The development lab experience: dancing with wolves

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The Whitireia Development Lab (DevLab) was conceived and created two years ago with the intent of developing a multi purpose environment to allow industry and academia to interact on a variety of levels for the benefit of both parties.
Our objective was to create industry alliances, provide resources for the BIT 3rd year projects, facilitate faculty research while becoming self funded. This paper describes the journey from an idea to a facility we are justifiably proud of. Along the way we have created alliances with Telecom New Zealand and the New Zealand Defence Force, we have created an internationally recognised .Net user group, we have supported numerous 3rd year BIT projects, undertaken commercial projects and received funding through grants.
The journey has not been without challenges. Melding the cultures of academia and industry to create a development research organisation, has changed attitudes in all stakeholders involved in the experience, the communication hurdles across cultures have been significant, the dangers of leaving those not directly involved behind has arisen. The benefits to our programmes, lecturers and students have been substantial. The challenge now is to move from the startup phase to a self sustaining organisation.

Keywords

DevLab, Development, .Net, Capstone.

1. INTRODUCTION

Why dancing with wolves… At the beginning of the film, 'Dances with Wolves', both John Dunbar and the Indians believed they were superior to the other. They each believed their culture was correct, while the other was not important. As the movie continues John Dunbar begins to grow an appreciation for the Indian culture and the Indians realize Dunbar is not just there to take their land.

Substitute Dunbar for ourselves and our colleagues, the Indians for industry the Indians land for the individual industry landscapes encountered and you will see, we hope by the end of this paper, why it is called dancing with wolves.

To refer to the information technology industry is, to a point, misleading. It is very difficult to identify just what is 'the industry'. For the purposes of this paper 'the industry' can be divided into the following four main groups:

- Small to medium software manufacturers
- Companies or government departments with internal software development sections
- Solutions or support providers
- Cluster groups supported by local and regional development agencies

Students in their third year of information technology bachelors degree are required to carryout a four hundred and twenty hour, industry based project to complete their under graduate degree. These projects can be described as 'capstone projects'. The definition of a 'capstone project is as described by Clear *et al* "Most computing curricula have a special course, usually taken during part of the final year, that is considered a "capstone" course. This course is required of all students and is supposed to provide a culminating and integrative educational experience." (Clear *et al*, 2001)

From an industry's standpoint the industry based project is a necessary requirement to prepare students for work in the "real world". From a students standpoint these projects are often frightening and prove often to push students well outside of their comfort zone.

It was partly as a mechanism to assist such capstone projects, among other reasons that which we have labelled the DevLab, was created.

2. DEVELOPMENT LAB

A number of capstone projects were offered in the first semester of 2002. These projects were the first such projects to be offered to the BIT programmes first graduating class. The complexity of the proposed software development projects was such that would challenge the students and assist in the evaluation of the degree. At the time the programming environment required was not available at the Polytechnic, nor was sufficient room available within the project sponsors individual locations to allow for work placement.

During this process we were approached by a senior staff member who had the task of organizing a pathway for an anticipated large number of international, mostly Chinese, students stair-casing into the third year of the degree. There was a concern about allowing the international students, who had been through a fast track diploma programme, to work directly with industry without supervision and felt the need to create an environment where they could be administered by academics that was not within the confines of the polytechnic.

It also became clear during this time that there was a need to provide an environment that would allow academics develop their own research initiative as diverse as post-graduate student tracking system through to the education of information technology using 3D worlds. There was also an opportunity for the School to utilise its developing partnerships and regional expertise in the computing and IT area. The DevLab was established within the Innovation Greenhouse Porirua incubator in August of 2002. This was designed to be a multi-functional resource centre providing the opportunity for small businesses and large corporate industries to work with the polytechnic within a business environment. Locating the Lab within the incubator allows greater business alignment and provides students and graduates with support for transition to the workplace, or into a business start-up to commercialise development.

One focus of the DevLab is innovation. Por and van Bekkum state "innovation is not something that is happening 'inside' firms but rather at the interfaces of firms with markets, structures of competition, and the regulatory and institutional environments within which firms operate. Open-source networks of cooperation are composed of teams of company employees and entrepreneurs outside the official structures of companies as well as within such structures.

Those open-source networks of cooperation include organizations, individuals and business communities." (Por and van Bekkum, 2004).

The DevLab was officially launched in December 2002 and students, staff and industry clients celebrated the successful completion of specialist projects for organisations that included the New Zealand Defence Force, and Telecom New Zealand.

While the celebrations continued the realities of running such a lab were ever present. The most prominent wolf in this case was funding.

3. FUNDING

To fund the DevLab is its greatest challenge and a self-funding model has yet to be realised. To date the DevLab has been successful in securing the Polytechnic Regional Development Fund grant two years in a row. These grants have given us the time to move toward a self-funding model as a continuous reliance on such grant funding, especially form the same source, is both overly hopeful and unrealistic.

Commercial projects have been completed for clients, although these contracts yield a minimum profit. The reason for this is the pricing structure that is attached to such commercial activities. The DevLab was not primarily setup as a commercial applications development house. Lack of staff availability and the transient skill base, our students, both contribute to the risk of commercial activity.

Research funding is also being investigated. To date a number of research projects have resulted in Whitireia being short-listed but as yet none have flowed through to the DevLab. Cluster affiliations are also another way to grow 'the business'. Certainly our links with a variety of cluster groups such as the Wellington based Media Lab has yielded excellent opportunities for educational collaboration but as yet no commercial gain.

The challenge at this stage is size, or rather the lack of it. To carry out successful commercial activities, dedicated time by a focused, professional team, is required. Although degree staff may be allocated a proportion of hours to work on commercial ventures this process requires further investigation.

4. THE DEVLAB AS A 'SPACE'

The creation of a 'space' that is physically separated from the polytechnic is in it self a success. By this I mean the physical dislocation from an academic institute has allowed:

- a place where capstone projects can be attempted when they may have been denied due to technical constraint
- a location to hold meetings with industry partners in a business environment
- a location to mix with other incubatees who's focus is other that IT
- a place where researchers can refocus and debate individual research.

The DevLab environment has also aided in the revival of an ailing user group known as the Visual Basic Users Group (VBUG). This user group had been set up to act as a forum for programming tutors and students studying the Visual Basic language to meet with a software developer from industry. However in recent years the numbers had fallen to a hardy few souls. With the change to a new programming environment and an identified champion, the lecturer in application development, coupled with a new environment, a new user group DotNet Link evolved. Its aim as stated on the website: "DotNet Link is a group of people interested in the development of applications using the Microsoft .Net Environment. It includes people working in the field, students from all levels and Lecturers. We are based in Porirua, Wellington and supported by the Whitireia DevLab." (www.devlab.ac.nz)

The creation of this new user group has allowed for a greater exposure to the application development organisations throughout the region. Meetings, held once a month, have 1/3rd representation from that part of the industry with the remainder consisting of students, staff and interested observers. This user group has enabled staff to face the second wolf, that of industry acceptance. In order for the DevLab to be successful and fulfill the objectives it set for itself it must been seen as a credible entity within industry.

This requires trust. "The transparency of peer-to-peer culture prevalent in open source networks and communities of practice is more conducive to trust building than accomplishing the same in hierarchical contexts. Trust is pivotal to create a safe environment for community members where they are free to take risks and experiment with ideas. One of the sources of the communities' innovation value is in their role in accelerating trust flows." (Por and van Bekkum, 2004).

The championing of this user group has also been important. The process of highlighting the user group through the DevLab has resulted in Sue Chard being invited be become one of the educational representative of the International .Net Association – Asia Pacific (INETA APAC).

"INETA is a non profit organisation of volunteers based in the USA whose goal is to support .NET user groups and the development of the .NET developer community" (http://www.devlab.ac.nz).

5. MELDING THE CULTURES

The culture of the organization is our own personal wolf. How we, as lecturers, have changed and what precisely does this make us? Staff have changed, both in the way the development of course material is approached and the focus on the instruction to students.

The capstone projects give good insight as to current trends. A top-down approach is utilised by the staff to evaluate the failures in the project cycle. This is not an investigation of a project failure, rather the lack of coverage in specific topic areas. For example the teaching of multi-tiered development architecture was disjointed in the BIT programme in 2002 but introduced and linked throughout a number of modules in 2003.

We have also changed within ourselves. We now find ourselves in a duplicitous status. We are researchers and educationalists as well as developers and entrepreneurs. Exposure to research at a higher education level and the continued exchanges with industry has extended all staff well beyond our beginnings. At times this duplicitous being sits poorly in either polytechnic or industry. This facet requires further research and is beyond the scope of this paper. The journey continues, and we will continue to face the wolves and become increasingly symbiotic with our software development industry.

REFERENCES

Clear, T., M. Goldweber, *et al.* (2001). "Resources for instructors of capstone courses in computing." ACM SIGCSE Bulletin 33: 493-513.

Por, G. and E. van Bekkum. (2004) Innovation and Communities of Practice: The "Great Symphony" Paradox. Retrieved May 30, 2004, from http://www.communityIntelligence.co.uk

Whitireia DevLab.(n.d.). INETA APAC Summit 2004, Bangkok, 29-30 April Retrieved May 24, 2004, from http://www.devlab.ac.nz/dotnetlink/inetaapac.asp