

**CENTERS FOR DISEASE CONTROL AND PREVENTION**

# **INFORMATION TECHNOLOGY STRATEGIC PLAN FY 2009-2013**

**Strengthening the Public Health Information Supply Chain  
to Better Protect the Health of People Everywhere**



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## EXECUTIVE SUMMARY



Since it was founded in 1946, the Centers for Disease Control and Prevention (CDC) has remained at the forefront of public health practice as its mission has expanded from the control of infectious diseases to include control and prevention of chronic diseases, injuries, workplace hazards, disabilities, and environmental health threats. CDC strives to improve the quality of people's health in the U.S. and worldwide through an integrated health protection goal approach focused on:

- Healthy People in Every Stage of Life
- Healthy People in Healthy Places
- Healthy People in a Healthy World
- People Prepared for Emerging Health Threats

The purpose of the CDC Information Technology Strategic Plan (CITSP) is to guide the direction, focus, mission alignment, investments, initiatives, and accountability of CDC's Information Technology (IT) program supporting CDC's health protection goals and to maximize the IT value to CDC programs, partners, stakeholders, and customers.

For the purposes of this plan, information technology broadly means: (1) all information assets; (2) data and information collection, management, and sharing; (3) the information technology infrastructure including hardware, software, and communications; (4) information, computer, informatics sciences, and related disciplines; and (5) all associated IT management and planning activities such as information security, capital planning/investment control, and architecture. The plan development was informed by an environmental analysis of key drivers, enablers, and trends that relate to CDC's mission and by engaging a range of public, private, and academic sector participants.

The organizing paradigm for the CITSP is the concept of an information supply chain to emphasize that the driving force behind technology investment is to promote improved health outcomes through the provisioning of high-quality, timely, relevant information to CDC, its partners, and customers.

The five broad goals contained in this plan cover:

- **Core Mission:** IT solutions supporting the CDC Health Protection Goals
- **Business Services:** Advanced business systems to support effective and efficient business service delivery and management practice
- **Shared Enterprise Practices:** Enterprise resources and processes that foster mission and operations success through information technology
- **IT Foundation:** Robust, reliable, and secure computing and communications products and services that enable CDC's public health mission and business
- **Collaborative Work and Innovation:** Collaborative innovation throughout the public health domain to accelerate public health program implementation and improve program results.



## 2.2 PROCESS APPROACH

The CDC IT strategic planning process incorporated these key attributes:

- 1] Collaboration and Inclusion
- 2] Participation of Public, Private, and Academic Sectors
- 3] Innovation and Leveraging of Related Activities to Stimulate Creativity
- 4] Coordination and Synergy

### **Collaboration and Inclusion**

CDC is quite diverse in its mission breadth, responsibilities, program approaches, functions and services, and disciplines needed to achieve its mission and goals. Hence, it is critical that the IT Strategic Plan be robust and diverse in scope to effectively support CDC's program breadth. As such, the planning efforts involved various levels of CDC professionals throughout the agency at various stages of the plan's development and refinement. Moreover, continuous evolution of the plan is expected as conditions change and new agency needs occur.

### **Public, Private, and Academic Sector Involvement**

The public, private, and academic sectors were engaged in aspects of the plan's formulation and review with the objective of obtaining broad and comprehensive perspectives on health and IT dynamics. Brainstorming sessions were held with intergovernmental and nonprofit partner organizations, IT industry companies, current CDC IT contractors, and academicians.

### **Emphasis on Innovation and Leveraging of Related Activities**

A key challenge for all strategic planning activities is the development of an effective process that supports plan evolution over the course of time to assure maximum impact. To this end, Innovation Symposia have been designed to provide ongoing exposure to IT best practices as well as health and IT trends and breakthrough innovations with a primary focus on the strategic impact to CDC. The Innovation Symposia should assist CDC in the:

- 1] Collaboration among information technology partners and in the broader public health arena
- 2] Timely adoption of important technologies through early identification of new technologies and improved understanding of their implementation cycles
- 3] Continuous evolution of a technology adoption roadmap that aligns with CDC's mission and business
- 4] Development of a continuing education forum for the information technology community
- 5] Sustained engagement of stakeholders in the CDC IT strategic planning process

### **Coordination and Synergy**

As IT planning continuously occurs across CDC organizations, this agency-wide IT strategic plan will serve as a common foundation for enhancing convergence of efforts, directions, and initiatives germane to individual organizational units and their program challenges. This should also promote synergies leading to more robust innovation.

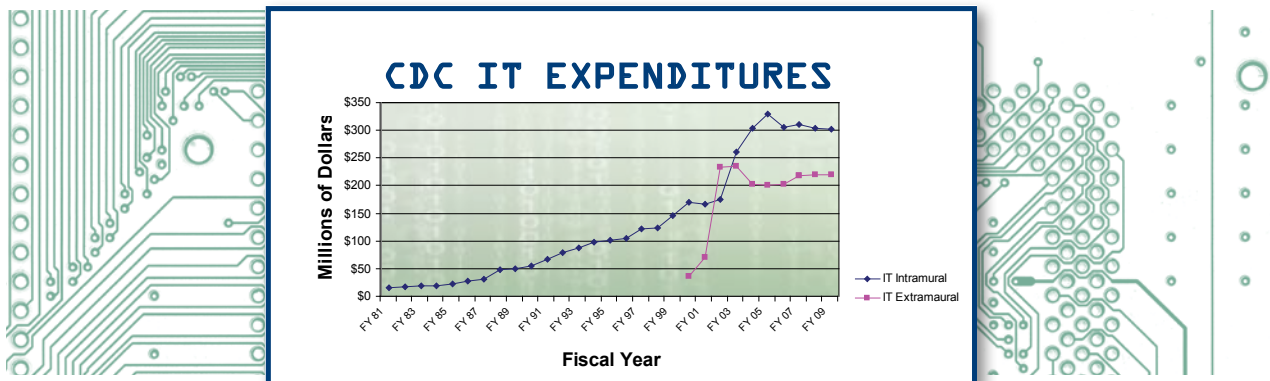


### 3.3 CDC CURRENT STATE AND FUTURE DIRECTION

CDC has grown dramatically over the past decade from an annual budget of approximately \$2 billion to more than \$10 billion to address the ever increasing scope of health challenges facing the nation and the world. In conjunction with these challenges, CDC is dramatically reshaping its strategy to address the 21st century's health challenges. No longer is an approach on a disease-by-disease basis sufficient in today's world of health threats and associated urgencies. As a result, CDC established a set of **six strategic imperatives** (health impact, customer centricity, public health research, leadership, global health impact, and accountability). In addition, there are four overarching goal areas (people, places, preparedness, and global health) that include a comprehensive set of **24 health protection goals** (see Appendix 1) and 80 associated objectives. These new CDC approaches support the need to be more integrated across CDC program activities, synergistic with health partners, innovative, and holistic in addressing health threats.

CDC has identified 69 major functions and services it conducts to carry out its mission and a portfolio of approximately 1,300 projects. This range of activities is conducted with 95000 employees in 170 occupations deployed around the world. CDC works closely with the several hundred thousand employees of the public health professional workforce and increasingly more directly with the broad and diverse healthcare community and other stakeholders in healthcare across the public, private, and academic sectors. Health promotion and disease prevention are becoming ever more critical components of the US healthcare system. The US expends over \$2 trillion per year overall on healthcare or 16% of Gross domestic Product (GDP). These expenditures are forecasted to increase to 20% of US GDP within a decade.

Similarly to CDC's overall budgetary growth, CDC's IT program has grown dramatically from the early 1980s into the early part of the 21st century from an annual IT spend of \$16M to \$500M. During the past five years, CDC has been issuing grants to intergovernmental public health partners (state and local health departments) to assist in building IT capabilities to improve national public health. This represents about 40% of CDC's overall IT budget. CDC has approximately 400 information systems supporting functional areas throughout the agency. The use of IT is now pervasive and critical to almost everything CDC does, including the support of CDC's collaborative relationships and activities with partners or vendors in healthcare, public health, life sciences, and other diverse industries. However, in the past four years, this rapid growth has ceased and spending has remained nearly constant as a result of active efficiency initiatives undertaken by CDC and overall federal budget trends.



Another set of contributing factors to CDC's IT landscape and future directions are the Federal CIO Council IT Strategic Plan (see Appendix 2) and the HHS IT Strategic Plan (see Appendix 3). These IT programs significantly affect some of the directions, strategies, and initiatives CDC employs.

All the factors described in the environmental analysis contribute to the challenge of evolving CDC's IT program and strategic direction in a manner that delivers the greatest contributions to CDC's mission of health protection and quality of health for all. It is of utmost importance that CDC's IT program deliver demonstrable high value, quality, functional, and reliable outcomes to CDC programs and the public.







### 4.3.2 Goal Area: Business Services

| Goal 2                      | Advanced business systems to support effective business service delivery and management practice  |
|-----------------------------|---|
| <b>Objective 1</b>          | Implement business systems that reduce transaction cycle times and incorporate business rules for policy compliance and internal controls.  |
| <i>Performance Measures</i> | <ul style="list-style-type: none"> <li>• Achieve at least a 20% improvement in transaction cycle time for at least five major business processes</li> <li>• Audits and independent reviews of business functions do not find any material weaknesses attributable to lack of system controls or misalignment with business rules.</li> </ul>  |
| <b>Objective 2</b>          | Implement and integrate business systems to support a comprehensive management approach to CDC program operations and resource administration.  |
| <i>Performance Measures</i> | <ul style="list-style-type: none"> <li>• Reduce redundant applications and services through integration.</li> <li>• Establish business intelligence capability for management reporting, query, and search.</li> </ul>  |
| <b>Objective 3</b>          | Conduct business process re-engineering with new systems adoption to improve service delivery.  |
| <i>Performance Measures</i> | <ul style="list-style-type: none"> <li>• All new systems implementations will undergo process mapping, evaluation, and re-engineering.</li> </ul>   |
| <b>Objective 4</b>          | Improve e-Gov by delivering electronic business services to customers.  |
| <i>Performance Measures</i> | <ul style="list-style-type: none"> <li>• Customer satisfaction with business service websites is greater than 80%.</li> <li>• Availability of online administrative services and customer self-service capabilities grows by at least two new functions per year.</li> <li>• Customer usage, for both information and services access, increases 20% per year as measured by web page visits or forms completed.</li> </ul> |



### 4.3.3 Goal Area: Information Technology Foundation

|                             |  |
|-----------------------------|--|
| <b>Goal 3</b>               | <b>Robust, reliable, secure computing and communications products and services that enable CDC's public health mission and business services world-wide</b>  |
| <b>Objective 1</b>          | Engineer a continually evolving robust and resilient state-of-the-art network.   |
| <i>Performance Measures</i> | <ul style="list-style-type: none"> <li>The CDC data network will have a 20% technology refresh cycle annually.</li> <li>Network services are available at least 99.9% of the time on average.</li> </ul>   |
| <b>Objective 2</b>          | Provide office-based and mobile computing power and data storage capacity to support CDC's mission and operations.   |
| <i>Performance Measures</i> | <ul style="list-style-type: none"> <li>Upgrade infrastructure capabilities (computation and storage) at least 20% per year on average.</li> </ul>  |
| <b>Objective 3</b>          | Provide anytime-anyplace authorized access to CDC knowledge assets and systems.  |
| <i>Performance Measures</i> | <ul style="list-style-type: none"> <li>Provide Internet access to world-wide CDC staff while using government-owned equipment</li> <li>Increase the number of systems available via Internet access by two systems annually.</li> <li>Expand the extranet connectivity of CDC global network by at least one international site per year.</li> </ul> |
| <b>Objective 4</b>          | Deliver convergent data, voice, and video services.  |
| <i>Performance Measures</i> | <ul style="list-style-type: none"> <li>Increase percentage of CDC staff with all three services on single platform (desktop or handheld).</li> </ul>   |
| <b>Objective 5</b>          | Provide access to seamless network services across disparate devices, internal networks, and external networks.  |
| <i>Performance Measures</i> | <ul style="list-style-type: none"> <li>100% of CDC deployed public health emergency responders have interoperable devices with other first responders.</li> <li>CDC deployed first responder teams have the capability of wireless connectivity and wireless voice and data.</li> </ul>  |
| <b>Objective 6</b>          | Provide customer-centric IT assets and services.   |
| <i>Performance Measures</i> | <ul style="list-style-type: none"> <li>Achieve all key performance indicators.</li> <li>Achieve 90% of all performance measures in the IT service level agreement.</li> <li>Customer satisfaction surveys indicate that at least 80% of customers are satisfied.</li> </ul>  |
| <b>Objective 7</b>          | Advance Green IT.  |
| <i>Performance Measures</i> | <ul style="list-style-type: none"> <li>Reduce electric and cooling requirements by 25%.</li> <li>Support telecommuting of 40% of CDC staff.</li> </ul>   |



#### 4.3.4 Goal Area: Shared Enterprise Practices

| Goal 4                      | Enterprise resources and processes that foster mission and operations success through information technology  |
|-----------------------------|---|
| <b>Objective 1</b>          | Enhance the public health informatics and IT professions throughout the public health system.   |
| <i>Performance Measures</i> | <ul style="list-style-type: none"> <li>• Informatics competencies and educational curricula in schools of public health are developed and updated regularly.</li> <li>• All CDC IT major and tactical projects are managed by PMP-certified professionals or equivalent.</li> <li>• 20% of public health fellows are in state-based assignments and 50% of CDC-based informatics fellows spend at least four weeks working in a state or on a state-based project.</li> <li>• 80% of CDC IT professionals participate in 40 hours of continuing education and learning per year.</li> </ul>   |
| <b>Objective 2</b>          | Continually foster enterprise best practice approaches of governance, shared services, enterprise architecture, capital planning, and project management.   |
| <i>Performance Measures</i> | <ul style="list-style-type: none"> <li>• Achieve successful PMA and other ratings in all areas as measured by GAO, OMB, and others.</li> <li>• Develop and successfully achieve the performance measures in the IT Governance Evaluation Plan.</li> <li>• All CDC IT projects are compliant with CDC, HHS, and OMB EA requirements, or have approved waivers through governance process.</li> <li>• All CDC IT projects adhere to CDC Capital Planning and Investment Control processes.</li> <li>• CDC unified process (UP) is implemented by all new CDC IT projects and significant enhancements to existing major and tactical systems.</li> </ul>  |
| <b>Objective 3</b>          | Develop financial strategies to ensure sufficient and sustainable investments supporting innovation and operations.   |
| <i>Performance Measures</i> | <ul style="list-style-type: none"> <li>• More than 90% of CDC system investments receive development and operating funding levels in concert with the needs established in their investment business case or project plan.</li> <li>• IT innovation funding is greater than 1% of CDC's annual IT established internal spending.</li> </ul>   |
| <b>Objective 4</b>          | Provide a secure computing environment that ensures confidentiality, integrity, and availability of information resources to appropriately authorized and authenticated users.  |
| <i>Performance Measures</i> | <ul style="list-style-type: none"> <li>• CDC's information security program rated successful by independent oversight organizations, e.g. GAO, OIG, and OMB.</li> <li>• No material weakness, significant deficiency, serious security breach, or loss of service occurs related to IT security.</li> <li>• No personally identifiable information is compromised due to lack of sufficient system controls or security practices.</li> <li>• All systems complete formal risk acceptance prior to testing or production.</li> <li>• 100% of new systems use approved operating system configurations.</li> <li>• Less than 10% of plans of action and milestones are behind schedule.</li> <li>• 90% of information security professionals have appropriate role-based training and certifications.</li> <li>• A development environment is available for developing and testing secure code throughout the software development lifecycle.</li> </ul> |

### 4.3.5 Goal Area: Collaborative Work and Innovation

|                             |  |
|-----------------------------|--|
| <b>Goal 5</b>               | <b>Collaborative innovation is prevalent throughout public health domain and accelerates public health program implementation and improves program results</b>   |
| <b>Objective 1</b>          | Accelerate innovation in public health by leveraging information technology and processes that support collaborative work.   |
| <i>Performance Measures</i> | <ul style="list-style-type: none"> <li>IT R&amp;D funding to address emerging public health program challenges will be assessed annually</li> <li>Multidisciplinary teams create business cases for new public health informatics projects in less than six weeks for 80% of the non-emergent proposals and one week for 95% of the urgent proposals.</li> <li>50% of new innovation will be identified and adopted from sources external to CDC.</li> </ul>   |
| <b>Objective 2</b>          | CDC's public health program staff can contextually link disparate data and information assets by scientific topic.   |
| <i>Performance Measures</i> | <ul style="list-style-type: none"> <li>50% of CDC's current digital content including program/public health data, personnel profiles/directories, documents including manuscripts and legislative testimonies, activity profiles (outbreaks, surveillance activities, interventions, etc.) are securely stored and indexed, searchable, and accessible by appropriate users.</li> <li>90% of metadata tags used are compliant with the agency-wide adopted metadata standard.</li> <li>30% of CDC's genomic data is linked to epidemiologic data.</li> <li>Program activities are all catalogued and searchable thus enabling CDC's staff to easily enumerate program activities, e.g. number and type of outbreaks or surveillance systems by disease, by year, etc.</li> </ul> |
| <b>Objective 3</b>          | Improve the collection creation, shaping, and building of public health knowledge products (content creation).   |
| <i>Performance Measures</i> | <ul style="list-style-type: none"> <li>CDC launches a collaborative environment that generates new content and knowledge products for public health.</li> </ul>  |
| <b>Objective 4</b>          | Improve the ability for the public health community to engage in collaborative work.   |
| <i>Performance Measures</i> | <ul style="list-style-type: none"> <li>CDC sponsors online public health collaborations.</li> <li>CDC supports open source development efforts that leverage best practices-based collaboration methodologies.</li> </ul>  |





The following major initiatives, strategies, and projects are underway, planned, or are proposed for each goal. They are subject to evaluation as they proceed through the oversight of CDC's IT governance process. New initiatives will arise as events occur and the planning horizon progresses. These initiatives are provided as ideas of how the CITSP goals and objectives may be addressed through specific actions. The initiatives are stratified by each goal. In addition, the right hand column identifies which objective(s) within the goal it most closely addresses.

| Initiative Description  | Objectives Supported |
|---|----------------------|
| <b>Goal 1 : Information Supporting the CDC Health Protection Goals</b>  |                      |
| Evaluate opportunities to leverage non-CDC and non-traditional public health data resources for public health, e.g. RHIO, EHR, etc.   | <b>1</b>             |
| Establish a national public health laboratory information infrastructure.   | <b>1</b>             |
| Create a directory of external data sources used by CDC to facilitate sharing of opportunities. Identify new sources that may support CDC public health programs.   | <b>1</b>             |
| IT teams will work with the Health Protection Goal Action Teams across the Agency to identify IT and information supply needs to address the goal action plans.   | <b>1, 3</b>          |
| Conduct use-case mapping of information supply chain to health protection goals. Establish All-Hazards Event Response Information Supply Chains including their supporting components, e.g. portal, to support DEOC-managed responses | <b>1, 3</b>          |
| Evaluate adequacy of IT tools that support CDC science and make recommendations for new solutions.  | <b>2</b>             |
| Implement web-based analytical services to provide on-demand statistical, mathematical, and GIS processing and visualization functions to public health scientists and researchers.   | <b>2</b>             |
| Evaluate opportunities in the area of bioinformatics to support microbiologic and human genomics including partnering with other federal agencies.  | <b>2</b>             |
| Develop capability to contextualize the genome from a population health and epidemiologic perspective, e.g. association of a specific microbial agent's sequence on population-based disease.   | <b>2</b>             |
| Develop capability to contextualize the genome from a population health and epidemiologic perspective.  | <b>2</b>             |
| Evaluate current portfolio of systems for opportunity to improve user interfaces for usability and real-time analysis and visualization of data sources, thus improving the agency's decision making capabilities.                    | <b>2</b>             |
| All major IT investments will be comprehensively described and linked to applicable health protection goals in CDC's health impact planning system for knowledge sharing.   | <b>3</b>             |
| Enhance health impact planning through a comprehensive planning, execution, results monitoring system integrating budget with performance.  | <b>4</b>             |
| Evaluate systems that reach to CDC's grantees to improve administrative and program reporting opportunities.  | <b>4</b>             |
| Evaluate CDC's key business and operations systems for added public health program utility.   | <b>4</b>             |

| Initiative Description | Objectives Supported |
|------------------------|----------------------|
|------------------------|----------------------|

| <b>Goal 2 : Advanced business systems to support effective and efficient business service delivery and management practice</b>  |            |
|---|------------|
| Implement HHS-wide acquisition and contracting system.  | <b>1-3</b> |
| Implement HHS-wide property management system.  | <b>1-3</b> |
| Implement HSPD-12 Identity Management System and associated access management and staff in-and-out processing systems.  | <b>1-3</b> |
| Implement a data warehouse of administrative transaction data that will aid agency decision-making and enable business intelligence reporting and inquiry.  | <b>1-4</b> |
| Establish a baseline for transaction cycle time for 10 major business processes at CDC and develop a process for tracking transaction time at regular intervals. Execute process improvement activities to improve performance by 20% | <b>1</b>   |
| Review data from portfolio analysis, identify redundant administrative systems, and take action to reduce unnecessary redundancy.   | <b>2</b>   |
| Develop and initiate a mapping, evaluation, and re-engineering process for all new business systems.  | <b>3</b>   |
| Establish ability to capture web services metrics real time including: customer usage, customer satisfaction, availability of specific services, etc.   | <b>4</b>   |

| <b>Goal 3 : Robust, reliable, secure computing and communications products and services that enable CDC's public health mission and business services world-wide</b> |                   |
|--|-------------------|
| Upgrade network infrastructure to keep pace with performance and functionality requirements.   | <b>1-6</b>        |
| Convert to government-wide NetWorx telecommunications and wide area networking services and IPv6.  | <b>1-6</b>        |
| Evaluate alternate mobile computing devices for increased functionality.   | <b>1-6</b>        |
| Implement server virtualization and increase capacity of storage networking and enterprise data analysis platform.   | <b>1, 2, 7</b>    |
| Enable Grid computing clusters for High Performance Computing (HPC), to meet the computational requirements of CDC's scientific community.                           | <b>1, 2, 7</b>    |
| Implement new standards-based streaming video technology over IP to serve both CDC staff and external customers.   | <b>1, 3, 5</b>    |
| Expand CDC remote access capacity for staff to address public health emergencies and increasing telecommuting.   | <b>1, 3, 6, 7</b> |
| Convert to establish program and business-focused technology direction.  | <b>1-6</b>        |
| Adopt and implement ad-hoc mashed network technology in support of our emergency response teams in communicating with emergency services during an active event.     | <b>2, 6</b>       |
| Implementation of very small aperture terminal (VSAT) for satellite communications during an emergency event.  | <b>3, 6</b>       |
| Evaluate and pilot multimedia communications service (MCS) for converged voice, video, and data services on a single platform.                                       | <b>4</b>          |
| Test and evaluate voice over Internet Protocol (VoIP) between CDC campuses.  | <b>4, 5</b>       |
| Implementation of new generation technologies supporting priority communications for emergency response teams back to the CDC.                                       | <b>6</b>          |
| Increase continuity of operations and disaster recovery capabilities for critical systems and services.  | <b>6</b>          |
| Acquire Energy Star equipment and manage devices for low energy consumption.   | <b>7</b>          |



**Initiative Description**

**Objects Supported**

| Goal 4 : Enterprise resources and processes that foster mission and operations success through information technology   |          |
|---|----------|
| Develop public health informatics competencies and curricula in collaboration with schools of public health.  | <b>1</b> |
| Provide a consolidated catalogue of education, training, and seminars in the IT arena that is made available to all IT staff. Regularly adjust training offerings to stay abreast of competency needs. Enhance tools for IT staff to track their individual development plans with learning experiences.  | <b>1</b> |
| Conduct comprehensive IT investment portfolio analysis.   | <b>2</b> |
| Evaluate need and implement as appropriate CDC Unified Process for systems development throughout the enterprise. Integrate unified process with best practices for governance, CPIC, security, and enterprise architecture.  | <b>2</b> |
| Implement HHS enterprise performance lifecycle (EPLC) practices.  | <b>2</b> |
| Create and implement a peer review process for major IT projects modeled after traditional scientific peer review to increase quality of systems, reduce risk, and provide a forum for learning.  | <b>2</b> |
| Establish framework and processes to evaluate extramural IT investments.  | <b>2</b> |
| Develop and implement a best practices-based enterprise information resource (IR) governance process that integrates capital planning, enterprise architecture, security management, and infrastructure support into information systems and informatics practices.   | <b>2</b> |
| Expand CDC's enterprise architecture by mapping out the business functions and processes necessary for CDC to achieve its health protection goals; map the data and information flows necessary to support those functions and processes; develop target architecture that will fully support those functions and processes; and help guide systems development toward the achievement of that target architecture. | <b>2</b> |
| Implement a central Web-based services oriented architecture (SOA) publishing service component for use by CDC programs consistent with the Federal Enterprise Architecture. This architecture will be composed of service components that are interoperable, non-redundant, and directly aligned to business function.   | <b>2</b> |
| Develop IT capital budgeting approach to ensure essential financing for system and service continuity.  | <b>2</b> |
| Segment CDC's network to reduce risk and increase resiliency.   | <b>3</b> |
| Expand encryption solutions beyond laptops to cover all sensitive data at rest or on mobile storage devices.  | <b>4</b> |
| Enhance security monitoring, scanning, vulnerability testing, and response capabilities to improve security posture.  | <b>4</b> |



## Initiative Description

## Objects Supported

| Goal 5 : Collaborative innovation is prevalent throughout public health domain and accelerates public health program implementation and improves program results  |          |
|---|----------|
| Develop public health informatics competencies and curricula in collaboration with schools of public health.  | <b>1</b> |
| Provide a consolidated catalogue of education, training, and seminars in the IT arena that is made available to all IT staff. Regularly adjust training offerings to stay abreast of competency needs. Enhance tools for IT staff to track their individual development plans with learning experiences.  | <b>1</b> |
| Conduct comprehensive IT investment portfolio analysis.   | <b>2</b> |
| Evaluate need and implement as appropriate CDC Unified Process for systems development throughout the enterprise. Integrate unified process with best practices for governance, CPIC, security, and enterprise architecture.  | <b>2</b> |
| Implement HHS enterprise performance lifecycle (EPLC) practices.  | <b>2</b> |
| Create and implement a peer review process for major IT projects modeled after traditional scientific peer review to increase quality of systems, reduce risk, and provide a forum for learning.  | <b>2</b> |
| Establish framework and processes to evaluate extramural IT investments.  | <b>2</b> |
| Develop and implement a best practices-based enterprise information resource (IR) governance process that integrates capital planning, enterprise architecture, security management, and infrastructure support into information systems and informatics practices.   | <b>2</b> |
| Expand CDC's enterprise architecture by mapping out the business functions and processes necessary for CDC to achieve its health protection goals; map the data and information flows necessary to support those functions and processes; develop target architecture that will fully support those functions and processes; and help guide systems development toward the achievement of that target architecture. | <b>2</b> |
| Implement a central Web-based services oriented architecture (SOA) publishing service component for use by CDC programs consistent with the Federal Enterprise Architecture. This architecture will be composed of service components that are interoperable, non-redundant, and directly aligned to business function.   | <b>2</b> |
| Develop IT capital budgeting approach to ensure essential financing for system and service continuity.  | <b>2</b> |
| Segment CDC's network to reduce risk and increase resiliency.   | <b>3</b> |
| Expand encryption solutions beyond laptops to cover all sensitive data at rest or on mobile storage devices.  | <b>4</b> |
| Enhance security monitoring, scanning, vulnerability testing, and response capabilities to improve security posture.  | <b>4</b> |



## 2.2 ORGANIZATIONAL RESPONSIBILITIES

The following table depicts the organizations that have primary and significant contributing responsibility for each of the Plan's objectives. Organizations with primary responsibility are accountable for driving, guiding, and monitoring the progress of each objective and its related performance measures, strategies, and initiatives.

| No.  | Objective Description   | Primary      | Contributing |
|--|---|--------------|--------------|
| <b>Goal 1 : Information supporting the CDC Health Protection Goals</b>   |   |              |              |
| Obj 1  | Define, expand, and increase effectiveness of the public health information supply chain (collection and distribution).   | NCPHI        | NC           |
| Obj 2  | Provide CDC scientists with the tools to model, analyze, and graphically present complex scientific challenges.   | NCPHI        | ITSO & NC    |
| Obj 3  | Enable CDC to effectively share knowledge, create, communicate, and deliver health information and interventions using customer-centered and science-based strategies to protect and promote the health of diverse populations. | NCPHI & NCHM | NC<br>OCSO   |
| Obj 4  | Expand the value of business systems through integration with public health program execution.  | MISO         | BSO          |
| <b>Goal 2 : Advanced business systems to support effective and efficient business service delivery and management practices</b>                                      |   |              |              |
| Obj 1  | Implement business systems that reduce transaction cycle times and incorporate business rules for policy compliance and internal controls.  | MISO         | BSO          |
| Obj 2  | Implement and integrate business systems to support a comprehensive management approach to CDC program operations and resource administration.  | MISO         | BSO          |
| Obj 3  | Conduct business process re-engineering with new systems adoption to improve service delivery.  | MISO         | BSO          |
| Obj 4  | Improve e-Gov by delivering electronic business services to customers.  | MISO         | BSO          |
| <b>Goal 3 : Robust, reliable, secure computing and communications products and services that enable CDC's public health mission and business services world-wide</b> |   |              |              |
| Obj 1  | Engineer a continually evolving robust and resilient state-of-the-art network.  | ITSO         | NC           |
| Obj 2  | Provide office-based and mobile computing power and data storage capacity to support CDC's mission and operations.  | ITSO         | NC           |
| Obj 3  | Provide anytime-anyplace authorized access to CDC knowledge assets and systems.   | ITSO & OCISO | NC           |
| Obj 4  | Deliver convergent data, voice, and video services.   | ITSO         | NC           |
| Obj 5  | Provide access to seamless network services across disparate devices, internal networks, and external networks.   | ITSO         | NC           |
| Obj 6  | Provide customer-centric IT assets and services.  | ITSO         | NC           |
| Obj 7  | Advance Green IT.   | ITSO         | BSO          |

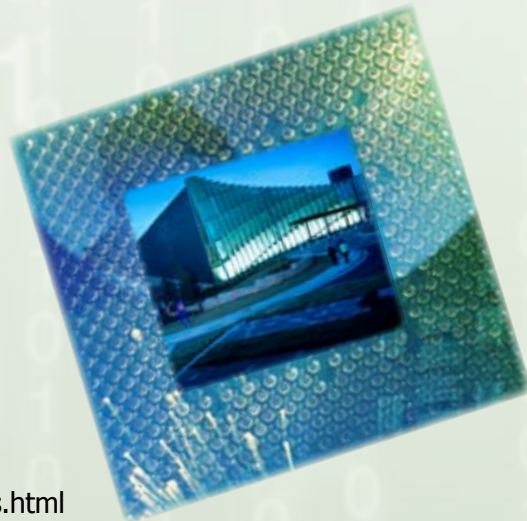
| No.  | Objective Description  | Primary     | Contributing |
|--|--|-------------|--------------|
| <b>Goal 4 : Enterprise resources and processes that foster mission and operations success through information technology</b>   |  |             |              |
| Obj 1  | Enhance the public health informatics and IT professions throughout the public health system.  | OWCD        | NC           |
| Obj 2  | Continually foster enterprise best practice approaches of governance, shared services, enterprise architecture, capital planning, and project management.                      | OCIO        | NCPHI        |
| Obj 3  | Develop financial strategies to ensure sufficient and sustainable investments supporting innovation and operations.  | OCIO        | FMO          |
| Obj 4  | Provide a secure computing environment that ensures confidentiality, integrity, and availability of information resources to appropriately authorized and authenticated users. | ITSO & OCIO | NC           |
| <b>Goal 5 : Collaborative innovation is prevalent throughout public health domain and accelerates public health program implementation and improves program outcomes</b> |  |             |              |
| Obj 1  | Accelerate innovation in public health by leveraging information technology and processes that support collaborative work.   | OSI         | NCPHI        |
| Obj 2  | CDC's public health program staff can contextually link disparate data and information assets by scientific topic.   | NCPHI       | NC           |
| Obj 3  | Improve the ability for the public health community to engage in collaborative work.   | NCPHI       | NC           |
| Obj 4  | Improve the collection creation, shaping, and building of public health knowledge products (content creation).   | NCPHI       | NC           |



## 5

## ACRONYMNS

|        |   |
|--------|---|
| BSO    | Business Service Office   |
| COTPER | Coordinating Office for Terrorism Preparedness and Emergency Response |
| ITSO   | Information Technology Services Office                                |
| MISO   | Management Information Services Office                                |
| NC     | National Center   |
| NCEH   | National Center for Environmental Health                              |
| NCHM   | National Center for Health Marketing                                  |
| NCPHI  | National Center for Public Health Informatics                         |
| OCIO   | Office of the Chief Information Officer                               |
| OCSO   | Office of the Chief Science Officer                                   |
| OSI    | Office of Strategy and Innovation                                     |
| OWCD   | Office of Workforce and Career Development                            |
| PGO    | Procurement and Grants Office   |



## 6

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2. CDC Strategic Imperatives:  
<http://www.cdc.gov/osi/goals/strategicimperatives.html>
3. CDC Health Protection Goals:  
<http://www.cdc.gov/>
4. HHS Enterprise Information Technology Strategic Plan, FY 2006–2010 (Draft), February 2006
5. HHS Health IT:  
<http://www.hhs.gov/healthit/>
6. OMB guidance on Strategic IT Planning:  
<http://www.whitehouse.gov/omb/circulars/a130/a130trans4.html>
7. Federal Government CIO Council Strategic Plan FY 2007–2009:  
<http://www.cio.gov/documents/CIOCouncilStrategicPlan2007-2009.pdf>
8. Federal Enterprise Architecture:  
<http://www.whitehouse.gov/omb/egov/a-1-fea.html>
9. Federal Health Architecture:  
<http://www.hhs.gov/fedhealtharch/>



### Overarching Goal 3: People Prepared for Emerging Health Threats

People in all communities will be protected from infectious, occupational, environmental, and terrorist threats.

#### Pre-Event:

- Increase the use and development of interventions known to prevent human illness from chemical, biological, radiological agents, and naturally occurring health threats.
- Decrease the time needed to classify health events as terrorism or naturally occurring in partnership with other agencies.
- Decrease the time needed to detect and report chemical, biological, radiological agents in tissue, food, or environmental samples that cause threats to the public's health.
- Improve the timeliness and accuracy of communications regarding threats to the public's health.

#### Event:

- Decrease the time to identify causes, risk factors, and appropriate interventions for those affected by threats to the public's health.
- Decrease the time needed to provide countermeasures and health guidance to those affected by threats to the public's health.

#### Post-Event:

- Decrease the time needed to restore health services and environmental safety to pre-event levels.
- Improve the long-term follow-up provided to those affected by threats to the public's health.
- Decrease the time needed to implement recommendations from after-action reports following threats to the public's health.

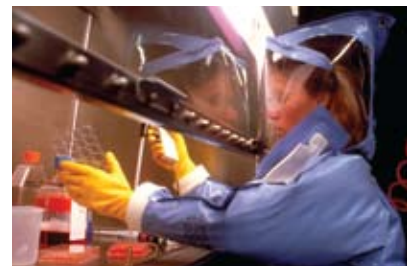
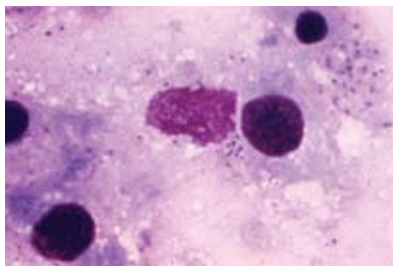
### Overarching Goal 4: Healthy People in a Healthy World

People around the world will live safer, healthier, and longer lives through health promotion, health protection, and health diplomacy.

**Health Promotion:** Global health will improve by sharing knowledge, tools, and other resources with people and partners around the world.

**Healthy Global Health Protection:** Americans at home and abroad will be protected from health threats through a transnational prevention, detection, and response.

**Health Diplomacy:** CDC and the United States Government will be a trusted and an effective resource for health development and health protection around the globe.



# APPENDIX 2 – FEDERAL CIO COUNCIL IT STRATEGIC PLAN

## Goals & Objectives 2007–2009

### **Goal 1: A cadre of highly capable IT professionals with the mission-critical competencies needed to meet agency goals**

- Improve IT workforce identification, assessment, and reporting capabilities to support agency requirements and to respond to overall Federal IT workforce trends.
- Ensure that robust Federal IT professional development programs that reflect both current initiatives and Federal Government's strategic direction are offered.
- Identify opportunities to strengthen and leverage IT project management skills in the Federal Government.
- Promote the development and implementation of competitive compensation and workforce flexibilities that attract and retain top-level IT talent within the Federal Government.

### **Goal 2: Information securely, rapidly, and reliably delivered to our stakeholders**

- Improve IT workforce identification, assessment, and reporting capabilities to support agency requirements and to respond to overall Federal IT workforce trends.
- Ensure that robust Federal IT professional development programs that reflect both current initiatives and Federal Government's strategic direction are offered.
- Identify opportunities to strengthen and leverage IT project management skills in the Federal Government.
- Promote the development and implementation of competitive compensation and workforce flexibilities that attract and retain top-level IT talent within the Federal Government.

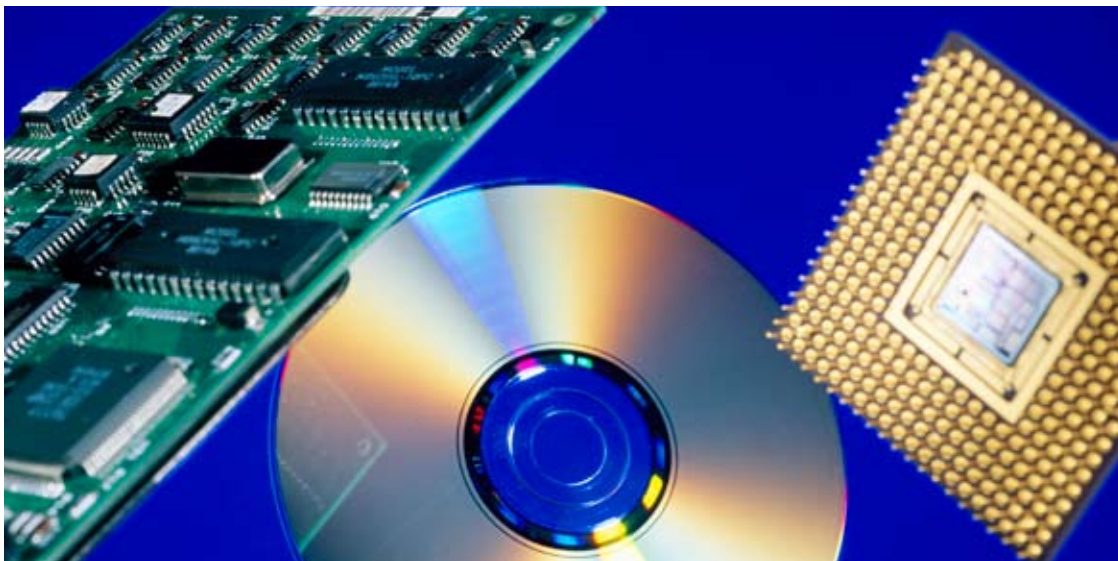
### **Goal 3: Interoperable IT solutions identified and used effectively cross the Federal Government**

- Integrate the Federal Enterprise Architecture (FEA) into the Federal budget process as a tool for evaluating IT investments to identify redundancies and opportunities for shared solutions.
- Implement the SmartBuy project plan.
- Collaborate with the LoBs to identify and establish shared service providers for select cross-agency business processes.
- Accelerate the use of e-Gov solutions across all departments/agencies.
- Adopt service-oriented design, allowing integration of standard business service components across the Federal Government.
- Encourage the adoption of standards-based best practices across government agencies.
- Incorporate best practices into the inherently governmental processes to be developed and deployed by agencies, LoBs, and e-Gov projects.
- Provide the government's IT leaders with the knowledge and skills they need through best practices forums, CIO Bootcamps and an effective website and collaboration tool.
- Continue to develop more efficient and effective methods for sharing information on emerging technologies.



**Goal 4: An integrated, accessible Federal infrastructure enabling interoperability across the Federal, state, tribal, and local governments, as well as partners in the commercial and academic sectors**

- Accelerate the alignment of agency architectures with the FEA.
- Develop a strategy in coordination with state and local (major city) governments to promote the alignment of Federal, state, tribal, and local (major city) enterprise architectures.
- Work closely with national and international governmental and private sector organizations to advance the use of common enterprise architecture standards.
- Assist Federal agencies with the transition to incorporate Internet Protocol Version 6 (IPv6) into their networks.
- Adopt service-oriented design, allowing integration of standard business service components across the Federal Government.
- Encourage the adoption of standards-based best practices across government agencies.
- Establish a government-wide repository of standardized business service components.
- Promote the accessibility of Federal Rehabilitation Act (Section 508) best practices and tools to all Federal agencies.



## APPENDIX 3 - HHS IT STRATEGIC PLAN GOALS & OBJECTIVES 2006-2010



| IT Goals  | IT Objectives   |
|---|---|
| <p><b>Goal 1</b><br/>Provide a secure and trusted IT environment.</p>   | <p>1.1 Enhance confidentiality, integrity, and availability of IT resources.<br/>1.2 Protect IT assets and resources from unauthorized access or misuse.<br/>1.3 Enhance security awareness department-wide.<br/>1.4 Ensure that IT security is incorporated into the lifecycle of every IT investment.</p>   |
| <p><b>Goal 2</b><br/>Enhance the quality, availability, and delivery of HHS information and services to citizens, employees, businesses, and governments.</p>                       | <p>2.1 Provide an intuitive one-stop solution to quickly and reliably deliver information for public access.<br/>2.2 Leverage web services to conduct business securely with customers and stakeholders.<br/>2.3 Ensure the availability and dissemination of information in preparation of or in response to local and national emergencies or other significant business disruptions.<br/>2.4 Provide technologies enabling HHS employees to work collaboratively and share knowledge.</p>  |
| <p><b>Goal 3</b><br/>Implement an enterprise approach to information technology infrastructure and common administrative systems that will foster innovation and collaboration.</p> | <p>3.1 Establish a basis for consolidated infrastructure to achieve interoperability and communication among operating divisions.<br/>3.2 Improve the performance of HHS' communication/network resources.<br/>3.3 Enable the unification and simplification of similar IT business processes and services within and across operating divisions.<br/>3.4 Implement consolidated financial management and other administrative systems.<br/>3.5 Maximize the value of technology investments through enterprise-wide procurement and licensing.</p> |
| <p><b>Goal 4</b><br/>Enable and improve the integration of health and human services information.</p>   | <p>4.1 Provide integrated public health information services across HHS and to private industry, first responders, other healthcare providers, and the public.<br/>4.2 Provide national leadership for Consolidated Health Informatics to promote the adoption of data, process, and vocabulary standards.</p>  |
| <p><b>Goal 5</b><br/>Achieve excellence in IT management practices.</p>   | <p>5.1 Strengthen HHS enterprise-wide processes for collaborative IT strategic planning, capital planning, and investment control.<br/>5.2 Apply strong project management and performance measurements processes to critical IT projects to achieve project success.<br/>5.3 Develop an IT human capital plan to guide the recruitment, retention, and skill development of staff.<br/>5.4 Establish and maintain IT policies and SOPs to ensure compliance with evolving Federal legislation and OMB regulations.</p>                             |

## APPENDIX 4 - CURRENT CDC MAJOR IT INVESTMENTS

The following table depicts CDC's major IT investments consistent with OMB and HHS capital planning guidance.

| Items  | Objective Description  | National Center | Total (\$ mil) |              |              |
|--|--|-----------------|----------------|--------------|--------------|
|  |  |                 | 2007           | 2008         | 2009         |
| CDC Information Technology Infrastructure                          | This investment includes all CDC IT infrastructure services and costs. CDC will reduce costs and gain efficiencies through their consolidation of services into a central organizational unit, IT Services Office (ITSO), reporting to the agency CIO.                             | ITSO            | 76.0           | 75.4         | 76.1         |
| CDC PHIN: BioSense   | A program to significantly improve the nation's abilities for early detection of a bioterrorism event in the US through public health surveillance activities focused on prediagnostic indicators of disease in population through syndromic surveillance.                         | NCPHI           | 49.1           | 34.4         | 49.9         |
| CDC PHIN: National Electronic Disease Surveillance Systems (NEDSS) | NEDSS is an initiative that promotes the use of data and information system standards to advance the development of efficient, integrated, and interoperable surveillance systems at federal, state, and local levels. It is a major component of PHIN.                            | NCPHI           | 24.7           | 24.7         | 24.8         |
| CDC Vaccine Tracking System (VTrckS)                               | Enables the efficient ordering and delivery of vaccines to public and private health care providers. Also tracks vaccines throughout the supply chain.   | NCIRD           | 7.0            | 3.3          | 0.3          |
| CDC National Select Agent Registry (NSAR) (formerly SATERIS)       | A national database that possesses, uses, or transfers any select agents and toxins regulated by CDC. The system will include a web-application process for submittal of information from the regulated entities and an electronic documents management system.                    | COTPER          | 6.8            | 7.7          | 7.5          |
| CDC Health Impact Planning (HI.net/IRIS)                           | Health Impact Planning is an umbrella project to consolidate budget planning and performance integration tools within CDC and is a combined effort to integrate management tools across the agency and to enable alignment of programs with agency goals.                          | OSI/FMO         | 5.3            | 5.4          | 5.5          |
| CDC Public Health Information Network (PHIN)                       | PHIN is a national initiative to implement a multi-organizational business and technical architecture for public health information systems. It will integrate existing capabilities and advance the ways IT can support CDC's public health mission as it relates to informatics. | NCPHI           | 4.7            | 4.7          | 4.7          |
| CDC Integrated Contracts Expert (ICE)                              | ICE fully automates the procurement process for simplified acquisitions and contracts. These include: procurement requests, approvals, contract document creations, administration and management of contracts and purchase orders, as well as tracking and reporting.             | PGO             | 1.2            | 1.0          | 1.0          |
|  |  |                 | <b>174.8</b>   | <b>156.6</b> | <b>169.8</b> |

