STATE OF NORTH CAROLINA

QUALITY ASSURANCE ASSESSMENT

WILDLIFE RESOURCE COMMISSION
INFORMATION TECHNOLOGY SERVICES

CANCELLED INTERACTIVE VOICE RESPONSE REPLACEMENT PROJECT

MARCH 2008

OFFICE OF THE STATE AUDITOR
LESLIE W. MERRITT, JR., CPA, CFP
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March 14, 2008

The Honorable Michael F. Easley, Governor
Members of the North Carolina General Assembly
Mr. George Bakolia, State Chief Information Officer
Mr. Fred Harris, Interim Executive Director, Wildlife Resource Commission

Ladies and Gentlemen:

This report represents the results of an independent quality assurance assessment of a *Cancelled Interactive Voice Response Replacement Project* at the *Wildlife Resource Commission*. The information technology consulting firm Imadgen, LLC, performed this assessment under contract with the Office of the State Auditor. The primary objective of the quality assurance assessment was to determine the root causes that lead to the cancellation of the project. The contractor's report answers this question and offers recommendations for improvement.

This independent assessment was initiated at the request of the State Chief Information Officer (SCIO). Departments within the Office of Information Technology Services, which the SCIO oversees, provided services and oversight for the cancelled project. In order to avoid any perception of a conflict of interest, the SCIO requested the assistance of the Office of the State Auditor in overseeing the quality assurance assessment.

Officials from the Wildlife Resource Commission, the Office of Information Technology Services, and the Enterprise Project Management Office have reviewed a draft copy of the contractor's report. Their written comments are included as a separate section of this report.

This engagement was performed by an outside professional service provider and is a nonaudit service as defined by Generally Accepted Government Auditing Standards. As a result, this report does not constitute an audit, examination, or a review as described in professional standards governing those types of services.

We wish to express our appreciation to the staff of the Wildlife Resource Commission, the Office of Information Technology Services, and the Enterprise Project Management Office for the courtesy, cooperation, and assistance provided us and our contractor during the assessment.

Respectfully submitted,

Leslie W. Merritt, Jr.

Leslie W. Merritt, Jr., CPA, CFP
State Auditor

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Section 1

Contractor’s Report

WILDLIFE RESOURCES COMMISSION INTEGRATED VOICE RESPONSE SYSTEM QUALITY ASSURANCE ASSESSMENT

State of North Carolina
Office of the State Auditor

FEBRUARY 13, 2008

Prepared by:

IMADGEN

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EXECUTIVE SUMMARY

On August 23, 2007, the Wildlife Resources Commissioned (WRC) cancelled the implementation of an Integrated Voice Response (IVR) solution that was to be hosted by the Office of Information Technology Services Telecommunications Services (ITS TS). This assessment has been conducted to determine the root causes for the WRC IVR system cancellation.

FINDINGS

When WRC cancelled the IVR implementation, the agency stated that there were unresolved technical issues with the applications and requested documentation had not been delivered. However, as described within this assessment, actions much earlier in the project by both agencies contributed in varying degrees to its ultimate cancellation.

Office of Information Technology Services

- Did not fully assess the costs, risks and constraints prior to committing ITS TS and WRC to a solution

Office of Information Technology Services Telecommunications Services (ITS TS)

- Did not fully assess WRC's budgetary constraints prior to providing its formal cost proposal
- Compressed the time allowable to complete the project with delays caused by:
    - Resource constraints due to implementing a large scale IVR system at another agency during the same period
    - An environment with an ineffective flow of communications

Wildlife Resources Commission (WRC)

- Proceeded with application development without prior staff training

ITS TS and WRC

- Continued work on the WRC IVR solution without project approval of the State Approvers
- Did not consistently apply basic project management tools (e.g., project scheduling, and risk identification and mitigation)

RECOMMENDATIONS

There are five key areas that are in need of process improvements. These are:

ITS

- Improve the responsiveness of ITS staff in providing project information and documentation.
- Apply a fair and detailed analysis to identify the optimal solution for the client agency.
- Support client agencies by providing project management deliverables normally expected of an outside vendor, such as schedules, status reports, meeting notes, and risk identification/mitigation strategies.
- Confirm project approval status and facilitate awareness that client agencies require solution information to properly complete the Project Portfolio Management (PPM) tool that is submitted for project approval.

WRC

- Obtain project approval prior to beginning a project and apply project management tools.

OBJECTIVES, SCOPE AND METHODOLOGY

The core objective of this assessment is to determine the root causes for the WRC IVR system cancellation. An analysis of statewide project approval and procurement processes is beyond the scope of this assessment.

This assessment was conducted by collection and review of project documentation; analysis of information; and comparison of findings against industry best practices.

PROJECT HISTORY AND CURRENT STATUS

The WRC IVR project history began in October 2006, when ITS TS informed WRC that the two IVR applications hosted by ITS TS would no longer be supported by the IVR vendor, Avaya. The applications, Hunter Harvest and Migratory Bird, had limited functionality and had been difficult to update to incorporate changes in requirements. Once support was discontinued, the system would essentially be considered obsolete. WRC identified two windows of opportunity, based on hunting seasons, for migrating to a new IVR platform. These were early spring or late summer.

IVR ALTERNATIVES

WRC began discussions with ITS TS concerning available alternatives and at the same time explored outside IVR application and hosting solutions. ITS TS had recently acquired an IVR solution from Siemens to support a much more complex IVR initiative required by the State's Employment Security Commission (ESC).[1] In keeping with Senate Bill 991 (SB991), ITS TS planned to leverage the IVR solution to support multiple agencies. In November 2006 ITS TS assured WRC that it could deploy the Siemens IVR solution and meet an August 2007 deadline. WRC agreed to consider implementing the Siemens solution and requested cost, implementation schedule and functionality information. However, in order to estimate costs, ITS TS Service Delivery needed to obtain and document system requirements from WRC.

In January 2007, with minimal information concerning WRC requirements, ITS TS informed WRC that the per-port fee for the Siemens IVR was estimated to be $303. An estimate for the application development fee was not provided at this time as ITS TS had not sufficiently assessed WRC's functional requirements. WRC found the per-port fee reasonable and again requested a formal cost proposal for the entire implementation. Several conference calls and meetings, scheduled to gather requirements, were cancelled by ITS TS[2], but eventually requirements were identified. On March 26, 2007 ITS TS provided WRC with the application development cost of $418,318. ITS TS also indicated that there would be additional costs for training WRC personnel, plus the monthly per-port fee. This proposal was rejected by WRC as being too costly. (Up until this point WRC's budgetary constraints had not

[1] In the fall of 2006 this initial deployment was in the design phase and the IVR platform had not yet been established.

[2] During the WRC planning and implementation period, ITS TS was experiencing resource constraints as it was also implementing the ESC IVR applications.

been discussed.) ITS TS offered to provide other approaches to the IVR implementation that were more in line with WRC's budget. ITS TS provided six different approaches to implementing the Siemens solution (including the original proposal) and their associated cost estimates on April 19, 2007. These included:[3]

- Text-to-Speech for both the Migratory Bird (MB) and Hunter Harvest (HH) applications, with the applications developed by Siemens ($175,821 up front costs)
- Text-to-Speech for MB and Speech Recognition for HH, with application development and back-end integration by WRC with support from Siemens ($129,815 up front costs)
- Text-to-Speech for MB and Speech Recognition for HH, with all design, development, integration and voice talent by Siemens ($298,514 up front costs)
- Text-to-Speech for MB and Speech Recognition for HH, with all design, development, integration and voice talent by Siemens and Nuance (advanced voice system) ($418,318 up front costs – original proposal)
- Text-to-Speech for MB and HH with all development by WRC (No upfront costs)
- Text-to-Speech for MB and Speech Recognition for HH with all development by WRC (No upfront costs)

WRC expressed a preference for the last alternative above, with WRC performing the development and integration and ITS TS providing the platform and hosting the system. However, WRC expressed concerned about meeting the August 2007 deadline. The agency asked to be allowed to release a Request for Proposals (RFP) and enter into a contract with a third party. If necessary, they were willing to use a third party for one year to give ITS TS time to become more familiar with the Siemens solution and therefore better able to determine the long term solution.

Other possible approaches considered included:

- Requesting ITS TS maintain the existing IVR system for a period of up to five years with a reduction in cost from current fees. ITS TS also offered, for a fee, to make required changes to the IVR system. (WRC considered this high risk because of the inexperience of ITS TS personnel in making changes to the application and because the need for new functionality required by Legislature was too great.[4])
- Requesting ITS TS maintain the existing IVR system for an additional year and implement the Siemens IVR platform in spring or summer of 2008. (This was also considered high risk by WRC, for the same reasons as above.)
- Procure a less complex IVR application and hosting service from an outside source.[5] This was WRC's preferred route and was initially deemed acceptable by ITS TS.

On April 26, 2007, WRC met with ITS. The Deputy State Chief Information Officer (DSCIO) at the time stressed that continuing with the current service was the least risk option and that deployment with the Siemens solution with an August deadline, and with application development performed by WRC, was the highest risk. Both parties agreed that for the short term the Siemens solution was not the best approach. WRC asked whether they could sole source its IVR services for a short period and implement the Siemens IVR in 2008. This was rejected by ITS as IT procurements of this size need to be performed by ITS and to be open and competitive. However, the DSCIO

[3] Each of these approaches included an infrastructure provided and supported by ITS TS, and hosting services provided by ITS TS for an additional monthly per-port fee.

[4] ITS TS later arranged for Avaya to continue to support the application; however, this information was not passed on to WRC.

[5] This was considered as either a short-term (one year, until the Siemens IVR platform was operational) or as a long-term solution.

suggested that other approaches were possible and that WRC quickly meet with ITS TS to discuss requirements and determine the best approach for WRC.

This meeting was scheduled for May 2, 2007. When a key person from ITS TS Product Management did not attend, WRC, concerned with persistent delays, requested a meeting with the Governor's office. A meeting was held on May 10, 2007 between WRC, ITS and the Governor's office. At that meeting ITS committed to meet the August 13, 2007 deadline with the Siemens IVR solution, although a formal assessment of the capabilities of WRC and ITS TS to meet the deadline had not been made. As a result of the meeting, within three months WRC was to develop the application and ITS TS was to provide the development tool, hardware, and software required for the August 13 implementation.

IVR IMPLEMENTATION

ITS strongly suggested that WRC developers take formal training in use of the development tool and in VXML, the language used for the application code, neither of which was familiar to WRC developers at the time. ITS recognized a risk in proceeding with development without formal training. WRC did not opt for training for three reasons:

- Training was offered during set times off-site and for periods of at least three days. With a three month implementation timeframe, WRC did not feel it had time to wait for and participate in the training sessions.
- Training was considered too costly, as it included class fees and travel expenses.
- WRC developers reviewed the development tool and assured WRC managers that they could develop the application, as both the tool and their requirements were straight forward.

Over the next three months, both WRC and ITS TS worked diligently on their assigned tasks: WRC on application development and testing and ITS TS on setting up both the test and production environments. On a number of occasions WRC requested documentation from ITS TS, including the Memorandum of Understanding (MOU), a formal description of the test and production environments, an Operations Support Plan, a Service Level Agreement (SLA) and finalized costs.

On August 2 the application was moved from the test to the production environment and WRC began load testing. They encountered technical difficulties, including dropped calls and latency in voice response. They also had a problem with "looping", where the software did not provide the required response but kept the port open. By the "go-live" date of August 13, 2007, WRC was still experiencing technical difficulties and decided to delay the go-live. On August 23, 2007, with technical issues unresolved, WRC formally cancelled the implementation. At close-out WRC stated technical issues and lack of MOU, a description of the test and production environments[6], and an Operations Support Plan as the reasons for cancellation.

[6] An e-mail clarification of the test environment had been provided to WRC on August 10; however, WRC was still requesting a formal description of both environments.

CURRENT STATUS

WRC is currently using its original Migratory Bird and Hunter Harvest IVR applications. The new applications and infrastructure are not being used, tested, or worked on. WRC and ITS TS disagree on the cause of the technical problems, and it is still unresolved as to whether the problems are due to the application developed by WRC or the ITS TS infrastructure, or a combination of both.

A detailed timeline of project history from November 2006 until project cancellation on August 23, 2007 is provided in Appendix A.

REVIEW DETAIL

PROJECT ORGANIZATION STRUCTURE AND COMMUNICATIONS EFFECTIVENESS

Communications between all parties was ineffective in addressing the risks, issues, and schedule of this project in a timely manner. This was due, in part, to the inability of WRC to deal directly with one person from ITS TS that was empowered to make decisions and delegate tasks. WRC indicated in e-mails to ITS TS and in subsequent interviews with the Quality Assurance (QA) team that it was looking for someone at ITS TS to "take ownership" of the project in order to keep the project moving forward. The QA team's review of the documentation and interviews with the other parties involved confirmed that no one area of ITS considered itself responsible for managing this project for ITS TS. (An organizational chart is provided in Appendix B.)

- The Enterprise Project Management Office (EPMO) indicated that for a project with a value equal to or greater than $100,000 but less than $500,000 it was only required to submit the information entered in the Project Portfolio Management (PPM) tool by WRC to the State Approvers for project approval; assigning a Project Management Advisor (PMA) is optional, however for this project a PMA was assigned to assist WRC through the approval process. Once approved, an agency's Project Manager is not required to provide any project management or system design documentation for review or approval of the EPMO until project close-out, when the agency is required to submit a Project Close-Out review.
- ITS TS Product Management indicated it provides telecommunications services and is not responsible for project management for the client agency. It was emphasized that per SB991, the client agency is responsible for assuming the role of Project Manager.
- ITS TS Service Delivery indicated that the Analysts assigned to projects were originally just that – technical analysts. Over time they have morphed into "de facto" project managers but are not empowered to commit to schedules on behalf of Product Management, nor do they have the authority to hold personnel at Product Management to deadlines for developing items such as schedules, costs, MOUs, etc.[7] This rendered the Analyst ineffective in providing necessary information and documentation to WRC.

[7] Service Delivery has recognized the project management role of its Analysts and has been pro-active in providing additional training in project management disciplines.

TIMELINESS OF SERVICE

The organizational structure and resource constraints of ITS TS contributed to significant delays in getting the project out of the planning stage. At the time of the WRC deployment, ITS TS Product Management and Service Delivery were working on the initial ESC deployment. Delays in the early stages of the WRC project compressed the time at the back end, allowing only three months for design, development and implementation. These delays included:

- Identifying WRC requirements and subsequently creating a cost quote as described in the Project History.
- Providing formal final agreements, including the Service Level Requirements (SLR), SLA, MOU and an Operations Support Plan.

BREAKDOWN OF COMMUNICATIONS

Project e-mails and interviews indicate miscommunication in several areas, including the budgetary constraints of WRC, discussions of the optimal solution for WRC's IVR, and the source of technical problems with the final solution.

- ITS TS did not sufficiently assess the WRC budget prior to developing its initial cost proposal, resulting in a proposed solution that was outside of WRC's budget.
- When WRC was presented with six different approaches and pricing options from ITS TS, it expressed a preference for the option where WRC would develop the application in-house. WRC also expressed concern about meeting the deadlines with a little more than three months left until August 13, and requested that it be allowed to go to an outside vendor to obtain services. ITS TS initially agreed that it wasn't practical to proceed with the Siemens IVR solution during the given time frame; then in early May, the ITS TS reversed itself by stipulating use of the Siemens solution.
- When WRC was testing the application, the test server went down – for both WRC and ESC. WRC had not been told that it would be sharing a partitioned test server with ESC. Providing this type of information to WRC may not have been required, however, when WRC learned that testing conducted by WRC also impacted ESC, it requested a clarification of how the test and production environments were configured. A formal description was an open request as of project close-out (although a description of the test environment was provided via e-mail in early August, one month after the server crash). This is not to say that the server configuration was incorrect, only that WRC was not provided the information it thought necessary to have complete confidence in the IVR platform.

PROJECT MANAGEMENT

"Best Practices" in project management include the tools used by a manager to ensure project success. There are a myriad of useful project management tools. However, the size and complexity of the project influences which project management tools are most effective. Unnecessary project management activities can constrain a small project and hamper its ability to move forward. Inadequate or ineffective project management activities introduce risk, increasing the chance for project delays or failures.

PROJECT APPROVAL

Per SB991, IT projects with a value equal to or greater than $100,000 must be approved by State Approvers prior to expending State funds. By completing the PPM, agencies capture key elements of an IT Business Case and "trigger" the project approval process. The WRC IVR project was never approved although it was submitted three times for approval; the project went forward despite awareness by WRC, ITS TS and the EPMO that the project had not been approved.

PROJECT SCHEDULE

Even for very small projects, a project schedule is a basic tool used by project managers to help track progress, resource utilization, and identify slippage and other risks, to name a few. In addition, a project schedule is needed so a client agency can accurately complete the PPM. As the Project Manager, WRC had the responsibility to develop and maintain the overall project schedule, which would include the tasks and activities that ITS TS needed to perform. WRC requested the ITS TS project schedule during the project's planning stage. In May 2007, once the solution and approach had been determined, ITS TS developed an itemization of activities that it used internally but did not share this with WRC.[8] ITS TS released a project schedule in mid-July 2007.

ISSUE TRACKING AND RESOLUTION

Formal issue tracking provides benefits to any IT project as it allows managers and project personnel to easily identify the severity, status, ownership, and history of the issue as well as contributing to a knowledge base at project closeout. As a team, the project participants did not conduct formal issue tracking; issues were discussed through e-mails, phone conversations and meetings. The ITS TS Analyst identified open issues in internal status reports that were prepared between March 2007 and August 2007[9], although ITS TS did not share an issues list with its client.

IDENTIFICATION, ANALYSIS, MITIGATION AND ESCALATION OF RISKS

This project held a number of risks, all of which contributed in some way to the eventual cancellation of the IVR implementation. Neither WRC nor ITS TS followed a formal risk identification, analysis, mitigation and escalation process, although interviews and e-mails indicate that they were aware of most project risks. A formal risk management process would have provided assurance that objectives were more likely to be achieved and that negative impacts would not have occurred, or would have been less severe or likely to occur.

[8] Most activities were not assigned start and end dates in this initial work plan.

[9] In general status reports were prepared on a bi-weekly basis.

CONCLUSION

System implementation, including design, development and deployment, effectively occurred between May 10, 2007, after the meeting with the Governor's office, and August 23, 2007 when WRC officially cancelled the implementation.[10]

When interviewed, both agencies felt they had accomplished their technical responsibilities. ITS TS kept its commitments to provide the development tool, the test and production environments and the 24 ports required by WRC. WRC developed and tested the applications. WRC stated that ITS TS technical staff had worked diligently in setting up the required infrastructure and to establish communications between the application servers and WRC databases, required for "look-ups" of hunters' licenses and other identifying information.

Despite these efforts, by the "go-live" date there were technical issues that were unresolved. Participants identified a number of items that added risks to the three-month implementation, including:

- Poor relationships between WRC and ITS TS, a condition established early in the project.
- Task prerequisites (e.g., training) could not be completed in the time period.
- WRC personnel were unfamiliar with the software development tools and VXML (software language).
- ITS TS personnel were still implementing the initial IVR infrastructure and were unfamiliar with WebSphere™, the server application.
- Unplanned turnover of personnel, including a change in the assigned Analyst at ITS TS Service Delivery and three different PMA's assigned by the EPMO.
- Conflicts between members of the project, and in particular, disagreements concerning the source of the technical issues that arose with the solution.
- ITS TS resource constraints.
- WRC budgetary constraints.

Within the given time frame for the IVR implementation, success depended on all things going right. There were no time or resource buffers to compensate for issues or problems.

To conclude, when initially assured that functions and schedules would be met, WRC agreed to consider the Siemens IVR solution. When significant delays occurred during the planning process, WRC requested that they be allowed to pursue other options. Initially, ITS TS agreed that the Siemens IVR solution was not the best solution and that it would consider other options. This was reversed at the May 10 meeting at the Governor's office, when the DSCIO at the time committed to meeting the August 2007 deadline of WRC with the Siemens solution. This required WRC and ITS TS to implement the Siemens' IVR solution in three months, although the implementation carried numerous risks and impediments to success.

[10] Performance measurements for the project are provided in Appendix C.

LESSONS LEARNED AND RECOMMENDATIONS

The following summaries and recommendations are provided to assist ITS, WRC and other ITS client agencies to successfully implement ITS solutions.

RECOMMENDATION 1: IMPROVE RESPONSIVENESS

WRC's initial efforts to obtain costs were impacted by the length of time ITS TS took to gather requirements. The Analyst supporting WRC had difficulty in arranging technical meetings to gather requirements due to resource constraints within ITS TS Product Management. In addition, Analyst requests and issues were either not appropriately escalated or escalation was ineffective. **Following are recommendations for ITS:**

- *Facilitate awareness across ITS that all project planning hinges on timely identification of requirements.*
- *Set response standards and take performance measurements to ensure timeliness of deliverables and project information.*
- *Provide client agencies with a single point of contact (Project Manager) that is empowered to set firm internal deadlines for ITS deliverables such as costs, MOUs, SLRs, etc., and to establish schedules for hardware, software, and service delivery in conjunction with the ITS Product Management.*
- *Provide Analysts and client agencies with effective and efficient escalation processes.*

RECOMMENDATION 2: APPLY ALTERNATIVES ANALYSIS

This implementation went forward even though it was a high risk proposition. For example, ITS TS resources were focused on the ESC implementation; delays in providing written deliverables had already occurred; ITS TS had yet to deploy an application on the IVR platform; and WRC did not have the time or resources to send its developers to training. By the May 10, 2007 meeting, relationships were strained between the two agencies. These and other risk factors should have been considered before committing to an implementation within three months. However, a formal analysis and a risk assessment were not performed for this project. **Following are recommendations for ITS:**

- *A fair and detailed analysis of requirements, budget, schedule and risks should be used to identify the solution that can be implemented with low cost and/or low risk, regardless of existing State platforms.*
- *Ensure the risks of implementing a second agency on a platform prior to the implementation of the primary (initial) platform are taken into account.*

RECOMMENDATION 3: PROVIDE DELIVERABLES NEEDED FOR PROJECT MANAGEMENT

As the client agency, WRC was expected to manage this project. However, as a vendor, ITS TS had a responsibility to provide WRC with basic project deliverables, including costs, schedule, meeting minutes, status reports, issue tracking, and risk management. Providing this documentation to WRC would have assisted WRC in completing the PPM tool for project approval; in setting expectations for project delivery; and in assessing the benefits and risks in moving forward. **Following are recommendations for ITS:**

- *Ensure client agencies are provided with project management deliverables, including a project work plan, meeting minutes, regular status reporting, issue tracking and risk management and other documentation as appropriate to the project.*
- *Ensure client agencies are aware of their role of overall project manager.*

RECOMMENDATION 4: FACILITATE PROJECT APPROVALS

The WRC IVR had reached the "go-live" date while still not having approval of the project by State Approvers, partly due to ITS TS delays in providing the information that was needed to complete the PPM. While it is the client agency that must follow the project approval process, as a State agency ITS should take measures to confirm its clients have not only followed that process but are provided with the information they need to obtain project approval. **Following are recommendations for ITS:**

- *Confirm client agencies have received project approval prior to beginning project work.*
- *Facilitate awareness within ITS that client agencies cannot complete the PPM without project information that includes budgetary costs and schedules.*

RECOMMENDATION 5: ASSUME PROJECT MANAGEMENT LEADERSHIP

Per SB991, accountability and responsibility for overall project management is placed on state agencies. As noted, this responsibility includes obtaining project approval. Maintaining project management documentation including a schedule, risk mitigation plan, issue tracking, and status reports are best practices for project management. **Following are recommendations for WRC and other ITS client agencies:**

- *Ensure project approval is obtained prior to expenditure of State funds.*
- *Apply project management disciplines including project work plans, meeting minutes, regular status reporting, issue tracking and risk management and other documentation as appropriate to the project.*

APPENDIX A: DETAILED TIMELINE OF PROJECT ACTIVITIES

Date	Action
10/11/06	ITS TS informs WRC that the IVR server would no longer be supported within a year.
11/08/06	WRC notifies ITS TS that its windows for system implementation are February-April or June-mid August. ITS TS replies that WRC should begin the SB991 process (register the project in the PPM tool).
11/16/06	ITS TS notifies WRC that Siemens and ITS TS can meet the June-mid August time frames and that they will need to begin gathering requirements in December.
12/6/06	WRC asks for progress on getting quotes for additional phone capacity (for existing system) and/or the Siemens option.
12/20/06	Scheduled conference call between WRC and ITS TS is cancelled by ITS TS.
12/31/06	WRC asks again for costs for the Siemens option to decide whether they can afford it or if they will need to look at other alternatives.
1/05/07	ITS TS provides WRC with two options – either reduce the rates on the current (Avaya) platform and cut over to the Siemens platform August 2008 or move to the Siemens platform for the 2007 season. For the second option, WRC would need to procure design, development and implementation and pay an estimated $303.90 per port.
1/11/07	WRC indicates that the second option is doable financially and requests a meeting with ITS TS to discuss logistics and the ITS TS timeline.
1/29/07	Scheduled meeting between WRC and ITS TS is cancelled by ITS TS.
2/18/07	WRC e-mails DSCIO describing delays and non-receipt of system functionality, pricing and timeline. Requests that they be allowed to pursue a third-party option or that ITS TS take ownership of this project.
2/21/07	First conference call concerning IVR requirements occurs.
3/01/07	WRC has first meeting with Siemens to discuss requirements.
3/06/07	WRC initiates the project using the PPM tool.

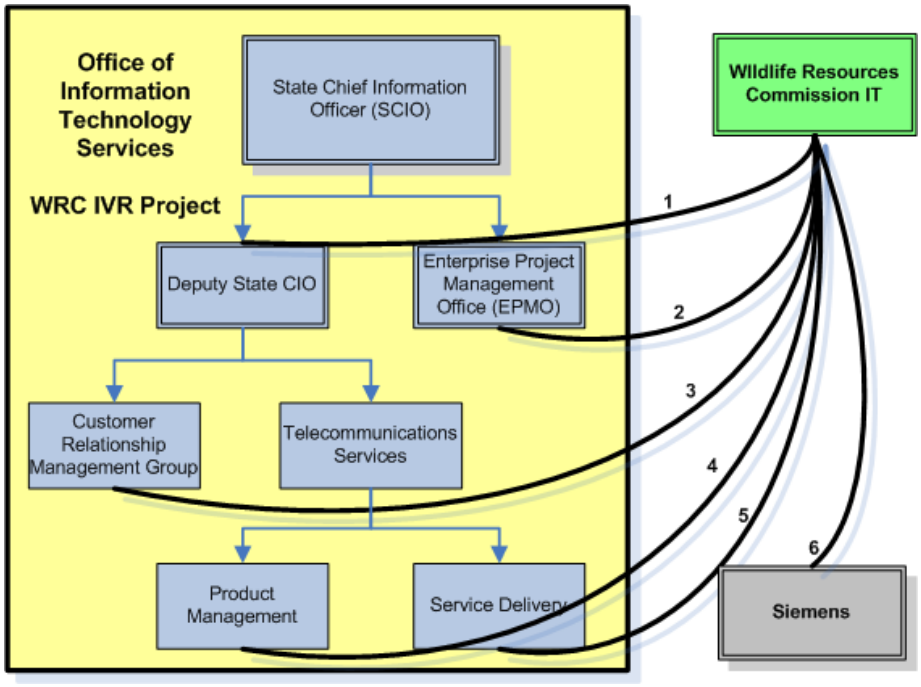
Date	Action
3/26/07	ITS TS provides WRC with a draft of the Service Level Requirements (SLR) and budgetary pricing of $418,318 for design, development and implementation, and additional costs for WRC training so that they can assume ownership of the application once deployed. (WRC rejects this as being too costly.)
4/12/07	EPMO assigns a new Project Management Advisor to mentor WRC through the project approval process.
4/17/07	Project submitted by WRC for Gate 1 SCIO approval.
4/19/07	ITS TS meets with WRC and provides WRC with cost quotes for six different approaches to deploying the Siemens system. WRC expresses preference for the approach that allows WRC to develop and maintain the IVR application and ITS TS hosts the application. WRC also expresses concern about the time left for development and testing. A subset of State Approvers approve the project.
4/20/07	Subsequent reviewers disapprove the project based on comments from PMA. Project rejected. Project initiated for the second time.
4/25/07	WRC states preference to release an RFP or enter into a sole source contract. If not allowed to do this, then will explore using Siemens taking a more cost effective approach.
4/26/07	WRC met with ITS TS and agreed the Siemens IVR is not the best approach. WRC asks whether WRC will prepare an RFP for services or if ITS TS will prepare the RFP.
4/27/07	WRC submits project to EPMO for second time.
4/30/07	ITS TS confirms that WRC will not be allowed to enter into an independent contract with an IVR service provider; it is in the interest of the State to provide common solutions for agencies. ITS TS provides the following options: Use an external provider (with services procured through ITS TS), use the Siemens solution, or enhance the current WRC application. DSCIO suggests WRC meet with ITS TS Service Delivery to work through alternatives and associated costs.
5/02/07	After WRC request (on 5/1), meeting is scheduled with ITS TS Analyst and Engineer to refine and detail requirements. ITS TS Engineer is not at meeting.

Date	Action
5/10/07	WRC and ITS TS meet with Governor's office to review issues. At meeting, ITS TS agrees to deliver IVR application development and testing tools to WRC within one week. ITS TS also commits to providing additional procedures, hardware and software necessary to deploy the IVR system for August implementation. ITS TS provides WRC with second draft of SLR.
5/18/07	ITS TS provides WRC with IVR application development and testing tools. ITS TS provides WRC with ITS TS and WRC Roles/Responsibilities and ITS TS/WRC Action Items. WRC requests more specific information regarding timelines, ports and training.
5/30/07	ITS TS creates an itemization of implementation activities, attaching dates and resources to some, but not all, of the items.
6/05/07	Project is flagged as "Cancelled" by EPMO.
6/11/07	ITS TS provides WebSphere test server, test server partition, VPN access and user IDs and passwords.
6/13/07	Siemens provides sample test application to demonstrate the new test environment.
6/26/07	EPMO advises WRC to re-submit PPM. New Analyst is assigned to project by ITS TS Service Delivery.
7/02/07	Project reset to initiation by EPMO.
7/03/07	PMA recommends WRC updates project information in PPM to reflect agreed upon approach and solution.
7/11/07	ITS TS Analyst creates a second schedule identifying delivery dates.
7/12/07	Siemens completes an upgrade on the development server necessitated by a server crash that occurred during WRC testing. (WRC and ESC share a partitioned development server.)
7/13/07	ITS TS and WRC meet to discuss high level milestones, timelines, draft MOU and draft Service Level Agreement (SLA). MOU contains approximate recurring cost per port. WRC indicates deadline for migration to production environment is August 13 and ITS TS deadline for delivery of production environment is August 1 (if possible). WRC signed a letter of intent.
7/16/07	WRC provides ITS TS with comments on draft MOU and SLA.

Date	Action
7/17/07	EPMO assigns the third PMA to the WRC project.
7/31/07	The ITS Business Account Manager (BAM) for WRC meets with WRC concerning the project after the new PMA notifies the BAM of project issues.
8/02/07	Production server is ready. ITS TS acknowledges it owes WRC final MOU, clarification concerning test environment and operations support plan.
8/07/07	Stress testing conducted.
8/08/07	Project resubmitted by WRC for Gate 1 SCIO approval.
8/09/07	WRC notifies ITS TS that calls to the Migratory Bird line are being dropped. Requests status of outstanding documentation, including costs.
8/10/07	ITS TS provides information concerning the test environment to WRC.
8/13/07	WRC postpones Migratory Bird go-live due to: dropped calls during load-testing; need for understanding the environments for test and production; lack of clarification of shared test infrastructure; lack of finalized MOU, SLA and costs; lack of an amenable Operations Support Plan. Siemens documents Infrastructure Test Results.
8/15/07	WRC requests status of IVR from ITS TS
8/23/07	WRC cancels project.
8/27/07	Cancellation entered into PPM.
8/30/07	ITS TS approves Infrastructure Test Results from Siemens.

APPENDIX B: PROJECT ORGANIZATION

The following diagram illustrates the organization and communications structure for this project.



1. For this project, communication with the Deputy State CIO was established for problem escalation.
2. According to SB991, WRC is required to submit a project for project approval. For this project, the EPMO assigned a Project Management Advisor (PMA) to work with WRC to provide mentoring toward the completion of the PPM and approval of the project. Over the course of this project three different PMAs were assigned to WRC. The third PMA attempted to resolve some of the project issues and requested additional help from the Business Account Manager (BAM – see #3, below).
3. Agencies are assigned an ITS BAM from the Customer Relationship Management Group, which is tasked to ensure ITS is fulfilling the IT needs of its client agencies. WRC's BAM first met with WRC concerning the IVR project on July 31st, after being notified by the PMA of project issues and requested by the PMA to become involved.
4. Product Management purchases hardware and software, installs the infrastructure, and hosts systems such as the IVR. A Design Specialist from Product Management was assigned to this project in late January 2007, shortly after being hired by ITS TS. The Design Specialist addresses technical issues, coordinates the infrastructure installation and integration, and works with hardware and software vendors.
5. Service Delivery assigns an Analyst to act as the interface between Product Management and the client agency. The Analyst gathers client requirements, provides clients with tentative costs, schedules, and other relevant technical information and ensures interagency agreements are signed. The Analyst requests Product Management to provide the project information and documentation that is passed to the client, but does not have the authority to set time frames for their delivery. (WRC was assigned two different Analysts due to staff turnover while the project was underway.)
6. WRC communicated directly with Siemens when developing the application.

APPENDIX C: PROJECT PERFORMANCE

For the cancelled WRC project, project performance is assessed to gauge the impacts of the IVR implementation on budget, schedule, business functionality, customer satisfaction and business continuity.

Planned versus actual performance of project resources (hours and budget)

There were no supporting documents that indicated project resources were estimated at project initiation, therefore it is not possible to determine whether hours and budget exceeded estimation.

Planned versus actual performance relating to deadlines (schedule and delivery dates)

The only deadline set at project initiation was the August 13, 2007 "go-live" date for the applications. By August 13, ITS TS had provided the test and production environments and 24 ports, as required. WRC had developed the applications and had moved them from the test to the production environment. Aside from the paperwork still owed to WRC from ITS TS, both agencies felt they had fulfilled their obligations. The deadline was not met, however, because of unresolved technical issues.

Commitments concerning delivery of the development tool within one week and the production environment by August 1 were made by ITS TS during the May 10, 2007 meeting between WRC, ITS and the Governor's office. These commitments were met by ITS TS.

Planned versus actual business functionality

If all issues had been resolved, the Siemens solution would have met all planned functionalities. These critical functions included recorded messages, recognition of touch tone or voice response, confirmation of voice or touch tone entries, database look-ups, and ability to change the application to meet future requirements. However, as WRC cancelled the implementation, business functionality was not provided to WRC.

Level of client/user satisfaction with the quality of service delivery

In its formal Project Closeout Review provided to the EPMO, in all areas that measured levels of satisfaction, WRC gave a 1 (Very Dissatisfied) on a scale of 1-5[11]. Client satisfaction measures included:

- Customer Expectations: The quality of project deliverables in terms of customer expectations
- Production Support: Satisfaction with the development organization with the maintenance and support for this application
- User Support: Satisfaction with the level of support provided to the application after installation
- Benefits Realization: Satisfaction that the **expected benefits** (business case) will be realized.

Business Continuity

Business Continuity for WRC was not impacted in the short term as the agency was able to maintain its existing Migratory Bird and Hunter Harvest applications to provide services during the fall hunting season. WRC's business will be impacted should the current applications or application servers fail to function. There is still an identified need for the agency to implement an IVR solution that provides required functionality.

[11] 1 being Very Dissatisfied and 5 being Very Satisfied

Section 2

Agency Response

State of North Carolina
Office of Information Technology Services

Michael F. Easley, Governor **George Bakolia, State Chief Information Officer**

March 5, 2008

The Honorable Leslie W. Merritt, Jr.
N.C. Office of the State Auditor
2 South Salisbury Street
20601 Mail Service Center
Raleigh NC 27699-0601

Dear Mr. Merritt:

Thank you for accommodating my request for an independent quality assurance assessment to determine the root causes for the Wildlife Resources Commission (WRC) decision to cancel the Integrated Voice Response (IVR) solution that was to be hosted by the Office of Information Technology Services (ITS).

As described in the assessment, actions much earlier in the project by both agencies contributed in varying degrees to its ultimate cancellation. ITS agrees that both parties shared responsibility for delivering the solution. Both agencies supplied the auditors with documentation concerning the project.

I appreciate the opportunity to respond. The findings and recommendations will assist us in our ongoing efforts to improve our delivery of services.

Thank you for the professionalism demonstrated by your staff on this project and I look forward to working with you again.

Sincerely,

George Bakolia

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Background

On August 23, 2007, the Wildlife Resources Commissioned (WRC) cancelled the implementation of an Integrated Voice Response (IVR) solution that was to be hosted by the Office of Information Technology Services (ITS). At the request of the State CIO, the State Auditor conducted an independent assessment to determine the root causes for the WRC IVR system cancellation. The following is the ITS response to both the findings and recommendations put forth in the assessment.

Findings

As described in the assessment, actions much earlier in the project by both agencies contributed in varying degrees to its ultimate cancellation. The following are ITS comments with respect to these actions as identified in the assessment.

Office of Information Technology Services

With respect to the statement that ITS did not fully assess the costs, risks and constraints prior to committing ITS TS and WRC to a solution:

ITS agrees that the costs, risks and constraints should have been more fully assessed. These issues would have been more fully addressed if the project had gone through the project approval process.

Office of Information Technology Services Telecommunications Services (ITS TS)

With regards to the statement that ITS TS did not fully assess WRC's budgetary constraints prior to providing its formal cost proposal:

ITS TS focused primarily on providing a solution that met the customer's requirements and acknowledges that it should have been more diligent in requesting and obtaining agency costs and budgetary constraints. ITS TS will change its process for obtaining agency cost information.

Concerning the statement that ITS TS compressed the time allowable to complete the project with delays caused by resource constraints caused by the number of other projects, including implementation of a large scale IVR system at other agencies during the same period, and that communications were ineffective:

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ITS TS acknowledges that resource constraints were a contributing factor in the cancellation of this project. These were brought to the attention of senior management at the time.

ITS recognizes that the communication flow was problematic.

ITS TS and WRC

ITS agrees that both parties shared responsibility for delivering the solution, however ITS TS continually raised concerns and risks with respect to WRC development of applications without qualified, experienced staff.

With regards to the statement that both ITS TS and WRC continued work without project approval from the State Approvers:

It was not the responsibility of ITS TS to obtain approval. In the future ITS will provide agencies with estimates of cost and service delivery timeframes to assist the agency in the SCIO Project Approval Process. ITS and the Enterprise Project Management Office (EPMO) will document the estimated cost and service delivery timeframes process and incorporate into the SCIO Project Approval Process.

ITS TS agrees that ITS TS and WRC did not consistently apply basic project management tools.

Recommendations

The assessment identified five key areas that are in need of process improvements, of which four were the responsibility of ITS. Listed below are the four key areas relevant to ITS along with ITS responses:

ITS

- With respect to the recommendation for improving the responsiveness of ITS staff in providing project information and documentation, ITS has created a Project Management Office (PMO) that will provide the appropriate documentation, communication and responsiveness required by our customers. The mission of the ITS PMO is to: *Provide the organization and our clients with professional, experienced, qualified project managers with one consistent approach for project management that embodies core methodologies, practices, tools and techniques which result in disciplined solutions for customer success and optimization of resources.*

  In support of the mission, one of the main objectives of the ITS PMO is to become the single channel for projects undertaken by ITS. In having a single channel, the PMO intends to:

  - Increase project management capability.
  - Improve collaboration on cross-business unit projects.
  - Ensure project consistency.
  - Increase visibility of project performance across ITS as well as to external agencies.
  - Ensure alignment of projects with agency business drivers.
  - Improve capability to assess impact due to changing priorities.
  - Improve people and resource management.
  - Provide project and program capability and standards.
  - Provide standardization of tools and processes.

- Regarding the recommendation to apply a fair and detailed analysis to identify the optimal solution for the client agency, ITS staff recognized the risks associated with moving forward but senior management disagreed with the staff assessment and recommendations. These types of conflicts between ITS staff and senior management will be addressed at the CIO level.

- Concerning the recommendation to support client agencies by providing project management deliverables normally expected of an outside vendor, it is the opinion of ITS TS that agencies are responsible for the overall project plan. The role of ITS TS is to provide milestones and task lists for the solution and the implementation of all components for which ITS TS has responsibility. The ITS PMO will address these types of issues. Additionally, the EPMO will work with the ITS PMO to ensure that the project management deliverables are part of the overall project plan. The EMPO will send out a communication to all state agencies to clarify the project management role in state agencies. This will include reminder of vendor management responsibilities.

- With respect to the recommendation that ITS TS confirm project approval status and facilitate awareness that client agencies require solution information to properly complete the Project Portfolio Management (PPM) tool that is submitted for project approval, ITS TS acknowledges it is aware of this requirement and in fact conveyed this to WRC (page 2 of the SLR documents the procedure for SCIO project registration and certification). ITS TS includes this information in its SLR document specifically to remind agencies of their responsibility. In the future, ITS will confirm with the Enterprise Project Management Office that a project has received proper approval. Additionally, the EPMO will consider sending a communication to all state agencies to remind them of the project information required for the PPM tool and the SCIO project approval process. This information would include integration of project schedule and costs into the project plan.

North Carolina Wildlife Resources Commission

February 22, 2008

The Honorable Leslie W. Merritt, Jr.
N.C. Office of the State Auditor
2 South Salisbury Street
20601 Mail Service Center
Raleigh, NC 27699-0601

Dear Mr. Merritt:

Thank you for the opportunity to respond to the Wildlife Resources Commission Integrated Voice Response System Quality Assurance Assessment. On behalf of the Wildlife Resources Commission, I want to express our appreciation to you, your staff and the consultants on this project for the professionalism demonstrated in the conduct of this assessment.

We have reviewed your office's findings and recommendations and prepared the attached response addressing those issues identified for our agency's attention. We will continue to strive to meet the project management and documentation requirements mandated by Senate Bill 991, and the results of this assessment have clarified those requirements for our agency.

Thank you again for your time and attention to this assessment. If there are questions or comments, please let me know.

Sincerely,

Fred A. Harris

Fred Harris
Acting Executive Director
North Carolina Wildlife Resources Commission

The following response is provided from WRC relative to the findings by the NC State Auditor's Office.

Recommendation 5: Assume Project Management Leadership

Per SB991, accountability and responsibility for overall project management is placed on state agencies. As noted, this responsibility includes obtaining project approval. Maintaining project management documentation including a schedule, risk mitigation plan, issue tracking, and status reports are best practices for project management. **Following are recommendations for WRC and other ITS client agencies:**

- *Ensure project approval is obtained prior to expenditure of State funds.*

- *Apply project management disciplines including project work plans, meeting minutes, regular status reporting, issue tracking and risk management and other documentation as appropriate to the project.*

Response:

WRC recognizes the need to obtain project approval prior to expenditure of state funds. The agency attempted to obtain approval three times, but there was confusion on the part of both WRC and ITS as to how the project should be entered and classified. WRC will review processes and policies for handling projects such as this in the future. WRC also recognizes the need to apply project management principles to include work plans, meeting minutes, regular status reporting, issue tracking, and risk management. Because most of the cost figures, timelines, and technical details were originating at ITS, we were unable to finalize much of the project information. As a result, we relied on e-mail communications as a means of documenting outstanding deliverables and statuses, and all of the known risks were discussed via e-mail as well. Although we did not have sufficient information to create all of the needed documentation, we will strive to create more formal documentation of any available information on future projects.

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