JISC infoNet

Case Study

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The System Implementation Experience

The University of Hertfordshire

Of interest to:
Staff involved in the Procurement and Implementation of Information Systems

Selection Considerations
The drive for integration

Key Aims
Creating a student-centric environment

Achieving the Goal
The practical experience of implementation

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The University of Hertfordshire – Integrated Solution for Student Records, Finance and Personnel

Purpose of Document

This document summarises the efforts and achievements the University of Hertfordshire has made to move from a series of interfaced support systems to a single integrated solution and culture to support student records, finance and personnel systems. It also covers the benefits to the student and the increasing importance of having an integrated culture, process and applications to support a student-centric environment.

University Background

The University of Hertfordshire has 2,000 staff and 20,000 students split between its five campuses, as well as franchised courses held elsewhere in the UK, continental Europe and the Far East. Programmes are structured from 'normal' full-time academic three-year degree courses to complex structures in the areas of postgraduate studies in nursing, social work and teaching. Undergraduate intakes are processed through the UCAS, NMAS, SWAS and GTTR admissions services, as well as direct entrants. Students study full-time, part-time, in blocks or modules, onsite, via distance learning or any mixture of the above.

The university has developed a good reputation for its services to the student and has seen growth in applications so that over 25,000 applicants register an interest in courses every year. The university has recently seen an expansion plan agreed so that a new multi-purpose campus based in Hatfield will be built for the 2003-04 academic year. It will be the focal point of the excellence of service that can be provided by the university.

University Position in 1995

Prior to the implementation of the integration systems and operating as an integrated culture, we were not untypical of many universities in the sector. We operated with many disparate systems with islands of information dotted across the institution. This resulted in inefficient processes along with poor data quality and a non-student centric view within the organisation. Furthermore to exacerbate the situation, our systems were not Y2K compliant and in the run-up to the Year 2000, it was a situation that needed to be addressed.

Although the student numbers were increasing at this time, we all felt that we were not coping as well as we could, both administratively and the support we could provide for academics from within registry and MIS. Because our systems were interfaced, there was heavy reliance on maintaining the interfaces between these systems and this required both expensive skills within the university, but also a high financial burden from the various suppliers.

Along with the rest of the HE sector, we were involved in using systems from the ultimately doomed MAC initiative. Although there are plenty of successful systems still stemming from the MAC initiative, we were limited by the functionality and a non-relational database system that made reporting difficult and cumbersome.

From here the cultural revolution started and some difficult decisions were made.

University Vision for Year 2000 and Beyond

As a result of the issues highlighted in our 1995 review, we ultimately embarked upon a project to revolutionise our processes, culture and systems. We defined some realistic and challenging targets for ourselves and set about looking to achieve them. These targets included:

- A student-centric cultural, process and system view

- Systems that were preferably integrated

- Processes and systems that were adaptable for the modern view of Higher Education

- Systems that were reliable, efficient and Y2K compliant

To achieve this we need to locate and work closely with committed suppliers that had established UK pedigree and more importantly understood our business and shared our visions.

The Best of Breed Debate

We are no different from any organisation, whether it be higher education or not, when we want the best systems across our institution. With the student-centric environment being at the centre of our key visions, this would undoubtedly lead to a debate about whether the proposed systems should be integrated at the expense of being the best within their own particular field. A fundamental choice like this could affect the processes, the perception and ultimately whether the targets were achieved.

The two schools of popular thought surrounding this debate were considered during our initial thoughts. In the best of breed corner the advocates for this approach would say:

- Optimal Local Functionality. Each system would come with pedigree to support their purchase

- Local Ownership of Information. Those that were comfortable owning their own data and processes would not be affected by the change and could continue to operate with their local view.

- Path of Least Resistance. These systems were and still are widely available

- Political Acceptability. The perception was that adopting this approach would provide gain some quick wins and therefore be justified at senior levels.

However, with these positive points, there were a number of issues:

- Multiple Suppliers. With more than one supplier comes the issue of working with a different set of project managers, different support systems, different managers and a different company vision for each supplier.

- Diverse Database Systems. We couldn't guarantee that each of the systems would be compatible and consistent. This is particularly obvious when considering the initial costs and ongoing costs of purchasing licenses.

- Interface Maintenance. If we wanted to maintain an student-centric view of our systems and processes, interfaces would have to be developed and maintained.

- Management Overheads. Although not too obvious, deploying systems from competing suppliers would require each department affected to work harder to maintain a consistent approach to the implementation and would also require the MIS team to spread our resources.

As this decision was key to achieving our visions, we understandably took our time to consider each point carefully. However, the fundamental aim to achieve a consistent approach to a student-centric environment was ultimately the key factor when the decision was made. We therefore prioritised our selection criteria:

1. A fully integrated relational database solution. One world, one database.

2. A solution using common relational databases. One world, several compatible databases.

3. A best of breed solution with umbrella software and interfaces. One world, complex systems.

However making this decision presented some big issues, namely:

- We were not able to replace our key systems at one time because a completely integrated solution wasn't available at the time.

- We needed to prioritise the implementation of each system and the supporting processes, which placed a large burden of responsibility on the supplier to deliver the systems on time

- We needed to retain business continuity during implementation, which required us to retain the legacy systems for some period of time along with the costs associated with this and we needed to develop temporary interfaces to link the various incoming and outgoing systems during this change.

By taking this bold step we embarked on a large-scale development in partnership with the supplier of these system. Specialist Business Solutions, now known as Ramesys (Professional Services) Ltd (RPS) was chosen as this supplier because they demonstrated that they understood our vision, had the pedigree of working in the HE sector by deploying a number of student records and finance systems during the MAC initiative. Key to this for both Ramesys and us was the timing. If Ramesys had not been in the position of requiring a development partner and we had not made the decision to opt for a completely integrated solution, this may never have happened.

To overcome some of the concerns by the local users and departments who understandably felt that their systems would be affected by integrated systems and culture, Professor Tim Wilson, the University Pro-Vice Chancellor placed his approval on the decisions made and actively participated in the implementation of the systems.

Professor Wilson in fact used the phased implementation of the systems as an opportunity to develop new generic regulations to promote compliance and build this into the new systems whilst they were being developed. All the processes were reviewed to complement an integrated approach and resistance was tackled head-on. To reflect the ever-changing needs of the sector – as we have seen there has been the move from traditional courses to modular and now more distance learning than ever – we insisted the development centred around a

rules based system that could cope with the diversity of the higher education curriculum and the student's individual needs.

Implementation Timescales

With the university ultimately deciding to embark on a phased implementation, we set ourselves and the supplier ambitious targets. Without setting these targets and working closely with the supplier, we may have never been able to realise the financial and administrative benefits we are now seeing. The targets are set out below:

- Started Implementation in 1996

- Admissions Live late 1996

- Finance Live (UH Health) early 1998

- Students Live 1998

- Finance Fully Live 1999

- Personnel Live 1999

- Student Self-Enrolment Live 2001

- MLE Interface 2001
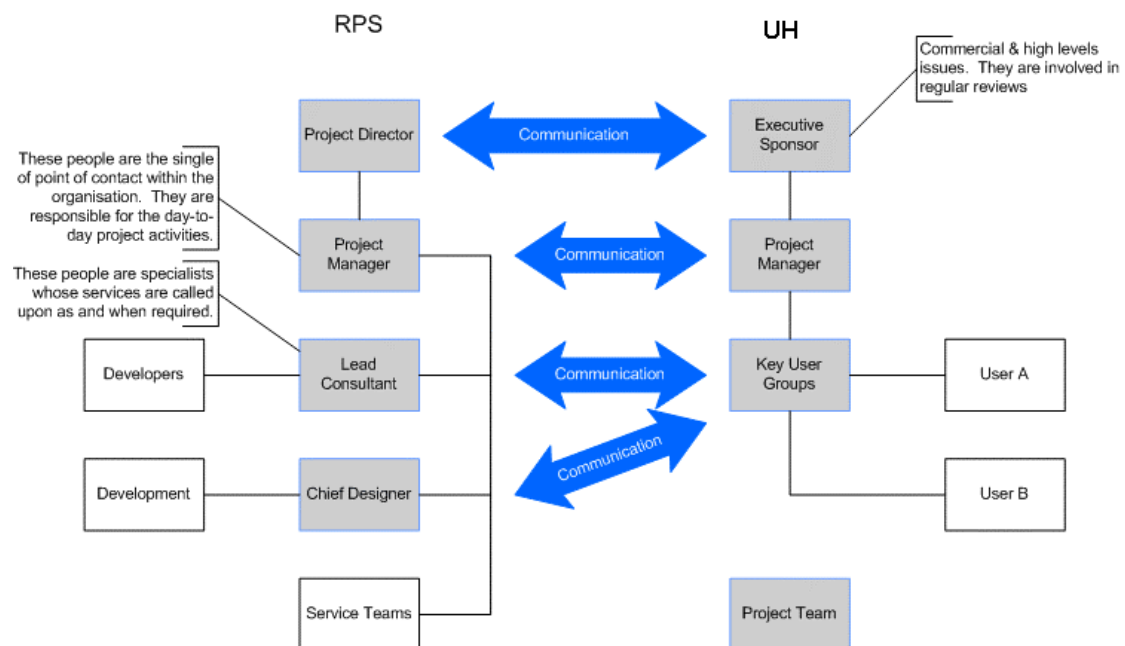
- Accommodation Live in 2002

The first step in implementing Genesis was the development of a single, secure relational database. The central database would hold details on all students and staff, including academic and personnel records, admissions, enrolment, accommodation, academic programmes, graduation and financial details. This database is now used comprehensively throughout the university, including the generation of the returns that have to be made to external agencies. For example, it produces reports for HESA on student records, finance and personnel returns, non credit-bearing programmes and first destinations returns. In addition it produces the HESES and RAE returns for HEFCE and reports for other statutory returns, such as TTA.

Implementation Process

To achieve our goals, we created a team of dedicated individuals that represented users, faculties, finance, audit, MIS and the supplier. Each system had its own dedicated project team that also had representation at the overall project team structure.

The key challenge for each team was to work within the timescales of the regular business cycle for academia and the resources, or lack of, available at each crucial point in the year. This coupled with the change in processes when adopting the new system, coding structures and regulations gave all concerned some difficult times.

The most crucial external relationship was obviously with the supplier. We created a structure that involved all stakeholders and supported a hierarchy that facilitated the integrated approach. At the most senior level, the office of the Vice Chancellor was able to reflect his views to the RPS project director, the then Managing Director. At all levels there was involvement and more importantly discussion both up and down the structure.

RPS   UH

Commercial & high levels issues. They are involved in regular reviews

Project Director — Communication — Executive Sponsor

These people are the single of point of contact within the organisation. They are responsible for the day-to-day project activities.

These people are specialists whose services are called upon as and when required.

Project Manager — Communication — Project Manager

Developers — Lead Consultant — Communication — Key User Groups — User A

Development — Chief Designer — Communication — User B

Service Teams   Project Team

The implementation of each system was underpinned by a robust and pro-active support structure. This predicted the training needs, system and procedural documentation. One of the principle elements of this support structure was the user group. To overcome the fear and uncertainty that involves any form of change, especially a change that challenged the basic working principles that were primarily supported by the user, the key user groups were formed. With the driving force coming from the office of the Pro-Vice Chancellor and underpinned throughout the whole solution, these users were forced to evaluate their methods in line with the university visions.

Strong project management is key to the successful delivery of any solution and more so for a large scale integrated solution. Without this the project would have stalled. We therefore paid great attention to acknowledging critical points and planning for contingencies. Furthermore without user involvement and commitment a series of products will never form a solution.

However, even the best planning cannot predict some hurdles; illness, staff turnover and the ever-changing world of statutory requirements. To allow for this we continually reviewed and re-engineered our requirements and expectations in line with our visions. This inevitably reset expectations and was the cause for some consternation.

Our biggest achievement was converting our visions into a tangible solution whilst still continuing to deliver a high quality education product. We have been receiving the benefits of an integrated system for a number of cycles now and as a result of the reduced administrative effort to manage the data, we can cope with an MIS team of six FTE analysts (made up of 4 full-time and 4 part-time staff), one senior technical support, one administrator and two part-time trainers. However this achievement would not be impossible without a committed and knowledgeable user community and our supplier's commitment to delivering products to meet our visions.

Integrated System Design

When we embarked upon the development initiative with Ramesys, we were involved in some lengthy discussions on the key design principles for the new product set. Simply we wanted a highly functional system that placed the student at its heart and delivered real benefits to reporting and easing the administrative effort. The key design element of the system, ultimately and aptly named the Genesis[1] suite, is a common set of contacts. The common contact database in the Genesis application suite removes the need to enter the same information more than once. The benefit is that less time is spent on data-entry type processes and the quality of the information held within Genesis is maintained.

All information is centred on one central record for each contact. As each contact has a unique contact identifier, irrespective of the activity of the contact within the system, this will allow the university to track the progress of the contact, whether they are an applicant, student, sponsor, employee, etc.

The university's success is based on providing a **total integrated solution** by offering highly functional and flexible systems backed up by a full range of services.
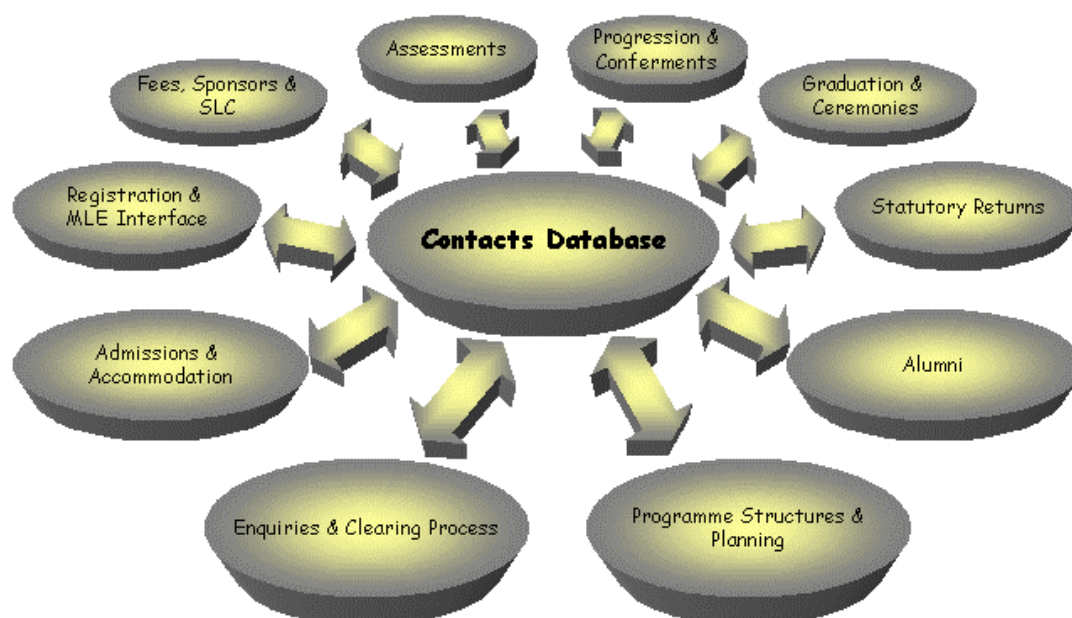

Figure 1: Genesis Students Design

Genesis Students is a complete student administration system, designed to meet all the administration and planning needs of a Higher Education institution.

Some of the immediate benefits delivered through this design is the ability for accommodation staff to update data such as addresses, which will then be immediately available to staff throughout the Institution.

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[1] Ramesys is embarking upon the development of their new completely web-enabled that is based on the same principles of Genesis.

Information is integrated across products and within products, allowing enquiry staff to update data such as addresses, which will then be available to staff throughout the Institution.

When Genesis Students is implemented with Genesis Finance the use of the Contact is extended. In this way the Student data is used to create a customer/supplier record within the Sales/Purchase Ledgers, again reducing the data capture process and the errors associated with data entry and multiple databases.

This approach ensures that, for example, when a Student is charged for course fees or accommodation the data automatically appears in the Sales Ledger, and when payments are processed the outstanding debt is reduced on both the Student Record and the Sales Ledger.

Also integrated is the Genesis Personnel application. When payroll takes place, information about nominal codes, cost centres and other related financial information is included. This reduces the need to input the data more than once in two different systems and ensures that there is one consistent source of information.

Below is the suite of integrated functionality available from the integrated Genesis suite of software:
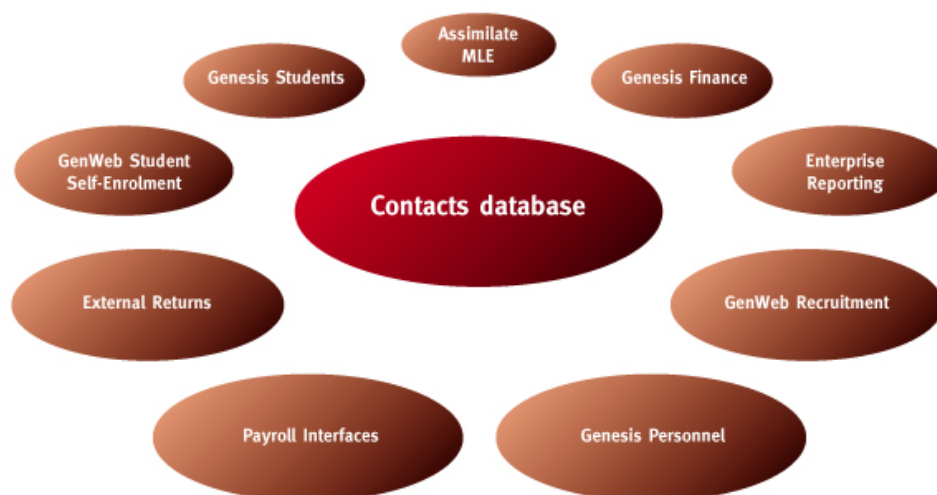

Figure 2: Complete Genesis Integration

1 The University of Hertfordshire MLE is their own, called Study-Net, which integrates with Genesis Students.

2 The University of Hertfordshire use the Centrefile payroll system.

It is these different aspects of a contact which provide the basis for Client Relationship Management (CRM) and the segmentation to analyse the effectiveness of:

• Marketing and advertising campaigns

• Processing enquiries through Applications to Registering as Students

- The Selection process during the Application cycle

- The quality of Students and ability to retain students

- Students gaining employment on completion of their studies

CRM is one of the most exciting and fastest growing concepts in business today. Implementing CRM enables enterprises to improve customer service levels, enhance customer loyalty and retention, reduce margin erosion and increase profitability. It is the science of developing a customer-centric organisation. With a CRM focus, we have been able to utilise every opportunity to delight customers, foster their loyalty and build long-term, mutually satisfying relationships.

Student Self-Enrolment (SSE)

The University of Hertfordshire has seen increasing benefits from Genesis since the system first went live in 1996. However the single biggest advance was in October 2001, when the new Student Self-Enrolment facility came online. This was a massive benefit to registry as the student entered their own data and the programme data was populated all the way through to the examinations they would be sitting. This removed the need for a time-consuming data entry exercise and ensured that their statutory returns were on time and accurate.

SSE allows the owners of information, the students, to quickly and to accurately enter information about themselves and the course options they wish to enrol onto. Once again we worked in partnership with Ramesys and their other HE customers to ensure some a functionally rich and flexible product could become a successful solution.

As Genesis Students is integrated with Genesis Finance the use of the single contact is extended. When the students enrolled themselves into Genesis Students using SSE a customer record was immediately created within the Sales Ledger, again reducing the data capture process and the errors associated with data entry and multiple databases. This approach ensured that when a student is charged for course fees or accommodation the data automatically appears in the Sales Ledger, and when payments are processed the outstanding debt is reduced on both the Student Record and the Sales Ledger.

By having the up-to-date and accurate information, the university was able to distinguish outstanding debt accurately and immediately and inform any students accordingly. As a result, the finance department was three months ahead of its past performance on fee invoicing and it is estimated the university has saved in the region of £750,000 this year alone.
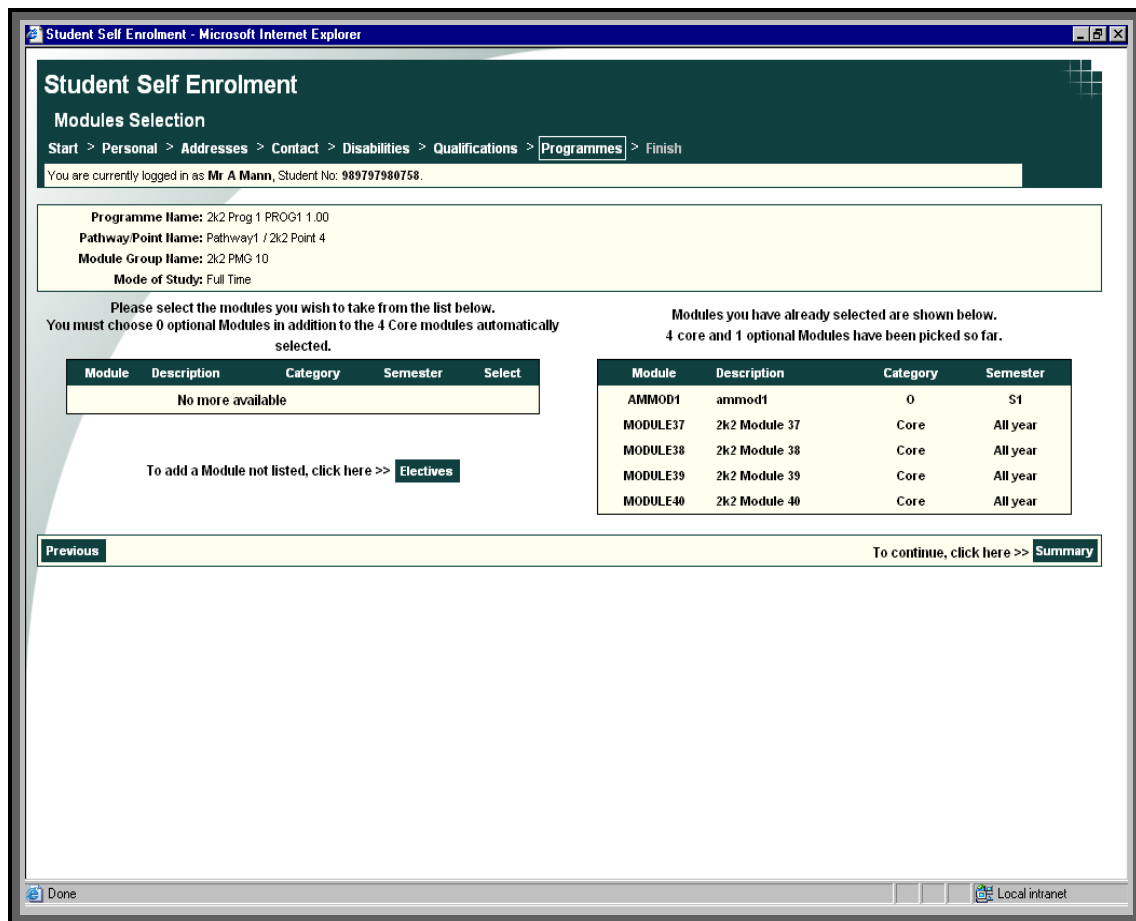
Figure 3: Student Self-Enrolment

Some of the more intangible benefits to using SSE were the student's perception of the university. Prior to implementing SSE, we were using a marquee in the grounds of the university which cost in the region of £30,000 per annum and was traditionally known to be cold, wet and unreliable for any electrical requirements. The student's initial perception of the university was an outdated and poorly equipped institution pretending to reflect a more modern attitude through its portfolio of products.

We are now operating SSE from our modern Learning Resource Centre with a bank of forty PCs and a completely integrated and streamlined process. The feedback from the students has been exceptional. They are able to participate in their enrolment and as a result the quality of information has risen quite considerably. Gone are the days where we chased students for signatures and missing information. If these aren't provided during the SSE enrolment and process, then they will simply not receive their ID card and will not gain access to the MLE content and services.

The timetable and benefits of using SSE is shown below:

- Weeks 1-3 Enrolment for 6,500 New Students

- Weeks 1-3 Class Lists Available

- Weeks 1-3 Course Material via Study Net

- Weeks 1-3 All Customer & Supplier Accounts Activated

- Week 3 Invoices sent to ALL Students for tuition and accommodation fees

- £zero in Suspense Account

- HESA Return more accurate

- Student's Experience Enriched

Conclusion

Prior to 1995, the University of Hertfordshire was a typical higher education institution that was not making use of the information available to it. Resources were wasteful and processes and administration took precedence over the student. Since 1995 and embarking into a mutually satisfying partnership with a supplier, the university has become the leading advocate of integrated and innovative solutions. The university is not integrated as a result of its back-office systems, but because it wanted to become more integrated in its approach.

We believe that we are the only higher education institution in the UK sector that is operating with a completely live integrated solution. This required commitment primarily from the senior management of the university, which filtered down through the organisation. Without this, the project would have ultimately failed, due to the power of the user. Having worked extremely hard in partnership with all parties involved, including the supplier, we believe that can embark on new initiatives and deliver modern products to our students and enrich their experience at the university. We believe that we are leaders in the HE sector for developing systems and procedures to support the student and administrative functions and are currently working to develop functionality and procedural changes to support the HeEP project and SLC capture directly into the integrated student records and finance systems.

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