

Pre-conditions

Each Proposal must meet the following pre-conditions. We will **not** consider Proposals which fail to meet these conditions. Please use *Response 2 - RFP Response Form* to capture your pre-condition responses.

#	Pre-conditions
1.	Your proposed solution is a Software as a Service solution The solution must be offered as a SaaS (Software as a Service) exhibiting the following attributes: • Accessible from the Internet. • Pay as you go. • Fully Managed: ○ Security. ○ Monitoring ○ Capacity. ○ Performance. ○ Product development. • Scalable. • Product releases, major and minor. • Provides Integration via standards-based interfaces. <i>[Refer Requirements: SCO-05]</i>
2.	You must be able to provide details of existing client(s) from the education sector of a similar, or larger, size and scale as the Ministry that is/are using the proposed solution. 3,240,000 tests delivered annually, over two 10-day predefined testing windows (in Term 1 and Term 4), to 540,000 students. <i>[Refer Requirements: SH045, SH026, NFR SPE-02]</i>
3.	The solution is already supporting multiple languages and is able to support both English and te reo Māori. <i>[Refer Requirements: SH030, SH023, SH027, SH046, SH057]</i>
4.	The solution is already supporting the domains of mathematics, reading, and writing. <i>[Refer Requirements: SH006, SH008]</i>
5.	Ministry Item Developers/Content SMEs can create, update, review, publish and retire mathematics, reading, pāngarau, and pānui test 'blueprints', which specify parameters for a test such as time allowed, curriculum phase, curriculum strands, and whether the test is for item trialling purposes. <i>[Refer Requirements: SH088]</i>
6.	Students and ākonga can be assessed using either on-screen or paper-based tests. <i>[Refer Requirements: SH009, SH011, SH015, SH028]</i>

#	Pre-conditions
7.	Ministry Content SMEs can upload and manage Ministry approved content, including items (and testlets), prompts, rubrics, and exemplars. [Refer Requirements: SH065]
8.	Automated scoring for close-ended (selected response) items in on-screen tests. [Refer Requirements: SH013]
9.	Provides assistance for scoring open-ended (constructed response) items in on-screen tests. [Refer Requirements: SH102]

AAT Detailed Functional and Non-Functional Requirements

A&A Tool Detail-Level Requirements

Purpose

The purpose of this document is to describe the functional and non-functional requirements that the new AAT (Assessment & Aromatawai Tool) needs to provide. The functional and non-functional requirements are supplied to prospective providers who will evaluate their solution against the requirements described in this document.

Requirements

Prioritisation (MoSCoW)

The MoSCoW prioritisation method is used to understand the importance of a requirement to a stakeholder and its importance to the project's objectives and outcomes.

Name	Meaning
Must	All the requirements that are necessary for the successful completion of the project
Should	Requirements that are important for project completion but not necessary
Could	Requirements that are good to have a much smaller impact when left out of the project
Wont	All the requirements that have been recognised as not a priority for the project timeframe.

Use Cases

Use cases is a system analysis method the project team is using to identify, clarify and organise the requirements for the AAT. Use cases explain **how** users interact with a system and are developed during the detailed requirements phase of a project.

The diagram Figure 1 - AAT Use Case Model presents the Use Case Model for the AAT and describes the:

- **Actors** (or users) – people that will interact with the Tool
- **System** – the system boundary and functionality within the project scope for the Tool
- **Goal** – the purpose or objective the users will reach, using the Tool

The following diagram depicts the AAT Use Cases and stakeholders involved in using the solution.

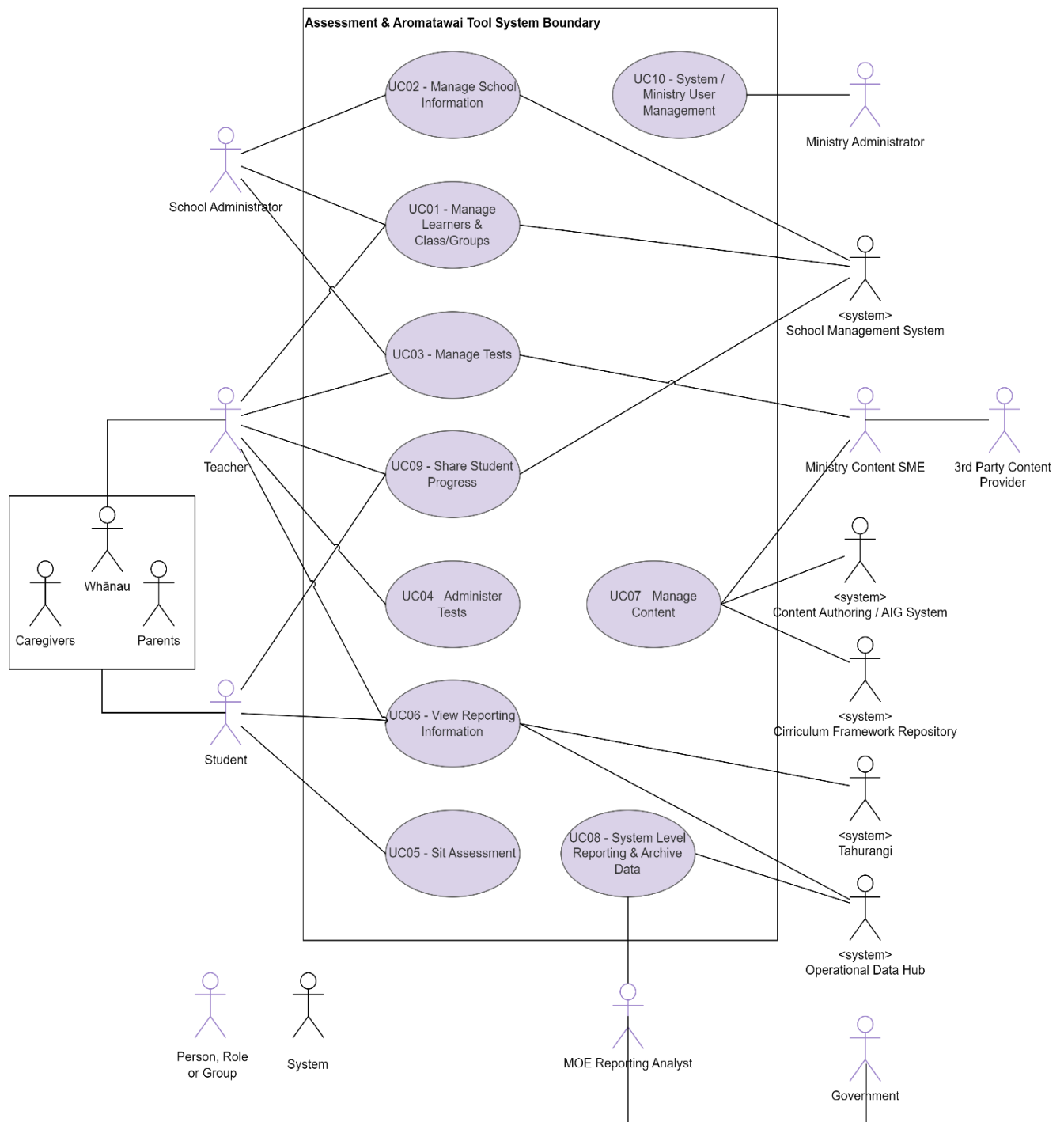


Figure 1 - AAT Use Case Model

ID	Use Case	Description
UC01	Manage Student & Class/Group Information	For the system to assign and report on test results for student ākonga, it is necessary for teachers kaiako and school administrators to be able to enter, view, update student ākonga and class/group information. School administrators are also able to delete student ākonga and classes/groups from the system. <i>Note: The Assessment & Aromatawai Tool shall only contain the student, class, and group information necessary to carry out assessment and aromatawai.</i>
UC02	Manage School Information	For the system to correctly partition users and grant them the necessary permissions, it is necessary for school administrators to be able to view and update schools, organisation, and communities of learning/kāhui ako information. <i>Note: The Assessment & Aromatawai Tool shall only contain the school information necessary to carry out assessment and aromatawai.</i>
UC03	Manage Tests (Create, maintain)	Teachers kaiako, school administrators may create, and delete tests, to maintain a set of appropriate tests to administer to students ākonga and keep a record of tests which have been administered.
UC04	Administer Tests (Assign, score)	Administration of tests includes the assignment of tests to students ākonga, in either on-screen or paper-based format, and the scoring of tests that have been completed; this is performed by teachers kaiako.
UC05	Sit Test	Once a test has been assigned to a student ākonga in either on-screen or paper-based format, the student ākonga may select and proceed to sit the test and answer the presented questions.
UC06	View Reporting Information	A primary purpose of assessment and aromatawai is to produce clear and concise information on the progress and achievement of students ākonga and student ākonga groups. Teachers Kaiako may view various reports at an individual, class/group, and school level; they may also download student ākonga test result information to then import, or manually enter, into their school management system. As a student ākonga, it is possible to view various reports regarding their individual progress and achievement. System-level reporting will not be provided by the AAT, instead aggregated progress and achievement information will be transferred to the Education Data Warehouse (EDW), allowing the Ministry to analyse and report on system-level information from the EDW.
UC07	Manage Content	Ministry Content SMEs can create, update, and delete curriculum progression information (e.g., curriculum levels, learning strands, and achievement objectives).

ID	Use Case	Description
		Ministry Content SMEs can create, update, and delete content, including item (and testlets), prompts, rubrics, and exemplars. This includes the content itself, as well as its associated metadata (e.g., assigned difficulty, or alignment to curriculum progressions, etc.).
UC08	System Level Reporting & Archive	Student progress and achievement information, including assessment results, is transmitted to the Ministry EDW in an automated fashion for system level reporting and to support legal and records management requirements. Information will be aggregated not exposing individual student ākonga information then analysed to produce system-level reporting for Te Poutāhū Managers and Ministry SMEs (from the Education Data Warehouse).
UC09	Share Student Progress	Teachers kaiako can facilitate the transmission of student progress and achievement information, including assessment results, to School Management Systems in an agreed fashion, so that schools can use this information to inform their reporting to parents and fulfill their obligatory reporting requirements.
UC10	System Level and Ministry User Management	Ministry administrators can configure system level features and manage Ministry users, roles and permissions. Note: <i>Ministry Administrator cannot change school configurations unless authorised to do so by the respective school</i> as part of a support call.

Table 1 - Use Case Descriptions

Functional Requirements

The following table details the functional requirement for the AAT solution.

ID:	The reference number of the requirement.
Stakeholder Group:	The group the requirement was derived or addresses.
Short Name:	A short description of the requirement.
Priority:	MoSCoW rating (refer page 2 for a description of the MoSCoW).
Use Case ID:	The Use Case ID that this requirement belongs to (refer page 2 for a description of the use cases).
Related REQ ID:	The reference of the high-Level requirements this requirement is related to.

ID	Stakeholder Group	Short Name	Requirement Description	Priority	Use Case ID
SH001	Teachers kaiako	Teachers kaiako Maintain Class and Group information	Teachers kaiako or school administrators can create, view, and update group (e.g. class membership) information and update student ākonga assessment information but cannot update core student ākonga information received from the Ministry.	Must	UC1
SH002	Teachers kaiako	Student ākonga information	Core student ākonga information includes: ID (NSN), name, email, gender, ethnicity, Year level, language, accessibility needs, enrolment info (status and school), and time in te reo Māori immersion. Note: The solution will only receive information it has valid reason to use and will align with the Principles within the Privacy Act 2020.	Must	UC1
SH003	Teachers kaiako	Teachers kaiako or school administrators can update core student ākonga information for a school by triggering a refresh of data from the Ministry source of truth for learner information.	Teachers kaiako or school administrators can update core student ākonga information for a school by triggering a refresh of data from the Ministry source of truth for student information.	Must	UC1
SH004	Teachers kaiako	Automated refresh of student ākonga information	The solution regularly retrieves updated core student ākonga information for all schools in an automated fashion by triggering a refresh of data from the Ministry source of truth for student information at agreed intervals.	Must	UC1
SH005	Teachers kaiako	Teachers kaiako receives student ākonga, class and group information from SMS	The solution is able to receive student ākonga information and group (e.g. class membership) information from School Management Systems in an agreed fashion (either .ast file import by a teacher kaiako, school administrator, Ministry administrator or via API), so that the administrative burden for teacher Kaiako and administrators is reduced.	Must	UC1
SH006	Teachers kaiako	Teachers kaiako create tests from blueprint	Teachers kaiako and school administrators can create mathematics, reading, pāngarau, and pānui tests by selecting an appropriate existing test 'blueprint' of parameters (i.e., time allowed, curriculum year, curriculum strands, etc.), which the solution then uses to automatically generate a test by selecting items (and testlets) from the solution's item banks which satisfy the 'blueprint'.	Must	UC3
SH007	Teachers kaiako	Teachers kaiako create adaptive tests	Teachers kaiako and school administrators can create adaptive mathematics, reading, pāngarau, and pānui tests selecting an appropriate existing test 'blueprint' of parameters (i.e., time allowed, curriculum year, curriculum strands) which the solution then uses to automatically generate an adaptive test by selecting items (and testlets) from the solution's item banks which satisfy the 'blueprint'.	Must	UC3
SH008	Teachers kaiako	Teachers kaiako create writing and tuhituhi tests	Teachers kaiako and school administrators can create writing and tuhituhi tests by selecting a single prompt from the solution's item banks and specifying administrative settings (e.g., time allowed).	Must	UC3
SH086	Teachers kaiako	Teachers kaiako cannot modify content.	Teachers kaiako and school administrators cannot modify the content of tests.	Must	UC3
SH084	Teachers kaiako	Teachers kaiako can delete a test	Teachers kaiako and school administrators can delete a test, if the test is not currently assigned and has not been previously sat by any individual or class/group of students ākonga.	Must	UC3

ID	Stakeholder Group	Short Name	Requirement Description	Priority	Use Case ID
SH009	Teachers kaiako	Teachers kaiako assign test within defined window	Teachers kaiako can assign a test to an individual or class/group of students ākonga, in either on-screen or paper-based format, within a predefined testing window defined by the Ministry.	Must	UC4
SH010	Teachers kaiako	Teachers kaiako assigns an adaptive test within defined window.	Teachers kaiako can assign an adaptive test to an individual or a group of students ākonga, in on-screen format only, within a predefined testing window defined by the Ministry.	Must	UC4
SH011	Teachers kaiako	Teachers kaiako assigns test outside of defined window.	Teachers kaiako can assign a test to an individual or group (e.g. class membership) of students ākonga, in either on-screen or paper-based format, outside of any predefined testing windows defined by the Ministry. Note: The Ministry is asking for two assessments a year but requires the flexibility for additional assessments.	Should	UC4
SH012	Teachers kaiako	Teachers kaiako scores on-screen tests.	Teachers kaiako can score on-screen tests and record the scores in the solution.	Must	UC4
SH013	Teachers kaiako	Teachers kaiako scores on-screen close-ended tests with assistance of automation.	Teachers kaiako can score on-screen mathematics, reading, pāngarau, and pānui tests with the assistance of automated marking for close-ended (selected-response) items.	Must	UC4
SH102	Teachers kaiako	Teacher scores on-screen open-ended tests with assistance of automation	Teachers kaiako can score on-screen mathematics, reading, pāngarau, and pānui tests with the assistance of automated marking for open-ended (constructed-response) items.	Must	UC4
SH014	Teachers kaiako	Teachers kaiako score on-screen screen writing and tuhituhi tests with assistance of automation.	Teachers kaiako can score on-screen writing and tuhituhi tests with the assistance of automated marking.	Must	UC4
SH015	Teachers kaiako	Teachers kaiako score paper-based tests.	Teachers kaiako can score paper-based tests and record the scores in the solution.	Must	UC4
SH016	Teachers kaiako	Teachers kaiako upload scan of paper test.	Teachers kaiako can upload a digital scan of paper-based tests into the tool.	Should	UC4
SH017	Teachers kaiako	Teachers kaiako view reports on a per-item basis.	Teachers kaiako can view and download reports that provide information about how individuals and groups of students ākonga scored on a test, including on a per-item basis, aligned to the national curricula.	Must	UC6
SH018	Teachers kaiako	Teachers kaiako view reports over time.	Teachers kaiako can view and download reports on the progress over time of individuals and group (e.g. class membership) of students ākonga at their school, aligned to the national curricula.	Must	UC6
SH019	Teachers kaiako	Teacher view reports that include feedback and next steps.	Teachers kaiako can view and download reports on individuals and group (e.g. class membership) of students ākonga at their school that include feedback and next steps regarding specific areas for further learning in the curricula, including links to relevant teaching and learning resources on Tāhūrangi.	Must	UC6
SH100	Teachers kaiako	Tāhūrangi links can be used from reports	Teachers kaiako and students ākonga can use the links to relevant teaching and learning resources on Tāhūrangi contained in reports to view these resources on Tāhūrangi.	Must	UC6
SH020	Teachers kaiako	Teachers kaiako view reports against curriculum	Teachers kaiako can view and download reports that provide information about how well each student ākonga or group (e.g. class membership) at their school is doing in relation to expected curriculum progress.	Must	UC6
SH021	Teachers kaiako	Teachers kaiako view report on cohorts.	Teachers kaiako can view reports that provide information about how well a student ākonga or class/group at their school is progressing compared to the progress of equivalent population cohorts such as year, gender, ethnicity, English as a second language, and equity index.	Should	UC6
SH022	Teachers kaiako	Teachers kaiako can add a commentary to report.	Teachers kaiako can add a comment to pāngarau, pānui, and tuhituhi reports on individuals and group (e.g. class membership) of students ākonga, prior to sharing the reports (externally to the system) with students ākonga.	Must	UC6

ID	Stakeholder Group	Short Name	Requirement Description	Priority	Use Case ID
SH023	Teachers kaiako	Teachers kaiako can select language.	Teachers kaiako teaching through te reo Māori can select which language they wish to receive reporting in, either te reo Māori or English.	Must	UC6
SH024	Teachers kaiako	Reports align with language and progression of the curriculum.	All teacher kaiako reporting uses language that is consistent with the curriculum and aligns to the progressions in the curriculum.	Must	UC6
SH025	Teachers kaiako	Transfer student information to SMS.	The solution can transmit student ākonga progress and achievement information, including assessment results, to School Management Systems in an agreed fashion (either csv file export by a teacher kaiako, or via API), so that student ākonga, class/group, and school level reporting can be produced for school stakeholders.	Must	UC9
SH026	Teachers kaiako	Support 28,000 teachers kaiako.	The solution allows 28,000 teachers kaiako to administer the twice-yearly testing within predefined testing windows (e.g., a minimum 10 day window at the beginning of Terms 1 and 4).	Must	N/A
SH027	Teachers kaiako	Provide tailored guidance to for teachers kaiako.	The solution provides tailored guidance for teachers kaiako to assist in the effective and efficient use of the system, in both English and te reo Māori.	Must	UC1 UC3 UC9 UC4 UC8
SH028	Students ākonga	Tests are available on-screen and on-paper.	Students ākonga can sit tests in either on-screen or paper-based format.	Must	UC5
SH029	Students ākonga	Adaptive tests on-screen.	Students ākonga can sit adaptive tests in on-screen format only.	Must	UC5
SH030	Students ākonga	All content is displayed in the selected language.	Testing in its entirety - including items, prompts, instructions, guidance, and user interfaces - is in te reo Māori for those learning through te reo Māori, and in English for those learning in English medium settings.	Must	UC5
SH031	Students ākonga	Students ākonga can view and download how they scored.	Students ākonga can view and download reports that provide information about how they scored on a mathematics, reading, writing, pāngarau, pānui, and tuhituhi test, including on a per-item basis, aligned to the New Zealand Curriculum and Te Marautanga o Aotearoa.	Must	UC6
SH032	Students ākonga	Students ākonga can view and download their progression.	Students ākonga can view and download reports on their progress over time in mathematics, reading, writing, pāngarau, pānui and tuhituhi aligned to the New Zealand Curriculum and Te Marautanga o Aotearoa.	Must	UC6
SH033	Students ākonga	Students ākonga can view and download reports with feedback and next steps.	Students ākonga can view and download reports that include feedback and next steps regarding specific areas for further learning in mathematics, reading, writing, pāngarau, pānui and tuhituhi in the New Zealand Curriculum and Te Marautanga o Aotearoa, including links to relevant learning resources on Tāhūrangi.	Must	UC6
SH034	Students ākonga	Students ākonga can view and download reports on how well they are doing.	Students ākonga can view and download reports on mathematics, reading, writing, pāngarau, pānui and tuhituhi that provide information about how well they are doing in relation to expected curriculum progress in the New Zealand Curriculum and Te Marautanga o Aotearoa.	Must	UC6
SH035	Students ākonga	Students ākonga can view and download reports on how they are doing relative to other cohorts.	Students ākonga can view reports that provide information about how well they are doing relevant to other population cohorts such as year, gender, ethnicity and English as a second language.	Must	UC6
SH037	Students ākonga	student ākonga reporting is consistent with progression on the curriculum.	All student ākonga reporting should use language that is consistent with the curriculum and aligns to the progressions in the curriculum.	Must	UC6
SH038	Students ākonga	Support for additional languages	Students ākonga can select to view reports in other languages.	Could	UC6

ID	Stakeholder Group	Short Name	Requirement Description	Priority	Use Case ID
SH039	Students ākonga	Students ākonga Inclusion and access.	The solution supports accessibility and inclusion accommodations, including Special Assessment Conditions (SAC). For example, but not limited to supporting the following. - Change font size / zoom - Change contrast level - Text to speech - Allow extra time for tests - Allow breaks during tests	Must	UC5
SH040	Students ākonga	Students ākonga accessibility settings.	Students ākonga can save their accessibility settings preferences in the solution, so that the solution implements these accessibility settings whenever the student ākonga uses the solution.	Should	UC5
SH041	Students ākonga	Provide braille tests.	The solution supports braille paper-based tests for sight impaired students ākonga.	Should	UC5
SH042	Students ākonga	Intermittent connectivity.	Students ākonga can complete the sitting of an on-screen administered test despite intermittent connectivity or system issues.	Must	UC5
SH043	Students ākonga	Available on a range of classroom devices.	In order for the solution to be used effectively and efficiently by end-users on a range of modern classroom devices. It must provide a consistent user experience across multiple modern browsers running on a range of popular operating systems.	Must	UC5
SH044	Students ākonga	Practice tests.	Students ākonga can take a practice test to familiarise themselves with the solution.	Must	UC5
SH045	Students ākonga	Support 540,000 students ākonga.	Allow approximately 540,000 students ākonga to complete twice-yearly (e.g. Term 1 and 4) testing within a minimum of a 10 day testing window.	Must	UC5
SH046	Students ākonga	Tailored guidance for learners.	The solution provides tailored guidance for students ākonga to assist in the effective and efficient use of the system, in both English and te reo Māori.	Must	UC5
SH052	School administrators	Refresh school information.	School administrators can update school information for a school by triggering a refresh of data from the Ministry source of truth for school information.	Must	UC2
SH053	School administrators	Automated refresh of school information.	The solution regularly retrieves updated school information for all schools in an automated fashion by triggering a refresh of data from the Ministry source of truth for school information at agreed intervals.	Must	UC2
SH054	School administrators	Assign school administrator.	School administrators can assign other school administrators to their school.	Must	UC2
SH055	School administrators	Assign Ministry administrator for school.	School administrators can grant permission to a Ministry administrator for a period in response to a support request.	Must	UC1
SH057	School administrators	Tailored guidance to School administrators.	The solution provides tailored guidance for school administrators to assist in the effective and efficient use of the system, in both English and te reo Māori.	Must	UC1 UC2 UC3
SH061	Ministry administrators	Ministry administrator can assign school administrators.	Ministry administrators can assign school administrators to a school.	Must	UC2
SH063	Ministry administrators	Tailored guidance for Ministry administrators.	The solution provides tailored guidance for Ministry administrators to assist in the effective and efficient use of the system, in English only.	Must	UC1 UC2 UC3
SH064	Ministry content SMEs	Ministry content SMEs update curriculum.	Ministry content SMEs can update curriculum progression information (i.e., curriculum years, progress outcomes, strands, and teaching sequence) by triggering a refresh of data from the Curriculum Framework Repository.	Must	UC7
SH065	Ministry content SMEs	Ministry content SMEs update test content.	Ministry content SMEs can upload, export, create, update, review, publish, retire, and delete content such as items (and testlets), prompts, rubrics, and exemplars. This includes the content itself and its associated metadata (e.g., assigned difficulty (logit), alignment to curriculum progressions).	Must	UC7
SH101	Ministry content SMEs	Ministry content SMEs transfer content from content authoring system.	Ministry content SMEs can facilitate the automated transfer of content from a Content authoring / AIG system (used by the Ministry) to the solution if content authoring occurs outside of the system.	Could	UC7
SH066	Ministry content SMEs	Supports different item types.	The solution supports close-ended items (e.g., multi-choice), open-ended items (e.g., short answer), and prompts (for Writing and Tuhituhi).	Must	UC7

ID	Stakeholder Group	Short Name	Requirement Description	Priority	Use Case ID
SH067	Ministry content SMEs	Items support additional metadata.	Items have associated metadata including difficulty (logit), associated curriculum progression information such as phase, progress outcome, strand, and teaching sequence, and IP rights information.	Must	UC7
SH068	Ministry content SMEs	Curriculum and items in either English or te reo Māori.	Curriculum progression information and content including items, testlets, prompts, rubrics, and exemplars can be in either English or te reo Māori.	Must	UC7
SH103	Ministry content SMEs	Supports content in: New Zealand Curriculum and Te Marautanga o Aotearoa.	The solution supports curriculum progression information and content for both national curricula: New Zealand Curriculum and Te Marautanga o Aotearoa.	Must	UC7
SH069	Ministry content SMEs / 3 rd Party content providers	Content authoring workflow.	The solution provides a workflow capability for Ministry content SMEs to create and manage content throughout the content lifecycle (including development, review/approval, publishing, and retiring).	Must	UC7
SH070	Ministry content SMEs	Items use the IRT (Item Response Theory) or equivalent.	The solution uses Item Response Theory (IRT) or equivalent as the psychometric model, utilised as part of item calibration, item selection, scoring, and reporting.	Must	UC7
SH071	Ministry content SMEs	Performance statistics of items and prompts.	Ministry content SMEs can view item and prompt statistics, including usage and performance data, and reports on these statistics. Item statistics are not student specific.	Must	UC7
SH090	Ministry content SMEs	Item performance statistics only available to Ministry.	Item and prompt statistics from tests conducted for item/prompt trialing purposes are available for Ministry content SMEs to view, however scores from these tests are excluded from student ākonga and teacher kaiako reporting data sets. Item statistics are not student specific.	Must	UC7
SH072	Ministry content SMEs	Allow Recalibration.	Ministry content SMEs can recalibrate the solution on a regular basis, including updating item logits, scale scores, population cohort norms, etc.	Must	UC7
SH104	Ministry content SMEs, Curriculum SME and Psychometricians	Recalibration – workflow.	The solution provides a workflow capability allowing a recalibrate (<i>refer SH072</i>) to be designed, reviewed, approved and published in a controlled fashion.	Must	UC7
SH073	Ministry content SMEs	Provide tailored guidance to Content SME.	The solution provides tailored guidance for Ministry content SMEs in English to assist in the effective and efficient use of the system.	Must	UC7
SH088	Ministry content SMEs	Content SME can delete blueprints.	Ministry Content SMEs can create, update, review, publish, retire, and delete mathematics, reading, pāngarau, and pānui test 'blueprints', which specify parameters for a test such as time allowed, curriculum year, curriculum strands, and whether the test is for item trialing purposes.	Must	UC7
SH089	Ministry content SMEs	Provide Non scored trial items.	Ministry content SMEs can specify whether a test will include a small number of trial items, as one of the parameters within the test 'blueprint'. A student's response on these items would not count towards their score, but the item statistics would be used by Ministry content SMEs to refine and calibrate the items.	Could	UC7
SH074	Ministry content SMEs	Select from item bank.	Ministry Content SMEs can create mathematics, reading, pāngarau, and pānui tests by manually selecting specific items and testlets from the solution's item banks. They may also delete tests.	Must	UC3
SH075	Te Poutāhū general and senior managers	Transfer student progress to the Ministry.	The solution can transmit student progress and achievement information, including assessment results, to the Ministry EDW in an automated fashion, so that system-level reporting that does not expose individual student ākonga information can be produced.	Must	UC8
SH078	Te Pou Rangatōpū - Records Services Team	Intellectual property – Information.	All intellectual property rights of information provided to the system remain intact - the supplier lays no claim.	Must	N/A
SH079	Te Pou Rangatōpū - Records Services Team	Intellectual property – Content.	The Ministry owns the intellectual property rights of all content produced by the Ministry's use of the system - the supplier lays no claim.	Must	N/A

ID	Stakeholder Group	Short Name	Requirement Description	Priority	Use Case ID
SH080	Te Pou Rangatōpū - Records Services Team	Automate transfer of student progress to the Ministry.	The solution can transmit student progress and achievement information, including assessment results, to the Ministry EDW in an automated fashion, so that this information can be retained for as long as required to meet legal and records management obligations.	Must	UC8
SH081	Te Pou Hanganga, Matihiko - TPHM Ministry Architecture Practice	Education sector standards and Interfaces.	The solution complies with relevant interoperability standards within the education sector for example IMS CASE, IMS QTI, IMS CAT, LTI Resource Search, and LTI Launch.	Must	N/A
SH105	Students ākonga	Students ākonga cannot access other information during a test.	The solution should provide the capability to prevent students ākonga from copying, pasting or accessing other resources during a test.	Should	UC5
SH106	Solution	Minimise disruption	The solution must minimise disruption to users during releases and upgrades of the product.	Must	N/A
SH107	Ministry administrators	Ministry user access management.	Ministry administrators must be able to manage access to system level features to Ministry staff. Access to school information is only provided via approval of the school administrators (<i>refer SH055</i>)	Must	UC10
SH108	Solution	Support growth of domains, frequency and year groups.	The solution must be capable of supporting - Additional domains beyond the current reading, writing, mathematics, pānui, tuhituhi and pāngarau. - Increased number of assessments per year from the current requirement of two. - Additional learner year groups.	Must	N/A
SH109	Teachers Kaiako	Reporting between schools (e.g. League Table).	Teachers kaiako or school administrators of the solution must not be able to compare progression with other schools.	Must	UC6

Table 2- Functional Requirements

Non-Functional

Non-functional requirements (NFRs) define the quality attributes, performance, and constraints of a system rather than its specific functionalities. They describe *how* the system should behave rather than *what* it should do.

ID	Short Name	Description	Category
EAV-01	Recovery Process.	The solution shall be able to automatically recover from a failure event.	Compliance
ECM-01	Security & Event Logging.	The solution shall capture and store all events including but not limited to security events, audit, read, update and deletes to enable support and auditing activities.	Compliance
SCO-03	Security & Event Logging Ingestion.	The solution shall provide the ability to ingest audit and security logs into the Ministry SEIM (Security Event and Incident Management) capability.	Compliance
ECM-02	Electronic Transmission.	Any electronic data shall be transmitted in a manner consistent with its classification IN-CONFIDENCE as per the NZISM and NZ Government Information Security Classification System.	Compliance
ECM-03	Electronic Storage.	Any electronic data shall be stored in a manner consistent with its classification IN-CONFIDENCE as per the NZISM and NZ Government Information Security Classification System.	Compliance
ECM-04	Sensitive Parameters.	The solution shall protect any sensitive parameters in a manner consistent with the classification of IN-CONFIDENCE for the data the solution collects, processes and/or stores as per the NZISM.	Compliance
ECM-05	Service Account Credential Management.	Service accounts are managed to minimise the risk of unauthorised and/or malicious access.	Compliance
ECM-06	Least Privilege.	The principle of least privilege applies, whereby users, external systems or modules are assigned the least level of privilege required to fulfil its legitimate purpose. For users, least privilege means that all user accounts run with as few privileges as possible and launch applications with as few privileges possible, with advantages including: • Users are partially protected from mistakes made using privileged access. • Reduction of the impact of user exploits (e.g., compromised passwords).	Compliance

ID	Short Name	Description	Category
ECM-07	Denial of Service (DoS/DDoS) Protection.	The solution shall provide protection against DDoS (denial-of-service) attacks.	Compliance
ECM-08	Privacy Regulations.	The solution shall comply with all relevant privacy regulations, including the Privacy Act 2020, including but not limited to: • The Information Privacy Principles (IPPs) set out in Section 22 of the Act. • Breach management provisions • Information sharing and matching provisions Health Information Privacy Code (2020) which modifies the IPPs for the collection of health information. Used to assist the tool in identifying students who may require additional assistance due to a learning difficulty.	Compliance
ECM-09	Single Sign On (SSO).	The solution must provide integration with standards based Single Sign On supporting • SAML 2 (including Logout end points) • OIDC (Open ID Connect)	Compliance
SCO-11	Single Sign On (SSO) - Multiple IdP.	The solution must support multiple identity providers for example but not limited to: • Students ākonga (*DI4OL) • Teachers kaiako (ESL) • Ministry Staff (ESL, Ministry Azure Entra ID) *DI4OL does not support primary schools or provide the NSN identifier.	Compliance
SCO-12	Younger students ākonga.	The solution must provide mechanisms for younger students ākonga to use the solution who have a range of digital skills.	Compliance
ECM-10	Authorisation.	The solution shall provide authorisation capabilities that are secure and provide effective and efficient mechanisms for managing access.	Compliance

ID	Short Name	Description	Category
ECM-11	User Lifecycle Management.	The solution shall provide efficient mechanisms for integrating with the organisation's digital identity (ESL, DI4OL) services in order to support user lifecycle management. • Bulk provisioning • Individual user provisioning • User deprovisioning • Resynchronisation *DI4OL does not currently support primary schools or provide the NSN identifier.	Compliance
ECM-12	Content Filtering.	The flow of data within gateways is examined and controls to prevent unauthorized or malicious content crossing security domain boundaries.	Compliance
ECM-13	Data Transfer.	Data transfers between systems (security domains) are controlled and accountable. Reference (New Zealand Information Security Manual - Section 20.1.1) Data is transferred through gateways in a controlled and accountable manner. Reference (New Zealand Information Security Manual - Section 20.2.1)	Compliance
ECM-15	Log Management.	The solution shall perform log management for each of its components to enable effective IT Service Management and Cyber Security incident management.	Compliance
ECM-16	Secure Session Management.	All solutions establishing web sessions shall consider the session management cheat sheet published by OWASP (Open Worldwide Application Security Project) and guidance contained in ECM-02 https://cheatsheetseries.owasp.org/cheatsheets/Session_Management_Cheat_Sheet.html Other protocols requiring stateful behaviour must implement equivalent protections in accordance with best practice of secure session management for the protocol being used.	Compliance
ECM-17	Education & Training Act (2020).	The solution shall comply with the Education & Training Act (2020) and associated directions, including but not limited to the use and sharing of data.	Compatibility
ECO-01	Data Collection, Sharing & Publishing Formats.	The solution shall align with the New Zealand data standards published in: https://data.govt.nz/toolkit/data-standards/mandated-standards-register	Compatibility

ID	Short Name	Description	Category
ECO-03	Character Encoding.	The solution shall fully support UTF-8 Unicode characters and ensure macrons are processed and stored correctly for all languages.	Localisation
ELO-01	Language Support.	The solution is to have the capability to support multiple languages via the use of configuration parameters.	Localisation
ELO-02	Localisation Preserves Functionality.	The functionality of the solution must not be diminished by any localisations required to adapt it for use by different user groups/languages.	Maintainability
EMA-01	Deployment Reversal.	The component(s) of the solution shall be able to be reversed back to the state of a previous deployment in the event of an issue that affects the effective use of the solution.	Maintainability
EMA-02	Change Control.	The solution provider shall work with the Ministry change process and co-ordinate product changes to ensure continuity of service, training and communication is maintained.	Maintainability
EMA-05	Automated Testing.	The solution shall support automated testing of relevant solution components which generates output sufficient for analysis and evaluation of compliance to requirements.	Reliability
ERE-01	Exception Handling.	The solution shall handle exceptions in a manner that allows diagnosis and resolution whilst not causing damage, loss of data or availability of the service.	Scalability
ESC-01	Elasticity.	The solution shall be able to adapt to changes in workloads by automatically provisioning and de-provisioning resources such that at each point in time, the resources available match the demand as closely as possible whilst maintaining conformance with all functional and non-functional requirements.	Usability
EUS-01	User Assistance.	The solution shall provide the user assistance to utilise it effectively and properly, including: • Syntactic & semantic validation of user input. • Warning, error, and exception event handling. • End user help (e.g., user manuals/documentation, context sensitive help, artificial intelligence, chat bots). • Pre-population of fields.	Usability

ID	Short Name	Description	Category
EUS-02	Web UI Design Standards.	The solution shall comply with the New Zealand Government Web and Accessibility standards. https://www.digital.govt.nz/standards-and-guidance/nz-government-web-standards	Availability

SAV-01	Service Continuity Response Time.	The solution incorporates two levels of service for production 1. During assessment and reporting periods 2. Outside of assessment and reporting periods as criticality and load has higher demands during the assessment period. Therefore, the requirement positions two tiers as defined within the Ministry. During assessment and reporting: Tier 0. Outside of assessment and reporting: Tier 2. Priority Levels: • P1 - Response (15 Minutes) - Resolution (2 Hours) • P2 - Response (30 Minutes) - Resolution (4 Hours) • P3 - Response (4 Hours) - Resolution (1 Business Day) • P4 - Response (1 Business Day) - Resolution (5 Business Days) Impact Guide: • Complete • Partial • Typical • Request / Inquiry Tier 0 • Complete - P1 • Partial - P1 • Typical - P3 • Request / Inquiry - P4 Tier 2 • Complete - P1 • Partial - P2 • Typical - P3 • Request / Inquiry P4 The difference between Tier 0 and 1 is that a war room is called immediately. In the case of a P1/P2 where students ākonga are unable to take an assessment during the assessment period an immediate war room is required.	Availability
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ID	Short Name	Description	Category
SAV-03	Recovery Point Objective.	Production RPO (Recover Point Objective) is: - In the event of a catastrophic failure 24 hours. - In the event of a non-catastrophic failure 15 minutes.	Availability
SAV-02	Service Availability.	The solution must be available: - During assessment periods 99.9% three nines (outside agreed windows). - Outside assessment time 99% two nines (outside agreed windows). The intent in the two scales is to provide flexibility to providers to position an elastic model depending on the stage of the assessment process. If your solution requires a fixed availability, then the three nines is the default requirement.	Availability
SAV-04	Backup & restore.	The data managed by the solution shall be backed up in a manner resistant to ransomware and be able to be restored to meet the Recovery Point Objectives detailed in SAV-03.	Compliance
SCM-01	Public Records Act (2005).	The solution shall be capable of managing data according to the organisation's lifecycle requirements, which includes: Retention and disposal of data according to the specified retention schedules. - Production School Records Class 1.8 (DA699 Class 1.8) - Student Information. - Production School Records Class 3.2 (GDA6 Class 3.1.3) - Individual Staff Information. - Production GDA6 Class 3.1.3 - Individual Staff Information including contractors. https://assets.education.govt.nz/public/Records/School-Records-Retention-and-Disposal-Schedule-All.pdf	Maintainability
SMA-01	Environments.	The solution shall provide four environments necessary to support the initial delivery and ongoing operational requirements. - Training. - UAT / Pre-Production. - Test. - Production.	Performance

ID	Short Name	Description	Category
SPE-01	Transaction Volumes.	The solution shall remain performant, with all other non-functional requirements being met, during periods of maximum transaction processing which is the minimum 10 day period twice a year with the user base detailed in SPE-02 accessing the solution.	Performance
SPE-02	User Volumes.	The solution shall be capable of supporting: - Students ākonga: 540,000 - Teachers kaiako: 28,000 - Ministry users: 200 At least two Assessments a year covering, for example: - Term 1 - Term 4 Refer https://www.govt.nz/browse/education/school-and-college/school-terms-and-holidays/ for Term information Assessments occur over a minimum of a 10 day period.	Performance
SPE-03	Response Times.	Response time refers to the amount of time it takes for a system to react to a given input, request, or event. For clarity the measure pertaining to this requirement is from the user initiating an action to displaying the business relevant information. - Assessment functions 2 seconds or less. - Integration API calls 500ms or less. - Operational reporting 5 seconds or less. Long running functions taking longer than 5 seconds should present a progress indicator.	Scalability
SSC-01	Utilisation Growth.	The solution must support - New domains in addition to reading, writing, mathematics, pānui, tuhituhi and pāngarau. - Increased frequency of assessments per year. - Additional year groups.	Compliance

ID	Short Name	Description	Category
SCO-02	Interoperability Standards.	In order for the solution to interoperate with the broader learning and assessment ecosystem, it shall support a number of relevant established interoperability standards and offer API-first integration based on these standards. • 1EdTech Competencies and Academic Standards Exchange (CASE). • 1EdTech Question & Test Interoperability (QTI). • 1EdTech Computer Adaptive Testing (CAT). • LTI Resource Search. • LTI Launch.	Compatibility
SCO-01	Supported User Browsers & OS.	In order for the solution to be used effectively and efficiently by end-users on a range of modern classroom devices, it must provide a consistent user experience across multiple modern browsers running on a range of popular operating systems.	Maintainability
SMA-04	Support Hours.	The provider must provide second level support to schools, teachers kaiako and the Ministry during New Zealand Standard and Daylight times. The Ministry will be responsible for first level support from schools.	Compliance
SCO-04	Exit Strategy.	The Ministry must have access to all assessment information and associated reference data held within the solution for an agreed period to enable migration to another service if required.	Maintainability
SMA-03	Environment Propagation.	The solution should support moving configurations between environments as part of a change lifecycle though non-production and production environments.	Compliance

ID	Short Name	Description	Category
SCO-05	SaaS Offering.	The solution must be offered as a SaaS (Software as a Service) exhibiting the following attributes: • Accessible from the Internet. • Pay as you go. • Fully Managed ○ Security. ○ Monitoring. ○ Capacity. ○ Performance. ○ Product development. • Scalable. • Product releases, major and minor. • Provides Integration via standards-based interfaces.	Availability
SCO-06	Support Interoperability.	The solution offers API-first integration based on relevant interoperability standards. Refer digit.govt.nz API Guidelines https://www.digital.govt.nz/standards-and-guidance/technology-and-architecture/application-programming-interfaces-apis/api-guidelines.	Compatibility
SCO-07	Artificial Intelligence training.	Ministry information is not used to train AI models, unless the information is provided by the Ministry explicitly for this purpose or the information is already in the public domain.	Compliance
SCO-08	Brand Alignment.	The solution has a new Ministry sub-brand, aligning with the Ministry's sub-identity framework.	Compliance
SCO-09	Brand typefaces.	The solution uses specified Ministry corporate typefaces.	Compliance
SCO-10	Diverse Environments.	The solution can operate in diverse environments that are distributed and not centrally managed.	Compatibility
SCO-13	Training	Solution providers must be able to deliver training collateral in support of the product, its concepts, features, and configuration for Teachers kaiako, Ministry staff (or their agents) and Students ākonga including future product releases.	Maintainability

Table 3 - Non-Functional Requirements

Appendix – Integrations

The following diagram represents the current integrations referenced within the detailed requirements. The Ministry is moving towards an API approach to provide a single interface across its systems in the future, the diagram below reflects the current state and likely capability for the first release of AAT.

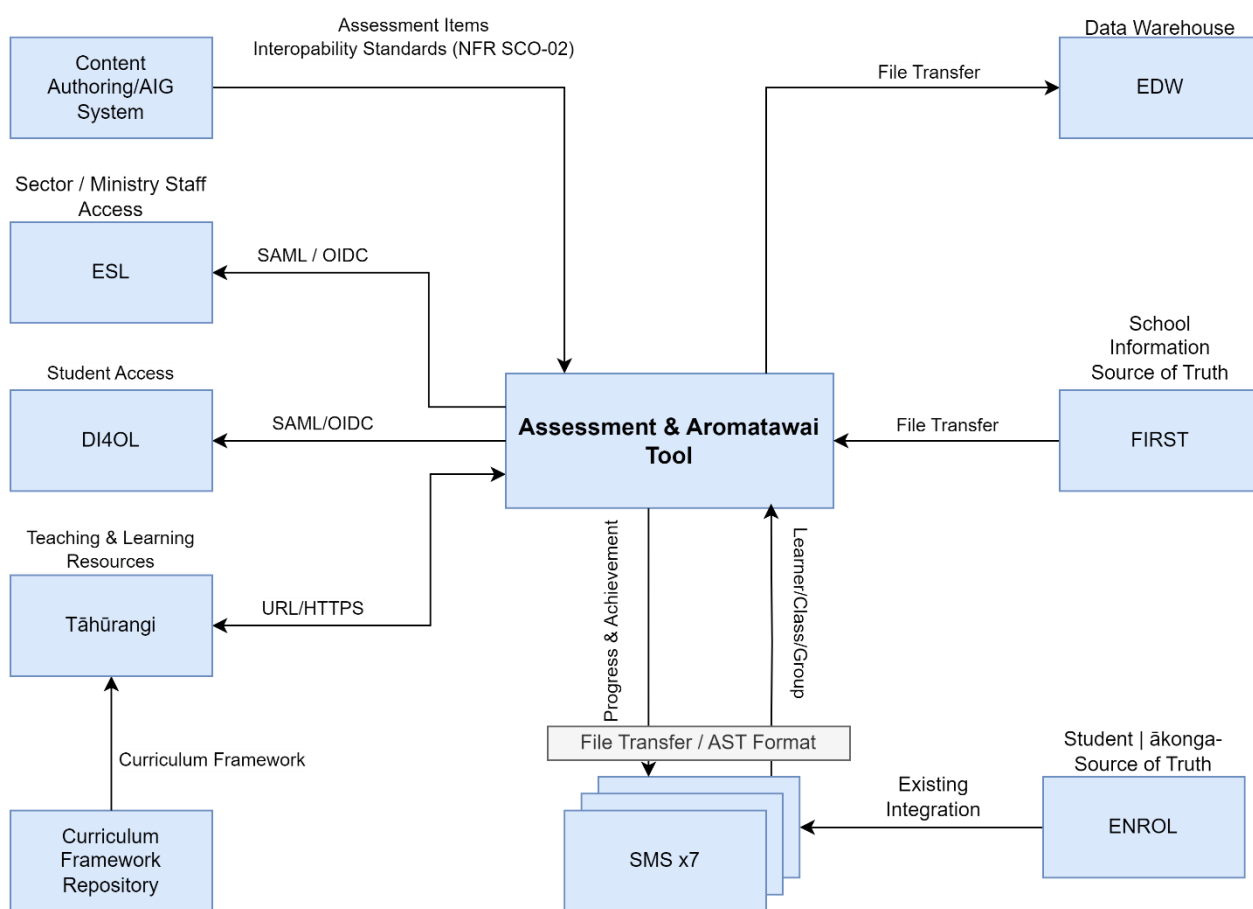


Figure 2 - Current AAT Integration