



# **Report on the Independent myDEQ Feasibility Assessment**

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**Prepared by LifeCycle Delivery for submission to  
the Arizona Department of Environmental  
Quality and the Arizona Joint Legislative Budget  
Committee**

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# Table of Contents

- INTRODUCTION..... 1
- KEY MESSAGES, FINDINGS, COMMENDATIONS and RECOMMENDATIONS..... 2
  - 1. EXECUTIVE MANAGEMENT SUPPORT ..... 3
  - 2. USER INVOLVEMENT ..... 6
  - 3. EXPERIENCED PROJECT MANAGEMENT RESOURCES ..... 8
  - 4. CLEAR BUSINESS OBJECTIVES .....11
  - 5. MANAGED SCOPE.....14
  - 6. RESPONSIVE BUSINESS REQUIREMENTS PROCESS .....16
  - 7. STANDARDIZED INFRASTRUCTURE AND TECHNICAL ARCHITECTURE .....20
  - 8. SKILLED AND AVAILABLE STAFF .....23
  - 9. FINANCIAL (BUDGETARY) AND VENDOR MANAGEMENT .....24
- CONCLUSION .....26
- SUMMARY OF RECOMMENDATIONS.....27

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## INTRODUCTION

This report documents an independent evaluation team's assessment of the Arizona Department of Environmental Quality (ADEQ) myDEQ E-Licensing Web Portal Initiative as required by *Arizona Revised Statutes (ARS) 41-714* and stipulated by the Arizona Joint Legislative Budget Committee (JLBC) public hearing of October 29, 2013. LifeCycle Delivery, Inc. (LCD) was retained by the Arizona Department of Environmental Quality (ADEQ) to serve as the independent evaluation team completing an aggressive three week assessment of the myDEQ initiative subject to the following timetable:

<b>Tasks / Deliverables</b>	<b>Due Date</b>
<b>Assessment Kickoff Meeting</b>	2/6/2014
<b>Completed Analysis Work</b>	2/28/2014
<b>Submit Draft Report</b>	2/28/2014
<b>Meet with Key Stakeholders to review Draft Report</b>	3/10/2014
<b>Prepare and Present Final Report</b>	3/14/2014

The assessment's objectives include determining the feasibility and viability of:

1. the implementation of myDEQ's (Phase 1 and 2) selected project management methodologies by systematically reviewing and participating in project management activities, meetings and artifacts
2. myDEQ's (Phase 1 and 2) technical architecture design and proposed deployment by reviewing technical artifacts and interacting with myDEQ technical leadership and resources
3. delivering proposed myDEQ artifacts and ADEQ business transactions within ADEQ's financial estimates of the myDEQ project phases 1 and 2
4. providing real value to potential myDEQ stakeholders

When completing these objectives, we executed an accelerated implementation of Information Technology Project Quality Assurance processes to determine whether the vision of myDEQ brings quantifiable value to ADEQ's stakeholders and Arizona citizenry while effectively expending the investments of ADEQ's fee paying permittees and Arizona's taxpayers. Independent technical, financial and managerial expertise were leveraged to assess whether myDEQ and the myDEQ initiative are:

- leveraging Key Measures of Project Success,
- being well engineered,
- aligned with Arizona's strategic vision and tactical standards,
- governed by an appropriately scaled functional Enterprise Performance Life Cycle (EPLC) framework,
- supported by a stable, transparent, structured organization with an empowering culture,
- sustainable and maintainable beyond the build phase(s),
- meeting and exceeding Arizona and ADEQ's complex environmental protection management requirements.

Our team analyzed myDEQ’s history, current state and future roadmap resulting in the generation of a set of key messages, findings, commendations and recommendations. Our analysis involved reviewing hundreds of artifacts, researching and speaking with other states (Massachusetts, Ohio, Florida and West Virginia) that are currently or are planning to develop independent environmental quality e-Document solutions and speaking with dozens of myDEQ partners and stakeholders that included:

- ADEQ myDEQ team members
- ADEQ leadership
- Vendor partner team members and leadership
- ADOA-ASET leadership and technical support
- Policy makers
- Legislative Fiscal and Financial Analysts
- Key Integrated Technologies Product Experts (e.g. WSO<sub>2</sub>)
- Future myDEQ Users serving as User Design Representatives
- Independent Enterprise Architects
- Independent Network and Infrastructure Engineers
- Independent Agile Technologists
- Independent RallyDev SMEs

In all of this research we paid particular attention to work plans, technical architectures, Arizona standards alignment, staffing, budget management, culture, processes and timelines. Throughout this engagement, especially during the information gathering process and report generation phases, the project director and lead evaluator made the process transparent by providing periodic updates where observations were discussed and feedback was solicited.

Ultimately, the objective of this abbreviated Independent Verification and Validation (IV&V) engagement and report is to provide ADEQ, ADOA-ASET and the JLBC with formative and constructive information about the implementation and roadmap for the myDEQ initiative and to provide actionable suggestions about how to prioritize developing dependencies to continue to experience constructive transformation and realize continuous progress. It is focused on assessing and responding to questions related to whether the current vision for myDEQ is the right product and whether myDEQ is being constructed/operated in the right way.

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## KEY MESSAGES, FINDINGS, COMMENDATIONS and RECOMMENDATIONS

Our analysis and assessment of the myDEQ initiative produced four types of results:

1. **Key Messages** that are essential to navigating myDEQ along the roadmap of success,
2. **Findings** providing observations and interpretations of our analysis and observations,
3. **Commendations** for laudable ADEQ, ADEQ partner and ADOA-ASET work,
4. **Recommendations** based on collected information and expressed into the evolving context in which the myDEQ initiative is functioning.

Each of these 4 types of results is associated with myDEQ's Key Measures of Project Success. These performance measures include:

1. Executive Management Support
2. User Involvement
3. Experienced Project Management Resources
4. Clear Business Objectives
5. Managed Scope
6. Responsive Business Requirements Process
7. Standardized Infrastructure and Technical Architecture
8. Skilled and Available Staff
9. Financial (Budgetary) and Vendor Management

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## 1. EXECUTIVE MANAGEMENT SUPPORT

### **Key Messaging:**

Executive sponsorship, support, active participation and buy-in are critical indicators of the myDEQ project's performance. The executive team provides the enterprise "global" view of the initiative. They paint an achievable high level vision while assisting in decomposing the vision into incremental deliverables and measurable milestones. In addition, the executive team level sets the project or initiative's agendas, amasses the funding, defines the priorities, shares the team's values, communicates the initiative's high level justifying rationale (value add proposition) and business cases, endures as an ardent project supporter, remains available and responsive, and ultimately accepts accountability for the overall project's success.

### **Findings:**

ADEQ Executive leadership and the highest levels of Arizona State leadership have endorsed and committed the highest level of support to the myDEQ initiative. Commencing with Governor Brewer's public declaration of the value of developing and deploying myDEQ to the state's strategic initiatives (Governor Brewer – "Building on Four Corners of Reform", January 2013), continuing with the Arizona Chamber of Commerce's support of reducing private business' transactional costs and regulatory burden to ADEQ's Director Henry Darwin's "all-in" commitment to myDEQ as the product visionary and owner, myDEQ benefits significantly from executive commitment, sponsorship, guidance and direction.

As a result, we have found the executive commitment to the myDEQ project permeates the ADEQ leadership team and is known throughout the entire project team. The myDEQ project executive team accountability is underscored with the detailed oversight provided by Misael Cabrera, ADEQ's Deputy Director. His direct participation, which includes the coordination and management of myDEQ Agile Team 0 (a weekly convening team comprised of ADEQ operational section leaders, vendor partners leadership and consultative SMEs) works with Khursheed Mallick, the myDEQ lead project manager, endeavoring to tie the varied work streams together in a manner that results in

cross discipline and workgroup collaboration with a predictable milestone release schedule providing the consistently highest quality deliverables.

The vision for myDEQ stemmed from the ADEQ's Director's examination and evaluation of the work being completed by the Massachusetts Department of Environmental Protection (MassDEP) in its development and implementation of the Environmental Information and Public Access System (EIPAS). As the originator of the myDEQ vision, in an effort to launch the myDEQ initiative in an advantageous trajectory and to expand the leadership and managerial circle driving the project, the Director delegated the original role of product ownership to existing ADEQ SMEs.

As the myDEQ project unfolded, the rigors associated with the team's development and implementation of the requisite business/project processes required the Director play an interim leading role as a project owner. As a result, at the commencement of this assessment's information discovery period, the agency Director was temporarily serving in the demanding and time intensive tactical role as the myDEQ business requirements and UI/UX Mockup reviewer, editor and approver. Recognizing this is not a scalable, sustainable model that would not effectively leverage the expertise and talent resident in ADEQ, during this assessment period, the Director incrementally delegated product ownership to a broader group of the ADEQ leadership team (including the ADEQ Section Managers) and co-authored, with ADEQ's Deputy Director, an updated version of a myDEQ vision document.

**Commendations:**

1. myDEQ benefits significantly from executive commitment, sponsorship, guidance and direction. The ADEQ executive team has clarified to no uncertain terms that myDEQ is an agency and state priority and everyone plays some role in its success.
2. Without the temptation to micromanage, ADEQ executives dependably attend and energetically participate in myDEQ high level conceptual requirements design, action item and prioritization determination and status meetings.
3. ADEQ executives are available and have processes established to provide rapid issue resolution and reasonable question response timing. This assists in avoiding project delays resulting from indecisiveness and lack of tactical direction.
4. A culture that emphasizes a public service mindset associated with consistently prioritizing ADEQ myDEQ users and Arizona citizenry.
5. Executive commitment to, and understanding of, the approach to developing and implementing myDEQ is clarified in every conversation. Specifically, the executive staff has dedicated time to recognizing and comprehending Agile Methodologies and its potential for success.
6. myDEQ's Business objectives have been clarified and socialized throughout the team.

7. An organizational approach to driving requirements through user stories versus atomically over engineering specific business processes without recognizing enterprise dependencies.
8. Executive level rollout prioritization of ADEQ business transactions and business process.
9. ADEQ and ADOA executive team remains vigilant about overseeing reasonable project controls, checks and balances while avoiding staff disempowering micro-management of such a strategically critical initiative.

**Recommendations:**

1. Even though the ultimate accountability for the myDEQ product lies squarely in the ADEQ Director's Office, he should continue to disseminate and document his product vision by supporting the generation of a detailed, usable, referential myDEQ vision document.
2. Provide guidance to all myDEQ agency and partnering resources in understanding the delicate balance between ongoing operational demands and the need to dedicate their expertise and time to the successful implementation of a quality myDEQ solution.
3. Continue to delegate the responsibility of business requirements and Mockup review, edit and approval to appropriate members of the ADEQ leadership team, including ADEQ Division Directors and Section Managers (SMs) overseeing and guiding the work being completed by ADEQ Administration, Air Quality, Waste Programs and Water Quality.
4. Mature a formalized executive verification, feedback and acceptance process that enables the entire executive team to verify and insure that each incremental release of myDEQ functionality is aligned with its original vision and requirements.
5. Build upon the recent myDEQ project SharePoint portal by developing a more formalized communications plan that insures all myDEQ information is available and proactively shared within the entire ADEQ project team and stakeholders, both vertically and horizontally.
6. While avoiding project "paralysis resulting from over analysis", increase the involvement of appropriate myDEQ users/stakeholders to offer them the opportunity to provide product/project feedback between the myDEQ project initiation and user acceptance testing (UAT) phases.
7. Engage an independent project and technical Quality Assurance (QA) Practitioner to validate and verify all facets of the myDEQ project are conducted in a disciplined, well-managed, consistent and transparent manner, utilizing best practices, while promoting the delivery of a quality product that is released on time, on budget and meets all business expectations/ requirements.
8. Prioritize myDEQ Governance development by focusing upon integrating the Governance constructs associated with Data, IT, Project (included in QA Practitioner recommendation), Security and Public Relations (PR) Governance.

9. Especially since ADEQ customers are not mandated to use myDEQ once it is available, as part of the PR Governance strategy, the executive team should begin to formulate and deliver myDEQ messaging to all potential users in anticipation of myDEQ's availability.
10. Develop a customer support strategy, supporting both power and non-power novice users, which includes leveraging the opportunity associated with every instance of customer contact to manage and deliver a quality message.

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## 2. USER INVOLVEMENT

### Key Messaging:

Whether a potential myDEQ user supplies information for system ingestion and/or a user is a beneficiary/consumer of myDEQ functionality, primary users' and stakeholders' roles must be actively involved in and support the myDEQ project. Users involved in the myDEQ design, review and acceptance processes have responsibilities to clearly articulate their perspective on business processes and requirements. Additionally, selected users need to be made aware of the Agile Project Management Methodologies and the level of effort associated with each requirement while supporting a realistic perspective on myDEQ's opportunities, limitations and overall scope.

### Findings:

In the process of determining and prioritizing myDEQ requirements and how those requirements may be most effectively delivered, ADEQ invited and engaged a set of experienced, motivated power users to solicit their perspective while gaining insight from their experience and expertise. The members of the myDEQ user steering committee are users experienced in environmental reporting compliance processes who have a history and experience of working with ADEQ in navigating the arduous, time consuming permit application processes with additional experience in collecting the data requisite to delivering the more arduous, labor intensive compliance reporting and monitoring processes.

As the vision for myDEQ has evolved from an unintelligent on-line data form entry process to an intelligent, adaptive, user information/data entry and consumption portal, the universe of users that will exercise and benefit from myDEQ has also evolved. The myDEQ User Interface and User Experience (UI/UX) designs, including both the graphical user interface (GUI) and the on-line page and work flows, have also had to evolve according to the potential expanding user community. This community includes power users whose extent of support may be targeted tooltips and training limited to walkthroughs. But it also includes non-power novice users who may require a higher level of support, including detailed help screens, training and help videos, support team access and training that goes beyond "how" to use myDEQ as an effective tool, to "what" compliance and reporting requirements are being addressed by effectively exercising myDEQ's functionality.

This welcomed but evolving vision of user utility and friendliness requires involving an additional profile of non-power, more novice users in the design, status/feedback and UAT functions associated with the myDEQ user steering committee. This will require allocating additional focus and time to managing, supporting and administering this committee so its members understand their



participation is valued, their comments are respected and their allocating time from their full calendars is appreciated. Once again, since it is not mandated that users transition from completing their work using today's highly inefficient manual processes to exercising myDEQ, the users on the myDEQ user steering committee will serve as myDEQ evangelists. Their myDEQ stories will stimulate colleague/co-worker lines of communication that will tell of constructive transformations measured by reducing waste, their transactional costs, and their regulatory burden coupled with the successful transition from paper to electronic commerce/licensing management.

**Commendations:**

1. Recognition that the target audience and community for phase 1 and 2 of myDEQ includes non-power, more novice environmental quality management users.
2. Developing a non-power user guided UI/UX and support workflow tentatively named myDEQ's myGuide.
3. Recognizing that the UI/UX needs to address their more complex needs without forcing a power experienced user to have a non-streamlined myDEQ experience.
4. Creating the user steering committee and involving an initial set of power myDEQ future users.
5. Within the mission statement and executive vision, myDEQ customer respect and satisfaction is placed as a top priority driving myDEQ to be seen as a center for public e-Commerce excellence.
6. That the interface will follow a "TurboTax" experience model with a high degree of customer satisfaction, intuitive input, simple help, immediate feedback and adaptive work flows empowering the user to rapidly remedy issues and get instant evidence of success.
7. The ADEQ organization will use the "TurboTax" model to learn from its users, capitalize on the myDEQ experience and re-invest/re-prioritize/adjust accordingly.
8. When deciding which ADEQ user transactions will be prioritized for myDEQ implementation, ADEQ evaluated each transaction's effect upon its specific set of users and prioritized ones that have high volume and high burden/impact upon the customer.
9. ADEQ could have replicated similar work being completed by some other states by making myDEQ a barebones electronic form submission system versus an adaptive intelligent intuitive user UI/UX.

**Recommendations:**

1. Develop and socialize a detailed delineation of potential myDEQ user roles that stratifies the user roles for UI/UX workflows, for feedback categorization and for input solicitation.

2. Develop an ADEQ internal myDEQ user community administration group that manages, supports and administers steering committee's activities as well as coordinating any external messaging (including value add determination processes and suggested ROI/TCO calculation methods), directly applicable to myDEQ stakeholders (including satisfaction surveys).
3. When involving the user community, include prioritizing the development of user myDEQ evangelists, stimulating ground level support, the construction of user notification plans, and the inclusion of all strata of users (e.g., expert and novice, licensees and data entry, etc.).
4. Insure that myGuide remains an option for all members of the potential user community.
5. Nurture user community relationships through proactive "reach out" programs including invitations to participate in the myDEQ conversation and providing periodic news/updates, forums, Frequently Asked Questions (FAQ) and Knowledge Base (KB) management.
6. Leverage social media opportunities to communicate with myDEQ users and stakeholders.
7. Integrate training activities, including high level AGILE process and use case training, with user management and administration activities.
8. Provide UAT defects feedback and retest loop as well as invoking a process to track and respond to any feedback or inquiries.
9. Include user communications procedures in myDEQ's overall communication plan.
10. Whenever possible, include users in requirements validation process.

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### 3. EXPERIENCED PROJECT MANAGEMENT RESOURCES

#### **Key Messaging:**

In most technical solution's development initiatives, when selecting the most effective project management approach, engaging experienced project management resources becomes a critical, but many times difficult, step to complete. Beginning with identifying the Project Manager (PM), the organization is seeking a PM who is viewed as being capable of working with business analysts and technologists to bridge the divide between technology and business knowledge. In addition, it is imperative to identify a PM that demonstrates good judgment, negotiation, effective communication and organizational skills. In addition, many times PMs need to apply softer skills, such as diplomacy and time management.

In the case of ADEQ, its selection of the Agile Project Management (Agile) Approach for steering projects toward a successful completion has required ADEQ to reflect upon, evaluate and adapt its project life cycle processes and culture to ones that fluidly orchestrate the complex work flow of the

myDEQ initiative. But Agile requires significantly different PM expertise than non-Agile methodologies.

Even though Agile is a robust, emerging project management framework recognized by the Project Management Institute (PMI) through its PMI Agile Certified Practitioners (PMI-ACP) certification, Agile requires a refocusing upon early delivery of business value, continuous improvement of the project's product and processes, scope flexibility, team input and delivering well-tested releases that, when validated, reflect customer needs and their supporting business processes.

At the highest levels, non-Agile project management frameworks have product owners, project managers and producers (developers, testers, trainers, etc.). The Agile Framework also has product owners and development teams (producers) but replaces the PM role with the Scrum Master role. But even with the apparent resourcing similarities, the common project team roles have different accountabilities and responsibilities.

For example, in a non-Agile environment the producers are generally segmented by discipline. In other words, the developers work with other developers, testers work with other testers and trainers work with other trainers. The non-Agile product development workflow hands the work off in a serial manner to each producing discipline one larger release at a time. In an Agile environment, the development team is comprised of groups of cross discipline producers. They work closely together, even in their office/cubicle configuration (many times a bull pen configuration), to rapidly develop, test and release verifiable smaller pieces of the entire solution set.

In a like manner, a non-Agile Product Owner has different accountabilities than an Agile Product Owner and a PM differs from a Scrum Master. In a non-Agile environment a PM is considered an accountability role and a Scrum Master is an enabling role that exercises "servant leadership", a form of leadership that focuses on removing obstacles and avoiding distractions to enable the team's success. Fundamentally, Scrum Masters and the entire Agile project leadership group are accountable for identifying solutions to issues versus assigning tasks.

Beyond understanding and engaging experienced project management resources, when an organization, especially a public institution, chooses to incorporate Agile Methodologies into its arsenal of solutions development strategies, transforming PM, Development Teams and Product Owners' skill sets requires an equally rigorous process to analyze and transform an organization's culture to one that emphasizes Agile's core values of commitment, focus, openness, respect and courage.

### **Findings:**

To realize the vision of myDEQ, ADEQ's decision to apply an Agile Methodology is based upon the lessons learned from projects that lacked measurable success due, in part, to the strict serial nature of non-Agile project management methodologies. But to successfully apply Agile to the myDEQ project, ADEQ has been required to retool its resource pools and review its cultural norms to identify environmental, process, policy, leadership and organizational obstacles to success. Even though the

planned Agile transformation was well informed with preparation, it has also been a learning process and a test of ADEQ's organizational agility.

When reviewing the brief history of myDEQ phase 1, transforming the myDEQ development workflow and teams to an Agile Methodology started in a discovery mode, but since November 2013 has ramped up significantly. ADEQ began by applying Agile to the myDEQ technical development workflow and is showing strong evidence of success. Four similarly staffed development teams (two at ADEQ and two at Business & Decision Consulting), have been formed providing the capability to simultaneously develop four myDEQ business objects in concurrent two week sprints. Simultaneously, ADEQ has insured the constructive transformation to Agile by weaving the Agile published core values into the fabric of every myDEQ conversation, relationship, process and meeting.

ADEQ's Agile adoption is still an evolving work in progress. We have identified gaps in project communications that, when remedied, will certainly enhance coordination and manage inter/intra team collaboration. ADEQ's next steps require applying Agile to the business requirements generation and management processes as well as increasing the effectiveness of the project communications strategies. In support of those next steps, during this assessment period, ADEQ has retained a project advisor to work with the myDEQ project management and leadership team by collaboratively reviewing the current myDEQ project life cycle and to proactively address identified challenges and opportunities.

**Commendations:**

1. ADEQ has invested the requisite energy and resources to lay the solid framework and to successfully implement the Agile Project Management Methodology.
2. Agile experienced resources have been retained to support the myDEQ project and the ADEQ transformation to Agile.
3. Office areas have been designed to support the technical teams' cross discipline interdependencies and communications. The bull penned development office space supports Agile's balanced approach to formality and avoids forcing development resources having to wait for formal scheduled meetings to discuss simple issues that may be resolved in minutes.
4. The core Agile values have been included in the agency's stated and socialized list of Principles and Values as well as Agile's tendency to visualize rather than write.
5. To insure ubiquitous project buy-in, every myDEQ Agile team member is reminded that s/he read, acknowledged and signed the "myADEQ Core Team Commitments."
6. That ADEQ retained the Agile project advisor.
7. That an empowering, non-judgmental culture focusing on solutions versus blame permeates every meeting and myDEQ conversation.

8. myDEQ Project leadership has demonstrated an ability to accept news, good or bad, and to be agile enough to rapidly adjust.

**Recommendations:**

1. Design aggregated project success measures that provide ongoing immediate transparency into project status.
2. Promote an Agile Project Management Process feedback and verification loop to insure the processes are correctly implemented and are resulting in desired outcomes.
3. Continue the process of Agile process evaluation and maturity started by the recent hiring of the project advisor.
4. Continue to apply Agile to additional facets of the myDEQ project including business requirements management and enabling enhanced executive/stakeholder engagement.
5. Retain a senior level Agile experienced business analyst.
6. Expand project and stakeholder communications plans to include proactive outreach technologies and enhance inter/intra discipline collaboration.
7. Provide training to all myDEQ stakeholders exposing them to Agile Methodologies and each stakeholder's specific role in making the project a success.
8. Prioritize developing Agile support mechanisms forming knowledge bases that stakeholders can utilize to access desired information.
9. Construct a resource requirements forecast model showing resource load requirements throughout all phases of the project lifecycle through the long maintenance and sustainability requirements.
10. Engage an independent project and technical Quality Assurance (QA) Practitioner to include validating and verifying the myDEQ project is set up for long term sustainable success.

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#### 4. CLEAR BUSINESS OBJECTIVES

**Key Messaging:**

Whether Agile Project Management Methods are employed or not, every successful project requires articulation of clear business objectives and strategic visions where objectives are unambiguously defined and formed in a manner that enables their being understood throughout an entire organization like ADEQ.

But specifically within an Agile Managed Project, on a moment-by-moment basis, producers completing the work necessary to have the business objectives become a reality require the objectives be decomposed to a level of granularity that provides an understanding of how the producers' detailed output supports each element of the overall business objective. The values of the Agile Methodology support the need to have the team members take pride in their individual contributions to the successful realization of the business objectives and visions.

Projects must be regularly measured and verified against these business objectives providing an opportunity for early problem recognition and mid-stream course adjustments. Clarified business objectives serve as another chance to note what is working and what is not for future funding and resource justifications and planning for future projects.

To all of a project's stakeholders, one evidence of executive and leadership ownership and prioritization of an initiative is through the dissemination of its business objectives and vision. Clarified business objectives encapsulate the results of feasibility studies by focusing beyond the requisite technologies to all aspects of an environment and workplace that influence a project's probability of success.

There are many factors that are weighed and contribute to an organization's leadership team deciding upon the targeted vision and business objectives. Stakeholder participation and input are one set of those factors that, once socialized, support stakeholder ownership and buy-in. Business objectives require enough clarity and detail to be directly actionable while preventing the inauspicious, project-damaging "paralysis through analysis". Many times throughout a project's life cycle, process gaps or lack of requirements traceability from inception to release are determined to have a root cause of nebulous business objectives or visions.

#### **Findings:**

Commencing with the understanding that when selecting the most effective project, Arizona consumers of ADEQ services (including Arizona's citizenry) agree that an automated e-Licensing environmental quality permit, compliance and inspection management system is desirable and quantifiably valuable. As a result, in 2012, with the authoring of the ADEQ Key Strategy document through the strategic planning and budgeting processes, the vision of a myDEQ solution and its associated business objectives has been open, shared and remained consistent. During this assessment, when reviewing the many myDEQ vision related artifacts such as:

1. the original directors' key strategy document,
2. the FY2014 and FY2015 myDEQ decision package and PIJ documents,
3. the year-over-year ADEQ agency strategic plan,
4. the presentations made to Arizona Chamber of Commerce, the Arizona Legislator, ITAC and others,
5. the minutes of testimony to legislative subcommittees and other policy makers,

the ADEQ objectives and vision have been consistent and clear. From the oldest documents we reviewed, the business objectives were distilled into actionable recommendations and achievable success measures. They are aligned with Arizona state leadership's vision for MyAZ and for statewide enterprise standards surrounding the deployment of e-government services (<http://aset.azdoa.gov/e-gov>).

The statements regarding what type of ADEQ project would produce the most value to its customers and constituents was validated during our conversations with potential myDEQ users. In addition, the numbers ADEQ presented as justification for Arizona making ADEQ a priority initiative and for Arizona to allocate adequate funds towards a successful implementation were verified through quick data analysis and abbreviated conversations with stakeholders. The validated numbers include:

1. annual paper transactions being converted to electronic transactions (28,000+),
2. number of facilities represented in these transactions (18,000+),
3. number of permits to be converted into digital form (3,000+),
4. number of quarterly hours currently expended completing the paper transactions versus projected number of hours in the new adaptive myDEQ user centric input methodology (thousands),
5. number of data points (1.5M+),
6. number of initial customers (SMRF 550+, other transactions 2000+)

During the period of this assessment, the review and verification of these numbers that support the business objectives and vision was simplified for brevity purposes.

**Commendations:**

1. The myDEQ specific business objectives and vision have remained consistent throughout the last two years.
2. The myDEQ specific business objectives and vision has been formed using an inclusionary methodology that has involved internal and external ADEQ stakeholders.
3. The myDEQ specific business objectives and vision are aligned with the ADOA-ASET's vision for MyAZ and delivery of quality Arizona's e-government services.
4. After some of our research and one-on-one conversations, the myDEQ specific business objectives and vision have an opportunity to deliver a high level of benefits with a relatively low level of risks.

**Recommendations:**

1. As with previous recommendations, the business objectives and vision need to be decomposed and translated into forms that provide additional guidance to business analysts and development teams.
2. A more in-depth on-going independent risk and financial analysis should be performed to insure the detailed work remains in alignment with the vision.
3. Develop a business objective change management plan so if high level requirements or their drivers change, those changes can be rapidly disseminated throughout the project teams and all interested parties.
4. Business objectives and vision should be included in any maturing communications plan and shared early in the process as part of the myDEQ messaging to all stakeholders.

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**5. MANAGED SCOPE****Key Messages:**

Scope management is a critical part of every project. Scope must be realistically able to be successfully delivered within the project duration, with the accepted level of quality and on budget, with all of this needing to be regularly measured.

But when deploying the Agile Methodology, scope takes on a unique set of attributes. Agile scope defines both the product and project. Product scope defines the features and requirements included in a product while project scope delineates the work involved in creating the product. One of the fundamental tenets of Agile is that scope is variable.

As project teams iterate through the scrum and sprint processes, they can leverage and incorporate “lessons learned” and overall feedback to rapidly adjust their targeted scope and how they may deliver the highest quality product. Agile Methodology embraces change as a positive and sees change as a welcome and necessary means to end. Agile also sees change as a way to avoid scope bloat which requires expending resources on delivering features and functionality that few or no people will ever use. In other words, from Agile’s perspective, scope change brings simplicity to the process because it is not only changing what is being developed, it is also eliminating items that no longer need to be developed.

Each Agile Project Management role has a unique function in scope change management. For example, product owners have the accountability to remain vigilant in insuring all project team members and stakeholders clearly understand the existing scope, the current sprint goal(s) and the downstream effects any scope change has on the project vision or release timelines. Development teams and Scrum Masters synthesize that information by evaluating and reevaluating work prioritization based upon releasing the features/functionality that has the highest positive impact to the user.



**Findings:**

With respect to myDEQ, even though the business objectives and vision may have remained consistent, the scope of what is currently planned for delivery has evolved. In the original translation of the business objectives to a development work plan, fundamental definitions required redefining. For example, as late as early 2014, the business objective was decomposed into a work plan that centered on delivering 27 ADEQ Business Transactions (e.g., Self-Monitoring Report Form-SMRF, or Crushing and Screening) in a certain time period.

As business analysts began to translate requirements into business defining artifacts it became quickly apparent that the ADEQ Business Transaction Level was too high and would result in losing the “economies of scale” in producing common business functionality across ADEQ Business Transactions. As a result, the ADEQ project team reassessed the ways to segment the workflow and realized utilizing individual business processes that make up the transactions was the appropriate level of granularity. Additionally, the results of this analysis complemented myDEQ’s commitment to Agile Methodologies by further clarifying that within each ADEQ Business Transaction there are multiple user stories. Each user story is delivered using an amalgamation of potentially reusable business processes.

Early in the development work flow creation process, the myDEQ team clarified that the user experience would not be a duplication of the current manual form completion process by just rendering unintelligent forms in a browser on-line. ADEQ would learn from other states that have gone down that path (e.g., Florida, Ohio, West Virginia), and instead create myDEQ in the vein of other uber-customer-friendly solutions like TurboTax (e.g., Massachusetts-MassDEP EIPAS project). This meant having ADEQ business analysts and development teams create functionality in the form of an adaptive input user experience that provides nearly immediate feedback to the user on edits, issues or success when navigating myDEQ interactions. This change in concept resulted in initial scope modifications and revamping of the business analysis deliverables.

Project scope is one of many factors that contribute to a project’s feasibility and many of those factors, including scope, are inherently dynamic in nature. In conjunction with budget and product quality, scope management is a key component toward determining the feasibility of a project. When comparing myDEQ’s projected costs versus other states’ projects of similar size and complexity, at the time of authoring this report, ADEQ’s myDEQ project’s prognosis for an on-time, on-budget delivery is good. MassDEP has spent well over \$40M in the development of its EIPAS solution with a significant portion of those funds being targeted at coalescing its disparate cross-agency data stores. ADEQ’s projected costs are much lower because it has the distinct advantage of already having a unified data store for all types of transactions managed by ADEQ.

**Commendations:**

1. ADEQ has evolved its Agile implementation to one that is increasingly accepting of scope change.
2. ADEQ has remained vigilant in keeping to scope that consistently prioritizes what is best for the customer.

3. ADEQ has collected and vetted ideas with colleagues in other states that share similar myDEQ visions.
4. When adapting to ongoing increased understandings about ADEQ's user community and how an electronic data submission system would best enable them to efficiently and effectively do their ADEQ related work, ADEQ has already leveraged and benefitted from Agile's lessons learned scope change processes.
5. ADEQ continues to avoid scope bloat by insuring there is a real business reason for every feature and function included in myDEQ.
6. With respect to scope management, required staff is primarily dedicated to the myDEQ project and is not currently being excessively removed from the project to address other needs.
7. myDEQ project is not rigidly fixed scope resulting in lack of any flexibility.

**Recommendations:**

1. Produce a change management process that is integrated with a communications plan that includes scope change management.
2. Create a scope change process that evaluates the necessity for a change, estimates the level of effort to incorporate the change and prioritizes the change against existing requirements.
3. Provide contingency plan for allowance of key resource backfill or reassignment.
4. Include funds in budget for change control.
5. Track scope modifications occurring after sprint team acceptance, including contract changes.
6. Produce a risk management plan and strategy that includes risk associated with any specific change in scope.

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## 6. RESPONSIVE BUSINESS REQUIREMENTS PROCESS

**Key Messages:**

A responsive, agile Business Requirements Process is critical to bridging the gap between the business objectives and vision to the product development processes. Beyond just creating Business or Functional Requirements Documents (BRD, FRD) and Mockups, requirements management includes identifying, documenting, communicating, tracing, and managing all types of project and product requirements. Doing this in an agile manner provides the ability to manage requirements in a transparent, quick way while avoiding conflicts and staying ahead of or in lockstep with the development teams.

When incorporating Agile Methodologies, product and project requirements are customarily created at the three different levels of the project: the roadmap, release and sprint levels. Each of these levels results in breaking down (decomposing) the higher level requirement into individual actions appropriate for that specific level. At the product roadmap level a requirement is loosely defined as an accumulation of product features and themes. At the planned release level the higher level features and themes are broken down into more concise user stories. At the sprint level the user stories are decomposed into individual tasks or actions that can be developed using predetermined technical architectural standards. Time and effort estimation generally occurs at the sprint level and can be accomplished using any one of many techniques.

### **Findings:**

At the time of authoring this report, ADEQ's adoption of Agile Methodologies is just beginning to include Business Requirements Management Processes. As mentioned earlier in this report, ADEQ's next steps require applying Agile to the business requirements generation and management processes. This is critical to insuring cross agency business alignment, managing stakeholder expectations, maturing communications, successful requirements management, etc., which are among the many skills that ultimately surface when driving systemic change.

During the recent months of myDEQ phase 1 development, significant insight was gained in several areas affecting project process and product features that resulted in revamping of the myDEQ project Business Requirements Management Processes; insights gleaned from changes in scope resulting from rethinking the development of the myDEQ product from the ADEQ transaction level to the user story level. Couple that with the adaptive entry UI/UX versus the less complex unintelligent form entry of UI/UX, and business analysts (BAs) had to completely re-baseline the BRDs and FRDs created for myDEQ Phase 1.

The re-baselining activities resulted in redefining the artifacts created in the business analysis process and delivered to the sprint development teams. Currently, for each MyDEQ business process, the Business Requirements Management Process results in the generation of three artifacts: Business Requirements Documents (BRD), Functional Requirements Documents (FRD) and Mockups. These are handed to the sprint teams at the user story level and they will decompose requirements into the development tasks. When speaking with other states that are developing similar systems, they have said that the Business Requirements Management Process has been one of the most troublesome processes to make successful, but it has provided learning opportunities for ADEQ.

With respect to the Business Requirements Analysis the myDEQ documents reviewed included:

1. Existing Phase 1 and 2 BRDs
2. Existing Phase 1 and 2 FRDs
3. Existing Phase 1 and 2 Wireframes
4. Preliminary Phase 1 Mockups
5. EPA CROMERR Specification Documents
6. End User Vision Documents
7. Change Management Workflow Documents

8. Wireframe (Mockup) Review checklists
9. Demo Checklists
10. Global U/I Standard
11. Directors' Key Strategies
12. Wireframes (Mockup) Testing Process
13. Color Palette Standards
14. Non-Power User UI/UX myGuide GUI and Pageflow
15. Usability Guidelines
16. myDEQ Team Member Commitment
17. RallyDev Artifacts
18. Existing Internal IT Processes and Governance

Moving to designing myDEQ at the user story level from the ADEQ business transaction level has changed the deliverable timelines of myDEQ Phase 1. Originally, the ADEQ project team had projected to complete 27 ADEQ transactions in myDEQ by June 30<sup>th</sup>, 2014. Prioritized by the amount of customer impact a user story will have, the plan for myDEQ phase 1 has been modified to deliver 36 business objects/user stories and 7 ADEQ business transactions by June 30<sup>th</sup>, 2014. MyDEQ phase 2 directly benefits from these changes by delivering 80 more ADEQ transactions, representing over 200 user stories by June 30<sup>th</sup>, 2015. With two ADEQ SME Business Analysts currently on staff, their ability to provide enough quality requirements to keep the development teams fully engaged has been a challenge. At the time of this report, the development teams remain fully utilized.

Business Requirements traceability throughout the project life cycle has been another challenge. To this point, tracking a requirement from inception through release is a manual process that is not scalable, especially when considering a higher volume of requirements will shortly be in the pipeline. To assist in this area ADEQ has purchased IBM Rationale Requirement Composer. If configured correctly and integrated into the entire project life cycle, it can be made interoperable with RallyDev while providing significant benefits and transparency into the total requirements management process.

#### **Commendations:**

1. Through the evolution of the ADEQ Business Requirements Process, the myDEQ project team has demonstrated a commitment to Agile by making significant adjustments to existing and embedded processes mid-project.
2. Upgrading Business Requirements Artifacts to include detailed Mockups in lieu of simplified wireframes.
3. They have taken steps to improve requirements traceability throughout the project lifecycle.
4. They have positioned business analysts more closely with product owner(s) to support a common understanding of requirements and a common set of expectations.
5. In the spirit of user transparency and friendliness, recent additions of a data dictionary and other user supportive functionality have been added to the BRDs.

6. All user stories generated through the Business Requirements Management Process that involve federal reporting include interoperability with the CROMERR (EPA Cross-Media Electronic Reporting Regulation) framework.

**Recommendations:**

1. Proceed with IBM Rational Requirements Composer using experienced implementers to insure workflow and interoperability is configured correctly from startup.
2. Retain the services of a third Business Analyst with Agile experience.
3. Retain the services of a senior Business Analyst to assist with overseeing the Business Requirements Management Process.
4. Engage an independent project and technical Quality Assurance (QA) Practitioner to validate and verify the Business Requirements Management Process is successfully designed and implemented in a manner that enables the entire project team to benefit from identifying, documenting, sharing, tracking and managing requirements throughout the entire project life cycle.
5. Quickly develop a UI/UX standard to utilize when generating requirements Mockups and for developmental guidance.
6. Develop a UI/UX standard for power users and another for non-power, more novice users.
7. Outside of the myDEQ Action Item Decision Log, develop an internal requirements forecasting process to assist in the entire project team's ability to anticipate future pipelines.
8. As mentioned earlier in this report, delegate more of the product ownership to ADEQ Section Managers and SMEs for accountability in making requirements decisions related to required user features and business rules.
9. Include Business Requirements Management into Governance planning (IT, Security, Project, Public Relations and Data)
10. Include Business Requirements Management into long-term sustainability and operations planning.
11. Continue to refine Business Requirements Management processes so this is no longer creating a backlog in the myDEQ project life cycle.
12. Continue to evolve the understanding that myDEQ Business Requirements are not guidelines but product specifications.
13. Continue to work with ADOA-ASET so myDEQ Business Requirements accurately convey integration points with ADOA-ASET supported functions (e.g., JBILLING).

14. Include user support functionality in the BRDs, FRDs and Mockups. This includes tooltips, help screens, training videos, and ADEQ support contact information.

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## 7. STANDARDIZED INFRASTRUCTURE AND TECHNICAL ARCHITECTURE

### Key Messaging:

Technical Infrastructure and Architectural Standardization, both from the operational and organizational perspectives, is a necessary strategy for insuring short and long term myDEQ quality performance and consistent, predictable myDEQ results. In addition, standardization is a strategy for minimizing information technology expenses and must be commonly understood and regularly assessed.

Infrastructure and technology standardization applies to areas like solutions' interfaces and interoperability, security, user authentication and authorization, encryption, data in flight and at rest management standards, networks.

### Findings:

ADEQ currently hosts and maintains its own data center and infrastructure within the ADEQ office complex. The ADEQ CIO is in the process of completing a technology refresh that commenced two years ago and was funded under a separate \$1.8M project investment justification (PIJ) from myDEQ. The myDEQ solution will benefit from this refresh. The updated infrastructure is nearly complete and built out beyond any requirements myDEQ may have for the next five years. Specifically, this includes clustered, highly available infrastructure support for virtual environments, emergency power, failover/DR/BCP, security appliances, data, web hosting, monitoring, identity management and others. Additionally, all support contracts, licensing and change/patch management processes and maintenance contracts appear to be up-to-date and in place.

As late as November 2013 no systems or environments were built or available to support myDEQ development or deployment. On March 3<sup>rd</sup>, 2014 the User Acceptance Testing (UAT) Environment is built and will serve as the baseline (model) for the development, QA and production environments.

Specific for myDEQ, working in close partnership with ADOA-ASET as an early adopting agency of ADOA-ASET technical standards, myDEQ will incorporate WSO<sub>2</sub> middleware in its architecture for tight integration with state standards and state investments. Since the myDEQ project's timeline is ahead of ADOA's WSO<sub>2</sub> rollout timeframe, ADEQ is constructing a local clustered and load balanced WSO<sub>2</sub> environment available April 25<sup>th</sup>, 2014 for myDEQ's utilization. The current plan is when ADOA has its WSO<sub>2</sub> environment ready, scheduled for August 2014, then ADEQ will point myDEQ to use the ADOA WSO<sub>2</sub> environment.

Other dependencies upon ADOA infrastructure include being interoperable with JBilling, an open source solution that handles a range of billing services. The plan is to have ADOA's JBilling instance available for functional and integration testing by mid-March 2014. But that instance of JBilling will not include electronic funds transfer (EFT) functionality required by some larger ADEQ customers who are required to

make ADEQ payments too large for credit card transactions. Currently, myDEQ EFT functionality is planned to be available in the June 2014 timeframe.

The decision was made at ADEQ to develop the web and API portions of myDEQ in Java rather than developing them using Drupal. The primary consideration in making this decision was a lack of general experience in Drupal, both on the ADEQ and ADOA side, and the difficulty in finding expert talent with Drupal API & PHP development skills.

With respect to enterprise architecture development standards, the ADEQ enterprise architect has provided this assessment team with high level artifacts for review that include:

1. SAD – Software Architectural Document
2. TDD – Technical Design Document
3. Development Code Promotion Standards Document
4. Demonstration Guidelines
5. Java Application Development Guidelines
6. myDEQ Deployment Roadmap
7. Code Promotion Checklist
8. Enterprise Release and Source Code Management
9. Secure Coding Guidelines
10. WSO<sub>2</sub> Service Implementation Considerations Checklist
11. Services Planning Framework
12. Data Upload Design Document (SMRF)
13. Writing Unit Tests Checklist and Framework

These documents need to be socialized, reviewed and updated frequently. Much like BRDs and FRDs, these documents need to be decomposed into actionable standards for the development team and others to guide their work and validate it against once the work is ready for release. In addition, one of the risks associated with Agile managed projects is that agility in scope, release schedules and process also means frequent revisiting and validating the continued applicability of any standard, especially enterprise architectural standards.

With respect to myDEQ data, the AZURITE database is a centralized ADEQ transaction data repository that has evolved over the last 15 years. Even though data credibility may remain an issue, the unified database provides an opportunity and distinct advantage in that the myDEQ project does not need to allocate time or resources to coalesce multiple data repositories to render a unified view. Also, because the vision of myDEQ is to provide a user friendly, quality data collection portal for collection and storage in AZURITE, existing backend processes that support off-line processes like compliance management will still be relevant and executable.

#### **Commendations:**

1. ADEQ's commitment to its infrastructure is sound and does not appear to have any unaddressed dependency preventing myDEQ from progressing.

2. For prioritizing redundancy and high availability standards when architecting the ADEQ infrastructure.
3. For making appropriate accommodations avoiding myDEQ project disruption resulting from ADOA infrastructure deployment timing.
4. ADEQ views the myDEQ project as an opportunity to partner with ADOA-ASET and serve as an early MyAZ standards adopting agency.
5. Developing and maintaining AZURITE, a unified database of ADEQ transactional data.
6. Process of scanning (over 2000 permits) and capturing old historical forms and papers nearly complete for potential retrieval by myDEQ.
7. Rigorous infrastructure monitoring and management solutions are in place.

**Recommendations:**

1. Analyze the effect myDEQ processes will have upon AZURITE.
2. With the increased agency dependency upon AZURITE, begin evaluating the data cleanup and credibility requirements for potential expanding usage and exposure.
3. Include infrastructure and AZURITE in Governance planning including Data, IT, Security and Project Governance.
4. With respect to enterprise architecture implementation, develop a feedback and review process that provides verification that technical design and the actual codebase reflect the chosen enterprise architecture.
5. Develop a plan to implement a Content Management System.
6. Hire ADEQ Enterprise Architect.
7. Hire 3 Java Developers.
8. Develop a transitional maintenance development plan.
9. Develop a customer support strategy and team anticipating electronic and direct customer contact.
10. Complete infrastructure vulnerability assessment.
11. Develop a myDEQ AZURITE data quality plan that includes data stewardship and direct data credibility accountability.



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## 8. SKILLED AND AVAILABLE STAFF

### Key Messages:

Having the appropriate number of staff with the appropriate skills is a challenge, critical success factor, risk and dependency of every project. The ability to identify the best and most appropriate resources to deliver on a project's promise and objectives is essential. To insure a project's success it is incumbent on the leaders to identify the required competencies, the required level of experience and expertise for each identified skill, the number of resources needed within the given skill, and when these will be needed. They must ensure these resources are available and assigned to the project. Soft skills are equally important when specifying and identifying required competencies.

Once hired, project leadership must avoid the tendency to assign too much too soon to the new and existing staff. Many times successful resourcing requires a short-term investment in contractor staff. When any new team member becomes available, quality reporting and managerial relationships need to be defined, coupled with a prioritized process of knowledge transfer and knowledge dissemination. These relationships and knowledge sharing efforts become even more important when contracting companies are engaged to provide critical resources.

Once identified, adequate resource availability requires progressive staff load leveling management where distractions are minimized and backfilled work is redirected or disbursed in a manner that prioritizes the project without neglecting non-project requirements.

### Findings:

The current myDEQ project team is comprised of quality individuals who are dedicated to the successful completion of the myDEQ project but the variety of technologies, process methodologies and managerial expertise required to drive the myDEQ project to a successful conclusion makes short and long term resourcing a real challenge. But staffing and resource acquisition and sustainability is a high risk.

Currently there are key myDEQ team members whose role in the project has no backup resulting in real risks to the project's continued success. Additionally, the existing myDEQ staff is fully loaded leaving no room for failure, requiring ADEQ to currently seek several skilled individuals to fill critical positions.

Additionally, with respect to staffing, the myDEQ technology stack increases the risks associated with quality technical staff acquisition and retention. For example, WSO<sub>2</sub> is a sound technology but technologists whose expertise includes that specific skill set are in high demand and difficult to locate. Even though Drupal is not a key myDEQ technology, locating Drupal API professionals is equally difficult. Adding to the struggle is that states' salaries are low for the current marketplace and because these technologies are now Arizona state standards, as other agencies adopt the standards these skillsets will be in more demand across state run organizations.

### Commendations:

1. ADEQ has assembled a quality myDEQ team that is a blend of ADEQ FTEs and contractors.

2. ADEQ continues to focus on balancing load between operational responsibilities and the myDEQ project team requirements.

**Recommendations:**

1. Develop a staffing plan for all phases of the myDEQ project that includes the future myDEQ maintenance phases.
2. Develop and implement a long term contractor to ADEQ staff transition plan.
3. Develop strategy for balancing project and operational resourcing requirements.
4. Create decision package and budget request for increased staffing requirements.
5. Develop a staff retention strategy that includes a professional development process.
6. Create a proactive resource acquisition and outreach plan that may include collaborating with other state agencies and ADOA-ASET.
7. Complete salary survey for team skill sets.
8. Create a myDEQ operations strategy that details how myDEQ will transition from the current build phase into ADEQ's operational mode.
9. Continue to focus upon identifying, hiring and/or retaining an Enterprise Architect, Program Manager, 3 Java Developers, WSO<sub>2</sub> Talent, Senior Business Analyst, Scrum Master.
10. Consider hiring a senior architectural, operational and developmental DBA.
11. Consider retaining IT security talent for security governance development.

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## 9. FINANCIAL (BUDGETARY) AND VENDOR MANAGEMENT

**Key Messages:**

Financial and vendor management (including contract negotiations) are disciplines that play a major role in determining project outcomes. These disciplines are critical to supporting an organization's desire to control costs, forecast resource requirements, recognize and mitigate risks, and to realize service and product excellence. Specific to an organization's IT objectives, effective financial and vendor management ensures that IT infrastructure and services are acquired at the most effective cost (not necessarily the least expensive) while supporting the monitoring of, and calculating the true cost of supporting and providing IT services.

These disciplines have become increasingly critical in the public sector. Increased focus upon fiscal accountability to their shareholders (taxpayers), policy makers, colleagues and leadership requires public sector institutions to prioritize financial and vendor management.

**Findings:**

With respect to the myDEQ project, ADEQ is accountable to provide financial and budgetary management services while overseeing myDEQ's expense management and reporting. Additionally, ADEQ is responsible for working with State Procurement Office's (SPO) approved statewide vendors to acquire needed products and services.

In that role, when engaging and negotiating with an approved vendor, the myDEQ project team develops the specifications for required products and statements of work for needed services. Many times product costs and service delivery rates are pre-negotiated by SPO but ADEQ is accountable to insure the appropriate rates are being charged, the product and services are being delivered as contractually stipulated and to provide continual expense and contract oversight.

Currently the responsibility for myDEQ project fiscal oversight lies with the Deputy Director and ADEQ's Information Systems Division Unit (ISDU) Manager. Ongoing myDEQ project financial status reporting and tracking is also the ISDU Manager's responsibility. This is coupled with both roles being accountable for the entire agency's budget management and forecasting responsibilities, with all of the bureaucratic processes and artifact generation.

Reviewing myDEQ project specific financial reporting instruments, the assessment team was able to complete a reasonability verification on two months of reported numbers. The reviewed financial reporting instruments included:

1. Monthly ADOA-ASET Status Reports
2. An ADEQ Internal Weekly Costs Report
3. Monthly JLBC/ADOA Project Budget and Milestones Report
4. myDEQ Phase 1 and 2 PIJs
5. FY14 & FY15 myDEQ Decision Packages
6. AFIS Reports

If more assessment time were available, tying the financial status reporting documents to more detailed accounting entries like accruals, invoices and payments would be desirable.

**Commendations:**

1. ADEQ has developed a quality open partnering relationship with critical resource providing vendors.
2. ADEQ has developed a formalized process for expense reporting, expense flow and budgetary management.

3. ADEQ is proactive in using the current financial state to assist in analyzing future funding requirements for decision making packages and, if necessary, PIJ generation.
4. Strong Infrastructure Support and Licensing Contracts are in place and up-to-date.

**Recommendations:**

1. Engage an independent project and technical Quality Assurance (QA) Practitioner to assist in contract management and financial forecasting/analysis including contract compliance/delivery, financial accounting validation and budget/financial oversight.
2. Commence the process of quantifying the operational costs associated with sustaining myDEQ and include analysis on how myDEQ affects the financial requirements of all divisions of ADEQ.
3. Make vendor service contract's SOW working documents with enough detail to level set expectations while providing detailed clarity of what the outcomes of the SOW are to a QA Practitioner, the vendor, a reviewer or ADEQ personnel.
4. Use SOW as working document to verify work is being completed as expected.

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CONCLUSION

ADEQ has conceptualized the development of an innovative customer facing web portal that will enable customers to be guided through activities like electronically submitting permit applications, reporting, billing and payments. ADEQ has engaged and listened to its customers and has reached out to other state environmental quality agencies that have similar aspirations to construct a customer friendly web portal. myDEQ serves the majority of the existing ADEQ customers with a long term eye of providing public facing services. When successfully completed, myDEQ will benefit over 18,000 businesses across Arizona and, with the simplification and clarification of regulatory compliance provided by a myDEQ e-licensing/e-commerce solution, new businesses requiring environmental quality licensure or services will see Arizona as progressive and forward thinking.

The roadmap ADEQ has chosen to navigate in transforming the idea of myDEQ to a successful implementation is a path that has a strong probability of success, but is a journey that requires learning and adjusting. When viewing the current state of the myDEQ project and projecting its future through the lens of the nine primary key measures and indicators of a project's success, the assessment team can certainly see a credible path to success. The bottom line is after completing the assessment team's rapid review of the myDEQ Architectural Design, Project Management Methodologies, reasonableness of Phase 1 and 2 cost estimates and ADEQ's readiness to construct and sustain this type of initiative, with the qualification of the recommendations delineated in this report, we are confident the project's feasibility of delivering both Phases of myDEQ on time and on budget is very positive.

## SUMMARY OF RECOMMENDATIONS

SUMMARY OF RECOMMENDATIONS			
Project Success Measure	Detailed Recommendations by Group	Criticality	Implementation Timeframe
	<b>GROUP 1: ENGAGE INDEPENDENT QUALITY ASSURANCE PRACTITIONER</b>		
Financial (Budgetary) and Vendor Management	1. Engage an independent project and technical Quality Assurance (QA) Practitioner to assist in contract management and financial forecasting/analysis including contract compliance/delivery, financial accounting validation and budget/financial oversight.	High	Short Term*
Executive Management Support	7. Engage an independent project and technical Quality Assurance (QA) Practitioner to validate and verify all facets of the myDEQ project are conducted in a disciplined, well-managed, consistent and transparent manner, utilizing best practices, while promoting the delivery of a quality product that is released on time, on budget and meets all business expectations/ requirements.	High	Short Term
Experienced Project Management Resources	10. Engage an independent project and technical Quality Assurance (QA) Practitioner to include validating and verifying the myDEQ project is set up for long term sustainable success.	High	Short Term
Responsive Business Requirements Process	4. Engage an independent project and technical Quality Assurance (QA) Practitioner to validate and verify the Business Requirements Management Process is successfully designed and implemented in a manner that enables the entire project team to benefit from identifying, documenting, sharing, tracking and managing requirements throughout the entire project life cycle.	High	Short Term
	<b>GROUP 2: CHANGE MANAGEMENT PLAN AND PROCESS</b>		
Clear Business Objectives	3. Develop a business objective change management plan so if high level requirements or their drivers change, those changes can be rapidly disseminated throughout the project teams and all interested parties.	Medium	Short Term
Managed Scope	1. Produce a change management process that is integrated with a communications plan that includes scope change management.	High	Long Term <sup>†</sup>
Managed Scope	2. Create a scope change process that evaluates the necessity for a change, estimates the level of effort to incorporate the change and prioritizes the change against existing requirements.	High	Long Term
Managed Scope	4. Include funds in budget for change control.	High	Long Term
Managed Scope	5. Track scope modifications occurring after sprint team acceptance, including contract changes.	High	Short Term
Managed Scope	6. Produce a risk management plan and strategy that includes risk associated with any specific change in scope.	Medium	Long Term
	<b>GROUP 3: COMMUNICATIONS PLAN</b>		
Executive Management Support	5. Build upon the recent myDEQ project SharePoint portal by developing a more formalized communications plan that insures all myDEQ information is available and proactively shared within the entire ADEQ project team and stakeholders, both vertically and horizontally.	High	Short Term

User Involvement	9. Include user communications procedures in myDEQ’s overall communication plan.	High	Long Term
Experienced Project Management Resources	6. Expand project and stakeholder communications plans to include proactive outreach technologies and enhance inter/intra discipline collaboration.	High	Long Term
Skilled and Available Staff	6. Create a proactive resource acquisition and outreach plan that may include collaborating with other state agencies and ADOA-ASET.	High	Long Term
User Involvement	6. Leverage social media opportunities to communicate with myDEQ users and stakeholders.	Medium	Long Term
Responsive Business Requirements Process	13. Continue to work with ADOA-ASET so myDEQ Business Requirements accurately convey integration points with ADOA-ASET supported functions (e.g., JBILLING).	High	Short Term
<b>GROUP 4: CUSTOMER SUPPORT STRATEGY</b>			
Executive Management Support	10. Develop a customer support strategy, supporting both power and non-power novice users, which includes leveraging the opportunity associated with every instance of customer contact to manage and deliver a quality message.	High	Long Term
Standardized Infrastructure and Technical Architecture	9. Develop a customer support strategy and team anticipating electronic and direct customer contact.	High	Long Term
User Involvement	4. Insure that the myGuide remains an option for all members of the potential user community.	High	Long Term
User Involvement	7. Integrate training activities, including high level AGILE process and use case training, with user management and administration activities.	High	Short Term
Experienced Project Management Resources	7. Provide training to all myDEQ stakeholders exposing them to Agile Methodologies and each stakeholder’s specific role in making the project a success.	Medium	Long Term
Experienced Project Management Resources	8. Prioritize developing Agile support mechanisms forming knowledge bases that stakeholders can utilize to access desired information.	Medium	Long Term
Responsive Business Requirements Process	14. Include user support functionality in the BRDs, FRDs and Mockups. This includes tooltips, help screens, training videos, and ADEQ support contact information.	High	Long Term
<b>GROUP 5: PRODUCT OWNERSHIP</b>			
Executive Management Support	3. Continue to delegate the responsibility of business requirements and Mockup review, edit and approval to appropriate members of the ADEQ leadership team, including ADEQ Division Directors and Section Managers (SMs) overseeing and guiding the work being completed by ADEQ Administration, Air Quality, Waste Programs and Water Quality.	High	Short Term

Responsive Business Requirements Process	8. As mentioned earlier in this report, delegate more of the product ownership to ADEQ Section Managers and SMEs for accountability in making requirements decisions related to required user features and business rules.	High	Short Term
<b>GROUP 6: RESOURCE MANAGEMENT</b>			
Experienced Project Management Resources	5. Retain a senior level Agile experienced business analyst.	High	Short Term
Responsive Business Requirements Process	2. Retain the services of a third Business Analyst with Agile experience.	High	Short Term
Experienced Project Management Resources	9. Construct a resource requirements forecast model showing resource load requirements throughout all phases of the project lifecycle through the long maintenance and sustainability requirements.	High	Long Term
Managed Scope	3. Provide contingency plan for allowance of key resource backfill or reassignment.	High	Long Term
Skilled and Available Staff	3. Develop strategy for balancing project and operational resourcing requirements.	High	Long Term
Responsive Business Requirements Process	3. Retain the services of a senior Business Analyst to assist with overseeing the Business Requirements Management Process.	High	Short Term
Standardized Infrastructure and Technical Architecture	6. Hire ADEQ Enterprise Architect.	High	Short Term
Standardized Infrastructure and Technical Architecture	7. Hire 3 Java Developers.	High	Short Term
Skilled and Available Staff	1. Develop a staffing plan for all phases of the myDEQ project that includes the future myDEQ maintenance phases.	High	Long Term
Skilled and Available Staff	2. Develop and implement a long term contractor to ADEQ staff transition plan.	High	Long Term
Skilled and Available Staff	4. Create decision package and budget request for increased staffing requirements.	High	Long Term
Skilled and Available Staff	5. Develop a staff retention strategy that includes a professional development process.	High	Short Term
Skilled and Available Staff	7. Complete a salary survey for team skill sets.	Medium	Long Term
Skilled and Available Staff	9. Continue to focus upon identifying, hiring and/or retaining an Enterprise Architect, Program Manager, 3 Java Developers, WSO <sub>2</sub> Talent, Senior Business Analyst, Scrum Master.	High	Short Term
Skilled and Available Staff	10. Consider hiring a senior architectural, operational and developmental DBA.	High	Short Term

GROUP 7: GOVERNANCE			
Executive Management Support	9. Especially since ADEQ customers are not mandated to use myDEQ once it is available, as part of the PR Governance strategy, the executive team should begin to formulate and deliver myDEQ messaging to all potential users in anticipation of myDEQ's availability.	High	Long Term
Responsive Business Requirements Process	9. Include Business Requirements Management into Governance planning (IT, Security, Project, Public Relations and Data)	High	Long Term
Standardized Infrastructure and Technical Architecture	3. Include infrastructure and AZURITE in Governance planning including Data, IT, Security and Project Governance.	High	Long Term
Skilled and Available Staff	11. Consider retaining IT security for security governance development.	Medium	Long Term
Executive Management Support	4. Mature a formalized executive verification, feedback and acceptance process that enables the entire executive team to verify and insure that each incremental release of myDEQ functionality is aligned with its original vision and requirements.	High	Long Term
Executive Management Support	8. Prioritize myDEQ Governance development by focusing upon integrating the Governance constructs associated with Data, IT, Project (included in QA Practitioner recommendation), Security and Public Relations (PR) Governance.	High	Long Term
User Involvement	3. When involving the user community, include prioritizing the development of user myDEQ evangelists, stimulating ground level support, the construction of user notification plans, and the inclusion of all strata of users (e.g., expert and novice, licensees and data entry, etc.).	High	Long Term
User Involvement	5. Nurture user community relationships through proactive "reach out" programs including invitations to participate in the myDEQ conversation and providing periodic news/updates, forums, Frequently Asked Questions (FAQ) and Knowledge Base (KB) management.	Medium	Long Term
Experienced Project Management Resources	1. Design aggregated project success measures that provide ongoing immediate transparency into project status.	High	Short Term
Experienced Project Management Resources	2. Promote an Agile Project Management Process feedback and verification loop to insure the processes are correctly implemented and are resulting in desired outcomes.	High	Short Term
Experienced Project Management Resources	3. Continue the process of Agile process evaluation and maturity started by the recent hiring of the project advisor.	High	Short Term
Standardized Infrastructure and Technical Architecture	8. Develop a transitional maintenance development plan.	High	Short Term
GROUP 8: IT SECURITY			
Standardized Infrastructure and Technical Architecture	10. Complete infrastructure vulnerability assessment.	High	Long Term



GROUP 9: PRODUCT VISION MANAGEMENT			
Clear Business Objectives	1. As with previous recommendations, the business objectives and vision need to be decomposed and translated into forms that provide additional guidance to business analysts and development teams.	High	Short Term
Clear Business Objectives	2. A more in-depth on-going independent risk and financial analysis should be performed to insure the detailed work remains in alignment with the vision.	High	Long Term
Clear Business Objectives	4. Business objectives and vision should be included in any maturing communications plan and shared early in the process as part of the myDEQ messaging to all stakeholders.	Medium	Long Term
Executive Management Support	1. Even though the ultimate accountability for the myDEQ product lies squarely in the ADEQ Director’s Office, he should continue to disseminate and document his product vision by supporting the generation of a detailed, usable, referential myDEQ vision document.	High	Short Term
GROUP 10: OPERATIONS			
Executive Management Support	2. Provide guidance to all myDEQ agency and partnering resources in understanding the delicate balance between ongoing operational demands and the need to dedicate their expertise and time to the successful implementation of a quality myDEQ solution.	High	Long Term
Responsive Business Requirements Process	1. Proceed with IBM Rational Requirements Composer using experienced implementers to insure workflow and interoperability is configured correctly from startup.	High	Short Term
Responsive Business Requirements Process	10. Include Business Requirements Management into long-term sustainability and operations planning.	High	Long Term
Responsive Business Requirements Process	11. Continue to refine Business Requirements Management processes so this is no longer creating a backlog in the myDEQ project life cycle.	High	Short Term
Skilled and Available Staff	8. Create a myDEQ operations strategy that details how myDEQ will transition from the current build phase into ADEQ’s operational mode.	High	Long Term
Financial (Budgetary) and Vendor Management	2. Commence the process of quantifying the operational costs associated with sustaining myDEQ and include analysis on how myDEQ affects the financial requirements of all divisions of ADEQ.	High	Short Term
Financial (Budgetary) and Vendor Management	3. Make vendor service contract’s SOW working documents with enough detail to level set expectations while providing detailed clarity of what the outcomes of the SOW are to a QA Practitioner, the vendor, a reviewer or ADEQ personnel.	High	Short Term
Financial (Budgetary) and Vendor Management	4. Use SOW as working document to verify work is being completed as expected.	High	Short Term
GROUP 11: PROJECT MANAGEMENT			
Executive Management Support	6. While avoiding project “paralysis resulting from over analysis”, increase the involvement of appropriate myDEQ users/stakeholders to offer them the opportunity to provide product/project feedback between the myDEQ project initiation and user acceptance testing (UAT) phases.	Medium	Long Term
User Involvement	1. Develop and socialize a detailed delineation of potential myDEQ user roles that stratifies the user roles for UI/UX workflows, for feedback categorization and for input solicitation.	High	Short Term

User Involvement	2. Develop an ADEQ internal myDEQ user community administration group that manages, supports and administers steering committee’s activities as well as coordinating any external messaging (including value add determination processes and suggested ROI/TCO calculation methods) , directly applicable to myDEQ stakeholders (including satisfaction surveys).	High	Short Term
User Involvement	8. Provide UAT defects feedback and retest loop as well as invoking a process to track and respond to any feedback or inquiries.	High	Short Term
User Involvement	1. Whenever possible, include users in requirements validation process.	Medium	Short Term
Experienced Project Management Resources	4. Continue to apply Agile to additional facets of the myDEQ project including business requirements management and enabling enhanced executive/stakeholder engagement.	High	Short Term
Responsive Business Requirements Process	5. Quickly develop a UI/UX standard to utilize when generating requirements Mockups and for developmental guidance.	High	Short Term
Responsive Business Requirements Process	6. Develop a UI/UX standard for power users and another for non-power, more novice users.	High	Short Term
Responsive Business Requirements Process	7. Outside of the myDEQ Action Item Decision Log, develop an internal requirements forecasting process to assist in the entire project team’s ability to anticipate future pipelines.	Medium	Long Term
Responsive Business Requirements Process	12. Continue to evolve the understanding that myDEQ Business Requirements are not guidelines but product specifications.	High	Short Term
Standardized Infrastructure and Technical Architecture	1. Analyze the effect myDEQ processes will have upon AZURITE.	High	Short Term
Standardized Infrastructure and Technical Architecture	2. With the increased agency dependency upon AZURITE, begin evaluating the data cleanup and credibility requirements for potential expanding usage and exposure.	High	Short Term
Standardized Infrastructure and Technical Architecture	4. With respect to enterprise architecture implementation, develop a feedback and review process that provides verification that technical design and the actual codebase reflect the chosen enterprise architecture.	High	Short Term
Standardized Infrastructure and Technical Architecture	5. Develop a plan to implement a Content Management System.	High	Short Term
Standardized Infrastructure and Technical Architecture	11. Develop a myDEQ AZURITE data quality plan that includes data stewardship and direct data credibility accountability.	High	Short Term

\*Short Term = one to six months

†Long Term = seven months to life of myDEQ