



Curriculum Item Bank Assessments (CIBA)

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Itembank is a fully customisable repository for curriculum management, test item development and design for examination test creation. Publish tests for online e-assessment and deliver tests to students to gather real-time responses.

Design tests, release, then distribute globally!

Cloud-based security and scalability with mobile-ready single page web-app for simple deployment.

Context

Technological solutions can support nearly every aspect of testing, from the creation and administration of individual tests, the marking of these tests, to the management of tests across a programme, a faculty or indeed an institution. Despite obvious advantages, many education providers have yet to put in place well-embedded, supported and sustainable technology-enhanced test and assessment practices.

Curriculum Item Bank Assessments (CIBA) addresses these challenges.

It is a secure, web-based metadata driven platform that provides a robust and secure data management solution incorporating a relational database, message queue, workflow, metadata and rules management, analysis and reporting components into a combined powerful package.

The CIBA modules are based on open source platform components built by education providers for education providers. CIBA supports high-stakes assessment, where the critical features include security, reliability, performance, and trust. This is backed by Texuna's year-round service and support to turn e-Assessment into sector-wide high stakes attainment evaluation.

The CIBA module allows creation of new entities, extension of existing entities and management of entity relationships using metadata. The default configuration supports the development of Questions, Items and Stimuli.

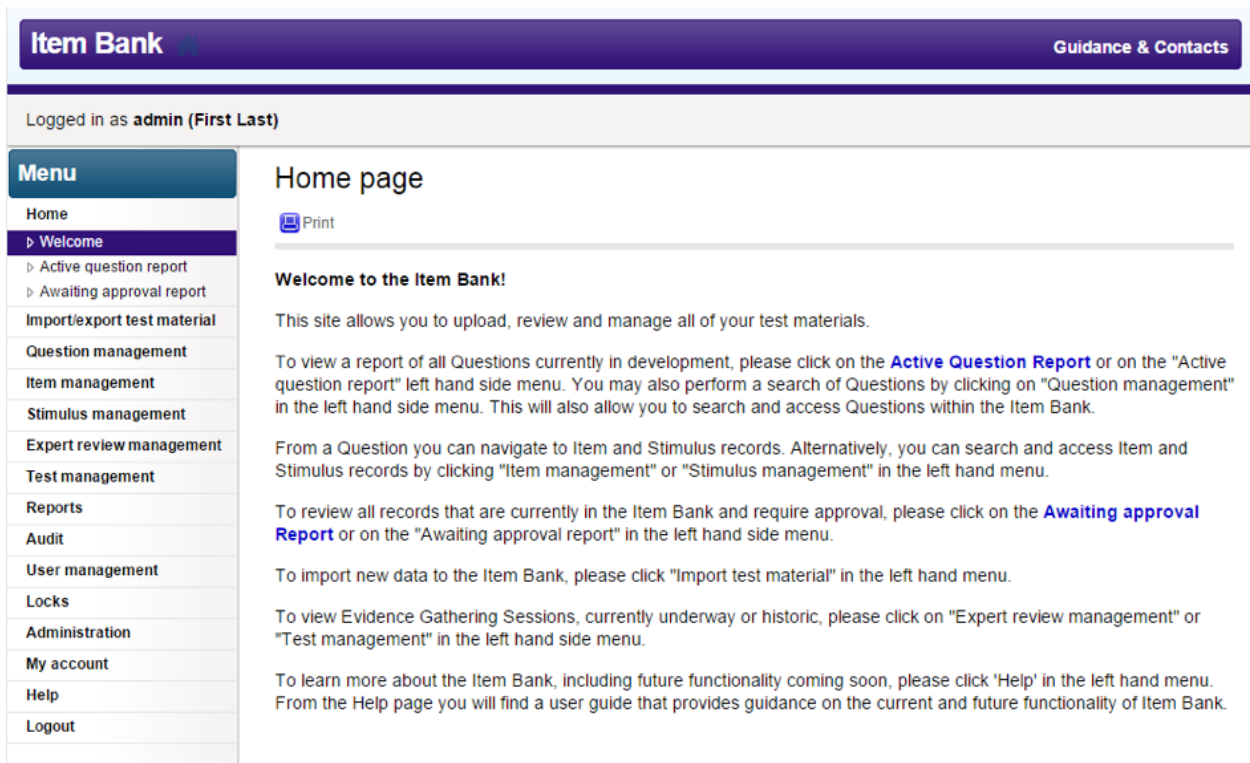
Data can be updated through web forms or Excel uploads, and also to be exported in a number of formats. The solution is entirely web-based and does not require any additional software to be installed given they are accessed via standard internet browsers.

CIBA is an easy, cost effective solution which provides the following:

- E-Form/Excel file upload based record creation/editing for all entities and test materials, tests and associated validation data/results.
- Unique reference identifiers assigned on creation.
- Management of flexible metadata for all entities.
- Management of associations for all entities, defining multi-level links and relationships between entities and records.

- Search and reporting based on any metadata/criteria (free-text, date based, dictionary based, subject based, test based etc).
- Audit and logging features for tracking updates, with Versioning for historical comparison.
- Save/export results to a variety of formats including but not limited to Word, Excel, PDF, html.
- Workflow and rules builder combined with a management suite.
- A flexible and tiered user and permissions management module.
- A flexible dashboard and reporting module.
- XML module and web services for 3rd party integration with support for open standards such as IMS QTI 2.1.
- e-Assessment module with mobile app for test deployment and results collection.

With CIBA, a central data warehouse is provided where all questions, items, stimuli, tests, and marking schemes are stored under different entity tables. Each entity has a customised set of attributes (metadata fields).



The screenshot shows the 'Item Bank' homepage. At the top, there is a purple header with 'Item Bank' on the left and 'Guidance & Contacts' on the right. Below the header, a status bar indicates 'Logged in as admin (First Last)'. On the left side, there is a 'Menu' sidebar with various options: Home, Welcome (selected), Active question report, Awaiting approval report, Import/export test material, Question management, Item management, Stimulus management, Expert review management, Test management, Reports, Audit, User management, Locks, Administration, My account, Help, and Logout. The main content area is titled 'Home page' and includes a 'Print' button. The welcome message states: 'Welcome to the Item Bank! This site allows you to upload, review and manage all of your test materials.' It then provides instructions on how to view reports, search for questions, navigate to item and stimulus records, review records requiring approval, import new data, view evidence gathering sessions, and learn more about the system.

Figure 1: Example ItemBank homepage

The platform allows establishment of a range of relationships between objects; for example, one marking scheme associated with a number of items, or 1 stimulus with a number of items, or several questions that can/can not be used together in a test. Authorised users are allowed to create items and link them with appropriate stimulus and marking schemes. Users are able to view, edit, navigate from an item to its marking scheme, or the other way around seamlessly.

Users may also navigate from a marking scheme to items linked to it and to tests where such items have appeared. On creation, each entity is assigned a unique reference number based on pre-agreed rules.

Authorised users are therefore able to search, export, view historical versions, add metadata, create links with other entities across the solution like items, tests, QIGs, mark schemes, stimuli etc. Exports can be in a number of formats based on the data being exported including MS Word, Excel, Csv, PDF.

Texuna CIBA has a file upload capability to manipulate entities. New metadata versions may be uploaded and the audit and history features track the changes being made, including the user making the change, the time and a description. Texuna CIBA supports data uploads in a number of formats including CSV, TSV, XML and Excel.

Storing and Managing Items

Texuna CIBA allows users to store, recall, edit and create all items (and their relationships) present in the item bank, at any time using a variety of filters.

Links between entities are transparent to allow users to review marking schemes and stimuli associated with items.

A 'status' field is available to track an item's position in the workflow at any given time. The workflow builder can be utilised to define a fool-proof mechanism where the system will ensure an item moves from one state to the other on specifying certain pre-defined criteria.

Texuna CIBA automatically provides a complete audit trail recording as to who accessed the data, when the data was accessed, what data was accessed and what changes were made. Audit, history and versioning features will ensure all previous versions of an item (or similarly for tests, marking schemes, stimuli) are stored and are available for users to search, view, export, compare.

Data Creation and Management

The audit and versioning feature encompasses metadata. All entities will have metadata information associated with them. These can be created, reviewed, edited or new versions uploaded. A list of fields for metadata will be discussed and agreed prior to customisation.

Texuna CIBA also allows authorised users to add new and manage existing metadata fields, their possible values, validation and availability. Images, audio, video formats are also included as standard metadata/stimuli.

Psychometric data can similarly be imported using the data upload facility with Texuna CIBA. Users are able to import this information for items and tests in bulk from a file.

A format for this upload will be agreed prior to implementation and csv, excel and xml are already supported within the platform.

Rule Creation and Management

Texuna CIBA allows users to create and manage business rules from within the application. Business rules can be applied to imports, e-form edits, exports and display.

Rules may be used to filter, transform, validate, and represent relationships between records. Complex rules become easy to manage through an intuitive user interface, without the need for complex programming or knowledge of scripting languages.

The rules are structured within rulesets to allow for comprehensive and diverse sets of rules to exist within the application, whilst also minimising any management overhead and complexity.

Resource Discovery and Reporting

Texuna CIBA comes with a built-in reporting engine that allows easy and flexible data interrogation. Basic features allow users to search, browse, view and export records present in any entity tables. So all resources can be discovered and manipulated using this. Filters are available for users to specify criteria or alternatively the unique record identifier can be used.

Free-text, date based, dictionary based, subject based, test based, marking scheme based are some example filters that can be made available. Results can be saved or exported in industry standard formats. Extracts can be for full records or summary and related information.

A number of summary reports can also be created to enhance the system and allow staff to review progress. For eg: a status summary may prove helpful for clients to be able to see how many items are in what stage of the development process.

Advanced reporting features can also be enabled in Texuna CIBA using Texuna's OLAP engine. This employs statistical methods for authorised users to understand student performance against proposed/active test items.

Test Creation

Texuna CIBA allows authorised users to create tests using existing items. The system links together marking schemes based on items included in the test. Tests, as all other entities, have a unique reference identifier. Users can search and select items to be included in a test using a variety of filters and criteria as mentioned above. Users can define a sequence of items and related information, while creating the tests. Once an item has been used in a test, the item history is updated to capture this

information. Open standards such as IMS QTI 2.1 compliance are supported to permit Question and Test Interoperability.

e-Assessment

The e-Assessment module forms a fully customisable e-assessment solution, supporting multiple testing options and rich-media integration.

It is easy to design and release tests and distribute them anywhere in the world. The tests can be made up of various question types, including:

- Binary (true/false, yes/no etc.);
- Extended matching;
- Fill-in-the-blank;
- Image hotspots;
- Labelling;
- Likert scales;
- Multiple choice/response;
- Ranking;
- Script concordance test;
- Text boxes.

A range of multimedia sources can be associated with each question type including: graphics, audio files, animations and video. This provides for many possible testing options including:

- Self-tests;
- Progress Tests;
- Formative Assessments;
- Summative Assessments;
- Questionnaires;
- Offline papers;
- Student Peer Reviews.

Users, Groups and Roles

Texuna CIBA has an inbuilt security module that controls all user access and permissions through a user-friendly interface. This module follows a tiered security architecture using roles, groups and permissions. All users are given a username and password to access the system and are assigned group membership to define the level of access rights available to them. Users may have read-only permissions, or read/write permissions depending on their access level. Actions can be restricted to particular groups, for example, one group member can change the status field for a given subject's items, while only viewing items for other subjects. It is also compliant with open standards such as OAuth2.0 and OpenIDConnect as well as traditional LDAP and Active Directory synchronisation.

System administrators can access a dedicated back office administration module to allow for system management tasks to be performed, including creating/updating user accounts and delegated access rights. Texuna provides full support for summative assessments, with critical features including security, reliability, performance, and trust.

A range of multimedia sources can be associated with each question type including: graphics, audio files, animations and video. Texuna CIBA has been designed around standards and supports IMS Question and Test Interoperability specification (QTI), LTI support for integration with VLEs, and LDAP (OpenLDAP) for authentication.

Features:

CIBA provides a Question Bank out of the box, with management of the database of paper items and stimulus can be maintained and from which exam paper questions (each question which can comprise multiple items) can be drawn. This facilitates micro management and evaluation of examination content and metadata on a longitudinal basis to ensure the highest standards are met before any paper is formally approved and issued. It incorporates the Question, Item & Stimulus database, workflow, metadata management, analysis and reporting for test questions.

Features of Curriculum Item Bank Assessments include:

- Cloud-based: Web and mobile-ready GDS-compliant app for easy access.
- Multi-lingual: Base platform supports multiple languages and character sets.
- White-label: deploy your own brand with custom workflow.
- Question bank: extensive range of curriculum supported.
- Variable marking capability for multiple correct answers.
- Extensive analytics with drill-down statistics from paper to question.
- Supports question paper versioning, and history tracking.
- Personal sensitive data is encrypted in transit and at rest.

- Supports open standards including IMS Question and Test Interoperability (QTI).
- Multiple testing options with rich media integration for online e-Assessments.

Benefits:

- Secure access for teachers, students, examiners, candidates, bespoke user groups.
- Test development records include Questions, Items, Stimulus, Expert reviews, Tests.
- Customisable app to suit all age groups and user types.
- Record versions link metadata, marking scheme, testing results, review feedback.
- Easily analyse curriculum data and question performance / reliability.
- Flexible test design and implementation match student journey and experience.
- Test development lifecycle reduction with facilitated invigilation and approval process.
- Full audit history of all changes logged for management.
- User Authentication and access control via group roles and permissions.
- Create Questions, Items (unit for marking), Stimulus (text or image).

General terms**Information Assurance and ISO 27001**

Texuna have a strong focus on high quality delivery and implement rigorous Quality Assurance processes and procedures

- ISO 9001 certified with BSI as external auditors.
- Cyber Essentials and IASME Cyber Assurance Level 1 compliant.
- ISO 27001 certified with BSI as external auditors.
- We are an Amazon Web Services (AWS) cloud hosting certified partner.
- ITIL and ISO20000-1 complaint helpdesk services.

Government Classification Scheme (GCS)

Texuna solutions are in use for 'official' level data systems. We ensure that your personal and sensitive data items are identified, encrypted and shown only to those users who have a need to see them. All sensitive and personal data is protected by stringent access control mechanisms.

Data in transit and at rest is also encrypted as are all data backup files.

Backup and Maintenance

Texuna-managed services include support for backups, maintenance, monitoring, disaster recovery and upgrades. Hosting is always physically located in the EU so that your data is fully protected.

Invoicing

Charges are invoiced monthly in advance. Payment terms are 30 days with a purchase order or immediate via credit card.

Contract Term

Minimum contract term is one year. Non-rolling contracts require 30 days' notice. Rolling contracts will automatically renew if sufficient credit is on account with Texuna.

On-boarding

The on-boarding steps are as follows:

- Contact Texuna with a draft order form, or submit an online request.
- If required, a dialogue is opened to discuss the options most suited to your requirement.
- When options are agreed, the order form is finalised and formally accepted by both parties.
- Within agreed timelines, technical information related to installing PaaS will be provided to Texuna.
- The live environments and credentials will be sent to the Customer.

Off-boarding

On deciding to end a subscription, the off-boarding steps are as follows:

- Provide notice of termination at least 30 days (if not a rolling monthly contract).
- All relevant data is extracted in .csv format and sent to the customer via secure file transfer service. On confirmation of receipt, data is purged and destroyed from servers;

Time to Provision/Deprovision

Dependent on customer requirements and options selected, time to provision is from 48 hours of order form acceptance. Time to de-provision can be from 24 hours of expiry of contract.

Service Constraints

Texuna applications may be subject to routine maintenance and this will be agreed in advance with our client so that disruption is minimised. Routine maintenance is never scheduled during the normal working day and does not typically result in noticeable downtime.

Customisation can be achieved via our Cloud Support services. No features will be deprecated without advance agreement with the customer. New features may become available from time to time.

Service Level Agreements

All user account information is encrypted to prevent unauthorised use. The SLA guarantees a monthly uptime percentage of at least 99.9% for SaaS. Different support level options are available as per the detailed pricing schedule. Severity level definitions and response times as well as financial recompense are only available under an enterprise support package.



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THANK YOU