NAVAJO NATION

Department of Information Technology
Performance Assessment Report

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NAVAJO NATION
Window Rock, AZ

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NAVAJO NATION
Department of Information Technology

Scope of Work, Findings and Recommendations

Navajo Nation
Office of Auditor General
Window Rock, AZ

We are pleased to report the completion of our Navajo Nation Department of Information Technology (NNDIT) Performance Assessment. The purpose of our engagement was to:

1. Evaluate the impact DIT is making to minimize information technology expenses across the Navajo Nation programs and departments.
2. Evaluate DIT staffing competencies according to user needs and use of technologies that are available within the Navajo Nation government.
3. Evaluate whether DIT staff work assignments or other contract work are in accordance to the department's plan of operation, information technology governance plan, and information technology strategic plan.
4. Evaluate the work effort of DIT on mission critical systems.
5. Evaluate whether a DIT strategic plan is being implemented and managed for the overall Navajo Nation Government.
6. Evaluate DIT's performance measures whether it is aligned with Navajo nation user needs and delivery of services are satisfactory.
7. Evaluate the controls of Navajo Nation computer network and administration and management thereof.

The results of our evaluation are listed below:

Summary Findings and Recommendations - According to Navajo Nation Policy, NNDIT is the primary entity responsible for Information Technology within the Navajo Nation. In the past, it has been responsible for maintaining and modifying Navajo Nation computer based financial systems, electronic record keeping systems, databases and electronic mail. This worked well with early systems that required internal development and minimal interaction with users. As electronic systems evolved, the shift in demand for NNDIT personnel has been away from development staff to technical support personnel, helpdesk support, and networking staff, with limited development staff to maintain legacy systems and do web development. The shift in demand was not foreseen or accommodated by NNDIT, largely due to the existing staff being primarily development personnel who do not have the core competencies needed for the evolving mission, and a long period where no Director was appointed to NNDIT. This resulted in a loss of focus for DIT and reduced quality of service to its customers. Navajo Nation has not updated the IT Plan of Operation since 1999, nor has it developed either an IT Governance Plan or an approved Navajo Nation IT Strategic Plan, which has left the NNDIT without clear direction. As a result, NNDIT has evolved at will, and has not served the needs of the Navajo Nation well.

Some efforts were made at providing required services to Navajo Nation Government entities at the Window Rock Campus, such as installing high speed DS3 lines for Internet access and email, and running fiber optic cable between buildings, but these efforts were not well maintained or marketed to the client base, and have not been followed through. Consequently, in self defense, many government entities have begun to build their own internal Information Technology (IT) staff and seek outside services that are already invested in and being provided by NNDIT, such as Internet and email. These "islands of IT" have begun to take on a life of their own, consequently diverting resources, focus and tasks that should be handled by NNDIT. Costs have increased due to the number of personnel and skill sets required, the ability to utilize the highly skilled personnel across all government entities, and the multiple benefits gained through centralized resource management have been lost.

NNDIT has lost its original role in maintaining the Navajo Nation financial systems. There is some dispute as to the reasons for this, but the fact remains they have little, if any, role in this key mission critical Information System component.

NNDIT has suffered from its lack of leadership. An attempt was made to provide the needed leadership for NNDIT but it has been mostly in the form of a vision and with not enough concentration on correcting currently dysfunctional components.

It is our opinion that the focus should be on gaining back trust of the client base through providing high quality support services such as the help desk, networking support, on-call technicians, 24/7 support of the primary communications facilities, routers, email and Active Directory servers. Additional effort should be made to continue and expand the SharePoint server effort while moving development personnel who are willing, into web development.

The leadership vision to expand distribution of communication to all corners of the Navajo nation in the form of Internet connectivity, Voice over IP (VoIP) phones and video conferencing is a good long term objective, but these visions have distracted NNDIT from critical support issues it has as its current mission.

Summary recommendations that we feel should be implemented or be well under way over the next 12 months.

1. The Navajo Nation should hire a consultant or full-time short-term employee who reports to the Executive Branch and has the skill set required to evaluate the IT needs of the Navajo Nation, develop an implementation plan, budget, and oversee the project to fruition. This individual or consulting organization must be capable of working with the NNDIT leadership to train existing personnel or hire personnel that can accomplish the projects listed in items 2 through 18 below. Current NNDIT personnel do not have all the skill sets required, either from a technical or leadership perspective, to accomplish these tasks. During this period the current Director of Information Technology should be trained and demonstrate the ability to lead DIT when the interim person leaves.

2. We recommend the addition of two skilled, experienced IT Project Managers to the NNDIT staff. These personnel should have years of experience implementing complex Information Technology projects, have good leadership skills, and be skilled in the use of Project Management software such as Microsoft Project and SharePoint. They should be provided with the tools and authority necessary to assist in the success of the projects described in this document and other projects assigned in the future.

3. Implement a Help Desk tracking system with every call coming into NNDIT being put into the system and tracked. The system should not be bypassed under any circumstances. This is the best measure of performance tracking for both NNDIT and the Navajo Nation. Some effort has been made along this line by an attempt to develop an NNDIT in-house tool, but the effort has been slow and expensive. We recommend that the in-house tool development be stopped, but the tool should continue to be used while an evaluation of commercial off-the-shelf products is made and a suitable solution procured and implemented. This should be completed and online within a three month period.

4. Provide funding for, procure, install and support a backup core router for connectivity to the Internet. This will minimize downtime for Internet access, web pages and email.

5. Provide funding for, procure, install and support backup Active Directory, Web and email servers with a Storage Area Network (SAN) storage system for connectivity to the domain controller, Internet access and email to minimize downtime. Offsite storage of backup tapes in a secure storage location such as a safe deposit box should be mandatory. For the future, a geographically separate 'warm' site (ready to bring online with backup tapes) should be considered for disaster recovery.

6. Provide funding for, procure, install and support enterprise level licensing for operating systems and productivity software. This will greatly reduce the total cost the Nation is paying for this type of software and will aid in the control of licensing issues.

7. Provide funding for and procure a 3-5 year contract (through the proper bid process) with a single vendor for computing hardware for the Nation. This will allow the Nation to take advantage of the economies of scale available to an entity of its size. Additionally, this will allow the Nation to adhere to a replacement cycle for its equipment. Industry standard replacement is every three years (i.e. replacing a third of the systems every year). This replacement schedule follows most warranty programs so systems will never be out of warranty. This will also allow NNDIT to utilize current technologies to image systems cutting down drastically the time it takes to both stage a new system and to redo systems that have been corrupted.

8. Provide funding to expand the networking and server staff, and dedicate people to the specific task of maintaining the Active Directory, email services, Internet access, server and communication systems, keeping them current with updates and online 24/7. Often calls are made to obtain support from these personnel and they are out on a call or traveling to a conference. Users with issues must be able to talk to someone and get a commitment for support. The two staff dedicated to this task currently are not adequate to provide timely service, and there should be several in this position. Although we made efforts to understand the gap in salaries between industry norms and NNDIT, we were unable to get data from Human Resources to do a good analysis. We do believe that the difference is significant at all levels within NNDIT, and it will be very difficult to attract key talent to take NNDIT to the level it

needs to be at without increases in salary levels for IT staff. NNDIT needs an influx of staff with key skills and experience to help improve morale and provide existing staff with new insight into their profession. The complex financial systems are currently beyond the ability of current NNDIT personnel to take control of. However, personnel with the right motivation and skill set should be found to manage those systems over time. These personnel will be expensive and may not be found within the current employees of the Navajo Nation. This will ultimately mitigate some of the high cost of consulting services currently incurred to support the financial system and provide a greater degree of independence with these systems by the Navajo Nation.

9. Currently, NNDIT staff has only two vehicles available for trouble calls. This can cause significant delays in personnel responding to trouble calls that require an onsite visit, especially if the vehicles are in use at a remote location, some of which may require several hours or an overnight trip. The amount of available vehicles should be expanded to accommodate several personnel responding to trouble calls simultaneously. Due to the lack of a good problem tracking system, that number is difficult to determine, but we believe there should be at least twice as many vehicles available, and further review of that number should be done regularly to assess the need.

10. We recommend at least two NNDIT network/PC technicians, with vehicles and tools, be put in place at each of the five Agency offices. When these personnel are not on trouble calls, they should be connected to the phones and help desk system at NNDIT in Window Rock and augment the Help Desk staff. If this process is effective over time, it may not be required to expand the help desk staff, and should reduce the extensive travel time commitment now required of the network staff.

11. Migrate the existing Private Class C IP (192.168.x.x) schema to a private Class A (10.X.X.X). The current scheme is very limiting and creates difficulty in communicating between nodes on the Navajo Nation Network. This will increase in difficulty as the network grows and will be more difficult to change as time goes on. The scheme should be managed centrally and NNDIT is the right place to do so, but the servers and connectivity managing it must be robust and have very good uptime. This will be mission critical.

12. Merge and migrate the Active Directory (AD) domains currently in place into a Navajo Nation single forest Active Directory managed by NNDIT. There will be multiple domains within the forest for various entities with trust relationships between them, but this must be carefully managed and the server infrastructure must be robust and have high reliability. It will be a mission critical system and must be designed correctly, probably requiring outside consulting resources. Response time for change requests and problem resolution must be minimized. The single forest system will enhance security, control and management of the Navajo Nation computing resources, in addition to reducing expansion costs once it is in place. This is standard best practice for an organization as large and complex as the Navajo Nation.

13. When the previous steps have been accomplished, discontinue the Internet DSL lines that exist throughout the Window Rock Campus and connect those offices to the main Internet service which should be quite adequate to support demand, and can be inexpensively expanded to increase capacity as demand increases. Based upon the financial documents analyzed, taking this step will be a significant cost reduction for the Navajo Nation, and can be used to support the other steps to improving NNDIT listed here.

14. Provide funding to procure and deploy an anti-virus solution government wide through NNDIT as a mandatory deployment. Currently licenses are purchased as an option by many departments and consequently do not get installed. Many hours are lost by users and NNDIT restoring systems that have become infected by viruses, Trojans and other malware. The most cost effective method is centralized deployment and updating of the anti-virus/anti-malware engines and definitions.

15. Update the current Information Technology Plan of Operation (GSCJY-67-99) that is ten years old and needs to be updated for current advances in technology and the changing needs of the Navajo Nation by setting up a working group of representatives from Navajo Nation government entities. The final authority for approval and the final responsibility must lie with the Navajo Nation Council. This same group should become an IT steering committee to provide feedback to NNDIT and the Navajo Nation Council for IT needs going forward.

16. NNDIT should develop an Information Technology Strategic Plan different than the current unadopted version. The Strategic Plan has many sections which are closer to a vision document for deploying Internet technology to the Navajo Nation and developing NNDIT into an enterprise. The Strategic Plan should discuss key technologies NNDIT will be deploying and directions NNDIT will be investigating over the next 5-10 years to support Navajo Nation government operations, and should be adopted with a signature by the appropriate authority.

17. NNDIT should be moved out of the Division of General Services and an Office of Information Technology created, which reports to the President's Office. The Director of Information Technology should become the Chief Information Officer after phase one of the recommendations are complete.

18. We recommend the Navajo Nation hire a Chief Information Security Officer who reports to the Legislature and remains outside other organizations for conflict of interest reasons. This individual should possess the high level skill set and certifications required to audit and evaluate the security health of IT systems throughout the Navajo Nation. Currently, no complete, approved Security and Disaster Recovery policy or plans are in place and the Navajo Network computing systems are at great risk internally and externally. A policy should be developed and then approved by the Navajo Nation Council. This plan should be developed immediately through the Security office in conjunction with the various divisions and be implemented with the backing of the President's Office and Council.

Given the above recommendations, the NNDIT facility will not be large enough to house the new staff as they are currently overcrowded. A search for a new, larger facility for NNDIT within the Window Rock campus should begin with hopes of relocation as soon as reasonable.

We applied the IT Governance Institute's (ITGI) Control Objectives for Information and related Technology (COBIT®) framework and control objectives specific to the seven items agreed upon to review. COBIT's good practices represent the consensus of industry experts and fits with and supports the Committee of Sponsoring Organizations of the Treadway Commission (COSO) Internal Control—Integrated Framework, the widely accepted control framework for enterprise governance/risk management. COBIT allows us to evaluate the IT process and function on a gradient that emphasizes improvement as opposed to "findings" that promote a concept of failure. Please see Appendix A for the complete detailed COBIT analysis.

Procedures, Findings and Recommendations broken out by scope (Note: please see Appendix A for the detailed COBIT analysis):

1. Evaluate the impact DIT is making to minimize information technology expenses across the Navajo Nation programs and departments. (COBIT Objectives: PO3-Determine Technological Direction, PO5-Manage the IT Investment, AI5-Procure IT Resources, DS4-Ensure Continuous Service, DS6-Identify & Allocate Costs, DS7-Educate & Train Users, DS10-Manage Problems, ME4-Provide IT Governance.)

    a. Procedures performed – We reviewed the Navajo Nation Department of Information Technology (NNDIT) budget and expenditure information that we were able to obtain during our field work. We also obtained documents that had limited information from other departments regarding their budgets and expenditure for internal and external information technology expenses. We reviewed policy and procedure documents from the Navajo Nation and NNDIT to ascertain the role NNDIT was expected to perform by the Navajo Nation Government, and whether NNDIT has acted or not acted to fulfill that role. We interviewed personnel in entities that used NNDIT services and those that did not.

    b. Findings – NNDIT has implemented high speed lines with capacity to provide Internet, email and website access for the Window Rock Campus with fiber optic connectivity to most buildings on the Campus and wireless access to many Navajo Nation facilities in the area. Email service is available to all departments. Technical support in the form of networking and the help desk is made available at no additional charge to government agencies throughout the Navajo Nation. These services have not been reliable or well marketed, and limited personnel have made them difficult to provide on a 24/7 basis, which is critical for acceptance within the client community. While NNDIT does have standards for computing equipment that is purchased for the Nation, the various entities are allowed to choose from 3 different vendors with each vendor offering 3 different levels of systems. This does not allow the Nation to take advantage of the economies of scale available to an entity of its size. Also, NNDIT should be responsible for choosing the level of the system after the user has described what it will be used for. Additionally, NNDIT has not shown a 'mission critical' mentality regarding the communications and email services, often failing to correct after-hours problems until the next business day.

    c. Recommendations –
        i. NNDIT be moved out of the Division of General Services and an Office of Information Technology created, which reports to the President's Office. The Director of Information Technology should become the Chief Information Officer after phase one of the recommendations are complete.
        ii. Provide funding for, procure, install and support a backup core router for connectivity to the Internet. This will minimize downtime for Internet access, web pages and email. Provide funding for, procure, install and support the backup Active Directory, Web and email servers with a Storage Area Network (SAN) storage system for connectivity to the Domain Controller, Internet access and email to minimize downtime. Offsite storage of backup tapes in a secure

storage location such as a safe deposit box should be mandatory. In the future, a geographically separate 'warm' site (ready to bring online with backup tapes) should be considered.

iii. Provide funding to expand the networking and server staff, and dedicate people to the specific task of maintaining the Active Directory, email services, Internet access, server and communication systems, keeping them current with updates and online 24/7. Often calls are made to obtain support from these personnel and they are out on a call or traveling to a conference. Users with issues must be able to talk to someone and get a commitment for support. The two staff dedicated to this task currently are not adequate to provide timely service, and there should be several in this position. An additional hurdle is the disparity in salaries for current employees with industry norms, and that the Window Rock Campus is very remote from a pool of available Information Technology talent. Although we made efforts to understand the gap in salaries between industry norms and NNDIT, we were unable to get data from Human Resources to do a good gap analysis. We do believe that the difference is significant at all levels within NNDIT, and it will be very difficult to attract key talent to take NNDIT to the level it needs to be at without increases in salary levels for IT staff. NNDIT needs an outside influx of staff with key skills and experience to help improve morale and provide existing staff with new insight into their profession. The complex financial systems are currently beyond the scope of NNDIT to take control of. However, personnel with the right motivation and skill set should be found to manage those systems over time. These personnel will be expensive and may not be found within the current employees of the Navajo Nation. This will ultimately mitigate some of the high cost of consulting services currently incurred to support the financial system and provide a greater degree of independence with these systems for the Navajo Nation.

iv. Given the above recommendations, the NNDIT facility will not be large enough to house the new staff as they are currently overcrowded. A search for a new, larger facility for NNDIT within the Window Rock campus should begin with hopes of relocation as soon as reasonable.

v. Provide funding for, procure, install and support Enterprise level licensing for operating systems and productivity software. This will greatly reduce the total cost the Nation is paying for this type of software and will aid in the control of licensing issues.

vi. Provide funding and procure a 3-5 year contract (through the proper bid process) with a single vendor for computing hardware for the Nation. This will allow the Nation to take advantage of the economies of scale available to an entity of its size. Additionally, this will allow the Nation to adhere to a replacement cycle for its equipment. Industry standard replacement is every three years (i.e. replacing a third of the systems every year). This replacement schedule follows most warranty programs so systems will never be out of warranty. This will also allow NNDIT to utilize current technologies to image

systems cutting down drastically the time it takes to both stage a new system and to redo systems that have been corrupted.

vii. Currently, NNDIT staff has only two vehicles available for trouble calls. This can cause significant delays in personnel responding to trouble calls that require an onsite visit, especially if the vehicles are in use at a remote location, some of which may require several hours or an overnight trip. The amount of available vehicles should be expanded to accommodate several personnel responding to trouble calls simultaneously. Due to the lack of a good problem tracking system, that number is difficult to determine, but we believe there should be at least twice as many vehicles available, and further review of that number should be done regularly to assess the need.

viii. We recommend at least two NNDIT network/PC technicians, with vehicles and tools, be put in place at each of the five Agency offices. When these personnel are not on trouble calls, they should be connected to the phones and help desk system at NNDIT in Window Rock and augment the Help Desk staff. If this process is effective over time, it may not be required to expand the help desk staff, and should reduce the extensive travel time commitment now required of the network staff. This action should also reduce the need for long and overnight trips necessary to respond to trouble calls at remote locations.

ix. When the previous steps have been accomplished, discontinue the Internet DSL lines that exist throughout the Window Rock Campus and connect those offices to the main Internet service which should be quite adequate to support demand, and can be inexpensively expanded to increase capacity as demand increases. Based upon the financial documents analyzed, taking this step will be a significant cost reduction for the Navajo Nation, and can be used to support the other steps to improving NNDIT listed here.

x. Provide funding to procure and deploy an anti-virus solution government wide through NNDIT as a mandatory deployment. Currently licenses are purchased as an option by many departments and consequently do not get installed. Many hours are lost by users and NNDIT restoring systems that have become infected by viruses, Trojans and other malware. The most cost effective method is centralized deployment and updating of the anti-virus/anti-malware engines and definitions.

2. Evaluate DIT staffing competencies according to user needs and use of technologies that are available within the Navajo Nation government. (COBIT Objectives: PO4-Define IT Processes, PO7-Manage IT Human Resources, PO10-Manage Projects, AI5-Procure IT Resources, DS5-Ensure System Security, DS7-Educate & Train Users.)

   a. Procedures performed – We reviewed policy and procedure documents from the Navajo Nation and NNDIT to ascertain the role NNDIT was expected to perform by the Navajo Nation Government, and whether NNDIT has acted or not acted to fulfill that role. We reviewed resumes and position descriptions for all NNDIT staff, and interviewed each staff member to ascertain their skill set and daily tasks.

b. <u>Findings</u> – NNDIT personnel have been mostly comprised of software development staff and a few technicians. The staff has not evolved as technology has, so have not been able to keep up with the changing needs of the Navajo Nation. Leadership has not kept staff focused on important technologies in use such as Internet, email, web services and financial applications that the Navajo Nation needs. Some of the development personnel are reluctant to move ahead into new technologies or to work outside their defined field of expertise even though the need for their current skills has been significantly reduced. The demand for Network Technicians and Help Desk support has increased significantly, and demand for programmers has decreased. Network and Help Desk Staff have not been increased in number or in important skills as demand has increased. Supervisors in each area do not currently have the skill or drive to help their teams excel.

c. <u>Recommendations</u> –

    i. The Navajo Nation should hire a consultant or full-time short term employee who reports to the Executive Branch and has the skill set required to evaluate the IT needs of the Navajo Nation, develop an implementation plan, budget, and oversee the project to fruition. This individual or consulting organization must be capable of working with the NNDIT leadership to train existing personnel or hire personnel that can accomplish the projects listed in items 2 through 18 below. Current NNDIT personnel do not have all the skill sets required, either from a technical or leadership perspective, to accomplish these tasks. During this period the current Director of Information Technology should be trained and demonstrate the ability to lead DIT when the interim person leaves.

    ii. We recommend the addition of two skilled, experienced IT Project Managers to the NNDIT staff. These personnel should have years of experience implementing complex Information Technology projects, have good leadership skills, and be skilled in the use of Project Management software such as Microsoft Project and SharePoint. They should be provided with the tools and authority necessary to assist in the success of the projects described in this document and other projects assigned in the future.

    iii. Provide funding to expand the networking and server staff, and dedicate people to the specific task of maintaining the Active Directory, email services, Internet Access, server and communication systems, keeping them current with updates and online 24/7. Often calls are made to obtain support from these personnel and they are out on a call or traveling to a conference. Users with issues must be able to talk to someone and get a commitment for support. The two staff dedicated to this task currently are overwhelmed, and there should be several in this position. Although we made efforts to understand the gap in salaries between industry norms and NNDIT, we were unable to get data from Human Resources to do a good evaluation. We do believe that the gap is significant, and it will be very difficult to attract key talent to take NNDIT to the level it needs to be at without increases in salary levels for IT staff. NNDIT needs an influx of staff with key skills and

experience to help improve morale and provide existing staff with new insight into their profession.

   iv.   We recommend the Navajo Nation hire a Chief Information Security Officer who reports to the Legislature and remains outside other organizations for conflict of interest reasons. This individual should possess the high level skill set and certifications required to audit and evaluate the security health of IT systems throughout the Navajo Nation.

3. Evaluate whether DIT staff work assignments or other contract work are in accordance to the department's plan of operation, information technology governance plan, and information technology strategic plan. (COBIT Objectives: PO1-Define an IT Strategic Plan, PO3-Determine Technological Direction, PO4-Define IT Processes, PO6-Communicate Management Direction, PO8-Manage Quality, ME4-Provide IT Governance.)
   a. <u>Procedures performed</u> – We reviewed available Navajo Nation and NNDIT documents related to Information Technology.
   b. <u>Findings</u> – The only available document providing IT oversight is Information Technology Plan of Operation (GSCJY-67-99). We were unable to locate an approved NNDIT Information Technology Plan or a Navajo Nation Information Technology Governance Plan. The Information Technology Plan of Operation (GSCJY-67-99) was adopted in 1999 and does not fit current Navajo Nation Information Technology requirements. According to the effective document, NNDIT has responsibility for all Information Technology processing including financial systems and databases within the Navajo Nation. NNDIT has developed an Information Technology Strategic Plan but the copies we were able to obtain do not have an official concurrence of signatures.
   c. <u>Recommendations</u> – Update the current Information Technology Plan of Operation (GSCJY-67-99) that is ten years old and needs to be updated for current advances in technology and the changing needs of the Navajo Nation by setting up a working group of representatives from Navajo Nation government entities. The final authority for approval and the final responsibility must lie with the Navajo Nation Council. This same group should become an IT steering committee to provide feedback to NNDIT and the Navajo Nation Council for IT needs going forward.

4. Evaluate the work effort of DIT on mission critical systems. (COBIT Objectives: PO5-Manage the IT Investment, PO7-Manage IT Human Resources, AI1-Identify Automated Solutions, DS1-Define & Manage Service Levels, DS2-Manage 3rd Party Services, DS3-Manage Performance & Capacity, ME1- Monitor & Evaluate IT Performance, ME4-Provide IT Governance)
   a. <u>Procedures performed</u> – We evaluated the key systems currently implemented by the Navajo Nation. Those were email, Internet access, Active Directory, and websites (including SharePoint sites).
   b. <u>Findings</u> – NNDIT has lost its original role in maintaining the Navajo Nation financial systems. There is some dispute as to the reasons for this, but the fact remains they have little if any role in a key mission critical Information System component. Some efforts are being made for providing services to Navajo Nation Government entities at

the Window Rock Campus, such as installing high speed DS3 lines for Internet access and email, and running fiber optic cable between buildings, but these efforts are not well maintained or marketed to the client base, and have not been followed through upon. Consequently, in self defense, many government entities have begun to build their own internal Information Technology (IT) staff and seek outside services that are already invested in and being provided by NNDIT, such as Internet and email. These 'islands of IT' have begun to have a life of their own, consequently diverting resources, focus and tasks that should be handled by NNDIT into departments and divisions that do not have the skill to manage them.

   c. <u>Recommendations</u> – NNDIT has suffered from its lack of leadership and although an attempt was made to provide the needed leadership it has been mostly vision and forward thinking with not enough concentration on correcting dysfunctional components of NNDIT. Leadership training should be provided to all levels of management within NNDIT who must step up to the task. Focus should be on gaining back trust of the client base through providing high quality support services such as the help desk, networking support, on-call technicians, 24/7 support of the primary communications facilities, routers, email and Active Directory servers. Additional effort should be made to continue and expand the SharePoint server effort. The complex financial systems are currently beyond the current level of ability existing at NNDIT to take control of, however, personnel with the right motivation and skill set should be found to manage those systems over time. These personnel will be expensive and probably be found outside the current employees of the Navajo Nation. This will ultimately mitigate some of the high cost of consulting services currently incurred to support the financial system and provide a greater degree of independence with these systems for the Navajo Nation.

5. Evaluate whether a DIT strategic plan is being implemented and managed for the overall Navajo Nation Government. (COBIT Objectives: PO1-Define an IT Strategic Plan, PO3-Determine Technological Direction, PO4-Define IT Processes, PO6-Communicate Management Direction, DS1-Define & Manage Service levels.)

   a. <u>Procedures performed</u> – We reviewed available Navajo Nation and NNDIT documents related to Information Technology.

   b. <u>Findings</u> – NNDIT has developed an Information Technology Strategic Plan but the copies we were able to obtain do not have an official concurrence of signatures.

   c. <u>Recommendations</u> – NNDIT should develop an Information Technology Strategic Plan different than the current unadopted version. The Strategic Plan has many sections which are closer to a vision document for deploying Internet technology to Navajo Nation and developing NNDIT into an enterprise. The Strategic Plan should discuss key technologies NNDIT will be deploying and directions NNDIT will be investigating over the next 5-10 years to support the Navajo Nation government operations, and should be adopted with a signature by the appropriate authority. The Information Technology Strategic Plan should be aligned with an overall Navajo Nation Strategic Plan.

6. Evaluate DIT's performance measures whether it is aligned with Navajo Nation user needs and delivery of services are satisfactory. (COBIT Objectives: DS3-Manage Performance & Capacity, DS8-Manage Service Desk Incidents, ME1-Monitor & Evaluate IT Performance.)
    a. <u>Procedures performed</u> – We evaluated available resources for performance measurement standards and evaluation processes.
    b. <u>Findings</u> – We found no internal formal policy, procedure or process in place for evaluation of NNDIT performance. The only measure that is beginning to be adopted is a Help Desk Call Ticket system built internally. It has not been implemented fully and has limited data available. We were unable to obtain proof of the performance measurements that are reported via the budgeting process.
    c. <u>Recommendations</u> –
        i. Implement a Help Desk tracking system with every call coming into NNDIT being put into the system and tracked. The system should not be bypassed under any circumstances. This is the best measure of performance tracking for both NNDIT and the Navajo Nation. Some effort has been made along this line by an attempt to develop an NNDIT in-house tool, but the effort has been slow and expensive. We recommend that the in-house tool development be stopped, but the tool should continue to be used while an evaluation of commercial off-the-shelf products is made and a suitable solution procured and implemented. This should be completed and online within a three month period.
        ii. A working group of representatives from Navajo Nation government entities should be formed with official recognition from the President's Office. This group should become an IT steering committee to provide feedback to NNDIT and the Navajo Nation council for IT needs. This group should be limited in size to 10-15 individuals from Divisions and Branches of the Navajo Nation government. The minutes of the meetings should be used to evaluate performance of the NNDIT and to evaluate direction for the NNDIT Strategic Plan. Currently, an annual meeting called the Navajo Nation Information Technology Summit is being used in lieu of the aforementioned group, but it has no formal authority or recognition, nor is NNDIT required to follow any recommendations from the group.

7. Evaluate the controls of Navajo Nation computer network and administration and management thereof. (COBIT Objectives: PO8-Manage Quality, DS2-Manage 3rd Party Services, DS5-Ensure Systems Security, ME1-Monitor & Evaluate IT Performance.)
    a. <u>Procedures performed</u> – We evaluated available resources for controls.
    b. <u>Findings</u> – The Information Technology Plan of Operation (GSCJY-67-99) and standard Navajo Nation accounting controls are in place, but of limited scope for managing computer resources. NNDIT has produced standards regarding the procurement of Desktop PCs and printers. NNDIT approves all purchases of desktop/laptop computers and printers. A July 1992 document named the Navajo Computing Environment Specifications exists but is not relevant to current technology or the implemented environment of the Navajo Nation. After many interviews and observations of the systems that are and are not under NNDIT control, it is apparent

that NNDIT does not have complete control of their environment (many IT "islands" and many known and unknown additional connections to the Internet), therefore, they cannot be expected to secure it.

    c. <u>Recommendations</u> – Same as 1.c, 3.c., 5.c., and 6.c.

<u>Final Recommendation</u> – Although it is out of the scope of this engagement, we recommend immediate steps be taken to provide a proper facility for the financial services systems. Currently, they are housed in what is apparently a storage room. This room does not have proper ventilation, cooling or fire suppression systems. The room is also used to store a variety of materials which are a fire hazard, and has a water sprinkler system above the computer racks. If this sprinkler system were to deploy, it would likely destroy the entire financial system hardware suite and the loss due to downtime would be highly disruptive.

We recommend a proper space be found, renovated to current standards for a computer room with power, cooling, ventilation, access control and a fire suppression system. It should not be used to store other goods or equipment and access should be limited to authorized personnel with a need for access to the equipment.

Thank you for allowing us to be of service. Please contact us with any further questions or concerns.

JOSEPH EVE
Certified Public Accountants

Billings, Montana
October 30, 2009