

**ISO/IEC JTC 1
Information Technology**

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Reference:

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ISO/IEC JTC1 SC36
Information Technology for Learning, Education, and Training

Title:

Proposal for a New Work Item "e-Portfolio Reference Model"

Source:

National Body of Korea

Project:

NP, "e-Portfolio Reference Model"

Document type:

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This document is circulated to SC36 P-members for ballot in accordance with Resolution 8(Umea 2009). The results will be discussed at the 2010-03 Osaka Meeting.

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2009-11-06

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For ballot. Please use the electronic committee balloting application and vote **by 2010-02-06 at the latest.**

Distribution:

P, O, & L Members, WG Conveners

New Work Item Proposal

PROPOSAL FOR A NEW WORK ITEM

Date of presentation of proposal: 2009-10-30	Proposer: NB of Korea
Secretariat: KATS	ISO/IEC JTC 1 N XXXX ISO/IEC JTC 1/SC36 N1907

A proposal for a new work item shall be submitted to the secretariat of the ISO/IEC joint technical committee concerned with a copy to the ISO Central Secretariat.

Presentation of the proposal - to be completed by the proposer.

Title Information Technology for Learning, Education and Training -- e-Portfolio Reference Model
Scope (and field of application) <p>The standard project will provide an e-portfolio reference model that can be used to ensure that e-portfolio reference model integrated within learning, education, and training environments in a responsive, flexible, and modular way to meet the requirements of learners, instructors, e-learning service providers and others. More precisely, this project will outline and detail appropriate and effective descriptions for e-portfolio reference model(e.g., K-12 education, higher education and training).</p> <p>The standard project also will introduce a concrete guide through analysis of some of the best practices in various parts of the world.</p> <p>Great consideration has been invested to ascertain how teaching-learning environments may be improved by using e-portfolios. The standards developed in this project will enable efficient, effective and user friendly guidance for the use of e-portfolios, by creating a well-integrated responsive environment for importing, exporting, and aggregating data. In addition, this e-portfolio reference model and the guides could form the basis for further standardization work.</p> <p>The composition of this standard project is as follows;</p> <ul style="list-style-type: none">• Definitions of e-portfolios and their elements;• Detailed descriptions regarding e-portfolio elements that are to be used in learning, education, and training environments;• e-Portfolio reference model, which will provide the elements required of learner and Instructor.• The best practices of e-portfolio use cases in the fields of K-12 education, higher education and training; and,• Guides to support the use of e-portfolios in learning, education and training environments. <p>(* if additional parts are needed for this project, It will be discussed at the WG3 meeting.)</p>
Purpose and justification <p>The purpose of this standard project is to provide reference model and guides for e-portfolios that can be used as a reference by learners, instructors, software developers, implementers, instructional designers, and others within learning, education, and training environments that are supported by information technology.</p>

Learners may experience diverse learning, education, and opportunities, which can be enhanced through the development and application of current and emerging technologies. The expansion of educational contents and services in learning, education, and training fields has the potential to provide diverse, personalized, and adaptive opportunities for learners to enhance learning and improve their abilities. Contents and services need to be provided to learners in a holistic, well-integrated manner, which necessitates a management system that can be used to monitor the learners' learning history, current status and their achievements. The information that is collected in the system can provide instructors, trainers, and administrators with the improved ease of management and decision making. As well, it may benefit learners themselves by allowing them opportunities to reflect on their own learning.

For these reasons, implementing e-portfolios, has the potential to be an efficient method to track learning history, document activities within learning, education, and training situations, and support peer and self assessment.

e-Portfolio is short form for the term "electronic portfolio", and also is known as a digital portfolio. An e-portfolio has been defined as a "collection of electronic evidence assembled and managed by a user, usually on the Web" (Wikipedia, 2009). Documents indicate that it has been used in many countries for various purposes. According to a SC36 WG3 report (WG3N253), there are various types of e-portfolios each dependent on practical usages -WG3N248, WG3N249, WG3N250, WG3N258, WG3N267, WG3N268.

In order to encourage the improved management and exchange of participant information, such as the evidentiary information contained in an e-portfolio, a more standardized approach could be helpful. Through the standardization of e-portfolios, there will be improved underlying structures that will provide the potential to share data across and among different applications, thus improving interoperability.

Therefore, this standard project will provide an e-Portfolio Reference Model and Guides as follows:

- It will address the definition of e-portfolios and introduce a concrete reference model for e-portfolios. This e-Portfolio Reference Model will be a holistic and comprehensive model that will account for both learner and instructor roles. Elements for these two roles will be derived through analysis of relevant use cases from various other countries.
- It will also provide approaches to the topic of e-portfolios and the standardization of e-portfolios. In terms of studying best practices, it will provide guides for adapting e-portfolio specifically for the fields of K-12 education, higher education, and training. It will include an investigation of actual practices, with the aim to establish feasible guides for stakeholders who are especially concerned with e-portfolios.

This standard project will be developed in accordance with the input and contributions made by experts around the world and actual use cases in other countries. Moreover, the standard project also will refer to related documents from Liaison Organizations who are active in this area (e.g., IMS GLC Inc.).

This standard project is expected to help clarify learners' perspectives on e-portfolio issues and the information needs for a standardized e-portfolio system in information technology for learning, education, and training. The standard is intended to support international interoperability by providing a model and further guidelines, which can be used by developers, implementers, instructional designers, etc. In addition, this standard project may be used as a basis for further standardization work and other international harmonization efforts.

Programme of work

If the proposed new work item is approved, which of the following document(s) is (are) expected to be developed?

☐ a single International Standard

☐ more than one International Standard (expected number:)

☐ a multi-part International Standard consisting of parts

☐ an amendment or amendments to the following International standard(s)

☒ a technical report, type 2.....

And which standard development track is recommended for the approved new work item?

☒ a. Default Timeframe

☐ b. Accelerated Timeframe

☐ c. Extended Timeframe

Relevant documents to be considered

ISO/IEC SC36 WG3N242, N248, N249, N250, N253, N258, N263, N267, N268

Co-operation and liaison**Preparatory work offered with target date(s)**

(1) 2010-12 WD (2) 2011-12: PDTR (3) 2012-09: DTR (4) 2013-03: TR

Signature:

Will the service of a maintenance agency or registration authority be required?No.....

- If yes, have you identified a potential candidate?

- If yes, indicate name

Are there any known requirements for coding?No.....

-If yes, please specify on a separate page

Does the proposed standard concern known patented items? ...No.....

- If yes, please provide full information in an annex

Comments and recommendations of the JTC 1 or SC XXSecretariat - attach a separate page as an annex, if necessary

Comments with respect to the proposal in general, and recommendations thereon:

It is proposed to assign this new item to JTC 1/SC 36

Voting on the proposal - Each P-member of the ISO/IEC joint technical committee has an obligation to vote within the time limits laid down (normally three months after the date of circulation).

Date of circulation: 2009-11-06	Closing date for voting: 2010-02-06	Signature of Secretary: Channy
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**NEW WORK ITEM PROPOSAL -
PROJECT ACCEPTANCE
CRITERIA**

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Criterion	Validity	Explanation
A. Business Requirement		
A.1 Market Requirement	Essential <input checked="" type="checkbox"/> Desirable <input type="checkbox"/> Supportive <input type="checkbox"/>	See Annex A
A.2 Regulatory Context	Essential <input type="checkbox"/> Desirable <input type="checkbox"/> Supportive <input checked="" type="checkbox"/> Not Relevant <input type="checkbox"/>	See Annex B
B. Related Work		
B.1 Completion/Maintenance of current standards	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
B.2 Commitment to other organisation	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	IMS GLC Inc. (See Annex C)
B.3 Other Source of standards	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	IMS GLC Inc. (See Annex C)
C. Technical Status		
C.1 Mature Technology	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	See Annex D
C.2 Prospective Technology	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
C.3 Models/Tools	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	See Annex E
D. Conformity Assessment and Interoperability		
D.1 Conformity Assessment	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	This project standard will not provide conformance tests
D.2 Interoperability	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	See Annex F
E. Adaptability to Culture, Language, Human Functioning and Context of Use		

E.1 Cultural and Linguistic Adaptability	Yes__ X ____ No____	See Annex G
E.2 Adaptability to Human Functioning and Context of Use	Yes____ X ____ No_____	See Annex G
F. Other Justification		

Notes to Proforma

A. Business Relevance. That which identifies market place relevance in terms of what problem is being solved and or need being addressed.

A.1 Market Requirement. When submitting a NP, the proposer shall identify the nature of the Market Requirement, assessing the extent to which it is essential, desirable or merely supportive of some other project.

A.2 Technical Regulation. If a Regulatory requirement is deemed to exist - e.g. for an area of public concern e.g. Information Security, Data protection, potentially leading to regulatory/public interest action based on the use of this voluntary international standard - the proposer shall identify this here.

B. Related Work. Aspects of the relationship of this NP to other areas of standardisation work shall be identified in this section.

B.1 Competition/Maintenance. If this NP is concerned with completing or maintaining existing standards, those concerned shall be identified here.

B.2 External Commitment. Groups, bodies, or for external to JTC 1 to which a commitment has been made by JTC for Co-operation and or collaboration on this NP shall be identified here.

B.3 External Std/Specification. If other activities creating standards or specifications in this topic area are known to exist or be planned, and which might be available to JTC 1 as PAS, they shall be identified here.

C. Technical Status. The proposer shall indicate here an assessment of the extent to which the proposed standard is supported by current technology.

C.1 Mature Technology. Indicate here the extent to which the technology is reasonably stable and ripe for standardisation.

C.2 Prospective Technology. If the NP is anticipatory in nature based on expected or forecasted need, this shall be indicated here.

C.3 Models/Tools. If the NP relates to the creation of supportive reference models or tools, this shall be indicated here.

D. Conformity Assessment and Interoperability Any other aspects of background information justifying this NP shall be indicated here.

D.1 Indicate here if Conformity Assessment is relevant to your project. If so, indicate how it is addressed in your project plan.

D.2 Indicate here if Interoperability is relevant to your project. If so, indicate how it is addressed in your project plan

E. Adaptability to Culture, Language, Human Functioning and Context of Use

NOTE: The following criteria do not mandate any feature for adaptability to culture, language, human functioning or context of use. The following criteria require that if any features are provided for adapting to culture, language, human

functioning or context of use by the new Work Item proposal, then the proposer is required to identify these features.

E.1 Cultural and Linguistic Adaptability. Indicate here if cultural and natural language adaptability is applicable to your project. If so, indicate how it is addressed in your project plan.

ISO/IEC TR 19764 (Guidelines, methodology, and reference criteria for cultural and linguistic adaptability in information technology products) now defines it in a simplified way:

“ability for a product, while keeping its portability and interoperability properties, to:

- be internationalized, that is, be adapted to the special characteristics of natural languages and the commonly accepted rules for their use, or of cultures in a given geographical region;
- take into account the usual needs of any category of users, with the exception of specific needs related to physical constraints”

Examples of characteristics of natural languages are: national characters and associated elements (such as hyphens, dashes, and punctuation marks), writing systems, correct transformation of characters, dates and measures, sorting and searching rules, coding of national entities (such as country and currency codes), presentation of telephone numbers and keyboard layouts. Related terms are localization, jurisdiction and multilingualism.

E.2 Adaptability to Human Functioning and Context of Use. Indicate here whether the proposed standard takes into account diverse human functioning and diverse contexts of use. If so, indicate how it is addressed in your project plan.

NOTE:

1. Human functioning is defined by the World Health Organization at <http://www3.who.int/icf/beginners/bg.pdf> as:
<<In ICF (*International Classification of Functioning, Disability and Health*), the term *functioning* refers to all body functions, activities and participation.>>
2. Content of use is defined in ISO 9241-11:1998 (*Ergonomic requirements for office work with visual display terminals (VDTs) – Part 11: Guidance on usability*) as:
<<Users, tasks, equipment (hardware, software and materials), and the physical and societal environments in which a product is used.>>
3. Guidance for Standard Developers to address the needs of older persons and persons with disabilities).

F. Other Justification

Annex A:

Market Requirement – Essential

As a means to improve the effectiveness and efficiency of learning experiences, the need to better manage learning data has increased. e-Portfolio, which can be managed by instructors as well as learners, is a collection of digital information, which is used to track a learners' progress, achievements, interests, learning style, etc. Therefore, e-portfolio is an optional approach to learning data management.

The advantages of e-portfolio;

- Learners can manage their learning history
- Instructors can offer suitable e-learning services to learners
- Learners' learning data can be exchanged among systems

For e-portfolio to function properly it must be standardized. Multiple types of e-portfolios are different to manage, do not allow e-learning service providers to adequately assess learner-user's situation nor provide appropriate learning material without standardization e-learning service.

e-Portfolio standard will give more advanced opportunities to e-learning stakeholder for their business in education.

Annex B:

Regulatory Context – Supportive

In order to develop good e-learning systems which incorporate e-portfolio, developers and designer and others need some guidelines.

This project standard will provide e-portfolio reference model and implementation guide.

Therefore, this standard will be provided to software providers, implementers, instructors and others in order to support in e-learning business.

Annex C:

Commitment to other organisation

Other source of standards

IMS GLC Inc. has been working on e-portfolio. So, this standard project will be referred IMS GLC Inc. as well as other countries studies and use cases about e-portfolio.

Annex D:

Mature Technology

D.1 Implementation:

As a result of study period, many countries have already begun to use e-portfolios within their e-learning system. IMS GLC Inc. is also working on the e-portfolio for the e-learning industry. Depending on the specific purpose of e-portfolio and the educational environment, e-portfolio has been used in diverse e-learning system.

e-Portfolio definitions that are being used;

- It assembles the related information of learner, providing access to the concerning platforms and offering links to some other websites customized by the user
- Individual electronic filing cabinet progressively filled along the owner's life with information about and documents providing evidences of his/her competencies, whether they are acquired through education and training or through experience
- It is a digital store of information connected with an individual learner that is in some way shared or accessible
- It is student-centric tools that include collections of digital resources, demonstrate growth, provide opportunity for reflection and metacognition, allow for flexible expression and allow access to selected viewers
- It is a collection of electronic data that student and teacher created during teaching and learning activities. It also can use in order to improve their skill and competency

In addition, each e-portfolio has elements to save learner's data related to learning. For example the East China Normal Uni. e-portfolio has two categories; student and teacher. It also has 6 elements for example personal information, course, posts, and each element has some items. K-12 teachers training system, e-portfolio has two categories like identification and records of learning process.

In France's lifelong education, e-portfolio has 4 categories, personal information, career path, job-related projects and documents. This was an e-portfolio focused on training for adults. The representative e-portfolio of Canada was two kinds. One of them is an e-portfolio that is used by Calgary board of education in Canada. Korea also has many use cases about e-portfolio such as Cyber Home Learning System in K-12, Accreditation system for university and Career Net in lifelong education. UK and New Zealand have use cases of e-portfolio.

On this wise, many countries already utilize e-portfolio within e-learning. Therefore, we need to consider standardization of e-portfolio to improve e-learning effectiveness.

This project standard will be useful to improve e-learning enhancement for learner and instructor.

D.2 Implementations in use:

Cyber home learning system(CHLS) has been in operation since 2005, and is one of the main e-learning services for primary & secondary school in Korea. Now, around 3 million students are using this system and 30,000 teachers are managing their cyber classes in order to encourage learning. We also developed a new CHLS in order to support new e-learning environment that is able to use various teaching-learning methods such as collaboration learning. In addition, we utilized new concepts such as Wiki, e-portfolio, etc in the new CHLS.

The e-portfolio of CHLS has two purposes.

First, students can improve their learning through self-reflection through their learning activities history, save their learning outcomes and getting feedbacks from their teacher.

Seconds, teacher not only offer suitable learning materials to their student but also get information about learning status of their student through e-portfolio which has student's learning history and products.

New CHLS has teaching e-portfolio, by using teacher can manage their teaching know-how such as teaching materials. This would be a powerful function in order to improve teachers' competency.

The definition of e-portfolio in CHLS is a collection of electronic data that students and teachers created during teaching and learning activities. Users can manage their learning data and get self-reflection to improve learning-teaching competency on e-portfolio.

The e-Portfolio of CHLS consisted of elements needed in teaching-learning environment and It is based on IMS e-portfolio class. Table 1 is the e-portfolio elements of CHLS.

Table 1 e-Portfolio elements of CHLS

Category	Class	Elements		Student	Teacher	IMS
Personality	identification	Phone number, e-mail, favorite subject		○	○	○
	interest	Hobby		○	○	○
	QCL	Info. About QCL		○	○	○
	Competency	Career about cyber class, Teaching career, Award career		-	○	○
Learning Activity	Activity	Contents	Unit title	○	-	○
			Completion or not	○	-	○
			Progress	○	-	○

			Learning time	○	-	○
			The number of times	○	-	○
		Assessment system	Test or not	○	-	○
			Grade	○	-	○
	Product	Homework		○	○	○
	Classroom	Name of Class		○	○	-
		Group activity	Homework	○	○	-
			To submit or not	○	-	-
			Grade	○	-	-
	Reflexion	qualitative evaluation from teacher		○	-	○
		Self-reflection		○	○	○

The e-portfolio in CHLS will offer self-reflection about learning in student side as well as information about learning status of student in teacher side.

Moreover, the teachers' teaching e-portfolio will offer new chances for teachers to manage outcomes which were created during teaching processes in CHLS.

In the future, we might use e-portfolio in other e-learning services that are able to be used by students. So, we need to make the a standard e-portfolio. Through this, the e-portfolio that began with CHLS might be able to connect to various e-learning services in higher and lifelong education.

You can find other implementation use cases of other countries in Document WG3N248, WG3N249, WG3N250, WG3N253, WG3N258, WG3N267 and WGN268.

Annex E:

Model/Tools

This Standard Project provides the best practices guide for applying e-portfolio in e-learning systems. This guide will include the best e-portfolio cases and how to use e-portfolio in each education domain. Through this guide, e-learning providers will have help in developing and applying e-portfolios in their system.

In addition, instructor and learner can understand and use e-portfolio in e-learning more.

Annex F:

Interoperability

This Standard Project describes e-portfolio reference model that can be exchange data between systems that wish to import, export learning information of learner. Learner can process their learning without overlapping with what was covered before. Learner/Instructor can use e-portfolio within any systems because e-learning systems can share, import and export their e-portfolio.

So, this Standard Project is intended to support interoperability by providing a model and extensions that can be used by developers, implementers, instructional designers, and others to guide development, implementation, instructional design, and other efforts intended to support learners within learning, education, and training environments.

Annex G

Cultural and Linguistic Adaptability

Adaptability to Human Functioning and Context of use

During study period, we could know that there were many purposes in e-portfolio use and methods to use e-portfolio.

The purposes we have studied are as follows.

- To improve teaching/learning competencies through self-reflection about learner/teacher activities history
- To save/manage/share learning/teaching results and feedback data
- To give suitable learning materials
- To get information learning status
- To use as the main data for evaluation
- To get/record the details of the progress users have made from e-learning system
- To be able to store and attach learner's documents and web links as evidences to any piece of information within system
- To reflect on learner's work and provide/receive feedback
- To develop greater learner ownership of the learning process by encouraging a learner owned e-portfolio
- To provide a resource bank of learner's data for information, accreditation and accountability purposes

Moreover, there were various use cases in each education domain such as k-12, higher education, lifelong education.

e-Portfolio is one of main issues to encourage e-learning. So, this e-portfolio reference model should consider education environment and status of learner.

Therefore, e-portfolio reference model would be adaptable depending on specific education environment of countries where e-portfolios are used.

In Addition, this standard will be considered implementation in the fields of K-12, higher education and training. Furthermore, e-portfolio classifies with e-portfolio and teaching portfolio according to use purpose.