Interactive Web-based Placement Management – Principles and Practice using OPUS

Mr R J LAIRD* BSc CDipAF   Dr C R TURNER MIMA CMath CSci

School of Engineering, University of Ulster, Shore Road, NEWTOWNABBEY, Co. Antrim, UK, BT37 0QB
Tel: 44 (0)28 9036 6264, E Mail: rj.laird@ulster.ac.uk

Abstract — **The management of placement and work-integrated learning has long been supported by paper-based systems, databases, spreadsheets and E Mail communications. Unfortunately, in today's fast-moving world most of these are inflexible to changes and cannot respond quickly enough, especially during out-of-term. They are also staff intensive. Many placement web sites convey information but lack the interactive features to allow action on the information provided.**

Since 2002 engineering students at the University of Ulster have been using an interactive, web-based placement system to achieve and run their placement. This paper details the design features of this professionally-developed placement management system, known as OPUS (Online Placement University System), in relation to students, companies, academic staff and administrators. Operational experience over six years is related to the pedagogy of work-integrated learning and to evolving good practice. The ease and flexibility of use, especially for students, placement providers and administrators, will be demonstrated using the features of the system. The paper concludes with comments by users and an assessment of its impact on placements. The UK's Association for Sandwich Education and Training (ASET) endorses OPUS as achieving almost all of the requirements in its guide for online systems.

Keywords — **Internet, OPUS software, placement, work-integrated learning**

I. INTRODUCTION

The use of the Internet and the World Wide Web have revolutionised the provision of information and the facility for the user to take action on the information obtained. An early example of user enabling was the online shopping features within some web sites. These examples prompted us in the School of Engineering at the University of Ulster to explore the use of the Internet to enable students and companies to manage the placement process with the active involvement of the Industrial Placement Coordinator. This led to a unique web-based placement management system developed specifically by the placements practitioner and the software programmer to become OPUS (Online Placement University System) since autumn 2000. The basic system was able to manage the first cohort of engineering students into placement in 2002. Since these early basics the programme has been developed continuously as an open source product, now at version 4, and being implemented in several universities in the United Kingdom and under investigation by others worldwide.

OPUS, like many other placement management web sites, provides information on placement providers and the placements they offer so that students may view and assess their opportunities. Indeed, all higher education institutions (HEIs) have well-developed web sites to inform their students of vacancies and how to prepare for their work-integrated learning experience. However, relatively few have developed the means to enable the student, the provider and the placements coordinator (with others) to take effective actions on the web as a follow-on from the information they have viewed. It is too often the case that information must be acted upon by wholly separate means away from the web. Changes and updates are laborious for staff and are at risk of being late. With OPUS the user may control their information, the provider may promote their opportunities, the student can take action to apply for any

vacancy and the placements coordinator may control all features. Being on the web, all information may be accessed from anywhere at anytime.

This paper sets out the principles used to guide the development of OPUS and how it delivers effective placement management for the University of Ulster. As a closing comment some views of diverse users are used to demonstrate its effectiveness.

II. PRINCIPLES SUPPORTED BY OPUS

From the earliest development we realized that, to be effective in replacing existing complex systems, OPUS needed to support several principles associated with a web-based application and the conduct of work-integrated learning in compliance with the United Kingdom Quality Assurance Agency Code of Practice, Section 9 (the Code) (2007). Further, several other principles were necessary to commend OPUS to work-based learning practitioners and IT support personnel for their future operations. These principles are developed below.

    a.   Principles for a Web-based Program

        i.   Data Security – to be of value to users the system must hold personal data for the student and other personnel. The students' CV data, staff and company contact details and assessment results are considered to be personal data that should not be accessible by the wider world (unless specified in the course of defined processes). Also, the details of placement providers and opportunities may be considered as 'commercial in confidence' information that should not be available to any competitor or student not entitled to receive them.

       ii.   Privacy – among authorised users the personal data of one should not be viewable by another, unless the owner had chosen otherwise. However, the placements coordinator or administrator (or any person who had similar privileges assigned) needs viewing and editing rights over almost all data.

      iii.   Intuitive – to render unnecessary a significant training programme for new users any features of the system must be as near-intuitive as possible and follow current conventions applicable to current web usage. Alternatively, brief guidance needs to be available at the point of use.

      iv.   Reliable – staff and others have established a level of confidence in their existing systems for work-integrated learning management. They have ready access to correcting faults in manual paper-based systems and, despite complexity and inefficiency, these systems can be made to function. Any migration to a web-based system must achieve continuous, reliable service.

      v.   One Data Source – one of the difficulties with non-electronic systems is that if data is held in more than one location updating become tedious and highly error prone. This web-based system holds data in one location only so that one updating enables all views of it to be correct and current. Frequent back-up of data must follow current good practice to provide for technical failures or errors.

    b.   Principles for Support of Work-integrated Learning

        i.   Quality Assurance – the Quality Assurance Agency for Higher Education in the United Kingdom (QAA) has, since the year 2000, established a code of practice for the assurance of quality in placements and work-integrated learning when they are part of a programme of study. In particular, the Code, Section 9 (2007) identifies 'precepts' affecting providers, students and HEIs, and the Code, Section 6 (2000) affects assessment of students. To gain acceptance in any HEI, any web-based system should provide, in as far as a web-based system can, for compliance with the various 'precepts'. Laird and Turner (2007a, 2007b) identified the relationship between OPUS and the Code, Section 9 and Section 6, respectively.

ii. Accuracy – students need accurate information to enable them to select a provider and a vacancy, providers need accurate information on the student applicants and academic staff need accurate information on students and providers. In fact, all users need accurate information! Authorised users, who have ownership of their information and, therefore, accuracy, are best fitted to enter or edit their data.

iii. Flexibility for Updating – many early web-based systems in HEIs were quite user-unfriendly – any changes in information to be conveyed to the user had to be supplied to a 'keeper' of the system to be implemented. This inflexibility only added delays and further errors in the quality of the service.

iv. Presentation of Relevant Information – a web-based system designed for students, placement providers, academic staff, workplace supervisors, placement coordinators and administrators contains a lot of information. To be user-friendly any user requires only the information that is applicable to them. This means that selected information is available to a user type that the system recognizes from the individual's login credentials. Hence, no clutter and protection of privacy is assured.

v. Data Migration form Student Record System (SRS) – periodically, new cohorts of students must be added to the system to manage their progress through work-integrated learning episodes. The system must be able to interface with the HEI's SRS either as a one-time data uplift or as a more flexible dynamic link. We consider there are a variety of issues which should influence the choice of interface. OPUS is engineered to handle the one-time data uplift option, but may be added-to with a layer of code to provide a dynamic linkage. The particular option is really a policy matter for the HEI.

vi. Management Reports – current paper-based or spreadsheet-based systems can be interrogated to provide management reports – given enough time. This web-based system needs pre-determined and customizable reports which can draw from current data to support management decision-making processes.

vii. Records – any record system must be authentic, accurate, non-corruptible and easily accessible. The ability of traditional systems to provide accurate information quickly for a query is highly variable. This web-based system needs to hold and protect the integrity of records of placements for as long as the HEI policy demands.

viii. Auditable – it is stated frequently that accrediting bodies and the QAA will audit systems and processes to confirm compliance to the HEI's own procedures and the external body's requirements. In our opinion it is not an under-statement to assert that paper-based and spreadsheet-based systems can be unreliable in this respect. This web-based system must provide the trace and record of actions and achievements, with dates, for any user.

c. Principles for Acceptance by Other HEIs
i. Expandable – work-integrated learning activities associated with one study programme is only a fraction of the work that many administrators need to organize. A really useful web-based system needs to be able to support many programmes in different departments/schools and faculties. Also, the system must permit different approaches and requirements for each programme or group of programmes, if required.

ii. Customizable – different faculties and different HEIs have their own brand, organization and terminology supporting work-integrated learning. To be usable by others the system must be easily customizable to different environments.

iii. Adaptable – this principle implies that a useful web-based system can function as effectively for the group of 20 students directed to a fixed placement as it will for a group of 2000 students competing openly for available vacancies. In all of these possible scenarios the necessary information for all users needs to be readily available.

iv. Changeable – configuration changes may occur at two levels – the higher-level user and the software programmer. The system architecture needs to enable the higher-level user to make common operational adjustments to the functionality (so as to avoid delays by having to refer to the programmer). When necessary, the software programmer needs to have access to the code, identify the appropriate section and make the adjustment easily. This requirement is easily achieved with well-written and documented open source code.

v. Supportable – for many HEI users (other than the originators at the University of Ulster) assurance of technical support and operational advice will be a necessary requirement. The support for the product needs to meet a variety of levels of support from random query to a full tailored service level agreement.

vi. Stable – the notorious 'blue screen' is the nightmare for any computer user! Any software product must be stable in operation and be capable of functioning on a variety of platforms/operating systems. This is especially the case when the in-house technical support is limited.

To be a product that shifts the paradigm for the management of work-integrated learning and to be wholly web-based OPUS must support effectively all of these principles (and possibly more). The following sections of this paper present the features available to each type of user and show how the relevant principles are achieved. It is worthy to note that the UK's Association for Sandwich Education and Training (ASET) has endorsed OPUS as complying with almost all of their guidance for managing placements with IT and online (2007).

III. OPUS IN ACTION

This section outlines of the nature of the provision within OPUS for each of the main user types.

a. <u>Students</u>. Students need information and support in essentially three phases: pre-, in- and post-placement. In all circumstances each user must be listed as authorised to use OPUS with a unique username and password (which can be refreshed easily). On every login they see the announcements page (which is editable by the placements coordinator) and changes in companies and vacancies since their last login. Any student may see only their own personal data and not that of any other person. OPUS has a facility to deny any student the right to use the system if the placements coordinator wishes to apply this status. A targeted help list is provided for the student throughout their use of OPUS as the system recognises their login and selects the appropriate staff from the list of administrators.

   i. Pre-placement. Features to enable search for: open or closed vacancies by generic type, approved placement providers, resources containing advice documents (and video or other configured MIME types) and personalised notes. Students are provided with the facility to create their CV using a variety of styles and continue to have ownership of their data through editing at any time (the data remains on the server and is presented as a 'live' pdf file to any authorised viewer).

   The facilities listed so far are little more than the current provision in any good support web site. However, in OPUS the student may take action to apply online for their choice of vacancy by 'tagging' their CV (with an optional electronic 'covering letter') to the vacancy of their choice or by other directed methods as specified by the placement provider. Further, they may see the list of their applications and view cryptic feedback on the status of each. Of course, having applied for a vacancy the student cannot un-apply, but the placements coordinator may do so if it is deemed appropriate.

   The student may edit their own information but view only information owned by other users, especially placement providers and 'the system'.

Throughout the preparation phase the student is encouraged and supported to take ownership and be pro-active for their work-integrated experience. When the information on OPUS shows that this engagement is not progressing or is under-developed the placements coordinator may intervene to provide extra support.

ii. In-placement. Before confirming the suitability of any placement the placements coordinator must approve the offer for the individual student. OPUS reserves to the placements coordinator exclusively the authority to 'place a student' as a quality assurance function. When the student status is declared as 'placed' the student cannot use OPUS to apply for any other vacancies! Also, any provider to which the student has applied online cannot view their CV as the student is no longer available, hence protecting privacy and data.

When the student is 'placed' he/she will have access to the information on their HEI-based tutor (following assignment by the placements coordinator) and the online assessment programme reports. The former enables arrangement of visits and consultation without the involvement of the placements coordinator, while the latter provides formative feedback to the student. Of course, the student continues to see the same information as in their previous status.

The student is asked to enter their in-placement contact details and the name and contact details of their work-based supervisor. On this action the latter will receive their welcome and credentials by E Mail to enable their use of OPUS, particularly for online reporting. In addition, the student is asked to complete online their Health and Safety report, thus indicating, for the record, key features of their induction.

iii. Post-placement. Students returning to studies, usually final year, wish to complete their work and reports from placement expeditiously. OPUS provides a full set of marks from assessments with feedback as soon as the online report is entered. The student continues to have access to their CV, which they may develop for use in seeking graduate employment. OPUS maintains a record of the placement(s), assessments, notes and details entered by the student, academic tutor and work-based supervisor. As the same companies seek their graduate employees from the same cohort there is a growing use of OPUS to promote graduate employment opportunities to students who continue to have access while at the HEI. Future developments will enhance this functionality to enable online applications in the style specified by the employer.

b. <u>Placement Providers</u>. It has been noticed that employers are becoming more pro-active in promoting their organisation to the student body with a view to attracting the best into employment; this is especially obvious for engineering. Any recruitment can be a protracted and expensive exercise for the employer, but we believe that OPUS 'makes it easy to do business with us'. Several stages of activity may be identified as follows.

i. Company Presence. OPUS is designed to list employers that are approved as placement providers. The requirement for 'approval' follows from the Code, Section 9, Precept 3 and is fully elaborated by Laird and Turner in their paper (2007a). Consequently, a provider may be entered on OPUS by the placements coordinator following off-line processes to establish that they can support the requirements for work-integrated learning. On this action, the contact person for the provider is sent their credentials by E Mail and may at any time thereafter edit their data, add specific documents (such as brochures, application forms, job descriptions and any configured MIME type attachments) and promote vacancies to the student users. These facilities are now used extensively by companies to edit their data at a time of their choosing. The company representatives (often human resources personnel) have access to resource documents which are assigned for their information, eg, terms and conditions of placement.

ii. Vacancy Promotion. A provider (or the placements coordinator) may create a vacancy to state the details of the placement on offer (or clone an existing vacancy, if available). As this information will be available to all student users any concerns of discrimatory advertising are obviated. The advertised detail must include the closing date for the call for applications, location of the job and a description of the opportunity. The provider or placements coordinator may edit all of this information at any time.

iii. Applications. As the information is web-based, the provider may view the list of applicants and their current CV at any time. Specifically, at the expiry time for the call the named owner of the vacancy will receive an E Mail to advise that the vacancy has closed and to give the number of applicants. This feature allows the provider to promote a vacancy, forget about it (!), receive the reminder and then see all the applicants in one location without engaging any of his own resources. We consider these actions make it easy for the provider to do business with us!

iv. Follow-up. The decision to proceed to the next stage of selection for any student applicant rests with the employer. OPUS presents them with the facility to E Mail the student to advise their options, such as call to interview or no further interest. Again, this makes work easy for the employer and provides a record on OPUS which is viewable by the student and placements coordinator. As mentioned above, it is reserved to the placements coordinator to declare the student to be 'placed' in a vacancy within a company.

c. Academic Staff. Academic staff within a school/department or faculty frequently provide the academic component for work-integrated learning and its assessment; they act as the tutor for the student in placement. Once listed on OPUS and issued with their credentials academic staff may edit their data, view designated resource documents (including their role guidance), view companies and vacancies and, most importantly, view the details of their assigned students together with the placement provider, contacts and work-based supervisor. Also, a route planning facility is included! Once the placements coordinator has set up the details for a given placement little further action is required as other stakeholders have access to the information they need. The academic tutor will have specific activities as follows.

i. Site Visits. Within the specified dates the academic tutor may plan their visits using all the necessary information for their assigned students presented on OPUS. Reports for all visits may be made online and amended within a 24-hour period before becoming 'frozen'. This latter feature ensures data integrity for record and audit purposes. Students may view the content of reports and gain support from the feedback given. Of course, such reports should record what has been discussed on the visit already.

ii. Assessment. To qualify for a separate award or as part of their degree (or other) students have an assessment programme. Academic tutors are able to view the assessment criteria, declare their allocation of marks and give extensive feedback comments to advise the student. Again, after the 24-hour period the tutor may not change the data. It is possible for the placements coordinator to assign a different academic tutor for different reports, thus assuring objectivity and quality in the overall assessment programme.

iii. Advice. When an item of advice needs to be recorded the academic tutor may make an entry in 'notes' to remind and 'put it on the record'. Once entered, this note may not be edited at any time, thus preserving its integrity for audit purposes.

d. Work-based Supervisor. As described above, timely action by the student entering the details of this supervisor (appointed by the company) enables the latter to enter OPUS where they may see designated documents (including their role guidance) and their report format. Towards the end of the placement a reminder facility will alert the supervisor that the report should be com-

pleted online. Following completion, the student may view the results, which, of course, should be known to him/her already from interview nearing the end of the placement. This feature of reporting online ensures that no paper needs circulation to achieve complete results for the student!

e. <u>Placements Coordinator</u>.   The ability to intervene in almost all functions of OPUS is allocated to the placements coordinator. However, in a complex arrangement involving several departments or faculties it has been found valuable to designate a senior coordinator with full configuration and editorial rights and other coordinators with rights commensurate with running their part of the work-integrated programme. The definition of 'rights' derives from a feature of OPUS named 'policies' in which the creating, editing and viewing powers of any type of user are defined by generic appointment types. When a new user is entered (always done by a coordinator) the appropriate policy is assigned. For example, a course director is allocated limited viewing rights so they may see the progress of their students and, thereby, maintain interest in placement activities.

By design, OPUS has arranged for considerable configuration functions to be arranged by the senior coordinator (termed the 'root user'). These actions include configuring the HEI organisation, programmes of study, types of placements and vacancies, policies, administrators, assessment programme, E Mail messages, announcements and help items. A significant feature for expandability is the concept of 'channels'. This feature allows different student cohorts with different information needs and assessment regimes to be uniquely defined in configuration. For example, there will be a need for different announcements for students in business and engineering. By arranging separate channels for each type of student the appropriate information may be presented to the student at login, because OPUS recognises the type of student from their login credentials. Many of these settings require a once-off definition with minor adjustments thereafter, others may require changing weekly.

The most significant impact for the placements coordinator is the reduction in administration load, improved timeliness of information and ownership by the participating users giving controlled inter-visibility of information. In effect, the processes operate without paper, the system remains stable and time is reassigned to building relationships with placement providers, staff and students.

IV. USERS' COMMENTS AND STATISTICS

It is well known that many IT systems have grandiose claims made for them and have cost fortunes over many years but yet do not deliver for the user. This section presents evidence from various users on their experience of OPUS.

a. <u>Students</u>.   We conducted a survey among engineering students who had completed their twelve-month placement by August 2007 to determine their views on the support provided by OPUS throughout their placement experience. Figure 1 presents their views on the value of OPUS in obtaining their placement and Figure 2 represents the most useful features during their placement period. The full analysis may be obtained in the paper by Laird and Turner (2008b). Additional comments from students give expression to their views, as follows:

'The OPUS software proved to be vital in the placement process; it is hard to imagine how placement was organised without the system'.
(Mr Colm Higgins; Engineering student)

'I found this OPUS system very useful - it had a lot of available industrial positions which could

be checked and applied for, the ability to track my applications was also helpful and being able to automatically attach my CV to positions posted was very easy'.
(Charlotte Ann Donnelly; Engineering Management student)

'Throughout the placement I found the OPUS website extremely user-friendly, the CV builder was well structured and very informative'.
(Mr Simon Kernohan; Engineering student)

'This position was advertised on OPUS. OPUS was of great help to me finding placement. I don't know how everyone else manages without it'.
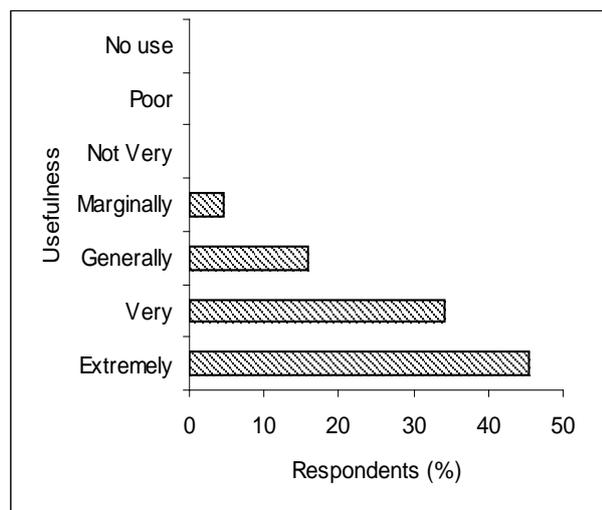(Miss Rachel Woods; Technology with Design student)

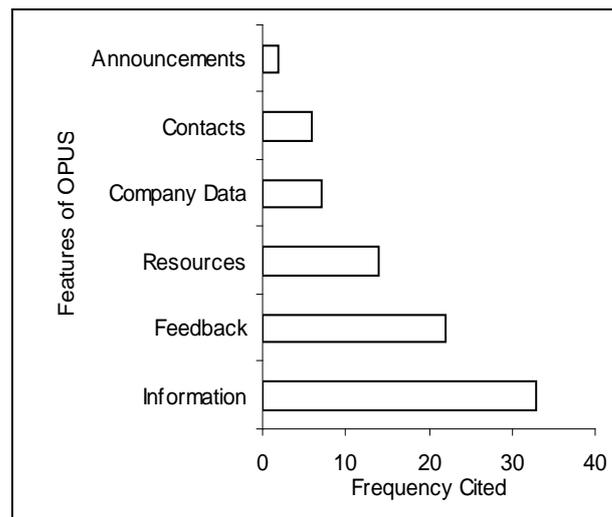*Figure 1*. Usefulness of OPUS in obtaining placement in the pre-placement period.

Figure 2. Useful features of OPUS during placement. Students identified two features.

b. Placement Providers. In 2001 on migrating from the old methods of managing placements to OPUS we found that no companies had reservations about using the new system, in fact, many welcomed a 'modern' way of doing business. We have found that it has not been necessary to have any training or induction for new users, except for a brief telephone explanation on occasion. Some of the comments we have obtained over the years are as follows:

'The benefits of an interactive system allowing instantaneous updates to all parties has led to a more efficient recruitment process. With a single update, I can communicate to all involved, both students and placement coordinators and it has saved our organisation significant time and effort. The simplification of the student recruitment process has meant that I am much more likely to seek to employ students again from the University of Ulster'.
(Mrs Deirdre Francis; Director, Mindready Solutions NI Ltd)

'The system [OPUS] allows us to review applicant information in real time which allows us to action these CV's as they arrive. Overall we have found that this has assisted us in significantly reducing recruitment timelines'.
(Mr Michael Dawson; HR Services Manager, Schrader Electronics)

'As a user of the OPUS system, I have found it useful to advertise and attract graduates for job opportunities such as industrial placements as well as other job roles. The system is easy to use

and the fact that students can download the application form, complete it and return means it's a more efficient way of processing applications.
(Ms Rosemary Breen; HR Manager, TEREX Finlay)

'The expertise and assistance in promoting placement opportunities within Littelfuse Ireland has been exceptional. The online and interactive nature of OPUS has proved an invaluable resource in placing students quickly and effectively'.
(Mrs Caroline Fennessy; HR Manager, Littlefuse Ireland)

c. <u>Academic Staff</u>.   The involvement of academic staff arises on their appointment as 'academic tutor' for the placed student. Their main responsibilities are to conduct visits and assessment with the associated reporting. Several comments on OPUS are as follows:

'As a former Industrial Placement Coordinator and now an academic involved in visiting students, my impressions of the OPUS system are extremely positive. It is very easy to use, is reliable, works well and provides at a single point all the information that the visiting academic needs. The fact that it has been specified by a practitioner who understands the practicalities of the placement process, is very evident. The ease with which one can provide feedback for the students is excellent'.
(Dr Desmond Brown; Senior Lecturer, School of Engineering, University of Ulster)

'I've found that OPUS has reduced the quantity of paperwork during the assessment of placement. It also provides a central source of information regarding all aspects of the placement process and therefore helps to keep me organised'.
(Dr Alan Leacock; Advanced Metal Forming Research Center, University of Ulster)

d. <u>Work-based Supervisor</u>.   Our survey among work-based supervisors in August 2008 revealed, among other findings, their views of online reporting using OPUS. Figures 3 and 4 give indications of the 'user-friendliness' of the online reporting that they conduct towards the end of the placement period. The full survey may be obtained in the paper by Laird and Turner (2008a).
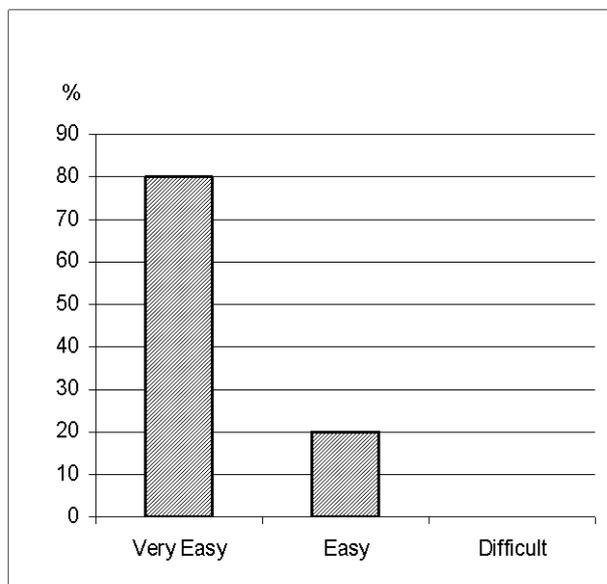

Figure 3. Assessors' views on the 'ease of use' of the Employer Assessment on OPUS.
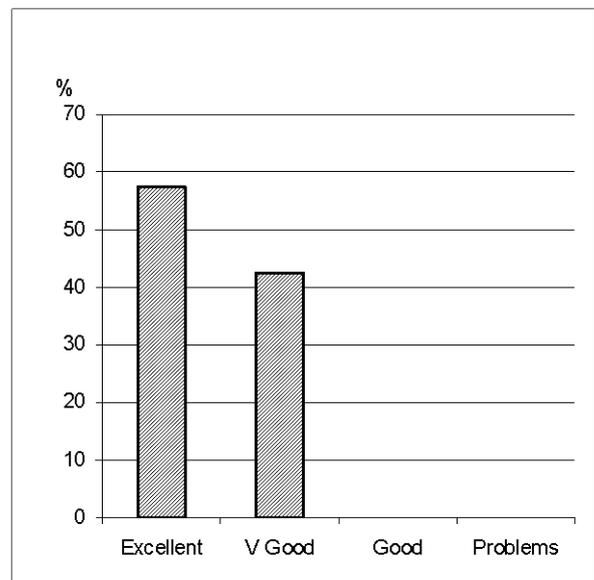
Figure 4. How the work-based assessors rated the ability to report online on OPUS.

e. <u>Placements Staff</u>. We developed OPUS for application initially within the School of Engineering where approximately 100 students were placed for a twelve-month period each year. Soon after implementation other schools within the University of Ulster wanted the system extended to their placements also. These requirements added the expandability and configuration features to give OPUS the ability to handle work-integrated learning of various types for a university. Some comments from placements staff are as follows:

'Prior to 2006/07 all placement information was posted on the School's placement notice board and E Mailed to the students. This was a time consuming procedure and not an efficient way of providing information to the students. The use of OPUS has meant that full placement information can be provided to all students so that they can access it at anytime and it also removes the "middleman" in the application process, as previously myself or the Faculty Placement Officer would be involved in sending off the CV's and collating letters of application.
The majority of the placements I deal with are in Ireland, with only one employer in Australia and the contact there has indicated that the OPUS system has been of benefit to him over the previous application procedure'.
(Dr Ron Cole; Industrial Placement Coordinator, Sports Studies)

'Since I started using OPUS three to four years ago it has helped to greatly reduce the amount of administrative work I previously had to do while managing placements using a manual system. Also, I have found that OPUS, through the use of the announcement pages, has improved communications between students, employers and myself. Students have also seen the benefits of OPUS as they can now apply for placement vacancies 24/7 and from anywhere around the world, so this reduces the chances of students missing any opportunities'.
(Miss Victoria Devenney, Placements Administrator, Computing Studies)

f. <u>Statistics</u>.   Since commencing operation in the School of Engineering in 2002 (and later in other faculties of the University) OPUS has made a significant impact on the management of work-integrated learning. The table in Figure 5 presents data at November 2008 to show the load which has been moved from administrative staff and the extent of support provided. It is intriguing to speculate how this level of activity might have been achieved by other means.

Item	Count
Authorised users	8,619
Information downloads	28,200
Company records	1,826
Vacancy descriptions	2,391
Number online applications	23,991
Placements recorded	2,140
Assessments recorded	5,701

Figure 5. Statistics for the use of OPUS
(2002 – Nov 2008)

V. CONCLUSION

OPUS was initiated by us to improve the management of work-integrated learning for all participants. In so doing, we sought to comply with a range of principles which would improve the experience of all users and enable wider use of the programme. Early in the development it was decided to produce OPUS as open source software to permit any other user to implement or modify it within the terms of the GPL (v2) license. The significant levels of interest, number of demonstrations that we have deli-

vered and implementation by other HEIs suggest that OPUS supports the principles presented in this paper and provides a very effective paperless solution for the management of work-integrated learning.

The OPUS software, together with guidance for installation and operation, may be found at our development web site: http://foss.ulster.ac.uk/projects/opus (the FOSS web site). The sister and fully integrated open source product, the PDSystem developed to support personal development planning (PDP), may be obtained at the web site: http://foss.ulster.ac.uk/projects/pdsystem

VI. FUTURE DEVELOPMENTS

OPUS continues to add features and include adjustments to its functionality. Our plan is to produce a major update every year in August/September. To ensure this process is most effective for OPUS users it is recommended that any localized changes to the code should be returned to us for incorporation into the next release.

Currently under consideration are developments to enable the management of inter-HEI student exchange (especially international) for placement purposes and an extension of OPUS to manage graduate recruitment involving existing (or new) authorised users. Details of these developments and the code to support them will be made available on the FOSS web site.

VII. REFERENCES

Association for Sandwich Education and Training (ASET). (2007). *Managing placements with IT and online. Good practice for placements guides – volume 1*. Sheffield, England: T. Payne (Ed.)

Laird, R. J., & Turner, C. R. (2007a, June). *OPUS online placement management supports UK QAA Code of Practice.* Paper presented at 15th World Conference on Co-operative Education, Singapore.

Laird, R. J., & Turner, C. R. (2007b, September). *OPUS online placement management supports UK QAA Code of Practice for student assessment.* Paper presented at ASET Annual Conference, Cardiff, UK.

Laird, R. J., & Turner, C. R. (2008a, September). *Placement assessment online using OPUS – the work-based assessors' views.* Paper presented at ASET Annual Conference, Plymouth, UK.

Laird, R. J., & Turner, C. R. (2008b, October). *OPUS online enhances work-integrated learning – the students' views.* Paper presented at ACEN-WACE Conference, Sydney, Australia.

The Quality Assurance Agency for Higher Education (QAA). (2000, May). *Code of practice for the assurance of academic quality and standards in higher education. Section 6: Assessment of students*. Mansfield, England.

The Quality Assurance Agency for Higher Education (QAA). (2007, September). *Code of practice for the assurance of academic quality and standards in higher education. Section 9: Work-based and placement learning*. Mansfield, England.