

State of Maine  
Office of the CIO, Office of Information Technology  
**Strategic Information Technology (IT) Plan**  
August 2008

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## ***Preface***

It is a given that the IT Strategic plan for the State of Maine can never be in a state of completion. The state of highest perfection for the strategic plan is when it can be said to be relevant and current.

This document identifies the Information Technology vision, supporting strategies, and guiding principles to meet the State's current business needs and support long-term strategies. Specific findings and recommendations relevant to establishing IT policy and/or standards are subject to appropriate review and approval under the authority of the Chief Information Officer for the State of Maine (CIO).

## **Revisions**

Revision Number	Revision Date	Explanation
1	1/23/2002	Original plan
2	8/10/2008	Plan updated to include : Changes brought about by creation of the Office of Information Technology Modifications to strategic plan development process. The processes of the Strategic Architecture Committee Changes to Gartner brick methodology.

## **Overview of the Process**

In 2002 the State of Maine adopted an iterative process for developing on an ongoing basis its Strategic Technology vision, supporting strategies, and guiding principles. At that time a comprehensive plan was adopted with a built-in ever greening process that guarantees that the visions, strategies and principle stay fresh and more importantly relevant. In 2005, After a comprehensive reorganization of the State's Information Technology environment with a greatly empowered Chief Information Officer the State modified the iterative process to better reflect the State's commitment to excel in meeting agency needs for IT solutions and services through an Enterprise approach.

On an ongoing basis the State of Maine (the State) stakeholders, the IT Leadership group and the Office of the Chief Information Officer work closely together on an ever-greening process to keep fresh the Enterprise Architectural framework and associated principles for the State by which Information Technology (IT) investments can be targeted. The effort largely takes place through three concurrent efforts undertaken by the OIT Senior Leadership Team and the Strategic Architecture Committee. Each group in its respective area is responsible for revisiting the State's IT strategic vision, plans, principle and architecture and realigning them to reflect the evolving needs of state agencies.

## **Leadership**

The OIT Senior Leadership group includes the directors from within the core IT service organization and the agency IT directors that directly serve agencies. In July of 2007 and then again in May 2008 the State's Leadership team met to specifically address the overarching vision for the collective IT efforts in State government that will guide the ever-greening of the State's strategic planning through year 2011. The group updated the organization mission and vision. The mission statement is:

## **Mission**

**Provide technology solutions and support services to the agencies and programs of Maine State Government.**

In addition the overarching principles above the group adopted the following are the five pragmatic GOALS to guide strategic activity going forward:

- Partner with business people to align IT with business plans.
- Improve the success rate of IT projects.
- Protect IT assets by instituting standards and security procedures.
- Improve the cost and delivery of IT services.
- Invest in staff to sustain and enhance a quality workforce.

The Leadership group will continue to meet at least annually to focus on maintaining the currency and relevance to the Strategic process.

## **Strategic Architecture Committee**

The Strategic Architecture Committee is an ad-hoc committee convened to develop and communicate architectural directions for critical IT infrastructure and applications. Its goal is to support the mission, vision and 5 pragmatic goals provided by the Leadership Team. It accomplishes this by examining emerging issues and developing an architecture roadmap for OIT staff, vendors, and partners as they make day-to-day decisions and implement systems and technologies.

Its members are appointed by the CIO at the recommendation of the Chief Technology Officer, the Agency Technology Directors, and the Office of the CIO. The CIO will also appoint a Chair to facilitate the meetings, and communicate the output.

### **Functions**

- The committee will meet biweekly or as required, to facilitate the following:
- Educate members about emerging issues that affect IT architecture
- Prioritize issues for consideration
- Gather input from business entities relevant to long-term technology needs
- Consult with experts as needed
- Define preferred "to-be" states for individual issues describing the State of Maine should be at some point in the future
- Define an "as-is" state describing where the State is at now for each "to-be" state, to expose the gaps to be addressed in getting there
- Prepare a non-technical visual diagram to express the desired "to-be" state as a means to communicate the new direction
- Vet the "as-is" and "to-be" documents widely to get comments and wide buy-in
- Prepare a draft and vet updates to the "Gartner bricks" in the 2002 IT Strategic Plan
- Find ways to communicate the "to-be" states to those OIT and business staff who are working in areas that may be impacted
- Provide to the Portfolio Review Committee, Project Management Office and other governance entities guidance to help them ensure that development projects are consistent with the long-term architectural directions.
- Recommend ways to develop, communicate and enforce architectural standards for IT
- Focus on ways to improve the value and other benefits of technology investments

### **General Approach**

The committee will jointly create draft technical specifications and guidelines following its General Architecture Principles (described below) and circulate them widely within OIT to foster discussion and feedback. The resulting comments are used to develop the finalized documents. Generally speaking, the committee will use the following three criteria for choosing discussion topics: strategic criticality, time sensitivity, and technical inter-dependency (low-hanging fruits first).

## General Architecture Principles for Everyday Decision-making

It's understood that formal Policies, Standards, Procedures, and Best Practices will never exhaustively encompass every single aspect of IT work within the State. Yet, all IT workers are faced with critical decision-making as an integral part of their everyday jobs. While such everyday decisions frequently have lasting long-term consequences, it's difficult to anchor such decisions in the absence of a general framework. Therefore, a set of easy, general 'rules of thumb' have been developed to aid in such everyday decision-making.

- Limit the buffet of technology options.
- Selection Criteria for Products/Technologies: Performance, Cost-Effectiveness, Sustainability.
- Lifecycle Planning: Orderly sunset & support of legacy products/technologies.
- Lifecycle Planning: Deliberate Investment in new products/technologies.
- Lifecycle Planning: Optimal exploitation of existing products/technologies.
- Maximize Interoperability, Componentization and Re-use.
- Manage Namespaces Properly: Maine.Gov for the Internet. State.ME.US for the Intranet.
- Standardize Data Exchanges before Databases. Use Web Services. Focus on standardized content & protocols.
- Centralize identity authentication. It's ok to retain authorizations (roles) within applications & appliances.

## ***Strategic IT Planning Through Maxims***

The Strategic IT Planning through Maxims methodology is under copyright and was developed by Peter Weill and Marianne Broadbent. Gartner Consulting endorsed this process for the development and maintenance of the State of Maine IT Plan. From the statewide context, Agency synergies are leveraged to define the State of Maine strategic intent and initiatives, while supporting tactical and operational requirements. Business maxims are outlined as those guiding principles that support business requirements. From the Business Maxims, the IT vision, with supporting strategies, is developed, as well as the IT guiding principles, or IT maxims. Once established, the IT strategies and the IT maxims define the requisite IT and infrastructure capabilities. These translate into the statewide infrastructure services needed to support statewide IT endeavors, programs and projects. Each component of this process is outlined in the details contained in the following pages.

**State's IT Vision**

**IT Strategies**

**Business Maxims**

**IT Maxims**

**Statewide Infrastructure Services**

**Statewide Endeavors and Programs**

## State of Maine IT Vision Statement

### Vision

By the year 2011, OIT will be viewed by Maine State Agencies as:

- adding value to their delivery of services to the citizens and businesses of Maine
- serving their remote users of computers well
- providing an organization they have confidence in
- providing leadership and assistance to eliminate technical silos so that systems can be appropriately integrated across agencies
- important to include in their planning processes
- attract highly trained and motivated technical and management staff who enjoy the work they do
- be a national leader and model for the management and provisioning of technology for state government
- be an organization that other government entities want to partner with
- have implemented standard processes and tools that have reduced risks and gained efficiencies in the delivery of IT services
- have allowed no data breach for five years
- have implemented the Maine Communications Radio Infrastructure which is working well for field units and emergency response entities at all levels of government
- have created a redundant operations center to support business continuity
- have located those OIT employees not stationed in agencies into appropriate and efficient office space

## **State of Maine IT Strategies**

The State of Maine will achieve the Information Technology vision by executing the following long-term strategies:

**Strategy 1:** Strive to deliver access to appropriate government (local, state, federal) services through a common portal structure.

**Strategy 2:** Continuously improve the delivery of services to our customers through strategic enterprise technology investments.

**Strategy 3:** Drive a business-smart IT organization and an IT-smart business operation.

**Strategy 4:** Expand data integration to enable collaboration between all constituents and to create synergies that can be leveraged.

**Strategy 5:** Strengthen our technology architecture to position Maine to take advantage of emerging trends.

**Strategy 6:** Recruit, retain and invest in a highly skilled workforce that responds quickly to the ever-changing technology world.

## **Business Maxims (Guiding Principles) for the State of Maine**

From the questionnaires, interviews and industry best practices, the State stakeholders and Gartner Consulting identified the most important Business Maxims that support the State's IT strategies:

Streamline processes to improve efficiencies (supported by all six IT strategies)

Meet constituent expectations for quality at reasonable cost while maintaining confidentiality (supported by IT strategies one, two, three and six)

Make the constituents' service selection as easy as possible (supported by IT strategies one, two, and four)

Manage our knowledge base to maximize insight and re-use (supported by IT strategies three, five and six)

Maintain flexibility to respond to new service needs (supported by all six IT strategies)

Maintain a high level of professional and technical expertise. Attract and retain high-caliber staff committed to our common vision of one State enterprise (supported by IT strategies three and six)

Identify and facilitate the sharing and movement of talented people and create an environment that maximizes intellectual productivity (supported by IT strategies five and six)

Leverage the synergies throughout the State and foster/implement a culture of information sharing (supported by IT strategies two, three, four and six)

Ensure that business processes are compliant with security and privacy requirements (supported by IT strategies one and four)

Drive economies of scale through shared best practice (supported by IT strategies one, two, four and five)

Drive rapid development of new services (supported by IT strategies one, two, three, four and five)

Ensure that access to government services is available to all constituents (supported by IT strategies one, two, four, five and six)

## **IT Maxims (Guiding Principles) for the State**

From the questionnaires, interviews and industry best practices the State/ Gartner Consulting identified the most important IT Maxims that support the Business Maxims and IT vision and strategies. The IT Maxims are categorized into the following groups: Security, IT Management (Management), Web, Applications, Data, and Infrastructure.

### Category: Security

Implement security policies and technologies to maintain confidentiality of constituent information.

Develop a secure, robust Internet infrastructure capable of initiating, confirming and executing all manner of business transactions.

Implement a data architecture that will provide a uniform and secure mechanism for data acquisition, storage, retrieval and update.

Maintain sufficient computer forensic expertise to combat specific threats and to investigate and prosecute specific criminal acts.

Maintain sufficient backup and disaster recovery expertise to minimize the effect of catastrophic events on the information technology infrastructure.

Establish business continuity plans to ensure reliable and secure service delivery.

### Category: Management

Use IT to support business requirements and to achieve cost reductions through more effective and efficient use of IT resources.

Develop training programs and clear career paths for all IT staff, encouraging education on emerging technologies.

Incorporate an IT knowledge sharing/transfer program across agencies that will reduce redundant effort, encourage cross training of individuals, and exploit centers of expertise.

Make IT a business-driven line activity, not a technology-driven activity.

Make IT funding decisions based on value.

Drive constant year-to-year operational productivity improvements through monitoring best-in-class IT benchmarks.

Drive a business-smart IT organization and an IT-smart business operation.

### Category: Web

Implement systems to provide a foundation upon which web-based services can be added without major modifications.

Create easily navigable/user friendly web sites that are compliant with accessibility regulations.

Implement consistent and transparent technologies to ensure easy constituent entry points and access to data.

Provide multiple channels for constituent access with a push towards the lower cost channels.

Implement a desktop computer "tool box" that enables Agencies to easily collaborate on virtual system-wide teams without any specific knowledge of other team members' desktop environment.

Maintain a messaging/e-mail infrastructure that facilitates our communication and collaboration with the world.

Develop a secure, robust Internet infrastructure capable of initiating, confirming and executing all manner of business transactions to ensure current and future customer constituencies can do business with the State on the Internet.

Exploit intranet technologies that enable employees to communicate, access reference data, follow up on open issues, order goods or services, and provide other intra-government services.

#### Category: Applications

Implement systems to provide a foundation upon which web-based services can be added without major modifications.

Allow sharing of functions and data between applications by bridging different technical platforms.

Purchase “off-the-shelf” applications if they provide best of class, cost-beneficial and required services instead of using custom development.

Acquire or develop applications in such a way as to facilitate user access by Web browser.

Implement an application architecture that enables IT to quickly deliver and upgrade strategic computer applications. Proprietary frameworks should be avoided or contained.

Application architecture should provide for the independent selection of a platform for application execution and database services.

Maintain an applications and technology infrastructure that exploits an architecture that enables 24x7 technical and business operations.

Demand near-term, business-focused results from development efforts.

#### Category: Data

Incorporate transparency and consistency into data design across the State to provide our constituents with easily accessible data.

Maintain a comprehensive data directory of the most commonly used elements (name, address, telephone #) as a foundation for object-oriented programming for large-scale development efforts and to promote rapid turnaround in smaller system development efforts.

Promote availability of an integrated view of constituents’ non-confidential information across the State.

Promote a data architecture based upon relational database technology that is implemented to support access across multiple business units.

Promote a data architecture that provides a uniform and secure mechanism for data acquisition, storage, retrieval and update.

#### Category: Infrastructure

Implement a standardized State-wide IT architecture that considers the uniqueness of Agencies and is maintained to leverage similar technologies across the Agencies.

Allow sharing of functions and data between applications by bridging different technical platforms.

Implement a desktop computer “tool box” that enables Agencies to easily collaborate on virtual system-wide teams without any specific knowledge of other team members’ desktop environment.

Maintain a messaging/e-mail infrastructure that facilitates our communication and collaboration with the world.

Support and work towards implementing a shared or common IT infrastructure where there is no strategic reason to justify differentiation.

Ensure the voice, video and data network design and implementation is cost effective and scalable, and supportive of new applications.

Develop a secure, robust Internet infrastructure capable of initiating, confirming and executing all manner of business transactions to ensure current and future customer constituencies can do business with the State on the Internet.

Maintain an applications and technology infrastructure that exploits an architecture that enables 24x7 technical and business operations.

Maintain a reliable IT infrastructure with mechanisms to facilitate timely problem resolution in the event of an outage, congestion, or other problem.

Ensure the State’s core infrastructure is fault tolerant and supports availability in excess of 99.99 percent.

Drive both simplicity and flexibility throughout the technology environment.

## **Linking the State's Business and IT Maxims – Sample**

Business Maxim: Streamline processes to improve efficiencies

Primary Supporting IT Maxim Categories: Applications and Infrastructure

Supporting IT Maxims:

(Applications Category) Purchase “off-the-shelf” applications if they provide cost-beneficial and required services instead of using custom development (applies to multiple business maxims).

(Infrastructure Category) Implement a standardized State-wide IT architecture that considers the uniqueness of Agencies and is maintained to leverage similar technologies across the Agencies (applies to multiple business maxims).

(Data Category) Incorporate transparency and consistency into data design across the State to provide our constituents with easily accessible data.

Business Maxim: Meet constituent expectations for quality at reasonable cost while maintaining confidentiality.

Primary Supporting IT Maxim Categories: Management and Security

Supporting IT Maxims:

(Management Category) Use IT to support business requirements and to achieve cost reduction through more effective and efficient use of IT resources (applies to multiple business maxims).

(Security Category) Implement security policies and technologies to maintain confidentiality of constituent information (applies to multiple business maxims).

(Data Category) Maintain a comprehensive data directory of the most commonly used elements (name, address, telephone #) as a foundation for object-oriented programming for large-scale development efforts and to promote rapid turnaround in smaller system development efforts (applies to multiple business maxims).

## ***High-Level View of State Endeavors, Programs***

Based on the State IT Vision and IT Strategies the following endeavors, programs and projects are recommended:

Network is ranked number one. The owner of this endeavor is the Core Technology Services in the Office of Information Technology. It supports strategies one, two, four, five and six.

The Health Insurance and Portability Act (HIPAA) is ranked number two. The owner of this program is the Office of the Chief Information Officer. It supports strategies two, three and four.

Accessibility is ranked number three. The owner of this endeavor is the Office of the Chief Information Officer. It supports strategies one, two, three, five and six.

E-Government is ranked number four. The owner of this endeavor is the Office of eGovernment Services. It supports all six strategies.

Enterprise Directory Services ranked number five. The owner of this endeavor is the Office of Information Technology. It supports strategies one, two, three, four, and five.

Business Continuity Planning and Disaster Recovery (BCP/DR) is ranked number six. The owners of this endeavor are the Department of Defense, Veterans and Emergency Management and the Office of the Chief Information Officer. It supports strategies one, two, three, four, and five.

Enterprise Resource Planning (ERP) for the MFASIS System is ranked number seven. The owner of this endeavor is the Department of Administrative and Financial Services. It supports strategies two, three and four.

Enterprise Application Integration (EAI) is ranked number eight. Ownership of this endeavor is the Office of the Chief Information Officer. It supports strategies one, two, three, and four.

The Geographic Information System (GIS) project is ranked number nine. The GIS Executive Council provides oversight to this endeavor. It supports strategies two and three.

Records Management and Archives ranks number ten. The Secretary of State owns this endeavor, with support from OIT. It supports strategies two, three and five.

Knowledge Management and Sharing is ranked number eleven. The Office of the CIO owns responsibility for this endeavor. It supports strategies one, three, five, and six.

IT employee retention and recruitment is ranked number twelve. The owner of this endeavor is the OIT Leadership Team and Office of the Chief Information Officer. It supports strategies two, three and six.

Network Services (encompassing video conferencing, chat, voice mail, and telephone conferencing) ranked number thirteen. This effort is considered between an endeavor and a program and is owned by Core Technology Services in OIT. It supports strategies two, four, five and six.

Regional IT Support (PC H/W and S/W support and maintenance) is ranked number fourteen. Ownership of this program is shared between the Agency IT Director (AITDs) and Core Technology Services. It supports strategies two, three, five and six.

Integrated Development Environments (IDE ranked number fifteen. Ownership of this program is shared between the Office of the CIO and AITDs<sup>1</sup>. It supports strategies one, two, four and five.

Wireless Voice and Data ranked number sixteen. Ownership for this program is OIT. It supports strategies one, two, and four.

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<sup>1</sup> The enterprise application development function is organizationally attached to agency information technology units.

## ***The State's Technical Architecture Bricks Map***

Inter-related Bricks are aggregated under Domains, which are the topics or broad subject areas of the IT architecture. Note that this taxonomy is constructed entirely for convenience. It is likely that in the future, existing Domains may be split into new, more specialized Domains. It is also possible, although less likely, that existing Domains may be combined into new, more generalized Domains. The vision of the Strategic Architecture Committee is to create a To-Be Roadmap corresponding to each Domain. Whereas the Bricks are product-oriented, the To-Be Roadmaps are meant to articulate a clear path from the As-Is state to the To-Be state, in terms of overall technologies and standards. The current listing of Domains, and the individual Bricks underneath them, are as follows:

Data Domain: Consists of all database-related technologies, including reporting tools, access methods, etc. Individual Bricks include the following:

- DBMS
- Data Warehouse
- Reporting Tools

Commodity Applications Domain: Consists of utility applications that are of wide usage, purchased as COTS products, and implemented with minimal customizations. However, they may require variable levels of dedicated configuration. Individual Bricks include the following:

- Office Package (Word Processor, Spreadsheet, Small Database, and Slide Presenter)
- Email
- Document (Unstructured Content) Management
- Enterprise Content Management
- Web Content Management
- Web Content Authoring
- Geographic Information Systems (GIS)
- Collaboration Tools
- Issues Tracking

Applications Development Domain: Consists of everything that is required to create and maintain dedicated applications (including dedicated GIS applications). Individual Bricks include the following:

- Software Configuration Management
- System Development Lifecycle (Policy & Procedure already available)
- Integrated Development Environment
- XML Editor
- Build Management (a.k.a. Make Tools)
- Database Tools
- Mobile & Handheld Device Application Development
- Data Modeling

Testing  
Object-Relational Mapping  
Programming Languages  
Java Servlet Container  
Geographic Information Systems (GIS) Toolkits

Integration Domain: Consists of the tools and infrastructure required to integrate and interface among Domains. Includes only one Brick:

Enterprise Service Bus  
UDDI Service Directory

Infrastructure Domain: Consists of servers and their operating systems, storage, file & print servers, application/web servers, terminal services, LDAP, etc. Individual Bricks include the following:

Server Hardware  
Server Operating Systems  
Storage  
Backup (Disaster Recovery)  
Application/Web Servers  
File Servers  
Print Servers  
Terminal Services  
Client Devices (Hardware)  
Client Devices (Operating Systems)

Network Domain: Consists of LAN and WAN protocols, topologies, wiring, etc. Individual Bricks include the following:  
LAN (Protocols, Wiring, Topology, etc.)  
WAN (Transport, Protocols, etc.)  
Access Topologies (Remote Access, Terminal Emulation, Wireless, Voice/Data Convergence, Video Conferencing, etc.)  
VOIP  
Hardware (Hubs, Switches, Routers, etc.)

Security Domain: Consists of integrity, e.g., protection from malicious code and viruses, non-repudiation, and privacy. Individual Bricks include the following:

Firewalls  
Physical Security  
Intrusion Detection  
Protection against Malware  
Application Vulnerability Assessment  
Device Vulnerability Assessment  
Secure File Transfer

Web Publishing: Consists of namespaces, hosting options, web/application servers, etc.  
Individual Bricks include the following:

- Internet Domain Naming
- Publishing Options
- Web/Application Servers

Authentication: Consists of a unified methodology to authenticate users to applications, computers, and networks. Individual Bricks include the following:

- Internal Identity/Authentication
- External Identity/Authentication
- Internal Directory/LDAP
- External Directory/LDAP

In order to ensure that the Domains actually do cover the entire Technology stack, without leaving any gaps, and to represent the inter-relationship among Bricks and Domains, here is a visual aid:

USER			
Performance	Security (Application Vulnerability Assessment, Device Vulnerability Assessment, Infrastructure Vulnerability Assessment, etc.)	Network (LAN, WAN, VOIP, Switch, Router, Hub, DNS, DHCP, Firewall, Proxy Service, etc.)	Client Device (Operating System)
			Client Device (Hardware)
			Dedicated Applications (including GIS)
			Commodity Applications, such as Office, Email, Document Management, Data Warehouse, Reporting, FTP, ESRI Toolkit, Web Services, Enterprise Service Bus, Collaboration Tools, etc.
			Core Services, such as Database, Application/Web Server, File & Print Server, Terminal Service, LDAP, etc.
			Server Operating System
			Networked Storage, Virtualized Server
			Server Hardware
DATA CENTER			

Note that a Domain may cut through more than one layer of the Stack. Thus, the Data Domain encompasses the Database, which is a Core Service, as well as Data Warehouse and Reporting Tools, which are Commodity Applications.

Evergreening is the process by which IT architecture is continuously updated in order to maintain its long-term integrity. Updates are triggered primarily by market events, such as introduction of new products, withdrawal of old products, mergers & acquisitions, etc. Every update should be seized as an opportunity to review entire Bricks as a whole, including potential

dependencies on other Bricks, To-be Roadmaps, etc. Irrespective of market events, all Bricks should be reviewed at least once per annum.

Baseline Technology is that which is approved and supported for current usage.

Mainstream Targets are the primary candidates for deployment in about two years, subject to further review and acceptance by the CIO. These are the most likely candidates for future investment.

Retirement Targets are the candidates for the soonest possible disinvestment.

Tactical Deployment candidates are those that may be piloted during the next two years, by permission of the CIO, in the absence of defined Mainstream Targets. This is to satisfy a near-term business need in the absence of a primary candidate for future deployment.

Strategic Direction consists of secondary candidates for deployment in about four years, where, depending on market trends, they may become more viable than the Mainstream Targets. But these still subscribe to the same technology and revenue model as Mainstream Targets.

Containment Targets include candidates targeted for limited investment in the two-year time frame. Current usage is accepted, but there should be no further proliferation. Stakeholders should start creating plans for disinvestment in about four years. For waiver, stakeholders may submit a request to the CIO, stating the business requirements and identifying a potential support model.

Emerging Technologies include candidates that encapsulate new technologies and/or revenue models that could potentially disrupt the Strategic Direction in about four years. Stakeholders may undertake R&D evaluation by permission of the CIO.

## ***Recommendations for the Technical Domains***

### **Architecture Component: Application Services**

Application services areas consist of server and client side programming languages, development, reporting tools, email and messaging, as well as the application server and middle ware required to operate them.

Findings: The agencies have done a good job of containing development and deployment technologies to a small set of tools that are used appropriately for their purpose.

#### Summary Recommendations:

Prepare for Java implementation and support. A number of different forces will push the State towards Java. E-Gov applications, availability of independent software vendor (ISV) solutions to integrate into e-Gov solutions and the skills new staff will have coming out of school.

Select a single integrated development environment (IDE) and associated tools including source code control tools, profiling and repository tools.

Establish application integration/middleware architecture. This will become an important component across agencies as the necessity of common services and common data become more important.

Continue with plans to retire older mail services and focus on Exchange as the strategic direction.

#### 30, 60, 90-Day Action Items:

Establish a selection committee of State architects, including representation from the Purchases Division, to review new application tools for e-Government.

Develop language for Application Development RFP's that requires 3rd party developers to comply with State application development technology standards.

## **Architecture Component: Data Services**

The data services component includes all database technologies and database related technologies. Related technologies include reporting tools, access methods, business intelligence reporting and general purpose reporting tools.

### Findings:

Mainstream database technologies currently used within the State include Oracle, Access and some use of DB2 and Progress. Use of reporting and query tools is disparate between agencies. MS Access is widely used by agencies to develop applications that are agency-specific and used by small numbers of personnel.

### Summary Recommendations:

Continue the use of Oracle and PL SQL for large development. Phase out the use of DB2. Use caution when using MS Access for applications that may need to be used by several users simultaneously. Preference for small applications development should be Progress or Oracle. Settle on one or two general purpose reporting tools that can be used across all agencies. Plan for the future use of XML databases. XML database technology will become more important as more data is exchanged using XML standards. EAI will also drive the importance of XML databases. Identify and start using web analytic products. Web analytics will play an increasingly important role in monitoring and determining the effectiveness of e-Gov and general Internet services.

### 30,60, 90-Day Action Items:

Work with Purchasing to expand utilization of the Oracle licensing model in intra governmental collective agreements. Identify other common software license requirements (e.g., DB2, Progress, PL SQL) within 60 days; establish working group with Purchasing in 90 days.

## **Architecture Component: Computing Infrastructure**

Computing infrastructure includes mainframe and desktop applications and operating systems, network operating systems, servers (directory, file, web), storage and application topologies.

### Findings:

Desktop operating system and desktop application technology throughout the State focus on Microsoft products. Even though, in all likelihood the State will continue to do so it is reasonable to research alternatives when a financial case is available to do so.

### Summary Recommendations:

Shift application topologies toward 3-tier. All strategic projects should use 3-tier architectures. Implement active directory as the strategic directory server for the State. Implement a standardized exchange configuration for all agencies. Standardized configuration includes anti-virus protection and security settings. Establish disaster recovery procedures as required for critical sites. This should be incorporated as part of a business continuity planning study.

30,60, 90-Day Action Items:

Evaluate the stability and reliability of the Exchange environment and institute a program to improve the capacity and reliability of the email environment. Plan required in 30 days.

## **Architecture Component: Network Services**

The network services component includes LAN and WAN protocols, topologies, wiring, security monitoring and management.

Findings:

The importance of network services has increased tremendously over the last 5 years, leading to some growing pains. This trend will continue for the foreseeable future. Network security projects are currently being implemented as a series of tactical projects. Security will become a major driver of network policies, design and technology. The current network topology needs improvement to meet the current State agencies' needs.

Summary Recommendations:

Make efficient use of the bandwidth and the personnel who manage and maintain the network. The current WAN is based upon a single flat network address space with heavy filtering to control broadcast traffic. Establish a common management approach, including tools and escalation processes. The current LAN configurations are managed locally with differing levels of personnel and training. Develop and implement a network security strategy for the State.

30, 60, 90-Day Action Items:

Develop a network topology that provides each agency with guaranteed bandwidth to the State network backbone. Develop a common State network backbone. Plan required in 30 days; funding model adopted in 90 days.

## **Architecture Component: Security Services**

The security services component includes authentication and authorization of State agencies and personnel, vendors and citizens of the State. Security services also include integrity, e.g., protection from malicious code and viruses, non-repudiation and privacy.

#### Findings:

Security has focused primarily on access control to servers using ACL (Access control lists, user ID and passwords). Agencies will work proactively to protect against unauthorized access from other agencies. Virus protection is not uniform across all agencies desktops. Privacy is being addressed in HIPAA programs but there are no uniform privacy rules for web-based applications. The State has no common approach to content management of its web sites. There has been discussion and preliminary investigations of digital certificates and digital signatures. There is no current mandated requirement to support digital identification.

#### Summary Recommendations:

Within each agency network, establish a firewall between its network and the State backbone. These firewalls should be configured and managed centrally.

Formally designate a security officer who is responsible for the development of State security policies that apply to all agencies. Each agency should also have a designated security officer. Assign a security classification, e.g., public, confidential, secret, to all applications, databases, and computing infrastructure. Resources should have protection that is appropriate to its classification.

Establish a standard security configuration for all servers and desktops deployed within the State. Develop a common approach to identifying and authenticating users.

#### 30, 60, 90-Day Action Items:

Develop a security plan for the network to include, firewalls, intrusion detection, Virtual Private Network (VPN) for remote sites and dial in users, malicious code detection, and standard OS default configurations. Plans required within 60 days, desktop including virus protection, and 90 days for standard servers.

Deploy virus protection and intrusion detection on all mail servers and servers exposed to the internet. Determine servers within 30 days and select products within 60 days; complete test deployments in 90 days.

Evaluate web content management and publishing approaches and select a common approach for all agencies. Complete evaluation in 90 days.

Determine the requirements for Statewide Identity Management including certificates and signatures. Develop requirements within 90 days, along with requirements for legislative actions, and pilot identity management programs.

## **Architecture Component: Management Architecture**

Management architecture covers the processes and the roles and responsibilities of the management services that are required to effectively plan and manage a multi-agency State government.

#### Findings:

The CIO should continue to foster an environment where collaborative, cross-agency services are becoming increasingly important. This is driving e-Gov initiatives, common IT infrastructure and statewide IT-related business continuity planning.

Summary Recommendations:

Provide project management assistance/training on multi-agency or major strategic projects.

Coordinate integrated services architecture for agencies.

Provide IT-related business continuity planning.

Provide project prioritization methodology for all agencies.

Continue IT Architecture Processes including ever-greening, project architecture review and asset management.

Identify Agency and State IT Architects and their roles and responsibilities.

The CIO, OIT Leadership Group and the Strategic Architecture Committee should review/approve the strategic IT plan on an ongoing basis and at least annually.

30,60, 90-Day Action Items:

Review IT Architecture processes and roles for Legislature, Agency Business Officers and Office of the CIO.

## ***The Evergreening Process***

“Evergreening” is the process by which the IT architecture is changed, maintained, updated and enforced in order to maintain its long-term integrity. This process should be led by the Office of the CIO in conjunction with the Strategic Architecture Committee and Agency Business Managers.

The State’s evergreening process consists of two steps:

Step I: Business and IT Alignment

Step II: Evergreening the IT architecture

The Maxims Model: From the statewide context, Agency synergies are leveraged to define the State of Maine strategic intent and initiatives, while supporting tactical and operational requirements. Business maxims are outlined as those guiding principles that support business requirements. From the Business Maxims, the IT vision, with supporting strategies, is developed, as well as the IT guiding principles, or IT maxims. Once established, the IT strategies and the IT maxims define the requisite IT and infrastructure capabilities.

### **Step I: Business and IT Alignment**

During this engagement, the state stakeholders established the Statewide IT Vision, IT Strategies and Business and IT Maxims (guiding principles) through the Maxims questionnaires.

Agency Information Technology Directors (AITDs) and their business counterparts should continue to meet on a periodic basis (semiannually initially then yearly) to review these strategies and Maxims and adjust as necessary to meet changing business/constituent needs. Any difference between the current state and what is required will direct IT to effectively identify and scope infrastructure needs and/or upgrades.

Revision to the plan will be reviewed/approved annually by the CIO.

### **Step II: Evergreening the IT Architecture**

Technology standards must be updated (i.e., made “evergreen”) regularly (e.g., annually). An IT architecture must allow a variety of alternative standards to apply to different types of work.

Using the brick methodology described earlier, IT is introduced into the architecture as an emerging standard before it becomes a mainstream standard. As technology progresses, the specific standard becomes a containment target and finally a retirement target before exiting the environment. Specifics of each progression are described below:

#### **Emerging Standards**

Identify new technologies

Track product developments

Follow market trends  
Identify market leaders  
Create vendor short list(s)  
Evaluate technologies  
Recommend new standards, based on technology availability and business need  
Develop adoption strategies

### **Mainstream Standards**

Provide full support of technology for new and existing systems  
Primary deployment/ investment technology or process for new systems or legacy system migration

### **Containment Targets**

Provide full support of technology for existing systems only  
No new development on containment target technologies  
Limited (maintenance or current commitment) investment during the architecture planning horizon

### **Retirement Targets**

Technology is targeted for deinvestment during the architecture planning horizon  
A plan is in place, including resources, to retire the technology

### **Bottom Line**

Success means the architecture is being complied with. If not, the value of creating one is diminished and the credibility of the IT organization suffers.

### **Crucial Factor**

If the business is not behind it, it will fall apart.

## ***A Note of Caution***

“IT architecture is a journey, not an event. The process that will be launched at the State is expected to generate significant long-term benefit to the business community; however, this process will take time and effort by all stakeholders before the results are felt by the statewide enterprise. Management must remember that there are no silver bullets in IT. Business benefits will be incremental, not big bang.”

## ***Appendices***

General Architecture Principles for Everyday Decision-making  
Linking the State's Business and IT Maxims  
Glossary of Terms

## General Architecture Principles for Everyday Decision-making

It's understood that formal Policies, Standards, Procedures, and Best Practices will never exhaustively encompass every single aspect of IT work within the State. Yet, all IT workers are faced with critical decision-making as an integral part of their everyday jobs. While such everyday decisions frequently have lasting long-term consequences, it's difficult to anchor such decisions in the absence of a general framework. Therefore, a set of easy, general 'rules of thumb' have been developed to aid in such everyday decision-making.

Limit the buffet of technology options.

Selection Criteria for Products/Technologies: Performance, Cost-Effectiveness, Sustainability.

Lifecycle Planning: Orderly sunset & support of legacy products/technologies.

Lifecycle Planning: Deliberate Investment in new products/technologies.

Lifecycle Planning: Optimal exploitation of existing products/technologies.

Maximize Interoperability, Componentization and Re-use.

Manage Namespaces Properly: Maine.Gov for the Internet. State.ME.US for the Intranet.

Standardize Data Exchanges before Databases. Use Web Services. Focus on standardized content & protocols.

Centralize identity authentication. It's ok to retain authorizations (roles) within applications & appliances.

### Rationale

Limit the buffet of technology options. In the past, the Agencies, as well as BIS, have acquired technologies on their own without much consultation or coordination with each other. The accumulative effect of that is the current OIT reality, viz, a smorgasbord of competing technologies. This has some obvious disadvantages: lack of interoperability, lack of adequate support, lack of depth of coverage, lack of economy of scale, etc. In order to ensure future success of OIT, it's critical to limit the buffet of technology options. This will enhance interoperability for there will be fewer moving parts to interface with. This will increase the level and depth of support for there will be a higher headcount per technology option, directly leading to higher in-house expertise. This will increase economy of scale for there will be a higher market share per technology option, directly leading to increased pressure on vendors to provide deeper discounts, dedicated training, etc. Taken together, limiting the buffet of technology options promises to reduce IT costs and improve service.

Selection Criteria for Products/Technologies: Performance (Functionality & Efficiency), Cost-Effectiveness (Lifetime Total Cost of Ownership (TCO) & Return on Investment (ROI)), Sustainability. Clearly, performance is the first selection criterion for a product/technology. If a product/technology either does not function, or does not do so efficiently, then it should not be considered for acquisition. The second selection criterion is cost. Cost considerations should be holistic, including the overhead of lifetime support, and not just the one-time price of acquisition. Provided funds are available, it may turn out to be more optimal to acquire a higher priced product that can be supported more easily than a lower-priced product that is more difficult to support. A product/technology is only as good as it can be maintained at an acceptable level of performance. Therefore, both infrastructure and personnel should be provisioned to support any new product/technology right from the point of acquisition.

Lifecycle Planning: Orderly sunset & support of legacy products/technologies. Legacy products/technologies invariably support business-critical processes. And yet they become

increasingly less sustainable over time due to two reasons. One: vendor support for the underlying infrastructure declines over time, and ultimately ceases to exist. Two: there arises a bidirectional pincer attack on the resource-pool for legacy technologies. The original resources are subject to retirement and attrition. At the same time, lack of wide market opportunity discourages younger personnel from acquiring the necessary legacy skills. But the diminution in sustainability does not reduce the business criticality of legacy products/technologies. Therefore, there needs to be proper planning, and an orderly sunset and support strategy for legacy products/technologies.

**Lifecycle Planning: Deliberate investment in new products/technologies.** The marketplace continues to explode with new products/technologies at a rapid pace. Clearly, no single entity, least of all Maine State OIT, can afford to sample them all indiscriminately. That said, OIT also cannot allow itself to fall too far behind the technology curve, lest it deprives itself of viable superior options. Therefore, it needs to chart a prudent middle course that can both filter out the hype, and yet discern lasting trends that have the potential to deliver higher returns. There exist at least three streams of knowledge that need to be harnessed in this decision-making: the professional self-improvement of OIT personnel via reading, certification, formal training, conference participation, etc; constant engagement with customers and other agency peers, vendors and partners; and finally, subscription to Gartner, NASCIO, and such other professional services and organizations.

**Lifecycle Planning: Optimal exploitation of existing products/technologies.** It should go without saying that OIT should fully utilize what it already owns. Unfortunately, due to the pace of innovation in IT, as well as the aggressive nature of marketing, the technology space is very prone to hype. Nevertheless, OIT needs to summon the discipline to stick with the products/technologies that it already owns, as long as they continue to deliver an acceptable level of performance and supportability to its customers. Specifically, OIT should consider exploiting additional capabilities of products it already owns, even when they may not be the best-of-breed in a particular niche.

**Maximize Interoperability, Componentization and Re-use.** The historical trend in IT has been to dedicate individual products/technologies for individual purposes, be they business or technical. One unfortunate consequence of such a tactic has been lasting silos, and limitless replication of common features across such silos. In how many different ways does OIT authenticate users? In how many different repositories do agencies store names and addresses of customers? Even without going into the precise details, it's clear that the current methods are not the most optimal means to achieving such ends. What OIT needs is more componentization, and loose coupling among these components in order to build line-of-business products and applications. Higher interoperability leads to better ad-hoc coupling, facilitating higher utilization of the components. And, of course, deliberate re-use, as opposed to re-creation or accidental re-use, is the best means of breaking down silos.

**Manage Namespaces Properly: Maine.Gov for the Internet. State.ME.US for the Intranet.** Industry best practice requires strict namespace separation between the inside and outside of a perimeter firewall. The original intent was to have Maine.Gov outside, whereas State.ME.US inside. Unfortunately, for a variety of reasons, this has been repeatedly violated, and the current namespaces are a complete mishmash. Such state of affairs makes management difficult, and compromises security. There needs to be a concerted effort to sanitize the namespaces. Which means, great care should be exercised when naming new servers and services.

Standardize Data Exchanges before Databases. Use Web Services. Focus on standardized content & protocols. Move towards Web Services. Maine State programs and businesses use innumerable databases. In most cases they form the bedrock of transactional applications. Less frequently, they constitute data warehouses or such other reporting infrastructure. These databases use a diverse spectrum of underlying technologies. In the foreseeable future, OIT is unlikely to achieve much sharing in terms of the underlying databases. But OIT does have an immediate opportunity to make a real difference in terms of data exchanges by instituting the industry best practices of XML-based Web Services. (Web Services are software interfaces that facilitate machine-to-machine interaction over a network. For further details, see for example, [http://en.wikipedia.org/wiki/Web\\_service](http://en.wikipedia.org/wiki/Web_service).)

Centralize identity authentication. It's ok to retain authorizations (roles) within applications & appliances. Authentication of computer and user identities should be centralized to improve service, allow single signon, and reduce application development and support costs. Centralization permits appropriate management and security methods to be applied universally. Make applications & appliances consume authentication from external directories. Microsoft Active Directory (AD) remains the authoritative directory for all internal IT resources within Maine State Government. All SoM applications & appliances should be fully AD-aware. Specifically, they should consume all internal authentication services from AD. However, an application is free to maintain its own dedicated authorization (roles) module. To the extent necessary for its business purposes, an application should also be capable of participating in standard LDAP transactions with AD. It should be noted that this does not automatically imply Enterprise Single Sign-on. For reasons of security, confidentiality, etc, applications are free to require as many authentications as necessary. However, for each such authentication, the user will only furnish their AD credentials, as opposed to any application-specific credentials. OIT does not currently have a dedicated directory for external users, but it's working towards developing one.

## **Linking the State's Business and IT Maxims**

From a combination of the IT vision, IT strategies, business maxims, agency-provided IT maxims through the questionnaires, and industry best practices, Gartner derived IT maxims to support the State's business maxims:

### **Business Maxim: Streamline processes to improve efficiencies**

Primary Supporting IT Maxim Categories: Applications and Infrastructure

Supporting IT Maxims:

(Applications Category) Purchase "off-the-shelf" applications if they provide cost-beneficial and required services instead of using custom development (applies to multiple business maxims).

(Infrastructure Category) Implement a standardized State-wide IT architecture that considers the uniqueness of Agencies and is maintained to leverage similar technologies across the Agencies (applies to multiple business maxims).

(Data Category) Incorporate transparency and consistency into data design across the State to provide our constituents with easily accessible data.

### **Business Maxim: Meet constituent expectations for quality at reasonable cost while maintaining confidentiality**

Primary Supporting IT Maxim Categories: Management and Security

Supporting IT Maxims:

(Management Category) Use IT to support business requirements and to achieve cost reduction through more effective and efficient use of IT resources (applies to multiple business maxims).

(Security Category) Implement security policies and technologies to maintain confidentiality of constituent information (applies to multiple business maxims).

(Data Category) Maintain a comprehensive data directory of the most commonly used elements (name, address, telephone #) as a foundation for object-oriented programming for large-scale development efforts and to promote rapid turnaround in smaller system development efforts (applies to multiple business maxims).

### **Business Maxim: Make the constituents' service selection as easy as possible**

Primary Supporting IT Maxim Categories: Web and Applications

Supporting IT Maxims:

(Web Category) Create easily navigable/user friendly web sites that are compliant with accessibility regulations.

(Web Category) Implement consistent and transparent technologies to ensure easy constituent entry points and access to data (applies to multiple business maxims).

(Applications Category) Acquire or develop applications in such a way as to facilitate user access by Web browser (applies to multiple business maxims).

**Business Maxim: Manage our knowledge base to maximize insight and re-use**

Primary Supporting IT Maxim Categories: Data and Security

Supporting IT Maxims:

(Data Category) Promote availability of an integrated view of constituents' non-confidential information across the State.

(Data Category) Maintain a comprehensive data directory of the most commonly used elements (name, address, telephone #) as a foundation for object-oriented programming for large-scale development efforts and to promote rapid turnaround in smaller system development efforts (applies to multiple business maxims).

(Security Category) Implement security policies and technologies to maintain confidentiality of constituent information (applies to multiple business maxims).

(Infrastructure Category)

Maintain a reliable IT infrastructure with mechanisms to facilitate timely problem resolution in the event of an outage, congestion, or other problem.

**Business Maxim: Flexibility to respond to new service needs**

Primary Supporting IT Maxim Categories: Infrastructure, Web and Applications

Supporting IT Maxims:

(Infrastructure Category) Support and work towards implementing a shared or common IT infrastructure where there is no strategic reason justifying differentiation (applies to multiple business maxims).

(Web Category) Implement systems to provide a foundation upon which web-based services can be added without major modifications (applies to multiple business maxims).

(Applications Category) Acquire or develop applications in such a way as to facilitate user access by Web browser (applies to multiple business maxims).

(Applications Category) Implement an application architecture that enables IT to quickly deliver and upgrade strategic computer applications. Proprietary frameworks should be avoided or contained (applies to multiple business maxims).

**Business Maxim: Maintain a high-level of professional and technical expertise. Attract and retain high-caliber staff committed to our vision of one state enterprise.**

Primary Supporting IT Maxim Categories: Management

Supporting IT Maxims:

(Management Category) Develop training programs and clear career paths for all IT staff, encouraging education on emerging technologies (applies to multiple business maxims).

(Management Category) Incorporate an IT knowledge sharing/transfer program across agencies that will reduce redundant effort, encourage cross training of individuals, and exploit centers of expertise (applies to multiple business maxims).

(Infrastructure Category) Implement a desktop computer "tool box" that enables Agencies to easily collaborate on virtual system-wide teams without any specific knowledge of other team members' desktop environment (applies to multiple business maxims).

**Business Maxim: Identify and facilitate the sharing and movement of talented people and create an environment that maximizes intellectual productivity.**

Primary Supporting IT Maxim Categories: Management and Infrastructure

Supporting IT Maxims:

(Management Category) Foster a business-smart IT organization and an IT-smart business operation.

(Management Category) Incorporate an IT knowledge sharing/transfer program across agencies that will reduce redundant effort, encourage cross training of individuals, and exploit centers of expertise (applies to multiple business maxims).

(Infrastructure Category) Implement a desktop computer “tool box” that enables Agencies to easily collaborate on virtual system-wide teams without any specific knowledge of other team members’ desktop environment (applies to multiple business maxims).

(Web Category) Exploit intranet technologies that enable employees to communicate, access reference data, follow up on open issues, order goods or services, and provide other intra-government services.

**Business Maxim: Leverage the synergies throughout the State and foster/implement culture of information sharing.**

Primary Supporting IT Maxim Categories: Infrastructure and Applications

Supporting IT Maxims:

(Infrastructure Category) Support and work toward implementing a shared or common IT infrastructure where there is no strategic reason to justify differentiation (applies to multiple business maxims).

(Infrastructure Category) Maintain a messaging/e-mail infrastructure that facilitates our communication and collaboration with the world.

(Applications Category) Purchase “off-the-shelf” applications if they provide cost-beneficial and required services instead of using custom development (applies to multiple business maxims).

(Applications Category) Allow sharing of functions and data between applications by bridging different technical platforms.

(Security Category) Maintain sufficient computer forensic expertise to combat specific threats and to investigate and prosecute specific criminal acts (applies to multiple business maxims).

**Business Maxim: Ensure that all the business processes are compliant with security and privacy requirements.**

Primary Supporting IT Maxim Categories: Security

Supporting IT Maxims:

(Security Category) Implement security policies and technologies to maintain confidentiality of constituent information (applies to multiple business maxims).

(Security Category) Maintain sufficient computer forensic expertise to combat specific threats and to investigate and prosecute specific criminal acts (applies to multiple business maxims).

**Business Maxim: Ensure that access to government services is available to all constituents.**

Primary Supporting IT Maxim Categories: Web and Applications

Supporting IT Maxims:

(Web Category) Develop a secure, robust Internet infrastructure capable of initiating, confirming and executing all manner of business transactions to ensure current and future customer constituencies can do business with the State on the Internet.

(Web Category) Implement consistent and transparent technologies to ensure easy constituent entry points and access to data (applies to multiple business maxims).

(Applications Category) Implement an application architecture that enables IT to quickly deliver and upgrade strategic computer applications. Proprietary frameworks should be avoided or contained (applies to multiple business maxims).

(Applications Category) Maintain an applications and technology infrastructure that exploits an architecture that enables 24x7 technical and business operations.

**Business Maxim: Drive economies of scale through shared best practice**

Primary Supporting IT Maxim Categories: Management and Infrastructure

Supporting IT Maxims:

(Management Category) Use IT to support business requirements and to achieve cost reductions through more effective and efficient use of IT resources (applies to multiple business maxims).

(Infrastructure Category) Ensure data and voice network design and implementation is cost effective and scalable, and supportive of new applications.

(Infrastructure Category) Support and work toward implementing a shared or common IT infrastructure where there is no strategic reason to justify differentiation (applies to multiple business maxims).

**Business Maxim: Rapid development of new services.**

Primary Supporting IT Maxim Categories: Applications, Infrastructure and Web

Supporting IT Maxims:

(Applications Category) Implement an application architecture that enables IT to quickly deliver and upgrade strategic computer applications. Proprietary frameworks should be avoided or contained (applies to multiple business maxims).

(Infrastructure Category) Implement a standardized State-wide IT architecture that considers the uniqueness of Agencies and is maintained to leverage similar technologies across the agencies (applies to multiple business maxims).

(Web Category) Implement systems to provide a foundation upon which net services can be added without major modifications (applies to multiple business maxims).

(Management Category) Develop training programs and clear career paths for all IT staff, encouraging education on emerging technologies (applies to multiple business maxims).

## **Glossary of Terminology**

**Application Architecture:** Defines the relationships between application components such as presentation, logic and data storage.

**Architectural Model:** A graphical (two- or three-dimensional) representation of architecture.

**Architecture:** The vision, including the topology, components and specifications, for forming IT solutions to business needs. Architecture is comprised of a product, processes and organization.

**Data Architecture:** Defines the relationships between data components such as entities and attributes.

**Domains:** Topics or subject areas of architecture (such as governance, application, data, infrastructure, and security).

**E-government:** The transformation of public sector internal and external relationships through net-enabled operations, IT and communications to optimize government service delivery, constituency participation and governance.

**Endeavors:** An endeavor coordinates a variety of programs and projects to create a new enterprise. Often done for survival and to meet the citizens' needs in a timely, effective, and efficient manner. An Endeavor can last for many years and requires creative leadership at the very top. Examples of endeavors include e-government, GIS, WAN.

**Enterprise Architecture:** An IT architecture that focuses upon only those computing requirements that are mission-critical to the enterprise.

**Evergreening Process:** The technology planning process must be founded on the assumption that IT architecture will change with the passage of time. Evolution (Evergreening) of the IT architecture is the key to managing technology introduction/retirement, and also serves to maintain the linkage to the needs of the business over time.

**Infrastructure Architecture:** Defines the relationships between infrastructure components such as servers, networks, end user devices and system management.

**IT Architecture:** A vision for how information technology will be assembled to solve business problems. It usually includes multiple sub-architectures for Application, Data and Infrastructure

**Domains.** It often defines architecture for security and may include management and governance architectures.

**Maxims:** Guiding principles to an architecture strategy.

**Programs:** Programs are used to deliver a strategic business change. Programs identify, prioritize and link initiatives, many of which will be projects, but not all. The management focus in this case is on efficiently attaining corporate benefits from the new strategy. A program also provides the right environment for the change to happen, particularly in terms of the staff members' attitudes and behavior. The nature of a program means longer time frames. Examples of programs include developing a major Web presence, implementing ERP.

Projects: Projects are used when a specific outcome is required in a set time frame. Projects have clear and easily defined benefits and return on investment (ROI), so management focus is on minimizing risk and cost. Projects are generally managed within boundaries (such as departments) and have an easily identified and defined scope. Examples of projects include implementing an intranet, a fleet management system.

Security Architecture: Defines the relationships between security components such as monitoring, detection and suppression components.

Stakeholder: Stakeholders include all State agency representatives, the executive branch, and representatives from all State offices.