



Assessment of the Colorado State Titling and Registration System (CSTARS)



June 29th, 2007



Assessment Objectives

- ▶ The objective of this assessment is to review the current status of the Department of Revenue's (DOR) new Colorado State Titling and Registration System (CSTARS) implementation.
- ▶ It is intended to constructively review the health of the project and:
 - > Identify options available to the state at this time
 - > Evaluate the benefits and consequences of each option
 - > Recommend the best option for the state.
- ▶ In completing this assessment we reviewed decisions made, the cumulative effect of those decisions on the project's current state, and developed a series of "lessons learned" that can be folded in to future decisions.

Our Approach



Gather Data

- ▶ Understand the CSTARS project and the current state
- ▶ Conduct interviews with critical State and vendor personnel
- ▶ Review program and project documentation
- ▶ Review the technical architecture (high level)

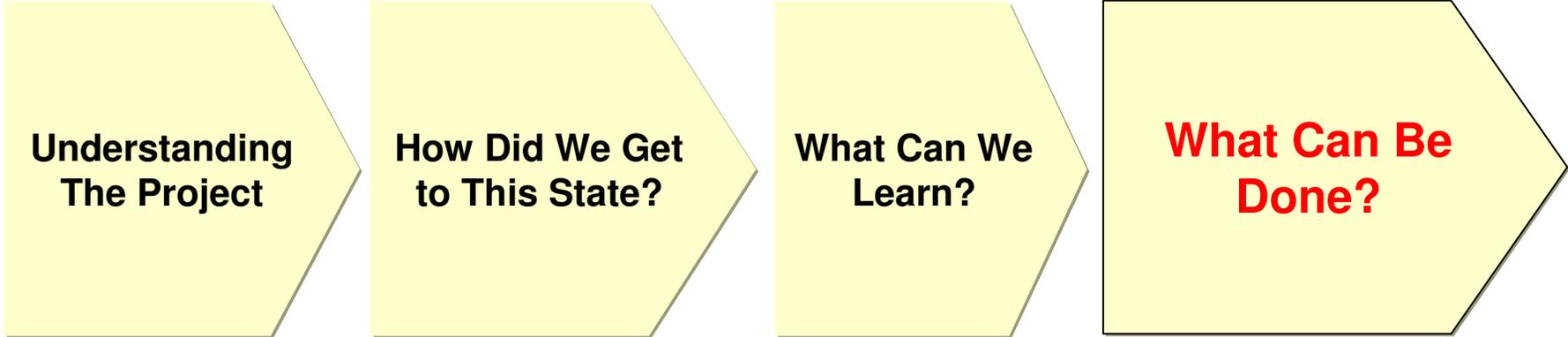
Perform Analysis

- ▶ Understand the fundamental issues with the project.
- ▶ Understand the project history and salient decisions and consequences
- ▶ Determine alternatives for the Department and weigh each option.
- ▶ Recommend ways for moving the project forward.

Recommendations

- ▶ Present findings to the Department of Revenue Executive Director and the State CIO.

Report Structure





Understanding
The Project

Understanding the CSTARS Project

Overview of the CSTARS Project



CSTARS Business Case

- ▶ “Green screen” presentation and inconsistent flow of data entry screens make it difficult and time consuming to train new users.
- ▶ Complexity of code, database flat-file structure, and distributed processing present difficulty in delivering modifications quickly.
- ▶ Distributed processing presents challenges in maintaining databases for 64 counties and in information sharing.
- ▶ Audit identified a number of areas where system controls can be improved, including:
 - ▶ Ensuring that collections and distributions are made in accordance with statute
 - ▶ Improving oversight of revenue collection and distribution
 - ▶ Improving cash controls.

How It Was Structured

- ▶ DOR requested proposals for a Buy and Modify (BAM) solution
- ▶ In execution, the project became a rewrite of DDP without business process redesign

Expected Outcomes

- ▶ Decreased training time and improved transaction processing/accuracy through streamlined processes, consistency of screen design, and data validation.
- ▶ Improved ability to implement legislative mandates and requested functional enhancements
- ▶ Improved system maintainability through the use of innovative system design and flexible database architecture

Why are we at this state?

Did the Project Meet the Functional Requirements?



The project did not deliver the fundamental functionality or business requirements.

Expected Outcome	Score 10 – high 1 – low	Explanation
Decreased training time for end users	6	<ul style="list-style-type: none">▪ GUI is more intuitive to today's workforce than "green screen" presentation▪ Business knowledge is necessary since it is not completely integrated into system design
Improved transaction processing/accuracy	6	<ul style="list-style-type: none">▪ Consistent processes across all 64 counties once system is fully deployed▪ Built-in data validation▪ Business process redesign initiative could have reaped further enhancements
Improved ability to implement legislative mandates and requested functional enhancements	3	<ul style="list-style-type: none">▪ Burdensome to implement system updates.▪ Business rule administration requires support from IT.
Improved system maintainability	5	<ul style="list-style-type: none">▪ System is built on a maintainable platform▪ DOR does not have the number of resources or the technical expertise to maintain the CSTARTS application.
System traceability and audit capabilities	5	<ul style="list-style-type: none">▪ Although deficiencies were identified in the State Auditor's report, these requirements were not incorporated into the RFP.▪ Required functionality was a change request. Development is nearly complete.

What is the current state?



The project is currently on-hold – pending approval of the “go forward” plan.

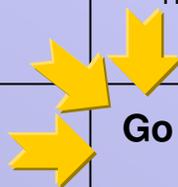
Critical Measure of Success	Answer	Explanation
Did the project meet minimally expected project results and objectives?	NO	<ul style="list-style-type: none"> ▪ The system was never fully deployed to the counties. ▪ Although deployed to the State, there were numerous functional issues that remained unresolved.
Was the project implemented on time?	NO	<ul style="list-style-type: none"> ▪ No, multiple extensions were granted for the project. ▪ The project was never in production for the counties and therefore is still not implemented.
Can the project completed within budget?	NO	<ul style="list-style-type: none"> ▪ No, change requests and other delays have significantly increased the budget for this project. \$1.7MM in change requests have been completed, and an additional \$1.0MM in change requests are required before the counties go-live.
Did the project realize any tangible benefits?	NO	<ul style="list-style-type: none"> ▪ While the system was active for the State, there were some benefits that were realized. The system was easier to use and there were better audit controls. ▪ Without the full deployment to production, the benefits were not realized. ▪ The consequences of the data issues and functional negated many of the benefits from the State implementation.
Did the project reduce risks for the State?	NO	<ul style="list-style-type: none"> ▪ This implementation has resulted in major risks for the state including data integrity issues that directly impacted citizens. ▪ The mismanagement of this project has cost the state nearly \$10M in operational costs. ▪ The State now faces the risk of managing a legacy system that has major functional and technology risks.



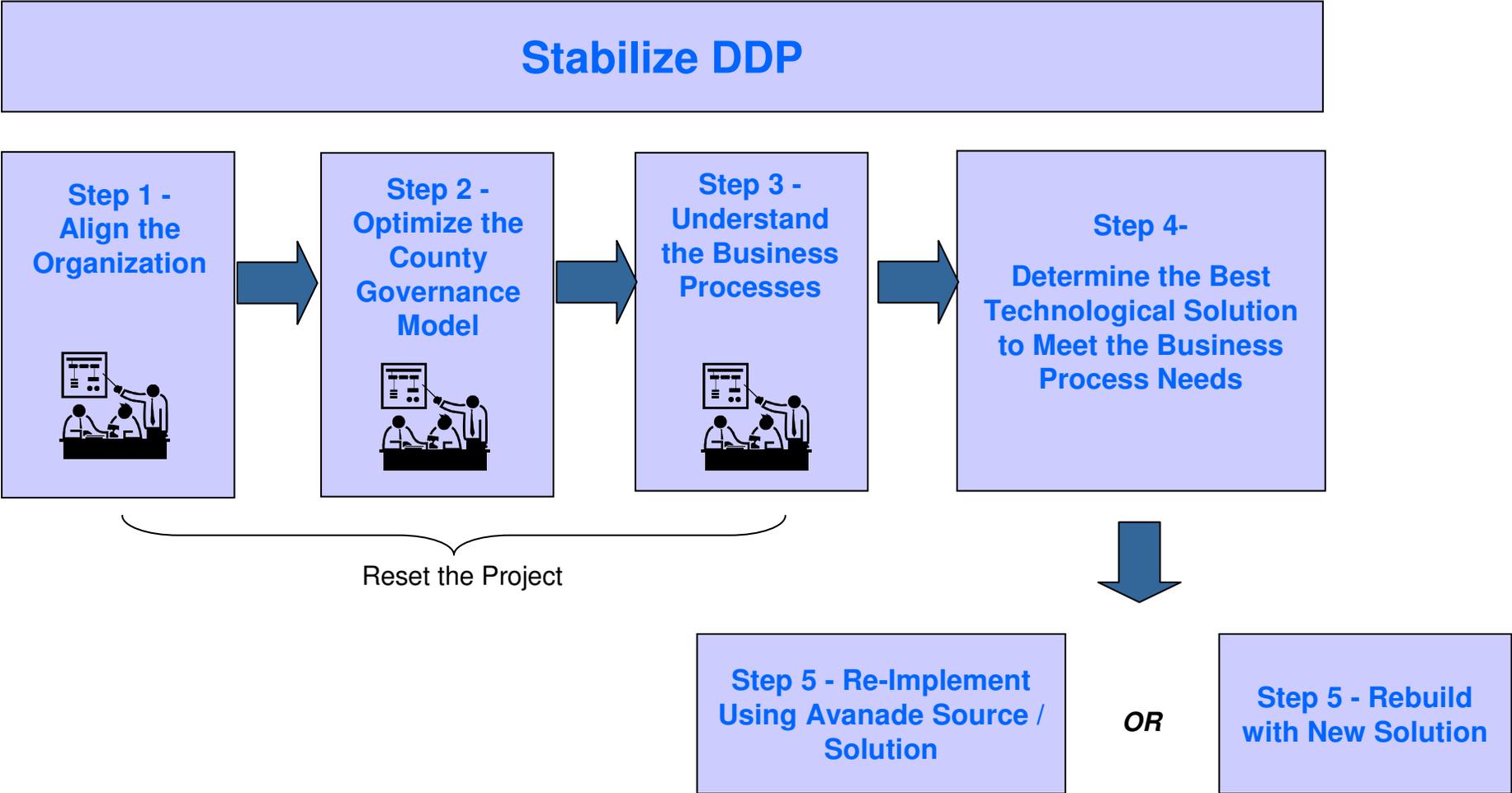
Executive Summary – Findings, Issues and the Go Forward Plan

The focus needs to be on moving from current state to a working solution since the use of the existing DDP system is not a long term solution.

<p>Business Function</p> <ul style="list-style-type: none"> • Business functionality baseline is not agreed upon by business users. • Key functionality needs to be implemented for the counties before it can be implemented. • End to end process needs to be understood and reviewed. • An effort needs to be made to evaluate and improve business processes. • Data architecture and management of data issues need be more clearly understood. 	<p>Technology</p> <ul style="list-style-type: none"> • The architecture is complex but was developed logically. • Business rule complexity makes management of business rules more complicated. • The architecture can scale and meet the transactional needs. • The current structure places more focus on the need for solid regression testing. • Revenue does not have the IT staff and expertise to maintain this complicated technical architecture. • The database is robust and is scaleable. • There are better audit and business controls.
<p>Critical Issues</p> <ul style="list-style-type: none"> • The organization is not aligned or structured for this project. • The county governance model is not setup. • Business processes are not well understood. • A more comprehensive PMO should be established for a project of this complexity. • Dedicated and experienced business users should be assigned to the project. • IV&V should be structured to be more effective and objective. • Change management should be a dedicated, planned thread throughout the project. 	<p>Go Forward Plan</p> <ul style="list-style-type: none"> • Dedicate resources to stabilize the DDP legacy system. • Align the organization around the project, including development of a PMO, IV&V, change management, and system integration and hosting. • Setup a county governance body and identify ways to improve county involvement. • Reset the project’s functional baseline by reviewing the end to end business processes with a focus on process improvement. • Agree upon the business process functionality baseline and determine the best technology to meet these needs.



Our "Go Forward" Plan





How did we get
to this state?

How did we get to this state?

How did we get to this state?

Understanding the Fundamental Issues with the Project



Regardless of how the Department moves forward – these issues are critical in moving forward.

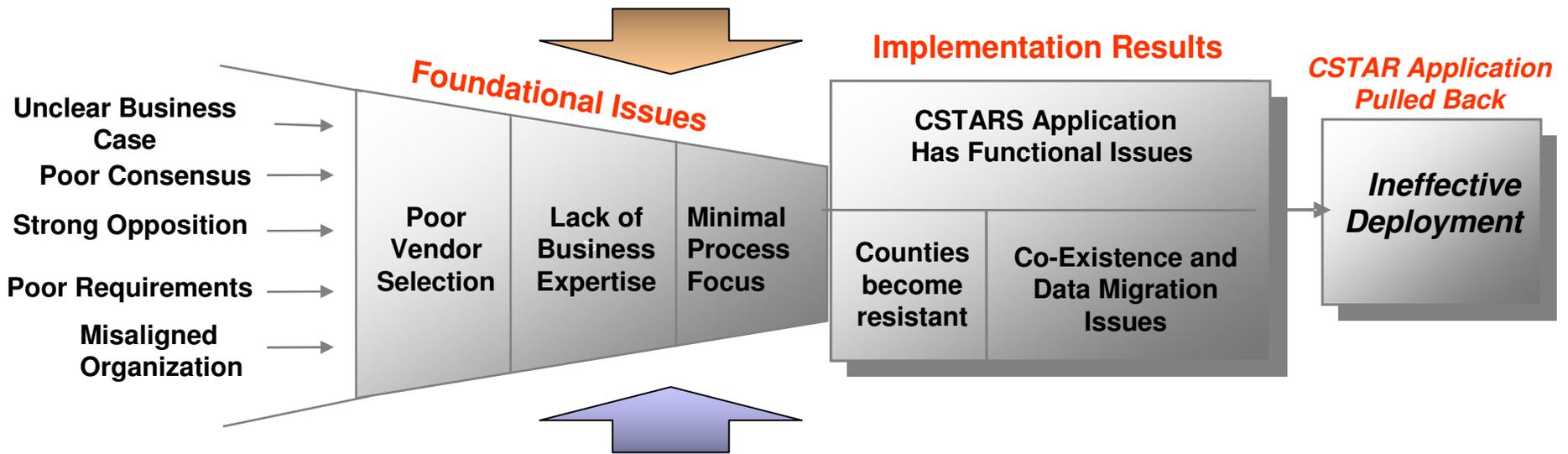
Issue	Leadership and Organizational Alignment	County Governance	Business Process Validation
Description of Issue	<p>The Department of Revenue was not aligned to enable a successful project.</p> <ul style="list-style-type: none"> • Executive sponsorship of the project was ineffective. • Not a collaborative and open environment • Lack of accountability • High turn-over and transition of responsibility <p>The project was poorly structured</p> <ul style="list-style-type: none"> • Ineffective project and program management / governance • Ineffective management of stakeholders • Adversarial individual and team relationships • Ineffective change management and communications 	<p>The management of the county expectations and the securing county “buy-in” were ineffective.</p> <ul style="list-style-type: none"> • While county governments initially were supportive of the system, they have recently been publicly opposed to the implementation. • County involvement and representation is insufficient from a change management perspective. • The State needs to do a better job of communicating the value of the system to get County support. • Counties need to provide personnel resources for the development process. • The existing business model between the State and Counties should be evaluated. 	<p>There was not an active effort to re-engineer business processes. The scope was to “re-write” the existing DDP system, not review and improve business processes.</p> <ul style="list-style-type: none"> • There is no central end-to-end business process view of the system. • Process inefficiencies were not identified and addressed. • There wasn’t a priority on self-service applications. • The most knowledgeable business users were not actively involved in the requirements and design.

How did we get to this state?

Along with fundamental issues, it is important to understand the following



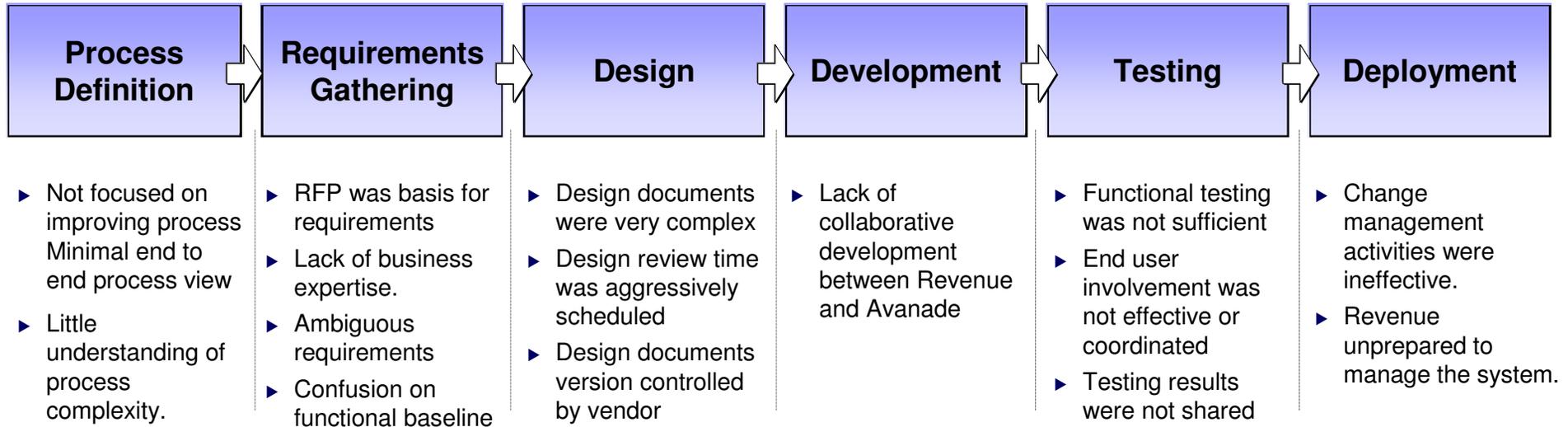
Vendor	Limited Qualifications and relevant business knowledge	Quality Assurance Issues
	New Architecture	Poor Relationship with Revenue Executives
		Over-confidence on Delivery



Revenue	Leadership Issues	Poor County Coordination
	Low Business Involvement	High Staff Turn-over
	Exclusion of IT Staff	Lack of Sufficient Management Expertise
	Lack of Business Expertise	Poor Governance Model

How did we get to this state?

The key issues across the system development lifecycle



Program Management

- ▶ Governance model was not adequate for the scope and size of the project.
- ▶ There wasn't a robust, enterprise level program management capability.
- ▶ Key management processes were not adequately managed.
- ▶ There was inconsistent business sponsorship.
- ▶ Accountability for the project was not clearly defined.

Independent Verification and Validation

- ▶ IV&V contract ineffectively structured - didn't allow for findings to be more proactively identified.
- ▶ IV&V reporting structure should have been structured to report to external entity – not Revenue management.

How did we get to this state?

Another fundamental issue: Too many Transitions in DOR Management



----- Perceived Owner

Executive Director	Fred Fisher			Michael Cooke			Roxy Huber	
CIO	Ron Olson	Dave Deluhery	Susan Hunt	Nolan Jones	Brett Mueller			
Business Sponsor	No Business Sponsor				Steve Tool	Maren Rubino		
Project Manager	No Project Manager	Victoria Smith	Pat Chase	Kim Heldman	Tad Foster	Pat Chase		
	2000	2001	2002	2003	2004	2005	2006	2007

Key roles in the project transitioned / changed too frequently.

Key roles were not staffed sufficiently or early enough.

Critical events and impacts



Date	Event/ Milestone	Impact
2002	▶ Feasibility assessment and requirements not included in RFP.	Functional Impact: Requirements from the feasibility assessment not incorporated into the RFP – results in functional disconnect with the counties.
May 2002	◆ Avanade Awarded CSTARS Project	Functional and Risk impact: Selection of Avanade for the contract is risky due to lack of relevant business qualifications and proven technical solutions for registration/titling. This increases the risk of project failure and Revenue does not setup sufficient governance model for higher risk implementation.
Nov 2002	◆ CSTARS Project Kick-off	Schedule impact. CSTARS project kicks off 13 months after the RFP is issued and 6 months after Avanade was awarded the contract.
March 2003	◆ SysTest begins IV&V for CSTARS	Risk impact: IV&V was not initiated until after the Envisioning Stage was complete and was only designated for document review. Impacted ability for the IV&V vendor to identify and help mitigate project issues.
Dec 2003	▶ Informal CSTARS Assessment	Risk impact: Project team members create an informal assessment, bringing several critical project issues to light. Almost no corrective action is taken and the project continues on its course.
Dec 2003	▶ Attain Technologies leaves the project.	Functional impact: Avanade did not have subject matter expertise. They subcontracted to Attain Technologies to supplement this, but Attain left the project in December 2003, and this role was not sufficiently backfilled. Impacted quality of the business process and subsequent business requirements.
Feb 2001	▶ Feasibility Study Scaled Back	Functional impact: Requirements from the Feasibility Study are not included in the RFP and never addressed in the CSTARS project. Requirements are not sufficiently defined in the RFP – leading to significant downstream functional gaps and issues.

Critical events and impacts



Date	Event/ Milestone	Impact
Jan 2004	▶ Problem with Group One software initially identified	Schedule impact: The issue of addresses not locating correctly in the Group One software was not addressed until mid-2006. This was an impact on schedule and resulted in additional functional issues.
April 2004	▶ Avande issued "Notice of Nonperformance" by the DOR	Risk impact: "Notice of Nonperformance" issued for not providing a turnkey system and for not meeting deadlines, which was issued without prior communication to Avande and without notifying DOR CSTARS project management.
May 2004	▶ Avande ordered to stop work	Schedule impact: Project on hold from May through July 2004
August 2004	▶ Steve Tool assigned as CSTARS business sponsor	Functional impact: Three years into the project, this is the first time that a business owner is officially identified. This impacted business process functionality.
April 2006	▶ SysTest leaves project	Risk impact: IV&V is no longer a component of the CSTARS project.
Sept 2006	★ CSTARS Go-Live	Risk impact: IV&V is no longer a component of the CSTARS project.
Feb 2007	▶ Issue about incorrect data in VIPER identified	Functional and Risk impact: Ineffective planning and execution for data management results in data integrity issues and is the reason cited for pulling CSTARS out of production 2 months later.
April 2007	☒ 4/07 – Roll back to legacy	Risk impact: The legacy system is unstable and insecure and is a risk to the state.



What can we
learn?

What Can We Learn?

What can we learn?

Identifying the Fundamental Issues



Component	Lesson Learned
<p>Organizational Alignment</p>	<ul style="list-style-type: none"> ▪ Business and IT groups should be aligned to support the project. ▪ The business case should be improved and better understood with frequent, consistent communication. ▪ Dedicated business users should be assigned to the project. ▪ An organizational assessment would help identify key knowledge and organizational gaps for a project of this size.
<p>Program Governance</p>	<ul style="list-style-type: none"> ▪ A more robust PMO function should be used for a project of this size and complexity, ▪ A dedicated business sponsor should be assigned from Revenue. ▪ There should be a senior steering committee to help govern the project. ▪ An experienced project manager should be assigned to the project. ▪ Issue and risk management needs to be more transparent. ▪ Scope management and functional baselines need to be aggressively managed. ▪ Communication should be more focused – with an effort for consistent messaging and alignment.
<p>County Alignment</p>	<ul style="list-style-type: none"> ▪ A model to better manage county involvement and expectations should be implemented. ▪ The business model for registration and titling may need to be reviewed. Currently counties are resistant to self-service, cross county transactions. Counties should benefit from these new functions. ▪ There is a need for counties to “buy in” to the system and actively engage with the project team. ▪ A co-existent deployment model with the legacy system and the new CSTARTS application was not effective – partial or parallel deployment resulted in major issues with data integrity. Another method deployment method needs to be identified for more effective deployment.
<p>Business Process Engineering</p>	<ul style="list-style-type: none"> ▪ An effort should be made to understand the end to end business processes better. ▪ More business subject matter expertise is required. ▪ Revenue should evaluate the existing business processes and work to improve them – including implementing new functions such as self-service. ▪ There is a need to understand business processes better for training and deployment activities.

What can we learn?

Identifying the Fundamental Issues



Component	Lesson Learned
Vendor Selection	<ul style="list-style-type: none">▪ Vendor selection for a system of this kind should weigh more on demonstrated capability.▪ The contract should have outlined business process engineering or improvement as part of the deployment.▪ The RFP should not be used as a requirements document – a requirements validation document should have been done either pre-RFP or as part of the lifecycle.▪ The contract should be setup with more details around expected deliverables.▪ The contract should be structured for build and operate – not just build. The Department of Revenue can not adequately support this system and should look for a vendor to host and operate.
Requirements Gathering	<ul style="list-style-type: none">▪ The RFP should not be used as the only business process or requirements document. The RFP was not comprehensive in providing requirements and an end to end process view. Basing requirements on this level of detail impacted the quality of the requirements and subsequent functionality.▪ Business expertise should be dedicated to the project – subject matter experts should be part of the project for the duration.▪ Qualified business expertise must be available – not just “business users” of the system.▪ Requirement review processes should be refined to allow more robust review.▪ Prototyping of system functionality should be used up front to help end users understand the requirements.
Design and Development	<ul style="list-style-type: none">▪ The design process review should be more clearly understood among business users and design documents should be more “business” focused and friendly.▪ Prototype views should be used more frequently.▪ Data migration strategy needs to be clearly planned.▪ It may be more realistic for data to be “day forward” from implementation – since conversion of historical data is very difficult and problematic.▪ Data migration effort should begin very early in the project.▪ Without clear business process and requirements, data design is convoluted.

What can we learn?

Identifying the Fundamental Issues



Component	Lesson Learned
Testing / Quality Assurance	<ul style="list-style-type: none">▪ Quality assurance test plans need to be fully developed and managed.▪ Revenue needs more direct involvement in functional testing.▪ Assigned business users need to be involved with the functional testing – not just user acceptance.▪ Acceptance criteria for functional testing needs to be clearly defined.▪ Testing results need to be clearly understood and managed.▪ Regression testing strategy should be clearly defined to identify and detect regression errors and issues from iterative builds.▪ User acceptance testing needs to be better coordinated and should follow well after functional testing.
Deployment	<ul style="list-style-type: none">▪ A dedicated thread of activity for change management should be established for the duration of the project – especially to manage the counties.▪ Training should involve the experienced business users who are involved in requirements development and testing.▪ A clear deployment plan needs to be developed for the State and County.
Independent Validation and Verification	<ul style="list-style-type: none">▪ IV&V should not report to the project sponsor at Revenue and to the Governor’s Office of Information Technology (OIT) who can act as an independent review board.▪ IV&V should be structured for identification of key project issues –not just document or deliverable review.▪ IV&V vendor should have organizational change management expertise to help identify deployment issues within both the State and County levels.▪ IV&V role needs to be clearly understood by the team and should be seen as a trusted partner for the project success.▪ IV&V should have total access to the project and vendor.



**What can be
done?**

What can be done?

What can be done?

We explored five options for moving the project forward



Options	Option 1 Stay the Course	Option 2 Rewrite CSTARS	Option 3 Create New Custom Application	Option 4 Implement COTS Application	Option 5 Maintain / Extend Legacy Application
Benefits	Rollout CSTARS with completed change requests <ul style="list-style-type: none"> System is already available for State users. 	Rewrite CSTARS leveraging existing components <ul style="list-style-type: none"> Leverages existing investment. State functions could be implemented in timeline fashion. 	Develop a New Custom Application <ul style="list-style-type: none"> Higher chance the system will meet user needs. Opportunity to redesign process. Higher chance for county approval. 	Customize or leverage COTS solution <ul style="list-style-type: none"> Stabilized functionality. Standardized processes Able to Support 	Leverage or Extend Legacy System <ul style="list-style-type: none"> Leverages existing legacy system. In-house Expertise exists today.
Risks	<ul style="list-style-type: none"> Counties will resist. There is no expertise to manage the application. Co-existence is still an issue. 	<ul style="list-style-type: none"> Counties will still resist and require changes. There is no expertise to re-write the application. Co-existence is still an issue. 	<ul style="list-style-type: none"> Could become CSTARS II nightmare if major changes are not made in how the project is managed. Longer duration and costs. 	<ul style="list-style-type: none"> Management of expectations for COTS is critical Customization needs to be controlled. 	<ul style="list-style-type: none"> DDP system is a risk and is complicated. Expertise exists, but for how long? The architecture and data issues are significant.
Feasibility	<ul style="list-style-type: none"> Unlikely this option will benefit the state and could result in additional failures, especially with the counties. 	<ul style="list-style-type: none"> The changes to address business process will likely require architectural overhaul. 	<ul style="list-style-type: none"> Feasible option if the vendor has some proven qualifications in building this type of system. 	<ul style="list-style-type: none"> Feasible if a vendor has a COTS solution in the marketplace today. 	<ul style="list-style-type: none"> Likely not feasible given the current organization and state of the legacy system.

Understanding the Assessment

Benefits

- Identification of key benefits for the option.

Possible Consequences

- Outlines any potential risks or issues with the option.

Risk Profile

HIGH

Impact to Citizens

How citizen services will be potentially impacted.

HIGH

County Impact

How county CSTARS users will be impacted

HIGH

Risk to State Employees

How state employees who use the CSTARS system will be impacted

HIGH

Technology Risk

Key technology architecture risks

HIGH

Budgetary Risk

Impact on cost or requirement for additional funding

Overall Feasibility

Explanation whether the option is suitable.

HIGH

— Major Impact/High Risk

MEDIM

— Moderate Impact or Risk

LOW

— Low Risk

Deploy the Existing Application As Is to State / Counties



Benefits

- Scope has been established – the additional functionality to be developed has been clearly laid out
- State users have been trained on the CSTARS application, and they are familiar with using it in a production environment
- The system is already available for the state users

Possible Consequences

- Organized opposition against the CSTARS system exists from the project team, state users, and the counties
- The application has fundamental gaps in functionality
- There is not enough planned support for county training and rollout
- The counties will resist rollout of CSTARS since they do not feel the application will meet their requirements
- The DOR has an antagonistic relationship with the current vendor
- Establishing new vendor would require a vendor selection-process. Additional time would be required for the new vendor to get up to speed
- The state is not equipped to support the application in production – resources have been planned for or hired
- Existing state resources do not have the knowledge or expertise to support the CSTARS application
- Co-existence is still an issue for the rollout timeframe

Risk Profile

- HIGH** Impact to Citizens
- HIGH** County Impact
- HIGH** Risk to State Employees
- HIGH** Technology Risk
- HIGH** Budgetary Risk

Overall Feasibility



This option is not feasible and will result in major problems for the state, counties and citizens.

Rewrite the CSTARS Application to Meet End User Needs



Benefits

- This option could allow the state to leverage a portion of the existing CSTARS investment
- State functions could be implemented in a timeline function
- Hardware purchased for the CSTARS project could likely be reused

Possible Consequences

- There is no expertise within the DOR to re-write the application.
- A new vendor may be required to finish the system – this will require vendor selection and will impact timeline.
- Rewriting the application would likely take longer and be a greater expense than creating an alternate application from scratch.
- Trying to reuse the current application could limit process and functionality options compared to starting over.
- Counties will likely be more resistant.
- Co-existence could still cause major issues – the deployment schedule may have to be changed to address a more global roll-out

Risk Profile



Impact to Citizens



County Impact



**Risk to State
Employees**



Technology Risk



Budgetary Risk

Overall Feasibility



This option is feasible and is identified as an option going forward.

Create a new CSTARs Application



Benefits

- Much greater chance that the system will meet the user requirements
- State functions could be implemented in a timeline function
- Provides an opportunity to redesign the titling and registration processes
- DOR has the opportunity to select vendor with expertise who can other states' leverage best practices
- Higher chance for county approval
- Hardware purchased for the CSTARs project could likely be reused

Possible Consequences

- Could become CSTARs II nightmare if changes are not made in how the project is managed.
- Additional costs to the already lost investment.
- Have to completely write-off existing investment in CSTARs development

Risk Profile



Impact to Citizens



County Impact



Risk to State Employees



Technology Risk



Budgetary Risk

Overall Feasibility



This option is feasible and requirements are outlined in the next page.

Create a new CSTARs Application using a COTS Solution



Benefits

- Stabilized functionality
- Standardized processes
- Less expensive than rewriting CSTARs or creating a new custom application.
- Likely that materials would exist to support training and rollout
- Easier to support and maintain
- Hardware purchased for the CSTARs project could likely be reused

Possible Consequences

- Management of expectations for COTS is critical
- Customization needs to be controlled
- Have to completely write-off existing investment in CSTARs development

Risk Profile



Impact to Citizens



County Impact



**Risk to State
Employees**



Technology Risk



Budgetary Risk

Overall Feasibility



While this option seems feasible, there isn't a robust COTS solution in the market. Option 3 is the best means for a new system build.

CSTARs Assessment

Maintain and Extend the DDP System



Benefits

- Leverages existing system
- In-house expertise exists today
- State and county users have been trained on application and are familiar using it in production
- Expertise exists (for the time being)

Possible Consequences

- DDP does not have the sufficient auditing and logging capabilities.
- DDP system is in an environment that is no longer supported
- DDP system is complicated and is not documented
- Single points of failure exist for the support of the application based on the knowledge of technical resources
- The architecture and data issues are significant
- Minimal investment could extend the life of the application, but a new application would need to be rolled out within 4 – 5 years (possibly sooner).
- Have to completely write-off existing investment in CSTARs development

Risk Profile

- HIGH** Impact to Citizens
- HIGH** County Impact
- HIGH** Risk to State Employees
- HIGH** Technology Risk

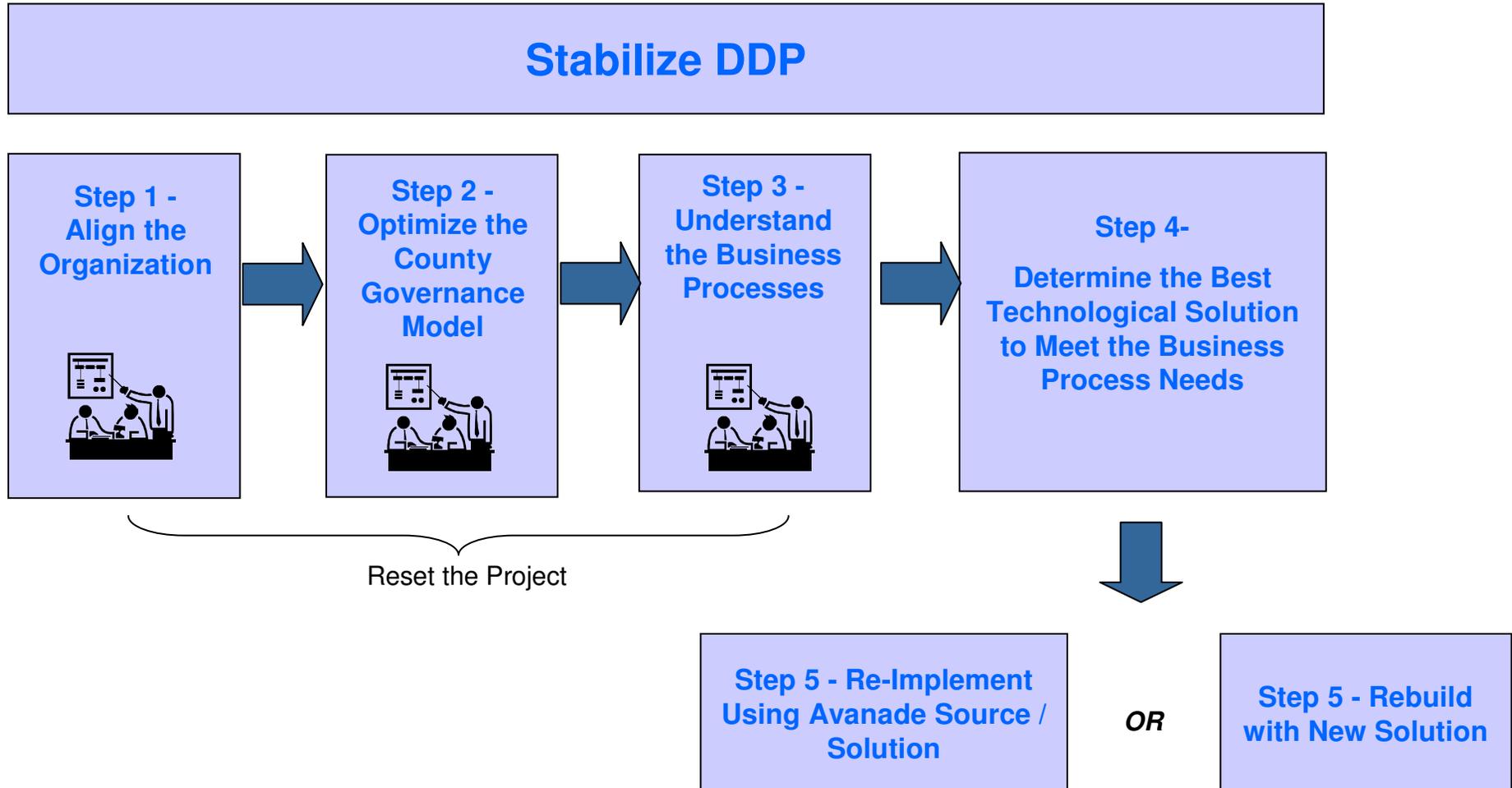
- HIGH** Budgetary Risk

Overall Feasibility



This option is not feasible given the continuing risk associated with maintaining or extending this system.

Our Recommended Path for Moving the Project Forward



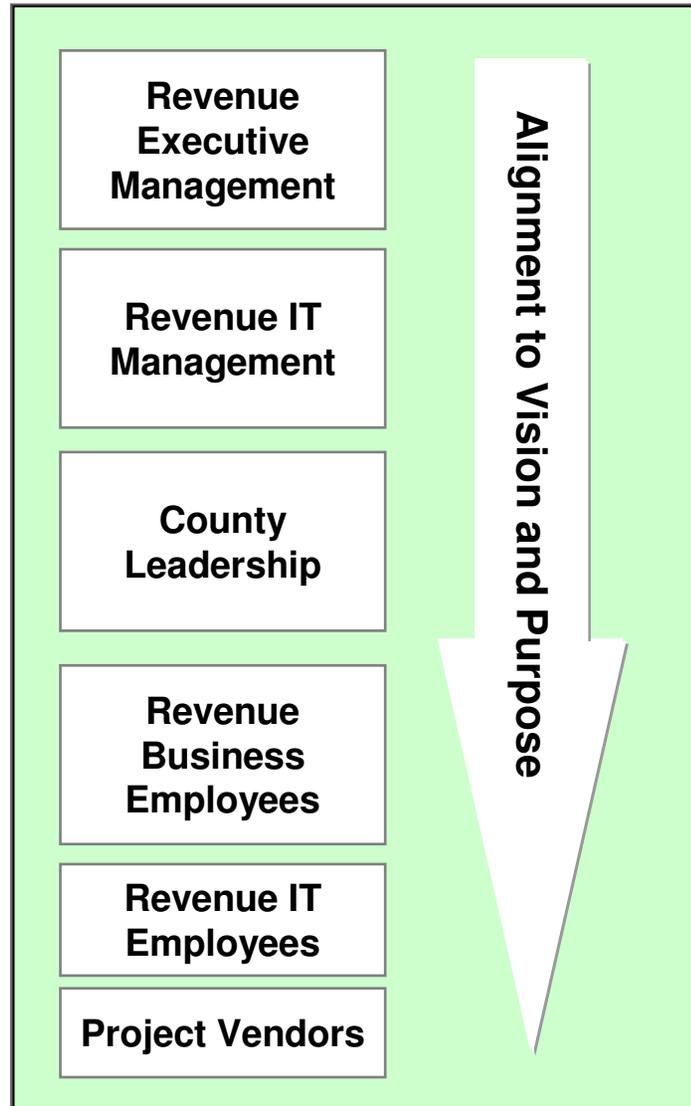
What can be done?

Step 1 – Align the Organization

Colorado Department of Revenue



Align the Organization



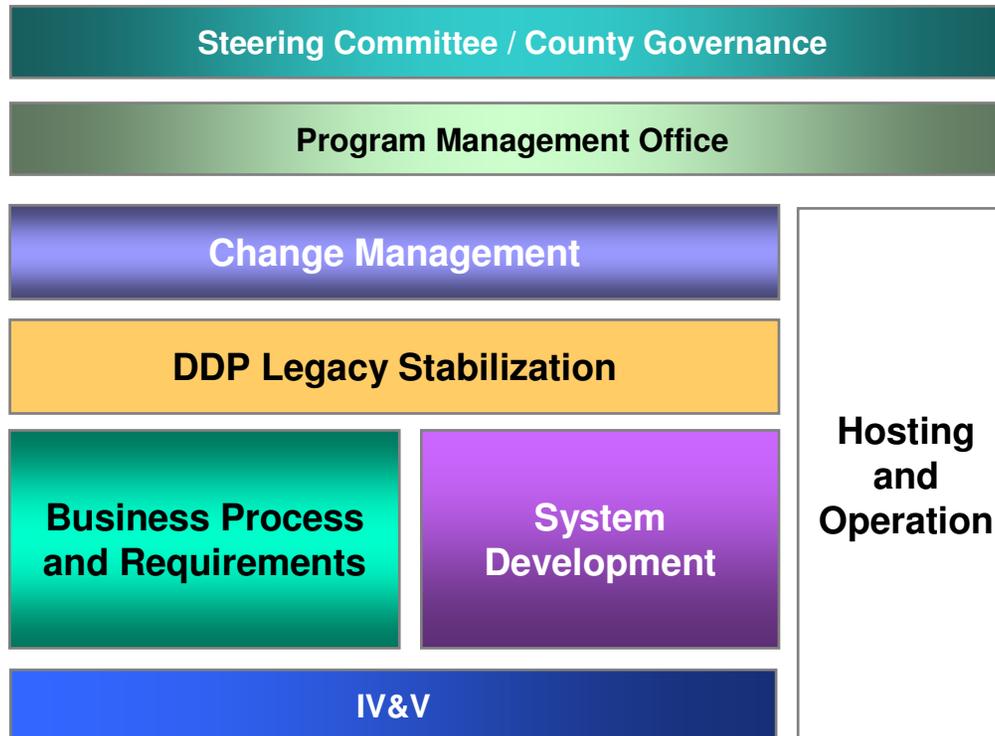
1. Assess the organization and determine the best model that will manage and support the project. This includes evaluation of the organizational culture and resolution of major organizational and cultural issues.
2. Reset the project objectives and mission and begin to align stakeholders on the benefits and value. Begin a consistent approach to communication and stakeholder management – this may require change management expertise.
3. Make internal management and staffing changes as necessary.
4. Determine the best governance model for the project, including how roles and responsibilities for the county.
5. Identify a project sponsor who is accountable for the project.
6. Staff and build the necessary components for the CSTARS project team.
7. Identify external resources as necessary for key project components such as the PMO, IV&V, business process engineering, and change management.

What can be done?

Step 1 – Align the Organization (Restructure the Project)



Align the Organization



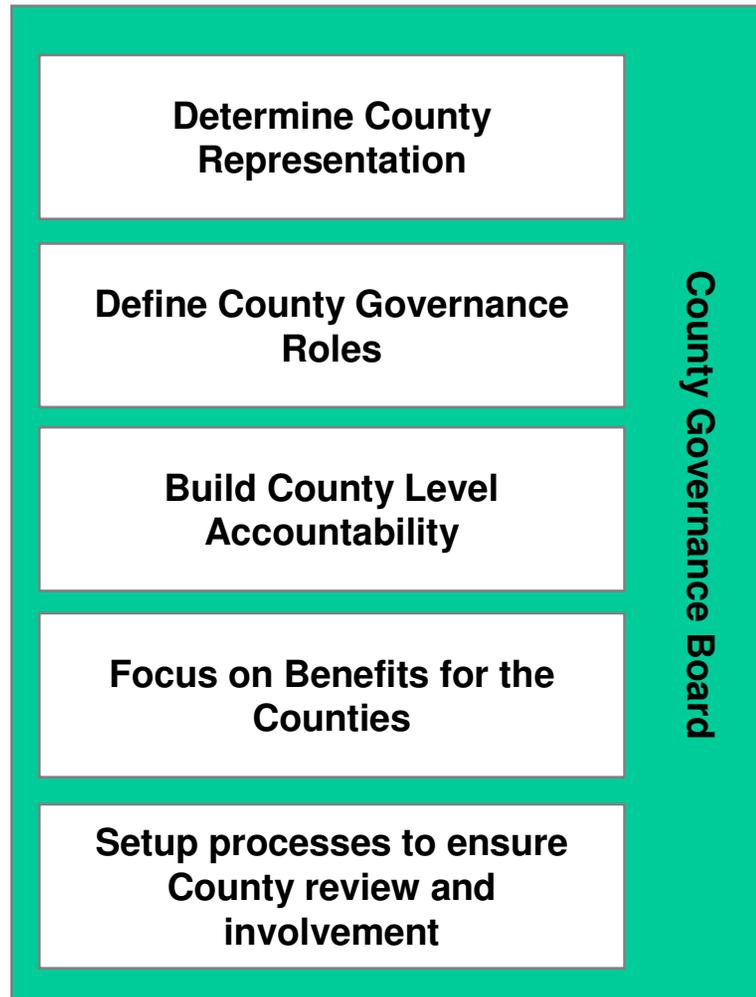
- ▶ A governance body that can manage business, IT, and county issues should be formed to manage issues and risks.
- ▶ The Program Management Office should be structured to manage the project, including issue and risk management, scheduling, resource management, and vendor management.
- ▶ A dedicated team or vendor should manage change management elements including communications, training, organizational planning, and stakeholder management.
- ▶ A team of business process experts needs to be available to baseline the functionality and improve the business processes – including evaluating self-service.
- ▶ IV&V should be setup to report to the project sponsor and an independent entity such as OIT.
- ▶ A team should be dedicated to support and maintain the DDP system. This team should report to the PMO and be considered as part of the CSTARTS implementation.
- ▶ A vendor should be setup to host and operate the CSTARTS application upon release into production.

What can be done?

Step 2 – Optimize the County Governance Model



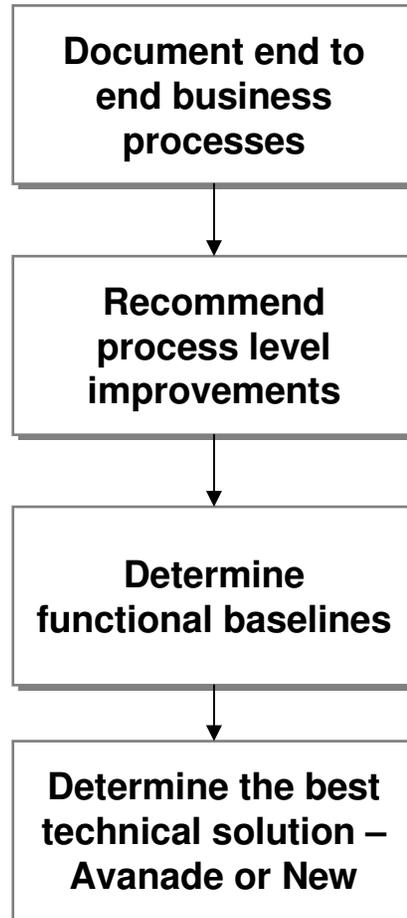
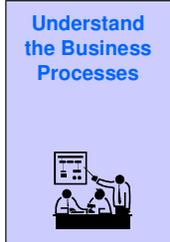
Establish the County Governance Model



- ▶ The county governance model needs to focus on locking in county involvement and commitment.
- ▶ Counties have a real stake in the success of this program and these benefits should be a focus for the CSTARS project team.
- ▶ A county governance board should have logical representation and this representation should be approved by all counties.
- ▶ Counties need to commit to approving the business process and improving the registration and titling processes.
- ▶ Counties need to commit resources to the project, especially personnel who have business expertise who can assist with process improvement and testing.
- ▶ Acceptance criteria should be clearly defined by the county governance board for quality assurance and production releases.
- ▶ Counties should agree and approve the production release schedule.

What can be done?

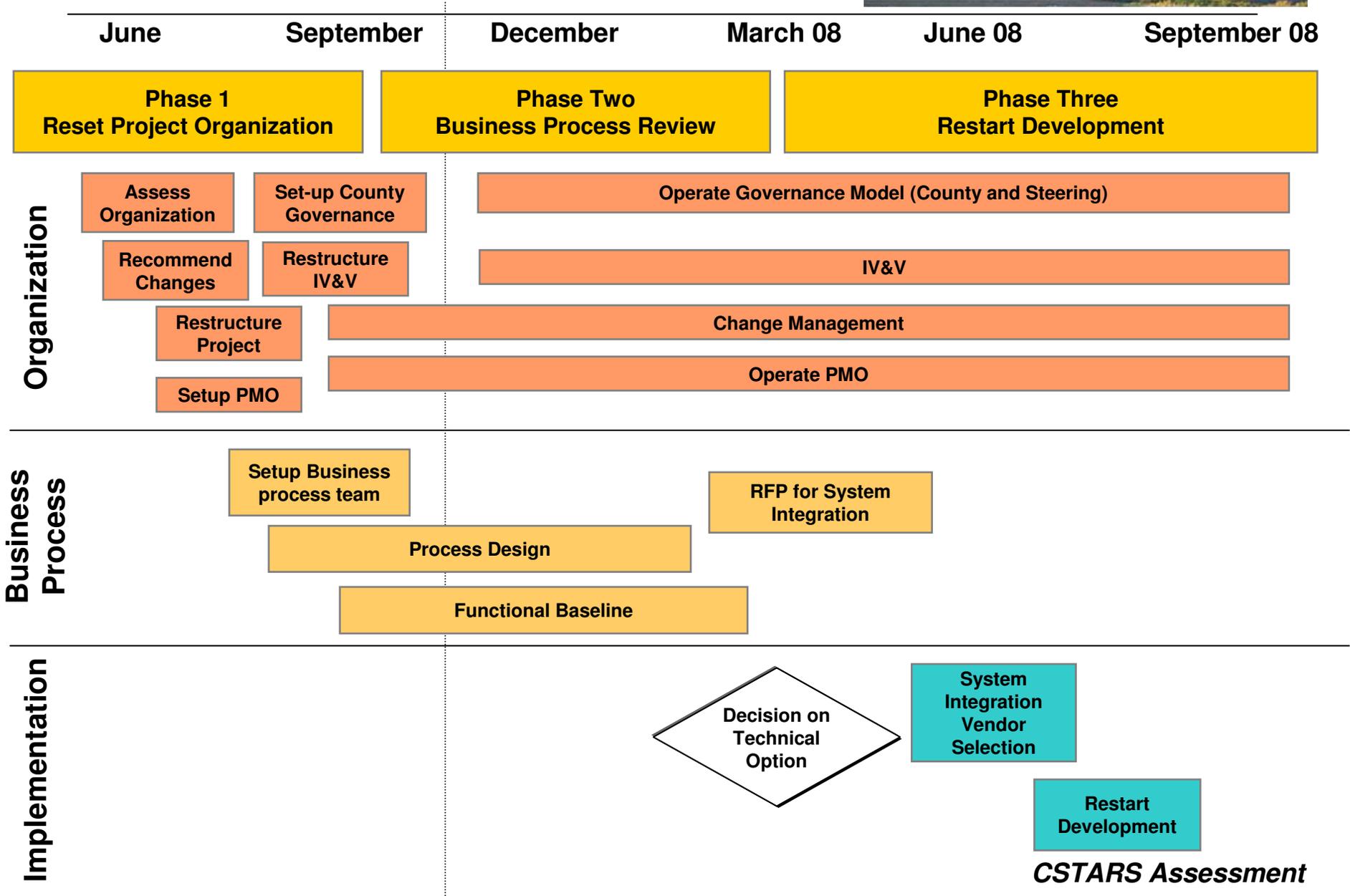
Step 3 – Understand the Business Processes



- ▶ Without a clear view on the business processes, the ability to establish a clear functional baseline will be nearly impossible.
- ▶ A focus on process improvements should be a priority – especially with self-service and other functionality which can reduce transaction time while simplifying the project.
- ▶ The business processes should be developed with a dedicated team of expert business personnel.
- ▶ The governance model for both State and County levels should allow for efficient, effective reviews of process improvements. The goal is to expedite a new system that meets functionality but also improves the process.
- ▶ Once functional baselines are established and agreed upon, the leadership can assess and determine the best technical solution.
 - ▶ If there are major process level changes, then it will be unlikely the Avanade solution will work.
 - ▶ If there are not major changes, then it is likely the solution may work.



Projected Implementation View





Implementation Plan View

Activity	Definition and Deliverable	Team Structure	Start	Duration	<u>Estimated Cost</u>
Align the organization and project	<ul style="list-style-type: none"> Assess the organization and structure the project team Review and optimize the project and county governance models 	<ul style="list-style-type: none"> Revenue hires organizational development consultant to structure new project Revenue provides a project sponsor and key business resources. Counties assigned responsibilities on governance board. Revenue senior management assigned to executive steering committee. 	07/01/07	<p>2 Months</p> <p>End Aug 31</p>	\$Up to 100k
Begin Business Process Re-Engineering (BPR)	<ul style="list-style-type: none"> Work with Revenue and County business experts to define the end-to-end business processes. Identify areas of improvement Produce detailed implementation roadmap IV&V for BPR setup. 	<ul style="list-style-type: none"> External consultants hired to produce business process documents. External consultant hired as program management office director. External consultant hired as change management (could be part of PMO) Revenue and County business experts assigned full-time to the project. County and Revenue governance boards begin process reviews. IV&V vendor selected and active. 	09/01/07	<p>4 Months</p> <p>End Jan 31 08</p>	<ul style="list-style-type: none"> Approximately \$500k



Implementation Plan View - Development

Activity	Definition and Deliverable	Team Structure	Start	Duration	Estimated Cost
Design and Development (Option 2)	<ul style="list-style-type: none"> Begin design and development efforts using the Avanade solution as a foundation. 	<ul style="list-style-type: none"> External consultants perform PMO, change management, quality assurance, data migration, and IV&V. New RFP released to identify system integrator. Revenue supports with business experts and IT staff. 	02/01/08	<p>18 Months</p> <p>End Mid2009</p>	<ul style="list-style-type: none"> N/A until BPR exercise
Design and development (Option 3)	<ul style="list-style-type: none"> Begin design and development efforts using a new solution as a foundation. 	<ul style="list-style-type: none"> External consultants perform PMO, change management, data migration, quality assurance, and IV&V. New RFP released to identify system integrator. Revenue supports with business experts and IT staff. 	02/01/08	<p>24 Months</p> <p>End 2010</p>	<ul style="list-style-type: none"> N/A until BPR exercise

These are estimates only and will be validated upon completion of the business requirements.



Appendix A – Information Sources

Understanding Information Sources



▶ Conduct Interviews

- > CSTARS Project Leadership
 - > Maren Rubino, CSTARS Project Sponsor
 - > Pat Chase, CSTARS Project Manager
 - > Kim Heldman, CSTARS Former Project Manager (2003 – 2004)
- > CSTARS Project Review Board
 - > PJ Taylor, County Representative
 - > Barb Harms, County Representative
 - > Brett Mueller, DOR CIO
- > CSTARS Business Users
 - > Sam Baca, Registrations
 - > Sharon Candelaria, Registrations
 - > Gayle Bielefeld, Helpdesk Supervisor
 - > Emily Garcia, Communications Center
 - > Dylan Ikenouye, Registrations

▶ Conduct Interviews, cont'd

- > CSTARS Business Users, cont'd
 - > Victoria Krupke, Coexistence
 - > Alma Lamas, Audit & Compliance
 - > Chris Lowe, Project Analyst
 - > Bob Morse, Accounting/Controller
 - > Yvette Saiz, Titles
 - > Cindy Stickel, TPV Supervisor
- > CSTARS and Business Trainers
 - > Libby diZerega
 - > Loraine Citrowske
 - > Julie Fall
 - > Jason Salazar
 - > Illya Scott
 - > Traci Spears
 - > Margie Spainhower

Understanding Information Sources



▶ Conduct Interviews, cont'd

- > CSTARTS Development Team
 - > Terri Krupke, Development Lead
 - > Dean Clinard
 - > Jerry Edwards
 - > Mohammed Elsheihh
 - > Mike Lichvar
 - > John Quinn
- > CSTARTS Database Administrators
 - > Frank Van Baelinghem
 - > Afshin Ghazvini
- > Avanade CSTARTS Team
 - > Tim Rowland, Program Manager
 - > Kim Baden, Testing Lead
 - > Rob Collins, Conversion/
Coexistence Lead
 - > Jeff Herzog, Development Lead

▶ Conduct Interviews, cont'd

- > Avanade CSTARTS Team, cont'd
 - > Chris Thompson, Technical
Infrastructure Lead
 - > David Torres, Architecture Lead
 - > Cem Urfalioglu, Project Manager
- ▶ SysTest IV&V Team
- ▶ Review Critical Documentation
 - > CO Motor Vehicle System Feasibility
Study
 - > CSTARTS Request for Proposal
 - > Avanade's CSTARTS RFP Response
 - > CSTARTS Training Materials
 - > Computer-Based Training
 - > Online Help
 - > Training Tips
 - > CSTARTS Foundation for Risk Analysis



Appendix B – Additional Background Information



CSTARS Timeline – Events & Milestones

- ◆ 8/00 - Feasibility Study Complete
 - ▶ 2/01 – Feasibility Study Scaled Back
 - ◆ 10/01 – RFP Issued
 - ◆ 5/02 – Avanade Awarded CSTARS Project
 - ◆ 11/02 –CSTARS Project Kick-off
 - ◆ 1/03 –Envisioning Stage Complete
 - ◆ 3/03 – SysTest Begins IV&V for CSTARS
 - ▶ 12/03 – Informal CSTARS Assessment
 - ▶ 12/03 – Attain Technologies Leaves
 - ▶ 1/04 – Problem with Group One SW ID'd; not addressed
 - ▶ 4/04 - “Notice of Nonperformance” for Avanade
 - ▶ 5/04 – Avanade Ordered to Stop Work
 - ▶ 7/04 – Contract Amendment 1; CSTARS Resumes
 - ▶ 4/06 – SysTest Leaves Project
 - ★ 9/06 – CSTARS Go-Live
 - ▶ 2/07 – VIPER issue surfaces
 - ☒ 4/07 – Roll back to legacy

2000

2001

2002

2003

2004

2005

2006

2007



Functional Issues and Gaps

| Issue or Gap | Detail |
|---|---|
| Efficiency | <ul style="list-style-type: none"> ▶ Workflow: What had been possible with one screen in DDP, takes 4 – 5 in CSTARs. A task that had taken ~1 minute in DDP, takes 3 – 4 in the CSTARs application. ▶ System Response: CSTARs experienced system performance issues in production. |
| Information is difficult to access and/or is not stored | <ul style="list-style-type: none"> ▶ Record detail: Only able to view detail for records in active status. ▶ Print date: The CSTARs application does not store the print date for a title. ▶ Agent: The system does not store what employee created or modified the record. ▶ Rejected records: For rejected records, it does not store the rejection reason (must access via microfilm), and the rejection date is not easily assessable. ▶ Comments: Comments are stored on each individual record rather than at the master record. ▶ Non-posting transactions: CSTARs does not provide enough information to correct the record, which creates a reliance on paperwork. ▶ Addresses: Fewer types of addresses stored in CSTARs than in DDP. Creates problems for county processing and reporting. ▶ Out of State Delete: System does not store to what state the title was transferred. |



Functional Issues and Gaps

| Issue or Gap | Detail |
|--|---|
| Accounting Capabilities | <ul style="list-style-type: none"> ▶ No audit trail: CSTARS does not accommodate a separation of duties, audit trail, or reporting of fee adjustments. ▶ Receipt of payment: Not able record customer under/over payments. |
| User Roles | <ul style="list-style-type: none"> ▶ There are no user groups or separate defined roles within CSTARS application. All users have the same access to all functions. |
| Title Tracking | <ul style="list-style-type: none"> ▶ The Title tracking capabilities are inadequate. Cannot view the progress of a title through the system. The steps/actions are not displayed in chronological order. Not able to identify which record is the master file. |
| Document Tracking | <ul style="list-style-type: none"> ▶ No capability for document management, so the physical location of paperwork is difficult to identify. |
| Locator/Taxes | <ul style="list-style-type: none"> ▶ The Group One address standardization file does not match the county locator files, thus incorrect taxes are applied to transactions. |
| Depot, Transporter and Manufacturer plates | <ul style="list-style-type: none"> ▶ CSTARS was not calculating the fees properly so fees had to be calculated and adjusted manually. |

Functional Issues and Gaps



| Issue or Gap | Detail |
|----------------------|--|
| VIN Explosion | <ul style="list-style-type: none"> ▶ The VIN Explosion program does not fully and/or correctly populate vehicle information. |
| Batching | <ul style="list-style-type: none"> ▶ Can only perform one action within the entire batch. Additional programming to group -records into separate batches based on action required: state-printed titles, county-printed titles, title corrections, and titles designated to go directly to history. ▶ Could not batch records based on work group; entire department included in same batch. |
| Auto Renewal | <ul style="list-style-type: none"> ▶ The system process would execute incorrectly and not pull inventory or assign year tab serial numbers that did not exist. |
| Registration Process | <ul style="list-style-type: none"> ▶ Personal Plates: The CSTARS would change plate types, double issue the plates, change information on plates, and allow for the ordering of duplicate personalized plates. ▶ Exempt Plates: Renewal of exempt plates history showed “expired” because CSTARS was not updating. ▶ Government Plates: Transferring and renewing of Government State of Colorado plates was not allowed by the application. ▶ Fleet Plates: Could not put in fleet numbers (also called queue number) for state agents to populate name/address renewal notices. ▶ Slow Moving Machinery 2% Program: This functionality does not exist in CSTARS. |

Functional Issues and Gaps



| Issue or Gap | Detail |
|---------------------------------------|--|
| Holds | <ul style="list-style-type: none"> ▶ Records on “hold” can still be transacted on. |
| Title Number Nomenclature | <ul style="list-style-type: none"> ▶ Not able to distinguish between dummy, salvage, or regular titles. In addition, there is no title numbering nomenclature to distinguish the location at which the title was issued. |
| Posting of Titles with Multiple Liens | <ul style="list-style-type: none"> ▶ Titles with multiple liens are not able to post. Work around to delete the record, then recreate the record, change the title number back to the county-issued title number, and re-issue registration/plates. |
| Plate transfers | <ul style="list-style-type: none"> ▶ When transferring plate from an old to new vehicle; the system was not removing plate from old record, thus showing 2 active records. |
| Undercover Agents | <ul style="list-style-type: none"> ▶ The CSTARS application compromised the identity of undercover agents. |



Summary of Change Requests Required for CSTARS County Go Live

27 change requests requiring 5,000+ hours of development time with a price tag of \$1 million are required before the counties go live on CSTARS.

| Item | Change Request ID | Use Case | Planning | Design | Execution | Stabilizing | Deploying | PMO | HOURS | COST |
|------|-------------------|---|----------|--------|-----------|-------------|-----------|-----|-------|---------------|
| 1 | PROD00004404 | Title should not cancel registration when specific title type is indicated | 32 | 90 | 90 | 90 | 9 | 18 | 329 | \$ 62,839.00 |
| 2 | PROD00006513 | Prior Ownership Tax minimum amount should be \$1.50 | 3 | 8 | 8 | 12 | 2 | 2 | 35 | \$ 6,885.00 |
| 3 | PROD00006705 | Application of Insurance Information from Explore | 7 | 20 | 20 | 20 | 2 | 4 | 73 | \$ 13,943.00 |
| 4 | PROD00006776 | Surr. Doc., Tax Value, Alt. Tax Value, Tax Class and CWT on Search Screen and Inquiries | 25 | 72 | 72 | 72 | 14 | 14 | 269 | \$ 51,379.00 |
| 5 | PROD00006789 | Title Complete Cards for CP batches | 25 | 72 | 72 | 72 | 14 | 14 | 269 | \$ 51,379.00 |
| 6 | PROD00007237 | Distribution of Clerk Hire Fees | 34 | 96 | 96 | 96 | 19 | 19 | 360 | \$ 68,760.00 |
| 7 | PROD00007245 | Document Tracking - Mail To | 35 | 100 | 100 | 100 | 10 | 20 | 365 | \$ 69,715.00 |
| 8 | PROD00007712 | Print log time and most recent title transaction record on batch slips | 10 | 28 | 28 | 44 | 3 | 6 | 119 | \$ 22,729.00 |
| 9 | PROD00008507 | SVW (Special Use Truck) Fee Charts | 22 | 64 | 64 | 64 | 6 | 13 | 233 | \$ 44,503.00 |
| 10 | PROD00008669 | Basic Emissions Program | 10 | 28 | 28 | 56 | 4 | 7 | 133 | \$ 25,403.00 |
| 11 | PROD00008807 | Remove/Delete Records from a Batch | 29 | 84 | 84 | 84 | 13 | 42 | 336 | \$ 64,176.00 |
| 12 | PROD00008882 | Sus Title Applications and Batching | 3 | 8 | 8 | 14 | 1 | 4 | 38 | \$ 7,268.00 |
| 13 | PROD00008897 | Batch Research List display | 2 | 6 | 6 | 6 | 1 | 2 | 23 | \$ 4,393.00 |
| 14 | PROD00008995 | Endorsement Options | 19 | 54 | 54 | 54 | 8 | 14 | 203 | \$ 38,773.00 |
| 15 | PROD00009002 | Duplicate Title Fee with issuing County | 18 | 52 | 52 | 52 | 8 | 13 | 195 | \$ 37,245.00 |
| 16 | PROD00009004 | .01% Sales Tax | 6 | 16 | 16 | 16 | 2 | 4 | 60 | \$ 11,460.00 |
| 17 | PROD00009015 | Personalized Plate | 10 | 28 | 28 | 28 | 4 | 7 | 105 | \$ 20,055.00 |
| 18 | PROD00009056* | Dealer License and Plate Expiration | 22 | 64 | 64 | 64 | 10 | 16 | 240 | \$ 45,840.00 |
| 19 | PROD00009133 | Tax Rate Changes | 7 | 20 | 20 | 26 | 3 | 10 | 86 | \$ 16,426.00 |
| 20 | PROD00009149 | Use and Maintenance of County Addresses | 13 | 36 | 36 | 36 | 5 | 18 | 144 | \$ 27,504.00 |
| 21 | PROD00009168 | Printing of SMM and Z-tab tab numbers | 15 | 44 | 44 | 44 | 7 | 22 | 176 | \$ 33,816.00 |
| 22 | PROD00009478 | Change Effective Date Label on Receipt | 15 | 44 | 44 | 44 | 7 | 22 | 176 | \$ 33,816.00 |
| 23 | PROD00009502 | Personalized Plate Order Report to use Legal Address County Code | - | - | - | - | - | - | n/a | \$ - |
| 24 | PROD00009521 | Remove functionality to delete history on Deep Undercover | - | - | - | - | - | - | n/a | \$ - |
| 25 | PROD00009566 | Suspense Titles | 3 | 8 | 8 | 8 | 1 | 4 | 32 | \$ 6,112.00 |
| 26 | PROD00009590 | CSTARS Geo-Locator Alternate Design | 43 | 124 | 124 | 154 | 25 | 62 | 532 | \$ 101,812.00 |
| 27 | PROD00009591 | Generating Lien Reception #s | 65 | 186 | 186 | 186 | 28 | 93 | 744 | \$ 142,104.00 |

Bill Rate is contractual FY07 Alternative Blended Rate \$191.00

| | |
|-------------|-----------------|
| TOTAL HOURS | 5,275 |
| TOTAL COST | \$ 1,007,525.00 |

* The estimate assumes Option II implementation stated in the change request description



Required Change Requests for County Go-Live

| CR No. | Cost | Change Request | Description |
|--------|----------|---|---|
| 4404 | \$59,697 | Title should not cancel registration when specific title type is indicated. | If a title type of Lease, Buyout, Add/Drop Name, or Add/Drop Lien is chosen, and an existing registration is associated to the vehicle, when the transaction is completed the registration should still be associated with the record. Currently, the registration is dropped off the record. |
| 6513 | \$6,714 | Prior Owner Tax Minimum | When calculating the prior owner tax, the minimum amount should be \$1.50 as opposed to any exact amount that is less than \$1.50. |
| 6705 | \$13,943 | Application Of Insurance Information | The application of inbound insurance information from Explore should be based on the title number rather than the VIN to ensure that insurance information will not transfer inadvertently when there is a change in ownership. |
| 6776 | \$52,076 | Surrendered Document Type, Taxable Value, Alternate Taxable Value | Surrendered Document Type, Taxable Value, Alternate Taxable Value, Tax Class and CWT should display on the Search Screen Detail and print on both the Employee Inquiry and Customer Inquiry reports. |
| 6789 | \$52,076 | Title Complete Cards for County Print Batch | A title complete card should print if processing as a County Print with a lien holder. When processing a County Print mortgage title, the customer needs to be notified that their title has been processed so they can get their plates. |
| 7237 | \$68,760 | Dist of Clerk Hire Fees should be retained by processing county. | The Clerk Hire fees for cross-county transactions should be retained by the processing county rather than be passed to the legal residence county. |
| 7245 | \$69,715 | Doc Track Mail To | The Mail To field should allow the user to select owner, lien holder, dealer, bank, etc. as the recipient of the Doc Track paperwork. |



Required Change Requests for County Go-Live

| CR No. | Cost | Change Request | Description |
|--------|----------|--|---|
| 7712 | \$22,729 | Print log time and most recent title transaction record on batch slips | Batch slips should print/display only the most current title transaction record and display the transaction (log) time. |
| 8507 | \$44,503 | SVW (Special Use Trucks) Fee Charts | Update the fee chart to include CWT weights greater than 999. Currently any SVW (Special Use Truck) vehicle weighing over 999 in the CWT field |
| 8669 | \$25,403 | Basic Emissions Program - Legislation 12/31/06 | Owners in the Basic Area (portions of Weld, Larimer, and El Paso counties) are no longer required to obtain emissions tests to register their vehicles as of January 1, 2007. |
| 8807 | \$64,176 | Remove/Delete Records from a Batch | Users should be able to remove incorrect or extra records from a batch. |
| 8882 | \$7,258 | Suspense Title Applications and Batching | Although titles are not printed for Suspense titles, a Title Application must print and the records must be batched. |
| 8897 | \$4,393 | Batch Research list display | The Batch Research Panel/List should display records sorted by Title Number. |
| 8995 | \$38,773 | Endorsement Options-Postal soft (Defect?) | MISSING DEFINITION |
| 9002 | \$37,245 | Duplicate Title Fee with Issuing County (Defect?) | Duplicate Title Fee should remain the county issuing the duplicate title. |



Required Change Requests for County Go-Live

| CR No. | Cost | Change Request | Description |
|--------|----------|---|---|
| 9004 | \$11,460 | .01% Sales Tax | State Tax of .01% should be applied to commercial trucks, truck tractors, tractors, semi-trailers, or vehicles used in combination therewith that have a GVWR (not GVW) in excess of 26,000 pounds and a purchase or lease date between July 1, 2001 and June 30, 2002 (House Bill 00-1259) Any of these vehicles with a GVWR greater than 26,000 pounds and purchased/leased prior to July 1, 2001 or after June 30, 2002 is assessed a 2.9% tax rate. |
| 9015 | \$20,055 | Personalized Plate fees | The new registration with the transfer of an expired personal plate should charge: <ul style="list-style-type: none"> • \$25 annual fee • \$25 transfer fee • Either \$2.08 / month for Regular Personalized or \$4.16 / month for Designer Personalized, (prorated) |
| 9056 | \$45,840 | Dealer Expiration (plate vs. license) | When renewing dealer license plates, the fees calculate incorrectly when the expiration month for dealer licenses does not coincides with the expiration month of he dealer's plates. |
| 9133 | \$16,426 | Tax Rate Changes | The geographic areas for the Scientific & Cultural Facilities District (SCFD), the Regional Transportation District (RTD), Scientific, and the Football District (FD) sales and use tax need to be modified. |
| 9149 | \$27,504 | Use and Maintenance of County Addresses - Option 2A | Additional functionality is required for county addresses: <ul style="list-style-type: none"> • Postal Permit Number • Lockbox Address • Mailing Address • Physical/Office Address CSTARS must be able to distinguish between these addresses. |



Required Change Requests for County Go-Live

| CR No. | Cost | Change Request | Description |
|--------|-----------|---|---|
| 9168 | \$33,616 | Printing of SMM and Z-tab tab numbers | Print the (current/valid) serial numbers for SMM and Z-tabs in the plate field and the tab field on all registration receipts and renewal documents. |
| 9478 | \$33,616 | Change Effective Date Label on Receipt | For all transactions that generate a Colorado Registration/Ownership Tax Receipt, the label "Effective Date" should be changed to "Business Date" and should be populated with the Transaction Date. |
| 9502 | TBD | Personalized Plate Order Report to use Legal Address Code | .Use the legal address code in the Personalized Plate Order Report |
| 9521 | TBD | Remove functionality to delete history on Deep Undercover | Do not allow users to delete history on deep undercover operatives. |
| 9566 | \$6,112 | Suspense Titles | Upon selecting the Title-Print task for a suspense title, the user should get an error message stating, "This is a suspense record. The selected transaction is not permitted on this record." |
| 9590 | \$101,612 | CSTARS Geo-Locator Alternate Design | CSTARS will provide an address to the legacy locator file (Locator Service), and the Locator Service will return a matched and standardized address along with qualifying taxes and fees. The legal address must match before the operator can proceed. Title and registration addresses will be standardized only (match not required). The Locator Service will return both the legal/taxing city and the mailing city. |
| 9591 | \$142,104 | Lien Reception Number Generation | Modify the way that lien reception numbers are assigned. All numbers, assigned or voided, must be accounted for. A count total of unique lien numbers assigned must be added to the Daily Lien Journal report. |



Appendix C – Detailed Findings



Summary of Assessment Findings

The critical issues are:

- > The business functionality of the CSTARs application does not meet the needs of the State users.
- > There is a major gap between the needs of the county and the current functionality provided by the CSTARs application. We believe the counties will resist this system implementation, and deployment of this application with its current functionality will seriously impact state/county relationships and further reduce the Department of Revenue's credibility.
- > The management structure within the Department of Revenue is not aligned to be effective in large project/program delivery.
- > The Department of Revenue does not have the operational capability to manage, develop, and operate a system of this complexity. Revenue does not have the IT talent (including IT project management) necessary for this type of system implementation.



Summary of Assessment Findings

Continuation of critical issues:

- > The project culture has not been one of open and constructive issue resolution. Issues and problems were not addressed and there is evidence whistle blowers or voices of dissent were shifted from the project. This culture resulted in a break down of trust within the management team.
- > IV&V was ineffectively structured to proactively identify and mitigate project risks.
- > The selection of a vendor with limited qualifications for developing large scale titling and registration system functionality was a calculated risk that was not managed effectively.
- > The management and governance structure for the project was not nearly sufficient and usually depended upon a sole project manager with limited capability.
- > The IT department was not aligned with the project and this created major knowledge transition problems.
- > The Department of Revenue did not adequately engage the project with the necessary business resources with the appropriate business level expertise.



Summary of Assessment Findings

Continuation of critical issues:

- > Program management functions were limited or non-existent – including key issue management, knowledge management, document version control, contract and vendor management, schedule and resource scheduling.
- > County involvement has not been nearly sufficient throughout the life of this project.
- > Focus on improving business processes was discouraged by Revenue management resulting in enablement of bad processes.
- > There was a major proliferation of functional work-around manual solutions created once the CSTARS application went into production.
- > Quality assurance and testing processes were not nearly adequate. Revenue did not own the QA testing management tool or have clear visibility into testing processes and results for anything prior to User Acceptance Testing. Avanade did not conduct sufficient functional testing.
- > The application was developed iteratively but with no full business process view. This resulted in functional modules that did not work well together. Super User training illustrated a complete functional break-down when transactions were attempted from beginning to end to end.



Summary of Assessment Findings

Continuation of critical issues:

- > Turn-over and retention stability were major issues for the implementation and resulted in continued knowledge deficiencies, counter-productive efforts, confusion, impacts to the deployment schedule, understanding of requirements.
- > Acceptance criteria were too ambiguous and the schedule for proper deliverable review was unrealistic.
- > The review and approval of key project documents was ineffective.
- > The RFP was used as the primary requirements document which was a fundamental flaw in the design. The RFP did not include the feasibility assessment information.
- > Revenue did not have sufficient IT expertise to understand and approve key architectural decisions. Communication from senior management was ineffective across the project.
- > Organizational change management was not identified as an element of the project. There was no one assigned as the CM expert. Change management seemed to be focused on just training the eventual end users and not on the key tenants of the change.



Summary of Assessment Findings

Continuation of critical issues:

- > Knowledge transfer to the IT and business users was non-existent. There is still no single and sufficient authority on the CSTARS system within Revenue.
- > Requirements do not match the end-user training documents. There is no traceability across the development lifecycle.
- > New team members were not orientated when they came onto the project.
- > Co-existence was a poorly constructed concept and was problematic from the start, but a decision was made to implement regardless of the risks.
- > Data migration and planning was inadequate and started too late, which resulted in issues with co-existence, poor testing data, and downstream data issues.

Understanding the Organizational Issues



| Organization Assessment Question | Answer | Degree of Impact | The Result |
|--|--------|------------------|--|
| Is the organization aligned to deliver and realize the CSTARS strategic vision? | NO | Severe | <ul style="list-style-type: none"> ▪ The right skills and personnel were not adequately leveraged for the project. ▪ Sense of purpose is missing from the project. ▪ Potential for groups to work against each other. |
| Does the organization foster collaboration and open issue resolution? | NO | Severe | <ul style="list-style-type: none"> ▪ Issues are not openly addressed and resolved. ▪ Issues have become far more problematic. ▪ Project staff morale is low and turnover is high. ▪ Cost and schedule have been impacted adversely. |
| Does the organization allow for innovative thinking? | NO | Severe | <ul style="list-style-type: none"> ▪ There is little process improvement or “new” ways of doing business innovation. |
| Does the organization recognize and reward positive behavior? | NO | Severe | <ul style="list-style-type: none"> ▪ Personnel turn-over is high – especially with key technical personnel. ▪ Morale for the project team is low. |
| Does the organization have the proper governance structure for this project? | NO | Severe | <ul style="list-style-type: none"> ▪ The project has failed to deliver on schedule and within budget. ▪ Issues and scope have not been managed – leading to major functional and technical problems. ▪ The vendor has not been effectively managed. |
| Does the organization have the technology capability to develop and operate the CSTARS system? | NO | Severe | <ul style="list-style-type: none"> ▪ Revenue has been unable to meet the technical and business staffing for this project. ▪ Revenue will not be able to operate this system. |
| Is there consensus on the benefits and reason for the CSTARS Project. | NO | Severe | <ul style="list-style-type: none"> ▪ Counties and other key business stakeholders have become resistant. ▪ There is no sense of collective purpose. |

Organizational Structure of Revenue is a Foundational Issue

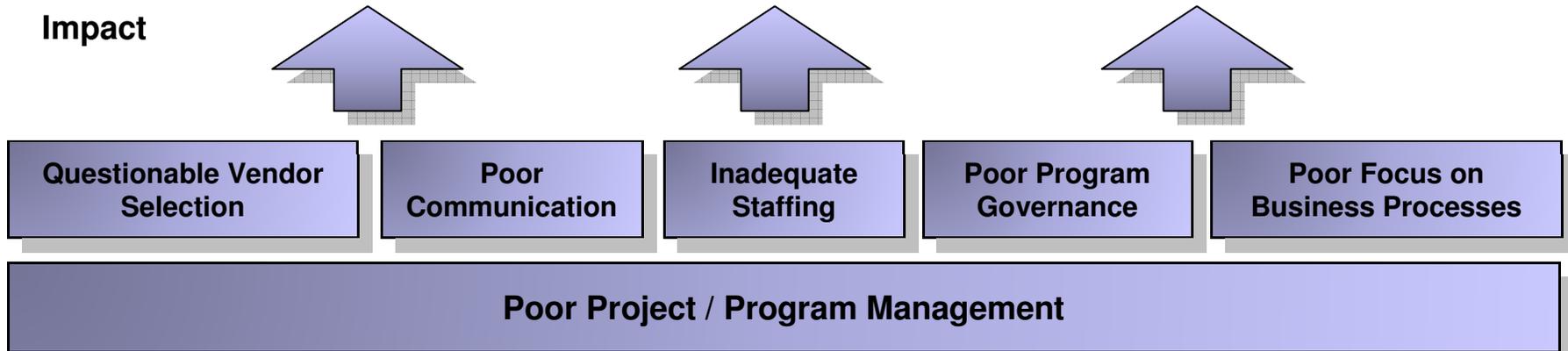


We strongly believe the foundational issue with CSTARs is with the organization.

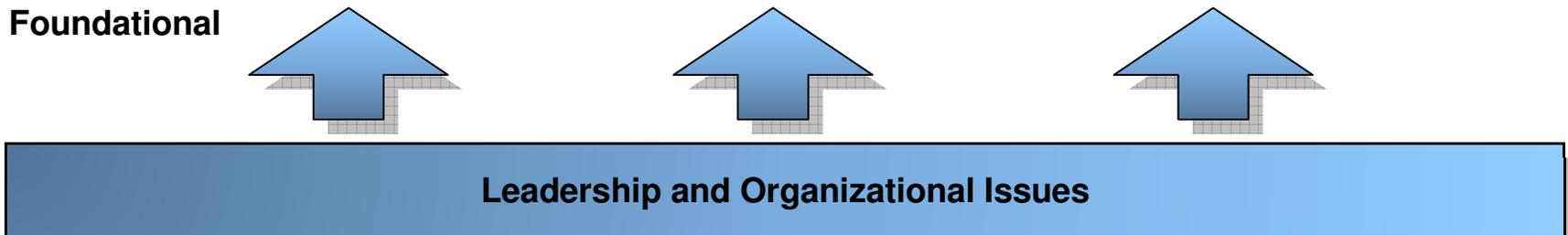
Symptoms



Impact



Foundational





Organizational Issues – Executive Management

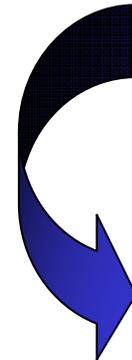
Issues

- The right representatives from the Department of Revenue were not selected to participate in the CSTARS project.
- The Project Steering committee did not include the right representation.
- There was no orientation process for new project team members.
- Communication between the State and counties was largely ineffective. Counties were unaware of key issues.
- Open communication was not encouraged.
- DOR resources were not allocated enough time to be effectively engaged on the CSTARS project.
- Technical resources were allocated to the project without being assigned responsibilities.



Impact

- The CSTARS system lacks key pieces of functionality.
- Quality of the system is compromised.
- Project is reactive instead strategic.
- Poor communication - key stakeholders and team members are unformed.
- Very high potential for project failure.
- New project members struggle to get up to speed on the project.
- Trust between the counties and the state was broken.
- There is a low confidence in the project.
- Technical resources' time was wasted and the opportunity to gain system knowledge was lost.



Related Recommendations

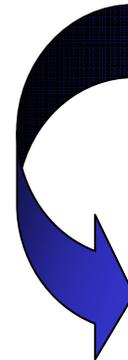
- Conduct a comprehensive stakeholder analysis. Identify and involve project team members, steering committee members and stakeholders early in the process.



Organizational Issues – Project Management and Governance

Issues

- The project didn't have an adequately-experienced project manager who has the necessary authority to manage DOR resources and the vendor.
- Minimal project oversight – Project Review Board not effectively utilized.
- Design decisions were not documented.
- The change request process was highly problematic.
- Requirements and design documents were not centrally logged.
- No configuration management process existed. No version control for design documents or code existed. Code changes were made directly in the production system.
- The functional baseline for end-to-end business processes was not clearly defined.



Impact

- Lack of requirements logging created a lack of accountability for Avanade.
- Additional cost for functionality gaps categorized as change requests.
- Users' feedback of design documentation was not always incorporated back into the design documents prior to signoff.
- Production build would be modified without communication to the user community.
- Different understandings existed among team members regarding what had been decided.

Related Recommendations

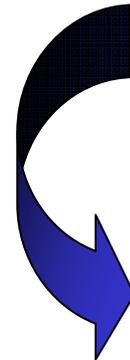
- Implement a Program Management Office (PMO) to formalize project management processes and procedures.



Organizational Readiness

Issues

- Plan to support counties for the rollout of the CSTARs application was inadequate.
- Technical resources to support the CSTARs application in production were not planned for or hired.
- Training documents were created before system functionality was complete.
- User documentation is incomplete, and it does not map to functional requirements.
- Required future state organizational changes, including how the system will be managed and supported has not been defined.
- Central communications plan does not exist.
- Team did celebrate success – communication is usually reactive and negative.



Impact

- County users would have encountered lots of production problems and customers would have been severely impacted.
- The DOR would not have been able to provide technical support for the CSTARs application.
- Training documents quality was compromised.
- Users fail to use the system effectively.
- There is an increase in inefficiencies, data errors, and overall business process failures.
- Proliferation of manual processes to work around unknown or unaccepted changes to business processes.

Related Recommendations

- Assign a dedicated change management team to coordinate and execute change management activities.

County Governance Issues



Issues

- County involvement was insufficient throughout the project.
- Counties did not commit to the concept of the CSTARs project.
- The governance model used did not have sufficient county involvement.
- Change management and communication for the counties was inadequate.
- Counties need to better understand the tangible benefits for this new system.
- The current business model is not in the best interest of the citizen. Citizens should be allowed more alternatives such as self-service registration.
- Expectation management and change control processes were ineffective with the counties.
- The counties should have committed some personnel to the project – especially requirements definition.
- An effort should have been made to better improve and standardize the business processes.



Impact

- Counties were not active participants.
- Counties were not vested in the success of the project.
- There was confusion as to what would be “acceptable” functionality at the county level
- Counties became publicly resistant to the State’s efforts.
- Eventually, the county governance issues helped the project fail.



Recommendations

- Install a county governance board to make sure counties are sufficiently involved, connected, and supportive.
- Counties should provide resources (personnel) to support the effort.
- Review and revise the current business model so it provides incentives for county participation.

Understanding and Improving Business Process



Issues

- Project wasn't designed to be a process improvement project.
- Avanade was contracted only to build the architecture and technology – not to build process documentation/improve processes.
- The Department of Revenue was supposed to have deep business process expertise but these resources and this knowledge was not made available.
- The Department of Revenue did not fully understand the end to end process view fully.
- Key business rules and other process elements are buried within the legacy system. However, the group supporting the legacy application was not supportive of the CSTARS team.
- Business processes should have been challenged and improved.
- There was significant resistance from the county when changes to business processes were identified – such as centralized distribution of plates, self service functionality, and cross county transfers.

Recommendations

- The Department needs an accurate end-to-end view of the business processes.
- The Department should review where key processes could be improved, including challenging existing business models with the county.
- Self service and cross county transfers are in the best interest of the citizen and should be made a priority for future implementations.
- The program management office function must be developed to strictly manage the scope of business process definition and subsequent development.
- A strong change management and communications team should be employed to ensure the system not only realizes the process benefits, but keeps stakeholders on task to realize the implementation goals and objectives.
- The successful implementation will require a relevant business process model that has “buy in” from the counties and state employees. Without this alignment, future implementations will likely fail.



Requirements Management

Issues

- A comprehensive requirements document was not created. No end-to-end system view as created, and the components of functionality interactions were not documented.
- Requirements were never fully defined and documented, rather the RFP itself was used to define requirements.
- County representatives had very little participation in the development of requirements and design.
- How the previous legacy system was used was key in establishing CSTARS system design – instead of business process modeling.
- The specific business rules and legislative requirements were not clearly understood by Avanade.
- Data and how it is used was not adequately captured.
- Requirements are not traceable through the design, code, test cases, and user documentation.



Impact

- Key gaps in CSTARS functionality: Business rules were not incorporated into the CSTARS application.
- Created lack of accountability for Avanade to develop a system that met the DOR's needs.



Related Recommendations

- Create a comprehensive business requirements document, utilizing business process re-engineering.
- Define process for stakeholder sign-off of requirements.



Independent Verification & Validation

Issues

- The CSTARS application was not validated against the business users' requirements by SysTest Labs.
- The CSTARS application was not verified that it worked as it was intended and expected.
- Project team members did not know that IV&V was part of the CSTARS project.
- IV&V started too late in the project.
- The IV&V contract was setup to be ineffective and based upon deliverable review.
- The IV&V findings were largely ignored – changes were not made to correct project behavior based upon IV&V.
- IV&V team didn't have the sufficient authority to stop the project based upon high risk issues.
- IV&V was structured to report to Revenue – compromising the independence of the review.

CORE ISSUE: Project Governance



Impact

- The CSTARS project faced greater risk of the work product not meeting the formal specifications and progress not being made according to plan. Both of these problems were encountered.
- The project failed despite key issues and risks that were identified and communicated by the IV&V vendor.
- Some business rules were not incorporated into the CSTARS application.

Related Recommendations

- Structure IV&V to report independently to another entity.
- Structure IV&V with more authority, visibility, and accountability.



Design & Development

Issues

- How the previous legacy system was used was key in establishing CSTARS system design – instead of business process modeling.
- Design is not traced to requirements documents or use cases.
- Development process was too iterative.
- The process to validate design was ineffective. Design documents were not in a format which end users could fully understand – they were technical and abstract. Business users were not given adequate time to fully review deliverables.
- Department of Revenue CSTARS project team members were not adequately integrated in the system design and development.
- Data architecture and modeling has not been documented.
- CSTARS was developed in an experimental language (a combination of XML and C#).



Impact

- Incorrect requirements and design problems were not identified.
- DOR technical resources did not have a deep understanding of the CSTARS system.
- The system is more difficult to support.
- The CSTARS application has severe gaps in functionality.

Related Recommendations

- Present system design as concretely as possible.
- Involve DOR technical resources more integrally in the design and development process.

Quality Assurance



Issues

- A comprehensive test plan does not exist.
- Insufficient unit testing was performed for each build before it is released for user acceptance testing.
- Test cases are inadequate – they were created by the Avande rather than the business users. Test cases do not map to requirements or design documentation.
- test data was not sufficient for testing. It was created, rather than sampling real data.
- When addressing system defects, the symptoms of a problem were fixed, rather than addressing the core issue.
- The test version of CSTARTS was not on the current production build.
- Acceptance criteria were not defined to determine the acceptability of test cases.
- Resolution of defects was not always documented.



Impact

- Business users time was ineffectively utilized since they were hindered by bugs that should have already been documented and fixed prior to their involvement.
- System design was not effectively tested, and functionality was not truly verified.
- Production problems re-occurred.
- Testing of defect fixes was not always possible.
- Functionality did not meet the end user's needs or requirements.

Related Recommendations

- Create a comprehensive test plan, defining unit, string, system, and user acceptance testing.
- Execute against the testing plan.

Contract/Vendor Management



Issues

- The vendor selection process was questionable, and the chosen vendor had weak qualifications.
- The CSTARTS contract was not reviewed by legal representation on behalf of the state.
- The contract wasn't structured to benefit the state.
- The IV&V contract was structured ineffectively and should have been focused on ensuring independence.
- The incentives to "finish" the project were ineffective.



Impact

- The contract was written in favor of the vendor, and the state was at a legal disadvantage.
- Avanade was not held accountable for creating a system that met the DOR's requirements.
- Project difficulties were not identified and addressed as early as they could have been.
- IV&V was compromised and rendered ineffective.



Related Recommendations

- Implement the procurement / contract recommendations from OIT which are currently being developed.