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Information technology for learning, education and training — Reference framework of e-Portfolio information

Technologies de l'information pour l'apprentissage, l'éducation et la formation — Cadre de référence pour l'information des e-Portfolios

Reference number
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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 https://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*.

This first edition cancels and replaces ISO/IEC TS 20013:2015, which has been technically revised.

The main changes compared to ISO/IEC TS 20013:2015 are as follows:

— notes to entry have been added to terms 3.3 and 3.8 providing examples of the use of artefacts;

— acknowledgement is given that the term artefact may be used more broadly in some areas of the world when referring to e-Portfolio components;

— minor editorial changes have been made throughout the document.

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.

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Introduction

e-Portfolios have been deployed in many contexts that span educational, employment, artistic and social contexts. Individuals have new opportunities to accumulate, manage and share their credentials digitally (using badges, micro-credentials, etc.). These digital items can be included in and shared by individuals using e-Portfolios. A key characteristic of these digital artefacts can be verification of the credential by a third party. In learning, education and training (LET), e-Portfolios have demonstrated their potential to enhance the development of learners and to support the work of educators, administrators, and others, through streamlining information management processes, developing learner autonomy and metacognition, and fostering the personal and professional development of individuals. However, this broad implementation has also brought with it issues related to interoperability, accessibility and usability of both systems and content.

This document was developed to support the creation and use of e-Portfolios in LET. It can be used to develop more responsive, flexible and modular systems and services and is intended to support learners, instructors, trainers, e-learning service providers and other stakeholders. In addition, it is intended to support a wide range of activities related to e-Portfolio creation and use across various information technology for learning, education and training (ITLET) contexts (such as K-12 education, higher education, training, career planning and professional development). With ongoing developments in information and communications technology (ICT), learners have access to an increasing diversity of LET opportunities. As a consequence, production of educational content and services extends the scope of opportunities for learning; providing potential for learners to experience personalized and adaptive opportunities that can also enhance their learning and improve their abilities. Content and services are delivered to or accessed by learners – as well as produced and managed by them. ITLET systems therefore need to be designed to accommodate this. For example, a common feature of *most* e-Portfolio systems is that their owners not only author the content but also control the selection and presentation of it. In some jurisdictions this key function is seen as integral to personal development planning (PDP).

A key characteristic of e-Portfolio systems for ITLET stakeholders is the data or information that is used for e-Portfolios can provide instructors, trainers, administrators and employers with an efficient means of appraisal, management and decision-making. e-Portfolios thus provide an opportunity to monitor the development of an individual's achievements, skills and competencies within and beyond formal education and training contexts. This key characteristic also benefits learners through providing opportunities to reflect on their own learning and career development.

One means of delivering such functionality is via a management system, such as an integrated learning management system (LMS) or human resource management system (HRMS) that can be used to monitor and organize learners' learning; however, such functionality can also be provided by unbundled applications and services and e-Portfolio system components in a highly distributed manner.

For these reasons, implementing e-Portfolios has the potential to be an efficient method for tracking learning history, documenting activities within LET, supporting peer and self-assessment as well as professional development in the workplace. Consideration of how e-Portfolios can be used within teaching and learning environments has therefore been central to shaping this document.

In order to encourage streamlined management and exchange of participant information and associated data, such as the evidentiary information contained in an e-Portfolio, a standardized approach is necessary. Through the standardization of e-Portfolio system components (that is, IT systems and services that enable e-Portfolios), common underlying structures will provide the potential to share data across and among different applications, thus improving interoperability.

This document provides a reference framework for the use of e-Portfolios within ITLET contexts where there are requirements for importing, exporting and aggregating data. The reference framework has been developed with the aim of supporting interoperability and transfer of information among ICT systems and services where data interchange is required for e-Portfolio systems. It is intended to be used by learners, instructors, software developers, implementers, instructional designers, and others within learning, education, and training environments that are supported by information technology.

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This document includes six clauses and two annexes. The first clause provides the scope, exclusions, and aspects not currently addressed. The second clause includes the normative reference. The third clause provides terms and definitions, while the fourth clause provides background information regarding e-Portfolios. The fifth clause describes various types of e-Portfolios used in LET contexts and provides an approach to classifying them. The sixth clause provides details regarding the e-Portfolio reference framework.

The annexes include use case information that has been submitted by national bodies (Annex A) and study cases of e-Portfolio interoperability (Annex B).

This document currently does not address:

— aspects of accessibility;

— the elements required of learner and instructor;

— best practices of e-Portfolio use cases in the fields on K-12 education, higher education and training;

— guides to support the use of e-Portfolios in learning, education, and training environments; and,

— detailed technical information regarding specific types of e-portfolios (e.g. learning, teaching, assessment, presentation, personal development, career, course, programme, institutional, or other).

It is anticipated that some or all of these requirements will be addressed in future editions or in companion International Standards or Technical Reports.

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Information technology for learning, education and training — Reference framework of e-Portfolio information

1 Scope

This document specifies a reference framework of e-Portfolio implementation that can be used to inform and support development of ITLET systems that meet the requirements of learners, instructors, e-learning service providers and others in contexts such as K-12 education, higher education, training and personal development.

The reference framework identifies content and functional components that support e-Portfolio systems. It addresses interoperability issues required for data exchange between these components and among the various categories.

This document:

— provides an e-Portfolio reference framework;

— provides descriptions of e-Portfolios in terms of components (content or functional), categories, elements and items;

— identifies commonalities of current implementations of e-Portfolios; and,

— represents the needs of stakeholders (learners, instructors, etc.).

This document does not include:

— in-depth technical review of issues related to adaptability to culture, language, and human functions;

— security techniques related to the protection of privacy information;

— authentication of the identity of an IT or ITLET system user;

— how e-Portfolios might integrate with ITLET systems; and,

— specific requirements of e-Portfolios or e-Portfolio systems to meet jurisdictional domain requirements.

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:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

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