The State of Tennessee

Category:
Enterprise IT Management Initiatives

Managing by Metrics,
A Process Improvement Initiative

2009 NASCIO Recognition Award Nomination
For work performed in 2008

Executive Summary:

In an effort to improve the speed and quality of Information Technology (IT) service delivery while simultaneously reducing resources and costs, the Office for Information Resources (OIR) at the State of Tennessee initiated a project called ***Managing by Metrics***. OIR manages most of the State's IT infrastructure (voice, data and networks). Using the Information Technology Infrastructure Library (ITIL) and other industry best practices, the State has measurably improved processes and dramatically improved service delivery including increases in quality and reductions in operational downtime. Major components of the project and supporting program are:

- Improving **Change Management** by implementing a Change Advisory Board, Change Calendar, and a risk calculation model
- Publishing **Performance Based Metrics** that link results directly to managers and staff and establishing (KPI) Key Performance Indicators
- Migrating from a Help Desk of "ticket takers" to an **IT Service Desk** model
- Creating a **Continual Service Improvement (CSI) Program** that complements the Managing by Metrics initiative

In 2008, the State experienced a budget shortfall and reduced staff to lower expenses. Due to the hiring freeze and a State sponsored buyout program, the number of OIR employees decreased by over 8% in 2008. Typically, in this situation, the quality of the service delivery declines; however, just the opposite happened. In spite of the reductions, the mean time to resolution (MTR) for service requests decreased by over 50% and OIR's overall Customer Satisfaction improved.

The State did not purchase any hardware or software for this program or hire any consultants to lead the initiative. Internal staff led the project by creating, implementing, and tracking these initiatives. Due to the additional amount of time spent in the planning phases of the project, a limited number of resources were able to show outstanding returns for the time invested.

Tracking the results into 2009 confirmed that the implemented initiatives continue to be effective and have resulted in improved service delivery. Most importantly, the project changed the culture of how OIR measures and delivers IT services to the agencies. The table below shows a dramatic improvement in key areas of OIR's service delivery.

Key Performance Indicator	SLA Target	First Quarter '08	First Quarter '09
Priority 1 Incidents	90%	79%	94%
Priority 2 Incidents	90%	93%	96%
Priority 3 Incidents	90%	87%	98%
Service Requests	90%	74%	98%
Server Availability	99.9%	99.22%*	99.94%

*2nd Quarter 2008 when server availability tracking began
Incidents are help desk tickets

Business problem and solution:

Change Management (implemented in July 2008)
Before July 2008, the change management process was not measurable or auditable, and many functional areas did not log change requests. Thus, there was no consistently followed process or methodology to monitor changes to the State's IT infrastructure. Consequently, unscheduled, unmonitored, and unpublished changes were a high risk to the availability of the production environment. There was a need to align business objectives with the IT requirements for change management. Also, there was no group authorized to evaluate the impact of making changes to the environment and there was no authoritative board or process in place to make emergency decisions.

OIR created a Change Advisory Board (CAB), which includes a cross section of technical disciplines. The CAB identifies potential failure points and develops a plan to minimize risk as well as a response plan for infrastructure changes. The CAB uses sophisticated change models to ensure consistent implementation of common types of changes to the production environment including major and minor changes. The creation of a change calendar accessible by OIR and State agencies allows interested parties to view approved changes, the potential impact, and the scheduled dates for implementation. OIR staff responsible for implementing changes went through change management training and OIR management monitors compliance to the process.

Performance Based Metrics (implemented in September 2008)
Agencies use a Catalog of Services to initiate a service request and obtain approval. However, there was no consistent use of performance measures and no one managed service delivery to Key Performance Indicators (KPI). Some services had no documented owner. In addition, service providers lacked accountability as evidenced by the absence of a measurable link between results and service delivery. IT Management and agencies did not have visibility at the transaction level for the status of specific incidents. Consequently, the ability to analyze metrics at the department level was challenging.

OIR staff created various reports to analyze SLA metrics based on quantifiable data. Creating performance-based metrics and reporting on KPI, gave OIR staff, managers and agencies visibility into quantifiable service delivery.

IT Service Desk (implemented in July 2008)
In early 2008, OIR had a help desk that routed over 70% of reported incidents outside of the help desk for resolution. It became obvious that there was a need to create a project focused on aligning OIR's service delivery closer to the initial customer contact point.

Through analysis of incident data, the project team identified key service areas with high volumes of incidences. Management determined items that the Service Desk, with training, could resolve without the need for escalation to second level support. OIR implemented training and tools so the Service Desk personnel could resolve more incidents during the initial call.

Continual Service Improvement (CSI) Program (implemented in June 2008)
Each OIR unit had varying degrees of self-improvement processes established, yet OIR was not meeting SLA's in some areas. These areas needed assistance in improving processes. The charter of the CSI group was to select services that were not meeting target goals and work to improve the timely delivery and quality of that service.

The CSI program steering committee developed a set of process improvement procedures. Some of the major deliverables along with supporting documentation are:

- Mapping out existing process workflows
- Creating improved workflows
- Developing an implementation plan
- Training on the new procedures and communicating changes
- Implementing the new processes
- Monitoring results after implementation and tracking results.

In 2008, OIR established a formal Continual Service Improvement Program. A critical success factor (CSF) was that the staff performing the service actively participated in creating the deliverables. The development of a "process improvement program checklist" proved to be a valuable tool for quantifying and successfully implementing process improvements.

Significance to the improvement of the operation of government:

Change Management
Metrics from the change management system allowed for better risk analysis based on data from past changes. Measuring change management best practices resulted in increased adherence to OIR's best practices model. Practices such as having a documented back out plan, understanding the impact of possible outages related to the change, and accurately calculating the required length of the change window decreased outages. The change calendar brought visibility into the change process. The CAB provided a forum for different IT groups to discuss the impact of changes. For the first time, several groups understood the impact of their changes to the environment and to another group. The number of change induced incidents in the Command Center decreased as communication to agencies increased. Since implementing a Change Management Process, OIR is now able to measure and report on the category and type of changes and provide detailed analysis.

Performance Based Metrics
The correct metrics allow OIR to accurately assess performance, identify issues, and implement corrective actions based upon the data. Management now has the ability to track the effectiveness of their corrective actions. Metrics reporting greatly improved personal accountability and focused the staff on delivering results and meeting customer expectations. Increasing agency visibility into the service delivery process improved communication between service providers and agencies. OIR improved the alignment of actual service delivery with agency goals and expectations. Service Level

Agreements achieve real meaning with accurate reporting metrics and transactional transparency.

IT Service Desk
By the end of 2008, the Help Desk had evolved into a Command Center performing IT Service Desk functions. OIR was able to reduce the number of support groups required to touch some incidents, thus making the process more efficient and cost effective for the State. In the first quarter of 2009, the Command Center Service Desk resolved 85% of all OIR incidents.

Continual Service Improvement (CSI) Program
As the CSI program implemented formal improvements for a few specific services, informal process improvements began to ripple throughout the organization. Staff and local managers began their own initiatives to use some of the improvements identified in another area or to create their own.

The first service selected for the program was the "data center firewall" service. They were meeting SLA targets 55% of the time in the first quarter of 2008. The CSI program began in June 2008 and in two months showed positive results. During the first quarter of 2009, SLA targets for this service were being met 97.5% of the time.

The next initiative looked at voice provisioning and support services. They were meeting SLA targets 54% of the time during the first quarter of 2008. After three months of process improvement activities, the service began making its service level target. In the first quarter of 2009, this service met the SLA 96.7% of the time.

Benefits of the Project:

Change Management
- Dramatically decreased outages related to changes
- Risk assessments are now based upon data instead of conjecture
- Improved communication with different IT groups and with the agencies
- Measuring change management best practices helped force compliance of change management procedures by OIR staff
- Change calendar increased visibility to OIR and agencies into the infrastructure
- Change console provided the ability to monitor scheduled changes in one place

Performance Based Metrics
- Identified exceptional and poor performance by staff, group, and services
- Decreased total average Mean Time to Resolution (MTR) over 50%
- Increased percent of services making target SLA from under 50 to over 90%
- Clearly and quantifiably identified process improvement and training needs
- Increased infrastructure system uptime (especially for servers)
- Increased individual accountability for OIR staff
- Increased visibility into OIR's service delivery to agencies

IT Service Desk

- Reduced MTR for incidents through training
- Improved customer satisfaction by resolving more issues on the first call
- Increased efficiency by reducing agent time per task
- Promoted individual accountability within the team
- Created pride and ownership for the agents

Continual Service Improvement (CSI) Program

- Dramatically improved service delivery in two major areas
- Other service areas self initiated incremental service delivery improvements
- Provided training to agency submitters of service requests which reduced confusion from agencies on submitting service requests and improved the quality of service request received
- More accurate requests from customers required less questions and rework by IT service providers
- Increased the transparency of government to our customers by highlighting process improvements

To understand what is important to an organization, it is essential to look at what is measured. Analyzing and publishing metrics, along with senior management support, and increasing staff focus on improving our service delivery were the CSFs for successful process improvement. Ownership and pride in many OIR units began to grow as their accomplishments became visible to management. By tracking end-to-end service delivery metrics, staff gained insight into the agency's perspective as the recipient of IT services.

At the start of the project, OIR communicated the below list of objectives and benefits:

- Clarify and focus departmental goals and objectives
- Provide performance information for management and team members
- Communicate and encourage success
- Support strategic planning and goal setting
- Enhance decision making and improve accountability
- Establish expectations and measure progress
- Increase visibility and promote individual accountability

The project initiatives successfully achieved all of the objectives.

It is important to note that dramatic changes in service delivery are possible. Publishing scorecards to the providers and consumers of those services ensures a change in behavior. It is important to measure the proper metrics to deliver quality IT services. Many organizations over-measure and key items are lost in the numbers or they do the opposite and under-measure and again miss the key items. The art of the process is to know what to measure. The science is creating quantifiable and accurate measures of key performance indicators. Measuring performance is an effective method of determining whether a department is meeting its goals and achieving its mission.