
**Information technology for learning,
education, and training — Learner
mobility achievement information
(LMAI)**

*Technologies de l'information — Éducation, formation et
apprentissage — Informations pour la réalisation de la mobilité des
apprenants*



COPYRIGHT PROTECTED DOCUMENT

© ISO/IEC 2019

All rights reserved. Unless otherwise specified, or required in the context of its implementation, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Fax: +41 22 749 09 47
Email: copyright@iso.org
Website: www.iso.org

Published in Switzerland

Contents

Page

Foreword	iv
Introduction	v
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Abbreviated terms	3
5 Conventions	4
6 Conformance	4
6.1 Conforming instances	4
6.2 Conforming bindings	4
6.3 Conforming applications	5
7 Learner mobility achievement information model	5
7.1 General	5
7.2 Domain model	5
7.3 LMAI Resources	6
7.3.1 Classes	6
7.3.2 Association Properties	7
7.3.3 Attribute Properties	8
8 The LMAI description set profile	9
8.1 General	9
8.2 LMAI report	10
8.3 Learner	10
8.4 Issuer	10
8.5 Learning Opportunity Specification	11
8.6 Learning Opportunity Instance	11
8.7 Qualification	12
8.8 Credit	12
Annex A (informative) Illustrative uses of the EuroLMAI Model and the Europass DS Application Profile	13
Annex B (informative) The LMAI conceptual model	18
Annex C (informative) Digital diploma supplement models	21
Annex D (informative) Application profiling	24
Annex E (informative) The relationship of LMAI to other organizations' works	26
Bibliography	27

Foreword

ISO (the International Organization for Standardization) and IEC (the International Electrotechnical Commission) form the specialized system for worldwide standardization. National bodies that are members of ISO or IEC participate in the development of International Standards through technical committees established by the respective organization to deal with particular fields of technical activity. ISO and IEC technical committees collaborate in fields of mutual interest. Other international organizations, governmental and non-governmental, in liaison with ISO and IEC, also take part in the work.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO and IEC shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents) or the IEC list of patent declarations received (see <http://patents.iec.ch>).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see www.iso.org/iso/foreword.html.

This document was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 36, *Information technology for learning, education and training*.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

Global education has reached a level of maturity where the demand for the recording and exchange of learner mobility information needs to be efficiently supported by technical interoperability standards.

Several relevant standardization efforts relating to this work were identified and significant national expertise has been developed to date. However, harmonization was deemed necessary towards an international solution, in order to provide viable support for emerging international student management information systems and dissuade service providers from developing proprietary services and platforms.

The results of the current and future work about learner mobility aspire to support the development of a new generation of technology-enhanced services for learners (learning and employment opportunities exploration), higher education institutions (certification or augmentation of learner information), employers (workplace descriptions, recruiting and development of learners' competences) and other stakeholders of learning, education, and training internationally, the national bodies and their governments and ministries, etc. For the purposes of this document, learner mobility means the movement of learners from one region or country to another.

The learner mobility achievement information (LMAI) model directly addresses the international requirement for rapid implementation and dissemination of the institution-owned transparency information tools internationally. It has been developed as a generic model for representing the institution attested achievements of a learner within a formal learning setting, resulting from the learner's participation in one or more learning opportunity instances and including any available associated results.

This document specifies a framework of the generic LMAI model that supports the expression of institution-owned learner achievement information and the formation of official achievement reports (e.g. the learner's transcript of records) and transparency documents (e.g. digital diploma supplement). The framework model supports additional learner mobility achievement structures and tools. It standardizes additional information entities (e.g., intended learning outcomes, assessment processes, etc.). Related standardization activities are underway to provide other important extensions to LMAI.

The LMAI model has been developed to be:

- lightweight: taking into consideration existing and emerging educational practice processes and the relevant educational policies
- easy-to-implement: in order to ensure a rapid uptake by stakeholders of learning, education and training throughout the world (higher education institutions, learners, employers, service providers, etc.)

The accompanying proposed digital diploma supplement application profile meets the general purposes of:

- the use of academic achievements abroad: in continuing education or in seeking job opportunities;
- the admission of students or graduates in domestic institutions and educational organizations and those abroad: acknowledgment of credits or transfer of credits accumulated in domestic institutions moving from one institution/educational organization to another;
- the expression of the level, content and nature of qualifications to potential employers both nationally and at an international level;
- the enhancement of internal and international student mobility, from one educational organization to another, or from one branch of studies to another;
- the proper integration of foreign workers into a country's employment setting;
- the standardization of higher education qualifications, either in academic or non-academic paths;

- the establishment of good practices in the recognition procedures of qualifications among higher education institutions.

NOTE 2 The DDS application profile of LMAI focuses on the expression of information regarding the qualification awarded to a learner upon completion of a formal educational programme.

Information technology for learning, education, and training — Learner mobility achievement information (LMAI)

1 Scope

This document defines a model for the recording and exchange of learner achievement information among student information systems (SIS) (also known as student management information systems), as well as the aggregation of information by third party suppliers.

In addition, this document defines refinements to the learner mobility achievement award (LMAI) model for representing the digital diploma supplement (DDS).

NOTE The proposed model proposed is not intended to define the representation of the entire spectrum of learner mobility information but to define the formally structured representation of official, institutionally attested achievement information for learners engaged in formal learning processes, in order to facilitate its recording and subsequent exchange within any international area within which learner mobility is possible. Achievement information structured and presented in compliance with this document could, of course, be used for other purposes, for instance, to provide descriptions of achievement to enrich a learner-owned report in an e-portfolio. However, guidance on the document and the organisation of information for purposes other than the representation of formal achievement reports is outside the scope of this document.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <https://www.iso.org/obp>.

3.1

assessment result

recorded outcome of a process used to evaluate, measure and document the progress of a learner

3.2

awarding body

organization that gives *credit* (3.3) or *qualifications* (3.19)

Note 1 to entry: The same organization may also be a *learning opportunity provider* (3.14) or an *issuer* (3.10).

3.3

credit

unit of learning or study that counts towards a *qualification* (3.19), such as a degree or *diploma* (3.6)

3.4

credit scheme

framework (3.6) that defines units of learning or study that can be accumulated by learners and transferred from an educational organization or programme of study to another