



MCESA

Maricopa County Education Service Agency

MCESA REILize Decision Support System Business Requirements Specification (BRD)

MCESA REIL Assessment System

Prepared By: Michelle Udvardy, Tara Sprouse,
and Loren Sucher
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Arizona Department of Education
1535 W. Jefferson Street
Phoenix, Arizona 85007-3209



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1.1 Version History

VERSION HISTORY			
ID	Date	Revised By	Reason for change
0.1	1/30/2012	Michelle Udvard, Tara Sprouse, and Loren Sucher	DRAFT
0.2	3/23/2012	Loren Sucher, Bob Conlin	Updated requirements from meetings with MCESA, updated to new MCESA BRD template
0.3	3/28/2012	Loren Sucher, Bob Conlin	Updated document to incorporate changes from Baseline review

1.2 References

REFERENCES		
Supporting Documentation Title	Purpose	Document

1.3 Stakeholders

STAKEHOLDERS			
Organization	Stakeholder Name	Title	Email Contact
MCESA	Dr. Don Covey	County Superintendent of Schools	Don.Covey@mcesa.maricopa.gov
MCESA	Kristine Morris	Chief Deputy Superintendent	Kristine.Morris@mcesa.maricopa.gov
MCESA	Dr. Lori Renfro	Asst Supt, Performance-Based Management Systems	Lori.Renfro@mcesa.maricopa.gov
MCESA	Al Dullum	REIL Data Management System Project Manager	Al.Dullum@mcesa.maricopa.gov
MCESA	Dr. Anabel Aportela	REIL Resource and Sustainability Administrator	Anabel.Aportela@mcesa.maricopa.gov
MCESA	Dr. Lori Shough	Assistant Superintendent	Lori.Shough@mcesa.maricopa.gov
MCESA	Candace Diehl	Director of Standards and Assessments	Candace.Deihl@mcesa.maricopa.gov
ADE	Mark Masterson	Chief Information Officer, Arizona Department of Education	Mark.Masterson@AZed.gov
ADE	Linda Jewell	Deputy CIO, Arizona Department of Education	Linda.Jewell@AZed.gov
ADE	Pamela Smith	Executive Director of Strategic IT Programs, Arizona Department of Education	Pamela.Smith@AZed.gov
ADE	Gene Saadi	Program Director, Arizona Department of Education	Gene.Saadi@AZed.gov
ADE	Jolene Newton	Project Manager, Arizona Department of Education	Jolene.Newton@AZed.gov

STAKEHOLDERS

Organization	Stakeholder Name	Title	Email Contact
Learning Mate	Amit Soman	VP Enterprise Solutions, Learning Mate	Amit.Soman@LearningMate.com

1.4 Document Approvals

This document has been approved as the official Business Requirements Document (BRD) for the MCESA REILize Assessment System project by the business stakeholders.

Following approval of this document, changes will be governed by the project’s change management process, including impact analysis, appropriate reviews and approvals, under the general control of the Master Project Plan and according to the Arizona Department of Education Project Management Office policy.

DOCUMENT APPROVALS

Approver Name	Project Role	Signature/Electronic Approval	Date
Kristine Morris	Chief Deputy Superintendent		
Gene Saadi	Program Director and Primary Stakeholder Liason		
Linda Jewell	Deputy CIO and Stakeholder Liason		

2 Introduction

The Maricopa County Education Service Agency (MCESA) has undertaken a five-year initiative aimed at improving student academic progress by increasing the effectiveness of teachers and principals. Six local school districts are engaged in the Rewarding Excellence in Instruction and Leadership (REIL) initiative, which is funded by a Teacher Incentive Fund grant from the U.S. Department of Education.

The REIL initiative, at this phase of the project, is comprised of the following modules: Data Management (formerly known as Student-Teacher Link), Observation Tool, Professional Development (formerly known as Curriculum Resources), Assessment System, Educator Goal Plan, Video Bank and Administration & Reporting.

- Data Management consists of:
 - Course Mapping,
 - HR & Payroll PAR Generation,
 - Incentive Reporting for Teachers,
 - Verification Tool, and
 - ETL/SOA.
- Professional Development consists of:
 - Online Modules,
 - Face-to-Face Sessions,
 - Online Development Sessions with Registration,
 - Scheduling,
 - Progress monitoring and reporting.
- Assessment System includes:
 - Authoring,
 - Test Set Up,
 - Administration
 - Scoring, and
 - Reporting/Analysis.
- Educator Goal Plan module includes:
 - Scheduling & Calendar,
 - Evaluation of Results & Approvals,
 - Teacher Support Plans, and
 - Goal Plan Templates.
- Administration & Reporting consists of:
 - Dashboards,
 - REIL score which is comprised of:
 - Observation
 - Value-Added Scores,
 - Data Analysis,
 - Role-Based Management,
 - Verification of Rosters & Scores, and
 - RDSS setup.

With respect to the Assessment System (AS), the MCESA REIL project will utilize AIMS assessments for the grade levels and content fields where the tests exist. For subjects in grade levels where no AIMS tests exist, MCESA will utilize available tests from Galileo and Global Scholar, purchase vetted items from other vendors, or develop new assessments. The Assessment System described in this document will be used to author, set up, administer, score, and report on these additional tests. The Assessment System will also serve as a tool for districts and individual teachers to create and deliver low-stakes such as district benchmark tests, practice tests, and classroom quizzes.

3 Purpose and Scope

3.1 Purpose

The purpose of this document is to describe business requirements of an application completely, accurately and unambiguously in a technology-independent manner. All attempts have been made in using mostly business terminology and business language while describing the requirements in this document. Very minimal and commonly understood technical terminology is used.

This document will require review and approval sign-offs in order to complete this phase of the project and proceed to the next phase of the project.

The document contains the following sections: Document Information, Introduction, Purpose and Scope, Description of the Project, Business Requirements, Non-functional Requirements, Glossary of Terms, and if necessary, an Appendix.

The Business Requirements that have been collected and defined in this document as a result of a series of meetings and follow-up interviews with MCESA business owners and stakeholders that occurred between February 10th and February 14th; reviewing and analyzing previously created project documentation posted on the MCESA REIL SharePoint site; additional follow-up email correspondence, and multiple ADE internal reviews of the BRD.

Business owners and stakeholders from MCESA and ADE officials have specified business requirements and key features for the delivery of the Assessment System. This document should contain enough detail from which the IT Business Analysis and Development Staff can derive and develop detailed functional requirements and use cases in the next phase of the project. The next phase of the project is to consider either building in-house or buying from a third-party vendor. Thus, a request for information (RFI) document will need to be prepared. An RFI is a formal request made, to ascertain whether a vendor's product would be suitable for addressing MCESA's stated business requirements. Assuming that one or more vendor product's can satisfy the business requirements, then a request for proposal (RFP) would be prepared and issued. An RFP is a document to elicit formal bids from potential vendors for a product or service. The next step is a comparative analysis between the vendor's responses to the RFP with the in-house response in terms of business requirements coverage and cost estimates to implement and sustain the system. If the decision is made is to build, then the Functional Specifications Document will be one key deliverable in the next phase of the project. Regardless of whether the solution is built or purchased, a Use Case Document will also be a key deliverable.

The check marked option below indicates the type of requirements and overall purpose of this documentation:

- Business requirements for major enhancements to an existing application
- Business requirements for new application development
- Business requirements for replacement application development
- Business requirements for a request for information (RFI)
- Business requirements for a request for proposals (RFP)

3.2 Scope of Work

The scope of this document is to define and prioritize each business requirement that the new Assessment System needs to encompass. Each business requirement should be stated in clear, concise language and covering one discrete thought or idea. Each requirement should be numbered and associated with a corresponding User Story or expected experience in interacting with the Assessment System feature or function, as well as articulating any exceptions and rules.

4 Description of the Project

4.1 Description

The purpose of the MCESA REIL Assessment System is to provide the ability to develop, deliver, and store test items and test forms, as well as store assessment results and perform result analysis. This system will contain assessments for all content areas across all grade levels K through 12. Multiple standardized test forms may be used in the calculation of the Value-Added score. For instance, the AIMS assessment will serve as one of the assessments for the subjects and grade levels where a test is available, including reading, mathematics, and science.

Numerous districts will work collaboratively to develop standardized assessments for the non-traditionally tested content areas such as Physical Education, Art, and Music. Existing solutions from vendors may be used to test traditional subjects in grade levels where the AIMS assessment is not available.

The major goals and objectives of the Assessment System (AS) are to provide the following key features and functions:

- **Authoring:** Provide an authoring system in which “high stakes” REIL test items and test forms can be imported or created, reviewed, field tested, and administered. The AS should also be able to support creation and administration of district and classroom “low stakes” assessments.
- **Test Set Up:** Prepare testing environments for REIL assessments. The AS should also provide a process for preparing district and classroom “low stakes” assessments.
- **Administration:** Administer REIL assessments to students. The AS should also administer district and classroom “low stakes” assessments.
- **Scoring:** Score REIL assessments and export data for REIL Value-Added score analysis. The AS should also score district and classroom “low stakes” assessments.
- **Reporting:** Provide reporting and analysis on REIL assessment results. The system should also provide reporting and analysis for district and classroom “low stakes” assessments.
- **System:** Ensure that all components are in place to support a secure, “high stakes” test environment. The AS should also have necessary components to support district and classroom “low stakes” assessments.

A primary characteristic of the Assessment System must be support of long-term sustainability for the processes developed under the REIL grant. The AS should fulfill all requirements for developing and administering REIL student assessments and teacher assessments during the course of the grant. It should also serve for developing and administering district and classroom formative assessments. Beyond the life of the grant, the AS must be flexible to future changes in assessment practices, so that all processes can continue without interruption.

4.2 Rationale

The purpose of the REIL Assessment System is to have a centralized location where test items and test forms can be authored, reviewed, field tested, administered, scored, analyzed, and stored. In addition, the AS will be the location for storage of item blueprints, item banks, test maps, test form banks, and student scores on all tests. The scores from the AS will be used to calculate student growth scores which will feed into school, team, and individual educator Value-Added scores. The AS will also serve as an assessment tool for creating and administering “low stakes” district and classroom assessments.

4.3 Environment

The diagram below illustrates the REIL Assessment System environment and the context of the applications internal and external interfaces.

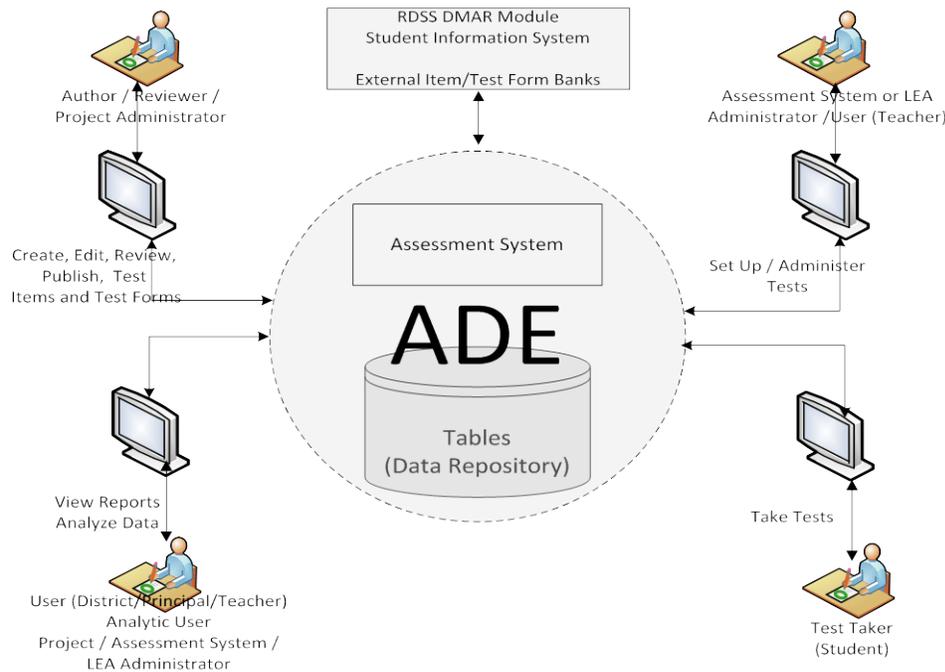


Figure 1: REIL Assessment Environment

4.4 User Characteristics

The following is a list of known user roles that are expected to interact with the AS module and the users potentially associated with the roles. This may not be an exhaustive list. NOTE: Individual users of the AS may serve multiple roles in the system. In such cases, those users may have multiple login IDs to grant them appropriate role-based privileges for each role.

NOTE: Individual users of the AS may serve multiple roles in the system. In such cases a single login ID will grant users appropriate role-based privileges for each role.

The following table describes the Users currently identified, anticipated permissions as outlined by the MCESA REIL Stakeholders for the AS module, and the skill level that may be required and their general role. Skill levels are ranked high for requiring a significant amount of knowledge and skill to interact with the functionality; medium for a mid-level knowledge, to low, for a small amount of knowledge and skill.

User(s)	Description	Skill Level	Role(s)
MCESA Employee	<ul style="list-style-type: none"> Set up programs to use AS Assign roles, permissions, and rights for AS users Set window for secure test administration Other administrative tasks to be defined 	High	Assessment System Administrator

User(s)	Description	Skill Level	Role(s)
MCESA Employee (Assessment Coordinator) Psychometrician	<ul style="list-style-type: none"> Write assessment blueprints Create test maps Approve quality of test items/ test forms Provide support to test item writers and reviewers Construct design decisions Publish test form Build Teacher Administration Manual (TAM)s 	High	Project Administrator
District Assessment Specialist	<ul style="list-style-type: none"> Oversee test setup and administration at schools 	High	LEA Administrator
MCESA Employee Teachers District Office Personnel Psychometrician Vendors	<ul style="list-style-type: none"> Write assessment blueprints Write test items/ create test forms Create test maps Edit test items/ forms Enter test items into AS 	High	Author
MCESA Employee Vendors District Office Personnel (district) Teachers (district)	<ul style="list-style-type: none"> Review items/ forms Revise items/ forms Enter comments 	High	Reviewer
MCESA Employee District Office Personnel (district)	<ul style="list-style-type: none"> Review test items/ forms Revise items/ forms Enter comments 	High	Approver
MCESA Employee Teacher District Office personnel Superintendent Assistant Superintendent Principal Assistant Principal REIL Field Specialist Instructional Coach (Peer Evaluator) Master Educator	<ul style="list-style-type: none"> Read only access to AS Print the following: <ul style="list-style-type: none"> Blueprints Reports These users have read only access within the AS, however they may view data provided from AS in the form or reports and/or dashboards in the REILize Decision Support System 	Varies	User
Student	<ul style="list-style-type: none"> Take Assessment View Student Reports 	Low	Test Taker
Psychometrician MCESA Employee	<ul style="list-style-type: none"> Receive raw data from AS 	High	Analytic User

4.5 General Constraints

ID	Constraint
4.5.1.1	AS will be a web-based tool that uses current browser technology and is compatible with the following commonly used browsers: Internet Explorer 7 and above, Chrome 1.5 and above, Safari 4.0 and above, and Firefox 8.0 and above, and Firefox Mobile.
4.5.1.2	AS should exchange data with other RDSS systems
4.5.1.3	AS should exchange data with a district SIS
4.5.1.4	AS should be compatible with scanners and student response systems (e.g., clickers)
4.5.1.5	AS should support PDFs
4.5.1.6	AS should be compatible with varied hardware input systems such as personal computers, iPads/iPods, Android tablets, smartphones and other mobile devices
4.5.1.7	AS should allow for import of files and results from other assessment systems as long as QTI standards are followed
4.5.1.8	AS must be able to store various media formats for test items such as static images (pngs, gifs, jpgs), media players (Flash, Quicktime, Windows Media), and audio file formats (mp4) and be able to display high resolutions images
4.5.1.9	AS must be able to render and play raw footage video on H.264 compliant devices.
4.5.1.10	AS must be able to play a movie in Flash created with Adobe Captivate.
4.5.1.11	AS should be compatible with various software systems such as PC and Macintosh operating systems: Windows 7, Mac OS 10.5, Android 2.2, iOS 4
4.5.1.12	AS should be able to provide online test administration and/or paper/pencil test administration
4.5.1.13	AS should provide antivirus checking on any uploaded external file content including multimedia files, image files (e.g. gif and jpg), or other attachments such as PDF's, etc.
4.5.1.14	Data that is stored or used by the AS shall be CEDS (version 2) and QTI (version 2.0) compliant.

4.6 Assumptions and Dependencies

4.6.1 Assumptions

Project Assumptions are listed in the table below. It is important to understand that changes in these assumptions may have an effect on the scope of the project and in turn have a significant impact on the overall project cost and timeline.

ID	Assumption	Implications
4.6.1.1	The AS will only contain assessments administered to students.	If the AS is also the intended location for creation, review, and storage of the assessment items for educators, we need to be aware of this to increase our proposed capacity and proposed user privileges. We also need to elucidate the dependencies that this will create between the AS and the video bank, educator goal plan, and other components of the RDSS.
4.6.1.2	The AS database will not store scores from high stakes tests taken outside of the assessment system such as AIMS, AZELLA, SAT, Stanford, ACT, etc. All of these data elements will be brought into the RDSS.	If the AS database needs to store AIMS or other high stakes scoring data, it needs to be connected to the ADE database to get this information. The database will also need to be much larger to hold this data. There will be additional security issues surrounding the storage of these high stakes test outputs.
4.6.1.3	Currently, MCESA is using a third party vendor tool (WestEd) for authoring new test items in traditionally non-tested subjects. Once the items are written in WestEd, they will be transferred into ATI/Galileo or D2SC systems for review by WestEd employees. This data will ultimately need to be stored in the AS defined within this document. The transfer of this data, through QTI standards, will include answer choice rationale where available. This includes test items, test forms, and test results.	If the data from this workflow cannot migrate into the new AS, the data would need to be re-keyed into the new AS. If this workflow, as described, is not followed for now, there is no way to move the creation of new items and new tests ahead.
4.6.1.4	The AS will adhere to QTI data standards	If the AS does not adhere to QTI data standards, then there will be issues importing content and results from other assessment systems or exporting content and results to other systems.
4.6.1.5	For printed REIL tests, MCESA, or their designated vendor, will be responsible for printing and delivering the assessments in order to maintain the highest possible level of security.	If MCESA or their designated vendor is not the only party capable of printing the assessments, there is a possible risk that the items will no longer be secure.
4.6.1.6	Paper and pencil tests will be pre-slugged and scanned at the district.	If the scanning of these items does not occur at the district, then MCESA will have to absorb the cost and the time of running these forms.
4.6.1.7	AS will not be the location for calculating a Value-Added score of a teacher, team, or school. This will occur within RDSS.	If the AS will be the location for the calculation of the Value-Added score, then several other requirements will need to be included here.

ID	Assumption	Implications
4.6.1.8	AS will produce canned reports such as item analysis but will not be the location for ad hoc or custom reporting for REIL tests which will occur in RDSS.	If the system does not produce canned reports, then this functionality will need to occur elsewhere in another RDSS module. If MCESA desires customized reports to be run through the AS, we need to spell this out in the requirements listed in this document.
4.6.1.9	AS can customize the format of newly created high-stakes tests to match state high stakes test.	If the tests do not have the look and format of high stakes tests, then the students may not take the tests seriously.
4.6.1.10	Imports of user and organizational information for the assessment system will come from RDSS. The AS will import student, educator, and organizational information from the RDSS DMAR module prior to each high stakes REIL test or a future data source to be identified by ADE.	If this information is not taken from the RDSS the data may not be updated and accurate. Also, if the data is not imported, then someone may need to manually enter it.
4.6.1.11	User management as defined in RDSS will transfer into AS. AS will apply RDSS user roles when setting privileges in the user management system of the AS.	The data contained within this system is highly sensitive and needs to be secure as it involves student and teacher performance. Proper access to fields of data needs to be secured by defined user roles.
4.6.1.12	During the duration of the grant, the AS will only be responsible for the creation and storing of secure items and secure tests including items that are not included in current secure tests but are being stored for possible future use in either secure or non-secure settings. Beyond the grant period, the AS will need to have a means for creation and storage of non-secure test items separate from secure items. Access to these two different test item banks will be determined by user roles.	If separate item banks cannot be maintained, then items marked for use in high stakes tests may not be secure and may be released into general circulation compromising the items.
4.6.1.13	The AS provides a secure testing environment which follows "High Stakes" testing standards.	If the environment for storage of test items and forms and for administration of tests does not follow high stakes requirements, the security of the items and the tests could be compromised.
4.6.1.14	The AS will begin administering tests in the 2012-2013 school year.	The system needs to be completely functional by this time or performance based pay may be affected.
4.6.1.15	The AS must be able to adapt to users' assessment methodologies, implementation plans, and on-going processes. As needed, the AS should be easily modified to incorporate any changes (e.g., performance-based assessments and constructive response assessments).	If the system cannot grow, be modified, and adapt then a patch will need to be created to address the newly needed functionality or another system will need to be secured. Moving all items and scores to another system would be a time-consuming process with inherent risk of losing data elements.

ID	Assumption	Implications
4.6.1.16	The AS will not be required to create or administer computer adaptive tests for the next 3-5 years.	The requirements written in this document do not spell out the needs of computer adaptive capabilities. The statistics involved would need to be illustrated for the system. The test banks would also need to be increased to accommodate the diversity of skills. The cost will also increase for the purchase or construction of the AS if this functionality is needed or desired in the future.
4.6.1.17	MCESA does not require a pre-populated item bank.	If the system needs to be pre-populated there may be an additional cost to secure vetted items and test forms. There may be copyright and usage constraints with the vendor around these items.
4.6.1.18	The AS should store data by courses and grade level, not just by grade level.	If the system cannot accommodate course titles instead of grades, tracking of courses would be very difficult.
4.6.1.19	The AS should be capable of supporting tests at multiple levels for multiple programs (e.g., REIL High-Stakes tests, district benchmark tests, classroom practice tests and quizzes, etc.)	If the system cannot support all levels, it would be necessary to obtain a separate system to perform the “low-stakes” tests to support MCESA’s plan to also offer formative assessments in the future.
4.6.1.20	Because of the High-Stakes nature of REIL Grant test results, the AS should support an appeals process for modifying results.	If the system cannot support appeals, and appeals are considered a necessary step of the REIL Grant process, the process would need to be done manually and might become out of sync with system data.
4.6.1.21	REIL assessments may or may not be administered by the course instructors of record (e.g., math test may not be administered by math teachers) but may instead be administered by homeroom teachers or others.	This will allow a wider range of test administrators.
4.6.1.22	The AS will be able to use graphics and color, etc. in reports and should present data in easy to understand formats (e.g., color coding, bar charts, line graphs, pie charts, tables, etc.)	If the system does not use the full graphical options, reports may be hard to read.
4.6.1.23	The AS will comply with Federal regulations (NCLB, IDEA, FERPA)	Violation of Federal regulations can cause fines, loss of funding and/or litigation.
4.6.1.24	The AS will provide encrypted and highly secure access to assessments and reports via the World Wide Web.	Only authorized users based on roles should be able to access the system.
4.6.1.25	The AS should be able to play the following video formats: MPEG4, 3GPP, MOV, AVI, MPEGPS, WMV, and FLV.	If not the system will not support the same video standards of the other RDSS modules. Provides compatibility with Video Bank format requirements.

ID	Assumption	Implications
4.6.1.26	The AS will rely on RDSS DMAR module as the accurate source of student and organizational data to be imported prior to each high stakes REIL.	If not the data may not be in sync with other RDSS modules.
4.6.1.27	The AS will have a way to store/archive item information such as copyright, public domain, reference, etc.	If not, maintenance and updating of items will be difficult and perhaps cause legal challenges to content.
4.6.1.28	The AS will provide security of MCESA- and district- developed items from any unauthorized use by other entities, including AS vendors.	If not, items may be used by unauthorized users prompting legal action to protect MCESA's or the district's intellectual property rights.
4.6.1.29	All data elements, including, but not limited to, tests items, test forms, and student results must clearly identify the academic standards associated with each.	If not, items may be overlooked when creating test forms and test results by standard might not report correctly.

4.6.2 Dependencies

This section describes dependencies between the Application for which these Business Requirements are written and other applications, databases, and/or processes.

ID	Dependency
4.6.2.1	AS must have the ability to link to RDSS modules, including the identity management tools.
4.6.2.2	AS must interface with WestEd, Galileo, and D2SC

4.7 Project Risks

This section describes the identified risks to success as determined during the course of requirements gathering and definition. The business may already be aware of some of these, but they will be listed here as a reminder and confirmation of MCESA business and ADE Information Technology awareness, even if the current status is "Retired".

ID	Project Risk	Implications	Severity	Status
4.7.1.1	Galileo and WestEd MAP currently are not QTI compliant.	When the new AS vendor is selected, there is a risk that test item content, test form content, and student results will not follow QTI standards for interoperability requiring manual entry.	High	Need to review SLAs with Galileo and WestEd

ID	Project Risk	Implications	Severity	Status
4.7.1.2	If AS will be used as planned in 2012-2013 school year, it may need to pull data from RDSS modules before the rest of RDSS is defined and implemented.	If the user and organization data must come through RDSS, and the RDSS structure is not ready, tests might not draw from the most current list of user and organization files. May have to import data from SIS as backup capability.	High	Specifications currently being defined in the DMAR BRD.
4.7.1.3	Industry standards still need to be selected by data governance commission and approved by state board of education.	May choose a different set of industry data standards.	High	

5 Business Requirements

The priority definitions used in the business requirements are listed below.

Priority	Description
Critical	This level requirement meets MCESA REIL grant criteria and must be included in the initial release of the project.
High	This level requirement meets criteria to be vetted with business owners and stakeholders before inclusion in the initial release of the project.
Medium	This level requirement is considered a “nice to have” item that has been vetted with customer for possible inclusion within a future release of the project.
Low	This level requirement meets criteria to be excluded from initial release of project, but should be tracked as a potential enhancement to be vetted with business owners and stakeholders for possible inclusion with a future release of the project.

The business requirements for the AS are divided into six categories:

1. Authoring tools for creating, reviewing, field testing and publishing test items and test forms.
2. Test Setup tools to prepare testing environments.
3. Administration tools to administer tests.
4. Scoring tools to score tests
5. Reporting and Analysis tools for reporting on tests.
6. System Requirements

5.1 Authoring

5.1.1 Import Multiple Standards Documents

BR-01	
Priority:	High
Release:	
User Story:	As the Project Administrator, I need to ensure that the system regularly imports current state and national standards (e.g., Arizona Academic Content Standards and Common Core State Standards, and ISTE) to which all assessment items are aligned.
Module:	Assessment System
Description:	The ability to incorporate and utilize multiple sets of standards (state, 21st Learning, etc.) for assessment and reporting purposes. The AS should allow for importing of a standards from a standards warehousing group such as Academic Benchmarks. Ideally the standards will be the same set used in other areas of the RDSS.
Exceptions:	Commercially available standards may not be available for all subjects. The standards may need to be manually entered into the system in that case.
Rules:	The following business rules apply to this requirement:
5.1.1.1 The database should be updated on a regular basis to stay current with any changes.	

5.1.2 Identify Instructional Priorities

BR-02	
Priority:	Critical
Release:	
User Story:	As the Project Administrator, I need to print cards containing selected education standards, capture results of group discussions on priorities of the standards, and enter group decisions in the AS.
Module:	Assessment System
Description:	Create printed cards of selected education standards. Using the cards, a teacher discussion group prioritizes the instructional items, and the results are entered into the AS.
Exceptions:	None at this time.
Rules:	The following business rules apply to this requirement:
5.1.2.1 The standards are selected from the standards documents that are imported into the AS.	

5.1.3 Create Item Specifications

BR-03	
Priority:	Critical
Release:	
User Story:	As the Project Administrator, I need to enter item specifications for items to include in an item bank.
Module:	Assessment System
Description:	The AS allows users to enter Item specifications for each standard that include instructional priority level, Performance Objectives (PO) description, and DOK.
Exceptions:	
Rules:	The following business rules apply to this requirement:
5.1.3.1	

5.1.4 Create Assessment Blueprints

BR-04	
Priority:	Critical
Release:	
User Story:	As the Project Administrator, I need to create a specifications for items to include in an item bank.

BR-04	
Module:	Assessment System
Description:	The Project Administrator uses the AS to create a blueprint that defines that defines the general characteristics of items to be included in an item bank. Among the characteristics are the strand the item is associated with, the percentage of items, and minimum number of items needed for each standard.
Exceptions:	
Rules:	The following business rules apply to this requirement:
<p>5.1.4.1 For the initial REIL project, blueprints are being created using spreadsheets which will be moved into the AS.</p> <p>5.1.4.2 In the future, users of the AS may also wish to create assessment blueprints for other uses, such as delivery of district benchmark assessments.</p>	

5.1.5 Create Secure Item Bank

BR-05	
Priority:	Critical
Release:	
User Story:	As the Project Administrator, I need a secure item bank so that Authors can create the items for REIL Grant assessments.
Module:	Assessment System
Description:	The Project Administrator uses the AS to define the attributes of each item to be included (e.g., item format, cognitive level, etc.). The attributes are a subset of metatags that will be associated with each item.
Exceptions:	For reasons of moving ahead with the project, the current process requires writing items in one system and moving them into another for delivery / administration. Items for HS English, Math, and Science are being purchased rather than developed.
Rules:	The following business rules apply to this requirement:
<p>5.1.5.1 For the initial REIL project, items and assessments are being created in the WestED tool and converted into Galileo and D2SC. However, going forward, the goal is to manage the entire process with one tool.</p> <p>5.1.5.2 In the future, users of the AS wish to create secure item banking for other uses, such as delivery of district benchmark assessments.</p>	

5.1.6 Create Non-Secure Item Bank

BR-06	
Priority:	High
Release:	

BR-06	
User Story:	As the Project Administrator, I need to create a non-secure item bank so that Authors can create the items for various types of assessments.
Module:	Assessment System
Description:	The Project Administrator uses the AS to define the attributes of each item to be included (e.g., item format, cognitive level, etc.). The attributes are a subset of metatags that will be associated with each item.
Exceptions:	
Rules:	The following business rules apply to this requirement:
<p>5.1.6.1 Separate bank definitions will be created for each grade and subject/course.</p> <p>5.1.6.2 Following creation of the REIL Grant tests, MCESA has expressed interest in creating additional items for formative assessments.</p> <p>5.1.6.3 Ability to create and bank non-secure item will support use of the AS for broader use as a formative assessment tool.</p>	

5.1.7 Create Test Items (Secure)

BR-07	
Priority:	Critical
Release:	
User Story:	As an Author, I need to create and enter new test items into the AS and use these items to create secure, high-stakes tests .
Module:	Assessment System
Description:	An Author is contacted to create new items for a particular content area and grade level and does the authoring of these items within the AS.
Exceptions:	For reasons of moving ahead with the project, the current process requires writing items in one system and moving them into another for delivery / administration. Items for HS English, Math, and Science are being purchased rather than developed.
Rules:	The following business rules apply to this requirement:
<p>5.1.7.1 The system will maintain a bank of secure items that are available only to authorized users to create high stakes tests.</p> <p>5.1.7.2 All items will initially be in Multiple Choice format, but other formats may be included later in the grant. Initially, only Multiple Choice items will be used in the calculation of the REIL score.</p>	

5.1.8 Create Additional Test Items (Secure or Non-Secure)

BR-08	
Priority:	Critical
Release:	

BR-08	
User Story:	As an Author, I need interfaces for creating varied item types so that I can effectively measure student performance.
Module:	Assessment System
Description:	<p>The system will offer a rich library of item formats including the following:</p> <ul style="list-style-type: none"> • Choose Many • Choose One • Short Answer • Fill-In-The-Blank • Essay • Matching • Grid-able • Rubric Scored/Based • Constructed Response • Scenario Based • Observational/Checklist <p>The system will also support newer technology enhanced item types such as those being developed by PARCC and SBAC that include Drag-and-Drops, Paragraph questions, etc. .</p>
Exceptions:	These item types may or may not be incorporated during the current grant period.
Rules:	The following business rules apply to this requirement:
5.1.8.1	The Assessment System Administrator will define in blueprints which item formats to use.
5.1.8.2	MCESA has expressed an interest in using additional item formats beyond the grant period.
5.1.8.3	The system must offer a place to store and retrieve scoring rubrics for rater-scored items.

5.1.9 Create Performance Based Items (Secure or Non-Secure)

BR-09	
Priority:	High
Release:	
User Story:	As an Author, I need to create performance and rubric based items to provide my users with rich testing environments.
Module:	Assessment System
Description:	As the AS grows, rubric based evaluations will be included in areas such as the performing arts, writing, science, and physical education. These types of items may require the evaluator to observe and assess a project or performance of complex nature and performed over time.
Exceptions:	These item types may or may not be incorporated before the end of this current grant period.
Rules:	The following business rules apply to this requirement:

BR-09	
<p>5.1.9.1 MCESA will define specific rules for creating performance-based assessments for each subject/course and grade level prior to beginning developments of assessments. These criteria will be included in assessment blueprints.</p>	

5.1.10 Import Test Items and Forms

BR-10	
Priority:	Critical
Release:	
User Story:	As a Project Administrator, I need to import test items and test forms into the AS, so that items and tests previously created and/or purchased and previous achievement scores can be utilized in the AS.
Module:	Assessment System
Description:	AS must provide a method to take in test items and test forms created in other assessment systems or purchased from other assessment vendors as long as they follow QTI standards. In addition, the AS will have the ability to load assessments from other sources such as those created at districts, again, as long as QTI standards are followed.
Exceptions:	
Rules:	The following business rules apply to this requirement:
<p>5.1.10.1 Import content should use QTI standards 5.1.10.2 Vendor agnostic 5.1.10.3 Imported items as part of a imported form should also be stored separately as unique items in a bank.</p>	

5.1.11 Import Complete Item Banks

BR-11	
Priority:	Low
Release:	
User Story:	As a Project Administrator, I want to save time by allowing Authors to import items from a bank of previously vetted items for formative assessments.
Module:	Assessment System
Description:	The system will allow for importing a wide range of test item content and materials of various types and from various sources (e.g., state-adopted, district-adopted, district-created, teacher-created, district licensed). MCESA has expressed a desire to develop non-secure items following the creation of the secure items. Licensing item banks aligned to the Common Core standards would quickly expand available items for this purpose
Exceptions:	

BR-11	
Rules:	The following business rules apply to this requirement:
<p>5.1.11.1 MCESA may import banks exclusively for their use.</p> <p>5.1.11.2 Districts and Schools may import banks for their use, subject to size restrictions to be defined. All items would follow QTI Standards.</p>	

5.1.12 Enter Distractor Rationale

BR-12	
Priority:	Critical
Release:	
User Story:	As an Author, I will enter rationales for each item choice so that Reviewers, Teachers (Users), and Students (Test Takers) can understand potential misconceptions in student learning.
Module:	Assessment System
Description:	An Author will provide rationale for each distractor that speaks to the content connection to ensure that each question is high quality. Reviewers use the rationale statements during the item review process.
Exceptions:	Purchased items may not include this information. General users will not have access to rationale of secure items.
Rules:	The following business rules apply to this requirement:
<p>5.1.12.1 MCESA requires that all newly created REIL test items include the answer choice rationales.</p> <p>5.1.12.2 This is one example of metatagging of items mentioned in a separate requirement.</p> <p>5.1.12.3 The Assessment System Administrator may decide that separate rationale are needed for Reviewers/Teacher (which will assume technical understanding) vs. those for Students (which will be written to student level of understanding)</p>	

5.1.13 Review Distractor Rationale

BR-13	
Priority:	High
Release:	
User Story:	As a User (Teacher), I will read distractor rationale in reports about my students' performance to identify possible misconceptions to address in immediate remediation or future lesson planning.
Module:	Assessment System
Description:	A teacher may view the rationale as part of an item analysis report either online or in printed format.
Exceptions:	In order to protect security of the items, REIL test items and their rationale will not be shown to Users.

BR-13	
Rules:	The following business rules apply to this requirement:
5.1.13.1 This will only be available to teachers and students for non-secure assessments.	

5.1.14 View Distractor Rationale

BR-14	
Priority:	High
Release:	
User Story:	As an Test Taker (Student), I may view distractor rationales as online explanations or in printed reports to formative assessments.
Module:	Assessment System
Description:	A student may read the rationale to help remediate errors on tests.
Exceptions:	In order to protect security of the items, REIL test items and their rationale will not be shown to Test Takers.
Rules:	The following business rules apply to this requirement:
5.1.14.1 The option to review items should be determined by the Assessment System Administrator.	

5.1.15 Enter General Metadata

BR-15	
Priority:	Critical
Release:	
User Story:	As an Author, I need to enter information about a test item so it can be located through a search on key criteria for review and/or selection to use on a test form.
Module:	Assessment System
Description:	The system must allow users to associate essential data with items and tests based on QTI format; these include grade, subject, Common Core standards, state or district Performance Objectives, cognitive levels, Bloom's Taxonomy, Webb's DOK, difficulty level, key words, target audience, test form name, etc.
Exceptions:	
Rules:	The following business rules apply to this requirement:
5.1.15.1 MCESA will determine the information to be entered for each item.	
5.1.15.2 The categories for metadata will be reflected in the item bank blueprint and AS will create the input fields for the metadata.	
5.1.15.3 The AS must allow Authors to attach an item to more than one standard or objective.	

5.1.16 Import, Calculate, and Store Statistical Metadata

BR-16	
Priority:	Critical
Release:	
User Story:	As an Analytical User, I need to be able to import statistical information about a test item including P-Value, Point Biserial correlation coefficients, etc. so the item can be selected (or removed) when making a valid test form.
Module:	Assessment System
Description:	The system must allow users to associate statistical data with items and tests based on QTI format; these include P-Value, Point Biserial correlation coefficients, etc. This is NOT a manual process.
Exceptions:	During the initial phase of the REIL project, some statistical analysis of items tested in D2SC will be done external to the system and then entered by a psychometrician. For items tested in Galileo, statistical information such as P-Value will be popula
Rules:	The following business rules apply to this requirement:
5.1.16.1 As items are administered, the AS should calculate statistical values and populate them in the item metadata.	

5.1.17 Store Images in Items

BR-17	
Priority:	Critical
Release:	
User Story:	As an Author, I need to include various image formats during item authoring (e.g., in a stem, passage, and answer choice options).
Module:	Assessment System
Description:	Many types of content will require images such as graphs, charts or complex formulas in order to thoroughly assess student understanding in these areas. In some cases, these types of visuals may also be necessary as answer choice options in the test items.
Exceptions:	Many test items will only require text.
Rules:	The following business rules apply to this requirement:
5.1.17.1 The system can support formats such as .jpg, .gif., and .png. 5.1.17.2 As the AS grows, it will accommodate richer graphics in test items and will also need to accommodate higher resolution images as pieces of fine art will need to be assessed. 5.1.17.3 The system must be able to reference source of image if image is copyrighted or in public domain.	

5.1.18 Store Multimedia Assets for Items

BR-18	
Priority:	Medium
Release:	
User Story:	As an Author, I need to include various audio formats and multi-media formats during item authoring (e.g., in a stem, passage, and answer choice options).
Module:	Assessment System
Description:	As the AS grows beyond the lifetime of the grant, audio clips for musical performances, for example, will be necessary. Finally, other forms of assessments may require students to view a video as part of an assessment. In some cases, these types of visuals may also be necessary as answer choice options in the test items.
Exceptions:	Many items will only require text.
Rules:	The following business rules apply to this requirement:
<p>5.1.18.1 MCESA has expressed an interest in developing future items that present rich multi-media content as prompts for student responses.</p> <p>5.1.18.2 The system will support currently used media formats based on HTML 5 and MP4 standards.</p>	

5.1.19 Search for Test Items

BR-19	
Priority:	High
Release:	
User Story:	As an Author, Reviewer, Project Administrator, or Analytic User, I need to be able to find all items that meet search criteria.
Module:	Assessment System
Description:	Each user type will need an interface that allows search of the item bank to locate items based upon specifications such as type of item, alignment to specific standards, subject matter, level of difficulty / understanding, and keywords, etc.
Exceptions:	Users who lack permission will not have access to search secure item banks.
Rules:	The following business rules apply to this requirement:
<p>5.1.19.1 The search criteria should include any metadata.</p> <p>5.1.19.2 The functionality does not differ depending on the user type.</p>	

5.1.20 Search for Test Item Banks

BR-20	
Priority:	High
Release:	

BR-20	
User Story:	As an Author, I need to be able to search for item banks based on specific criteria to identify items to use in a test form.
Module:	Assessment System
Description:	An Author will search item banks to locate groups of related items.
Exceptions:	Users who lack permission will not have access to search for item banks.
Rules:	The following business rules apply to this requirement:
5.1.20.1 The search criteria should include any metadata.	

5.1.21 Review Secure Test Items

BR-21	
Priority:	Critical
Release:	
User Story:	As a Reviewer, I need to review all components of a test item (e.g., stem, answer choices, rationales, and metadata), enter comments and flag the item for rejection.
Module:	Assessment System
Description:	A Reviewer is contacted to review items for a particular course, content area and grade level and provides comments on these items within the AS.
Exceptions:	In the current process, a vendor is acting as the reviewer and editor of new test items and doing the work in Galileo and WestEd WAM.
Rules:	The following business rules apply to this requirement:
5.1.21.1 MCESA will provide item reviewers with rubrics for evaluating test items. 5.1.21.2 Reviews may cover (1) content, (2) DOK, (3) style, (4) bias, etc. 5.1.21.3 MCESA will determine the number of reviewers required for each item. 5.1.21.4 The AS should allow as many review cycles as needed. 5.1.21.5 Reviewers should have the option to mark an item for rejection. NOTE: Secure items will NOT go back to the Author following review. 5.1.21.6 Reviews and comments ultimately proceed to the Project Administrator who determines when the test item is ready for field testing.	

5.1.22 Edit Secure Test Items

BR-22	
Priority:	Critical
Release:	
User Story:	As a Reviewer, I need to edit all components of a test item (e.g., stem, answer choices, rationales, and metadata), and mark the item for review again.

BR-22	
Module:	Assessment System
Description:	Depending on how roles are defined, a Reviewer can edit new items for a particular content area and grade level and provides comments on these items within the AS.
Exceptions:	In the current process, a vendor is acting as the reviewer and editor of new test items and doing the work in Galileo and WestEd WAM.
Rules:	The following business rules apply to this requirement:
<p>5.1.22.1 MCESA will provide item editors with rubrics for editing test items.</p> <p>5.1.22.2 MCESA will determine whether edits to test items are completed by the test item writer or by the reviewers.</p> <p>5.1.22.3 The AS should allow as many edit cycles as needed.</p> <p>5.1.22.4 Edits and comments ultimately proceed to the Project Administrator who determines when the test item is ready for field testing.</p>	

5.1.23 Publish Secure Test Items

BR-23	
Priority:	Critical
Release:	
User Story:	As a Project Administrator, I need the ability to designate that a test item is complete and lock it from further revisions. I will also need the ability to reverse this if issues are identified at a later time.
Module:	Assessment System
Description:	The Project Administrator marks the item as published in the secure item bank.
Exceptions:	The Project Administrator may choose to reject the test item completely or return the test item for editing.
Rules:	The following business rules apply to this requirement:
<p>5.1.23.1 The Project Administrator processes feedback from Reviewers, Editors, and Analytic Users to make the decision to publish an item.</p> <p>5.1.23.2 After an item is published, the AS grants permission only to a Project Administrator to revise or delete the item.</p> <p>5.1.23.3 Role-based permissions determine which users are allowed access to published items.</p>	

5.1.24 Review, Edit, Field Test and Publish Non-Secure Test Items

BR-24	
Priority:	Medium
Release:	
User Story:	As a Reviewer and Project Administrator, I follow the procedures set up by MCESA, my district, etc. for processing non-secure items.

BR-24	
Module:	Assessment System
Description:	The workflow for non-secure items may follow the same steps as for secure items or it may be modified.
Exceptions:	The process may be different for each group who develops non-secure items. For example, the step of Field Testing may be skipped for non-secure items.
Rules:	The following business rules apply to this requirement:
5.1.24.1 The process will be defined by the group responsible for the non-secure test items.	

5.1.25 Create Test Maps

BR-25	
Priority:	Critical
Release:	
User Story:	As the Project Administrator, I need to create test maps so that Authors can create the test forms for REIL Grant assessments and other tests.
Module:	Assessment System
Description:	The Project Administrator or Analytic User uses the AS to define the template that an Author uses to create a test form. Each test map specifies the number of test items that should be presented for each standard and the sequence for presenting the items.
Exceptions:	
Rules:	The following business rules apply to this requirement:
5.1.25.1 Separate test maps will be created for each grade and subject/course. 5.1.25.2 In the future, users of the AS may also wish to create test maps for other uses, such as creation of district benchmark assessments. 5.1.25.3 Test maps may include specific guidelines about item functionality such as randomizing items or answer choices when presenting an online test or creating a printed version.	

5.1.26 Create Secure Test Form Banks

BR-26	
Priority:	High
Release:	
User Story:	As a Project Administrator, I need to create and store secure test form banks and specifications so that Authors can create the test forms for REIL Grant assessments and other secure tests.
Module:	Assessment System

BR-26	
Description:	The Project Administrator uses the AS to define the number of secure tests forms be created and the testmap to be used for each form. These attributes are a subset of metadata tags that will be associated with each test form.
Exceptions:	For reasons of moving ahead with the project, the current process the REIL Grant test forms are being constructed by WestEd in the Galileo assessment system and by Phoenix Union HSD content specialists using the D2SC assessment system as test items are being reviewed.
Rules:	The following business rules apply to this requirement:
<p>5.1.26.1 Separate test form bank definitions will be created for each grade and subject/course.</p> <p>5.1.26.2 MCESA intends to expand their test form banks by creating additional secure test forms beyond those needed to administer the initial REIL Grant tests.</p> <p>5.1.26.3 In the future, users of the AS may also wish to create secure test form banks for other uses, such as delivery of district benchmark assessments.</p>	

5.1.27 Create Non-Secure Test Form Banks

BR-27	
Priority:	Medium
Release:	
User Story:	As a Project Administrator, I need to create a non secure test form banks and specifications so that Authors can create multiple non-secure test forms for various types of formative assessments.
Module:	Assessment System
Description:	The Project Administrator uses the AS to define the number of non-secure tests forms be created and the testmap of each form. The attributes are a subset of metadata tags that will be associated with each test form.
Exceptions:	
Rules:	The following business rules apply to this requirement:
<p>5.1.27.1 Separate bank definitions will be created for each grade and subject/course.</p> <p>5.1.27.2 Following creation of the REIL Grant tests, MCESA has expressed interest in banking additional test items for non-secure practice tests and quizzes.</p> <p>5.1.27.3 Ability to create non-secure item banks will support use of the AS for broader use as a formative assessment tool.</p>	

5.1.28 Create Test Forms Manually (REIL Grant Tests)

BR-28	
Priority:	Critical
Release:	

BR-28	
User Story:	As the Project Administrator, I need to create new test forms based on test maps to create REIL Grant test forms, district benchmark tests, and other purposes.
Module:	Assessment System
Description:	An Author is assigned to create test forms for a particular content area and grade level and does the creation of these forms within the AS using previously approved test items. The Author uses search capabilities to identify test items that meet the criteria and sequence them according to the test map.
Exceptions:	No exceptions are known for the current REIL project, as all test forms will be created manually.
Rules:	The following business rules apply to this requirement:
<p>5.1.28.1 Authors of REIL Grant assessments will manually create test forms based on MCESA-created testmaps.</p> <p>5.1.28.2 The Author will determine the item sequence for the test.</p> <p>5.1.28.3 The Author will search item bank using metadata to locate test items to include in the test forms by criteria such as grade, subject, Common Core standards, state or district Performance Objectives, cognitive levels, Bloom's Taxonomy, Webb's DOK, difficulty level, key words, target audience, etc.</p> <p>5.1.28.4 Test forms can be created manually for secure and non-secure test forms.</p>	

5.1.29 Create Test Forms Using Wizards

BR-29	
Priority:	Low
Release:	
User Story:	As a User or Author, I want to create tests using wizards, so my work in designing a valid test form is simplified.
Module:	Assessment System
Description:	The system should support easy creation of assessments by allowing Authors to set up rules for selection of items from item banks by grade, subject, standards, question type, by genre (if using reading passages), etc.
Exceptions:	Authors should be able to modify tests started with wizards by replacing or resequencing items manually.
Rules:	The following business rules apply to this requirement:
<p>5.1.29.1 Use of a wizard is optional when creating a test.</p> <p>5.1.29.2 Test forms can be created using wizards for secure and non-secure test forms.</p>	

5.1.30 Create Answer Only Test Forms

BR-30	
Priority:	Low
Release:	
User Story:	As an Author, I want to create forms for administering and scoring tests created outside of the AS.
Module:	Assessment System
Description:	The system should support easy creation of answer keys. If appropriate, the items can be tagged in the answer key with appropriate metadata including grade, subject, Common Core standards, state or district Performance Objectives, cognitive levels, Bloom's Taxonomy, Webb's DOK, difficulty level, key words, target audience, etc.
Exceptions:	
Rules:	The following business rules apply to this requirement:
5.1.30.1 Answer Only test forms can be created manually for secure and non-secure test forms.	

5.1.31 Review and Edit Secure Test Forms

BR-31	
Priority:	Critical
Release:	
User Story:	As the Reviewer, I need the ability to review and edit test form so that the test form can be field tested.
Module:	Assessment System
Description:	One or more Reviewers review a test form and enter feedback into the AS. If changes are minor, the Reviewer can make the changes and move it along to the Project Administrator who reviews and approves it for field testing.
Exceptions:	The Reviewer may choose to reject the test form completely or return the test form for editing.
Rules:	The following business rules apply to this requirement:
<p>5.1.31.1 MCESA or selected vendors will provide test form reviewers with rubrics for evaluating test forms. Ideally these rubrics will be stored in the AS for easy access.</p> <p>5.1.31.2 Multiple reviews may be conducted independently with comments combined to guide a decision. If so, MCESA will determine the number of reviewers required.</p> <p>5.1.31.3 The AS should allow as many review cycles as needed.</p> <p>5.1.31.4 Reviews and comments go to the Project Administrator who determines if the test form is ready for field testing or whether the test form requires revision.</p>	

5.1.32 Preview Secure Test Forms

BR-32	
Priority:	Critical
Release:	
User Story:	As the Reviewer, I must be able to review test forms in each planned medium to be sure the test forms look and work correctly.
Module:	Assessment System
Description:	The Reviewer should ensure the tests display correctly on supported web browsers and as PDF files (for paper).
Exceptions:	
Rules:	The following business rules apply to this requirement:
<p>5.1.32.1 Care should be taken to ensure that tests results are not affected by the delivery method on which they are administered.</p> <p>5.1.32.2 It is possible that mobile devices may be made secure for test delivery in the future.</p> <p>5.1.32.3 Even though REIL assessments in years 3 or 4 of the grant will NOT be reviewed using student response systems (clickers), it is desirable in the near future to review these and other types of mobile devices.</p>	

5.1.33 Publish Secure Test Forms

BR-33	
Priority:	Critical
Release:	
User Story:	As the Project Administrator, I need the ability to designate that a test form is complete and lock it from further revisions. I will also need the ability to reverse this if issues are identified at a later time.
Module:	Assessment System
Description:	The Project Administrator marks the form as published in the secure test form bank. The AS saves the test definition and stores a PDF version of the test form.
Exceptions:	The Project Administrator may choose to reject the test form completely or return the test form for editing.
Rules:	The following business rules apply to this requirement:
<p>5.1.33.1 The Project Administrators processes feedback from Reviewers and Analytic Users to make the decision to publish a form</p> <p>5.1.33.2 After a form is published, the AS grants permission only to a Project Administrator to revise or delete the form.</p> <p>5.1.33.3 Secure test forms should be password protected to ensure they are not changed without permission.</p>	

5.1.34 Review, Edit, Field Test and Publish Non-Secure Test Forms

BR-34	
Priority:	Medium
Release:	
User Story:	As a Reviewer and Project Administrator, I follow the procedures set up by MCESA, my district, etc. for processing non-secure test forms.
Module:	Assessment System
Description:	The workflow for non-secure forms may follow the same steps as for secure forms or it may be modified. However, the end result is that the AS saves the test definition and stores a PDF version of the test form.
Exceptions:	The process may be different for each group who develops non-secure forms. For example, the step of Field Testing may be skipped for non-secure forms.
Rules:	The following business rules apply to this requirement:
5.1.34.1 The process will be defined by the group responsible for the non-secure test forms.	

5.1.35 Create Test Delivery Support Materials

BR-35	
Priority:	High
Release:	
User Story:	As the Project Administrator, I need to create and store a test package including a Test Administration Manual (TAM) so that I provide uniform test instructions and details when distributing the assessments.
Module:	Assessment System
Description:	In addition to documents that contain general, repeated information, a test package may contain information unique to each test form. Among the topics covered will be instructions for securing the test, administering the test, and completing and returning the test.
Exceptions:	For non-secure tests, a test package will not be required.
Rules:	The following business rules apply to this requirement:
<p>5.1.35.1 MCESA will define the rules for securing paper tests once they are delivered to districts.</p> <p>5.1.35.2 Separate instructions will be prepared for paper/pencil versions and online versions of tests.</p> <p>5.1.35.3 The test packages will emulate formats used by other high stakes tests such as AIMS.</p> <p>5.1.35.4 Examples of topics covered in a Teacher Administration Manual (TAM) include directions on each test form administration and completion, time limits, sample items and directions to use to introduce the test form, directions on test navigation (e.g., STOP / GO ON symbols), etc.</p> <p>5.1.35.5 MCESA will also create a Test Security Manual on how to secure and return assessments, how to prepare them for scoring, etc.</p> <p>5.1.35.6 While these support materials will be created outside the AS, they should be stored in the Support Materials area of the AS described in the System section.</p>	

5.1.36 Reserve Test Items

BR-36	
Priority:	Critical
Release:	
User Story:	As the Project Administrator or LEA Administrator, I want to prohibit selected items in the item bank from being used on future benchmark tests, practice tests, formative assessments, etc.
Module:	Assessment System
Description:	A district should be able to designate some items as secure for exclusive use in benchmark or high-stakes assessments.
Exceptions:	Districts cannot reserve REIL test items.
Rules:	The following business rules apply to this requirement:
<p>5.1.36.1 Reserved items should not appear on any menus available to users creating tests from the same bank.</p> <p>5.1.36.2 One of the metadata tags for an item should be the names of test forms where the item is used.</p>	

5.1.37 Maintain Separation of Secure and Non-Secure Items and Test Forms

BR-37	
Priority:	Critical
Release:	
User Story:	As the Assessment System Administrator, I want to ensure permission rights to item and test form banks.
Module:	Assessment System
Description:	The AS should have multiple levels of item banking at the state, county, district, school, and classroom level.
Exceptions:	
Rules:	The following business rules apply to this requirement:
<p>5.1.37.1 Using role-based privileges, all Users with have access ONLY to those items available to them.</p> <p>5.1.37.2 The project administrators assigns the privileges to the appropriate roles.</p>	

5.1.38 Create Surveys for All Groups of AS Users

BR-38	
Priority:	High
Release:	

BR-38	
User Story:	As an Author, I need to create surveys to administer to all types of users in the AS.
Module:	Assessment System
Description:	Surveys may be used to measure attitudes and feedback from users. This may include students, teacher, principals, coaches, district personnel, etc.
Exceptions:	Creation of surveys will be controlled by role-based privileges.
Rules:	The following business rules apply to this requirement:
5.1.38.1 The system should allow Authors to incorporate common survey response types such as Likert-scaled scoring, drop-down responses, extended response, etc.	

5.2 Test Set up

5.2.1 Create Calendar for Administration of Secure Assessments

BR-39	
Priority:	Critical
Release:	
User Story:	As the Assessment System Administrator, to ensure secure test administration, I need to set the dates of the testing window during which students can take secure assessments.
Module:	Assessment System
Description:	The Assessment System Administrator will set the dates of the testing window for administration of secure assessments to maintain a High Stakes testing environment.
Exceptions:	The Assessment System Administrator may set dates for a testing window for administration of an alternate form of the test for test make-up purposes.
Rules:	The following business rules apply to this requirement:
5.2.1.1 The Assessment System Administrator will have access to calendars for all districts so that the window can be appropriately coordinated across all districts. 5.2.1.2 Prior to the start of the school year, the Assessment System Administrator should set up the assessments for each test to be available in the AS; however, if dates change during the school year, the Assessment System Administrator needs to be able to change the dates and send out notifications.	

5.2.2 Set Online Testing Parameters

BR-40	
Priority:	Critical
Release:	
User Story:	As the Assessment System Administrator, I need to enter the constraints on Test Takers such as the amount of time allowed to complete a test or an individual test item, whether they are allowed to save and continue a test, which forms of the test will be

BR-40	
Module:	Assessment System
Description:	The AS should give the Assessment System Administrator control over as many variables as possible for administering online tests.
Exceptions:	
Rules:	The following business rules apply to this requirement:
5.2.2.1 Some tests will have time limits; others may not have time limits	

5.2.3 Select Test Administration Delivery Method

BR-41	
Priority:	Critical
Release:	
User Story:	As the Assessment System Administrator, I need to be able select the delivery method, so the REIL assessments can be delivered effectively.
Module:	Assessment System
Description:	Assessments can be delivered in a variety of delivery method such as paper/pencil, bubble sheet/scanner, online bubble sheets, online keying of student assessment data (e.g. rubric-scored, observational / checklist, numeric score, etc.) by the teacher, online test by student,, etc.
Exceptions:	Initial REIL assessments in years 3 and 4 of the grant will NOT be administered using student response systems (clickers).
Rules:	The following business rules apply to this requirement:
5.2.3.1 The Assessment System Administrator will work with the Superintendent for each district to determine the delivery method that best fits their circumstances. NOTE: All schools in a district should use the same delivery method to standardize their results.	

5.2.4 Publish Printed Test Forms Packets

BR-42	
Priority:	Critical
Release:	
User Story:	As the Assessment System Administrator, I need to print tests and answer forms to be put in test packages and print answer sheets so that schools or districts who need to take the tests using paper/pencil can be provided with the copies they need. As a LEA Administrator, I need to print answer sheets.
Module:	Assessment System
Description:	When tests are completed, they need to be ready to be put in test packages for printing and administration.

BR-42	
Exceptions:	If all versions of a given test will be delivered through electronic means, it may not be necessary to publish test forms.
Rules:	The following business rules apply to this requirement:
5.2.4.1 Test form appearance should mirror standardized tests already familiar to Arizona districts (e.g., AIMS).	

5.2.5 Import Updated Rosters from RDSS

BR-43	
Priority:	Critical
Release:	
User Story:	As the Assessment System Administrator, I need to ensure that the system imports up-to-date, accurate rosters prior to each REIL test administration so that the system is ready to administer tests to each student.
Module:	Assessment System
Description:	The system should do automated downloads of users and organizational files from the RDSS, SIS, SLDS, AEDW, HQT, etc. User files should also include student demographics.
Exceptions:	For REIL assessments, the imports will be done the day before testing dates. When the system is expanded to use district or teacher created assessments, the import should be automated and done nightly.
Rules:	The following business rules apply to this requirement:
5.2.5.1 Time for refreshing data will be determined by the Assessment System Administrator.	
5.2.5.2 During the grant period, data from the RDSS will be refreshed in the AS prior to each test administration.	
5.2.5.3 If teachers and students have been added or removed since the last import, the system should recognize and modify rosters.	

5.2.6 Import Updated Rosters from SIS

BR-44	
Priority:	Critical
Release:	
User Story:	As an LEA System Administrator, I need to ensure that the system imports up-to-date, accurate rosters prior to each test administration so that the system is ready to administer tests to each student.
Module:	Assessment System
Description:	The system should do automated downloads of users and organizational files from the student information system. User files should also include student demographics.

BR-44	
Exceptions:	For district benchmark assessments, the imports should be done each night. If the RDSS updates student data each day, the district will take the data from the RDSS instead of the SIS.
Rules:	The following business rules apply to this requirement:
5.2.6.1	Time for refreshing data will be determined by the district.
5.2.6.2	During the grant period, data from the SIS will be refreshed prior to each test administration.
5.2.6.3	If teachers and students have been added or removed since the last import, the system should recognize and modify rosters.

5.2.7 Reconcile Student Rosters by Teacher

BR-45	
Priority:	Critical
Release:	
User Story:	As a User (teacher), I need to be sure in advance that my students are assigned to take the REIL assessments.
Module:	Assessment System
Description:	The system will provide reports to teacher showing current student rosters prior to each REIL assessment. Teachers can work with their principals as needed to make corrections to the rosters. (This is also happening monthly in RDSS.)
Exceptions:	This step may be skipped if teachers and administrators feel it is not necessary.
Rules:	The following business rules apply to this requirement:
5.2.7.1	Students will be listed with the teacher responsible for administering the test.

5.2.8 Pre-Slug Answer Sheets

BR-46	
Priority:	Critical
Release:	
User Story:	As an Assessment System Administrator or LEA Administrator, I need a process to pre-print student and class or course information on bubble sheets prior to test administration.
Module:	Assessment System
Description:	For plain-paper bubble sheets, the printing process should personalize each sheet with the student name, ID, and class information for a student. Commercially printed bubble sheets (e.g., Scantron) should also be sent through a printer to fill in the same information.

BR-46	
Exceptions:	If students are overlooked in the SIS import or enter the school after the import is done, this process should allow for the manual slugging and import of answer sheets done manually.
Rules:	The following business rules apply to this requirement:
5.2.8.1 The district will be responsible for preparing answer sheets locally and distributing them to teachers along with the test booklets and teacher directions (TAMs).	

5.2.9 Provide Online Test Student Codes

BR-47	
Priority:	Medium
Release:	
User Story:	As a LEA Administrator, I need to give students test codes to grant them access to high stakes tests.
Module:	Assessment System
Description:	Prior to administering a high stakes test, the LEA Administrator prints lists of unique student codes and gives the to teachers who administer high stakes tests. Students must enter their unique codes to validate who they are and give them access to the test.
Exceptions:	It may be determined that username and password for each student is sufficient, however, this level of additional security is highly desirable.
Rules:	The following business rules apply to this requirement:
5.2.9.1 The AS will generate unique codes for each test so that a student who is currently assigned multiple tests take the correct test (e.g., math instead of reading)	

5.2.10 Accommodate Late Entry Students

BR-48	
Priority:	Critical
Release:	
User Story:	As an LEA Administrator, I need a process to add students into the system if they are not in the system on the day the test is given.
Module:	Assessment System
Description:	In the event that a student somehow slips through the import process, a system must be in place for them to take assigned tests and the resulting data to be matched to their records in the system.
Exceptions:	
Rules:	The following business rules apply to this requirement:

BR-48
<p>5.2.10.1 Student information may be manually entered on test answer sheets or documents for students who do not have pre-printed answer sheets.</p> <p>5.2.10.2 Before scanning their answer sheets, late entry students need to be added to RDSS and uploaded to AS.</p>

5.3 Administration

5.3.1 Field Test Secure Items

BR-49	
Priority:	High
Release:	
User Story:	As a Project Administrator, I need to be able to field test items so that the AS or a psychometrician can determine if items are statistically supported for use in a test form.
Module:	Assessment System
Description:	The Project Administrator arranges for administering test items in completed test forms to a representative sampling of Test Takers. P-Values and Point Biserial correlation coefficients for items are collected in the AS for use in creating test forms..
Exceptions:	Purchased items that have already been assigned statistical values may not need to be field tested. In these cases, statistical data shall be captured and recorded in AS for each item.
Rules:	The following business rules apply to this requirement:
<p>5.3.1.1 Field testing for each item will follow MCESA’s defined field testing process.</p> <p>5.3.1.2 For the initial REIL tests, results for field tests administered through Galileo will return P-Values and other item statistics for items. Statistical values for items tested outside Galileo will be calculated by MCESA staff or another designated vendor (e.g., Global Scholar/Scantron).</p> <p>5.3.1.3 Future field tests should be done in the AS, with the system automatically calculating the values for test items</p> <p>5.3.1.4 Following field testing, items will be accepted for use, sent back for revision, or rejected.</p>	

5.3.2 Field Test Forms

BR-50	
Priority:	Critical
Release:	
User Story:	As Analytic User, I need the ability to field test forms to determine if each test form is valid and reliable.
Module:	Assessment System
Description:	The Project Administrator arranges for administering test forms to a representative sampling of Test Takers using the AS. Reliability statistics for test forms are collected by the AS.

BR-50	
Exceptions:	Existing tests being licensed from vendors (e.g., K-8 Science from Galileo) will not be field tested in the AS.
Rules:	The following business rules apply to this requirement:
<p>5.3.2.1 Field testing for each form will follow MCESA’s defined field testing process.</p> <p>5.3.2.2 For the initial REIL Grant tests, those administered through Galileo will be evaluated us Galileo. Those to be administered outside Galileo will be tested using D2SC.</p> <p>5.3.2.3 The AS should produce statistical measures for each test form using standard statistical measures.</p>	

5.3.3 Provide Secure Student Login Procedure

BR-51	
Priority:	High
Release:	
User Story:	As a Test Taker, I need to be able to enter my login information to begin an online test.
Module:	Assessment System
Description:	The system should have an age-appropriate interface for students to log in to take a test.
Exceptions:	
Rules:	The following business rules apply to this requirement:
<p>5.3.3.1 In addition to assigning general passwords to each student, it may be necessary to give students test codes to enter for each test to increase security.</p>	

5.3.4 Provide Accommodations for 504 Compliance

BR-52	
Priority:	High
Release:	
User Story:	As a Test Taker, I may need accommodations so I can perform my best on assessments.
Module:	Assessment System
Description:	The system should allow for multiple font sizes, additional audio prompts, etc. to be in compliance with 504 legislation or interface with other software options that make appropriate accommodations.
Exceptions:	For some types of tests the accommodation may compromise the test.
Rules:	The following business rules apply to this requirement:

BR-52

- 5.3.4.1 MCESA will define the accommodations needed to address their student population.
- 5.3.4.2 Accommodations must not impact test validity or reliability
- 5.3.4.3 The AS should support text to speech functionality (or interface with software that provides this) with the ability to assign it on an item by item basis.

5.3.5 Adapt Online Student Interface by Grade Level

BR-53

Priority:	High
Release:	
User Story:	As a Test Taker, I need a clear, easy to use interface so I can successfully demonstrate my content knowledge.
Module:	Assessment System
Description:	AS online assessments must include an intuitive interface that is seamless in the delivery of the assessment.
Exceptions:	Despite planning for an effective student user interface, it may still be appropriate to have proctors help navigate tests for students with special needs.
Rules:	The following business rules apply to this requirement:
	<p>5.3.5.1 The system must provide an interface that is appropriate to the developmental stage of target students. For this reason, the system should have at minimum, different interfaces for the following grade ranges:</p> <ul style="list-style-type: none"> • 1) K - 2 • 2) 3 - 8 • 3) 9 - 12 <p>5.3.5.2 Each level must include clear directions and tools for navigating and completing online tests in areas such as starting and stopping assessments (with bookmarking for incomplete tests) and tracking internal test navigation (moving fwd/back and tracking items completed)</p>

5.3.6 Provide Online Test Support Tools

BR-54

Priority:	High
Release:	
User Story:	As an online Test Taker, I need easy access to test-appropriate support tools when completing items.
Module:	Assessment System
Description:	AS online assessments must include intuitive support tools such as online calculators, measuring tools, etc.
Exceptions:	Not all items will include support tools. The decisions on when to include tools will be determined in test development guidelines

BR-54	
Rules:	The following business rules apply to this requirement:
5.3.6.1 When presenting test items, the system must make it easy for students to access associated content (such as passages, charts, and graphs) and to use simulated tools (ruler, compass, calculator, scales), etc.	

5.3.7 Authorize Locations for Online Test Taking

BR-55	
Priority:	Medium
Release:	
User Story:	As Assessment System Administrator, I need the AS to recognize the IP addresses for the devices in use and relate those to the approved locations for taking of the test so that only approved devices can be used for test administration.
Module:	Assessment System
Description:	The Assessment System Administrator needs a tool in the AS that allows for recording the IP addresses of authorized locations in advance and detecting them during test administration.
Exceptions:	
Rules:	The following business rules apply to this requirement:
5.3.7.1 For the duration of this grant, the tests are all high stakes and will only be taken from district authorized devices.	
5.3.7.2 As the system moves into the dissemination of formative assessments, tests may be accessed from home or mobile devices.	

5.3.8 Monitor Student Test Progress

BR-56	
Priority:	Low
Release:	
User Story:	As a Test Taker, I need the system to bookmark my progress through a test so that if the test ends before I am done, I will be able to pick up where I left off.
Module:	Assessment System
Description:	The system should frequently capture student input on the test as it proceeds.
Exceptions:	
Rules:	The following business rules apply to this requirement:
5.3.8.1 No more than 30 seconds should pass between each auto-save of the student test input.	

5.3.9 Survey Administration

BR-57	
Priority:	High
Release:	
User Story:	As an Assessment System Administrator or LEA Administrator, I need to assign surveys to Users and Test Takers, schedule the surveys, and ensure they are administered. This may include Tri-Pod, a student assessment of teacher performance.
Module:	
Description:	As a "low-stakes" tool, surveys are delivered following the practices for non-secure, formative tests.
Exceptions:	
Rules:	The following business rules apply to this requirement:
5.3.9.1 Surveys should be delivered online, paper/pencil, or through other delivery methods that are supported by AS and are appropriate for gathering survey data.	

5.3.10 Interact with Scanners and Online Computers

BR-58	
Priority:	Critical
Release:	
User Story:	As an LEA Administrator, I need the AS to connect to scanners and online computers that collect and store test data from high stakes tests.
Module:	Assessment System
Description:	The system will take input from online testing or scanners during the grant period.
Exceptions:	Student response systems are not required for the grant and would introduce a level of complexity in ensuring the security of responses on high stakes tests.
Rules:	The following business rules apply to this requirement:
5.3.10.1 For the duration of this grant, scanner compatibility will be required. 5.3.10.2 The range of supported scanners should include TWAIN-compliant plain-paper printer-scanners.	

5.3.11 Interact with Student Response Systems and Mobile Devices

BR-59	
Priority:	Medium
Release:	

BR-59	
User Story:	As the Assessment System Administrator or LEA Administrator, I need the AS to connect to external hardware devices such as student response system, and mobile devices so that I can collect and store test data.
Module:	Assessment System
Description:	The system should take input from a wider range of devices for both low-stakes, formative assessments, and potentially for high stake tests in the future.
Exceptions:	
Rules:	The following business rules apply to this requirement:
	<p>5.3.11.1 For the duration of this grant, scanner compatibility will be required.</p> <p>5.3.11.2 Beyond the duration of this grant, the system will need to connect to student response scoring devices and other mobile devices as the system grows to accommodate formative assessments.</p>

5.4 Scoring

5.4.1 Automatically Score Assessments

BR-60	
Priority:	Critical
Release:	
User Story:	As an Assessment System Administrator, I need the AS to automatically score test results once they are submitted so that a score will be returned for each student.
Module:	Assessment System
Description:	Student answers may be submitted to the AS online, through scanned forms, or through student response devices. Regardless of the format, once the answers are submitted, the AS will automatically compare the submitted answers against the answer key to produce and store the scored results.
Exceptions:	Modified tests or tests taken by students with accommodations may be manually scored and results entered manually into the system.
Rules:	The following business rules apply to this requirement:
	<p>5.4.1.1 AS will score online, paper/pencil or online tests.</p> <p>5.4.1.2 As the system grows this will also need to address automatic scoring of performance and rubric based assessments.</p>

5.4.2 Automatically Calculate Statistical Metadata

BR-61	
Priority:	Critical
Release:	

BR-61	
User Story:	As an Analytic User, I need the AS to automatically calculate and enter statistical information about test items and test forms as they are scored in AS.
Module:	Assessment System
Description:	At minimum, the system should calculate P-Values and Point Biserial correlation coefficients for test items and KR20 test reliability scores for test forms.
Exceptions:	
Rules:	The following business rules apply to this requirement:
5.4.2.1 As items are administered, the AS should calculate statistical values and populate them in the item and test form metadata.	

5.4.3 Calculate Statistical Metadata for Test Items and Forms Administered Outside AS

BR-62	
Priority:	Critical
Release:	
User Story:	As an Analytic User, I need the AS to import data from tests administered outside AS and to automatically calculate and enter statistical information about those test items and test forms.
Module:	Assessment System
Description:	Some administrations of REIL Grant test items and forms may be completed using other assessment systems. Those results will be imported into AS and should be processed the same as items administered within AS.
Exceptions:	
Rules:	The following business rules apply to this requirement:
5.4.3.1 As items are imported, the AS should calculate statistical values and populate them in the item and test form metadata.	
5.4.3.2 During the initial stages of the REIL grant, the AS will need to combine scores from Galileo, D2SC, and other vendors, with scores calculated in the AS.	

5.4.4 Store Longitudinal Data

BR-63	
Priority:	High
Release:	
User Story:	As the Assessment System Administrator, I need the AS to maintain student scores so that educators can investigate longitudinal performance of students.
Module:	Assessment System

BR-63	
Description:	AS database must be robust enough to contain information on student performance on assessments over a period of time and will not overwrite information from one year to the next. Database will also be able to host multiple pieces of scoring information for a student in one subject matter.
Exceptions:	
Rules:	The following business rules apply to this requirement:
<p>5.4.4.1 The AS will store no less than five years of historical data and should be consistent with RDSS data collection requirements.</p> <p>5.4.4.2 This could be stored in AELAS in the future.</p>	

5.4.5 Record and Export Raw Student Test Data

BR-64	
Priority:	Critical
Release:	
User Story:	As the Analytic User, I need raw data needed to support field testing and ongoing validation of items and test forms. I need to export data in multiple common formats (QTI, HTML, pdf, Excel, csv, and xml) while adhering to common data standards so that the data can be analyzed in other programs by other analytic users.
Module:	Assessment System
Description:	For each test that students take, the system should collect data down to the answer choices for each tested item. Data from the AS will be provided to a Analytic User initially, and later to the RDSS in order to development REIL Value Added scores. Additional data will be exported to RDSS to support analytic reports such as comparing results across districts and showing correlations of REIL assessments to other tests (including high stakes tests like AIMS or low stakes assessments like Dibels, etc.)
Exceptions:	When tests are previewed during development and QA of tests, no data needs to be collected.
Rules:	The following business rules apply to this requirement:
<p>5.4.5.1 Assessment data must be provided using a secure method and process.</p> <p>5.4.5.2 Initially, data will be sent to BASIS until the analysis capability is created in RDSS.</p> <p>5.4.5.3 The system should collect and retain raw data for at least five years of assessments and should be consistent with RDSS data collection requirements.</p>	

5.4.6 Allow for Modifying Individual Student Results

BR-65	
Priority:	Low
Release:	
User Story:	As the Assessment System Administrator, I must be able to modify individual student scores.
Module:	Assessment System
Description:	If Users are given the opportunity to challenge test results, the system needs to ability to modify student responses or to eliminate questions from scoring.
Exceptions:	
Rules:	The following business rules apply to this requirement:
5.4.6.1 MCESA will determine if a process is allowed for appealing test results to ensure calculations were completed correctly.	

5.4.7 Automatically Rescore Tests Following Changes to Test Forms

BR-66	
Priority:	Critical
Release:	
User Story:	As the Assessment System Administrator, I need the AS to rescore tests after changes to tests forms.
Module:	Assessment System
Description:	If test items are found to be invalid following delivery of a test, the Assessment System Administrator should be about to eliminate those items from test forms and the AS should automatically recalculate scores.
Exceptions:	
Rules:	The following business rules apply to this requirement:
5.4.7.1 MCESA will determine if a process is allowed for appealing test results	

5.5 Reporting/Analysis

5.5.1 Report on Field Test Item and Test Statistics

BR-67	
Priority:	Critical
Release:	

BR-67	
User Story:	As a Project Administrator and Analytic User, I need to see statistical information on field test items and tests so I can see if tests need to be modified.
Module:	Assessment System
Description:	The Project Administrator and Analytic User will review statistical values to determine changes that are needed to test items or forms.
Exceptions:	
Rules:	The following business rules apply to this requirement:
5.5.1.1 Reports support the field test process and give P-Values and other statistical measures needed by those creating the tests.	

5.5.2 Report Ongoing Statistical Values for Test Items and Test Forms

BR-68	
Priority:	High
Release:	
User Story:	As a Project Administrator and Analytic User, I need reports on statistical data such as P-values and Point Biserial correlation coefficients for ongoing validation of items and forms.
Module:	Assessment System
Description:	At minimum, the system should report on P-Values and Point Biserial correlation coefficients for test items and KR20 test reliability scores for test forms.
Exceptions:	Statistical values may not be required for all items and test forms, but the are needed for REIL Grant tests.
Rules:	The following business rules apply to this requirement:
5.5.2.1 The AS should report on all test items and forms in the AS.	

5.5.3 Report on Test Assignment and Completion

BR-69	
Priority:	High
Release:	
User Story:	As an Assessment System Administrator or LEA Administrator, I need to see which tests have been assigned and which have been completed so I can monitor AS activity and know when to generate reports.
Module:	Assessment System
Description:	The Assessment System Administrator or LEA Administrator generates a report for each one or more tests showing which classes have or have not completed the tests.

BR-69	
Exceptions:	
Rules:	The following business rules apply to this requirement:
<p>5.5.3.1 The Assessment System Administrator or LEA Administrator should be able to select which tests to appear on the report.</p>	

5.5.4 Aggregate Data

BR-70	
Priority:	Critical
Release:	
User Story:	As an Assessment System Administrator or LEA Administrator, I need data to be automatically aggregated for analysis so that Users can see manageable, condensed data.
Module:	Assessment System
Description:	The AS will aggregate data in advance of reporting so that reports for Users generate quickly and accurately.
Exceptions:	
Rules:	The following business rules apply to this requirement:
<p>5.5.4.1 The AS will aggregate data to class, school, district, and program levels and represent data using some 'canned reports', etc..</p> <p>5.5.4.2 The data for MCESA REIL tests will be aggregated immediately following each test as, at least initially, the grant and needs cover high-stakes assessments rather than ongoing formative assessments.</p> <p>5.5.4.3 The system will, however, eventually need to accommodate formative assessments and at that time needs to aggregate data at a nightly level.</p>	

5.5.5 Dis aggregate Data

BR-71	
Priority:	Critical
Release:	
User Story:	As an Assessment System Administrator or LEA Administrator, I need data to be disaggregated for analysis automatically so that reports for Users generate quickly.
Module:	Assessment System
Description:	The AS will disaggregate data in advance of reporting so that reports for Users generate quickly and accurately.
Exceptions:	

BR-71	
Rules:	The following business rules apply to this requirement:
<p>5.5.5.1 Data should be disaggregated by level (district, school, class, etc.) and student demographics.</p> <p>5.5.5.2 As defined by NCLB Law, disaggregated data means that test scores can be sorted by categories such as all economically disadvantaged students, all racial or ethnic minorities, all disabled students, or all limited English students.</p>	

5.5.6 Provide Online and Printed Canned Reports for Administrators

BR-72	
Priority:	Critical
Release:	
User Story:	As an administrative User, I need a suite of reports to help me understand the results and plan for the future.
Module:	Assessment System

BR-72

<p>Description:</p>	<p>Administrative Users will be able to select from a list of static reports that can be viewed on the computer screen, printed, or saved to PDF files. Among the reports for administrators could be the following:</p> <ul style="list-style-type: none"> • Question Response Detail: Offers detailed response information for a particular grade on any given assessment within a particular district. • Assessment Results Comparison: Allows administrators to compare student results from one assessment to another • Detailed Performance on Skill: Offers an overall sense of how well the grade is mastering the skills tested within particular strands. • Usage by Assessment Taken: Indicates the number of students who have taken various types of assessments • Disaggregate Performance: Displays student performance according to NCLB sub-categories and other variables • Usage by Log-in: Monitors system usage based on various log-in types • The AS canned reports should also have specific longitudinal item analysis reporting that includes the following: <ul style="list-style-type: none"> ○ multiple formative assessment data (i.e., not averaged for grade reporting purposes), correlated to state standards, for individual students ○ summative assessment data (i.e., averaged for grade reporting purposes), correlated to state standards, for individual students ○ assessment data, correlated to state standards, for individual teachers ○ assessment data, correlated to state standards, for individual campuses ○ assessment data, correlated to state standards, for NCLB-based student groups and subgroups ○ assessment data, correlated to state standards, for program-based student groups and subgroups (Special Education, GT, bilingual / ESL, dyslexia, at-risk, etc.) ○ multiple formative assessment data (i.e., not averaged for grade reporting purposes), correlated to district academic standards, for individual students ○ summative assessment data (i.e., averaged for grade reporting purposes), correlated to district academic standards, for individual students ○ assessment data, correlated to district academic standards, for individual teachers ○ assessment data, correlated to district academic standards, for individual campuses ○ assessment data, correlated to district academic standards, for PEIMS-based student groups and subgroups ○ assessment data, correlated to district academic standards, for program-based student groups and subgroups (Special Education, GT, bilingual/ESL, dyslexia, at-risk, etc.)
<p>Exceptions:</p>	<p>Access to individual reports and the levels of reporting are controlled by role-based privileges. No reports should compromise the security of any high stakes tests.</p>
<p>Rules:</p>	<p>The following business rules apply to this requirement:</p>
<p>5.5.6.1 MCESA will further define the packet of reports provided at the administrator level 5.5.6.2 Administrator reports will include a group of reports that resemble similar reports for AIMS.</p>	

5.5.7 Provide Online and Printed Canned Reports for Teachers

BR-73	
Priority:	Critical
Release:	
User Story:	As a teacher User, I need a suite of reports to help me understand the results and plan for the future.
Module:	Assessment System
Description:	<p>Teacher Users will be able to select from a list of static reports that can be viewed on the computer screen, printed, or saved to PDF files. Among the reports for teachers could be the following:</p> <ul style="list-style-type: none"> • Assessment Results: Provides a snapshot of how students performed on a selected assessment • Question Details: Displays class performance on a particular assessment, student by student, question by question • Compare Assessments: Determines the progress students are making from one assessment to another, as a whole class or on a student by student basis • Overall Skill Performance: Provides aggregated results that give a snapshot of how a class is performing on tested skills throughout the school year • Overall Student Performance: Provides details regarding the performance of a particular student across multiple assessments • Student Performance: Shows how a particular student performed on a particular assignment
Exceptions:	Access to individual reports and the levels of reporting are controlled by role-based privileges. No reports should compromise the security of any high stakes tests.
Rules:	The following business rules apply to this requirement:
	5.5.7.1 MCESA will further define the packet of reports provided at the teacher level
	5.5.7.2 Users will receive reports similar to AIMS for high stakes tests administered in AS.
	5.5.7.3 Teacher reports will include a group of reports that resemble similar reports for AIMS.

5.5.8 Provide Printed Canned Reports for Parents and Students

BR-74	
Priority:	Critical
Release:	
User Story:	As a Test Taker (and the guardian of a Test Taker), I need reports to help me understand my test results.
Module:	Assessment System
Description:	The LEA Administrator will be responsible for generating individual printed reports for each student. Reports for parents and students will show results grouped by skill and by question.
Exceptions:	No reports should compromise the security of any high stakes tests.

BR-74	
Rules:	The following business rules apply to this requirement:
5.5.8.1 Parent and Student reports will resemble similar reports for AIMS.	

5.5.9 Provide Dashboards

BR-75	
Priority:	High
Release:	
User Story:	As a User, I need to be able to view results for students and to be able to drill down to individual students and their answers to individual test items (only on non-high-stakes assessments).
Module:	Assessment System
Description:	The system will provide out of the box dashboards available for Users and give the ability for district staff to easily create additional dashboard features.
Exceptions:	Drill down to individual items will be available only for formative assessments to protect the security of high stakes secure tests.
Rules:	The following business rules apply to this requirement:
5.5.9.1 MCESA will provide the views they would like to receive via dashboard. Some views will be done through other RDSS modules. 5.5.9.2 Dashboard views will also be of interest to districts, schools, and teachers for formative and informal tests. The parameters for those also need to be developed. 5.5.9.3 Dashboard views should use appropriate graphics to display data whenever possible, as in bar graphs, pie charts, etc.	

5.5.10 Provide Ad Hoc Reporting

BR-76	
Priority:	High
Release:	
User Story:	As a User, I need the ability to create and save reports or dashboard views on the fly beyond those included with the AS.
Module:	Assessment System
Description:	The system should allow Users to easily create custom views and reports of data.
Exceptions:	Permission to create ad hoc reports would be controlled through role-based privileges.
Rules:	The following business rules apply to this requirement:
5.5.10.1 The AS should allow Users to save ad hoc report specifications so they can easily run the same reports in the future.	

5.5.11 Provide Custom Reporting

BR-77	
Priority:	High
Release:	
User Story:	As a User, I need the ability to create and save sophisticated new canned reports beyond those included with the AS.
Module:	Assessment System
Description:	The system should allow users to easily create and save custom reports.
Exceptions:	Permission to create canned reports would be controlled through role-based privileges.
Rules:	The following business rules apply to this requirement:
5.5.11.1 Depending on role-based permissions, the User should be able to save a custom report for personal use only or in a library of custom reports that can be shared.	

5.5.12 Report on Basic Item Analysis

BR-78	
Priority:	High
Release:	
User Story:	As a User I need to see how students respond to an individual questions on formative assessments to adapt future instruction.
Module:	Assessment System
Description:	Item analysis should include, but not be limited to, the frequency of answers for each item. The report should be available based on selections of different groupings.
Exceptions:	
Rules:	The following business rules apply to this requirement:
5.5.12.1 The AS should provide information on student misconceptions that might have caused the error on each answer choice.	

5.5.13 Provide Advanced Statistical Item Analysis

BR-79	
Priority:	Critical
Release:	
User Story:	As an Assessment System Administrator or Analytic User, I need to do advanced analytical reporting to measure effectiveness of test items.
Module:	Assessment System

BR-79	
Description:	The system provides advanced item analysis information which should include, but not be limited to, the following measures: <ul style="list-style-type: none"> • Percent responding • Difficulty Factor • Discrimination Index (based on point - bimeasure correlation method) • Test Reliability (KR20) • Test Score Frequency
Exceptions:	
Rules:	The following business rules apply to this requirement:
5.5.13.1 The AS should provide easy access to data for individual test items.	

5.5.14 Notify if Student Data is Inaccurate

BR-80	
Priority:	Medium
Release:	
User Story:	As a User, I need an informational screen that allows me to validate a Test Taker's (student) information and notify (email) ADE to update the RDSS (or other data system)to update the data to resolve disputes.
Module:	Assessment System
Description:	Depending on the process adopted by MCESA, a Users may need to notify ADE (by email) if a student name, student id, or other field is incorrect. This interface would allow the User to make a request for an update to the database.
Exceptions:	An update to a data field cannot occur during the window of test administration.
Rules:	The following business rules apply to this requirement:
5.5.14.1 MCESA will determine the procedure for student identification information.	
5.5.14.2 Changes made in AS should also be incorporated in RDSS.	

5.5.15 Identify Students Needing Assistance

BR-81	
Priority:	Medium
Release:	
User Story:	As a User, I need data on groups of students needing remediation after scoring of formative tests so I can address the needs of these students and plan improve instruction for the future.
Module:	Assessment System

BR-81	
Description:	Users should have a series of canned reports that specifically identify which students need assistance in given areas. The reports will support remediation following formative assessments or professional development and curriculum needs following high stakes tests.
Exceptions:	
Rules:	The following business rules apply to this requirement:
5.5.15.1 This series of reports should be used to support instructional improvement and not for evaluative purposes.	

5.5.16 Track Progress and Forecast Proficiency

BR-82	
Priority:	Medium
Release:	
User Story:	As User, I want access to reports that show student progress and projected proficiency on high-stakes tests.
Module:	Assessment System
Description:	Information on student progress and proficiency would be delivered through canned reports, custom reports, and dashboards.
Exceptions:	Different reports would be available based on the user role.
Rules:	The following business rules apply to this requirement:
5.5.16.1 The system should follow role-based permissions in deciding which reports to share. 5.5.16.2 Reports should aid interpretation through the use of features like "traffic lighting", high quality graphics and trajectories. 5.5.16.3 The projected scores should be based on the current high stakes test (e.g., AIMS, PARCC, or the Value Add assessments delivered by the REIL project, etc.	

5.5.17 Report on Student Results for Parents

BR-83	
Priority:	Medium
Release:	
User Story:	As User, I need a report that easily communicates student performance results on formative assessments to parents.
Module:	Assessment System
Description:	A parent report should show student status on recent tests with high level summaries and supporting detail as appropriate
Exceptions:	

BR-83	
Rules:	The following business rules apply to this requirement:
5.5.17.1 Parent reports should provide explanation of the results based on content and cognition requirements.	

5.5.18 Link Report Results to Curriculum Options

BR-84	
Priority:	Low
Release:	
User Story:	As a User, I want to see reports that list recommended resources for addressing student deficiencies on a report.
Module:	Assessment System
Description:	The system allows for teachers to generate a report that shows students broken out by performance level by standard, and then a correlation of those standards to recommended lessons and resources within a future curriculum management system.
Exceptions:	
Rules:	The following business rules apply to this requirement:
5.5.18.1 This will only be enabled if curriculum options by AZ proficiency standards and national Common Core standards are available electronically.	

5.5.19 Filter Report Data

BR-85	
Priority:	High
Release:	
User Story:	As User, I need to be able to sort report data to view reports by subgroups such as class, teacher, school, district, subject, standard, and student demographic data.
Module:	Assessment System
Description:	The system should offer users the option to use NCLB categories and other demographic factors to filter and create a group of students. As included should be the ability to filter by grade, subject, course, test, programs, ethnicity, gender, etc.
Exceptions:	
Rules:	The following business rules apply to this requirement:
5.5.19.1 Business rules will be established for associating historical student test data with former teachers, current teachers, or both.	

5.5.20 Assign Reporting Permissions

BR-86	
Priority:	Critical
Release:	
User Story:	As a Project Administrator, I need to assign reporting functionality based on roles so that the system will limit access to reports to users depending on their roles
Module:	Assessment System
Description:	The Project Administrator will have access to an interface that allows selection of different reports based on User roles.
Exceptions:	
Rules:	The following business rules apply to this requirement:
5.5.20.1 Role-based permissions assigned by the Project Administrator will also apply to district use of reporting functions.	

5.5.21 Use Scale Scores as Appropriate

BR-87	
Priority:	High
Release:	
User Story:	As a User, I would like to see student results converted to scale scores similar to results for high stakes tests.
Module:	Assessment System
Description:	For appropriate reports, the system will take raw student results and convert them into accurate scale score equivalents that reflect the format of the state's high stakes tests (e.g., AIMS) or national assessments (e.g., ACT).
Exceptions:	
Rules:	The following business rules apply to this requirement:
5.5.21.1 Scale scores should be shown on appropriate reports and dashboards.	

5.5.22 Save Reports as PDFs or Excel Files

BR-88	
Priority:	High
Release:	
User Story:	As User and Analytic User, I need the ability to save reports to PDF, XLS, or CSV formats so that the reports can be opened at a later date and analyzed by other users.

BR-88	
Module:	Assessment System
Description:	When generating a report, the User should have an easily selectable option for choosing a format to save or export the data.
Exceptions:	
Rules:	The following business rules apply to this requirement:
5.5.22.1 Saved reports will be stored locally and not on the AS.	

5.5.23 Report Across Multiple Levels

BR-89	
Priority:	High
Release:	
User Story:	As a User, I need reports specific to my situation. As my role allows, I should be able to review information for a single student, a group of students, a class, a school, or a district.
Module:	Assessment System
Description:	Many reports will be available for multiple levels (district, school, class, etc.). Settings in the AS will allow the system administrator to determine by role which reports users are able to view.
Exceptions:	The permissions for reports will be set in the AS management tools. Users will only see reports at levels to which they are granted permission.
Rules:	The following business rules apply to this requirement:
5.5.23.1 The Program Administrator would be able to view all report types for any groups of students, classes, schools, or districts.	

5.5.24 Import Student Test Data from Tests taken Outside AS

BR-90	
Priority:	Low
Release:	
User Story:	As a Project Administrator or LEA Administrator, I need to import test scores from other assessment systems so results can be analyzed and compared to assessments taken in AS and to create useful, robust reports on the other data sets.
Module:	Assessment System

BR-90	
Description:	<p>The AS will import data that uses QTI standards and other commonly accepted formats (CSV, etc.)</p> <p>The system should easily load data from multiple sources that include the following:</p> <ul style="list-style-type: none"> • State Tests • Individual Reading Inventory (IRI) • District Benchmarks • Campus Assessments • Classroom Assessments • Preliminary Scholastic Aptitude Test (PSAT) • Scholastic Aptitude Test (SAT) • American College Test (ACT) • Advanced Placement Exams (AP) • State-Developed Alternative Assessment AIMS • Language Assessment Scales (LAS) • Reading Proficiency Test Scores in English • Other Placement and Screening Assessments (GT, dyslexia, bilingual/ESL, etc.) • DIBELS • COGAT <p>Scores from tests taken in other assessment systems or other formats may also need to be uploaded to the currently proposed system.</p>
Exceptions:	High stakes test scores on tests such as AIMS, SAT, ACT, and Stanford will not be imported into the AS for REIL, but they may be desired for future needs (or for users of AS who are not part of REIL). AIMS and other tests may be imported into RDSS for th
Rules:	The following business rules apply to this requirement:
	5.5.24.1 For purpose of the REIL Grant, results from many tests, including AIMS, will be imported into the RDSS. However, districts may also want to import assessment data specifically for their district into the AS.

5.5.25 Import Extended Student Demographic Data

BR-91	
Priority:	Low
Release:	
User Story:	As a Project Administrator or LEA Administrator, I need to import extended student data to create useful, robust reports based on demographics and other characteristics.
Module:	Assessment System

BR-91	
Description:	Extended student data will be imported from the SIS and possibly other sources (e.g., behavior management systems) to enable reports based on many variables. The system will import student data from multiple sources that include the following categories (and others TBD): <ul style="list-style-type: none"> • Grades for Courses (e.g., transcripts) • Attendance • Discipline • Programs (including entry and withdrawal dates) • Teachers • Courses • Participation in RTI activities
Exceptions:	If all analyses based on the extended data will be done in the RDSS, the data will be imported by the RDSS and not the AS.
Rules:	The following business rules apply to this requirement:
5.5.25.1 Security for all data imported must following FERPA and any other applicable guidelines.	

5.5.26 Report Survey Data

BR-92	
Priority:	Low
Release:	
User Story:	As an Assessment System Administrator or LEA Administrator, I need to view results of surveys on reports and dashboards.
Module:	Assessment System
Description:	The AS should have standard reports for rolling up the results from surveys.
Exceptions:	
Rules:	The following business rules apply to this requirement:
5.5.26.1 The reports should allow for selecting and reporting by subgroups using search criteria.	

5.5.27 Brand Reports for MCESA

BR-93	
Priority:	Low
Release:	
User Story:	As a Project Administrator or LEA Administrator, I need the reports to indicate that they come from MCESA or my school district.
Module:	Assessment System

BR-93	
Description:	The AS should use a template or "skin" to make it clear that the reports come from MCESA or the district.
Exceptions:	
Rules:	The following business rules apply to this requirement:
<p>5.5.27.1 REIL reports should have the look and feel of MCESA reports. The price should be included in delivery of the AS.</p> <p>5.5.27.2 Districts may choose to have their own district information appear on their formative assessment reports. There may be a charge to the district to do this.</p>	

5.6 System

5.6.1 Meet Current and Future Assessment Needs

BR-94	
Priority:	Critical
Release:	
User Story:	As the Project Administrator, I need a system that will adapt to the conditions needed to support the REIL project (and future AELAS) projects, so the projects are successful.
Module:	Assessment System
Description:	The AS must be flexible and growing so it can adapt to changes to assessment methodologies, number of users, implementation plans, and on-going processes. As needed, the system should be easily modified to incorporate any changes.
Exceptions:	
Rules:	The following business rules apply to this requirement:
<p>5.6.1.1 The AS should be able to support multiple programs at all levels state, county, district, school and classroom</p>	

5.6.2 Adapt to MCESA Nomenclature

BR-95	
Priority:	Critical
Release:	
User Story:	As the Project Administrator, I want to be able to name items and test forms used for the REIL Grant according to previously defined nomenclature.
Module:	Assessment System
Description:	The Project Administrator uses a secure interface for setting and updating nomenclature used to describe MCESA content in the AS, including, but not limited to, naming conventions of items, test forms, etc.

BR-95	
Exceptions:	
Rules:	The following business rules apply to this requirement:
5.6.2.1 The Project Administrator will determine all nomenclature for all MCESA components.	

5.6.3 Adapt to District Nomenclature

BR-96	
Priority:	High
Release:	
User Story:	As the LEA Administrator, I want to be able to name items and test forms used by my district according to previously defined nomenclature.
Module:	Assessment System
Description:	The LEA Administrator uses a secure interface for setting and updating nomenclature used to describe district content in the system, including, but not limited to, naming conventions of items, test forms, etc.
Exceptions:	
Rules:	The following business rules apply to this requirement:
5.6.3.1 Each district may have their own naming convention for items and test forms specific to their district; however, all MCESA content will adhere to MCESA's naming conventions.	

5.6.4 Configure to the Needs of All Users

BR-97	
Priority:	High
Release:	
User Story:	An a Project Administrator I need to configure the rights and permissions in the AS for different user roles.
Module:	Assessment System
Description:	The Project Administrator uses a secure interface for setting and updating permissions for each user role.
Exceptions:	
Rules:	The following business rules apply to this requirement:
5.6.4.1 Individual functions should be turned on or off as determined necessary.	
5.6.4.2 Changes are applied system-wide to all users of the same role.	

5.6.5 Export Test Items and Forms

BR-98	
Priority:	Critical
Release:	
User Story:	As the Assessment System Administrator, I need to be able to export items and tests to Assessment Contributor districts or others who pay to license REIL assessment content.
Module:	Assessment System
Description:	The system needs to following industry standards for exporting items to districts who license the content.
Exceptions:	If districts do not have a QTI-compliant AS to administer their assessments, AS will need to export to pdf.
Rules:	The following business rules apply to this requirement:
5.6.5.1 The AS shall use QTI standards. 5.6.5.2 The AS must be able to export items and forms by grade level and subject/course in pdf and electronically to those who adhere to QTI standards.	

5.6.6 Import Secure Test Results

BR-99	
Priority:	Critical
Release:	
User Story:	As an Assessment System Administrator, I want to import data from REIL Grant tests administered by Assessment Contributor districts or others who pay to license REIL assessment content.
Module:	Assessment System
Description:	The system shall follow QTI standards for importing items from districts who administered the tests
Exceptions:	If districts do not have a QTI-compliant AS to administer their assessments, AS may need to develop a data import format that translates assessments into QTI standards.
Rules:	The following business rules apply to this requirement:
5.6.6.1 The AS shall import scores using QTI standards. 5.6.6.2 The AS must be able to receive and store the data in a way that is FERPA compliant and is easily accessible for test item analysis.	

5.6.7 Store and Organize Support Documents

BR-100	
Priority:	High
Release:	

BR-100	
User Story:	As a Assessment System Administration or User, I need access to the documents that support the AS, so I can save time and ensure accurate use of the system.
Module:	Assessment System
Description:	The system should provide easy access to foundational documents such as Teacher's Guides, Administrator's Guides, Test Blueprints, and Test Administration Directions.
Exceptions:	
Rules:	The following business rules apply to this requirement:
5.6.7.1 The product stores documents in PDF format only. Document masters reside outside the AS.	

5.6.8 Simplify Addition of New Alliance Districts

BR-101	
Priority:	Critical
Release:	
User Story:	As the Project Administrator, I need a process to add Alliance districts and other LEAs to the AS when they join the project.
Module:	Assessment System
Description:	When new districts adopt the model, the system needs to easily integrate them and facilitate the sharing of all assessment resources and processes.
Exceptions:	If districts elect to use other parts of RDSS but not AS, they would not be set up.
Rules:	The following business rules apply to this requirement:
5.6.8.1 MCESA is in process of developing policies for letting districts use the entire RDSS system or only the AS. This should follow any business rules that are developed.	

5.6.9 Interact with Other RDSS Systems

BR-102	
Priority:	Critical
Release:	
User Story:	As a Project Administrator, I need the AS to integrate with other systems within the RDSS to import and export information so that the system works fluidly.
Module:	Assessment System
Description:	The AS will integrate seamlessly with other RDSS modules to support identity management, REIL Score results, etc.
Exceptions:	
Rules:	The following business rules apply to this requirement:

BR-102

5.6.9.1 At this point in the grant, the AS only feeds data out to other systems, but at some point in the future the system may need to bring in information from other systems.
5.6.9.2 The system shall adhere to QTI, CEDS standards, and to ensure interoperability of systems.

5.6.10 Support RDSS Identity Management

BR-103

Priority:	Critical
Release:	
User Story:	As a the Project Administrator, I need AS to interface with the RDSS identity management system to allow single sign on for all users.
Module:	Assessment System
Description:	If users access the AS through RDSS, it will not require them to log in a second time.
Exceptions:	District users may have the option of creating user profiles for district only-use (for instructional aides and other personnel not in the MCESA RDSS). These will not have rights to interact with MCESA assets.
Rules:	The following business rules apply to this requirement:
5.6.10.1 The AS will accept user identification and roles that are passed through from the RDSS when users enter the AS.	

5.6.11 Manage Shared Item Resources

BR-104

Priority:	High
Release:	
User Story:	As an Author, I want to associate a resource such as a graphic, a passage, a video, etc. to multiple items and track asset information so that the asset can be re-used within the system.
Module:	Assessment System
Description:	Authors should have access to store item resources in a the shared resource bank. From there, the items should be searchable to be located for future use. The system will also allow users to delete or modify resources based on role-based permissions.
Exceptions:	A system that allows re-use of assets could save storage space, but it may be best used with non-secure tests and not secure tests.
Rules:	The following business rules apply to this requirement:
5.6.11.1 Rules for adding, editing, and deleting resources will be determined by MCESA	

5.6.12 Archive Data

BR-105	
Priority:	Critical
Release:	
User Story:	As a Project Administrator, I need the AS to archive all data during the lifetime of the grant so that it can be printed and reviewed.
Module:	Assessment System
Description:	All AS data will be archived during the lifetime of the grant. Additional archive timelines will need to be defined in the future.
Exceptions:	Records that MCESA determines should be deleted or maintained "active" in the system.
Rules:	The following business rules apply to this requirement:
5.6.12.1 MCESA will establish a process for determining how test items, forms, and scores are archived.	

5.6.13 Use Existing Student Usernames and Passwords

BR-106	
Priority:	Medium
Release:	
User Story:	As an Assessment System Administrator or LEA Administrator, I need an interface with RDSS, EDU-ID, the SIS, or other systems (e.g., Learning Management Systems) or from XLS or CSV files to import student usernames and passwords to simplify online testing.
Module:	Assessment System
Description:	A secure interface in the AS will allow the Assessment System Administrator or LEA Administrator to specify sources from which to import student usernames and passwords.
Exceptions:	If student usernames and passwords are not available from an electronic source, the AS will need an interface to enter them manually.
Rules:	The following business rules apply to this requirement:
5.6.13.1 Each participating district will be expected to provide any available usernames and passwords for students.	

5.6.14 Manage External Rights to Assessments

BR-107	
Priority:	Critical
Release:	

BR-107	
User Story:	As the Project Administrator, I need a way to manage access to assessments to the contributing districts who helped build the assessments or who have paid for assessments.
Module:	Assessment System
Description:	The system needs to interface manually or automatically with financial systems that will track which districts have access to tests.
Exceptions:	
Rules:	The following business rules apply to this requirement:
5.6.14.1 MCESA still is working on business rules for access to tests. It may be on an annual subscription basis, a version subscription, or some other formula.	

5.6.15 Provide Online User Support

BR-108	
Priority:	Medium
Release:	
User Story:	As a User, I need a reliable way to get prompt answers to issues.
Module:	Assessment System
Description:	The AS provides just-in-time telephone support and/or online support including access to FAQs and knowledge bases.
Exceptions:	
Rules:	The following business rules apply to this requirement:
5.6.15.1 Ideally support is available 24/7, but should, at minimum, be available during the period one hour before school through three hours after school.	

5.6.16 Customize Tools for Supporting Item and Test Form Development

BR-109	
Priority:	Medium
Release:	
User Story:	As the Project Administrator, I need project management tools in the AS to follow our defined process for creating test items and forms.
Module:	Assessment System
Description:	The Project Administrator should enter the process and plans for creating items and forms into the system.
Exceptions:	The Project Administrator may designate someone to perform this function.

BR-109	
Rules:	The following business rules apply to this requirement:
<p>5.6.16.1 MCESA will determine the workflow for review, editing, and approving items.</p> <p>5.6.16.2 The system should allow the Project Administrator to define steps/milestones, personnel, and schedule.</p>	

5.6.17 Manage and Update Status of Test Items and Forms under Development

BR-110	
Priority:	High
Release:	
User Story:	As an Author, Reviewer, or Project Administrator, I need to be able to track and update the status of development work in progress so the project stays on schedule.
Module:	Assessment System
Description:	As a test item or test form moves through the development process, the Author, Reviewer, and Project Administrator need a system for marking items so they can move ahead for review, back for editing, or forward for final acceptance/publishing.
Exceptions:	While this process could be done external to the AS, it would be highly desirable to manage it within the system.
Rules:	The following business rules apply to this requirement:
<p>5.6.17.1 The AS should allow users to easily locate assigned items and forms and to notify the next person in the process when an item is ready.</p> <p>5.6.17.2 The system should provide dashboards and reports to measure progress against steps/milestones, personnel, and schedule.</p>	

5.6.18 Train on Authoring and Reviewing of Test Items and Forms

BR-111	
Priority:	Low
Release:	
User Story:	As an Author, Reviewer, and Project Administrator, I need directions on authoring items and test forms.
Module:	Assessment System
Description:	In addition to strong online help, the AS should offer Professional Development delivered in whatever medium is most efficient.
Exceptions:	Those who will NOT enter items or create tests would NOT need training.
Rules:	The following business rules apply to this requirement:
<p>5.6.18.1 The training should use best practices for adult learners.</p>	

5.6.19 System Training on Administering Tests

BR-112	
Priority:	Critical
Release:	
User Story:	As an Assessment System Administrator, I need directions on how to set up tests for administration and track administration.
Module:	Assessment System
Description:	In addition to strong online help, the AS should offer Professional Development delivered in whatever medium is most efficient.
Exceptions:	
Rules:	The following business rules apply to this requirement:
5.6.19.1 The training should use best practices for adult learners. The training should include tools for quick refresh of skills at the time they are needed.	

5.6.20 Teacher Training on Administering Online Tests

BR-113	
Priority:	High
Release:	
User Story:	As a Teacher User and , I need directions on administering tests to my students.
Module:	Assessment System
Description:	In addition to strong online help, the AS should offer Professional Development delivered in whatever medium is most efficient.
Exceptions:	
Rules:	The following business rules apply to this requirement:
5.6.20.1 The training should use best practices for adult learners. The training should include tools for quick refresh of skills at the time they are needed.	

5.6.21 Provide Professional Development on Creating and Interpreting Reports

BR-114	
Priority:	Low
Release:	
User Story:	As a User, Project Administrator, Assessment System Administrator, or LEA Administrator, I need to know how to generate test reports and interpret results.
Module:	Assessment System

BR-114	
Description:	Training should be role-based. Users only need to learn about reports to which they have access. Resources to support PD should include the following: <ul style="list-style-type: none"> • Train-the-trainer training model • Thorough training documents – have separate administrator, principal, and teacher guides • Training documents in MSWord, with the ability for users to edit the documents • Online, context-sensitive, in-product help to support end-users
Exceptions:	Those who will NOT be using reports would not need the training. Administrators might have others generate reports for them and could skip that training
Rules:	The following business rules apply to this requirement:
5.6.21.1 In addition to a system of online help, the AS includes robust staff development on the system (trainer-of-trainer model, printed training materials, online help, etc.)	

5.6.22 Support Collaboration Within and Across Districts

BR-115	
Priority:	Low
Release:	
User Story:	As an LEA Assessment Administrator, I want to share and collaborate on development of formative assessments within my district and with other districts.
Module:	Assessment System
Description:	The system should have collaboration and sharing tools.
Exceptions:	Based on role-based privileges, only selected Users may have permission to engage in collaborative environments.
Rules:	The following business rules apply to this requirement:
5.6.22.1 Each district and school will establish rules for collaboration.	

5.6.1 Manage Asset Credits and Licenses

BR-115	
Priority:	Critical
Release:	
User Story:	As the Project Administrator or LEA Administrator, I need to ensure that assets (e.g., passages, pictures, and video) used in test items are properly credited and licensed.
Module:	Assessment System

BR-115	
Description:	The AS will have a way to store/archive item information such as copyright, public domain, reference, etc.
Exceptions:	None at this time.
Rules:	The following business rules apply to this requirement:
5.6.1.1 Assets entered into the AS by MCESA or a participating district will have required metatags that provide details on the source.	

5.6.2 Protect Intellectual Property

BR-115	
Priority:	Critical
Release:	
User Story:	As the Project Administrator or LEA Administrator, I need to ensure security of MCESA- and district- developed items from any unauthorized use by other entities, including AS vendors.
Module:	Assessment System
Description:	The AS will provide security of MCESA- and district- developed items from any unauthorized use by other entities, including AS vendors.
Exceptions:	ATI and D2SC will continue to have rights to MCESA items per their current agreements.
Rules:	The following business rules apply to this requirement:
5.6.2.1 Assets entered into the AS by MCESA or a participating district will be identified in the AS as property of MCESA or the district.	

6 Non-Functional Requirements

6.1 Availability

ID	Requirement
6.1.1.1	The system needs to be accessible 24x7x365, except for scheduled periodic maintenance. The schedule should be published and clearly communicated to all system Users in advance. A Service Level Agreement (SLA) should be drafted in support of the overall system and not just the AS module.

6.2 Backup and Restore

ID	Requirement
6.2.1.1	The application server and the associated data should have backup and restore capabilities that are part of the ADE Information Technology Department's approved server backup plan.
6.2.1.2	In the event of a catastrophic failure, the application should be fully functional within 24 hours.
6.2.1.3	Business expectations for restoration capabilities are that backup and restore processes will be tested for viability once a quarter, beginning with Q3 2012.

6.3 Capacity

The current capacity that the system needs should be based in part on the following estimated users for the initial release of the AS and REIL RDSS overall. The future capacity is based upon projected user requirements.

6.3.1 Current

ID	Requirement																																				
6.3.1.1	User Capacity																																				
	<table border="1"> <thead> <tr> <th>Types of Districts</th> <th>Student Users</th> <th>Teachers</th> <th>Principals</th> <th>Personnel</th> <th>Total Users</th> </tr> </thead> <tbody> <tr> <td>Grant Districts*</td> <td>52,294</td> <td>3,380</td> <td>147</td> <td></td> <td>55,821</td> </tr> <tr> <td>Alliance Districts**</td> <td>25,598</td> <td>1,361</td> <td>95</td> <td>2,207</td> <td>29,261</td> </tr> <tr> <td>Assessment Contributors</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>MCESA staff</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Total</td> <td></td> <td></td> <td></td> <td></td> <td>85,082</td> </tr> </tbody> </table>	Types of Districts	Student Users	Teachers	Principals	Personnel	Total Users	Grant Districts*	52,294	3,380	147		55,821	Alliance Districts**	25,598	1,361	95	2,207	29,261	Assessment Contributors						MCESA staff						Total					85,082
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ID	Requirement																																																																																												
6.3.1.2	<p>Item Capacity</p> <p>For each subject and each grade level there will be a total of 165 items developed. From these 45 items will appear on each test form, with 15 of the items being common across all forms. See the table below for the subjects that will have test creation and administration in the 2012-2013 school year.</p> <table border="1"> <thead> <tr> <th>Subject</th> <th>Grade range</th> <th>Number of tests</th> <th>Number of items</th> </tr> </thead> <tbody> <tr> <td colspan="4" style="text-align: center;">Elementary</td> </tr> <tr> <td>Elementary Art</td> <td>3, 8</td> <td>2</td> <td>330</td> </tr> <tr> <td>Elementary Physical Education</td> <td>3, 8</td> <td>2</td> <td>330</td> </tr> <tr> <td>Elementary Music</td> <td>3</td> <td>1</td> <td>165</td> </tr> <tr> <td>Foundational Choir</td> <td>Grade agnostic</td> <td>1</td> <td>165</td> </tr> <tr> <td>Foundational Band</td> <td>Grade agnostic</td> <td>1</td> <td>165</td> </tr> <tr> <td colspan="4" style="text-align: center;">Secondary</td> </tr> <tr> <td>Two Dimensional Art</td> <td>Grade agnostic</td> <td>1</td> <td>165</td> </tr> <tr> <td>Foundational Choir</td> <td>Grade agnostic</td> <td>1</td> <td>165</td> </tr> <tr> <td>Foundational Band</td> <td>Grade agnostic</td> <td>1</td> <td>165</td> </tr> <tr> <td>Beginning Dance</td> <td>Grade agnostic</td> <td>1</td> <td>165</td> </tr> <tr> <td>Beginning Theater</td> <td>Grade agnostic</td> <td>1</td> <td>165</td> </tr> <tr> <td>Beginning Physical Education</td> <td>Grade agnostic</td> <td>1</td> <td>165</td> </tr> <tr> <td>Reading*</td> <td>9 – 12</td> <td>36</td> <td>5940</td> </tr> <tr> <td>Math**</td> <td>9 – 12</td> <td>21</td> <td>3465</td> </tr> <tr> <td>Science***</td> <td>9 – 12</td> <td>20</td> <td>3300</td> </tr> <tr> <td>American History</td> <td>Grade agnostic</td> <td>2</td> <td>330</td> </tr> <tr> <td>American Government</td> <td>Grade agnostic</td> <td>2</td> <td>330</td> </tr> <tr> <td>World History</td> <td>Grade agnostic</td> <td>2</td> <td>330</td> </tr> <tr> <td>Economics</td> <td>Grade agnostic</td> <td>2</td> <td>330</td> </tr> <tr> <td>Arizona Government</td> <td>Grade agnostic</td> <td>2</td> <td>330</td> </tr> <tr> <td>Total</td> <td></td> <td></td> <td>16,500</td> </tr> </tbody> </table> <p><i>Source:</i> MCESA assessment roadmap</p> <p>*Reading estimates are based upon the assumption that there are 4 grade levels for language arts, and 9 possible skill ranges offered.</p> <p>**Math estimates are based upon the assumption that pre-algebra, algebra, algebra 2, geometry, pre-calculus, calculus, and statistics are the seven courses offered and that there are 3 skill levels (below level, on-level, and honors) for each course.</p> <p>***Science estimates are based upon the assumption that physical science, biology, chemistry, physics, earth science, anatomy and physiology, biology ¾, botany, environmental science, and biotechnology are the courses offered and that there are 2 skill levels (on-level, and honors) for each course.</p> <p>The AS will need to be able to hold the 16,500 (may need to be adjusted) plus items listed above as well as item specification data associated with each item and the statistical data associated with each item and each form. Additionally, the system will need to collect data on each of the items and each of the forms in a longitudinal manner.</p>	Subject	Grade range	Number of tests	Number of items	Elementary				Elementary Art	3, 8	2	330	Elementary Physical Education	3, 8	2	330	Elementary Music	3	1	165	Foundational Choir	Grade agnostic	1	165	Foundational Band	Grade agnostic	1	165	Secondary				Two Dimensional Art	Grade agnostic	1	165	Foundational Choir	Grade agnostic	1	165	Foundational Band	Grade agnostic	1	165	Beginning Dance	Grade agnostic	1	165	Beginning Theater	Grade agnostic	1	165	Beginning Physical Education	Grade agnostic	1	165	Reading*	9 – 12	36	5940	Math**	9 – 12	21	3465	Science***	9 – 12	20	3300	American History	Grade agnostic	2	330	American Government	Grade agnostic	2	330	World History	Grade agnostic	2	330	Economics	Grade agnostic	2	330	Arizona Government	Grade agnostic	2	330	Total			16,500
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6.3.1.3	Image Capacity TBD																																																																																												

ID	Requirement
6.3.1.4	Audio Capacity TBD
6.3.1.5	Video Capacity TBD

6.3.2 Forecast

ID	Requirement
6.3.2.1	<p>User Capacity Maricopa County contains 58 public school districts. Members of 14 districts are involved in the estimates for current capacity. User capabilities would need to scale upwards to accommodate all members of all 58 districts as well as members of private or charter schools that may petition for participation.</p>
6.3.2.2	<p>Item Capacity In the second year of development and administration, there will be additional assessments in the following areas- social studies (grades 6-8), American History, World History, American Government, High School Social Studies, Career and Technical Education Marketing, Culinary Arts, and Child Care. Based upon conservative estimates this will add 1,050 new items to the secure item bank in the second year.</p>

6.4 Resource Constraints

ID	Requirement
6.4.1.1	At the time of this writing, ADE has not finalized their standard SLA from which to base the service needs of the MCESA REILize Decision Support System.

6.5 Response Time

ID	Requirement
6.5.1.1	The system should be designed to respond to User interactions and operations within a reasonable amount of time.

6.6 Scalability

This section describes the business expectations for IT management of the anticipated growth for the Online Data Capture Toolset. The overall infrastructure must support vertical and horizontal scalability (see [Glossary](#) in this document).

6.6.1 User Scalability

ID	Requirement
6.6.1.1	The system should be designed to support expansion of the delivery of this application to all other Users requiring access from additional district offices and schools and any other applicable location.

6.6.2 Application Scalability

ID	Requirement
6.6.2.1	Not defined at this time.

6.6.3 Data Scalability

ID	Requirement
6.6.3.1	The MCESA database must be able to accommodate storage of a rolling ten (10) years of data without sacrificing processing and refresh times. If a yet-to-be-determined portion of this data will be archived, it must remain readily available to RDSS users via the archive management processes.

6.7 Security

6.7.1 Authorization and Access Controls

The MCESA REIL Assessment System requires a complex user management system to manage Authorization and Access Control based on user roles that were defined in the User Characteristic table listed above in this document.

Note: The Security Requirements described below pertain to the overall system and not just the AS Module.

Individual Users of the REIL system must first be identified. They then must be provided with secured access from the office in which they are located over the internet to the web site URL where the application domain resides. Each User must be provided a unique login credential with a strong password in accordance with best practices. From this list of Users, those that will serve in the role of an administrator must be identified as well, along with roles and permissions to which they will be granted. This access and entitlement is functionality contained in the site setup and configuration area.

- An Authenticated User is anyone that accesses the site and may successfully log in. The services and content to which they have access may vary significantly. Authenticated users include the roles of Author, Reviewer, Approver, and User.
- An Administrative User is anyone with one or more administrative roles or permissions assigned to them. These individuals should be able to access features and functions on the site in the administration area. Administrative users include the roles of Project Administrator, Assessment System Administrator, and LEA Administrator.
- A Super User is anyone who has been granted this role which should be restricted to no more than a few selected personnel. They should have full permission over all available administrative features and function along with full visibility to any other User or Data in the system.
- A Test Taker is a student assigned to take tests through the AS.

6.8 Stability

ID	Requirement
6.8.1.1	The system should be designed such that time-out events and other unexpected system errors are non-occurring or minimally occurring events. If and when these system events occur then the system should record and report it to the ADE IT Development & Support team.

6.9 Minimum User System Capabilities

ID	Requirement
6.9.1.1	The system should: <ul style="list-style-type: none"> • Be intuitively easy to navigate • Include easy to understand documentation covering common tasks • Be easy to learn and understand • Provide descriptive error messages when needed. Error messages should provide brief details on how to recover from error. • Provide ability to undo an action and in areas an action cannot be undone, ask for confirmation.
6.9.1.2	The system should be designed such that it includes the best practices recommendations of a User Centric Design Team to ensure consistency, ease of navigation and intuitiveness.

7 Glossary of Terms

Definitions of terms, acronyms, and abbreviations used in this document:

Terms	Acronyms	Definitions
Arizona Department of Education	ADE	State education agency.
Ad Hoc Report		A report generated within the AS based on criteria that the user selects to appear on the report. Users may save the parameters for an ad hoc report to use in the future.
Administrator		See User Table for characteristics associated with an Administrative User.
Analytic User		Those who will use the data for analysis such as psychometricians who evaluate test forms and BASIS researchers who will build the model for determining REIL Scores.
Arizona's Instrument to Measure Standards	AIMS	The state level high stakes assessment to determine student proficiency on various standards. See the AIMS Matrix above for the grade levels and content areas in which this tool is administered.
Assessment Blueprint		The detailed descriptions of assessments to be created that includes for each standard or performance objective, assessment format, etc.
Assessment Contributors		School districts that are not part of REIL or REIL Alliance who will have access to the AS based on criteria that are still being defined by MCESA. These districts will contribute assessment items and in return receive access to these assessments. They may also have the opportunity to pay for access to other assessments.
Assessment System	AS	The assessment system that is selected or built to meet these business requirements.
Bank Definition		A server storage solution analogy for a variety of elements to be stored as part of the overall solution.
Canned Report		A report with fixed fields and displays which is populated with data for the district, school, class, or student selected by the user. The report may be viewed on the computer screen, printed, or saved to a PDF file (or XLS or CSV file if appropriate).
Common Core State Standards	CCSS	A set of mathematics and language arts standards developed collaboratively by educators nationwide with the support of the National Governors Association and the Council of Chief State School Officers. These rigorous standards ensure students are college and career ready when graduating from high school. The standards have been voluntarily adopted by over 40 states, including Arizona.
Common Education Data Standards	CEDS	A national collaborative effort to develop voluntary, common data standards for a key set of education data elements to streamline the exchange and comparison of data across institutions and sectors.

Terms	Acronyms	Definitions
Custom Report		A report that provides a repeated template similar to a canned report but is not included in the standard canned reports. A custom report typically requires a level of programming sophistication that exceeds that required for an ad hoc report and is typically done by the assessment system developer or a high-level client technical resource.
Dashboard		Provides at-a-glance views of assessment data relevant to an objective. Has the ability to drill down to refine data presented.
Data Management / Administration and Reporting	DMAR	Data Management provides the mechanism for data communications between disparate systems interacting with RDSS and the REIL initiative.
Depth of Knowledge	DOK	A measurement system developed by Norman L. Webb and others for assigning a cognitive level to standards, assessments, etc.
Distractor		An incorrect choice among multiple-choice answers on a test.
Form Bank		A collection of test forms stored on a solution server available for review, editing, and use by LEAs.
Formative Tests / Interim Test		All those activities undertaken by teachers, and/or by students, which provide information to be used as feedback to modify the teaching and learning activities in which they are engaged
High Stakes Tests		<p>Tests that are created and administered in secure, protected environment where the following are true:</p> <ul style="list-style-type: none"> • test taker's demographic information is verified prior to test administration • the specific time to administer the test is controlled as well as the amount of time allowed to complete the test • access to tests and testing materials is available only during the testing period (and nobody is allowed access to the materials outside of the testing period) • educators read the same script in all areas of administration • scores are securely maintained with access provided based on a role-based privileges. <p>Stakes are defined by the use of the assessment results. In this case, assessment results will result in financial and employment consequences for teachers and school administrators.</p>
International Society for Technology in Education	ISTE	A national educators association that has developed standards for technology literacy for students.
Item Bank		A collection of Item elements stored in a server storage solution available to be included in a test form.
Item Blueprints		The detailed descriptions of items to be created for an assessment that includes for each standard or performance objective then percentage of items and the total number of items covering that standard, the DOK for each item, the item format, etc.
Local Education Agency	LEA	A school district or a charter school.

Terms	Acronyms	Definitions
Low Stakes Tests		Tests that have no direct financial or employment consequences for teachers and school administrators. These are generally administered as Interim assessments to help guide instruction. Low stake tests may include secure test items and test forms (e.g., district benchmark assessments) and non-secure items and form (e.g., practice REIL tests, classroom quizzes, etc.)
Master Educator		One of the REIL Career Pathways. This is a REIL District teacher who takes on additional responsibilities (usually serving as an instructional coach or mentor to other teachers).
Maricopa County Education Service Agency	MCESA	County education agency, the Office of the Maricopa County Superintendent of Schools.
Metadata		"Data about data" or "data about containers of data".
Non-secure		Tests or test items that are for general use or consumption. These are often similar in nature to those in secure tests but can be used by educators for practice assessments. These are not used for high stakes decisions. Complete metadata tagging and complete statistical analysis will occur on these items and tests.
Partnership for Assessment of Readiness for College and Careers	PARCC	A consortium of states working together to develop a common set of K-12 assessments in English and math based on the Common Core State Standard and anchored in what it takes to be ready for college and careers. New assessments from PARCC are expected to replace the AIMS assessments in 2014.
Peer Evaluator		A MCESA employee whose primary responsibility is to perform classroom observations of teachers in REIL Districts
Performance Objective	PO	The performance defined by a state standard.
Pre-slug		The process of pre-filling bubble sheets with student and class data prior to distributing the sheets for taking a test. In the case of plain paper bubble sheets this data is printed as the bubble sheet is printed.
Question-Test-Interoperability	QTI	Set of standards that allow for migration of assessment information from one assessment system to another.
Rewarding Excellence in Instruction and Leadership	REIL	An initiative of the Maricopa County Education Service Agency, engages six Maricopa County school districts in implementing systemic change aimed at transforming how schools recruit, retain, support, and compensate effective teachers and principals. The ultimate goal is building the capacity of educators, targeted professional learning, and tools for measuring student success, establishment of multiple career pathways, and sustainable, differential, performance-based compensation are critical elements of REIL. The five year initiative, which will culminate in 2014-2015, is funded by a \$51.5 million Teacher Incentive Fund Grant from the US Department of Education.
REIL Alliance Districts		The eight districts that are not listed as grant districts but will also have access to the entire RDSS system and all of its modules.
REIL Districts		The six districts included in the grant which will have full access to the entire RDSS system and all of its modules.

Terms	Acronyms	Definitions
REILize Decision Support System	RDSS	The REILize Decision Support System links student achievement data to teacher and principal performance and human resource systems. In includes all of the modules described in the introduction to this document.
REIL Field Specialist		A MCESA employee whose primary responsibility is the implementation of the REIL grants design in the REIL Districts.
Request for Information	RFI	
Request for Proposal	RFP	
Rubrics		<p>In the context of assessment creation, a rubric is a guide that Reviewers use to determine if test items and test forms meet their intended outcomes.</p> <p>In the context of student assessment, a rubric is a scoring guide for evaluating student work made up of definitions of quality work, well-defined criteria for measuring quality work, and scoring method (using numbers or descriptive language such as excellent, good, etc.) to indicate level of performance. May be holistic, giving an overall score to the work, or analytic, giving an individual score for each component of work. Source: Education.com.</p>
Scalability		Scalability is the ability of a system, network, or process to handle an increasing amount of work in a capable manner, or its ability to be enlarged to accommodate growth. A system whose performance improves proportionally to the hardware capacity added is said to be a scalable system.
Secure		Tests or test items that are marked for use in high-stakes tests. These items and tests must maintain high security so that they are not seen by educators or test takers prior to test administration. Complete metadata tagging and complete statistical analysis will occur on these items and tests.
Student Information System	SIS	A district system that maintains the most current information on a student's demographics such as attendance data, address, date of birth, ethnicity, etc. The system typically includes functionality for scheduling, attendance, and other areas.
Subject Matter Expert	SME	An individual regarded as an expert in a particular field due to their experience and training in that field.
Super User		A class of functional role with an associated REIL role that has special permissions and screen visibility associated to login identification processes. The super user class has multiple types to accommodate the unique business rules and functional requirements of each type. Each type of super user will have a unique name to identify it. Super user types are required in the AS to mitigate special circumstances in business process (a.k.a. sysadmin). They are also responsible for managing the overall website in support of the AS module. The responsibilities typically include setup and configuring, establishing and managing user accounts, etc. They should have full visibility to anything in the system including reports.

Terms	Acronyms	Definitions
Test Administration Manual	TAM	Directions given to teachers for administering a REIL high stakes test.
Test Definition		The details of a completed test form that include the specific test items included, the sequence of item presentation, and any details about directions and other supporting material included in the test form.
Test Forms		One version of a test. Multiple test forms (containing different sets of items and whose scores are equated) may be operational at the same time to eliminate the over-exposure of individual items when there are large numbers of test takers. Multiple test forms also ensure that test takers who sit the test on more than one occasion receive a different set of items at each administration.
Test Maps		The specific guidelines to follow when creating a test form, including the number of items per standard, the sequence of items, etc.
Test Package		The printed tests combined with the Test Administration Manual (TAM) given to teachers for administering REIL tests.

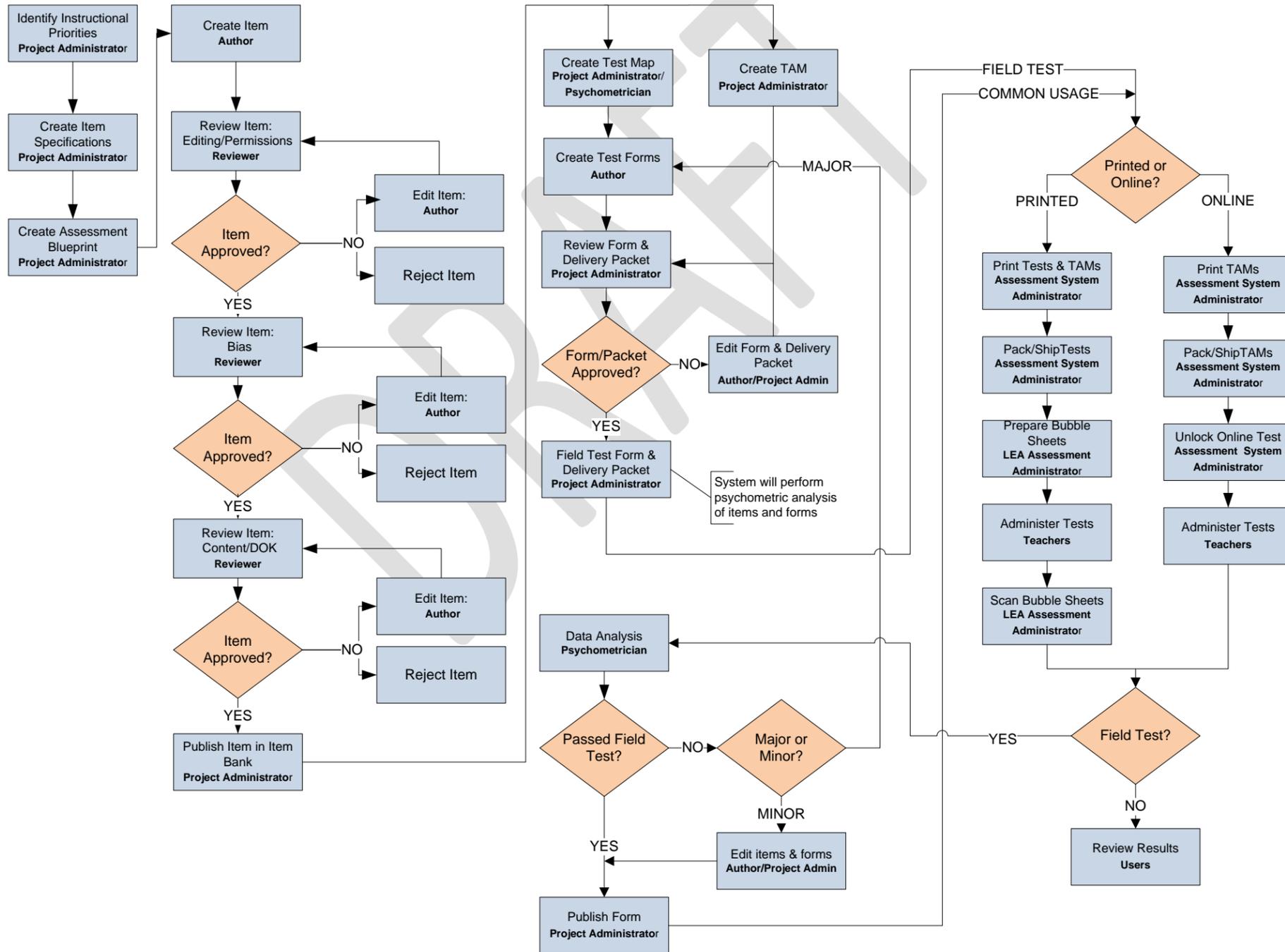
APPENDIX A. Supporting Documentation

A1. AIMS Test Matrix

Subject	Grade												
	K	1	2	3	4	5	6	7	8	9	10	11*	12*
Reading				X	X	X	X	X	X		X	X	X
Writing						X	X	X			X	X	X
Math				X	X	X	X	X	X		X	X	X
Science					X				X		X	X	X

*Students who do not pass AIMS in 10th grade take it again in 11th and/or 12th grade to Meet or Exceed standards.

A2. Assessment System Work Flow



A3. Assessment System Architecture

