# *Transworld Data Case Study*

**Letterkenny Institute of Technology: A Lesson in Enterprise Education Agility**

Located in Donegal, North West of Ireland, Letterkenny Institute of Technology http://www.lyit.ie/ has a population of 3,000 students who predominantly come from the local area and from 31 different countries. The Institute has two campuses in Letterkenny and Killybegs, and is strongly committed to raising the economic prospects of its students and its surrounding communities. As part of this effort, LYIT focuses on courses that teach the knowledge and the skills that employers are looking for. One of these programmes is enterprise technology, which has been part of LYIT's curriculum since 2005.

"Our strategic plan for enterprise technology education is divided into four areas," explained LYIT President Paul Hannigan, "These areas are teaching; the strength of the student experience; research and innovation; and an ongoing evaluation of Institute capability in which we achieve the maximum that we can accomplish with the resources that we have to work with. Our enterprise technology programme engages all of these objectives."

Mr. Hannigan emphasizes that there are different teaching methods that LYIT employs to both maximize and fully leverage its instructional resources. One of these methods involves an active use of online learning, which extends the reach of the enterprise technology program, and which provides for agile education. The second key focus that LYIT premises its education on is engagement with local employers to ensure that what is being taught is always what is needed in the enterprise workplace. "Research and innovation with multi-national employers continually infuses vitality and workplace relevance into our enterprise technology offerings," said Hannigan. "This is pivotal to the student experience at LYIT, because our students are not only looking for Honours degrees and academic accomplishment. They are also looking for employability in their field of study."

**Creating a Results-Oriented Curriculum**

LYIT's core enterprise education programme began in 2005 and consists of a one-year, fulltime Level 8 course in Financial Services Technologies, which in the Irish system is the equivalent of a Postgraduate Degree. "Currently this programme is in the form of a "blended learning" style of delivery, which consists of two days per week at college, and a remainder which is self-study with remote assistance provided by the lecturer using a Virtual Learning Environment (VLE)," outlines Michel Carey, Lecturer in Computing and Business Studies at LYIT. There is also a part-time option for this programme that gives students two years to complete the course of study.

The one-year curriculum focuses on IBM System z education in the form of a first semester Mainframe I course and a second semester Mainframe II course. The year-long course sequence is geared to address

training requirements that local enterprises have requested, based upon their IT workforce needs. LYIT has also been successful in leveraging its enterprise and System z computing programme by developing different “flavors” of the programme that are taught via distance learning. In these cases, students can receive either a certificate or a pass/fail rating. These programme permutations also include individually designed courses, such as one on CICS that is taught to enterprise employees and supported by guest lectures from sponsoring companies on CICS, JCL , tricks and tips, general Cobol , and emerging changes and technologies.

“There are many variations of IBM System z and enterprise computing courses that we have presented to different audiences, based upon the educational needs that were identified,” said Carey.

This is especially significant because it has been LYIT’s goal to target academic offerings that would go to the heart of the local workforce needs in the communities it serves. To this end, there have been continuous and concerted efforts to customize courses to specific needs and to work closely with enterprises and the local community to ensure that this happens. The result has been highly relevant and agile education that can be customized for content and for learning channel (online or physical classroom)—and that delivers both conceptual and practical training to students that can immediately be “put to work” by enterprises.

“For the first six years of this programme, we delivered this education for fulltime study only and it was entirely classroom-based,” observed Carey, “But since September of 2011, we have modified both the content and the delivery of this program. All modules have been revised and improved in consultation with industry. We also deliver the programme part-time as well as full-time. We have changed the definition of full-time to mean two evenings per week, so we have shortened the delivery of full-time instruction from four full days to two half days per week. This could *only* have been possible by using the college virtual learning environment (VLE), which runs Blackboard V9.1. In turn, a great deal of self study is required from the student, which is different from earlier study demands during the previous six years. This heightened requirement for self-study also requires greater Institute support for students using the VLE outside of regular hours.”

**Addressing Instructional Challenges**

Like many institutes of higher learning, LYIT found that deciding to kick off an enterprise computing programme was initially a major challenge. “In the beginning, we experienced three primary challenges,” said Carey, “They were mainframe access and availability, costs and resources.”

IBM assisted with the first challenge of mainframe access and availability, which left LYIT to budget and fund for system connectivity costs and Lotus software maintenance.

The next challenge involved the Institute’s teaching staff. “We found that we had to locate and train the lecturers who had the necessary skillset that we were looking for,” said Carey, “This skillset consisted of knowledge in Cobol, Lotus Notes and the mainframe itself.”

Carey went on to say that finding the lecturers was a greater challenge than the Institute had anticipated. “Many of the Lecturer candidates viewed Cobol to be a “dead” language that was on its way out. They were not aware of how integral it was to many enterprises,” said Carey. “These lecturers tended to be

more drawn to the Java and .Net software development languages. Consequently, what we decided to do was to appoint two Champion Programme Managers and also a Programme Coordinator, which was myself. All three positions were essential to the success of this program, because this team pulled together other peers and provided the necessary passion and motivation to make the programme work." As part of the educational process for faculty, the IBM Academic Initiative also provided free Mainframe and DB2 education at its London-based facility.

**Building Student Enterprise Computing Awareness**

The incoming students also knew very little about enterprise computing and mainframes. "In the beginning we only accepted computing students who had many of the skills associated with software development but again, lacked all knowledge of Mainframe and Cobol," said Carey. "We now accept all disciplines, and this in turn has created numerous new challenges in that students come from business, accounting and other technical disciplines and are not computer people at all—and also have little knowledge of the mainframe. In fact, of late we may even consider people who have worked in the "real world" for many years and may in fact not have a Primary Degree, but are able to demonstrate great enthusiasm for the mainframe and programming. We address this need by using our system of RPL (Recognition of Prior Learning)."

In the classroom, lecturers take students through all aspects of the mainframe--from initial communication, logging on, TSO/ISPF, etc.; to programme development. Instruction begins with a study of JCL and then progresses into work with Cobol source programs, which are then submitted as JCL jobs, with the results being checked on SDSF. "In all honestly, most modern day students don't like the look of the green screen, so we have to deal with this challenge," said Carey. "We use multiple tools such as SCRENR and Camtasia to "screen-scrape" numerous tasks such as logging on/off and JCL and Software Development. We then make these available on YouTube and of course on our VLE (Virtual Learning Environment). Students make great of use of our VLE environment. Also in the VLE environment, the College provides support to students, who can use the VLE Discussions board, a common area where the class communicates and raises questions, and where the Lecturer can address these questions and issues online….One of the great advantages with our current mainframe setup is that the Lecturer can see all of the students' areas and can view, edit and run their programs."

The value of the education is making an impression on students. "I had limited knowledge of mainframe computing before I started the course," said Garry McBride, an LYIT enterprise education graduate who now works in production support for Allstate in Northern Ireland. "When I was completing the course I was very surprised on how important mainframe computing was in the area of enterprise computing. I was also surprised that the mainframe is actually the backbone of the majority of enterprise financial computing worldwide."

**Collaborating with Business Partners**

Pivotal to the success of LYIT's enterprise and IBM System z educational programme has been the tight cooperation between key enterprise employers in Letterkenny's community and the Institute itself.

Allstate Insurance and Pramerica, a division of Prudential, are both multi-national employers with employee bases in the Northwest of Ireland. “We maintain a strong relationship with both companies in our enterprise technology programme, both in curriculum development and in the courses and knowledge enrichment that the programme delivers to these companies’ new and existing employees,” said Carey. “A number of senior managers from both companies have also come to LYIT to participate in executive education Master degree work, and are engaged in individual research projects that have additional benefit for their companies. The companies maintain an active involvement in our curriculum reviews and development. The Chairman of our Governing Body is the chief executive of Pramerica.”

“Back in 2004, we got together with Pramerica, another local employee in Ireland, and together we approached LYIT about offering enterprise and mainframe courses that would tie into what our IT needs were,” said Louise McGee, Human Resources Manager for Allstate. “Because both companies were in the same industry of financial services and insurance, we felt we that had an advantage when we approached LYIT, because our training needs were similar.”

When Allstate and Pramerica teamed with LYIT, the result was an active collaboration that produced an enterprise computing curriculum, complete with all of the relevant details and syllabi needed to support it. “This effort took approximately twelve months,” said Carey. “The course syllabi then had to be externally examined and audited, as is the practice with all new programs. The external examination panel was comprised of representatives from the two participating companies along with representatives of other universities and institutes of technology.”

LYIT didn’t stop once it had its approved curriculum in place. “We recognized that the primary challenge over the lifetime of the programme would be to maintain the alignment of the programme we were teaching with the changing needs of industry,” said Carey. “This is a very difficult space to be in. It continues to be a major challenge in that a syllabus is created which then has a four-year lifecycle before it can be officially modified by our PPE (Periodic Programmatic Review) process. This rate of change and review is unacceptable to the business partners we collaborate with, so of course this is a major challenge. “

LYIT tackles this challenge by meeting regularly with its business partners. This includes daily phone calls between LYIT and its business partners to determine what the changing company educational needs are, and how the Lecturer is going to modify the existing curriculum to accommodate these new needs between four-year review cycles. The process gives LYIT great agility in the way it prepares its educational offerings, although it is a constant challenge for Lecturers to make course revisions. The participating business partners assist in the process by regularly providing guest speakers in numerous areas of interest. They also accept LYIT students on internships for the students’ final module of enterprise education, which is for a four-week period. In this way, the students get on-the-job experience in a global company, and the company gets a chance to evaluate the students. “Often during this four-week-period the student gets hired,” said Carey, “Alternatively, students sometimes get hired soon afterwards--whenever a vacancy arises.”

The enterprise technology programme offers opportunities to undergraduate students, but it also delivers benefits to students at the post-graduate level. “In both cases, we maintain strong links to area employers,” said President Paul Hannigan, “As a consequence, students graduating from the LYIT enterprise technology programme have a ready- made career path that they might not have had if they had not been in the program. On the employer side, companies get highly skilled people capable of performing the jobs that they are looking to fill. This is good for our community here in the Northwest of Ireland, because the collaboration that we have with local businesses and our enterprise-relevant

curriculum bring employment into the region, and makes our programme very attractive. On the enterprise side, our business partners can also show that they're working on their corporate responsibility initiatives by aiding the local community with employment opportunities for well paying jobs."

Louise McGee of Allstate added that over the past four or five years, the company has sponsored between 20 and 24 LYIT interns. "They come to us with background in the mainframe and also insurance and finance, and are strong hires," she said.

**Seeing the Results**

Since 2005, when LYIT began tracking the results of its enterprise computing program, nearly 75 students have graduated. An additional 25 enterprise employees have attended a number of mainframe modules delivered by LYIT since 2005.

"Virtually all of our students have received internships from local employers and have gone on to secure permanent IT employment in local enterprises that work closely with us," said Carey. One reason is that LYIT is always open to new ideas. "What makes the mainframe course so unique is the close collaboration that we have with LYIT," said Allstate's Louise McGee. "This collaboration guarantees that course content stays close to the kind of training that we are looking for in our company. LYIT also offers a Masters in Innovation degree which a number of our staff have undertaken. We send a lot of our senior managers there. LYIT is a fantastic institution."

Students agree.

"I attended LYIT for four years, where I completed my Computing Degree and then an additional year for the IBM System z course," said Garry MacBride, who resolves production issues relating to source code and carries out other production support roles at Allstate. "The course that I did was a Higher Diploma in Art in Financial Services Technologies. Within this course I studied mainframe programming. The IBM System z coursework gave me a good foundation for the work place. The skills such as mainframe programming and JCL helped with my ability to carry out my current work. Also, the assignments that we carried out gave us a good working knowledge of how the mainframe operates."

MacBride said that he researched local companies in the area and discovered that there was a need for Cobol programmers. "I was just finishing a computing course when I found out that Letterkenny Institute of Technology was offering the Financial Services Technologies course," said MacBride. "I signed up for it immediately!"

Madeline Villasante, who has worked for Allstate IT for nearly five years, also took LYIT's Financial Services Technologies course. "I work on various projects, using programming languages like Cobol, SAS, PL1 and Assembler," said Villasante, "The LYIT coursework helped me, because it was there that I learned Cobol and also obtained very valuable work experience."

**Conclusion**

LYIT has distinguished itself in its ability to place nearly 100 percent of its students graduating from the enterprise technology programme with employers—because these students have the skills employers are looking for. This is good for LYIT's immediate community in the Northwest Region because it contributes to the economy—but the success of the programme is also extending LYIT's reach to students in the border areas. The ability of the LYIT enterprise technology programme to contribute to the local economy has not gone unnoticed. Letterkenny recently received funding from Ireland's central government to further build out the programme. This is national recognition that the programme works.

"This programme can have even larger appeal," said President Paul Hannigan. "We are presently talking with other institutions in Ireland about franchising this program, and we are also talking with other employers about getting involved. Our ultimate goal is to move the programme to an online platform, which will give us a more flexible approach for the delivery of our instruction."

Paul Hannigan acknowledges that the enterprise computing curriculum was highly important to LYIT as a Higher Education Institution. "We came up with course content constructed around enterprise best practices, and we brought in guest lecturers. The effort established our credibility with enterprises, which not only hire LYIT graduates, but also send existing employees to enterprise and mainframe classes that LYIT customizes for their needs," said Hannigan.

Being able to adapt to an enterprise workforce needs was a key success factor. "Industry came to us with a training problem—that they couldn't seem to recruit the mainframe talent that they needed--and we had to prove to them that we could deliver a solution," said Hannigan. "We sat down together with them to identify the issues and the problems—and we retrained our internal staff so they could teach the subject matter that was needed."