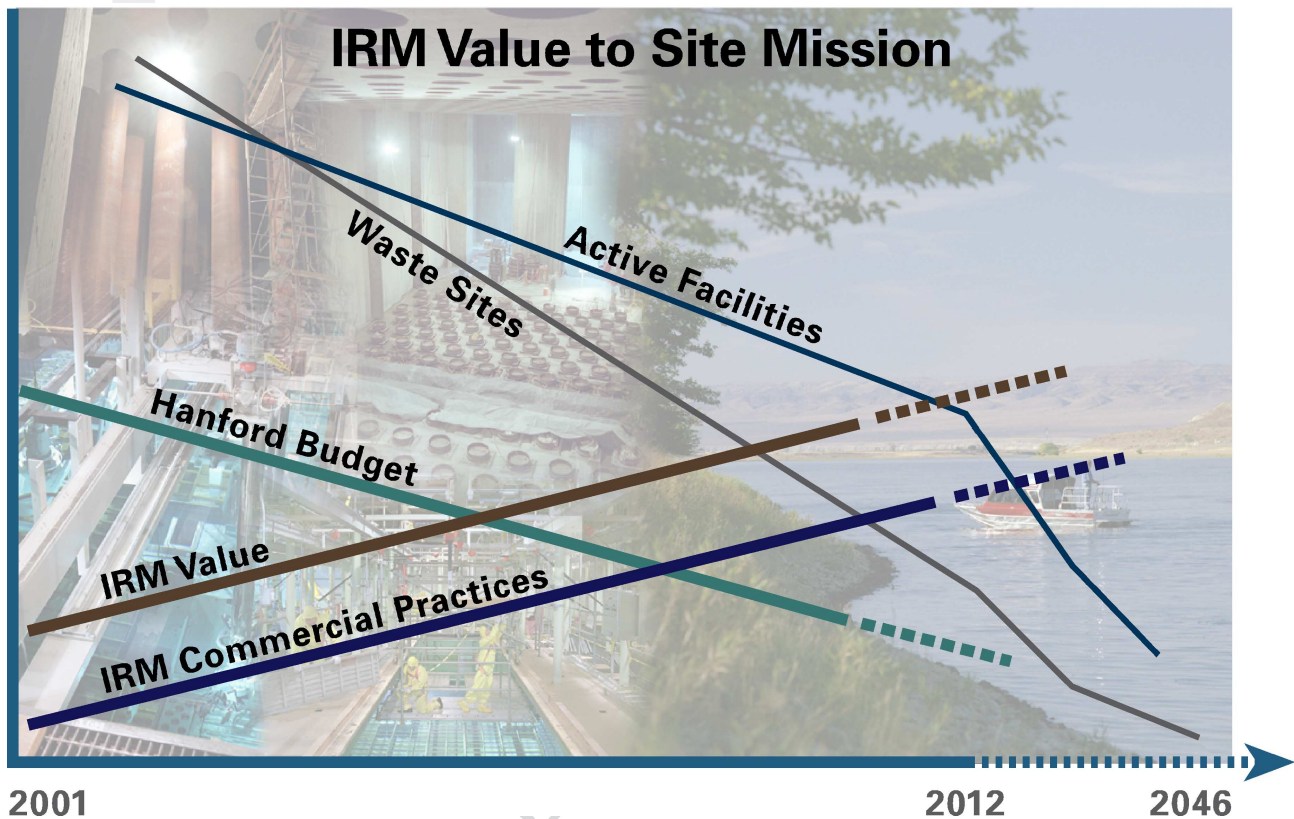
Purpose

The IRM Strategic Plan (Strategic Plan) describes the vision for Hanford's IRM future, the guiding principles to be used in all IRM activities and processes, specific IRM goals to be accomplished, and the strategies to be used.

As the foundation for long-range IRM operations and support, the Strategic Plan is based on requirements, needs, and guidelines from various sources. The Strategic Plan implements Hanford's IRM needs, including those derived from the Richland Operations Office Strategic Plan, the *Hanford 2012: Accelerating Cleanup and Shrinking the Site* plan, and the U.S. Department of Energy (DOE) - Headquarters (HQ) strategic plans for information management; interviews with contractor and DOE management; and a view toward leveraging emerging technologies and commercial business practices.

Scope

The Strategic Plan is a foundation for IRM activities at the Hanford Site for the next ten years. IRM activities include information and technology leadership and the operation of hardware, software, and communication infrastructures. The goals and strategies are designed to enhance IRM partnering and leadership. These will help DOE and the Site contractors achieve the Site mission through interaction and coordination of IRM activities and working with Site planned operations technologies.

IRM Value to Site Mission

Waste Sites

Active Facilities

Hanford Budget

IRM Value

IRM Commercial Practices

2001   2012   2046

IRM Value Increases as the Site Transitions to the Future.

Current Situation

An assessment of the current situation was conducted to identify critical issues, opportunities, and challenges to accomplishing the Hanford mission. Key stakeholders and constituencies were interviewed and/or surveyed. They included representatives from DOE, Fluor Hanford, Inc., and CH2MHILL Hanford Group, Inc. The Hanford Site Chief Information Officers were briefed on the approach and strategies to be implemented. A summary of the major findings follows.

The Hanford Site IRM environment is highly complex, with extensive efforts often required to develop, store, analyze, and access data and information. Inherent in the complexity are the vast geographic scope of the Hanford Site (586 square miles), the wide variety of user sophistication levels and corresponding demands for technology and services.

The following dimensions characterize the Hanford IRM environment:

- 15,000 network accounts
- 23,000 computers (6000 are 200 Mhz Pentium II or below)
- 600 data systems
- 400 servers
- 22,000 active telephone lines
- 3,500,000 documents in records databases
- 140,000 cubic feet of stored records (23,000 4-drawer cabinets)
- 3000+ miles of fiber and copper wiring.

Through the end of this decade, the Site's cleanup, technology development, and scientific research activities will create a massive expansion of onsite data, and there will be increasing pressure to effectively manage more information as characterization and waste remediation activities mature. These new demands come with the challenge to increase productivity and efficiency, decrease costs and change business philosophies. The Hanford Site is evaluating commercial business practices to meet the DOE mission needs. These practices include a Seat Management/Internet Service Provider (ISP), Application Service Provider (ASP), fixed-unit rate/fixed-price contracting, and implementation of knowledge management processes, and will result in the following:

- Reduced cost that is controllable and predictable
- Improved service delivery
- Innovative commercial practices
- Reduced DOE infrastructure mortgage
- Mission-specific solutions
- Site data transitioned into accessible knowledge.

Several critical issues were identified that must be addressed to achieve these results.

- There is low confidence in data quality, because of the multiplicity of data sources.
- Hanford Site personnel use of the Internet as a search engine, application platform, and publication tool has expanded rapidly.
- E-mail and electronic calendars have become critical resources for most employees.
- Information security measures are generally reactive in nature and more intrusive than desired.
- There is an increasing demand to capture and retain worker knowledge and manage historical data.
- Since a significant portion of the workforce is expected to retire in the next few years, the rate of loss of worker knowledge will accelerate rapidly.

The analysis identified the following five critical success factors that must be met to successfully accomplish the Hanford Site mission and to meet and exceed the requirements of the IRM constituencies:

- The ability to make informed decisions
- "Anywhere-anytime" information access
- On-schedule, compliant, and safe operations
- Provide cost-effective solutions
- Improve synergies with other DOE sites and contractors.

The Strategic Plan goals and strategies address the issues, challenges, and critical success factors described above. The plan aligns the IRM strategy with the overall Hanford Site mission.

Approach

The innovative methodology used for developing and implementing the IRM strategic planning process is simple, yet structured. The strategic planning methodology uses various lessons learned from the DOE complex and industry in general, including the need for IRM to have an expanded role in tying operational and strategic planning together. But most importantly, the application of this methodology will ensure the successful completion of the goals of strategic planning: delivering a charted course for the future of IRM at Hanford, and providing a clear and enabling process for efficient and effective IRM support of the Hanford mission.

IRM Strategic Planning Process

Key attributes of this methodology are (1) the flowdown of mission requirements and needs to the Strategic Plan from regulators, customers, contractors, and stakeholders; (2) the dynamic, or living nature of the configuration-managed planning documents; (3) the tying of strategic planning to tactical planning through a structured and repeatable process; and (4) the use of performance assurance processes including verification and validation.

The specific products developed through the Hanford Site IRM strategic planning process are as follows:

1. IRM Strategic Plan

The Strategic Plan is a visionary view of the IRM role in the Hanford community with a ten-year outlook into the future. The Site's IRM vision, goals, and strategies are the key ingredients of the Strategic Plan. These foundational statements are developed through various inputs and influences including the following:

- IRM strategic plans of HQ and its departments
- The RL/ORP and their contractors (including planning documents, surveys, and interviews)
- Lockheed Martin's technical and business expertise (which includes systems engineering, infrastructure management, software and system development, telecommunications, and technology innovation)
- Industry knowledge experts such as the Gartner and Delphi Groups.
- Interviews and surveys of key contributors such as Site project managers; Chief Information Officers; and senior executives from the contractors, RL, and ORP.
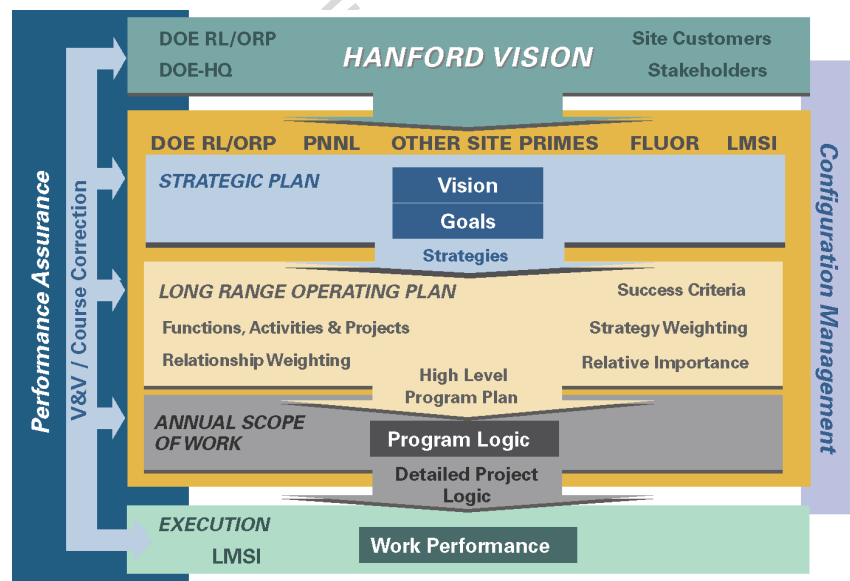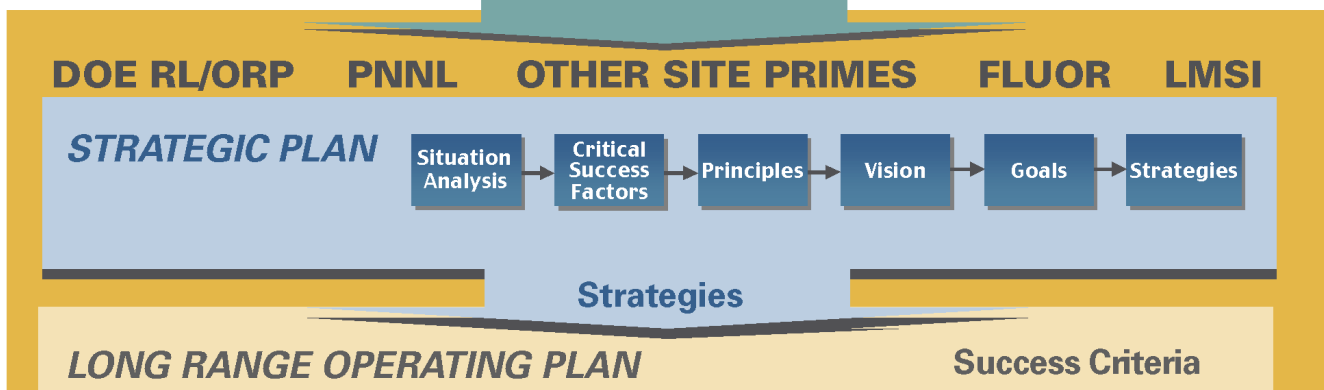
IRM Strategic Plan Development Process

2. IRM Long-Range Operating Plan (LROP)

The LROP is a detailed, five-year rolling view of the Strategic Plan. The LROP builds on the Strategic Plan by establishing success criteria for each strategy. Key areas and individuals are identified to determine the actual activities and projects that are needed to initiate, implement, and successfully complete the strategies of the Strategic Plan. These activities and projects are logically tied together both chronologically and programmatically. Through this program logic, and the associated critical path, a by-year high-level milestone schedule is established for arriving at the Strategic Plan's desired end state.

Note: The LROP is analogous to the Hanford multiyear work plan in scope and certain content, but is directly tied to the Strategic Plan at the front end and to the executable plan or Annual Scope of Work, on the back end.

3. IRM Annual Scope of Work

This product represents the first (current) year in the LROP. It takes each of the activities and products from the LROP, defines them in significantly greater detail, then establishes project schedules and resource loads for each activity.

Included in the configuration-managed strategic planning process is a performance measurement and feedback loop that allows each of the strategic planning products to stay in concert while moving forward dynamically to remain viable, executable vehicles.

Success Assurance

Ensuring IRM mission success and performance is critical to the viability of the strategic planning process. As execution proceeds through the IRM LROP and into the IRM Annual Scope of Work, health indicators that are backed up by key performance measurements will be defined, collected, analyzed, controlled, reported, and acted on through a structured assessment and feedback process. The basis of our performance measurements is the Balanced Scorecard approach and its four categories, as follows:

- **Customer Satisfaction**
  The ability of IRM to provide quality goods and services, the effectiveness of their delivery, and overall customer service and satisfaction
- **Financial Results**
  The ability to deliver appropriate value to the customer
- **Business Processes**
  Key processes are monitored to ensure that the outcomes will be satisfactory
- **Learning and Growth**
  Growing the ability of employees, the quality of information systems, and the effects of organizational alignment.

The IRM performance assurance process, with its inherent measures and metrics, will support the management of change, challenge conventional thinking and assumptions, eliminate barriers, consider new technologies, incorporate commercial practices, and define standards that are essential for Hanford's mission success.

The measurement system must provide intelligence for decision-makers, not just compile data

- *Results must be used*
- *Linked to strategic vision*
- *Focus on outcomes necessary to achieve the vision and goals*
- *Goals help achieve the vision*
- *Have a customer focus*
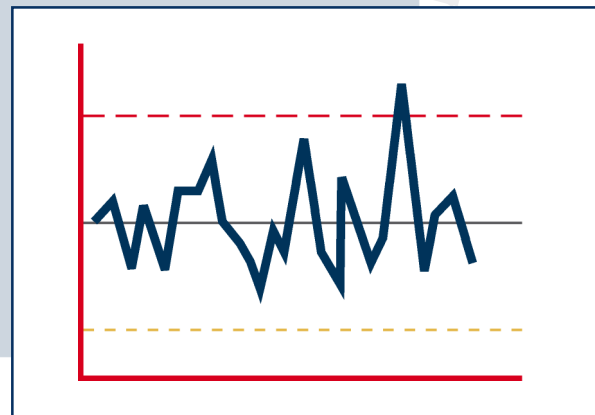
Assumptions

The following assumptions were used in the development of the Strategic Plan.

- The target audience for this plan is RL, ORP, Hanford contractors, and those outside Hanford who are interested in the future use of the Site's IRM capabilities.

- The target audience has a general knowledge of Hanford Site operations, history, and issues.

- Execution details of the strategies contained in this Strategic Plan will be developed in the LROP and in each Annual Scope of Work.

- All initiatives and services discussed in this Strategic Plan are available to, and will be coordinated with, RL, ORP, and all Hanford contractors.

- The content of contributing and higher level IRM strategic planning documents (*e.g., DOE-HQ IRM Strategic Plan*) will not be duplicated in this document.

- The Strategic Plan is not intended to give contractual direction, but to state the intended course of strategic IRM activities.

- The necessary control and maintenance functions (i.e., configuration management), and subsequent processes for the strategic planning process will be defined, scheduled, and implemented as part of the LROP activities.

- Best value to customers and suppliers is attained through the collaborative development and implementation of solutions.

Principles

The Strategic Plan charts a course for the future of IRM activities at the Hanford Site and provides a framework for efficient and effective support of the Hanford mission. To ensure that IRM activities meet management and customer expectations and philosophies, certain fundamental precepts and conventions guide all IRM activities. The guiding principles are as follows:

- Manage IRM in a professional and integrated manner

- Be responsive to all Hanford programs, projects, and user needs

- Implement business processes that make IRM services easy to use

- Emphasize agility in the selection of technology

- Capture information electronically at the origination point, whenever possible

- Ensure that needed data and information are accessible

- Leverage systems engineering in the decision-making process

- Use commercially available components where practical

- Reduce unnecessary systems

- Reduce DOE's ownership burden of IRM assets

- Provide secure IRM environments

- Partner with our employees to ensure a safe and productive work environment.

Goals

Goals represent desired end states. When they are collectively met, the IRM vision will be achieved. The goals of the Strategic Plan are designed to support the Site mission, define success for the IRM course charted for the future, and increase IRM's ability to be a major asset to Hanford. The Strategic Plan is built on the following five goals.

1. **Information Knowledge Management**
   Deliver quality information through innovative tools and processes to manage and leverage the growing volume of project data.

2. **Leadership and Partnering**
   Provide value to the Hanford Site through information-management leadership, expertise, and being an integral part of the Hanford Site team.

3. **Innovation Assessment and Planning**
   Define and implement collaborative management processes and systems to align Site needs with existing and emerging technologies, and foster the development of innovative solutions.

4. **Communication (Voice, Data, and Video)**
   Provide the services required to meet the communication requirements (voice, data, and video) of Hanford in a flexible, scalable, reliable, and secure manner.

5. **Transition to Commercial Practices**
   Emphasize the use of commercial practices in all aspects of IRM service delivery.

The Strategic Plan identifies specific strategies to achieve each of these goals. The strategies encourage collaboration, standard business methodologies, and effective interface and integration.

The IRM LROP will further expand each strategy presented here and will assign success criteria.

Goal 1: Information Knowledge Management

Deliver quality information through innovative tools and processes to manage and leverage the growing volume of project data.

Informed decision-making depends on accurate and reliable information. Programs, projects, and functions require that their information be accessible while at work, at home, after hours, or through mobile computing. This goal addresses the need to access information, while ensuring that it is stored properly and protected throughout its life cycle. Hanford information management policy and standards require a commitment to share data while the responsible project or organization maintains ownership.

The ability to store information electronically has increased the ease of collecting and disseminating information. This capability has improved the speed and availability of information. The negative result is an information flood. The quantity of data stored electronically is increasing exponentially. The need to access the "right" information without having to spend unnecessary time and resources locating it is critical to the success of Hanford programs and projects.
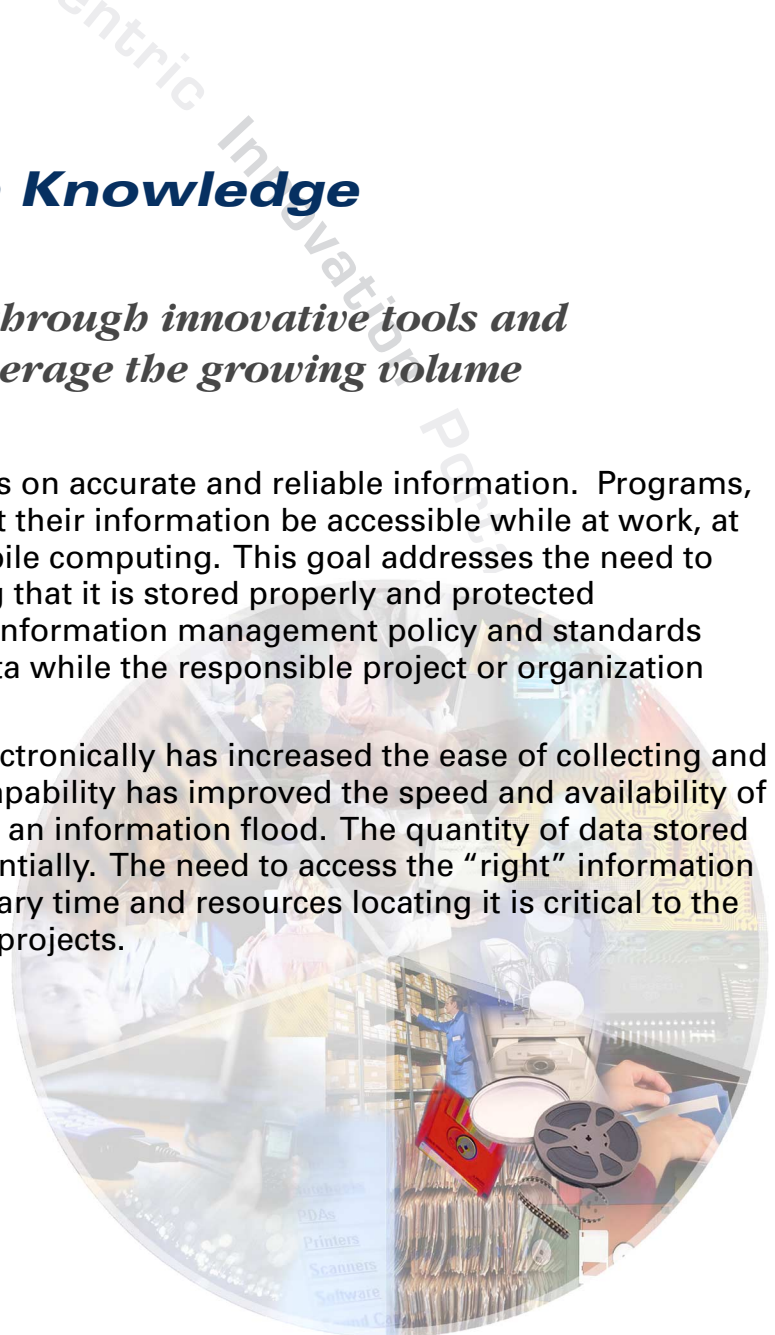
"Today as never before, ideas have become the source of empowerment for commerce. In this new century, the most valuable commodity of business has clearly changed from *things* to *thoughts.*"
Infopro, ARMA International, December 2000

Information is defined as "data endowed with relevance and purpose."
Peter Drucker

Goal 1: Information Knowledge Management Strategies

1.1 Implement processes and tools to manage information electronically throughout its life cycle.

Information capture and access will be integrated into normal work processes. Information will be gathered in electronic form at inception whenever possible. It will be classified and characterized as it is generated, with details such as source, date, and reliability rating. This information will be used to shorten search time and filter search results to better meet user needs. This process will control definition, ownership, entry, storage, and retrieval in such a way that the integrity of the information is not in question. The number and structure of applications will be streamlined; data sources will be consolidated; and interoperability between the remaining sources will be emphasized. Appropriate knowledge management disciplines will be implemented to ensure information quality and accessibility.

A "virtual knowledge center" concept will be introduced. It provides a single path to electronic information, allows capture of knowledge at its source, breaks down information silos, and makes data available for timely, informed decision making. This concept not only helps with the data accessibility and quality issues, but also is an integral component of the information portals described in Strategy 1.3.

Site Spatial Data Council

The Site Spatial Data Council (SSDC) is establishing a data framework for providing a reliable and standardized source for access to Site spatial data. Spatial data are geographic information about our physical environment. The SSDC plan identifies the most up-to-date geographic data for the locations of physical features such as buildings, roads, electrical and gas lines; captures its pedigree; and supports the SSDC in establishing an electronic clearinghouse and data catalogue.

1.2 Establish a web-centric information management environment that provides a simple user interface to integrated Site- and project-specific data.

The web environment provides ready access to the growing variety of rapidly changing and expanding information. Authorized users can access information without specialized software from virtually any type of computer that has a web browser. Data standards, organization, and methods will be provided to ensure ready access.

Server-side applications are emerging as an effective method of providing Windows applications to a wide range of devices. Server-side solutions execute application computing and data storage functions on a shared server while performing only the control and display functions on the user's device. This approach is ideally suited to task-based workers such as those in field or mobile operations and those performing a consistent set of administrative functions.

The benefits of server-side applications include lowering the cost of some users' computing devices, increasing longevity of some legacy personal computers, reducing training costs, and supporting access to HLAN services by mobile users, using a broad spectrum of specialty computing devices.

> *"Microsoft's '.NET' and Sun's 'J2EE' are the two leading standard platforms emerging for development of component-based, web-centric enterprise applications."*
> Lockheed Martin Enterprise Information Systems
> Chief Technology Office, August 2001

1.3 Provide a portal that allows each user to access current and legacy data and perform intelligent searches against multiple repositories.

Information becomes increasingly difficult and time consuming to locate as volume grows. What is needed is a tool that facilitates user access to large bodies of information in both a structured and an unstructured manner. Enterprise portals are appropriate in this arena because they perform the following functions.

Authentication: Portals, combined with a directory-based infrastructure, can authenticate users who log in to access portal-enabled resources.

Authorization: Portals can implement policies to grant or restrict access to portal-enabled resources based on the credentials issued at the time of authentication.

Data Aggregation/Search: Portals serve as a "one-stop shop" for users looking to access multiple applications and data sources from within the enterprise and without.

Content Management: Portals provide facilities for adding, editing, or deleting content, based on timeliness or other criteria.

Personalization: Portals provide the means for the user to customize his or her portal experience. In addition, portals work in conjunction with personalization engines that analyze user patterns and leverage that information to assist the user with search, content, and functionality suggestions.

Application Integration: Portals bring many applications into a common framework by providing interfaces for integration.

Successful implementation of portals will include an underlying "virtual knowledge center" concept. This foundational concept was described in Strategy 1.1.

> *"In addition to offering a single window or jumping-off point for users (which is really the definition of a portal), most companies are looking for portals to provide two specific types of functionality: 1) a means for gathering information from disparate data sources and for making it available to users, and 2) a common browser-based interface that allows users to do whatever they need — whether that means searching, accessing documents, or interacting with other users."*
>
> James Watson and Joe Fenner, *The Information Management Journal,* "Understanding Portals", July 2000

Goal 2: Leadership and Partnering

Provide value to the Hanford Site through information-management leadership, expertise, and being an integral part of the Hanford Site team.

IRM leadership will educate Hanford users on the cost savings and other benefits that can be achieved through consolidation of efforts, standardization of processes, and sharing of resources. It is also vital that program, project, and functional managers with responsibilities in key business areas have direct involvement in prioritizing and selecting information management initiatives. Additionally, it is necessary that IRM team members understand the operational, business, and information needs of Hanford.
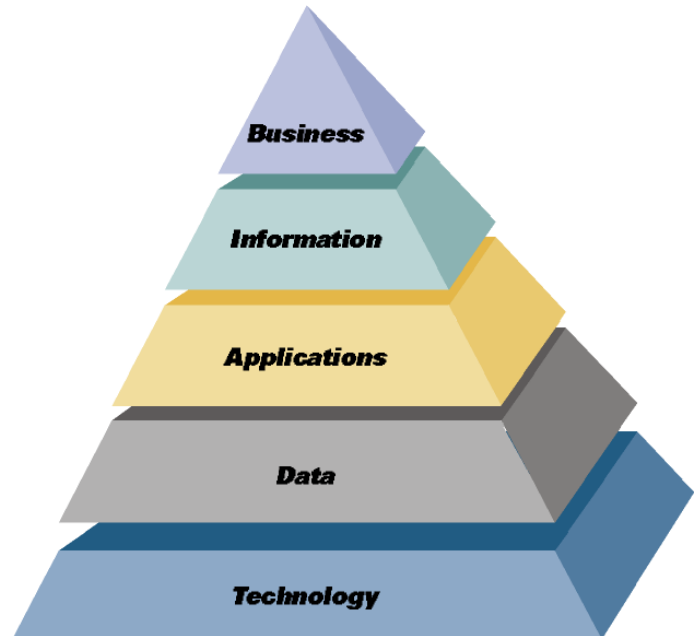
Goal 2: Leadership and Partnering Strategies

2.1 Provide a clear and concise path forward to achieve the desired end state identified in the Hanford Site's enterprise architecture.

An enterprise architecture documents the Site's current and future IRM architectures and presents a plan to achieve the transition. Current efforts will document the "as-is" state of the architecture for the Fluor Hanford scope of work, with expansion in subsequent years to encompass the entire RL scope and establish the "to-be" state and path forward. These efforts could be expanded further to include ORP and the remaining Site contractors if appropriate.

The enterprise architecture will be used by IRM to focus on the strategic use of emerging technologies to better manage information and expedite the consolidation of legacy systems.

DOE HQ Architectural Hierarchy

The enterprise architecture also highlights opportunities for building greater quality and flexibility into applications without increasing cost.

2.2 Communicate to, and educate, current and potential customers about IRM services and processes using a variety of means.

Two-way communication ensures that IRM processes are aligned to Site needs and that the controls and policies that manage IRM are understood. Input and feedback from program and project personnel must be incorporated into the planning and execution of IRM projects. This information can be obtained by actively involving Hanford programs and projects in the decision-making process. IRM must clearly communicate the services available to increase visibility and awareness of opportunities, and to improve program and project performance using proven methods and innovative technologies. Communication methods to accomplish this strategy will include classroom training, "road show" presentations, in-field consultants, publications, and communiqués.

2.3   Raise the awareness of IRM personnel regarding the Site's critical needs and risks.

This renewed sense of urgency will facilitate the setting of appropriate IRM priorities and the innovative application of technology to support program and project success. Key to this success is the application of the *Hanford IRM Strategic Planning Communication Plan.* This plan includes communication message topics, target audiences, possible venues and vehicles, and proposed schedules.

> *"Information and the technology that manages it will now be as much a critical component of enterprise visioning as capital, labor, materials, and competencies are today."*
> Gartner Group, Enterprise 2004

2.4   Lead in the use of technical architecture standards and guidelines that ensure interoperability, lowest total cost of ownership, and nominal functionality.

Standards will be used to better promote the consistent capture of data, commonality of formats, and flexible interchange and protection of information. Maximum flexibility will be afforded in the platforms and software that are consistent with appropriate fiscal responsibility and operational efficiencies.

2.5   Team with Hanford programs and projects to establish and implement the standard use of business-case analysis, including cost-benefit models for information management projects.

A clear evaluation of the costs and benefits of investing in information management projects is necessary. Standard use of business-case analysis will ensure that the dollars spent on information systems improve overall performance and management. This strategy will increase the value of IRM and the understanding of the value of IRM to Site programs and projects and will improve teamwork.

2.6   Implement performance measurement processes to ensure that appropriate metrics are used, assessments and analyses are performed, and corrective actions are implemented.

Delivering quality IRM to Hanford includes having processes to check the outcomes of investments. Tracking and performance measurements such as those suggested by Balanced Scorecard, Capability Maturity Model, or Six Sigma management philosophies are a basis for developing appropriate metrics to monitor IRM performance and improvement. Incorporating performance measurements keeps the initiatives of the Strategic Plan viable and increases the opportunity for both IRM and Hanford programs and projects to be successful.

2.7 Team with programs and projects to establish a collaborative process that makes IRM a critical component of the Site and ensures alignment of the Site mission and IRM activities.

Improved collaboration between information professionals and program and project personnel, and the application of system engineering disciplines, will improve Hanford's ability to effectively use information resources to achieve project success. Alignment between Site IRM objectives and information requirements will decrease overall costs and improve the effectiveness of both existing and new resources.

> *" . . . processes, long designed to take advantage of the productivity and information management capabilities of pencil, paper, and interoffice mail, will be designed concurrently with technology to optimize their performance in the new technology-enterprise of 2004."*
>
> Gartner Group, Enterprise 2004

Project Needs

Information Resource Management

Hanford Vision Realized

Goal 3: Innovation Assessment and Planning

Define and implement collaborative management processes and systems to align Site needs with existing and emerging technologies, and foster the development of innovative solutions.

Establish information management processes and systems to facilitate a shared understanding of program and project needs, and apply information technologies to maximize effectiveness and foster innovation. Participation in information technology (IT) decisions by program and project personnel who understand the mission's processes and risks will ensure that Sitewide initiatives meet their needs.

"The pace of progress in information technology is so exhilarating that it's tempting to take it for granted — to assume that it's the result of natural forces rather than the careful investments of a highly effective partnership in which fundamental research in computing, information and communications plays a key role."

Edward D. Lazawska and Computing Research Association

Goal 3: Innovation Assessment and Planning Strategies

3.1 Encourage collaborative research and develop opportunities for using innovative technology for Hanford programs and projects.

Ongoing research and awareness of emerging technologies will position Hanford projects to implement new solutions that decrease cost and improve efficiency.

The IRM strategic planning process will assess information from IT industry experts and business area leaders on IT topics and trends that are important to the customer.

The emerging technologies identified from this task will be used to facilitate opportunities to combine the operational knowledge of Site personnel and the technical insights of IRM professionals to develop innovative solutions to customer needs.

> *The use of software and system engineering management practices provide organizations with mature, disciplined processes that enable the realization of successful systems. All disciplines and specialty groups are integrated into a structured team development process that proceeds from concept to production to operations. It considers both the business and technical needs of all customers with a goal of providing a quality product that meets the user needs.*
>
> Carnegie Mellon University
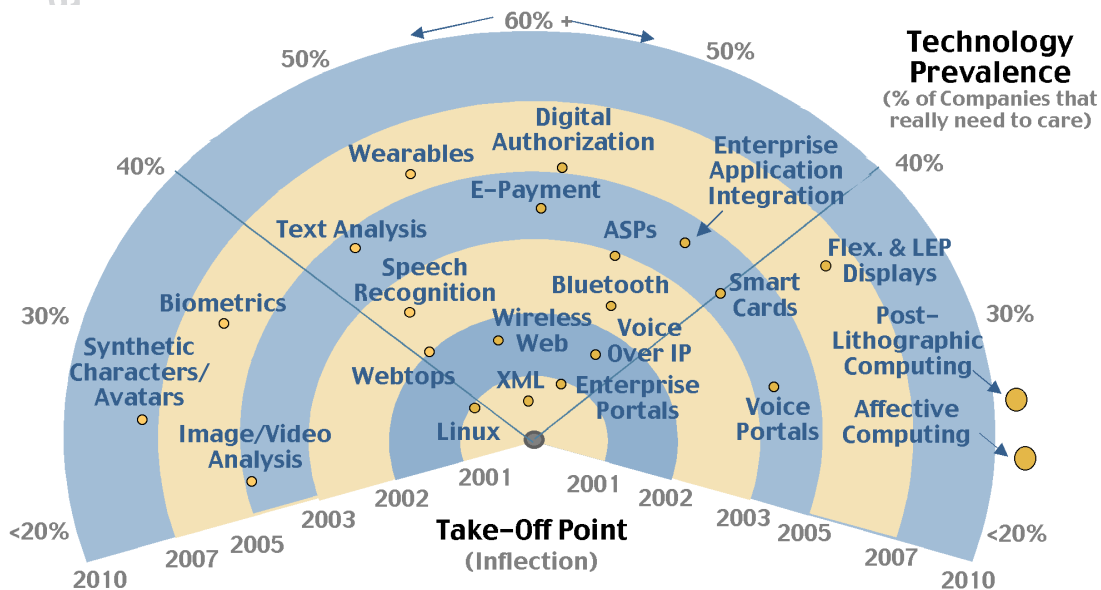
Emerging Technologies

- B2C, B2G, B2B
- Mobile/Wireless/Wireless Web
- Unified Directory and Naming Services
- Public Key Infrastructure
- Smart Cards

- Collaborative Computing Tools
- Knowledge Management
- Computer/Telephony Integration
- Speech Recognition
- Middleware
- Storage

Technology Radar Screen

3.2 Implement best practices to reduce costs, increase effectiveness, achieve innovation, and make better decisions.

Analyzing the practices of others, comparing them with our own, and implementing best practices through methods such as benchmarking provides the greatest opportunity for meeting the strategic needs of Hanford. IRM can profit from the introduction of best practices and from measuring performance.

3.3 Include program and project personnel in cross-functional and Sitewide development activities.

Many IRM initiatives will impact multiple Hanford programs, projects, functions, and/or contractors. For these initiatives to add value and contribute to overall success, IRM projects will need to include appropriate user personnel. This will ensure that needs are met and will increase the overall value and effectiveness of IRM.

3.4 Ensure the visibility and communication of information technologies and innovative ideas.

Increasing visibility and communication of promising technologies increases the opportunity for innovations to be applied to program and project needs.

Goal 4: Communication
(Voice, Data, and Video)

Provide the services required to meet the communication requirements (voice, data, and video) of Hanford in a flexible, scalable, reliable, and secure manner.

A mobile and pervasive computing environment will provide the geographic transparency needed for the virtual office of the future. The Hanford Site's programs and projects vary in size, physical location, and duration and result in a need for consolidation of operations and efforts in an ever-decreasing geographical area. This increasing state of flux places a growing demand for flexibility on the communication infrastructure. Additionally, managers will need to transition resources at program and project closeout in a more cost-effective and timely manner.
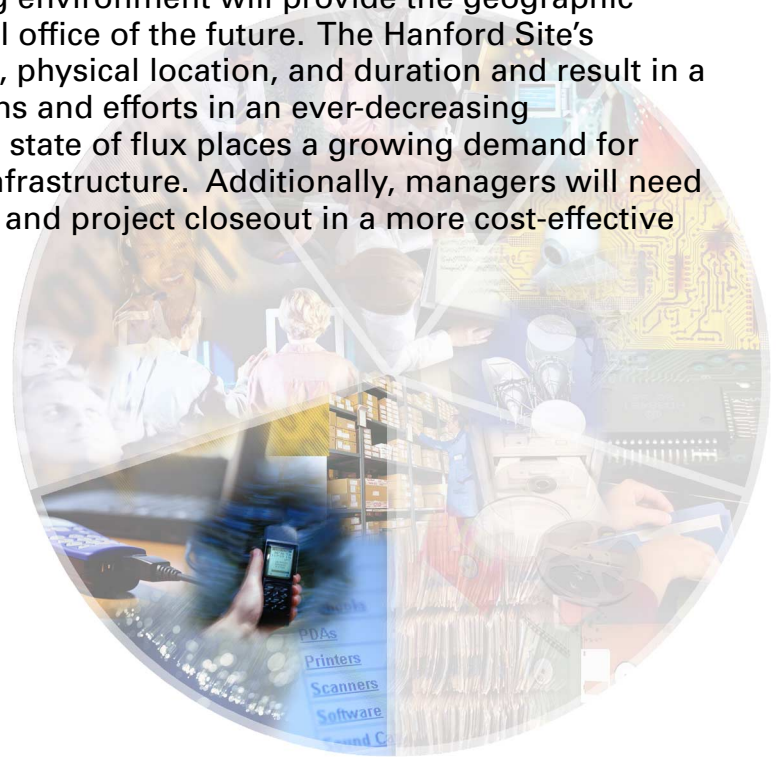
"By 2007, 60 percent of the European Union and U.S. population will carry or wear a wireless computing and communications device at least six hours a day, and by 2010, more than 75 percent will do so."

Gartner Group

Goal 4: Communication Strategies

4.1 Merge voice, data, and video into a secure high-speed wireless service that is accessible by a single portable device.

The growing dependence on information and immediate communication, coupled with an increasing number of workers requiring mobility, will require secure, universal wireless access to all Hanford resources from a device that is as convenient to carry as a cellular telephone. All communications services will merge to allow workers to use the medium best suited to the task.

While such connectivity is being demonstrated today, improvements in reliability, security, and cost considerations will pace widespread deployment. In the later years of the planning horizon, technological advances should allow most desktop functionality to be assumed by a portable, remote device. The integration of voice, data, and video services will reduce costs, improve service, and increase the flexibility necessary for the efficient relocation of facilities and personnel.

"Wireless is about intelligent interaction and linkage for mobile employees, anywhere, anytime. Mobile solutions will enable users to roam freely and have personalized content follow them as they move from building to building, field to field, or from network to network, using all kinds of handheld devices, laptops and appliances. The world is moving towards universal connectivity between digital devices. Moving from onsite to local to global wireless requires advancements in technology, security policies and coverage that will be seen in the next five to ten years."

Nortel

4.2 Establish high-speed Internet links.

As use of the Internet grows and the nature of the information exchanged becomes more data-intensive, the current bandwidth will become a bottleneck to effective use. A high-speed link will be established that provides the bandwidth necessary to sustain user productivity. As the local communities provide the necessary bandwidth to residences, the demands placed on the Internet link for remote employee access also will increase. This greater bandwidth will support improved remote access to Hanford systems and information that will be demanded in the future. It also removes communication speed as a limitation to providing widespread access to corporate resources and HQ systems and data.

4.3 Increase network capacity.

A number of factors, such as increasing data volumes, backup requirements, and growing application complexity, will cause network capacity requirements to increase. Information resources must be readily accessible to users at any time of the day without delays caused by insufficient capacity.

4.4 Implement proactive security measures that prevent unauthorized access, destructive activities, and disruption of service.

Growing dependency on information services and the increasing sophistication of threats will require more preemptive cyber-security methods. These methods should focus on prevention and detection while minimizing intrusion into the user environment.

"Experts predict a revolution within the next five years in personal communication devices that will result in the combining computation, video, phone, pager, knowledge broker, productivity, and communication tools into one powerful, integrated, and portable unit."
Information Technology Infrastructure Strategic Plan, Battelle Memorial Institute.

Goal 5: Transition to Commercial Practices

Emphasize the use of commercial practices in all aspects of IRM service delivery.

The mission to clean up the Hanford Site creates a dynamic IRM environment. To have the freedom to readily adapt to changes in the future, the DOE is expecting to divest its assets and rely on a growing combination of IRM service providers. To strengthen the value of the IRM environment and support community development, consideration of local businesses will be a priority.

> *"Make effective use of commercial applications and solutions for DOE's enterprise-wide IT infrastructure; link IT investments to DOE strategic goals and the needs of business operations; minimize the number of redundant and duplicative systems, and improve enterprise-wide data sharing.   Establish standards and policy that will leverage commercial technology and common solutions. "*
>
> *DOE HQ Strategic Plan (February 2000),*
> *Objective Measures and Objectives Strategies.*

Goal 5: Transition to Commercial Practices Strategies

5.1 Leverage the value of the IRM environment to the Hanford Site and community.

The Site's IRM resources are assets that may offer value elsewhere. Extensive use of the commercial sector will enhance Hanford's efforts to target and plan for the divestiture of these assets. Divestiture may include transfer of ownership to commercial businesses or other government agencies. Additionally, this strategy will be supported by the guiding IRM principle to reduce acquisition of new assets by DOE while focusing on the divesture of current assets. For retained IRM assets, services will be offered to other government agencies to maximize value. An example of this opportunity is the excess capacity available on the telephone switch. The enterprise architecture will be the basis for this decision-making process.

5.2 Investigate the feasibility of using a "Cyber Center" approach to provide information technology resources.

The Cyber Center concept promotes development of a commercially owned resource to host IT enterprises while supporting managed consolidation and divestiture of DOE assets. To ensure economic viability, Hanford would be the anchor tenant by relocating from existing computer rooms to the Cyber Center. This new commercially-owned asset would offer entrepreneurial opportunities while retaining the economic advantage of resource consolidation. This innovative approach to asset utilization would be an effective step in attracting and retaining IRM services and professionals in the local community.

A Cyber Center Allows Consolidation and Reduction of DOE Assets

"Call them lit buildings, smart buildings, e-buildings or cyber-buildings, these facilities are a hot opportunity for telecom service providers seeking new markets to enter and new ways to add value.   For service providers and equipment vendors, new access technologies have created a multitude of ways to offer the under-served small and midsize business market the telecom capabilities heretofore reserved for large companies."

March 2000, Lenore Tracey, Consulting Editor, *Telecommunications*

5.3 Implement a Seat Management/Internet Service Provider (ISP) model.

A partial Seat Management/ISP model has been successfully piloted at Hanford and will now be expanded. While the pilot was based on government ownership of the desktop equipment, the expanded model provides for a service provider to own and operate the equipment. The Hanford user leases the Internet connectivity, electronic mail services, and equipment at a fixed-unit rate. The application of fixed-unit rate and fixed pricing provides more predictable and controllable costs. This standard commercial practice will become the preferred pricing method for IRM services. The Hanford model will afford users a choice of performance levels, support, and refresh rates commensurate with needs.
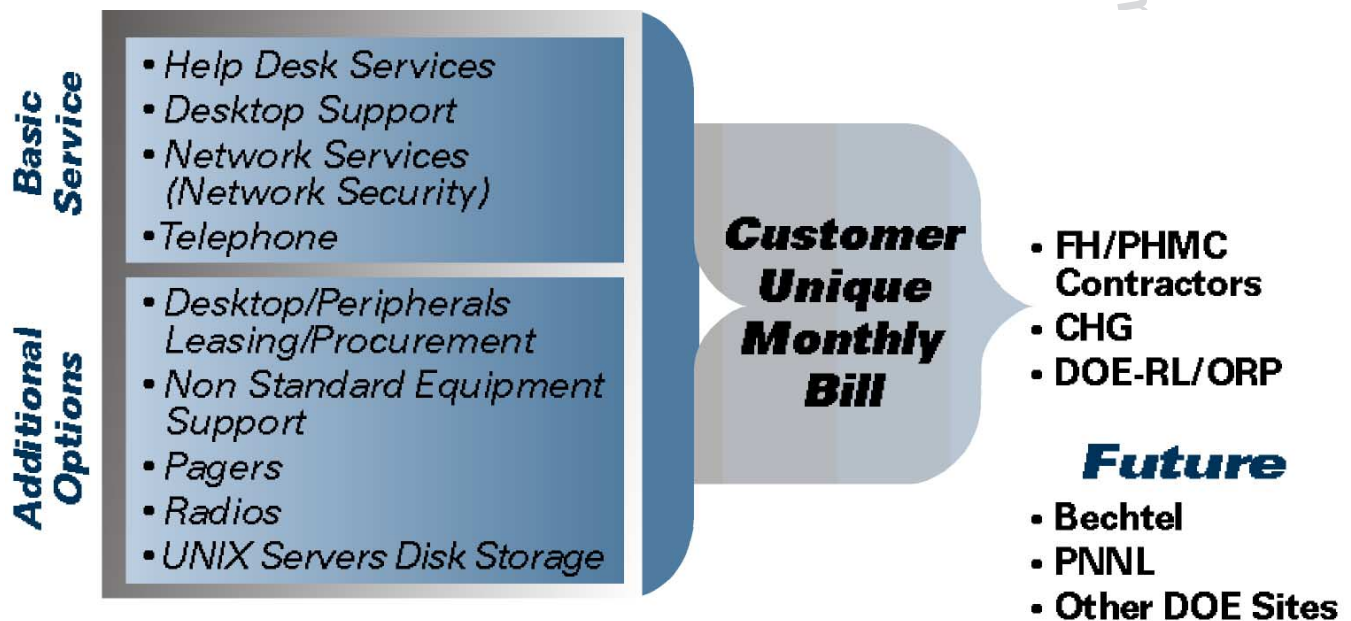
Seat management, or desktop outsourcing, represents a radically new approach to information technology. The concept calls for organizations to turn over the procurement and management of their desktop environment with the idea that the computer is a utility like a phone, and the service behind it is transparent. The concept is attractive because of a growing awareness of how much it costs to manage computers.

FCW Government Technology Group, FCW.com, 2001

5.4 Implement an Application Service Provider (ASP) model.

An ASP model provides equipment and access to a software application and the ability to create, store, and maintain information within that application. In the full ASP model, the service provider has complete ownership and responsibility for the facility, software, hardware, operations, and maintenance. The model also allows for the user to retain varying degrees of ownership and responsibility. The advantage of this model is that Hanford can increase its flexibility to transfer ownership of assets to other organizations and divest itself of identified assets as the makeup of the Site changes.

Applied Software Provider (ASP) Managed Servers

1. Software Management
2. Application Management
3. Capacity Planning
4. Disaster Recovery
5. ...

IT Services Provided by ASP or Self Performed

Hanford User Community

User Community

User Community

21. Job Scheduling
22. Data Management
23. Performance Management

ASP Hosted Data

User Community
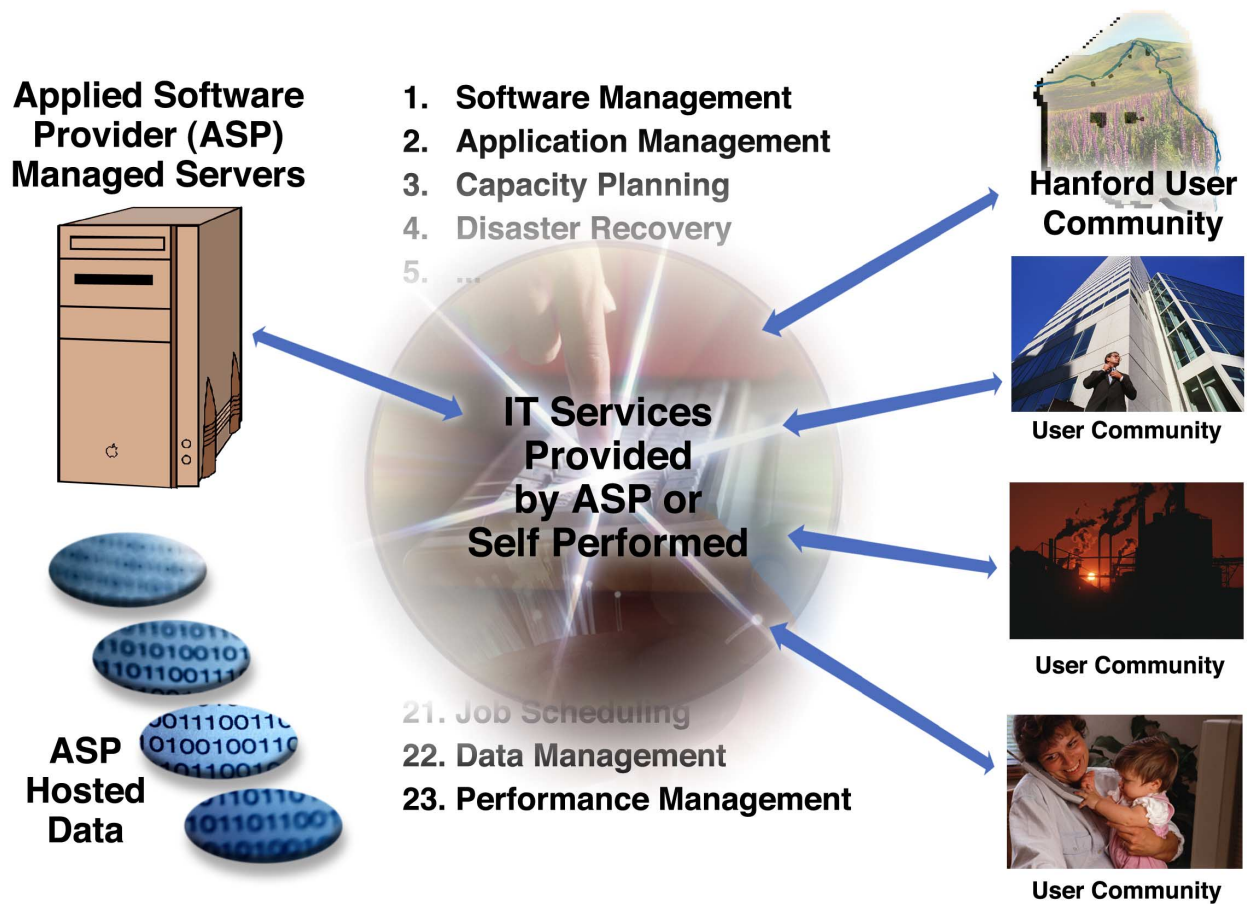
5.5 Leverage the capabilities of the Volpentest HAMMER facility for IRM training of Hanford programs, projects, and users

The Volpentest HAMMER facility provides unique hands-on training and education using large-scale props and customized mock-ups for the Hanford Site and other customers with training needs. HAMMER, using training curricula developed by others, serves as a location and a vehicle for delivering training.

HAMMER is expanding its capabilities to offer "Real As It Gets" prop-based and complementary classroom-based training and education, to include development of a growing component of other forms of simulation-based training that is logically based on the model of virtual training with synthetic environments. Included is the packaging and delivery of training and education using formats and platforms conducive to effective remote delivery. HAMMER is also evaluating state- and national- level needs for virtual reality training and has identified a number of training areas as candidates for development through collaborative efforts.

Areas that could directly support the goals and strategies of the Strategic Plan are the training of programs, projects, and users in the use of new technologies (e.g., wireless) and innovative processes that will be possible from the infusion of new technology. In addition, HAMMER could be used to train Site personnel in current and planned project management tools (such as performance measurement) and quality improvement initiatives (such as Six Sigma and Balanced Scorecard).
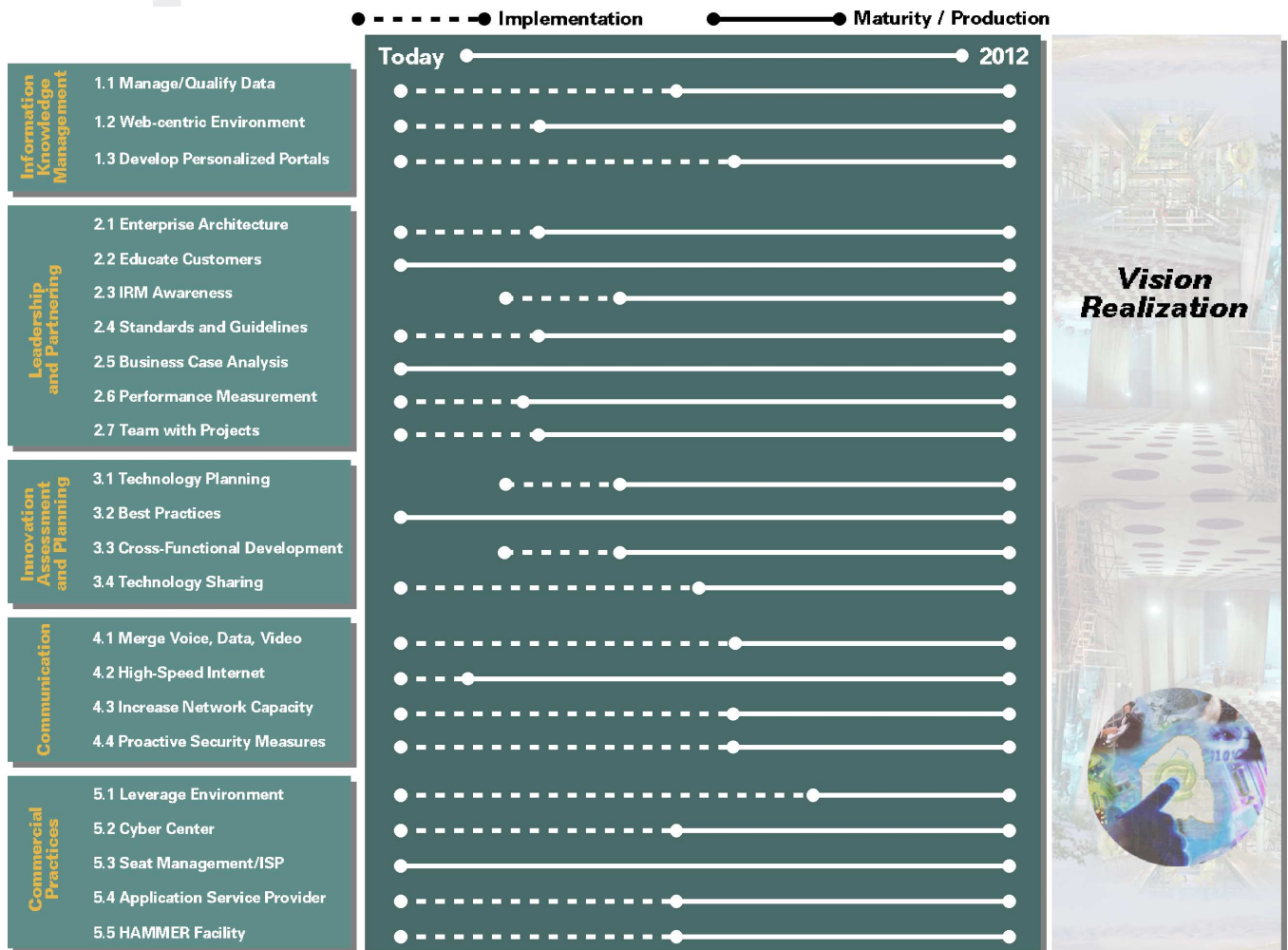
Path Forward

Two activities will commence in parallel following the publication of this plan. First, the contents of the plan will be communicated to the Hanford workforce in accordance with the *Hanford IRM Strategic Planning Communication Plan.* Second, the preparation of the IRM LROP will commence with a March 31, 2002, due date. As discussed previously, the LROP will provide technical direction to fill in the implementation details for the next several years. The LROP will, in turn, be expanded annually to provide the details of the IRM Annual Scope of Work, the first to be implemented in fiscal year 2003.

The IRM strategic planning process is designed to be responsive to emerging opportunities and is driven by the mission requirements of the programs and projects. Although specific requirements may change, providing up-to-date, usable, and easily accessible information will continue to be the overall vision.

This Strategic Plan anticipates certain technological advances, but the greater challenge will be in achieving the necessary cultural change. Execution of the Strategic Plan's strategies will ensure that challenges are overcome and opportunities are exploited to achieve the IRM vision.

The following figure illustrates the relative phasing of the implementation and maturity cycles of the Strategic Plan's strategies.

Path Forward to the IRM Vision

Legend: ● - - - - → Implementation   ●━━━━━● Maturity / Production

Today ●━━━━━━━━━━━━━━━━━━● **2012**

Information Knowledge Management
- 1.1 Manage/Qualify Data
- 1.2 Web-centric Environment
- 1.3 Develop Personalized Portals

Leadership and Partnering
- 2.1 Enterprise Architecture
- 2.2 Educate Customers
- 2.3 IRM Awareness
- 2.4 Standards and Guidelines
- 2.5 Business Case Analysis
- 2.6 Performance Measurement
- 2.7 Team with Projects

Innovation Assessment and Planning
- 3.1 Technology Planning
- 3.2 Best Practices
- 3.3 Cross-Functional Development
- 3.4 Technology Sharing

Communication
- 4.1 Merge Voice, Data, Video
- 4.2 High-Speed Internet
- 4.3 Increase Network Capacity
- 4.4 Proactive Security Measures

Commercial Practices
- 5.1 Leverage Environment
- 5.2 Cyber Center
- 5.3 Seat Management/ISP
- 5.4 Application Service Provider
- 5.5 HAMMER Facility

Vision Realization

Conclusion

The strategic planning process detailed herein is designed to be responsive to emerging opportunities and is driven by Hanford's mission requirements. Given the dynamic environment of the Hanford Site, specific requirements always will be in a state of flux. The Hanford IRM Strategic Plan introduces a process to meet that need for flexibility, while maintaining the clarity necessary for measuring progress and determining success.

The Strategic Plan defines the critical success factors that must be met to successfully accomplish the Site mission and to meet the requirements of the IRM constituencies. The goals and strategies presented in the Strategic Plan are designed to directly meet the needs articulated in the critical success factors. The goals and strategies can be mapped back to the critical success factors to clearly communicate the linkage. As evidenced below, the goal set fulfills the needs detailed in the critical success factors.

Critical Success Factors	Goals				
	Information Knowledge Management	Leadership and Partnering	Innovation Assessment and Planning	Communication (Voice, Data, Video)	Commercial Practices
Ability to make informed decisions	●	●	●	●	
Anywhere, anytime information access	●		●	●	
On-schedule, compliant safe operations	●	●	●	●	
Provide cost-effective solutions	●	●	●		●
Improve synergies with other DOE sites/contractors	●	●	●	●	●

Critical Success Factor - The ability to make informed decisions

"Get needed information to the decision maker at the time when a decision needs to be made."

By implementing best practices and building processes that effectively manage, qualify, and deliver relevant information to the right person at the right time, decision makers will have a far greater opportunity to make informed decisions. These efforts will be augmented through a collaborative methodology that will increase IRM's awareness of customer needs and increase customer awareness of IRM capabilities so that the best technology solution is made available.

Critical Success Factor - "Anywhere, anytime" information access

"Expand the availability, both in quantity and ease of access, of data in the field."

The wireless capabilities of the new enterprise architecture will vastly expand the amount of data available in the field. Managing data in a web-centric manner will help ensure that the right data are available to customers in the field. Collaboratively researching and communicating innovative technologies and solutions to the customer, as they become available, will result in the best field solution being available to the customer. Personalized portals will augment the effort to deliver data tailored to location, time, and need. Greater network bandwidth will increase the ability of IRM to deliver data to users in new, innovative ways.

Critical Success Factor - On-schedule, compliant, safe operations

"Information technology must enable efficient, safe operations that are compliant with regulations."

Safety, efficiency, and compliance will be key standards in designing the enterprise architecture. Understanding the customer's needs in these areas through collaborative and innovation processes will help IRM deliver the best solution. Performance assurance processes will be put into place to measure IRM's contribution to the requirements of efficient, safe, compliant operations. Implementing proactive security measures will meet compliance standards for data integrity and security. Building processes that effectively manage and qualify data will ensure that the right data are available to support efficiency, safety, and compliance standards.

Critical Success Factor - Provide cost-effective solutions

"Provide innovative solutions that meet customer needs at the best possible price."

The standardization of business case analysis for deploying technology solutions will ensure that the solution chosen is the most cost-effective solution available. A performance assurance methodology will track planned versus actual costs to determine if cost targets are being met and will initiate corrective action if they are not. The transfer of assets to more productive use and the investigation of new service models, such as Cyber Center, ISP, and ASP, will increase cost efficiencies without compromising quality of service delivery.

Critical Success Factor - Improve synergies with other DOE sites and contractors

"Leverage IRM capabilities over a broader customer base to maximize economic return and efficiency."

New ways of doing business, such as establishing a Cyber Center and building seat management/ISP and ASP capabilities will result in greater service capabilities that can be delivered to new customers. Greater network capacity and higher speed Internet links will increase IRM's ability to service customers beyond the Hanford Site.

The IRM Strategic Plan establishes the path forward to support the Hanford Site mission.

The Strategic Plan provides the foundation to effectively use information as a strategic asset by applying the principles of knowledge management, technology relevance, and professional and commercial practices to the IRM service offering.

The Strategic Plan will result in more informed decision making and cost-effective solution application, while supporting a compliant, safe, and productive work environment.

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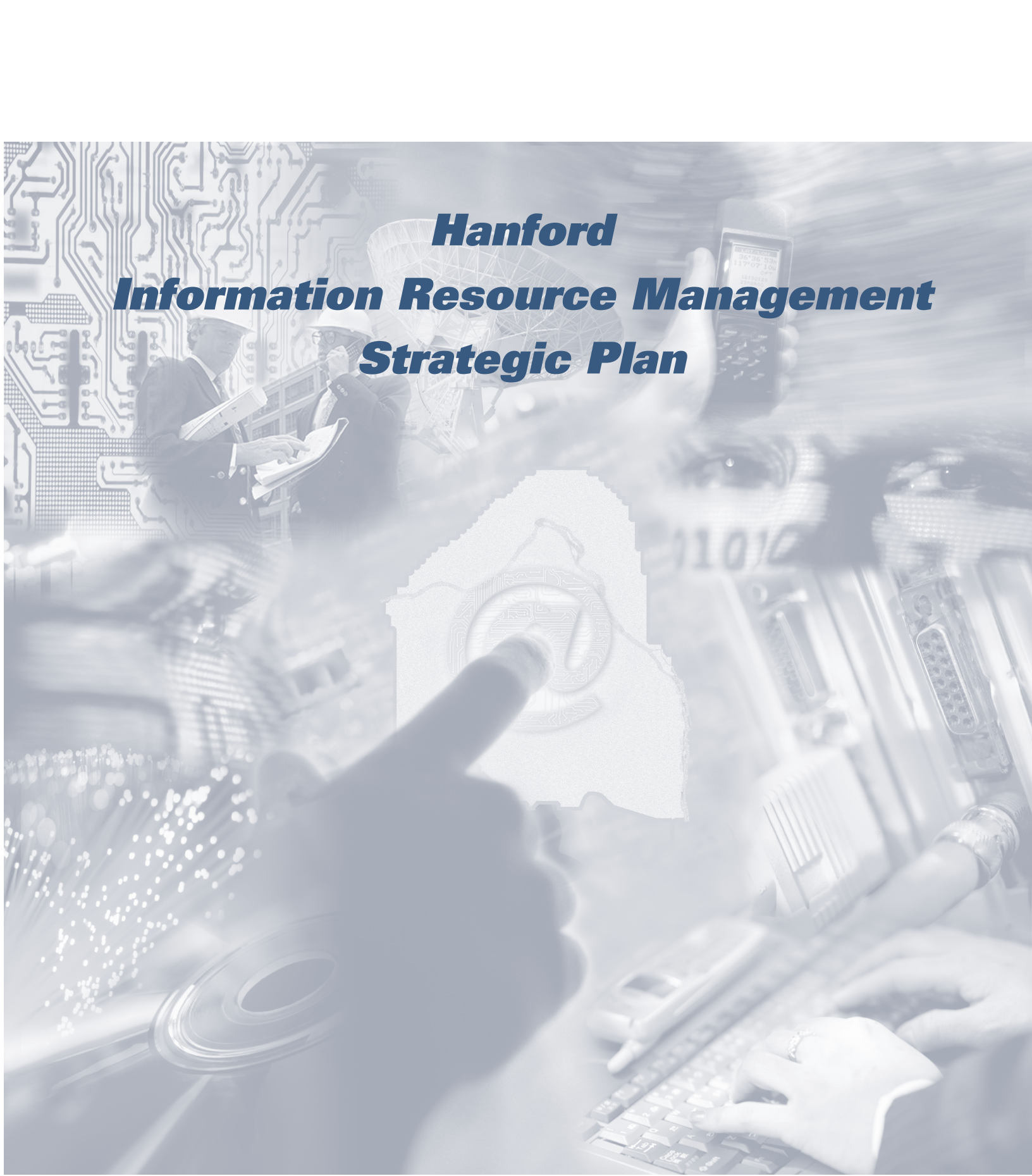### *Lockheed Martin Services, Inc.*

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