Leap2A Review

Report from APS Ltd for JISC

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Contents

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Executive Summary

Leap2A is a specification for e-portfolio data exchange. It was developed during the period 2007 to 2010 through a series of projects funded by the Joint Information Systems Committee (JISC). It was adopted by a number of e-portfolio system vendors and other organisations offering e-portfolio services to learners, in particular those operating in Higher and Further Education.

In January 2012 the JISC asked APS Ltd to contact the organisations responsible for these Leap2A-based projects, and other organisations known to be using the Leap2A specification[1]. The purpose was to review from their perspective the current status of implementations, to identify actual and potential benefits, to note challenges and issues, and to discuss their views of emerging or actual practice around the movement of e-portfolio related data and readiness for the specification. We were asked to identify potential future pilot contexts, as well as interested individual practitioners where possible. In addition we were asked to collect examples of exported data, to capture actual and potential uses of the specification and from these to create use case scenarios to be published on the Leap2A website, together with any additional information that would fill any gaps in the website's information provision.

We were successful in carrying out semi-structured interviews with a member of staff from almost all of the organisations involved in the projects, with the exception of those organisations that were now defunct or were no longer using e-portfolio products.

Benefits

There was consensus that the following benefits were realised by the Leap2A specification[2]. Leap2A:

- **enables data exchange**;
- **promotes use of e-portfolios by learners;**
- **promotes high quality data;**
- **eases upgrade and migration;**
- **promotes interoperability**; **and**
- **encourages innovative service development**.

Functionality developed by the projects was still operational in most of the products involved, enabling the transfer of data between these systems. However, as the use of e-portfolios among students remains low, so the extent of data transfers using Leap2A was perceived by interviewees to have remained low. Unfortunately none of the systems using Leap2A had functionality to record data export or import statistics, so quantitative assessment of usage was not possible.

Recommendations

These recommendations are driven by the views expressed by interviewees, mediated by the capture of use cases in this report, and take into account wider UK HE interoperability initiatives. For more details see the Recommendations section at page 18.

1. JISC should continue to engage with vendors in HE who have not yet implemented Leap2A.
2. Engagement should focus on communities of practice that are using or are likely to use e-portfolios, and situations where e-portfolio data transfer is likely to have a strong business case.
3. JISC should continue to support small-scale tightly focused developments that are likely to show immediate impact.

[1] This review has not addressed current wider European and other international interoperability initiatives.

[2] See Summary of Benefits at paragraph 3.

4. JISC should consider the production of case studies from PebblePad and Mahara that demonstrate the business case in favour of Leap2A.
5. JISC should consider the best way of encouraging system vendors to provide seamless import services.
6. JISC should consider constructing a standardisation roadmap via an appropriate BSI or CEN route.

Introduction and Context

> *This family of specifications is intended to cover the representation of several kinds of information, centred around individuals, who collect, create, reflect on and use their own information for learning, development, self-presentation, or related purposes.*
>
> *This information is typically authored or collected by the individuals themselves. It may cover: what they have done, made, achieved, written, or are proud of; what or who helps or has helped them; what they aspire to; what they are good at; evidence for and reflections on any of these; and perhaps input from other people. Learning materials often have copyright restrictions, but in general portfolio information can be used freely by the individual that has authored or collected it.*
>
> *About the Leap2 specifications, from http://www.leapspecs.org/2A/about*

1. The Leap2A specification[3] was developed, piloted and implemented in a series of JISC-funded projects from 2007-2010. Phase 1 developed the specification, followed by seven projects in Phase 2 and a further eight in Phase 3. Participants in the projects included Higher Education Institutions (HEIs), Further Education Colleges (FECs) and e-portfolio providers. Users, vendors and developers of two of the leading e-portfolio systems now used in Higher Education, PebblePad and Mahara, were intimately involved in the work, as well as a range of organisations with more particular concerns, or with in-house products and services. The majority of providers were successful in implementing imports, exports or both using the Leap2A specification.

2. The review undertook to interview representatives from all those organisations that were involved in the original three phases of projects, as well as any other organisation that was known to be using Leap2A currently. Interviews were conducted in January 2012 with 9 representatives from the projects, and comments on the same areas as the interview were solicited from 5 more. The following issues were discussed:

   - The status of their Leap2A implementation
   - The benefits (actual and potential) from their perspectives
   - The challenges and issues with the use of the specification
   - Examples of their Leap2A exports
   - Discussion of where they see emerging or actual practice around the movement of e-portfolio related data and readiness for the specification, identifying potential future pilot contexts as well as interested individual practitioners where possible.
   - Identification of use case scenarios.

Current Practice and Benefits

Summary of Benefits

3. Most interviewees agreed that the following benefits were realised by the specification. Leap2A:

   - **Enables data exchange** - It enables data exchange between e-portfolio systems and to a limited extent between e-portfolio systems and other similar services.

[3] http://www.leapspecs.org/2A/core-specification

- **Promotes use of e-portfolios by learners** - Transferability of data encourages use of e-portfolios by learners, because the captured information is not lost when the learner moves to a different organisation.
- **Promotes high quality data** - It encourages a good, structured approach to data handling.
- **Eases upgrade and migration** - It simplifies the process of upgrade or migration from one e-portfolio system to another by an organisation.
- **Promotes interoperability** - It encourages the use of standardised data formats, thereby reinforcing the benefits of the wider interoperability agenda.
- **Encourages innovative service development** - It enables innovative future service practice that may require exchange of data in e-portfolios.

Summary of Responses

4. Those providers that were successful in implementing Leap2A in some form have retained that functionality within their systems. However, the more innovative projects involving new systems or interfacing with bespoke university systems have largely stopped using the specification or they have stopped using their particular products altogether, typically migrating to Mahara or PebblePad.

5. Since the start of the Leap2A projects, e-portfolios have been introduced in many more HEIs and FECs. However, use of e-portfolios among students remains at relatively low levels. Typically two or three courses or departments endorse their use strongly, while the rest have not yet incorporated them into their learning and teaching approaches.

6. A few students also use them without a specific course requirement, particularly if they have used something similar before. As Mahara and PebblePad have the ability to import and export using the Leap2A specification, students with existing e-portfolios can take their information with them to their new institution. In the case of PebblePad[4] this is entirely controlled by the user, in Mahara users can export their data, but if they are enrolling at a new institution that uses Mahara, they require the institution's administrators or IT staff to import their data. This particular process compromises the spirit of mainstream e-portfolio usage – as a personal learning space – which places the data entirely under the learner's control[5]. At least one supplier (Desire2Learn) can only supply Leap2A imports into their e-portfolio and not exports from it, and many other smaller suppliers who were not involved in the Leap2A projects do not use the specification at all.

7. All those interviewed agreed that the specification was very easy to use, readily understandable and encouraged a good, structured approach to the data. The XML format was well-received, and support given during the projects (particularly the community aspect, including discussions and cross-project assistance) was valued. Although the original website for the specification was difficult to use, everyone who had seen the new Leap2A website agreed that it was very easy to navigate and provided a very useful resource for anyone working with the specification.

8. The same benefits of the specification were mentioned by the majority of interviewees. All agreed that standardised data formats and interoperability facilities were good. Most also agreed that it was more valuable for student data to be accessible in a useable format throughout their education and into employment if possible. Two respondents disagreed and

[4] PebblePad also has alternative export and import utilities, so data exchange is not reliant on Leap2A. Typically a student may migrate from one PebblePad implementation to another using native PebblePad functions.

[5] See the 'seamless transfer' use case on page 15 for a possible resolution of this problem.

felt that old data could be safely archived for reference only and did not strictly need to be useable in its original format, once the student had moved on from that environment. However, this approach fails to support in an automatic and seamless way the common transition of students from courses of study to professional body systems. All agreed that the information should be kept in some way and not lost simply because a student had moved university or college and that the information in e-portfolios provided valuable evidence for future applications.

9. It was highlighted by one interviewee that an indirect benefit of Leap2A was to increase students' willingness to use an e-portfolio. If students are informed before they begin using a system that they will be able to keep all the records they create, they will be more likely to use the system than if they think their effort will be wasted, removing a barrier to uptake.

Statistics

10. It did not prove possible to gather statistics about Leap2A usage. None of the systems that have implemented Leap2A have functionality that enables the logging and / or retrieval of such statistics, so any evidence presented here is anecdotal, rather than definitive. In some cases (PebblePad for example) export and import is directly controlled by the learner, in others either or both functions must be carried out by technical staff.

Current usage: Organisations currently or previously involved in Leap2A

11. This section presents a note of the responses from each individual organisation contacted, in relation to their current use of Leap2A in projects and products. There is a separate sub-section for each organisation providing a substantive response and a summary of other organisations at the end of the section.

University of Nottingham, Centre for International ePortfolio Development

12. The Centre has used PebblePad and Mahara in recent projects. The University is now embarking on a set of managed Mahara pilots to inform a University-wide implementation.

13. The Centre has used Leap2A relatively recently in the JISC-funded SAMSON Project[6], harvesting and aggregating information from e-portfolios into a single employer viewable system. The outputs of the completed projects inform the new interoperability work of the centre, alongside the use of the XCRI-CAP standard[7] and the InteropAbility specification[8]. In particular they may be used as part of the new SHED Project[9], which is delivering a 'student/employer matching service' that will demonstrate how professionalism can be embedded into learning pathways through enabling students to relate their learning to employer demand and expectation.

14. Usage of Leap2A in the University is dependent on implementation of e-portfolios more widely across the University and continuing development of partnership working with other organisations. Having the Leap2A export option provides not only learners, but practitioners and decision makers, with reassurance that there are options to retain the data alongside the option to output to HTML. In considering Mahara implementation it will be necessary to bring together three separate installations of Mahara from different versions. Leap2A offers a neat solution, used by the technical staff, to migrate user data across these different versions. The University is

[6] http://www.nottingham.ac.uk/eportfolio/samson/index.sHTML

[7] See http://www.xcri.org/wiki

[8] http://www.interopability.org/wiki/InteropAbility_Wiki

[9] http://uilaplep01.nottingham.ac.uk/mahara/view/view.php?id=1336

moving towards a service oriented architecture – e-portfolio forms a part of the whole flexible learning environment, so interaction with existing systems will be explored throughout its implementation.

University of Glasgow

15. The University uses and develops Mahara. It has also produced a 'rendering and validation tool'[10] for Leap2A.

16. Within Mahara itself there are export and import functions. The former can be handled directly by students, whereas the import function must be managed by IT support staff. Use of e-portfolio in the University is limited at the present time, except for specific courses where there has been an explicit requirement. The interviewee envisaged that usage would increase, but that uptake would be slow, as some courses would not find them applicable.

17. There has only been a handful of requests for import of data from different e-portfolio systems. It seems probable that there have been more exports, but quantitative data is not available.

University of London Computer Centre (ULCC)

18. ULCC was an early adopter of Mahara and is a development partner, working with the University of Glasgow, among others.

19. As a result of the Leap2A projects, Leap2A export and import functions are available in Mahara. Mahara is being used at about 65 HEIs in the UK and many more worldwide, so the potential for Leap2A usage is high. Student imports happen at an institutional level with IT support, so that student identities can be matched properly, because Mahara does not currently support student-driven import of data. Exports are managed by students. There is also a Moodle-Mahara link that should enable further use of such data exchanges in the longer term. However, the current implementations do not support a seamless data exchange, so export and import depends on the learners' understanding of how and why it might be done. There is anecdotal evidence that the majority of students don't use their e-portfolios very much, or if they do, they don’t export it for use in the future. This is probably because institutional uptake is low, and the benefits of keeping e-portfolio data are not publicised.

20. Statistical data on import and export usage is not available without significant work to extract it, because this data is not built into the functionality.

Pebble Learning Ltd

21. Pebble Learning implemented user-controlled import and export Leap2A functions into PebblePad, which is used in roughly 80 UK Higher Education providers and further afield. It can provide transfers using Leap2A from Moodle, as well as other e-portfolios, and provides HTML exports as an optional alternative to Leap2A.

22. While the implementation of Leap2A in PebblePad is regarded as highly useful, this particular implementation remains an export and import procedure between PebblePad and other systems, rather than a seamless transfer, although seamless transfer is available between PebblePad accounts without using Leap2A. The implication of the Leap2A functionality is that data transfer is a process of several steps under the learner's control, so the learner has to be well-motivated to carry it out. In addition Leap2A is one of several different import/export possibilities, and it may be less well understood than other options. It should perhaps be stressed here that PebblePad supports extensive data transfer methods other than Leap2A,

[10] http://www.leapspecs.org/validator/2A/index.php; version managed by CETIS.

including zip archives, native PebblePad transfers of whole or partial data between accounts, and similarly full or partial export to HTML.

23. In principle Leap2A data exchange in PebblePad is under the control of the learners, so it is possible that significant amounts of activity in data transfer are occurring. However, this seems unlikely at the present time. No statistics are available.

Nottingham Trent University and Desire2Learn

24. Nottingham Trent University and Desire2Learn were partners during 2010 in the NTU/D2L PIOP3 project. NTU was the only institution using Desire2Learn in the UK at the time, and there was an impetus towards making the data accessible to other systems. Unfortunately the project was not successful in producing an export function due to incompatibility between the specification and the Desire2Learn data structure, though import was implemented. While Desire2Learn is still being used in the VLE context, there is little uptake of e-portfolios in the University. Transfer of data between e-portfolios is not currently a strategic objective. Desire2Learn states that it has found little demand from their customers for data exchange, so Leap2A has not been pursued further. However, there may be differences in approach between the UK and the US-based Desire2Learn experience.

25. There is no significant usage of Leap2A in these organisations.

Loughborough College and Leicester VESA

26. Loughborough College worked with VESA 13-19 Education Support Agency to create a Leap2A export from and import into their ePF/ILP progress file product. Both functions were successful, though it was easier to export than import, because their own data structure was familiar to the developers. Leap2A has not been used directly in this context since the project. The College has moved to Mahara and Moodle. It is using the built-in Moodle functions, which utilise Leap2A for certain aspects of the data, to move data from an older implementation of Moodle to the new one currently in operation. E-portfolios are available in the College, but used typically only for sports and creative courses, plus increasingly in relation to vocational and experience based qualifications. The web service originally developed is no longer live. Leicester VESA noted that even though there were significant differences between pre-16 and HE e-portfolios, the specification is broad enough to cover the interoperability between them.

27. There are occasional requests from tutors about how to move items between Moodle and Mahara, but there is not quantitative data on Leap2A usage.

University of Derby

28. Leap2A is not currently being used in the University. Although PebblePad and Mahara are being used within the University, there is no University policy about e-portfolio usage. The view at the present time is that the benefits still don't outweigh the resources required for implementation; this would be a 'nice to have' not a priority.

TAG Developments

29. Leap2A import and export are fully implemented within TAG Developments MAPS product.

30. TAG is more interested in competencies standardisation work (for example InteropAbility specification[11]) than in Leap2A, because their products address the assessment and qualifications domain, rather than e-portfolio directly. A particular problematic issue was around data loss between systems, as the data structures and contextual or relationship data was very

[11] http://www.interopability.org/wiki/InteropAbility_Wiki

different in different products; this was exacerbated by relating MAPS, an assessment system, to e-portfolio systems.

31. Quantitative data on imports and exports is not collected.

Other organisations

32. Other organisations contacted included: Interactive Solutions, Myprogressfile and the MedBiquitous Consortium, all of whom were also involved in profiling Leap2A or testing import and export utilities. None of these organisations is active in relation to Leap2A now, but are keeping a watching brief.

Challenges and Issues

33. The most common barrier mentioned as slowing down the usage of Leap2A was that e-portfolios are not yet widely used, even in institutions which have made them available to all of their students. This was reported to be the case in both FE and HE settings, resulting in a weak business case for developing facilities for transferring information between e-portfolios. Although institutions and suppliers recognise the benefits in principle of this functionality, there is a question mark over the drivers that might push further implementation and more sophisticated development. A majority view was that these drivers do not yet exist.

34. Mapping to and from the Leap2A specification was highlighted by the majority of interviewees as a significant challenge. Most recognised that a specification cannot contain the perfect conditions for every organisation using it, and that a middle ground had been reached to some extent. However, considerable time and effort was spent in mapping fields with only moderate success. The result was that, while data can now flow between different systems, much of the format and context or relationships between items, is lost in the transfer. This was felt to be a complication of trying to transfer data between systems that, while they may all be called "e-portfolios", do not necessarily have much in common in the way they structure or display their data.

35. For those using the Leap2A specification to transfer data between other systems and e-portfolios, this mapping issue was complicated further. The Leap2A specification was regarded as well-structured and formatted, but a little too rigid, over-complicating the process when working with FE, assessment data and APEL data, rather than HE data. Although many of the projects using Leap2A with these systems were successful in their aims to produce an import and export, the amount of data loss was seen to detract from a full commitment to operational use of the specification and promotion of the functionality in the future. At the present time, leaving the functionality available for the interested user is not a significant issue, as in many products there is little demand. An issue here is that larger scale usage has not been tested, and there may be support requirements or new technical requirements that have not yet been discovered.

36. The main reason there is little demand for the Leap2A functionality at the moment seems to be that e-portfolios are not widely used, and outside specific groups there is not much knowledge about them or the benefits of using such a system. There also appears to be a gap in promoting the usefulness of data transfer specifically to students. For example in the Mahara and PebblePad e-portfolios there is an option to export to a Leap2A zip file or to a website/HTML, without any explanation of what Leap2A is or why it might be valuable to export to that format. With a recognisable HTML format as the other option, it is reasonable to assume that students will pick the format that they understand. Similarly it was suggested that students are most likely to export into the default format, which in more than one case is not the Leap2A

specification. On a related note, import into Mahara requires a process mediated by institutional staff rather than a learner-controlled one; judging by the very few import requests of which interviewees were aware, it seems this functionality has minimal usage currently.

Areas to explore and use cases

Uptake and application of e-portfolios

37. Without much greater use of e-portfolios, the Leap2A specification's usefulness is limited. The interviewees suggested some ways that this might be addressed.

38. One vendor raised a concern that e-portfolios, where they were in place, were not being used to their full advantage, and so were not providing the results that would encourage others to use them. One area to explore could be to look at promotion of e-portfolios themselves rather than the Leap2A specification, though some investigation of the factors that increase uptake of e-portfolios has been undertaken in previous JISC work[12]. It may be useful to look at 'service touch points' by students within institutions within the context of this type of data, so that support from Leap2A functions can be reviewed against the student lifecycle. Further suggestions on this approach are wider than this review.

39. Student buy-in is a key issue. The point was raised repeatedly that students are only active users of e-portfolios when their course requires it. One way of increasing student usage of e-portfolios is to encourage more staff to incorporate them into their learning and teaching methods. However, if students do not appreciate and internalise the value of using them as part of their learning, then they will not use them to their best advantage. Promotion of the benefits is certainly one aspect of this, but a closer look at why students choose not to use this resource provided by their institution would also be necessary.

40. Leveraging the existing partnerships between HE and FE institutions provides the advantage of immediately increasing the use of the Leap2A specification, as well as the use of e-portfolios. Encouraging HE and FE partners to work together on implementing e-portfolios, improving their uptake by staff and students and agreeing on how they can be used to best advantage provides an immediate pathway for the transfer of useful data. This scope could be expanded to the promotion of partnerships with schools as well as FE and HE.

41. Non-traditional pathways through education may be the area where e-portfolio data can be most useful. Transferring data from a mature student, international student or other non-traditional background provides a lot more information to support their current studies. However, this requires them to have used an e-portfolio previously in order to have something to transfer.

Other Audiences and Applications

42. Although e-portfolios clearly have a place in a traditional school or college and within HE and FE education, there are wider applications which would potentially benefit from Leap2A based data exchange. Typically these other audiences are in areas where the students will need to keep records and reflections about work they have completed on placement or in employment. One of the original projects looked at this aspect from a medical point of view – the functionality is available as part of Mahara, and MedBiquitous plans to build it into a new e-portfolio system specifically for the medical profession, but it is at concept stage at the present time.

[12] See http://www.jisc.ac.uk/whatwedo/programmes/elearning/epi.aspx

43. Other professional bodies might also find this approach useful. Many already use a variety of e-portfolio and other systems to keep records about activities that members carry out in the field, so that professionals can earn or maintain accredited status. The ability to transfer their portfolio evidence from system to system throughout their educational and professional career would present a fuller picture to accrediting and professional bodies. Similarly other Continuing Professional Development courses require evidence from a variety of sources to be presented, often over a long period of time where a number of different formats may have been used. It is important here to bear in mind the difference between scenarios of e-portfolio practice per se, and scenarios requiring data exchange using Leap2A. Good professional practice may require the use of an e-portfolio or similar tool to record and store evidence, from which a 'presentation portfolio' might be created for accreditation or CPD purposes. This type of practice does not necessarily require data exchange, but rather the submission of 'final form' information. However, a suggestion for an interoperation use case scenario in this context is suggested below.

44. Related to this is the potential to engage with employers. At least one interviewee felt that many employers already looked at a student's e-portfolio as part of the job application process, and one of the original projects (SAMSON) looked at providing an employer portal to aggregate e-portfolio data for easy access by the employer. The requirement in this circumstance was to provide students with evidence for employers as much as for education institutions.

45. Leap2A could be combined with other relevant specifications, such as in the competency domain (see the InteropAbility specification[13] or the work of MedBiquitous[14] in this area).

Interfaces between systems

46. There is a potential opportunity to work further with suppliers to improve the way that the Leap2A specification is integrated with their systems and therefore to make the functionality simpler to use. The development work that was specifically suggested in interviews involves making the transfer of data between systems one seamless process under the direct control of the learner, instead of exporting from one system and then importing into the new system, and sometimes requiring the intervention of technical staff. A scenario for seamless transfer is described below. Concealment of the technicalities, including the term 'Leap2A' from end users might make this process appear less daunting.

Improvement of the Specification

47. All of the interviewees agreed that the specification was in the correct format and in general was very easy to use. However, as stated earlier, there were issues with mapping, data loss and inflexibility around different types of data even between e-portfolios.

48. Increasing the flexibility of the specification would have the added benefit of potentially widening the market for e-portfolio providers. More than one of the e-portfolio providers who came to the projects in Phase 2 or 3 felt that the specification had been built with a different type of data structure in mind and could no longer bend enough to meet their needs, drastically increasing the difficulty of implementation or pushing them out entirely. Although each organisation recognised themselves as providing an "e-portfolio" all agreed that there was very little standard data or data formats in common between all systems, so that providing a standard model for data transfer would be extremely difficult.

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[13] http://www.interopability.org/wiki/InteropAbility_Wiki

[14] http://www.medbiq.org/std_specs/specifications/index.html#Competencies

49. This issue is especially pertinent when applied to the potentially huge market for transferring e-portfolio information from and between schools, as there is a wide variety of e-portfolios and other similar tools in use in the schools sector. If the specification is to engage with schools and a full lifelong learning approach, then it will need to be useable by many more systems. Improved flexibility of the specification may also mean that maintenance in the light of developing technologies is simplified. However, it is significant that the focus of schools, and to a lesser extent FE practitioners, is on management data about the learner, rather than the learner's own data.

50. As well as e-portfolios in use in an academic context, students have shown interest in having their university systems interface with social media. In part, this is so that they do not feel obliged to include their tutors and course pages in their social sphere[15], but also widens the scope for data to be built on during their professional lives, once they have left education and set up a blog or other personal portfolio. For example the University of the Arts London is considering whether their Leap2A implementation may be able to interface with Wordpress XML structures. There is a plug in for the Mahara e-portfolio system that allows for interfacing with social media, and PebblePad can import any data from social media that has an ATOM or RSS feed.

51. It was suggested that taking the specification to a standards body would help to legitimise it and therefore increase its uptake. This would mirror the current move of the XCRI-CAP specification into BS 8581.

Use Cases

52. The review has identified a range of actual or possible use case scenarios that would make use of the Leap2A specification. In each sub-section below the use case scenarios are outlined through a summary description, a more detailed narrative and in some cases a UML use case diagram.

53. The Leap2A website suggests three 'practice scenarios'[16] and three 'interoperation scenarios'[17]. The 'practice scenarios' illustrate situations that might give rise to the creation of information represented by the specification; these are scenarios that might generate the source data for interoperation and could be viewed as 'e-portfolio practice' situations, rather than use cases for data exchange. For this reason this review has not considered 'practice scenarios' in depth, but instead has concentrated on 'interoperability use cases'. These represent situations in which Leap2A data might be of direct importance to the process. The examples described on the Leap2A website[18] are:

    - Transfer of complete portfolio information
    - Transfer of specific information supporting transition
    - Intra-institutional services.

54. Building on these and the review comments, suggested interoperability use cases include:

[15] It was found in a University of Derby survey mentioned by our interviewee that students resent the University impinging on their online social lives.

[16] http://www.leapspecs.org/2A/scenarios/practice-scenarios

[17] http://www.leapspecs.org/2A/scenarios/interoperation-scenarios

[18] See http://www.leapspecs.org/2A/scenarios/interoperation-scenarios

.1 Transfer of complete e-portfolio information – the requirement is to transfer as much information as possible from one system to another, typically when an individual moves from one organisation to another, for example from school or college to university.

a. Export and import – a two stage process akin to current implementations
b. Seamless transfer – conceals the mechanics from the user

.2 Transfer of filtered or selected information – the requirement is to transfer only part of the information, either specifically selected by the user, or filtered using a search function. This use case might support the case in which an individual only wants to transfer immediately relevant data filtered by date or by subject, for use in a different system or to create a document in a different software package.

.3 Aggregation – the requirement is to import several extracts from different portfolio systems into a common system, for example so that an employer or university can review learner activities across many different e-portfolio types from within one common interface.

.4 'Wrapped' data transfer – the requirement is to map and export selected information from an e-portfolio into an externally-provided wrapper or template. For example a professional individual transferring CPD or other relevant information automatically to a professional body, mapping evidence and experience to the context indicated in the template, or an applicant selecting specific information for transfer into an application form.

Transfer of complete e-portfolio information: export and import version

Description

Refer to Figure 1.

55. This use case allows the learner to export and import all his or her information from one Leap2A compliant system to another, typically from one e-portfolio system to a different e-portfolio system. The learner controls the processes and triggers each major stage.

56. Specific examples include learner transition from one organisation to another, commonly in the UK from school to FE college, from school or college to university, from education to employment and the role of professional bodies while in employment. In addition this use case would cover the learner moving e-portfolio information from one system to another, probably upgraded, system.

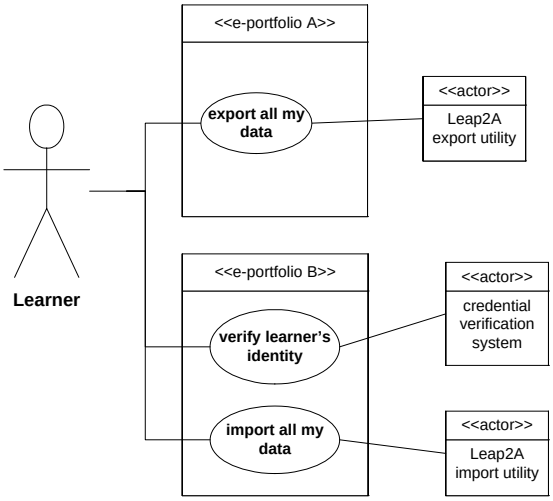

Figure 1: Transfer of complete e-portfolio information: export & import

Narrative

57. This use case assumes that the learner has appropriate permissions to carry out the activities; in particular, it doesn't cover details of setting up a new user of e-portfolio B. A prerequisite is that the learner is logged in to e-portfolio A.

58. The use case starts when the learner initiates the export of the data in e-portfolio A. This action triggers the Leap2A export utility to transform all the learner's data into a Leap2A instance file for storage. At a subsequent time, the learner can connect to e-portfolio B and have his or her identity verified by its credential verification system, typically through a login or other prompt. Then the learner can initiate the import of the Leap2A instance file using e-portfolio B's Leap2A import utility.

Transfer of complete e-portfolio information: Seamless transfer

Description

Refer to figure 2.

59. This use case allows for transfer of all e-portfolio data between two e-portfolio systems without the need to export from one and then import into the other. The learner should be able to move information from the previous system into the new system while logged in to the new system. Note that this scenario can be readily adapted to the other use cases.

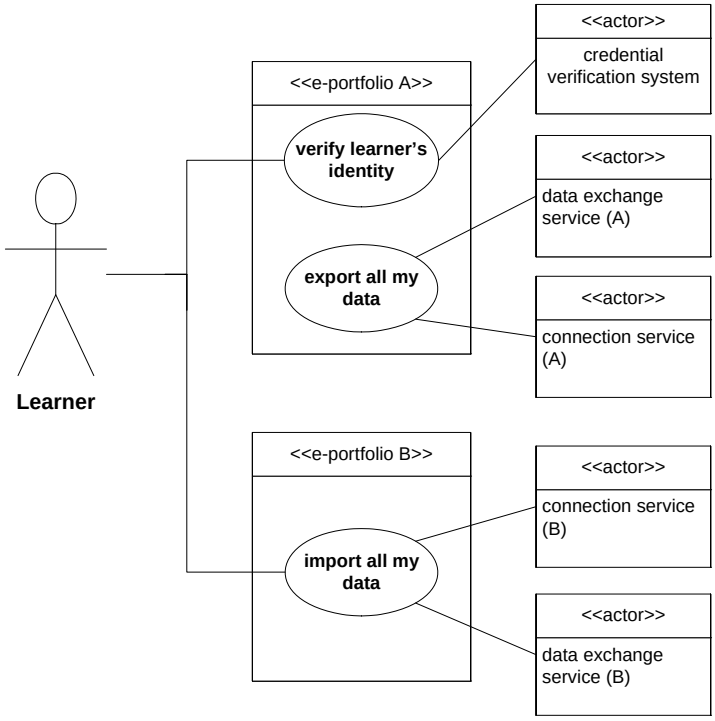

Figure 2: Transfer of complete e-portfolio information: Seamless transfer

Narrative

60. This use case assumes that:

- The learner has appropriate permissions to carry out the activities
- The learner is logged in to the e-portfolio they wish to transfer the data to (e-portfolio B).
- The learner knows the location of their old e-portfolio (e-portfolio A) and their credentials for that system.

- The old e-portfolio (e-portfolio A) is accessible over the internet, for example via a web service.

61. The use case begins when the learner selects the option to import data from e-portfolio A into e-portfolio B. E-portfolio B's data exchange service will request the URI of the location of their existing e-portfolio, which the learner will enter. B's data exchange service will use its local connection service to link to the remote system, which will request credentials. The learner will enter credentials (typically username and password), triggering A's data exchange service to construct and supply the Leap2A format data feed for all of the learner's data. B's data exchange service will receive, reformat and store the data. Finally B's data exchange service will inform the learner that the import has been completed.

Transfer of selected or filtered information – export and import within institutional systems

Description

Refer to Figure 3.

62. This use case allows the learner to select specific information to be moved between systems within the University or College, particularly between an e-portfolio system and a Virtual Learning Environment. The learner controls the processes and triggers each major stage. This use case supports the concept of a learner-centred 'thin e-portfolio' described in the 2006 "E-portfolio for Lifelong Learning Reference Model" Project[19]. With an extension of interoperability and security across institutional boundaries, this use case could be extended to export and import across systems at different institutions.

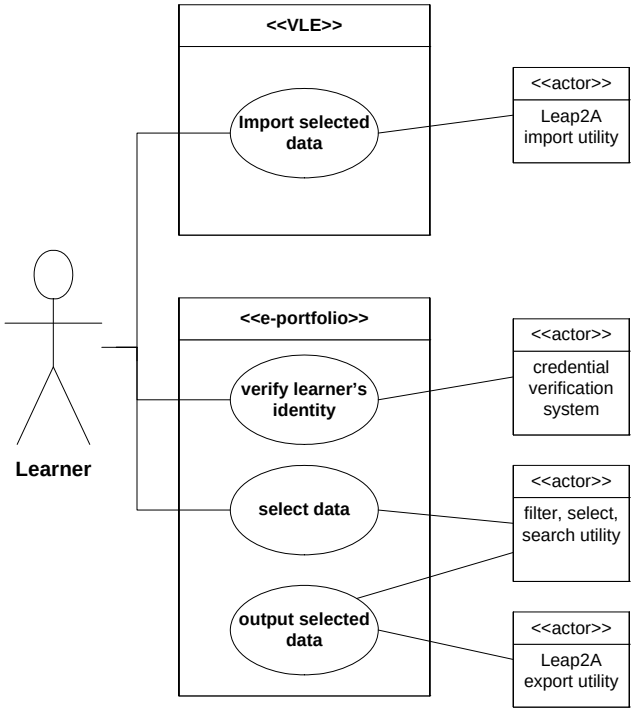

Figure 3: Transfer of selected or filtered information – export and import within institutional systems

[19] http://www.jisc.ac.uk/publications/reports/2006/eportfolioforlifelonglearning.aspx

Narrative

63. This use case assumes that the learner has appropriate permissions to carry out the activities. A prerequisite is that the learner is logged in to the VLE in this case, although the same steps should be applicable from the e-portfolio as well.

64. The use case starts when the learner selects the information they wish to transfer between systems. This could be through a filter, search or selecting individual entries they have created. The learner logs into the VLE, then initiates the request for data from their e-portfolio system to the VLE. This triggers a dialogue with the e-portfolio 'filter, select and search utility' to establish what data is required. The Leap2A export utility then transforms the required data into the Leap2A format, and it is imported into the VLE. The data should be transformed from the Leap2A format to the VLE format once the transfer has taken place. The next time that the learner accesses their VLE, the data should be available in the appropriate format.

Aggregation

Description

65. This use case gathers specific data from multiple e-portfolios and aggregates it into a single portal for access by a third party. All data aggregated in this fashion must be selected for aggregation by the learner and transfer of data triggered by the learner. An example of this scenario is provided by the SAMSON Project, which provided a single interface for employers looking at the progress of employee learners using different e-portfolio packages.

Narrative

66. This use case assumes that the learner has appropriate permissions to carry out the activities. A prerequisite is that the learner is logged in to the e-portfolio.

67. The use case begins when the learner selects data from within their e-portfolio to be sent to the aggregator. Once the appropriate information has been selected, the learner will be given the option to send to the aggregator, which will transform a copy of the selected data into the Leap2A format for transfer.

68. Within the aggregator the data is then transferred into the appropriate format to be viewed by the third party. It should be unequivocally identifiable as belonging to the learner who initiated the transfer of data, which will require common personal identifiers between the systems. The third party can then at some later time view the data.

69. This use case is very similar to the 'Transfer of selected or filtered information' illustrated in Figure 3, so a separate diagram has not been included.

'Wrapped' data transfer scenario

70. This use case is presented as a textually described scenario rather than with an additional use case diagram.

Description

71. In this use case the learner selects e-portfolio items for placing into pre-determined locations in a template or wrapper provided by a third party. This scenario is akin to the provision of XML formatted data for use in the Higher Education Achievement Report (HEAR)[20]; the structure and some of the surrounding textual material for the HEAR is required by European agreements or strongly recommended as good practice, while the data relating to an individual's Higher

[20] http://www.xcri.org/wiki/index.php/HEAR_1.0b_Specification

Education experience and performance comes from HEI data stores. Authority comes from the wrapper, and the data comes from personal data.

Narrative

72. Assumptions:

- All services are available via URIs over the internet.
- The professional body supplies a standardised template that can be read by the e-portfolio system.

73. A professional engineer wishes to provide evidence of CPD activities to a professional engineering body as part of an accreditation process. The professional body's information service supplies a standard template over the internet for completion by the engineer from within his favourite e-portfolio system. The e-portfolio template service renders the template in its interface, so that the engineer can drag-and-drop relevant information and evidence links into the components of the template. When he is satisfied, and optionally after validation from the template service, he confirms the provenance of the selected data, and transmits it, via connection services for each system, to the professional body's information service. The latter service stores the data and renders it for viewing by professional staff, so that the engineers continued accreditation can be approved.

74. There are several alternative branches in this scenario, which may represent halfway houses to full implementation. First the template could be designed and delivered entirely within the e-portfolio system by the professional body itself – particularly if a specific e-portfolio package is recommended or required by the organisation. Second there could be intermediate steps of partial completion, and an ongoing 'seamless' dialogue between the systems, so that the process became a continuous, rather than a once-off one.

Recommendations

75. The recommendations given below are related directly to the use of the Leap2A specification, and not to e-portfolio practice or e-portfolio usage in general. They are driven by the comments of the respondents in this review and influenced by APS' involvement in related interoperability initiatives, including the InteropAbility Project[21], XCRI-CAP development[22], and work with the Centre for International ePortfolio Development[23].

76. As a preamble, it is clear from the interviews with practitioners that a greater volume of usage of e-portfolios by learners from school through FE, HE and into employment would be likely to increase vastly the uptake of the Leap2A specification, because its primary utility is in the movement of data at times of learner transition from one stage of learning to another. General promotion of e-portfolio usage in learning and teaching will tend to increase the uptake of Leap2A data transfer, but this review has not made a specific recommendation on this point, as it does not relate directly to the Leap2A specification; however, it should be borne in mind.

Short term

77. Recognising that the implementation of the Leap2A specification has not been difficult for the organisations contacted, this report RECOMMENDS that JISC continues to engage with relevant

[21] http://www.interopability.org/wiki/InteropAbility_Wiki

[22] http://www.xcri.co.uk

[23] http://www.nottingham.ac.uk/eportfolio/index.sHTML

e-portfolio, VLE and other applicable vendors in HE, FE and schools who have not implemented it yet[24]. This engagement should result in an increase in the exchange of data within the domain that is in JISC's remit and should increase the usefulness of e-portfolios in general and the specification in particular.

78. However, in order to maximise the impact of this engagement, it is RECOMMENDED that it is focused on communities of practice that are using or are likely to use e-portfolios, and situations where e-portfolio data transfer is likely to have a strong business case. The review suggests that these areas might be professional, vocational and experiential communities (for example teaching, the medical and health professions, use in eAPEL, and in relation to student placement), as well as transition from undergraduate to postgraduate (including into research). Some interviewees stated that their implementation and usage was hampered by a weak business case for general use, but that usage might be strong for specific courses or departments, and for transition between organisations that were both using e-portfolios.

79. Linked to the above recommendation, there are some areas where engagement with Leap2A is profound and current practice is developing well. A particular example is the work of the University of Nottingham in relation to data exchange for employer-focused systems (SAMSON). This report RECOMMENDS that JISC continues to support small-scale tightly focused developments that are likely to show immediate impact in the areas mentioned in the previous paragraph. These developments might usefully include linkages to other emerging interoperability data, such as for exchange and re-use of competence information[25].

80. Engagement in the short, medium and long term is aided significantly by the information and guidance available to practitioners and potential practitioners. The current case studies about the usage of Leap2A, and much of the other information available, are primarily project-based developmental reports and do not reflect mainstream implementations. This report RECOMMENDS that JISC considers the production of case studies from PebblePad and Mahara that demonstrate the business case in favour of Leap2A, so that these can be used by potential adopters. These case studies should focus on areas of success that are already acknowledged, including transition, usage within an institution, use with employers, and learners moving data from one system to another. This recommendation is coloured by similar experiences with the development of XCRI-CAP, which suffered in its early years from a lack of accessible material for practitioners to use to persuade others.

Medium term

81. One of the challenges identified in this review is to increase the usability of data exchange with the Leap2A specification, by removing the current necessity for separate export and import. This report RECOMMENDS that JISC considers the best way of encouraging system vendors to provide seamless data exchange services between their products, perhaps based on converging practice in the use of interoperability and discovery technologies (for example future use of RDF). It is recognised that this type of data exchange may require co-ordinated agreement on interoperability approaches across HEIs, FECs and vendors, so that e-portfolio data can be made available through web services, stressing ease of access to the learner community. In an era of

[24] Interview comments specifically mentioned data exchange with other non-compliant systems in HE; in addition schools were recognised as a very useful target, but difficult to reach owing to the large number of diverse services used.

[25] See InteropAbility specification at http://www.interopability.org/wiki/InteropAbility_Wiki, and the work on the MedBiquitous Competency Framework at http://www.medbiq.org/std_specs/specifications/index.html#Competencies

increasing quantities of open and linked data, this recommendation seems timely. The current initiatives around courses information – XCRI-CAP, Key Information Sets (KIS)[26] and HEAR[27] – may suggest some suitable technical approaches, even though a large scale and expensive initiative is not recommended in the current financially constrained circumstances.

82. Other applications of this functionality may be applicable to other electronic records, such as the transferral of digital academic records between institutions and with involvement from Shared Services providers.

Long term

83. As mentioned above, further moves towards formal standardisation would help to legitimise the Leap2A specification and provide it with more authority, thereby encouraging uptake by vendors and other relevant stakeholders. It is therefore RECOMMENDED that JISC considers constructing a standardisation roadmap via an appropriate BSI or CEN route, leaning heavily on the experience of JISC CETIS and mirroring the trajectory of XCRI-CAP from specification to BS 8581.

84. It is tempting to make further recommendations about updating Leap2A and keeping it abreast of future technical developments. There were respondents who believed that e-portfolios, or more broadly 'personal learning spaces', will become as mainstream as Virtual Learning Environments in the next few years, or perhaps even surpass them, and there are significant drivers that point in that direction, including the development of more responsive curricula, employer engagement, the growth of Continuing Professional Development and other short course provision and the graduate employability agenda. However, several of those interviewed expressed scepticism about the long term growth of e-portfolios as a concept, or whether its usage would become mainstream activity for learners at all, rather than an important strand of activity for a relatively small minority. In addition the current financial climate does not suggest that further long term initiatives will be welcomed within this domain. The authors of this report are themselves convinced of the efficacy of this type of tool within the context of lifelong and life-wide learning, and it is possible that the current situation represents a dip on the cycle of adoption of new technologies[28]. However, until there is a stronger business case and greater uptake of e-portfolios, we do not believe that this review supports further long term recommendations.

[26] http://www.hefce.ac.uk/learning/infohe/kis.htm

[27] http://www.hefce.ac.uk/learning/diversity/achieve/

[28] See the Gartner hype cycle: http://en.wikipedia.org/wiki/Hype_cycle.

Appendix: Current Usage of Leap2A

Organisation	Current Use
Newcastle University	Not known
Pebble Learning	User imports and exports available in all PebblePad e-portfolios. Transfer between PebblePad and Moodle possible. Currently working with outcomes of InteropAbility project
University of London Computer Centre	User exports and administrator assisted imports available in all Mahara e-portfolios. Transfer between Mahara and Moodle possible
University of Glasgow	Not currently working with Leap2A outside built-in facilities in e-portfolio provision.
Catalyst IT	User exports and administrator assisted imports available in all Mahara e-portfolios. Transfer between Mahara and Moodle possible
VESA	No longer working with Leap2A
Loughborough College	Not currently working with Leap2A outside built-in facilities in e-portfolio provision.
Connexions Leicestershire	No longer working with Leap2A
Myprogressfile.com	No longer working with Leap2A
Interactive solutions	No longer working with Leap2A
University of Nottingham	Not currently working with Leap2A outside built-in facilities in e-portfolio provision. Currently working with outcomes of InteropAbility project
Synergetics	Not known
PF Global	Not known
MyKnowledgeMap	Not known Currently working with outcomes of InteropAbility project
Nottingham Trent University	Not currently working with Leap2A outside built-in facilities in e-portfolio provision.
Desire2Learn	Leap2A imports available only. Otherwise, not actively using Leap2A facilities
TAG Developments	User imports and exports available. Currently working with outcomes of InteropAbility project
University of Derby	Not currently working with Leap2A outside of their e-portfolio provision.
MedBiquitous	Currently developing an e-portfolio system which will be able to use Leap2A functionality.
AoMRC	Not known
University of the Arts London	Not known

References

Leap2A

Leap2A specification website: http://www.leapspecs.org/2A/

Leap2A: Developing Portfolio Interoperability (JISC e-Learning Focus feature): http://www.elearning.ac.uk/features/feature.2011-05-16.6960676617 (most Leap2A resources, examples and implementations are available from here)

Leap2A Validator: http://www.leapspecs.org/validator/2A/index.php

Leap2A interoperation scenarios: http://www.leapspecs.org/2A/scenarios/interoperation-scenarios

E-portfolios

Effective Practice with e-Portfolios (JISC publication): http://www.jisc.ac.uk/publications/programmerelated/2008/effectivepracticeeportfolios

Thin E-portfolio: http://www.jisc.ac.uk/publications/reports/2006/eportfolioforlifelonglearning.aspx

Other interoperability projects mentioned

Higher Education Achievement Report: http://www.hefce.ac.uk/learning/diversity/achieve/

InteropAbility specification: http://www.interopability.org/wiki/InteropAbility_Wiki

Key Information Sets (KIS): http://www.hefce.ac.uk/learning/infohe/kis.htm

SAMSON Project: http://www.nottingham.ac.uk/eportfolio/samson/index.sHTML

SHED Project: http://uilaplep01.nottingham.ac.uk/mahara/view/view.php?id=1336

XCRI Knowledge Base: http://www.xcri.co.uk