



JISC Final Report

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Lead Institution	University of Nottingham		
Project Director	Dr Angela Smallwood		
Project Manager & contact details	Sandra Winfield/Kirstie Coolin sandra.winfield@nottingham.ac.uk		
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2 Report Summary

2.1 Project Overview

The SAMSON project recognised that students themselves are often the best ambassadors for what universities have to offer to business, especially when engaging with an employer for the first time. The project focused on piloting a low-cost technical infrastructure to support postgraduate students going into companies on placements, and employees entering universities to study for continuing professional development (CPD).

Project partners were the University of Nottingham, Nottingham Trent University and the University of Derby (Benefits Realisation).

SAMSON streamlined procedures and delivered higher quality information and communications between university staff, students and companies (regional, national and international). It drew employers as well as tutors into closer engagement with individuals' research, learning and career development, whether in the university or in the workplace, and promoted dialogue across the divide.

The project's technological innovations reduced costs by developing lightweight applications and integrating existing applications or services for re-use in multiple contexts, rather than building everything new.

The project:

- reduced universities' costs by developing a shared service for both Nottingham universities to target student placements into SMEs, using federated technology
- improved the matching of placement students to companies
- freed up time for tutors to give more feedback to students on research project placements

- enabled employers to provide formative feedback on placement projects, contributing to student learning and increasing the benefits to their company
- achieved 98% take-up of an ePortfolio by students on project placements, without the incentive of assessment
- provided a portal enabling a company manager to view progress data from more than one university, about employees taking CPD courses
- achieved substantial efficiency gains for university administrators, e.g. 75% less time taken to process a placement opportunity from advertisement stage to completion of recruitment

2.2 Project Outputs

The project produced the following outputs (unless otherwise stated, all outputs are at www.nottingham.ac.uk/eportfolio/SAMSON/documents):

Reports

- Baseline Report document surveying existing practice at the UoN and NTU, as well as related practice elsewhere in the sector, identifying the starting points for the project
http://www.nottingham.ac.uk/eportfolio/samson/documents/SAMSONBaselineRpt_KC-Web.doc
- Report on investigation of ontology tools from other projects, including MUSKET and Co-Gent
- Report on NTU project involvement
- Report on outcomes of BR activity at University of Derby

Technical documentation

- Project Open Source mission statement
- SAMSON 'pyramid' view of data visibility
<http://www.nottingham.ac.uk/eportfolio/samson/documents/SAMSON-Pyramid.ppt>
- Technical architecture diagrams showing how elements of the technology fit together
http://www.nottingham.ac.uk/eportfolio/samson/documents/SAMSON%20Architecture0.1TK_for_discussion.ppt
- SAMSON Shibboleth Integration report
<http://www.nottingham.ac.uk/eportfolio/samson/documents/SAMSON%20Shibboleth%20Integration.doc>

Pilots

- Briefing document on SAMSON for Employers
http://www.nottingham.ac.uk/eportfolio/samson/documents/SAMSON_Diagram_for_Employers_Sep09.pdf
- Postgraduate placements portal designed for use with the UoN/NTU ERDF-funded project, *Postgraduate Placements Programme with Local SMEs* <http://www.notts-pg-placements.co.uk/>
- Mahara enhancements <http://www.samson-project.org/mahara/> (login only)
- 'How to' instructions for OPUS administration
- ERDF beneficiary feedback form
- BR University of Derby activity flowchart diagram illustrating the steps followed to achieve co-ordination of internal and external partners preparatory to the use of SAMSON by three parties

- Training materials for core project and Benefits Realisation activity:
 - BR Employer view letter inviting employers to participate
 - BR student PebblePad instructions
 - BR Scott Wilson student PebblePad instructions
 - BR Employer PebblePad instructions
 - Screenshots to support instructions
 - Powerpoint introduction to the pilot
 - Sample forms: before and after
- Commentary on the production of student exemplar WebFolios reflecting work-based project, used for assessment and put on display at the University of Derby.

Dissemination materials

- Project website
- Project flyers:
 - SAMSON flyer
 - Mahara pilot flyer
 - Derby CPD activity flyer
- Presentations (see <http://www.nottingham.ac.uk/eportfolio/samson>)
 - Briefing for ClePD Advisory Board
 - ElfEL ePortfolio conference, June 2009
 - Poster presented at University of Nottingham School of Education Research Conference, July 2010
 - ElfEL ePortfolio conference, July 2010 (presentation and paper)
 - Employer Engagement Assembly, March 2010
 - Festival of Assemblies, Oct 2010
 - EMUA presentation, December 2010
 - University of Derby PebblePad user group, March 2011

Evaluation materials

- Phase 1 evaluation report
- Phase 2 evaluation report
- SurveyMonkey questionnaire for Biosciences pilot participants: students, employers
- Headline findings from Biosciences pilot focus groups

2.3 Impact and Benefits to the Community

SAMSON provided a demonstration of a cost-saving architecture by which universities can use web services to connect existing applications and systems and promote their re-use in multiple contexts, specifically supporting third-party, employer participation in institutional processes.

SAMSON provided technology which

- enhances the professionalism of higher education institutions in management and enhancement of their relationships with employers, around student placements and CPD delivery
- achieves efficiency gains by reducing administrative loads
- enables learners to receive feedback from both tutors and employers, generating richer benefits from work-based learning and episodes of CPD

Detailed evaluation of the project's impact shows that it:

- demonstrated a model for using technology to deliver institution-wide, cross-domain improvements in efficiency, effectiveness and quality of educational and administrative processes that can be used at departmental, institutional, regional or national levels
- demonstrated potentially sustainable technological solutions with impact on key institutional strategies
- combined open standards-based and service-oriented approaches to provide a lightweight method of data exchange
- developed strategies that addressed key areas of ICT concern and aligned ICT with education, research and administrative policies
- enhanced capacity, knowledge and skills within the participating institutions

2.4 Main Lessons Learnt

SAMSON technology supports worthwhile three-way dialogue between university staff, students and employers. However, success depends on careful cross-institutional preparation in the university. Activities of academics, managers and educational technologists need co-ordinating and timing appropriately.

Employers using technology want the simplest of interfaces, presenting only what they need to see – none of the complex work required to achieve this should be visible and requirements-gathering processes need to be robust.

Technology for HE/employer engagement has to extend beyond any single HEI. Where a company's employees are distributed across a range of providers for study and training, the employer's main need is for an overview across the piece. The key lies in facilitating interactions with the full range of organisations which are important to the employer.

Concrete examples, rather than concepts, speak most persuasively to employers. SAMSON started with small-scale targeted technological implementations and engaged the piloting employer in an agile development cycle. Listening to and deploying their enhancement idea gave them ownership.

The vast majority of placement students engaging with employers' expectations will use ePortfolios productively as a learning tool, within a regulated framework. They also value the communications, feedback and presentational functions and the support for professional standards of workplace behaviour and self representation.

3 Main Body of Report

3.1 What did you do? (Methodology)

SAMSON was designed to build on the Centre for International ePortfolio Development's previous JISC work on distributed architectures, web services and thin ePortfolios to support learning and transitions (in particular the eP4LL¹ and JOSEPH² projects), work on interoperability, data transfer and standards (RIPPLL³, XCRI⁴ and Leap2A⁵) and our experience of supporting work-based learners through developing the technology strand of the Derbyshire-Nottinghamshire LLN, LEAP AHEAD⁶. We expected to draw on data security experience gained through the Centre's pilots for the EU FP7

¹ <http://www.nottingham.ac.uk/eportfolio/ep4ll/index.shtml>

² <http://www.nottingham.ac.uk/eportfolio/joseph/index.shtml>

³ <http://www.nottingham.ac.uk/eportfolio/rippll/index.shtml>

⁴ <http://www.nottingham.ac.uk/eportfolio/xcri/index.shtml>

⁵ <http://www.nottingham.ac.uk/eportfolio/leap2a/index.shtml>

⁶ <http://www.nottingham.ac.uk/eportfolio/leapahead/index.shtml>

TAS³ project⁷, coupled with the expertise of Nottingham Trent University (NTU) in working with Shibboleth on federated data access. The project was also planned to complement strongly the existing consortium partnerships between the two Nottingham universities within the field of employer engagement, involving the Ingenuity programme and Graduate Schools (ERDF project), providing technology to underpin initiatives in student employability and regional workforce development.

We aimed to support the overarching aim of JISC's Lifelong Learning and Workforce Development programme, to ensure projects are:

... developing and implementing the use of appropriate technologies and processes to enable HE-level learning services that meet the needs of learners in the workplace, and of their employers.

The JISC Lifelong Learning and Workforce Development programme set out its vision in relation to learning in the workplace⁸, suggesting that 'Educational institutions may not have the processes and technical infrastructures in place to support these priorities and manage the resulting relationships and information flows'. The programme itself, in addressing this, had a set of goals which included the provision of appropriate information and support for employers, particularly work-based mentors, in order to support learners in the workplace better. A primary driver for the SAMSON project was, therefore, the need to facilitate greater coherence across HEI employer engagement activity and enhance HEIs' ability to scale up their engagement with employers, particularly SMEs. The project's intended outcome was to achieve discernable efficiency gains for HEIs and the employers with whom they are working, through better access to high-quality information about work-related learning and opportunities for upskilling and knowledge transfer.

The SAMSON project was conceived because of the culture of employer engagement arrangements in many HEIs. Fragmented local arrangements based on personal relationships tended to predominate, both where research was the focus and where the need was to build understanding with SMEs to encourage take-up of CPD opportunities. While effective and seen as essential, the emphasis on personal treatment revealed weaknesses:

- high-risk dependence on the continuance in post of individual staff members
- limited visibility for the activities, equating to untapped opportunities for the University
- protectiveness over company contacts, inhibiting the sharing of information and efficiency gains across the institution, and restricting potential benefits to businesses
- lack of scalability, although the potential market for significant scaling-up of employer engagement had been established.

The processes which SAMSON sought to integrate were currently supported across both partner HEIs in numerous, separate pockets of activity, mostly with low levels of use of technology.

To address these needs, the project set out to support data-sharing and communications within HEIs and also between universities, employers and learners in SMEs, for relationship-building and workforce development, focused on two-way exchanges: work experience/placement for students and CPD for employees. Student placements were already recognised as one of the most practical ways in which the world of HE is made accessible to SMEs and therefore a key lever in extending the reach of HEIs into the SME community.

The project was focused specifically at postgraduate level and was both cross-institutional and inter-institutional. The development work was informed by, and intended to add value to, the planned expansion of work placements in SMEs for postgraduates in both Nottingham universities, especially

⁷ <http://www.tas3.eu>

⁸ <http://www.jisc.ac.uk/whatwedo/programmes/institutionalinnovation/workforcedev.aspx>

through their partnership in the ERDF funded Postgraduate Placements Programme with Local SMEs which started in March 2009 and aimed to place over 300 Nottingham postgraduates in regional SMEs over a three-year period. We also sought to help to implement the Leitch⁹ and Roberts¹⁰ agendas for the recognition and transfer of higher-level skills, extending institution-wide through the Graduate Schools and including some in-depth work on competency matching between academia and business.

The main business advantages were seen as:

- Enabling HEIs to scale up their engagement with SMEs and achieve appreciable efficiency gains for employers as well as themselves, through enhanced access to better and fuller information, e.g. about (a) work-related learning and (b) opportunities for upskilling and knowledge transfer.
- As at the start of the project CRM systems were perceived by staff at the University of Nottingham as under trial and probably limited in their usefulness, providing more flexible and confidential means of achieving data sharing and specific data integrations with legacy systems by developing lightweight services to extract existing information, allowing staff to retain their current working practices.
- Using dynamic services to present and integrate applications and thereby change the current business models associated with the distribution of learning data in HE and also impacting on the management of learning data in SMEs. Compared to technologies like CRM, the reduced need for on-site infrastructure would reduce costs and provide better value for money.
- The application-specific web services developed and the technology to support integration and security would be transferable across the JISC community.

The aims and objectives in the SAMSON project plan were as follows (changes are indicated in italics):

Main aims

- To support data-sharing and communications between learners/employees, businesses and different departments in HEIs involved in employer engagement
- By developing and implementing a scalable, modular web services infrastructure to support relationship-building between universities and businesses, and learning for students and employees
- To contribute to partnership building and the expansion of HEIs' capacity to support lifelong learning and workforce development.

Objectives

- To develop a modular web services infrastructure to support workplace learning and enable flexible exchanges of data between HEIs and employers
- To focus on a comparison of learning experiences and processes for students and employees moving between HEIs and employers: work placements for postgraduate students and CPD for employees
- To deliver an implementation of a reusable model of portal architecture, a generic, scalable system, enabling sharing of data with services (including services provided by third parties)

⁹ <http://www.official-documents.gov.uk/document/other/0118404792/0118404792.pdf>

¹⁰ http://webarchive.nationalarchives.gov.uk/http://www.hm-treasury.gov.uk/documents/enterprise_and_productivity/research_and_enterprise/ent_res_roberts.cfm

and providing demonstrations of transferability and scalability

What we have provided is a model and evidence of practical implementation.

- To explore the learning from the EU TAS³ project and integrate a framework for more secure services for increased trust in data sharing

This aim was modified slightly: as we were unable to access reusable outputs from TAS³ early enough in the project to implement them in development work, this meant that we also explored alternatives, including Shibboleth. However we were able to draw on lessons learned about security arising from our involvement in TAS³.

- To carry out collaborative work on ontologies in one area (e.g. Engineering), to mediate an accessible language of competences between HE and employers and providing an automated way of integrating data between systems using ontologies in semantic web services

Encouraged by the Programme Manager, rather than develop our own work in this area we decided instead to collaborate with the Co-Gent and MUSKET projects from the LLL-WFD programme to explore how we could reuse their outputs to help us meet this objective.

- To develop portals (including learner ePortfolios) to enable different groups to aggregate information on learning and, iteratively, to provide services underpinning these and accessed through them, to ensure information is interoperable and available to all types of learners within the scope of the project, enhancing progress tracking, feedback, communications and relationship-building between employer, learner and HE-based tutor.

- To integrate institutional records of interactions with employers for CPD offerings and postgraduate work placements between hitherto unconnected data stores; e.g. in the Graduate Schools, the Ingenuity programme and Engineering Schools.

We retained this objective but its role became less important, largely because of shifts in institutional policy after the start of the project and the initiation of separate projects in both Nottingham HEIs to introduce more centralised CRM systems.

SAMSON is a complex project, but the premise behind it is a simple one – the development of an architecture which enables the sharing of data held in different locations and systems. Interaction with integrated services is tailored to specific needs and contexts, creating interoperability between existing systems in order to facilitate the exchange of information between an HEI, work-based learners and the employer. Technical development has focused on ‘lightweight’ applications and on facilitating and integrating existing systems, applications and data as appropriate. SAMSON represents an approach to information management and sharing across institutional boundaries. It is important to note that SAMSON did not set out to recreate or rebuild systems which already existed as functioning entities. Rather, the ethos behind the technical development prioritised re-using working systems and transforming data in real time into open standards, moving via web services.

Developed within the principles of Service Oriented Architecture, SAMSON has drawn on open source tools and solutions, and developed access for the various players (student, employer and institutional staff members) either via a specific portal interface or into the system itself, where they can view targeted and relevant information. SAMSON has modelled how secure web services, together with single sign on and federated technologies, can be deployed to provide benefits for stakeholders external to the institution plus aid development of scalable shared services.

The SAMSON approach centred around end-user requirements, with considerable effort focussed into providing tailored interfaces for different stakeholders. All technical developments have been designed to scale and integrate with other systems within the SOA.

The work of the project took place in two main phases. The first phase of delivery focused on the development of infrastructure and architecture, informed by initial baselining activity. The second phase of the project focused on the piloting of three different approaches to tailored architecture, two as part of the main project and one as part of the Benefits Realisation (BR) activity.

External evaluators with experience of another project in the same JISC programme were appointed to provide two phases of evaluation, one interim and formative and the other summative. The evaluators participated in several project meetings and events, and carried out interviews with a wide range of stakeholders for all three pilot areas and all three institutions involved.

3.1.1 Baselining activity

As preparation for project work, an investigation of existing systems at The University of Nottingham and NTU was carried out by the project team, with a focus on policy and strategic contexts including employer engagement. Internal and external partners' provision and systems for student placement and CPD activities were surveyed, identifying placement activity and technical starting points for both HEIs, as well as the work of other projects. The full report is available at http://www.nottingham.ac.uk/eportfolio/samson/documents/SAMSONBaselineRpt_KC-Web.doc

As a result, some differences of approach between the two Nottingham universities became clear: that of NTU was much more centralised, with pockets of independent activity, which were tolerated but encouraged to adopt the centralised approach, while that at Nottingham was more devolved, though moving towards increased centralisation.

In addition, various tools and systems were explored, focusing on open source products where possible. These included SUGAR CRM, Microsoft Dynamics, the Mahara ePortfolio system and the OPUS placement management system. Selected findings are documented in the Baseline Report.

The initial 'Cloud Diagram' (Figure 1) shows how the ecosystem of services was expected to interact. There are a set of example pathways through data, with a different portal view appropriate for each set of actors. This diagram proved enormously useful: it underwent a number of iterative changes during the course of the project, but remained a valuable tool for explaining the vision and how it could work. As part of the process for briefing other projects in the same programme, this vision was also explained in an introductory video <http://www.nottingham.ac.uk/eportfolio/samson/>.

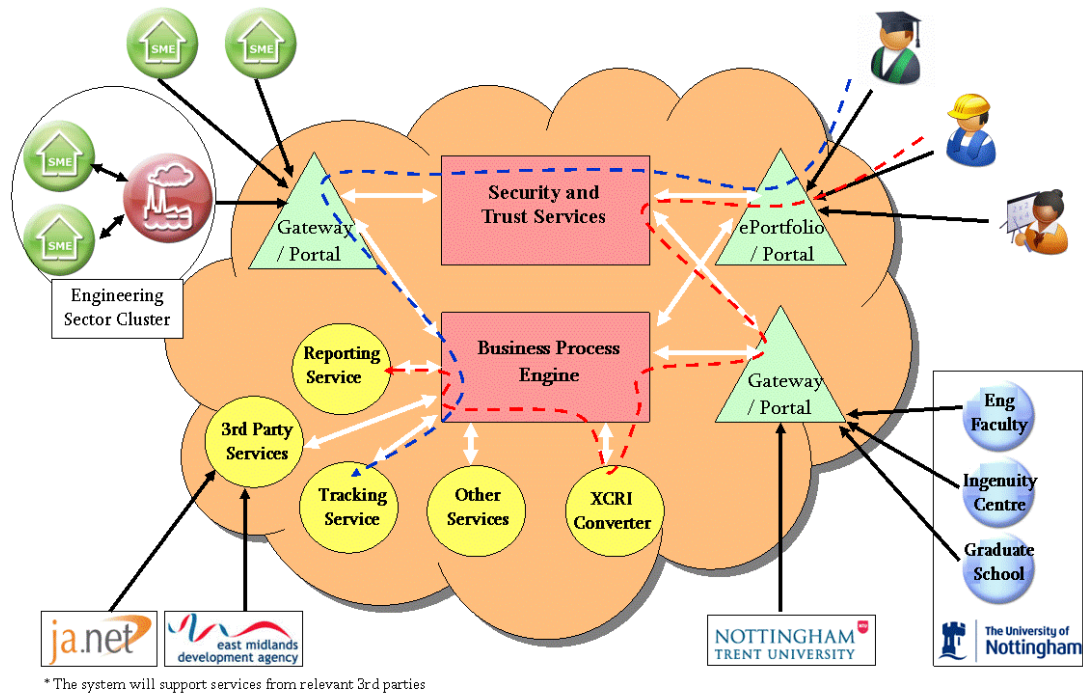


Figure 1: SAMSON 'cloud' diagram

At an early stage, the SAMSON team worked with colleagues in the Ingenuity programme (which was working with employers across three Universities: Nottingham, NTU and Derby) to produce a concise and simple one-page flyer using employer-friendly and jargon-free language outlining the specific benefits from their point of view.

3.1.2 Ontologies

The project team understood the difficulties of bridging gaps between employers and academia regarding the language of skills; how to translate research project ideas in the University into strategic business developments for companies. The initial plan was to develop original work in this area in collaboration with the School of Engineering at the University of Nottingham. However it became clear that two other projects in the same programme were also addressing this issue, using rather different approaches. Guided by the programme manager, the objective became to explore the outputs of the Co-Gen and MUSKET projects and see how these could be used to support SAMSON.

With the MUSKET team the intention was to develop sample ontologies for courses/modules and a second set representing employer view of competences required for specific jobs, which could then use the MUSKET tool to process and match course/module data with competences. This should also encompass some use of XCRI.

3.1.3 Early prototyping

The challenge was to translate the SAMSON ideals and high-level objectives into tangible and useable technical outputs.

Figure 2 illustrates the beginning of the technical analysis, both of systems and services in existence and of open source solutions which had been discovered, downloaded and assessed. The column on the left illustrates the potential processes representing different views within those systems. This was an early provisional document, which, while not representing the blueprint for the SAMSON technical work, remains useful for understanding the development of the project.

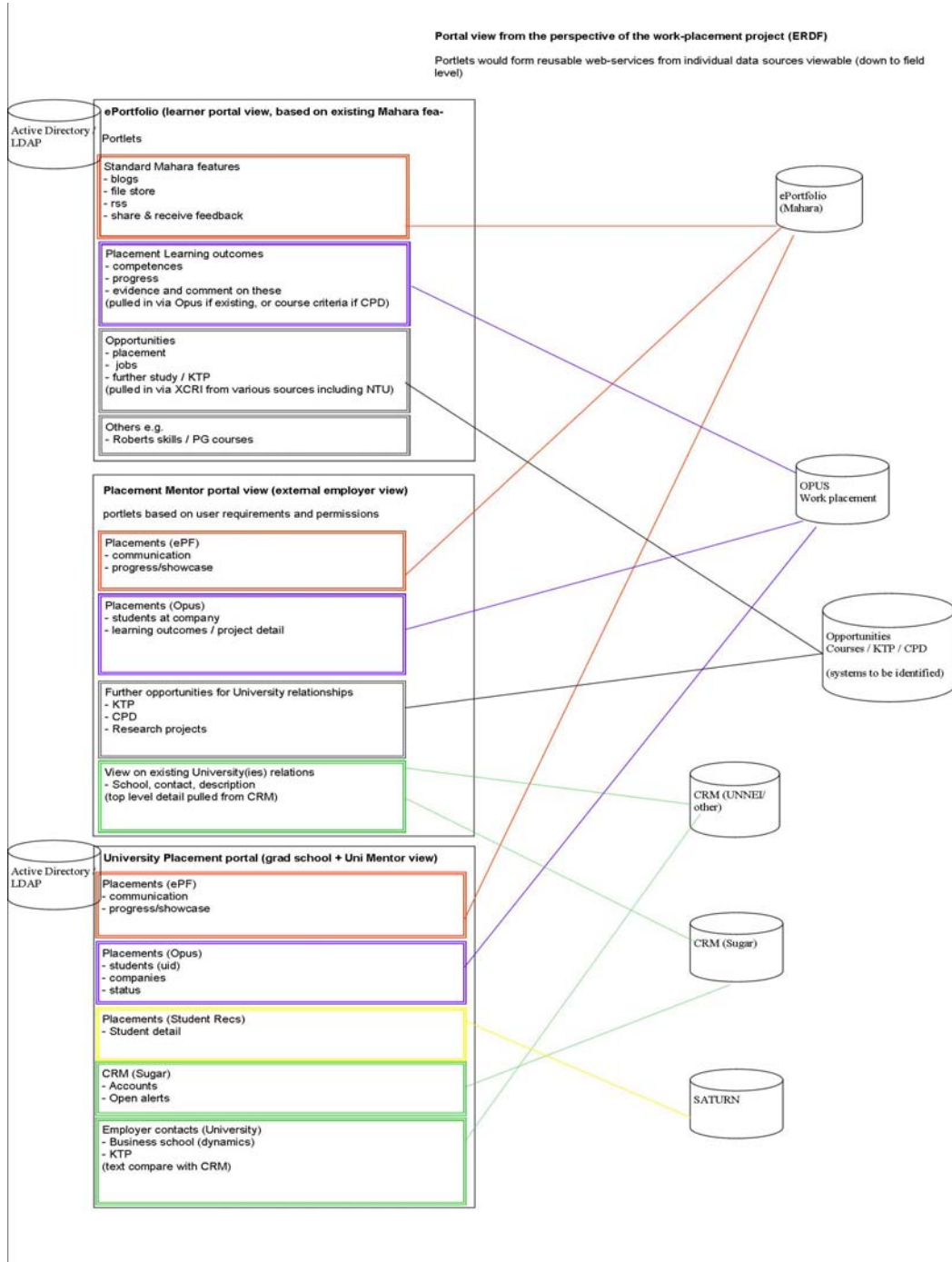


Figure 2: SAMSON portal view

From this, an initial portal view and first web services demonstrator were developed. This allowed validated users to log in and view their own account details within Sugar CRM, Mahara, OPUS and to search and view courses throughout the East Midlands from a live XCRI service (via Your Future East Midlands¹¹):

- Sugar: view outstanding cases/contact search/account search
- Mahara: search user (returns public profile)
- OPUS: show current vacancies/search students/search companies
- XCRI: search by provider/search by course title/search by both provider and course title

The resulting prototype pulls together different ePortfolio data using the Leap2A ePortfolio interoperability standard. (We also considered inclusion of the NTU CV Builder, originally developed by a JISC project, but at this point it required additional functionality to be able to export data in Leap2A format.) The intention was to allow a work-based manager who might, for example, be reviewing progress, to pull together employee data relating to CPD activities with several different institutions using a single common interface that draws information from various disparate systems. The example view showed how data could be pulled from both Mahara and PebblePad ePortfolio systems (Figure 3) – representing the ‘thin ePortfolio’ model specified in the JISC eP4LL project.

The screenshot shows the SAMSON Employer zone interface. At the top right, there is a user profile for 'jo.taylor@employer.com' with links for Home, About, and Log Out. Below this is a navigation bar with buttons for Home, Mahara, SugarCRM, OPUS, XCRI, and User Admin. The main content area is divided into several sections:

- Course Finder:** Includes a 'Course Search' section with a search form (Search By Course Title, Select Institution, Search button), 'Saved Courses', and 'Previous Searches'.
- My Contacts:** Lists 'Dr David Smith', Supervisor, University of Life, david.smith@university.ac.uk.
- Student Zone:** Includes a 'My Students' list with entries for Stuart Wood, John Lennon, Shane Sutherland, and Kirstie Coolin.
- Alerts:** Shows a list of recent alerts, including 'Placement Application APP02 Accepted', 'Placement Application APP02 Reviewed', 'Placement Application APP02 Submit', and 'Supervisor Visit scheduled for 4th November'.

Figure 3: Employer zone

¹¹ <http://www.yourfuture-eastmidlands.co.uk/>

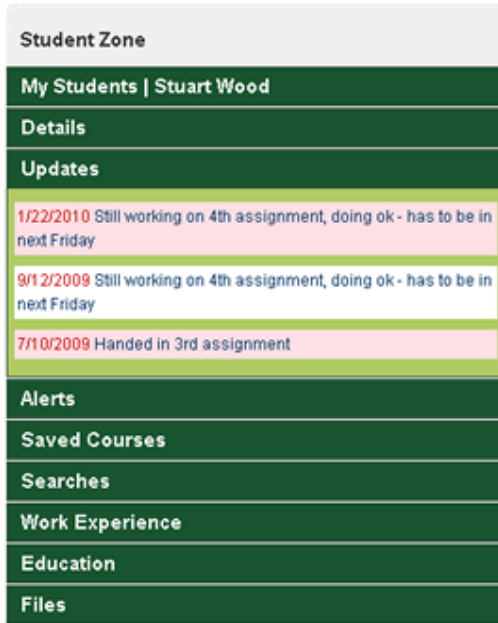


Figure 4: Student details

From this initial prototype, the project developed by following two pathways: one using ePortfolio to support placements within the University of Nottingham and Nottingham Trent University, the other with a corporate partner which initiated an additional ‘Benefits Realisation’ (BR) activity, drawing the University of Derby into the project as a further partner.

3.1.4 Main activities

While all those involved agreed on the overall aims from the outset, the shape of the project took some time to crystallise. We made an early attempt to promote understanding between partners by dividing into ‘mini projects’, which helped to scope early development, although we moved on from this approach once it had served its initial purpose. Numerous conversations took place with employers and academic Schools during this time, to identify the best places to situate the pilot activities.

This first phase incorporated the steps below:

Phase 1

Employer	Academic	Technology	Resources
Establish issues	Establish issues	early prototype	Flyers
		Demos and feedback	
Establish interest	Establish interest		

Activities in the second part of the project were informed by the two main pilot areas identified in phase 1 plus the BR activity.

Phase 2

	Identify pilot group	Tailor for pilot	Training materials
	Agree processes		Mini-project mgmt
Brief employers	Train students	Maintain in production	
Employer instructions	Pilot starts		Evaluation
Feedback	Feedback	enhancements	enhancements

3.1.5 Nottingham Postgraduate Placements Portal

The project *Postgraduate Placements Programme with Local SMEs* had recently started with leadership from the University of Nottingham Graduate School. Sponsored by the European Regional Development Fund (ERDF) this project involved students from both Nottingham universities and had a target to place 397 postgraduates in East Midlands SMEs. However there was no provision for use of technology in the process, and the initial system of communications developed was found to be very time consuming. A more effective system was needed for sorting applications and CVs to speed up and streamline the process and make more effective use of the data: a collaboration between SAMSON and this project was seen to be of mutual benefit, offering a test bed for SAMSON and technological support for the ERDF activity.

This pilot demonstrated how the tailoring and interoperability of existing systems through SAMSON could be used to share information across two institutions and facilitate enhanced communications and administrative processes for the benefit of all users. The Postgraduate Placements portal provided an effective means for students across two institutions to register, view and express interest in advertised placement opportunities with SMEs across the East Midlands and an efficient management tool for the administration of the ERDF project. The final process was not totally automated. Staff filter employer and application information and mediate between employers and students: this helps with logging output for report under ERDF project requirements.

Informed by prior scoping work carried out for the TAS³ project, the SAMSON team suggested use of the OPUS¹² open source placement management system, customised by the University of Ulster. However, as it stood, this lacked the usability and functionality needed to meet the requirements of students and the project's specific purposes. Further customisation was carried out, including development of a new front end to guide students through the requirement to register before applying for placements: this pulls data from the central OPUS installation. This lightweight reskinning of an existing product enabled rapid bespoke development for a particular purpose, building on the central OPUS data structures and functionality where useful. An RSS feed of headline placement opportunities from OPUS was developed and added as a feed to a university student Portal channel for targeted (i.e. postgraduate) students. This approach proved efficient, saving hours of administration, without the high overheads of maintaining a 'one size' centralised system. The site can be seen at <https://notts-pg-placements.co.uk/default.aspx> .

Students can register, search for and apply for placements online. They sign on using their existing institutional credentials and the system uses Shibboleth to check these with the host institution. The portal provides custom views for students; for example, some placements are only open to students at one of the institutions.

Within the administration pages of *Notts-pg-placements*, reports have been created to show current and historical application statistics (so the placement managers can see all details of all students that have applied for all placements). This streamlines their workload and makes all their information available in one place. Administrative reports on all students are also provided – so that managers can group students by different factors (such as type of study) to target mailshots for new placements.

As organisations offering placements were registered on the institutions' CRM system, Dynamics, the possibility of creating a link between the two systems was considered, so that the Portal reported back to Dynamics. There might also have been a possibility of bypassing OPUS and putting data directly into Dynamics, had Information Services given permission for this, but the ERDF team decided they preferred to keep OPUS, as it allowed them greater control over aspects such as field creation and preserved the option of allowing employer access as a further development. By

¹² <http://foss.ulster.ac.uk/projects/opus/>

positioning everything behind the SAMSON front end, the actual data source becomes unimportant. In Dynamics a 'placements entity' should work for any type of placement. Dynamics can handle multiple applications linked to one company's record: the Placements Portal would give details about a specific placement opportunity.

The placement portal was launched in the autumn of 2010 via an event and publicity materials. It became a 'live' system for use by both universities and their students for the start of the 2010/11 academic year. The portal has been successful in providing students with access to vacancies and as a registration mechanism, resulting in approximately 20 applications for each placement advertised.

3.1.6 Shibboleth and shared services

For the Placements Portal to be effective, a mechanism was needed to allow users to access a variety of existing systems and to aggregate data so that people outside the HEI could see it. A set of high-level use cases was defined, demonstrating the architecture's functionality and how employers might use it, supported by a set of diagrams showing how different data could be visible to different audiences.

The Placements Portal front end service, in particular student registration and booking, was identified as an area needing specific identity and access management. The OPUS system behind it was being shared by managers at both NTU and the University of Nottingham; postgraduate students from both HEIs were able to register with the system and express interest in a placement. However, while allowing the OPUS system to be open so that both sets of students can view placement data prior to registering, its further use also needed to be restricted to students from the two Nottingham universities.

The portal was therefore developed to work as follows. Any web user is able to browse the basic content of the placements portal, but in order to see the 'logged in' content comprising registration, full placement details and placement application the user must authenticate with their host institution. The placements system acts as a Shibboleth service provider and directs users to authenticate with either the University of Nottingham or NTU as Shibboleth Identity Providers. All 'logged in' content is locked behind Shibboleth.

Once we had communicated our needs to the relevant contacts at both HEIs, the Shibbolised environment proved the most appropriate mechanism for restricting content based on membership of an organisation plus both Universities already had Shibboleth knowledge and skills within their Information Services departments as a result of previous project work. For the University of Nottingham this was a significant development, as it represented the University's first Service Provider. A technical report on Shibboleth integration is at <http://www.nottingham.ac.uk/eportfolio/samson/documents.shtml>.

As part of the external evaluation of project, a survey was undertaken of all students who registered via the portal. The survey differentiated between students who joined but did not apply for a placement; joined, applied but were not successful in their application; joined, applied and were successful. Students were asked about their experience of using the SAMSON portal. The results are included in the final evaluation report at <http://www.nottingham.ac.uk/eportfolio/samson/documents.shtml> .

3.1.7 University of Nottingham Biosciences pilot

This area of pilot activity focused on two MSc programmes in the School of Biosciences and worked with (predominantly international) students undertaking a two-month industrial placement as part of their programme of study.

As this was the first pilot activity to be established, it was possible to evaluate it in some depth, using both online surveys of staff and students followed by focus groups which considered their experiences of using the system and its impact on project placement learning and supervision .

The Mahara ePortfolio system was chosen in this case, mainly because it is open source therefore can be developed and enhanced. Mahara was set up as a vehicle to share data between the University, students and their employer, with two key plug-ins embedded to meet particular user needs. The first was a professional skills assessment form to measure progress (which every student completed at the start of their placement and again at the end). The second was a change to the users' landing page, which pushed every Mahara 'view' shared with the user to the fore with week-by-week categorisation. Mahara was also set up with a home page and 'group' for the Biosciences Placements to share key documentation. The core focus for this pilot was for students to develop and enhance the direction of their work-based placement project through a weekly update, made available to the Placement Coordinator, academic tutor and employer for feedback. However, Mahara use was extended into Academic/students/employers forums, and for personal purposes by the students.

The pilot was led by the Placements Coordinator in Biosciences, and prior to the pilot, substantial preparation took place.

- Technical enhancements for Mahara / testing
- Development of training materials
- Training session for staff (Involving set up and introduction to Mahara, consultation on SAMSON, and extended use for other reasons)
- Training sessions for students (a two-hour session per cohort to introduce them to the purpose of using Mahara and expectations around this, in particular, relating to company confidentiality issues.
- User support and maintenance

Developing professionalism is a key aim for Biosciences, and for placements in particular, as is respect for the confidentiality required by the companies involved. Mahara was promoted as improving the students' professionalism in their relation with their placement employer.

Within the context of this pilot, presuppositions about the roles and responsibilities within the university and the placement companies were reconsidered. For instance, the general concept of a three-way relationship of student/institution/employer did not translate so simply on further investigation. There is a variety of relevant roles within both HEIs and companies, presenting, different requirements for viewing and using data. The concept of 'employer' as a homogenous entity was replaced with a more segmented approach, recognising a range of employer roles and functions. This appreciation of the need to cater for different users resulted in an implementation of Mahara set up purposefully, through careful roll-out and a shared message to ensure that placement supervisors, tutors/academic supervisors, students and workplace mentors/supervisors had access only to the specific information they required. Employers were invited into Mahara and had access to key documents and guidance, weekly reports and targeted communication between placement students and their supervisors.

Employer involvement

Employers were asked to sign the University Information Services Code of Conduct to be allowed access to Mahara. (As student project data carried an element of commercial confidentiality, project team members with technical administrator access to the Mahara implementation also had to sign confidentiality agreements.) As the project closes, company staff log directly into the Mahara system. However, building on the experience of the University of Derby BR pilot [see below], further development of the provision should allow the employer to view shared ePortfolio-data through a

single company interface (as referenced in the BR activity) using Leap2A. This approach would mean that employers who have placement students from different academic departments or institutions, using different ePortfolio systems, could view student information from a single portal. It would also allow University departments flexibility to use other ePortfolios besides Mahara.

Views of employers were collected by telephone interviews which centred on their experience to date and also additional needs which they could see the technology might be developed further to meet. Employers were positive about the usefulness of the Mahara system to facilitate interactions with students' projects and with University staff. The main benefits of the system were identified as follows:

- To manage /control information -- keeping all their contact details in one place and keeping track of the work that was being undertaken
- Supervising students' work-- engaging with students work and influencing direction through weekly update reports
- As a communication tool – communication without having to deal with multiple emails and loads of paperwork

One large employer with multiple students on placement commented that, being able to view students' weekly project updates and the progress being made, he could, for the first time, provide guidance and input to steer the work in the most productive direction from the company's point of view.

Similarly, academic supervisors reported that they were able to communicate effectively and efficiently with the students, providing feedback and input, without having to deal with lots of email exchange, as the students were working at a distance from the University, with few or no instances of face-to-face contact, depending on the location of the company (some placements were outside the UK).

3.1.8 Benefits Realisation activity with the University of Derby

As a result of securing Benefits Realisation (BR) funding the project team extended the SAMSON concepts to a further institution, the University of Derby. Contact with Derby came through early project consultations with Scott Wilson Engineering, who regularly place employees across a range of institutions nationally for CPD, including a significant number at the University of Derby.

What engaged the employer in this pilot was the prospect of clear benefit for the supervision of employees' learning and development, being able to monitor their needs and progress while involved in part-time study, in a light touch manner, and to ensure that the content and direction of their studies were appropriate to the company's requirements.

Scott Wilson HR staff (Learning and Development) were involved in specifying the design of the interface. In addition to emphasising the importance of providing essential summary data only, in a simple presentation, for use by managers, they wanted an interface capable of pulling in student data not just from the University of Derby but from other institutions too. As the University of Derby was rolling out PebblePad as its institutional ePortfolio, the project needed to work with Pebble Learning (the company producing PebblePad) to trial extracting data securely and using open standards. The University of Nottingham ClePD and Pebble Learning have previously worked together to develop (alongside other partners) the ePortfolio interoperability Leap2A standard. The two submitted a bid to JISC at this time to the PIOP3 call to develop further interoperability within PebblePad to release small bits of Leap2A ePortfolio data on demand using the OAuth technology for single sign on. The SAMSON portal was modified, and used to pull through shared student data from PebblePad for the employers to view.

The BR project team agreed to pilot a process whereby students would complete weekly updates to communicate with their employer. A scaffolded proforma was produced to glean information from the student about progress, relevance, work/life balance and support required. The primary aim being to ascertain how students were generally progressing and whether there were 'pinch points' that employer or university should be aware of. For instance, impending assignments and deadline dates, work pressures, module information and confirmation of assignments submitted to ensure a satisfactory standard. The intention from the employer was to support and help the student in their studies, and was not a monitoring or tracking role.

The full BR pilot was delayed due to some early issues assembling an appropriate project team and inducting a student cohort. However, excellent team engagement was achieved eventually through more detailed preparation and guidance, resulting in a positive outcome for the pilot. Most importantly, senior management strategic leadership drew in commitment from the academics and learning technologists, supported a detailed and formalised project plan and targeted delivery.

As a result the following was implemented:

- A template for the submission of weekly update reports was devised by staff at the University of Derby and this was used by all students to provide their progress reports which were shared with both tutors and employers
- SAMSON was introduced as part of a PDP module and the whole cohort participated, this being part of the assessment requirement of the module
- Staff from the University of Nottingham ClePD delivered the training on the SAMSON portal to students, alongside University of Derby academics and learning technologists

The pilot was undertaken with 27 part time work based students over two year groups. Students were studying for a Foundation Degree in Civil Engineering and were based at 10 different employers. There was a marked difference in commitment and enthusiasm between the year 1 and year 2 cohorts. The new students were keen to engage and bought into the concept more readily.

Employer involvement

Employers were approached via a personalised letter inviting them to participate in using the SAMSON portal and outlining the benefits for the student's supervisor and for the company itself. Scott Wilson staff had argued, for instance, that Interim progress reviews would be very helpful to managers – they would help improve the match of student to work-based project, to ensure choices of projects were optimised for mutual benefit. The letter was accompanied by straightforward instructions on how to access the portal but the level of employer response was disappointing. Subsequent to the completion of the PDP module, student champions were chosen and the team focussed on getting three-way communications working completely in just a few cases, to act as exemplars for future use. This worked extremely well. With the support of the course tutor, two students on a construction materials module, from two different companies, developed a Webfolio as their main assessment for their project on the module, in addition to completing the weekly reports and receiving feedback from both tutors and workplace managers.

Understanding and documenting the cross-institutional process of preparing and implementing the pilot emerged as a significant achievement of the BR strand of the project. The course tutor developed an Activity Flow Chart (Figure 5) setting out areas of responsibility across stakeholders: (technologists; students; tutors; employers) and mapping the sequence of steps involved in drawing student, tutor and employer into three-way communications, supported by administrative and technical staff.

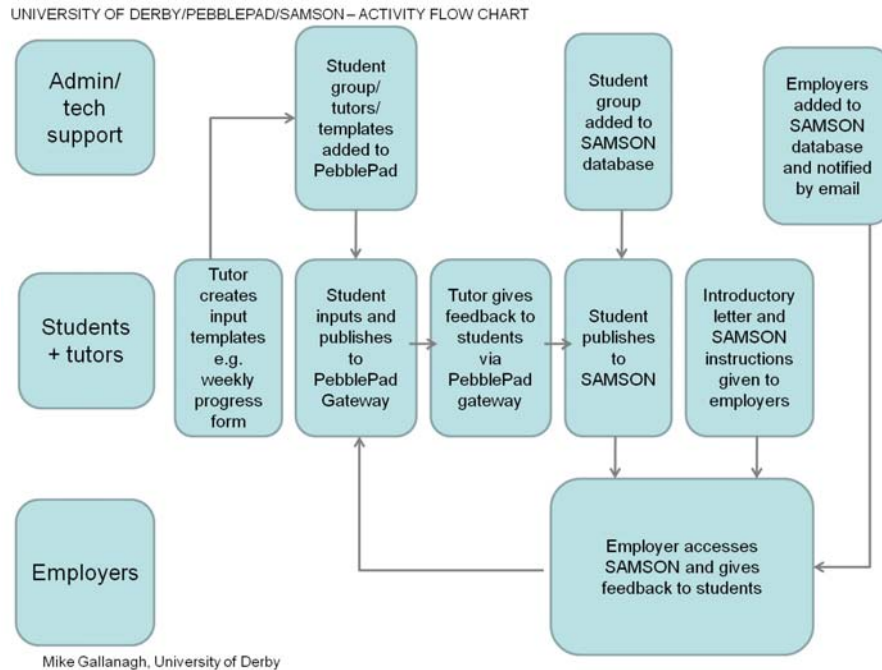


Figure 5: University of Derby activity flowchart

The Scott Wilson regional HR manager discussed the project with his colleagues on the national group within the company and reported significant interest; he was keen to share the development with other regional HR units and further HEIs with which they had partnerships. Unfortunately, the takeover of Scott Wilson at the end of 2010 meant that this early prospect did not come to fruition.

3.2 What did you learn?

Overall findings

As a result of the development work and the pilot activities that have taken place, clear, demonstrable applications for SAMSON have emerged.

- SAMSON has successfully highlighted that it is possible to construct an architecture which will support existing applications and systems and their use in multiple contexts, deriving benefit from each.
- Significantly, pilot activity has achieved the sharing of data not only across institutions but also, externally, with employers and has demonstrated that the exchange of information between employer, student and tutor is not only possible but beneficial to all stakeholders.
- The different nature of each pilot activity has demonstrated the transferability of the SAMSON approach
- The project showed that establishment of a baseline minimum set of small but regular processes, supported by templates, gives a framework within which expectations are clear, while allowing those who are so inclined freedom to explore additional functionality.

It is well documented that employers are not an easy stakeholder group to interact with. Indeed this has been the experience of the pilot activity that has taken place through SAMSON.

- As was demonstrated through the BR activity at the University of Derby, it is important to highlight how it is relevant to employers and why their input and engagement is valuable in

order to engage them. The business case for employers lies in the benefits identified through the work done with employers as part of the BR activity, at the initial development stage and in the feedback received from an employer participating in the pilot activity, namely: ensuring the student's work is on track; understanding the course; viewing progress made; and providing input where appropriate. In gaining greater engagement in the future, attention could be given to the way in which employer buy-in is sought and developed. It is possible that this requires a combination of more than one approach, for example not just sending a letter as was done in the BR activity.

- The communication of the SAMSON concept has been helped by the development of leaflets targeting different stakeholder groups, including employers; this could be developed further to demonstrate its practical application and benefit.
- In order to engage employers it is important to ensure that the system is simple and access to the technology is easy. A 'one stop shop' approach to what is presented to employers can also aid engagement. There have been technical problems identified by all the employers that were interviewed: and this could have an adverse effect on their willingness to engage.
- However, when engaged, feedback from employers has generally been positive and benefits have been identified.
- In an economic climate where employers are less likely to dedicate resources to the type of postgraduate research project activity which the SAMSON pilots addressed, the SAMSON approach potentially represents an excellent marketing strategy for a time saving tool in supporting and getting the most from work-based learners.

Overall emerging lessons

JISC BCE activities have suggested that there are issues with seeing employer engagement as between 'employer' and 'HEI' as single discrete entities. Through SAMSON activities, we have begun to unpick these terms, learning about the multiple roles behind them. With 'employers' we interfaced with various roles: HR manager, appraisal manager, and line manager. We also began to understand the multiple interfaces in action on the institution's side of the relationship: not just tutors, but key intermediaries in the form of placement programme managers. As a result, we had to modify the concept illustrated in our original cloud diagram (Figure 1) to represent the involvement of many more stakeholders and to understand their requirements.

Employers and potential partners with HEIs need to see something concrete demonstrated before they can grasp the potential of the project and commit to engage with it. So there is a great value in starting with discrete technological implementations and building on these following feedback (get something small working first).

In practice, employers' activities with the HE sector for workforce development are not bi-lateral, so there is little attraction to an employer in the idea of IT facilitating better communications with just one institution. Employees may engage in study and training across a range of providers, such that the employer's main need becomes for an overview across the piece. Thus employer engagement in a BCE project may sometimes depend on the team's being able to facilitate interactions with a range of organisations meaningful to the employer.

Employer engagement activities and discussions with the Ingenuity team have underlined the vital importance of simplicity when working with employers. If an interface appears complicated or onerous, they will not have the time or the inclination to engage with it. There is also a view of the danger of HEIs developing work in areas that seem interesting to them, without reference to robust requirements gathering with employers. Without a firm supporting business case, in the current

economic climate few employers can justify engagement with what can be seen as experimental technology.

3.2.1 Findings and lessons from the Postgraduate Placement Portal development

The development of SAMSON to provide the graduate placement portal has been an effective demonstration of how two institutions can work collaboratively through a shared system in a secure environment. The development of OPUS, together with a secure Shibboleth environment through which the two participating institutions have been able to share data and processes securely, has been successful: statistical evidence shows high levels of student use.

The target for the project was to place 397 post graduate students by March 2012. This was a challenging target for a collaborative project with a discrete project team. As a result of the involvement with SAMSON, the reduction in time spent on administrative processes has been significantly reduced, the Project Manager reporting that time spent has been cut by 75% in respect of the recruitment process alone. This has been achieved by tailoring the functionality of OPUS to aggregate and sort data effectively, resulting in more streamlined processes.

Statistics demonstrate substantial use. For the four-month period beginning mid October 2010:

- Over 700 postgraduates registered: UoN (426) and NTU (276)
- 188 applications for only 25 placements
- 4457 visits (2889 unique)
- 22,265 page views
- Average 5 pages viewed per visit
- Average 4:38 minutes spent on the site per visit.

As the portal rarely advertises more than five placements at any one time this represents significant activity.

Specifically, feedback from the Project Manager indicates that the portal has enhanced:

- Collaborative working across institutions
- Administering a large-scale, multi-stakeholder project
- Organising data for multiple sources
- Providing a secure environment for specific groups of individuals to access information which is relevant and appropriate to them

The Placement Project Manager has reported that the success of the portal in reducing the amount of time spent on administration has allowed more time to be spent on other aspects of the project, not least liaising with and engaging employers. This has particularly been the case in respect of engaging employers to view and give feedback on draft advertisements for their vacancies through the portal, saving on paperwork and speeding up delivery.

3.2.2 Findings and lessons from the Biosciences pilot

Evaluation interviews established that the system was used for significant communications between staff and students and employers and students, and brought benefits to each in different ways. For students, it maintained a link with the university that was 'closer than email'; for staff it enabled them to manage multiple placement students far more efficiently; for employers it provided a means to supervise the placement and keep the piece of work on track.

Students reported using Mahara to support reflection by providing an easily reviewed record of their placement through the weekly reports and other documentation, that this helped them to plan their projects, and it supported them in writing their dissertations.

The second iteration of the pilot involved 60 Biosciences students whose placement began in May 2011. Points of learning from the first cohort's feedback were implemented for this second cohort:

- Introduction to SAMSON at an earlier stage – training on SAMSON for the new cohort was delivered three months in advance of their placement
- Demonstration of how SAMSON could be used to enhance communication with other students for peer support or sharing of information: for example, how groups could be set up based on a particular area of interest or activity
- Use of SAMSON now represents 10% of the module assessment, so that, at students' request, the contribution to learning made by weekly engagement with the system is reflected in the module mark
- Placement interviews are also now being set up through the system.

The Biosciences pilots have highlighted the potential impacts of such systems. In particular:

- SAMSON provides an example of a scalable web based service engaging academics, students and employers. The staff users have been keen to support continuation work through involvement in a new project with further cohorts of work-based students. Both staff and students recommended that the pilot activity should be mainstreamed.
- It has had positive impacts on learning in a work-based context
- It has successfully engaged employers.

Biosciences have extended the use of SAMSON and begun to use it for communication between employer and university to support a KTP arrangement. This represents a successful validation of our view that the placements were just a small sample of the wider spectrum of possible university/company interactions, and that the technology was potentially widely transferable and extendable.

3.2.3 BR Activity

Findings

There is a clear need for this technology in different contexts across the HE sector. Work with the University of Derby has identified major drivers for the institution and for staff buy-in:

- The need to monitor work-based students in order to identify those at risk of 'drop out'. This is a key business case driver¹³ for institutions, as non completion will result in a financial penalty to the institution.
- The need to monitor attendance and enhance tutorial support for work-based students. The reporting mechanism provided an embryonic means to do this.
- Full-time students who are taught alongside part-time work-based learners have to have a placement organised to provide the work-based project element of their study as part of a professional practice diploma; thus the OPUS development element of SAMSON is needed at Derby for full-time students alongside the use of the ePortfolio for staff-student-employer reporting and communications for part-time students.

¹³ Business case research HEA

The keys to the effectiveness of the weekly reporting template for work-based students were its straightforward structure, quickness and ease of completion, and accessibility.

For employers, the benefits of the technology were:

- The ability to see how their staff were developing, supporting the investment the company is making in the employee. The weekly report process was identified as valuable here, providing a view of progress to relevant company staff
- A better mechanism for matching students to work-based project activity to support both the student and the requirements of the company
- Providing a means to capture information which could contribute to the achievement of professional status.

Early indications from employers contacted by the Evaluator are that:

- there are potentially significant benefits to be gained by enabling employers to input to their employees' professional development through SAMSON.
- there have been some issues with the implementation of the employers' technical process for the pilot, and employers suggest more, simpler guidance and a more refined interface for the future
- it is possible for the SAMSON approach to incorporate a proprietary ePortfolio such as PebblePad and to be beneficial at individual stakeholder, departmental and institutional level, offering the potential to facilitate employer engagement that has largely not been possible previously.
- the BR pilot has demonstrated the potential of SAMSON to enhance the learner experience and provide efficiency savings.

For HE-employer engagement partnership-building:

- the turning point in the successful delivery of this pilot was the reconstitution of the team to include a senior manager, enthusiastic, experienced academic staff who were actively involved in teaching the key modules and also in liaising with employers, and educational technology staff – all brought into interaction in a monthly management meeting.
- Although project initiation owed a lot to the mediation of the HR manager at Scott Wilson, it became clear in the course of the project that the direct contact – 'Engineer to Engineer' – which eventually took place between tutors and line managers (because of the company takeover and removal of the HR department) was the key to successful partnership-building

3.3 Impact

The external evaluation of the SAMSON pilot activities has identified significant impact on different groups of stakeholders and in different contexts.

3.3.1 Biosciences

As a result of the SAMSON Biosciences pilot, there have been major changes to placement administration within the School, leading to a significant saving in administration time, freeing the Placement Co-ordinator to focus on productive further engagement with students and employers. Prior to SAMSON, communication with students took place using email only: this made it difficult for the Placement Coordinator to keep track of every student's whereabouts and progress whilst out on placement (there are around 80-100 students in a placement cohort). Furthermore, the Masters course placement is very much about developing professionalism: evaluation activities suggested

that use of Mahara improved the professional relationship between the student and their placement employer, and enhanced learning in relation to the student's own professional development. Mahara was seen by both staff and students as an environment that mirrored reporting processes within the industry sectors involved.

Surveys undertaken with staff and students revealed the following:

- Students on placement in companies felt Mahara kept them in touch with the university; they valued the levels of feedback which in turn made them feel more motivated and that they were continuously improving. It helped them to plan their projects and kept them more organised, and was particularly helpful to them when writing up dissertations.
- Staff felt it was an essential tool that helped them keep in close touch with students and saved them administration time, which they could then spend on other activities, such as providing feedback to the students.
- Employers felt it improved communications with both students and the university.
- Both students and staff believed using the system contributed to the professional development and self presentation of the student.

There has also been impact on the future direction of the Masters Work Placement: the School of Biosciences is running a second cohort of students through the system and extending use of Mahara to include creating a 'Placement Portfolio' over a longer period of time, so that participants are able to get used to the system ahead of the placement and use it to support planning. Furthermore, consultation with staff has led to active consideration of how use of Mahara could be developed further – e.g. for references or blogs to attract the next cohort of students (marketing).

SAMSON had an impact both on staff and on learning. Staff felt that it provided efficiency gains by reducing the administrative burden of manually searching through emails for project reports and other paperwork. In all cases these gains were transformed into enhancement activities, with staff able to provide the quality of support to students that they aspired to and employers highlighting that it facilitated the efficient use of time. This included a better level of feedback to the students, and the ability to monitor student performance remotely and take timely action if necessary.

Students spoke positively about the level of feedback they received via Mahara and reported that this was valuable to their learning. Moreover, staff reported a decrease in the number of students dropping out during the placement period, and suggested this was because Mahara meant they were able to monitor them better.

3.3.2 Postgraduate Placements Portal

SAMSON has provided a positive impact on the successful collaboration and delivery of the ERDF Postgraduate Placements project in the Graduate School, in terms of administration and organisation of the data and processes, as well as improving the visibility of placement opportunities to students at both Nottingham universities.

The ERDF project manager has reported that the implementation of SAMSON made the project's ambitious placement target achievable. The sum of the tasks involved in placing a student originally amounted to two days of staff time; relying on the original resources, the project's timeline would have been too short, at that rate, to achieve placements for all the proposed 300+ students. After the SAMSON portal was introduced, this rate went down from two days to half a day per student placement and progress has been excellent.

There is substantial use of the portal by students, as the ERDF co-ordinator comments:

‘We’ve got a good rhythm going and the interest from other parties means there’s always something for the PGs to look at. It’s made the data so much more manageable so I can turn apps round to the company really quickly and keep the momentum. Only one of the placements hasn’t recruited so far and that was down to the company finding a new route to fund their project 100%, so that’s brilliant!’

SAMSON has had an impact on employer perceptions, providing a clear process for them to grasp. Initial use of the system by employers has enabled them to understand the process for student application and resulted in the provision of better, more effective information for placement advertisements.

Furthermore, the portal demonstrates to employers and students the level of professionalism that placements encompass: both the professional approach of the universities, promoting them as partners for business, and the professionalism required by students entering a work placement in a ‘real life’ work environment.

Institutional impact within the University of Nottingham

The Placements Portal is beginning to be used by other ERDF placement projects, within Active Communities and Engineering, demonstrating project transfer and take-up within the wider University. Furthermore, the Graduate School is developing an extension proposal to their original ERDF project which will include further development of the Placements Portal, including engaging companies in uploading their own placement opportunities data.

The project is having an ongoing influence on institutional fora and working groups within the University of Nottingham, introducing new ideas and practices. SAMSON has enabled the project team to introduce concepts of joined-up technology to support and enhance placements and CPD to groups which had hitherto not considered technology at all, including the University’s recently-formed Placements Forum which has a remit to share good practice across the institution. Learning from SAMSON has directly influenced an Information Services review of the University’s e-progress file service, commissioned from the ClePD and introducing service-based and modular elements plus selective use of ePortfolios to support personal tutoring.

Institutional impact at Nottingham Trent University

NTU management found that the project enabled new partnership working across the institution: previously, it was unusual for such diverse areas in the institution to collaborate in this way. SAMSON therefore acted as a catalyst for further co-ordinating activities to be organised.

Involvement in SAMSON helped to raise awareness within the institution about ePortfolio use, and engage with the ePortfolio elements of the Desire2Learn system in use at NTU. SAMSON enabled capacity building in the learning technology departments at the University, which was further developed by their Leap2A project, designed to meet ePortfolio interoperability needs identified through SAMSON.

SAMSON has had an impact on partnership working between the two Nottingham partner universities. Prior to the development of the Placements Portal, ERDF project communication and administration between the two universities was via spreadsheets, email and a shared folder. SAMSON has demonstrated how including provision for shared and accessible technology into these sorts of projects can vastly improve outputs and maximise the delivery where multiple stakeholders are involved. The use of federated technology in particular was significant, as the Placements Portal was connected to institutional identity management systems, yet was flexible enough to allow data to be shared securely and seamlessly. SAMSON developed a successful and targeted Shared Service between the two universities which has the potential to be released more widely.

3.3.3 Derby Benefits Realisation pilot

Project BR activity has also had institutional impact. Learning Technology staff at Derby reported that the SAMSON pilot and, in particular, sessions delivered to students by Centre staff, have been extremely helpful in gaining insight into how to set up ePortfolio activity, engage users and support an ePortfolio implementation within their University. PebblePad use was still at an early stage when SAMSON started, and drawing in external expertise has had a major influence on their subsequent roll-out. The Centre was asked to present to the University of Derby's PebblePad User Group. Using an ePortfolio in an employability and work-based setting was new for the University, so SAMSON enabled the cross-fertilisation of ideas across Nottingham and Derby. Through the project, the BR project team recognised how ePortfolio can also be used to help the university satisfy its strategic objectives in light of the tightening up of new rules of attendance and course engagement by supporting students and receiving early warning of issues which may prevent students from achieving or completing.

3.3.4 General impact

Academic Staff

Pilot activities in all three areas have demonstrated

- Process efficiency savings, up to 75% on administrative tasks
- Enhanced quality of learning and teaching practice, more frequent and more detailed feedback, interaction and support for placement students, with impact on retention and progression.
- Development of assessment practice in a work-based learning context.

Enhanced learner experience

All three pilot activities have demonstrated the potential of SAMSON in supporting students in different contexts. Students found benefit in using the system to:

- Enhance their communication with their tutors
- Support their reflective learning which in turn aided them in project planning and dissertation writing
- Improve the quality and professionalism of their work.

Benefit to the JISC community /HE Sector

The benefits and impact outlined above contribute to the overall aims and objectives of the LLL-WFD programme by providing:

- Improvements to the efficiency, effectiveness and quality of educational and administrative processes within the institutions which have participated
- The demonstration of potentially sustainable technological solutions which are aligned with and provide positive impact in respect of key relevant institutional strategies
- The combining of open standards based and service oriented approaches of the e-Framework for Education and Research
- The development of effective institutional strategies that address key areas of ICT concern and align ICT with education, research and administrative policies
- The enhancement of capacity, knowledge and skills within the participating institution

- A demonstration to the HE sector of a practical IT solution and application and a model for using technology to deliver institution-wide, cross-domain improvements in effectiveness and efficiency that can be used at departmental, institutional, regional or national levels.

SAMSON has also created a driver for two Leap2A projects, one at NTU and the other at Nottingham, working with the Desire2Learn and PebblePad ePortfolio systems. The outcomes of these projects have not only enabled functionality used within SAMSON, but have also extended the use of Leap2A into new areas of practical application, which are now available for use in other contexts, and helped to raise awareness about the emerging standard within the institutions involved. The Leap2A developments to enable the SAMSON portal to operate with PebblePad remain with PebblePad and form another piece of functionality, potentially available for other PebblePad HE customers.

3.4 Conclusions and Recommendations

SAMSON showed that it is possible to develop lightweight applications and services, and to integrate existing applications and services, in ways that meet specific needs initially and can be extended to other contexts and settings.

The project's activities and discussions have underlined the vital importance of simplicity for employers, who are looking for ease of use and streamlining. If an interface appears complicated or onerous, they will neither have the time nor the inclination to engage with it. There is also a danger in employers seeing HEIs developing work in areas that seem interesting to them, without reference to robust requirements gathering. Without a firm supporting business case, in the current economic climate few employers can justify engagement with what might be seen as experimental technology and processes.

For any technology to be successfully embedded in a process, it is crucial to gain support of key individuals in influential positions. In addition to senior staff buy-in, it is also crucial to gain the hearts and minds of those running the process, and for technology operating at an interface between sectors, such as HEIs and companies, to harness the immediate needs and enthusiasm of the people in intermediary and gate-keeping roles, such as the placements manager in the Biosciences pilot.

The project has made the following recommendations:

- There is the potential for the employer portal developed with Scott Wilson in the Nottingham/Derby region to be transferred and scaled up, so that a manager would be able to monitor with ease and communicate in the same way with employees sponsored to study at any number of HEIs nationally, beyond those involved so far in the pilot activity. Other institutions would need to engage with SAMSON as partners but the ability to offer this comprehensive facility to companies would be the key to wider take-up.
- For disciplines where placements can contribute towards professional status, it would be constructive to combine the achievements of two projects in the programme, SAMSON and MUSKET, to encompass professional competencies and map both course outcomes and personal development achievements against these in an ePortfolio-based communications environment.
- Further dissemination activities should be used to bring the findings of the SAMSON work at the University of Derby to the attention of more institutions. There are clear strategic drivers for institutions to adopt the SAMSON approach to help meet challenges around retention and value for money, where institutions need to expand their recruitment of company-sponsored, part-time students in the new culture of increasing fees and economic downturn.

- The boundaries of the SAMSON project should be pushed wider into other parts of the spectrum of university-business interactions, for relationship-building and facilitation in areas such as KTPs, alumni development for business engagement and undergraduate work experience.
- The technical development is already making a difference to users in its current format, validating the basic premise and approach as sound; however, there is a need to continue to refine the employer interface in preparation for any productisation.
- There is a genuine opportunity for JISC to further advance the programme's technological outputs through further development to provide web-service functionality to the technology demonstrated. For instance, the tools developed by Cogent, MUSKET, CPD-Eng and SAMSON provide a flexible set of functions covering various elements of the work-based learning journey. Publication of a service-enabled toolkit, available as a set of lightweight and function-specific, user-centric tools, would be a significant outcome for the programme as a whole.

3.5 Implications for the future

The main sustainability for SAMSON immediately is through the ClePD's JISC-funded project ESCAPES (2011-12), which will work with an institution-wide group of business-development officers and students to blueprint the placement service from the student experience point of view, with technical interventions involving further developments of both the OPUS and Mahara components of SAMSON and probably also an integration of the two. This work will constitute a major step in mainstreaming SAMSON in the institution, which will be significantly enhanced if integrations with the University's CRM system Dynamics can also be achieved. The recent relocation of the ClePD to a position within the main Information Services in the University, enabling easy collaboration with institution-wide technical developments, maximises this possibility.

For the Mahara component supporting project placements, the following areas for development and potential roll-out have been identified:

- Integration of other web services into the SAMSON Mahara environment, including social media sites (students) and corporate systems (staff). The inclusion of RSS feeds and video/picture facilities are now being investigated to facilitate learning and assessment.
- The external examiner for the Biosciences module has expressed interest in reviewing student reports on the Mahara system rather than receiving them through the post prior to an institutional visit.
- Students interest in linking their work so far in Mahara with their CVs indicates that there is the potential to integrate CV Builder with Mahara for the future.
- Application of SAMSON with undergraduate students, in current pilot Schools and beyond.
- Application of a SAMSON with PhD students over a longitudinal period of research and study.

Mahara is now the chosen ePortfolio option for Biosciences at the University of Nottingham in the short term. Through the ESCAPES project, the enhancements developed will continue to be developed, promoted and disseminated within the institution, with a view to packaging and releasing them as open source materials for use elsewhere.

For the Postgraduate placements portal, further potential applications have been identified:

- Functionality to offer jobs as well as placements; this could form the basis of a shared service between a cluster of universities.

- Given the growing employer engagement with the portal, a facility for employers to register their own placements. The system itself would act as the conduit for the workflow and could be enhanced through additional functions offered to employers, for example the issuing of employment related information.
- Whilst the specific tailoring of SAMSON for this project has used OPUS to manage data, the next step would be to develop a portal which provides interoperability with the University's CRM system Dynamics. Further investigation of the aggregation of data from the placement portal into Dynamics would provide an effective means of ensuring that the institution's CRM system is kept up to date and delivers coherent, complete information.
- The Placements Portal will be included as a core element for meeting project delivery in a new proposal to expand the existing ERDF project. We will also be investigating how the Placements Portal could form a shared service for a wider group of institutions, together with models of wider sustainability and business planning to ascertain wider community interest. It is envisaged that the ClePD team will undertake this work in consultation with JISC experts in shared services.

The University of Derby has highlighted further extensions of the SAMSON technology piloted there which would enhance the management of student placements and sponsored part-time students' learning, across the whole sector:

- Current VLE-based support for diploma student placements in industry cannot handle employer input - but there is a growing need for this and the SAMSON technology is close to providing what is needed
- Requirements of overview tutors who need to oversee progress for foundation degree students are analogous to those of the work-based appraisal manager – SAMSON's employer portal technology could be used in this institutional context.

Project outputs continue to be hosted on an ongoing basis. The three major pilots have resulted in three technical outputs which have been embedded into the institutional practice and will continue to be used and expanded to meet new and more numerous demands.