

IT BEST PRACTICES: ENABLING GREEN THROUGH IT SOLUTIONS

Authored by:
**California Information Technology
Managers Academy, Class XVI**



"California IT – A Commitment to Green"

May 2009



California Information Technology Managers Academy (ITMA)

IT BEST PRACTICES: ENABLING GREEN THROUGH IT SOLUTIONS

BACKGROUND

Many services provided by the State of California government require the use of paper and travel by employees. California citizens also need to travel in order to receive many government services. Miles traveled on the road contribute to carbon dioxide (CO₂) emissions, increased energy utilization, and lost opportunities for operational cost savings by the State agencies and departments.

The State of California should implement Enterprise Information Technology (EIT) solutions that support Green practices. These solutions can enable travel reduction by employees and citizens, improved level of service to citizens, CO₂ emission reductions, reduced paper usage, improved energy efficiency, increased operational efficiencies, and cost savings. Potential approaches include e-Government, Teleworking, Conferencing, Online Collaboration, Online Document Management, Geographical Information Systems (GIS), and Global Positioning Systems (GPS).

Implementation of the EIT solutions would be in line with:

- Assembly Bill number 32 [1]: California Global Warming Solutions Act of 2006, California Government Code Sections 12890-12893 [2] and the following sections of the California 2009 IT Strategic Plan [3]:
- Strategic Concept 3, Strategy 3: Making government services easier to find and use.
- Strategic Concept 3, Goal 3.A: Utilize innovative information technologies to achieve organizational efficiencies and the delivery of services.
- Strategic Concept 5, Strategy 1: Promote practices that protect the environment and reduce energy usage.

BENEFITS

EIT solutions such as e-Government, Telework, Voice, Video and or Web Conferencing, Online Collaboration, Online Document Management, GIS, and GPS will enable travel reduction by employees and citizens, improved levels of service to California citizens, CO₂ emission reduction, reduced paper usage and improved energy efficiency, operational efficiencies and cost savings.



California Information Technology Managers Academy (ITMA)
IT BEST PRACTICES: ENABLING GREEN THROUGH IT SOLUTIONS

RECOMMENDED STRATEGIES FOR IMPLEMENTATION

E-Government

Expand electronic services offered through the Internet. Each department or agency should assess areas of its business that requires travel by citizens or excessive use of paper, and implement e-Government solutions that can eliminate the need for that travel and paper. When addressing the Business Problem statement of a Feasibility Study Report (FSR), the agencies should evaluate cost effective solutions that consists of services that can be provided on-line (e-service).

According to the University Of Albany Center Of Technology in Government report, there is a strong nationwide trend that indicates citizens want government services to be provided electronically. Drivers; licensing is typically the first choice. It is followed most often by voter registration, obtaining state park information and making park reservations. Another common theme is the notion of one-stop shopping for government services, or the ability to access specific government information, such as medical or health care data.[4]

California citizens are using State portals and websites to gain access to multitude of State information resources such as health, public safety, housing, inspections, state parks and many others [5]. These e-government initiatives and others like them, not only allow citizens to access information when and where they want, but also tie into the State's Green practices. There are numerous examples of successful e-government initiatives in California. For example, California citizens can pay personal, business and employment taxes online with the California Franchise Tax board, Board of Equalization and the Employment Development Department. [5]

Citizens in California can register vehicles and pay fees, pay tickets, reserve personal license plates with the California Department of Motor Vehicles. Together these services logged more than 5.4 million transactions in 2007 and resulted in reduction of about 225 tons of air pollution that year. That amounts to more than a third of air pollution generated by all industrial processes in California on a daily basis. [6]

The State of Utah demonstrates that people can still conduct real business with government agencies even though state offices are closed on a normal office day. Utah's e-Government system provides over 800 government services available on-line. [7] [8]

Teleworking

Departments should implement enterprise remote access solutions to support telework. Telework, also known as telecommuting, can be a cornerstone of a Green initiative. First, it can significant reduce CO2 emissions due to reduced or eliminated commuting by employees. Second, it can reduce the electricity costs normally incurred while at the office, such as PCs and



California Information Technology Managers Academy (ITMA)

IT BEST PRACTICES: ENABLING GREEN THROUGH IT SOLUTIONS

printing. Third, an extensive telework program can reduce the building space required for the work force, along with the required expenses of cooling and heating. Telework programs offer other benefits beyond Green such as improved preparedness for disasters, and improved ability to recruit and retain staff.

Remote access solutions enable the teleworker secure access to their office remotely, including access to e-mail, documents, internal websites, and applications. Recommended remote access solutions include presentation virtualization or desktop virtualization technologies which keep the data secured within the enterprise IT environment, and support access from any remote computer, including small, inexpensive thin client devices. Another remote access solution is to issue encrypted notebooks which connect securely via one of the above methods, or through secure Virtual Private Network (VPN). These solutions should be assessed by IT security professionals to ensure data security controls and policies are in place.

In order to accomplish this, the departments need to utilize guidelines for mobile workforces and strive for meeting the keys for success – leveraging State of California telework resources published by Department of General Services [9]. Recommendations include establishing telework roles and responsibilities, training employees and supervisors, and periodically measuring the success of the telework program to make improvements as needed.

The California Environmental Protection Agency (Cal/EPA) uses telework to reduce traffic and associated air pollution, and to achieve greater productivity. This is facilitated by thoughtfully constructed telework plans that delineate an employee's responsibilities with enforceable guidelines. The air pollution emissions averted through teleworking are quantifiable— Cal/EPA's Department of Toxic Substances Control (DTSC) estimates that teleworking avoids about 180 tons of air pollution annually. If all California's state service employees telecommuted at the level of the DTSC's average, 40,250 tons of air pollution per year could be avoided, an amount greater than one day's worth of air pollution from the collective sources in the state. This is the cumulative of having an entire day without any air pollution at all. [6]

Conferencing

Increase the use of conferencing tools, to reduce the need for travel and the resulting CO2 emissions. Each department should assess the amount of travel by employees, and assess whether conferencing solutions could reduce the need for that travel. Solutions include video conferencing, telecommuting voice conferencing, web conferencing, and whiteboard conferencing. These technologies can be extended into the telework environment, enabling workers at home to participate in face to face meetings with those at the office, and with others working at home.

Other opportunities to reduce travel with conferencing could be considered, such as conducting employee training, conducting job interviews, and viewing vendor presentations. Departments



California Information Technology Managers Academy (ITMA)

IT BEST PRACTICES: ENABLING GREEN THROUGH IT SOLUTIONS

should leverage voice, video and or web based conferencing tools and services available in the market as well as telecommuting to foster work related interaction and to reduce work related travel.

According to the Business Journal there is a strong nationwide trend towards web conferencing. This is evident by a \$1.2 billion Web conferencing industry that includes major players such as Microsoft Corp. and Cisco Systems with 4,000 clients and 750,000 users. The Journal cites that approximately 20% of U.S. business use web conferencing to some extent today and 13% plan to leverage this technology in 2008 (12). In the State of Arizona implementation of web conferencing technology provided a savings of about \$753,000 and reduced the CO2 footprint by more than 300,000 pounds in the first quarter of 2008. [6] [12]

Online Collaboration

Departments should increase the use of enterprise online collaboration tools. Online collaboration is a process that allows companies and individuals to work together on a project, regardless of their physical location, and in real time. Organizations may use web collaboration internally, in order to allow more than one person access to project files and information by storing everything in an environment online that each person can access and make changes to.

Departments should leverage collaborative tools and services that allow interaction online real time such as web conferencing, wikis and discussion boards. Organizations should also use web based collaboration as a way to interact with their customers, projects, and other departments that are located at a distance. This will significantly reduce mileage, fuel, vehicle use, travel costs, more efficient time use as well as produce benefits of a mobile workforce.

Online Document Management

Departments should increase the use of online document management systems, and reduction of paper. Online document management systems can reduce the need for paper by offering document storage and retrieval, scanning and imaging, and methods of routing documents between staff for review, editing, and approval (workflow). Paper forms can be converted to online forms; documents can be viewed online rather than printing; and existing paper can be scanned and imaged. Nearly every piece of paper in the office is a potential candidate for replacement with an online solution. Elimination of paper is not only good for the environment, but can reduce the floor space need for storage, resulting in more efficient use of building space and the costs of cooling and heating.

Online document solutions can also reduce travel, which further reduces the negative impact on the environment. With paper based solutions, staff may have to travel to pick up or sign a document. This can present a challenge in implementing telework programs for staff that require access to a large number of documents or have to physically sign forms. Online



California Information Technology Managers Academy (ITMA)

IT BEST PRACTICES: ENABLING GREEN THROUGH IT SOLUTIONS

document solutions can enable any employee to access their documents from anywhere, and to approve forms from anywhere.

Online document systems can provide many other non-Green benefits, such as increased business efficiency, data security and disaster recovery capabilities; accountability and security, and data accessibility.

Geographical Information Systems (GIS) and Global Positioning Systems (GPS)

A geospatial or geographic information system (GIS) integrates hardware, software, and data for capturing, managing, analyzing, and displaying all forms of geographically referenced information. GIS allows users to view, understand, question, interpret, and visualize data in many ways that reveal relationships, patterns, and trends in the form of maps, globes, reports, and charts. [10]

Departments should increase use of GIS and GPS technologies to reduce, travel costs. GIS and GPS technologies can be used to manage employees in the field, whether they are food inspectors, natural resource field crews, foster care case workers, road maintenance crews, auditors or others. These technologies can efficiently route state employees resulting in a fewer miles driven, less gas used thus resulting in cost savings.

State departments and agencies should analyze their current business process to establish a business value based case for leveraging GIS solutions. Next the agency/department should utilize State of California Cal-Atlas site (Geospatial clearinghouse) and reference the information provided by the California Office of Chief Information Officer (OCIO). The Cal-Atlas site facilitates the coordinated and sustainable development, maintenance, licensing and sharing of geospatial data and web map services by California government agencies, partners and stakeholders. California government agencies work with the California GIS Council, regional GIS collaboratives and the broader California GIS community to define the data architecture, systems, standards, agreements and processes for a fully integrated and effective California Spatial Data Infrastructure. [11]



California Information Technology Managers Academy (ITMA)
IT BEST PRACTICES: ENABLING GREEN THROUGH IT SOLUTIONS

REFERENCES

- [1] Assembly Bill number 32, California Global Warming Solutions Act of 2006 :
http://www.leginfo.ca.gov/pub/05-06/bill/asm/ab_0001-0050/ab_32_bill_20060927_chaptered.pdf
- [2] California Government Code SECTION 12890-12893: <http://www.leginfo.ca.gov/cgi-bin/waisgate?WAISdocID=42209329002+1+0+0&WAIAction=retrieve>
- [3] California IT Strategic Plan: <http://www.itsp.ca.gov/>
- [4] Center of Technology in Government, Albany:
http://www.ctg.albany.edu/publications/reports/what_citizens_want?chapter=4
- [5] State of California Services Online: <http://www.ca.gov/OnlineServices.html>
- [6] NASCIO: Green IT in Enterprise Practices: The Essential Role of the State CIO:
<http://www.nascio.org/publications/documents/NASCIO-GreenIT.pdf>
- [7] State of Utah Online Services: <http://www.utah.gov/services/index.html?type=citizen>
- [8] State of Utah: Governor Signs 4 day work week:
http://www.utah.gov/governor/news_media/article.html?article=1837
- [9] State of California Department of General Services Statewide Telework (Telecommuting) Resources: <http://www.dgs.ca.gov/Telework/default.htm>
- [10] CA OCIO-Geospatial Information Systems (GIS):
<http://www.cio.ca.gov/Government/Governance/gis.html>
- [11] State of California Cal-Atlas (Geospatial clearinghouse): <http://www.atlas.ca.gov/>
- [12] "Arizona saves money, cuts emissions with Web conferencing." Phoenix Business Journal, May 2, 2008: www.bizjournals.com/phoenix/stories/2008/05/05/story8.html

Additional References:

California Office of the State CIO: <http://www.cio.ca.gov/>

E-Government Strategies, U.S. Department of the Interior, 2004-2008: <http://www.doi.gov/e-government/DOI%20E-Government%20Strategy.pdf>



California Information Technology Managers Academy (ITMA)
IT BEST PRACTICES: ENABLING GREEN THROUGH IT SOLUTIONS

State E-Government Strategies: Identifying Best Practices and Applications Report for the Congressional Research Service June 27, 2006: <http://www.utexas.edu/lbj/pubs/pdf/e-government.pdf>

Flex your power (Frequently Asked Questions: <http://www.fypower.com/about/fag.html>)

Implementing the President's Management Agenda for E-Government, February 27, 2002: <http://www.whitehouse.gov/omb/assets/omb/inforeg/egovstrategy.pdf>

National Association of State Chief Information Officers (NASCIO):
<http://www.nascio.org/publications/documents/NASCIO-GreenIT.pdf>

Pennsylvania's Seamless Digital Base Map (PAMAP):
www.dcnr.state.pa.us/topogeo/pamap/index.aspx

State IT Workforce: Here Today, Gone Tomorrow? NASCIO, September 2007. Page 16:
www.nascio.org/publications/documents/NASCIO-HereTodayGone%20Tomorrow.pdf

NASCIO's The Workforce Evolution: Recruiting and Retaining State IT Employees. April 2008:
www.nascio.org/publications/documents/NASCIO-WorkforceEvolution.pdf

California Department of Transportation (DOT) Live Traffic Information:
<http://www.dot.ca.gov/travel/index.php?submit=Go%20To%20High%20Speed>