**Service Description**: Curriculum Digitization

**This Service Description describes the Services IBM will provide to the Client.**

**Service Description**.

Implementing an aligned educational curriculum is a necessary prerequisite for optimization of each individual student’s *Opportunity to Learn* (OTL). At best, educators can only mitigate many of the other key OTL factors. Targeting the curriculum to learning objectives is one of the facets over which they exercise the most-direct control. This allows the educational system’s scarce resources to be deliberately focused on where they produce the greatest benefits.

Moreover, digitization of core components of the Curriculum, Instruction, and Assessments (CIA) framework can provide classroom teachers — as well as supervisory and curriculum administrators — with deep insights about what individual students are taught, how they are assessed, and what they probably actually know. Improvement of instructional efficiency and effectiveness, and reduction of cognitive load of instructional planning for diverse groups of learners are among the benefits. Digitization also paves the way for later adoption of emerging Artificial-Intelligence (AI) technologies supporting at-scale management of competency-based personalized learning or differentiated instruction.

IBM digitizes school districts’ academic curricula. Our digitization renders key curriculum artifacts in structured, machine-processible formats. IBM digitizes include course blueprints, course-catalog excerpts, learning standards, and learning-standard progressions.

Curriculum-digitization is a prerequisite for advanced curriculum-management activities, such as:

1. Analysis of the degree of curriculum alignment through generation of curriculum indicators;
2. Deep-insight review by supervisory and curriculum administrators of the extent to which the school district’s enacted curriculum optimizes each student’s opportunity to learn; and
3. Subsequent adoption of artificial-intelligence-assisted frameworks for at-scale management of competency-based learning.

IBM delivers a digitized representation of the school district’s curriculum in an open, portable format. Compatible with Artificial-Intelligence (AI)-based offerings from IBM Watson Education, this comma-separated-variable (csv) format can easily be loaded into relational databases, business-intelligence tools, and cloud-based analytics platforms for use in various types of digital analysis.

This offering also equips the school district to become self-sufficient in management of its digitized curriculum. IBM configures its Watson Education Curriculum-Management tool for the school district and provides designated school-district representatives with training in its use.

**Definitions**.

**Aligned Curriculum**. A Curriculum, Instruction, Assessments (CIA) framework within which instructional goals, materials, and measurements are explicitly articulated in terms of system-wide, consistent knowledge, skills, and indicators (<http://ibm.biz/Porter-Curric-Indicators>). In U.S. K-12 education, these desired outcomes are largely specified in terms of educational learning standards. IBM Watson Education contains for most U.S. states’ sets of educational learning standards in a digitized format.

**Competency-Based Learning**. “…a system of education, often referred to as proficiency- or mastery-based, in which students advance and move ahead on their lessons based on demonstration of mastery. In order for students to progress at a meaningful pace, schools and teachers provide differentiated instruction and support.” (<http://ibm.biz/NCSL_Comp_Learning>)

**Curriculum-Alignment Indicators**. Quantitative characterization (e.g., <http://ibm.biz/Porter-Curric-Indicators>) of the extent to which an educational curriculum is *aligned*. In an aligned curriculum, the learning objectives — knowledge, skills, abilities — specified by policy explicitly guide instructional delivery and education measurements. In U.S. K-12 education, knowledge, skills, and abilities are extensively articulated in terms of learning standards.

**Curriculum Map**. The instructional scope in terms of instructional units and learning standards for an academic course (for illustration, see <http://ibm.biz/Engage_NY>). Also referred to as “course blueprint”, “scope and sequence”, “year at a glance”, etc. A minimal curriculum map contains the following attributes for each course

**Course Catalog**. A list all offered courses by school district. A *digitized* course catalog identifies courses in terms of course-identification codes used by the Student-Information System (SIS).

**Differentiated Instruction**. A style for the management of classroom instruction by which teachers “…engage students in instruction through different approaches to learning, by appealing to a range of interests, and by using varied rates of instruction along with varied degrees of complexity and differing support systems.” (<http://ibm.biz/ASCD_Diff_CR_Book>)

**Digitized Curriculum**. The condition in which the CIA framework is captured in a homogenous, machine-processible format (for illustration, see <http://ibm.biz/ETS_ECD_TraceFile>) so that distinct aligned facets can be employed for artificial-intelligence purposes.

**Opportunity to Learn** (OTL). “…inputs and processes within a school context necessary for producing student achievement of intended outcomes (<http://ibm.biz/Oxford-Hbk-OTL>).”

**Personalized Learning**. A CIA structure “…that creates flexibility, allows students to progress as they demonstrate mastery of academic content, regardless of time, place, or pace of learning. Competency-based strategies provide flexibility in the way that credit can be earned or awarded, and provide students with personalized learning opportunities.” (<http://ibm.biz/US_DoEd_Comp_Pers_Learn>)

**IBM Responsibilities**.

In executing this order, IBM undertakes the following activities.

* 1. **School-District Curriculum Digitization**.

IBM converts the school district’s curriculum into an open, exportable format consistent with Watson Education’s data schema.

* + 1. We translate existing client materials into an open, comma-separated-variable (csv) format that can be loaded into relational databases for subsequent manipulation. The components of the digitized curriculum include:
       1. Curriculum maps covering all courses within the scope of the digitization effort;
       2. A summary of the school district’s course catalogue, associating academic courses with the curriculum maps specifying their instructional-unit structure and learning-standard content;
       3. A digitized, structured-data representation of the state learning standards on which the curriculum is based; and
       4. Digitized learning-standards progressions representing how the learning standards build upon each other.
    2. IBM prepares the client school district to become self-sufficient in maintenance and updating of its digitized curriculum. This is accomplished using Watson Education’s Curriculum-Management Tool.
       1. Configure the cloud-based Watson-Education Curriculum-Management tool for use by the school district. Deploy digitized curriculum resulting from completion of Task 1 into the tool. Establish user accounts for designated curriculum administrators subsequently responsible for maintenance of the digitized curriculum.
       2. Provide designated school-district representatives with training in the use of the Watson-Education Curriculum-Management tool to maintain and update the initial set of course blueprints delivered under this task, and to produce new blueprints as it scales out the its curriculum-alignment management to other subject areas.
       3. Provide an alignment report showing the extent of alignment between learning standards prescribed by the course blueprints and those contained in Watson’s baseline set of learning-standard progressions. Highlight potential opportunities to improve instructional efficiency and effectiveness through improved curriculum alignment.

1. IBM begins Curriculum-Alignment Analysis and schedules the final review when the following conditions are satisfied.
   * + - 1. A mutually-agreeable Non-Disclosure Agreement (NDA) has been executed that allows IBM to receive, store, and process in its corporate systems data required for the completion of the analysis.
         2. The supervisory administrator designated to represent the school district to IBM has articulated in writing the scope of curriculum-digitization efforts in terms of courses, subjects, and grades.
         3. The school district has provided IBM all essential curriculum representations. These include:

Curriculum maps, specifying the instructional-unit structure and learning-standard content of the academic courses to be digitized;

An excerpt from the Student Information System (SIS) listing academic coursed to be digitized, including course-identification number, course title;

A document — or website link — the learning standards on which the curriculum is based; and

A list of learning-standard progressions — if the school district employs its own — for learning standards within the subject areas of the to-be-digitized courses.

The task is completed when the digitized curriculum has been delivered to and accepted by your designated Supervisory Administrator.

1. Digitized Curriculum. A set of comma-separated-variable (csv)-formatted files representing the school district’s curriculum including:

* Course blueprints representing the instructional-unit structure and learning-standard content of each academic course within scope of this digitization effort (STG\_COURSE\_UNIT);
* A “bridge” table indicating the academic courses — distinguished by course-identification numbers from the school district’s Student Information System (SIS) to which each course blueprint applies (COURSE\_UNIT\_BRIDGE);
* A listing of educational learning standards articulated in the course blueprints (STG\_SIHLEARNING\_STANDARD); and
* Tabulated learning-standard progressions showing how the learning standards build upon each other (STG\_LEARNING\_STD\_PROGRESSION).

**Your Responsibilities**.

**Your Supervisory Administrator**.

You will designate a Supervisory Administrator to communicate with IBM and act on your behalf regarding this workshop. Your Supervisory Administrator’s responsibilities include the following.

* + - * 1. Specify the scope of the curriculum to be digitized. Articulate in terms of subject level, course, learning-standards grade level.
        2. Coordinate the assembly of information, data, and decisions within three working days of IBM's request unless you and IBM agree in writing to a different response time.
        3. Receive and accept the final deliverable.
        4. Review with the IBM Curriculum-Alignment expert any of your invoice or billing requirements. Such requirements that deviate from IBM's standard invoice format or billing procedures may affect price.
        5. Assign responsibility within the school district for maintenance and update of the digitized curriculum produced by this scope of work. Identify specific staff members and ensure that they complete training in the use of the Watson-Education Curriculum-Management tool.

**Your Curriculum Administrator.**

You will designate a Curriculum Administrator to communicate with IBM and act on your behalf regarding this workshop. The Curriculum Administrator represents and provides documents regarding school-district policies about the structure and scope of academic courses throughout the system. Your Curriculum Administrator 's responsibilities are delineated in the following.

* + - * 1. Assemble and provide IBM with curriculum maps for all courses to be digitized. Minimal curriculum maps include the following:
* A distinguishing title;
* A list of instructional units, distinguished by name, and unit number;
* Lists of learning standards addressed within each instructional unit; and
* Scheduled start and finish dates for each instructional unit.
  + - * 1. Provide, if used, the school district’s learning-standard progressions.
        2. Provide a list of to-be-digitized courses from the course catalogue, including:
* A course-identification number used within the Student-Information System (SIS);
* Course title; and
* The curriculum map characterizing the course’s instructional-unit structure and learning-standard content.
  + - * 1. Review the digitized curriculum for the accuracy with which it represents the school district’s intended curriculum.
        2. Remain available during the course of the curriculum-digitization effort to answer detailed questions about materials provided.
        3. Complete training in the use of the Watson-Education Curriculum-Management tool. Assume subsequent responsibility for maintaining and updating the school district’s digitized curriculum using that tool.

**Your Education-Technologies Systems Administrator.**

You will designate an Education-Technology Systems Administrator (ETSA) to support this analysis. The ETSA effects delivery to IBM via agreed-to, secure services of data employed in the Curriculum-Alignment Analysis. Your ETSA performs the following activities in support of this third-party system-interface development.

* + - * 1. Assist with data collection and management, including extraction of needed data from education-technology systems used by the school district.

**Your Other Responsibilities**

You will fulfill the following responsibilities.

* + - * 1. Obtain any approvals and enable access necessary for IBM to access and use your resources and systems to the extent necessary for IBM to provide the Services.
        2. Sign a mutually-agreeable Non-Disclosure Agreement (NDA) allowing IBM to store and process student and curriculum data on its corporate systems. These data include student
        3. Make suitable staff, information, and materials available as IBM reasonably requires. IBM will not be liable for any damage or delay arising from inaccurate, incomplete, or otherwise defective information and materials supplied by or on behalf of Client.
        4. Be responsible for agreements with, management of, and the input and work of third parties whose work may affect IBM’s ability to provide the Services. Except to the extent IBM specifically agrees otherwise in this Service Description, Client is solely responsible for any third-party hardware, software or communications equipment used in connection with the Services.
        5. Be responsible for the content of any database, the selection and implementation of controls on its access and use, backup and recovery and the security of the stored data. This security will also include any procedures necessary to safeguard the integrity and security of software and data used in the Services from access by unauthorized personnel.
        6. Ensure that IBM is not exposed in performance of the Services to any US regulated data (whether HIPAA, FFIEC or other), any Canadian regulated data (whether PIPEDA or local province regulated health data or other) or any other Personally Identifiable Information (PII) originating from and regulated by any country outside the United States or Canada, beyond what is permitted under the NDA.
        7. School-District participants of the IBM Curriculum-Digitization Project must include:

Supervisory Administrator;

Curriculum Administrator;

Assessments Administrator; and

Education-Technology Systems Administrator.

* + - * 1. All participants of the Curriculum-Survey Workshop session must actively engage in the analysis and assist in evaluating the school district’s curriculum in terms of AI-adoption readiness criteria.

**Estimated Schedule**.

The Estimated Start Date for these services will be on or after the date of mutual contract execution, as agreed between the parties. The Estimated End Date will be ***45 days*** after the date of mutual contract execution. Estimated Start and End Dates may be agreed by email between the parties.

**Deliverables**.

|  |  |
| --- | --- |
| **Deliverable** | **Deliverable Type** |
| Digitized Curriculum. | Project Materials |
| Watson-Education Curriculum-Management Tool Training | Training |
| Authorization to Use Watson-Education Curriculum-Alignment Tool | Software License |

In the event a deliverable is inadvertently omitted from the list above, IBM will notify Client of the identity and the appropriate designation of the deliverable.

**Completion Criteria**.

IBM will have fulfilled its obligations under this Order when any one of the following first occurs:

* + - 1. IBM completes the IBM responsibilities, including submission of the deliverables, to the designated Supervisory Administrator; or
      2. The Services are terminated in accordance with the provisions of this Order and the Agreement.

**Charges**.

The Services will be conducted on a fixed price basis. The fixed price for performing the Services defined in this Service Description will be ***$8,000.00***. This fixed price is exclusive of any travel and living expenses and other reasonable expenses incurred in connection with the Services. All charges are exclusive of any applicable taxes.

Travel and living expenses are not expected. Should any travel to your facility under this Service Description be required, estimated travel and living expenses will be paid by you and will be authorized through a Project Change Request (PCR).

IBM will invoice you monthly for the Services performed in equal monthly amounts over the period of the performance specified in the “Estimated Schedule” section, plus applicable taxes, travel and living expenses, and other reasonable expenses incurred in connection with the Services

Following execution of this agreement IBM may perform a credit check on you within 90 days. IBM reserves the right to terminate this agreement without liability if you do not pass this credit check (as determined in IBM's sole discretion).