Sunbird

Open Modular Learning Infrastructure

EkStep | Foundation

Sunbird

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About Project Sunbird

Making lifelong learning happen for a large population is a result of concerted, coordinated efforts of the government, multiple organizations and individuals—parents, teachers and several other stakeholders including the learner. Technology can hasten access to and amplify learning opportunities for large underserved populations.

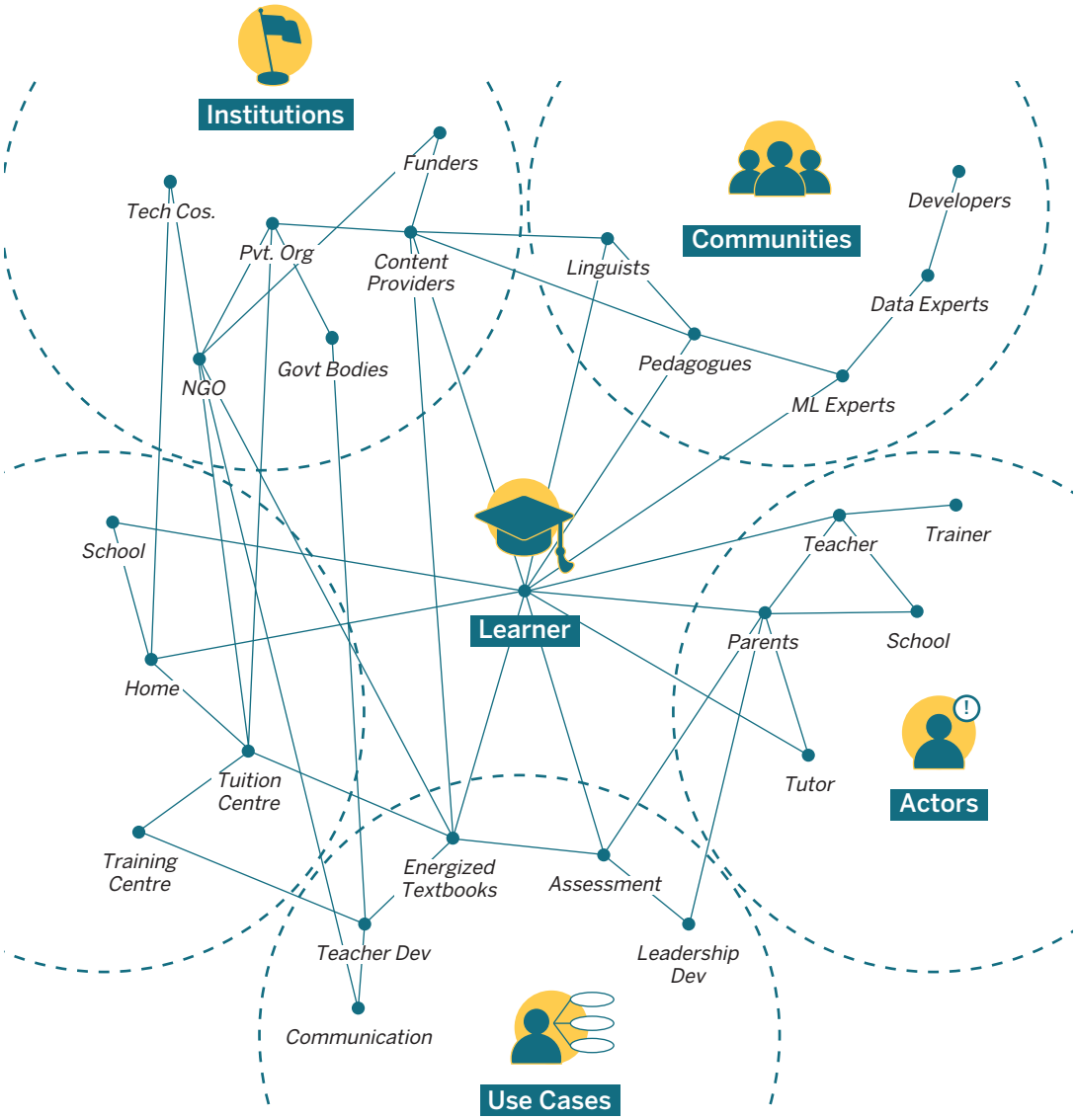
Sunbird is an open source, configurable, extendable, modular learning infrastructure architected for scale and designed to support multiple teaching and learning solutions supporting multiple languages and available for online and offline use. Sunbird is the open source infrastructure developed by EkStep Foundation, and is licensed under MIT licence.

Sunbird raises the denominator for those in education and using technology for education by providing building blocks for the creation of learning solutions. Sunbird contains well architected common building blocks that can be orchestrated to create multiple solutions without a need to build from scratch. The architecture also allows for re-use of common infrastructure components for a learning infrastructure such as taxonomy, frameworks, classroom efficiency tools, content assets and machine learning insights.

Sunbird covers the following broad feature areas:

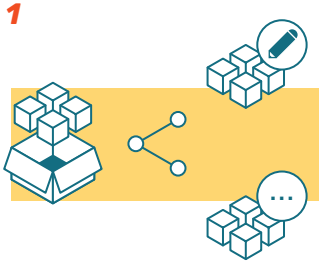
- Courses, trainings, lesson plans and assessments
- Resources for use by practitioners and professionals
- Dashboards for progress and assessment
- Student and practitioner profile and registry services
- Open taxonomy infrastructure for organising knowledge
- Announcements, notifications and circulars

Sunbird has been developed and made open source so as to enable the education and learning ecosystem to innovate and imagine solutions for lifelong learning.


Institutions
Funders
Tech Cos.
Pvt. Org
Content Providers
Linguists
Communities
Developers
Data Experts
NGO
Govt Bodies
Pedagogues
ML Experts
School
Learner
Teacher
Trainer
Parents
School
Home
Tutor
Actors
Tuition Centre
Training Centre
Energized Textbooks
Assessment
Teacher Dev
Leadership Dev
Communication
Use Cases

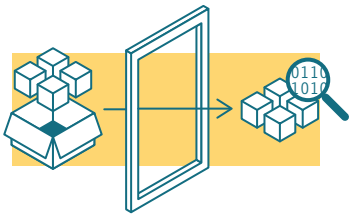
Architectural Design Principles

1



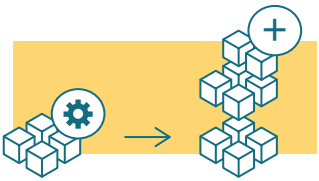
Avoid Duplication of Effort via Shared Infrastructure and Open Source technology

2



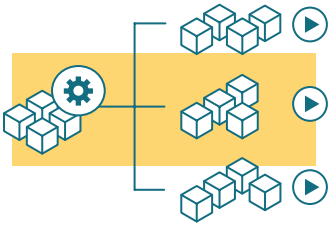
Allow Interoperability via Openness and Use of Open Standards

3



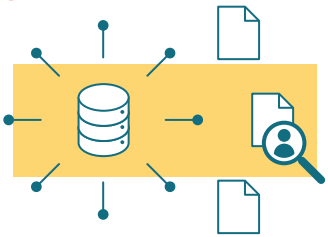
Enable Extensibility via Layerability and Modular Design

4



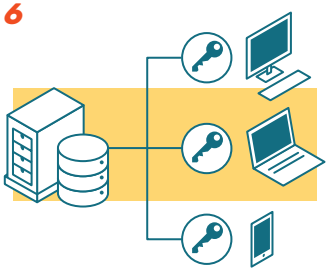
Allow Configurable Design with Plug-n-Play Capabilities

5



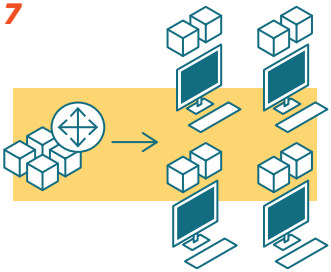
Create Transparency and Accountability via Open Data

6



Permit Distributed Access via Multiple Delivery Channels

7



Designed to Scale via Commodity Computing

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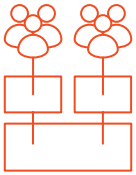
Data Security and Privacy by Design

Sunbird Features

Infrastructure architecture



Sunbird allows multiple organizations and communities to exist on the infrastructure. Each organization can independently manage their users, training and learning processes and user communities. In addition, the infrastructure also enables communities of practice that span organizations on the infrastructure. Cross-organization teaching/learning workflows can also be set-up if required.

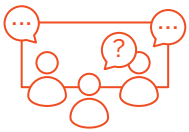
User and organization registry and profiles

User registries store user profile information, that can be accessed after authentication. Sunbird allows organizations to store verified information about users and organizations and use this repository as a verified registry to enable other user actions and functions.

Courses, Trainings and Lesson Plans

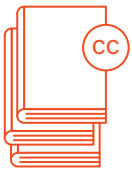
Sunbird provides features that allow for hosting of open and closed courses. Courses can be setup with one or more batches that can be hosted on different dates/times. Learners can engage with other learners via discussions and also with instructors and mentors. Course modules can be created and delivered in multiple languages with offline storage capability. Sunbird also allows for authoring of lesson plans for courses and textbooks via templates and workflows.

Open taxonomy infrastructure for organising knowledge



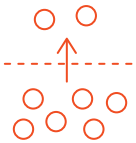
Sunbird offers a taxonomy infrastructure that makes it possible to organise knowledge in a domain to search and discover content in a system. It allows for creation of various tools for curation, analysis, content tagging and organisation.

Open Content Resource Library



Content created or uploaded on a Sunbird instance could be published under the Creative Commons License framework for wide open consumption. Each organization on Sunbird can define their own curation and review workflows to ensure that published content is of high quality. A rich set of metadata tags allow for easy discovery of content via categories, search and filters and for intelligent and relevant recommendations. The term “content” used in the context of Sunbird is wide and includes frameworks, teaching / learning / reference content and professional development content as well as varied formats—videos, interactive content, text, images, audio etc .

Curation



The infrastructure allows for review and curation workflows prior to publishing of the content as well as various social signals that help to bubble up quality content post-publishing of the content.

Data and Dashboards

All interactions with the user interface and content are available as data and can be used to analyse user interactions with courses, content and the infrastructure. Administrators and users have access to data and dashboards that tracks progress, performance and activities done on the infrastructure.

Badges for Certification

Badges communicate skills and achievements by providing visual symbols of accomplishments packed with verifiable data and evidence that can be shared across the web. They empower individuals to take their learning with them, wherever they go, building a rich picture of their lifelong learning journey. The infrastructure allows for badges to be issued for activities performed like course completion, proficiency, content contribution.

Card and Feed-based User Interface optimized for mobile access

Given the widespread adoption and use of mobile applications, to ensure optimal usability, the infrastructure uses cards and feeds extensively for organization of information. Card-based design supports limited working memory by allowing users to break up information through the process of chunking and allowing focus on a single task or piece of information at a time.

The use of automated curation and machine-learning allows for feed-based discovery of information and content where users are not expected to search for content—instead, the infrastructure is architected to stream or feed the content most relevant to users by matching the user's profile to profile of content in the infrastructure.

Sunbird Extensions

User interface customizations

- Infrastructure landing page customization
- Organization/tenant home page customization, including logo, name and styling

Integrations

- External evaluations of proctored assessments
- Exporting badges and certifications
- Importing external badges and certifications
- Enabling easy import of courses and content by adhering to interoperability standards
- Data and Metrics exhaust

Extending Sunbird functionality

- User and organization profile extensions
- Content studio—Templates and Activity plugins
- Custom apps/sites that can talk to one or more infrastructures
- Custom recommendation logic/algorithms
- Pluggable Community Tools

Getting Started

Reach out to the Sunbird team by writing to info@sunbird.org

Sunbird documentation including links to source code repository can be accessed at http://sunbird.org/

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