



Memorandum from the Office of the Inspector General

September 3, 2015

Daniel A. Traynor, SP 3A-C

REQUEST FOR MANAGEMENT DECISION – AUDIT 2014-15063-03 – INFORMATION TECHNOLOGY ORGANIZATIONAL EFFECTIVENESS – OPERATIONS SOLUTIONS DELIVERY

Attached is the subject final report for your review and management decision. You are responsible for determining the necessary actions to take in response to our findings. Please advise us of your management decision within 60 days from the date of this report.

Information contained in this report may be subject to public disclosure. Please advise us of any sensitive information in this report that you recommend be withheld.

If you have any questions or wish to discuss our findings, please contact Scott A. Marler, Audit Manager, at (865) 633-7352 or Phyllis R. Bryan, Director, Information Technology Audits, at (865) 633-7332. We appreciate the courtesy and cooperation received from your staff during the audit.

David P. Wheeler
Deputy Assistant Inspector General
(Audits)
ET 3C-K

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OIG File No. 2014-15063-03



Office of the Inspector General

Audit Report

To the Chief Information
Officer, Information
Technology

INFORMATION TECHNOLOGY ORGANIZATIONAL EFFECTIVENESS – OPERATIONS SOLUTIONS DELIVERY

Audit Team

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Audit 2014-15063-03
September 3, 2015

ABBREVIATIONS

CIO	Chief Information Officer
COBIT	Control Objectives for Information and Related Technology
IT	Information Technology
IT1K	1,000 Days to Success
OIG	Office of the Inspector General
OSD	Operations Solutions Delivery
TVA	Tennessee Valley Authority

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Audit 2014-15063-03 – Information Technology Organizational Effectiveness – Operations Solutions Delivery

EXECUTIVE SUMMARY

Why the OIG Did This Audit

In 2008, the Tennessee Valley Authority's (TVA) OIG (Office of the Inspector General) performed an auditⁱ on the effectiveness of the Information Technology (IT) organization and made several recommendations for improvements. In 2011, TVA OIG completed a follow-up auditⁱⁱ and determined the actions taken were not carried through year to year and, as a result, effectiveness in many areas decreased, including strategy and architecture as well as governance and project management. To assist IT in increasing effectiveness, the recommendations from Audit 2010-13366 were focused on creating sustainable processes. In addition, the Chief Information Officer (CIO) created a program titled 1,000 Days to Success (IT1K) to address findings from the audit as well as other observations he made as to the current state of IT.

During the recent reorganization, Operations Solutions Delivery (OSD) was created by bringing together information technology support groups from IT, Transmission and Power Supply, Nuclear Power Group, and Power Operations to create a single group responsible for supporting TVA operational specific applications. OSD did not receive responsibility for implementing any recommendations from Audit 2010-13366 or for sustaining any of the IT1K initiatives.

The OIG performed this audit to determine OSD's current effectiveness, including alignment with TVA Values.

What the OIG Found

OSD's operational maturity is a 4 (managed and measurable) based on the level of adoption and use of the Scaled Agile Frameworkⁱⁱⁱ (Agile) elements that allow for monitoring and improving processes as needed to meet its customers' needs. In addition, OSD's customers generally expressed a high level of satisfaction with the current support they receive and that OSD's support has improved over time. A contributing factor to the high level of customer satisfaction is the high level of motivation and desire OSD personnel have to support their customers and deliver the

ⁱ Audit Report 2007-11348, Information Services Organizational Effectiveness, March 27, 2008.

ⁱⁱ Audit Report 2010-13366, Information Technology Organizational Effectiveness, April 5, 2011.

ⁱⁱⁱ The Scaled Agile Framework is an alternative to traditional project management. Agile emphasizes empowering people to collaborate and make team decisions in addition to continuous planning, continuous testing, and continuous integration.



Audit 2014-15063-03 – Information Technology Organizational Effectiveness – Operations Solutions Delivery

EXECUTIVE SUMMARY

best possible solutions. Based on our findings, OSD is operating at a maturity level of 4 as shown in Figure 1.

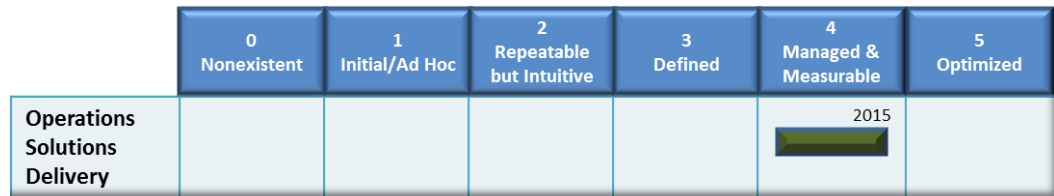


Figure 1

Definitions of the maturity ratings for Figure 1, which were developed from the Control Objectives for Information and Related Technology (COBIT)^{iv} 4.1 framework, are summarized below and described in detail in Appendix B.

- 0. Nonexistent – There is a complete lack of policies and processes.
- 1. Initial/Ad Hoc – There are no standardized policies and processes.
- 2. Repeatable and Intuitive – Policies and processes are developed; however, there is a high reliance on the knowledge of individuals to ensure compliance.
- 3. Defined – Policies and processes have been standardized, but it is unlikely that noncompliance would be detected.
- 4. Managed and Measurable – Management monitors and measures compliance with procedures and takes action where processes appear not to be working effectively. Automation and tools are used in a limited or fragmented way.
- 5. Optimized – Processes have been refined to a level of good practice, based on the results of continuous improvement and maturity modelling with other enterprises.

During our interviews with OSD personnel and customers, we found both groups expressed concern regarding the number of resources assigned to OSD. While OSD is currently able to meet the needs and cover the workload for supporting operational applications, OSD’s resources are stretched and, as new technologies and needs arise, the current level of staff may not be able to meet their customers’ needs. In addition, the OSD staff expressed frustrations with the time it takes for changes to be applied to software and other services they received from other IT organizational groups.

^{iv} COBIT is an IT governance framework and supporting toolset that emphasizes regulatory compliance, helps organizations to increase the value attained from IT, enables alignment, and simplifies implementation of the enterprises' IT governance and control framework.



Audit 2014-15063-03 – Information Technology Organizational Effectiveness – Operations Solutions Delivery

EXECUTIVE SUMMARY

TVA's values are the fundamental beliefs used to guide the actions, behaviors, and decisions in how to achieve its mission. TVA has recently adopted the following values that are being introduced to employees: safety, service, integrity, accountability, and collaboration. Observed activities within OSD were compared to the TVA values and no issues were identified. In addition, there is a high level of collaboration within OSD and with the business units.

What the OIG Recommends

The TVA OIG recommends the CIO, IT:

1. Identify opportunities to assist OSD personnel to determine the best methods for expediting changes and other required support.
2. Review staffing levels to determine if they are adequate to meet current and future mission support requirements.

TVA Management's Comments

In response to our draft audit report, TVA management agreed with our findings and recommendations. See Appendix C for TVA management's complete response.

BACKGROUND

A key aspect of the Tennessee Valley Authority's (TVA) mission and vision is to provide affordable electricity to rate payers. TVA's Information Technology (IT) organization's contribution to this mission and vision includes operating effectively. In 2008, TVA's Office of the Inspector General (OIG) performed an audit¹ on the effectiveness of the IT organization and made several recommendations for improvements. In 2011, the OIG completed a follow-up audit² and determined the actions previously taken were not carried through year to year and, as a result, effectiveness in many areas had decreased. Accordingly, to assist IT in increasing its effectiveness, the recommendations from Audit 2010-13366 were focused on creating sustainable processes. In addition, TVA's Chief Information Officer (CIO) created a program titled 1,000 Days to Success (IT1K) to address findings from the audit as well as other observations he made as to the current state of IT.

In December 2013, IT informed us it had completed the management action plans to address the recommendations from Audit 2010-13366. Soon thereafter, IT informed us it had also completed the IT1K program. To assess the results of the management action plans, the IT1K program, and to determine current organizational effectiveness, a follow-up audit was scheduled. To accomplish this, we planned to evaluate the effectiveness of individual operational groups within IT. This report covers the results for our audit of the Operations Solutions Delivery (OSD) group.³

During the most recent reorganization, OSD was created by bringing together information technology support groups from IT, Transmission and Power Supply, Nuclear Power Group, and Power Operations to create a single group responsible for supporting specific applications used by TVA's operational groups, such as the Nuclear Power Group, Power Operations, Transmission and Power Supply, and Safety, River Management and Environment. OSD's organizational structure includes seven teams. One team develops architecture and integration standards and another is a project pool team used to backfill on projects as needed. The remaining five are organized by TVA service line and include Nuclear Power Solutions, Power Operations Solutions, Operations Support Solutions, Transmission Solutions, and River, Environment and GIS Solutions. The OSD group supports more than 1,200 applications directly related to TVA core operations, excluding plant and transmission control systems. OSD did not receive responsibility for implementing any recommendations from Audit 2010-13366 or for sustaining any of the IT1K initiatives.

¹ Audit Report 2007-11348, Information Services Organizational Effectiveness, March 27, 2008.

² Audit Report 2010-13366, Information Technology Organizational Effectiveness, April 5, 2011.

³ Audit Report 2014-15063-01, issued on June 4, 2015, covered our audit of the Enterprise Information Security and Policy group. Audit Report 2014-15063-02, issued on August 4, 2015, covered our audit of the Enterprise Architecture and Programs group. Separate reports will be completed for the remaining operational groups in IT (IT Infrastructure Delivery, Enterprise Solutions Delivery, and Enterprise Customer Operations).

OBJECTIVES, SCOPE, AND METHODOLOGY

The objectives of this audit were to evaluate the effectiveness of organizations within IT in meeting TVA's mission and values (see Appendix A). To accomplish this, the audit team evaluated current effectiveness of operational groups within IT. The scope of this report covers the results for OSD. Additional reports will be completed for each operational group in IT.

To achieve the objectives of this audit, the audit team:

- Interviewed a sample of OSD employees to determine background, understanding of job duties, team dynamics, and leadership capabilities.
- Interviewed TVA employees outside of OSD to determine level of interaction and support provided by OSD.

Sampling was performed using auditor judgement based on position title and location on organization chart. Due to the use of nonstatistical sampling, we cannot project the sample results to the population.

Documentation (e.g., values definitions and application listings) used for this audit was provided by TVA. Fieldwork for this audit was completed between May 2015 and July 2015.

We conducted this performance audit in accordance with generally accepted government auditing standards. Those standards require we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

FINDINGS

OSD's operational maturity (see Appendix B) is a 4 (managed and measurable) based on the level of adoption and use of the Scaled Agile Framework⁴ (Agile) elements that allow for monitoring and improving processes as needed to meet its customers' needs. In addition, OSD's customers generally expressed a high level of satisfaction with the current support they receive and that OSD's support has improved over time. A contributing factor to the high level of customer satisfaction is the high level of motivation and desire OSD personnel have to support their customers and deliver the best possible solutions. Based on our findings, OSD is operating at a maturity level of 4 as shown in Figure 1 on the following page.

⁴ The Scaled Agile Framework is an alternative to traditional project management. Agile emphasizes empowering people to collaborate and make team decisions in addition to continuous planning, continuous testing, and continuous integration.

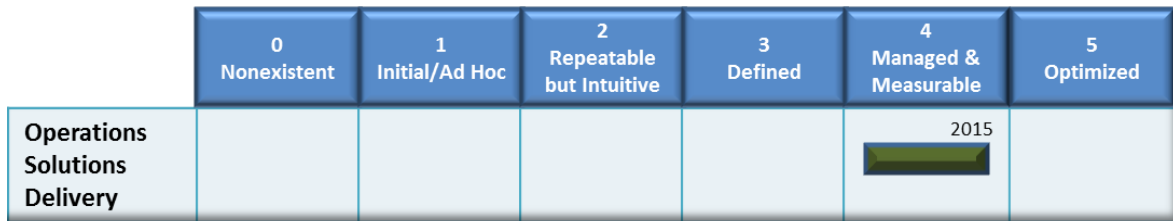


Figure 1

During our interviews with OSD personnel and customers, we found both groups expressed concern regarding the number of resources assigned to OSD. While OSD is currently able to meet the needs and cover the workload for supporting operational applications, OSD's resources are stretched and, as new technologies and needs arise, the current level of staff may not be able to meet their customer's needs. In addition, the OSD staff expressed frustrations with the time it takes for changes to be applied to software and other services they received from other IT organizational groups.

CURRENT ORGANIZATIONAL STATE

TVA's IT has adopted Agile for the delivery of services and is in the initial phase of its deployment. OSD was the first operational group in IT to adopt and leverage Agile, resulting in the ability to establish, monitor, and adjust processes to improve service delivery. One of the process improvements implemented by OSD is to have meetings with customers on a regular basis to update and review work in progress, make necessary adjustments as needed, and reprioritize work. Overall, the business units reported a high level of satisfaction with the service delivery. Where there were issues expressed, the business units also stated that, over time, service delivery is improving.

Currently, OSD has 72 full time employee equivalents supporting over 1,200 applications. With these numbers, OSD is able to cover the workload, but just so, mostly due to professionalism and willingness to get the job done no matter the hour or day of the week. They are stretched and, as new technologies and requirements arise, it is possible OSD may not be able to meet their customers' needs.

Based on interviews, the process of bringing together the different groups to create OSD has gone well and they appear to be working well together. In addition, OSD's integration into IT has gone well. The OSD team expressed frustration with the increased time it takes to have changes implemented and to receive support from other groups within IT; however, they recognized this is normal in an enterprise IT organization. In interviews, it was found that often they were able to escalate their requests when they knew who to contact. The issue seems to be more of getting to know IT resources and their roles rather than an issue with current IT processes.

During the interviews, we noted approximately 95 percent of the interviewees had a great attitude and were highly motivated and eager to tell us about what they are doing at TVA. Each member has an innate desire to support the customer to the best of their ability. Change is always difficult but this was a tight team and they seem to be integrating well into IT.

TVA VALUES

TVA's values are the fundamental beliefs used to guide the actions, behaviors, and decisions in how to achieve its mission. Observed activities within OSD were compared to the TVA values and no issues were identified.

Integrity

The TVA value of integrity is defined as conducting business according to the highest ethical standards and earning the trust of others through words and actions that are open, honest, and respectful. When asked about conflict and how differing views are handled, OSD staff responded that, while they are passionate about their work and have strong opinions on how to complete their tasks, they always do so in an appropriate and respectful manner.

Accountability

In alignment with the TVA value accountability, producing effective results includes being accountable for all process deliverables. The team members interviewed appear to be highly motivated in their work and desire to support TVA operations to the best of their ability. As a result, they have demonstrated accountability for the applications they support.

Collaboration

OSD has highly collaborative teams that work together and, when disagreements on how to complete a task arise, the disagreements are handled in an appropriate manner. This level of collaboration extends across the teams. In addition, some teams were working in "bull pen" arrangements (teams are close together with no walls in place acting as physical and communications barriers) and are looking forward to when they are able to resume this arrangement in their new location. It was generally felt this arrangement helped to foster collaboration and was a key aspect of their success.

Communication is a key element of collaboration in developing teamwork and effective partnerships. OSD has set up regular meetings to bring together team managers to share information and project status. In addition, as part of their adaptation of Agile, the individual teams hold daily meetings to provide communications and maintain a high rate of reliability.

RECOMMENDATIONS

The TVA OIG recommends the CIO, IT:

1. Identify opportunities to assist OSD personnel to determine the best methods for expediting changes and other required support.
2. Review staffing levels to determine if they are adequate to meet current and future mission support requirements.

TVA Management's Comments – In response to our draft audit report, TVA management agreed with our findings and recommendations. See Appendix C for TVA management's complete response.

TVA VALUES

The Tennessee Valley Authority (TVA) values are fundamental beliefs that guide TVA's actions, behaviors, and decisions. TVA has defined the following values:

- **Safety:** We share a professional and personal commitment to protect the safety of our employees, our contractors, our customers, and those in the communities that we serve.
- **Services:** We are privileged to be able to make life better for the people of the Valley by creating value for our customers, employees, and other stakeholders, being good stewards of the resources that have been entrusted to us, and by being a good neighbor in the communities in which we operate.
- **Integrity:** We conduct our business according to the highest ethical standards and seek to earn the trust of others through words and actions that are open, honest, and respectful.
- **Accountability:** We take personal responsibility for our actions, our decisions, and the effectiveness of our results, which must be achieved in alignment with our company values.
- **Collaboration:** We're committed to fostering teamwork, developing effective partnerships, and valuing diversity as we work together to achieve results.

OPERATIONAL MATURITY LEVELS

Operational maturity levels were determined using COBIT 4.1 operating standards as shown in Figure 1. COBIT 4.1 is an information technology (IT) governance framework and supporting toolset that allows managers to bridge the gap between control requirements, technical issues, and business risks. COBIT emphasizes regulatory compliance, helps organizations to increase the value attained from IT, enables alignment, and simplifies implementation of the enterprises' IT governance and control framework.

Rating	Summary Criteria
5 Optimized	IT policies and processes have been refined to a level of good practice, based on the results of continuous improvement and maturity modeling with other enterprises.
4 Managed and Measurable	Management monitors and measures compliance with IT policies and processes and takes action where processes appear not to be working effectively. Processes are under constant improvement and provide good practice. Automation and tools are used in a limited or fragmented way.
3 Defined	IT policies and processes are standardized, documented, and communicated. Management has mandated these processes should be followed; however, it is unlikely deviations will be detected. The procedures themselves are not sophisticated but are the formalization of existing practices.
2 Repeatable but Intuitive	IT policies and processes have developed to the stage where similar procedures are followed by different Strategic Business Units. There is a high degree of reliance on the knowledge of individuals.
1 Initial/Ad Hoc	There are no standardized IT policies and processes; instead, there are ad hoc approaches that tend to be applied on an individual or case-by-case basis.
0 Nonexistent	Complete lack of any recognizable IT policies and processes.

Figure 1

August 27, 2015

David P. Wheeler, ET 3C-K

RESPONSE TO REQUEST FOR COMMENTS – DRAFT AUDIT 2014-15063-03 –
INFORMATION TECHNOLOGY ORGANIZATIONAL EFFECTIVENESS –
OPERATIONS SOLUTIONS DELIVERY

Our response to your request for comments regarding the findings of the subject draft report is attached. Please let us know if your staff has any concerns with TVA's comments.

We would like to thank Phyllis Bryan, Scott Marler, and the audit team for their professionalism and cooperation in conducting this audit. If you have any questions, please contact Valerie Anderson at (423) 751-8915.



Daniel A. Traynor
Chief Information Officer
Information Technology
SP 3A-C

cc (Attachment):

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OIG File No. 2014-15063-03

Audit 2014-15063-03
IT Organizational Effectiveness - Operations Solutions Delivery
Response to Request for Comments

ATTACHMENT A
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	Recommendation	Comments
1	The TVA OIG recommends the CIO, IT: Identify opportunities to assist OSD personnel to determine the best methods for expediting changes and other required support.	Management agrees.
2	Review staffing levels to determine if they are adequate to meet current and future mission support requirements.	Management agrees.