

## Essential Attributes of a Comprehensive Assessment and Evidence-Based Digital Curriculum Platform System

This document provides school districts and charter schools information about provider and service attributes to consider when seeking/evaluating a Comprehensive Assessment and Evidence-Based Digital Curriculum Platform System. This document may be used to assist in the development of request for proposal documents and more generally as part of bidding and evaluation activities. For clarifications or further information about this document, please contact Dr. Jason K. Feld, Vice President Corporate Projects at Assessment Technology, Incorporated via email to [jason@ati-online.com](mailto:jason@ati-online.com) or phone 1.800.367.4762.

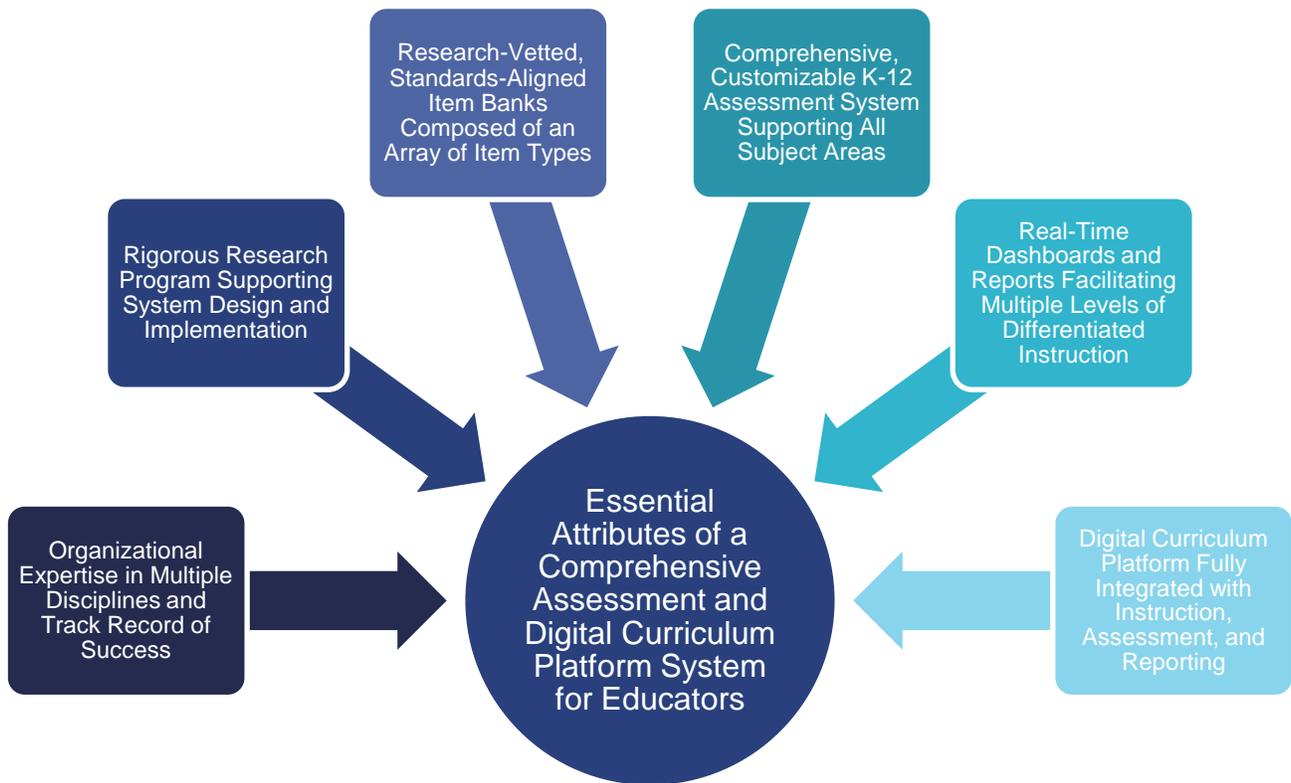


Figure 1  
Attributes of a Comprehensive Assessment and Digital Curriculum Platform System

## 1. Organizational Expertise in Multiple Disciplines and Track Record of Success

### General Requirements:

The organization providing the integrated, research-based, comprehensive assessment, reporting, and digital curriculum system should have expertise and experience in research, educational measurement, teaching, and the creation of educational technology. Reflecting the interconnectivity of the educational community serving children from kindergarten through high school, the organization should also have experience in working with school districts, charters, state departments of education, universities, and other organizations impacting education. Moreover, the organization should have a clearly defined model in place for building a collaborative and successful relationship with districts, charters and other educational organizations. The organization should provide documentation of successful implementation not only through testimonials, but more importantly, through locally designed and reported implementation successes, technical reports, and third-party independent research. Finally the organization should demonstrate the capacity to innovate in ways that serve the changing needs of clients and contribute to the rapid technological and educational advances that are inherent in the 21<sup>st</sup> century.

### Essential Attributes:

- Significant history and experience with clients resembling the procuring client in size, technology readiness, and user characteristics.
- In-house professional and expert staff with experience related to technology, instructional design, teaching, assessment, educational measurement and research, and public policy in education.
- System effectiveness supported by independent research
- Project management, technical support, and service teams with a documented track record of high quality service.
- Documented experience in adapting quickly to changing state and federal standards and legislation.
- Ongoing research program in educational assessment and instruction guiding system design.

## 2. Rigorous Research Program Supporting System Design and Implementation

### General Requirements:

The online system should be supported by an extensive and ongoing research program guided by in-house staff with expertise and experience in statistical analyses, measurement, assessment, teaching and learning, technology, and public policy. The goals of the research program should be clearly specified and flexible in ways that can support the research and practice needs of districts/charters. Moreover, research, data analyses, technical reports and case studies related to the system and its use should be easily accessible to system users.

### Essential Attributes:

- Ongoing research to establish the reliability and predictive validity (i.e., correlation between student scores on the district and state-wide tests) for local district/charter assessments.

- Annual research evaluating the accuracy of district/charter assessment forecasts of student performance on statewide tests.
- Annual research establishing growth expectations for K-12 math, English language arts, and science based on large samples of students.
- Statistical analyses supporting the setting of cut scores that forecast state test performance based on student performance on local district/charter customized and state blueprint aligned assessments.
- State-of-the-art categorical growth analyses comparing observed student growth (based on local assessments) to growth expectations in both state-tested and non-state-tested content areas.
- Collaboration with districts/charters in the design and implementation of local research initiatives providing information to improve learning.
- Support for district/charters in the preparation of grant proposals and required accountability reporting to local and state boards, and to the state department of education.

### 3. Research-Vetted, Standards-Aligned Item Banks Comprised of an Array of Item Types

#### General Requirements:

At a minimum, the online system should be comprised of at least two, continually expanding sets of item banks comprised of an array of item types designed to challenge students to think critically, apply what they have learned and give students the opportunity to demonstrate skills and knowledge. The first set of item banks should be secure item banks for use in the development of district-wide and school-wide assessments such as pre- and post-tests used to measure student growth over the course of an entire school year, interim benchmark assessments aligned to district/charter pacing guides or the state blueprint, and assessments used as part of a district/charter educator effectiveness initiatives. The second set of item banks should be community item banks for use by educators as an integral part of daily lessons and assignments, or for formative assessments at the end of a unit. The item banks should cover grades K-12 and at a minimum include English language arts, writing, math, and science items aligned to current state standards.

#### Essential Attributes:

- Psychometric analysis of items using Item Response Theory (IRT) techniques to estimate item parameters including difficulty, discrimination, and guessing as well as to provide estimates of student ability (i.e., scaled Developmental Level [DL] scores). IRT analyses are essential for ensuring item quality and for ensuring that assessments can be used to measure student growth, mastery of standards, and patterns of progress. This information is not attainable through the use of raw data (e.g., percent correct or number of items correct).
- Annual refreshing of IRT item parameter estimates based on large, diverse samples to accommodate changes in student populations, standards, and curriculum making it possible to assess student progress over time.

- Item development informed by standards outlined by the American Educational Research Association, the American Psychological Association, and the National Council on Measurement in Education in *The Standards for Educational and Psychological Testing, 2014*, including the development of item specifications as well as multi-tiered review and certification of items and associated materials.
- Item banks that are continually expanded throughout the year by the organization, including in response to district/charter suggestions for new items.
- Item banks covering non-state-tested subject areas aligned to standards, such as career and technical education, modern languages, physical education, visual arts, music, social studies.
- Availability of a continuously expanding array of item types including technology-enhanced, selected-response, constructed-response, and performance-based.
- Technology and in-house expertise supporting the rapid mapping of items to new standards and the development of new items to accommodate new standards.

#### 4. Comprehensive, Customizable K-12 Assessment System Supporting All Subject Areas

##### General Requirements:

A comprehensive, customizable assessment system should serve the needs of students, teachers, administrators, and families from kindergarten through the 12th grade and assess students at all performance levels with respect to the state standards in English language arts, math, science, social studies, and other subjects. The system should also support a balanced approach to assessment and be capable of generating an array of assessments providing data in actionable reports for use with students at all performance levels. To ensure that these goals can be achieved, a comprehensive assessment system must incorporate IRT techniques which make it possible to ensure that state standards-aligned assessments are reliable and valid and that they can be effectively used to measure the acquisition of skills, mastery of standards, growth, and readiness for statewide assessments for students at all performance levels.

##### Essential Attributes:

- Online assessment planner technology that enables district staff to collaborate with the organization's content and assessment design experts in the design of multiple customized assessments at multiple grades aligned to district/charter curriculum and pacing guides including pretests, posttests, placement tests, benchmarks, and interim and end-of-course assessments administered district-wide.
- Pre-built assessments including state blueprint aligned benchmarks, early literacy and math benchmarks, pretests and posttests, instructional effectiveness tests, and formative assessments (e.g., civics tests, MAZE assessments, technology-enhanced formative assessments, a formative assessment series covering standards).

- Intuitive test and item construction tools that enable educators to construct their own tests from item banks and their own items for administration, scoring, and reporting within the system.
- Capability to assess state-tested subjects such as math, English language arts, and writing in grades K-12. Also able to assess non-state-tested subject areas such as physical education, visual arts, music, foreign languages, and career, and technical education.
- Instructional Dialog technology enabling educators to embed assessments as a natural part of the teaching and learning process including the use of multimedia instruction, technology-enhanced items, performance-based tasks, and immediate feedback to students.
- Online answer key technology that enables educators to upload an existing test booklet created outside of the online system, create an answer key including the standard and correct response for each item, and schedule, administer, score, and report on like any other assessment within the system.
- Capability to import and report on historical or existing assessments as well as assessments administered outside the system (e.g., statewide assessments).

## 5. Dashboards and Reports Facilitating Multiple Levels of Differentiated Instruction

### General Requirements:

Within a research-based comprehensive assessment, reporting, and digital curriculum system, dashboards should provide automatic access to the most recent assessment results, as well as one-click access to a student roster with historical information on students and a calendar of curriculum, instruction, assessment, and other types of events. Automatically generated graphical dashboard displays should be based on role (e.g., educator, administrator, student/parent) and designed to maximize the value of data for all stakeholders. In addition to assessment results, dashboards and reports should provide instructional recommendations and standards-aligned learning activities. Dashboards and reports should take advantage of multiple measures and data analysis techniques including advanced IRT analyses to provide immediate, actionable information to help guide differentiated instruction enrichment, and intervention at the skill level, standards mastery level and pattern of progress level.

### Essential Attributes:

- Dashboards and reports should support curriculum planning, lesson planning and implementation of differentiated instruction, enrichment, and intervention based on information about student skill level, standards mastery level, and pattern of progress.
- Information about student performance at the skill level should be based on the knowledge and skills assessed by specific items and standards. This information can be generated in reports through the use of raw data on items (correct/incorrect), percent and number of correct items on a test.
- Information about student performance at the standards mastery level should identify students at varying levels of risk for not meeting standards on a statewide test (risk level/forecasting

reports), as well as identify the standards to be mastered to minimize student risk. Reports of this type can be generated through the use of scaled scores generated using IRT analyses.

Reporting of this type should also provide educators with access to instructional/learning opportunities and optional formative assessments that can be provided to the student.

- Information about student pattern of progress should identify students showing different patterns of growth and achievement. For example, some students may do well on a pretest, but make very little progress during the course of instruction. Others may start out well below average, but learn a great deal during instruction. Reports that display student growth and achievement information identify students showing differing patterns of progress so that their learning needs can be addressed. Reports of this type can be generated through systems using IRT analyses.
- Dashboards and reports should assist teachers and administrators in promoting instructional effectiveness as part of locally designed instructional effectiveness initiatives. Dashboards and reports should also support analysis of student growth and classroom observation data to guide professional development.
- Dashboards and reports should provide teachers, school, and district administrators with support for the measurement of growth within a school year and over multiple years by placing scores for district/charter-wide assessments on a common scale using IRT analyses.
- Dashboards and reports should reflect a hierarchical structure for secure viewing and real-time data aggregation (student, class, instructional/intervention group, school, and district levels) as well as for secure user access (student/parent, teacher, school administrator, district administrator).
- Dashboards and reports should have multiple configurable capabilities including: filtering (e.g., based on student demographic information, intervention grouping, sorting, drill downs, and roll ups, print and exporting options, and custom report building tools.
- The system should include an online student and parent center containing features designed to increase student and parent engagement in the learning process including integration of Google Translate enabling clearer communication with parents in a variety of languages. The center should provide access to scheduled lessons, assignments, assessments, and assessment results. The center should support the administration of assessments online including performance-based and project-based assessments. The center should also enable students to submit files created outside of the system (e.g., from Google Docs or their computer) for teacher review.

## 6. Digital Curriculum Platform Fully Integrated with Instruction, Assessment and Reporting

### General Requirements:

An effective digital curriculum platform component should seamlessly integrate with all the assessment and reporting components of the overall online system. It should provide educators with easy-to-use tools to incorporate existing curriculums and lessons into the system, develop new curriculum and lesson plan content, and to rapidly share and modify curriculums and lessons online. Platform integration with the assessment and reporting components should make it possible for educators to deliver differentiated interactive instruction and to quickly evaluate the impact of curriculum and instruction on student learning and mastery of standards.

### Essential Attributes:

- An online digital curriculum builder for use by curriculum teams to create and schedule a series of online units representing a course or pacing guide comprised of standards, vetted digital instructional content and teaching resources, and aligned research-based assessments inclusive of technology enhanced items.
- An online lesson plan builder for use by educators to create, schedule, and deliver instruction, and to quickly assess the impact of instruction on student learning in order to make instructional modifications based on student learning needs.
- A dialog builder for use by educators to create schedule and deliver multimedia lessons and assignments, integrating instruction, assessment and student-teacher communication in one easily accessible location.
- An integrated search engine within the digital curriculum platform to locate, align, and integrate locally developed instructional activities and resources, as well as those from the worldwide web.
- Direct access to instructional resources and curriculum such as KHAN ACADEMY®, LearnZillion, EngageNY, and customizable, multimedia instructional dialogs – all integrated with platform assessment and reporting capabilities.

*\*KHAN ACADEMY® materials are also available for free at [www.khanacademy.org](http://www.khanacademy.org).*

