



David Moran (centre), CEO of ChangingWorlds, winner of the CPD Company of the Year Awards 2008 with Engineers Ireland Director General John Power (left) and Minister for Trade and Commerce John McGuinness.

CHANGINGWORLDS WINS CPD COMPANY OF THE YEAR AWARD

ChangingWorlds were the overall winners of the CPD Company of the Year Award for 2008. *The Engineers Journal* gives readers a look behind the scenes at one of Ireland's most exciting young companies and reveals how an organisational commitment to continuing professional development contributes to the bottom line.

ChangingWorlds positions itself as the global expert in the personalisation of mobile internet data and the creation of in-depth subscriber intelligence for mobile operators. ChangingWorlds was founded in 1999 to commercialise the award-winning ClixSmart personalisation engine. The engine was developed as part of an extensive research programme in University College Dublin to solve the usability and content discovery problems of the mobile internet. To this day, the nerve centre of ChangingWorlds' ongoing advanced R&D is located in Nova UCD, the Innovation and Technology Transfer Centre at the university, which is one of the leaders in the commercialisation of research for the benefit of the economy and society.

Commitment to innovation

ChangingWorlds' research genesis, as a spin-off company from University College Dublin, means that technical innovation is at the core of everything the company does. According to the company's Chief Executive Officer David P. Moran (BSc, MSc): "We have developed a remarkable R&D capability through a unique combination of in-house R&D plus active collaborations with the Smart Media Institute in UCD and our own innovation centre based in Nova." The ChangingWorlds office in Nova has a dual function: firstly, to deliver on the product roadmap by developing new features and products which meet the needs of customers; and secondly, to foster innovation and creativity and engage in strategic research to evaluate new technologies. The ChangingWorlds Innovation Centre works to ensure that technical innovation is translated into applied, effective uses for its current and future mobile operator clients. There are now over 90 highly qualified software engineers based in Nova UCD, ChangingWorlds Headquarters in Leopardstown and in its office in Kuala Lumpur, working

on advanced personalisation technologies for mobile internet applications to add to the ChangingWorlds' product suite.

Leveraging the CPD Framework

David Moran emphasises that ChangingWorlds has always valued innovation and creativity since its beginnings as a campus company right up to its current position as a market leader in personalised content discovery and intelligent internet portals: "The continuously evolving skills and motivation of our team are qualities which play a critical role in our continued success."

Two projects illustrate the pivotal role played by CPD in ChangingWorlds: the development of the ClixSmart Business Intelligence Manager (BIM) and the ClixSmart Ad Personaliser (AP) along with the tangible business benefits which resulted. Understanding the end-user is the key to delivering a differentiated and compelling mobile internet service that will drive up usage and increase mobile internet ARPU (average revenue per user).

Thus, mobile operators need real time business intelligence to monitor usage trends, analyse user behaviour and track revenue in order to make timely, informed business decisions. Capitalising on ChangingWorlds' expertise in personalised content discovery, ClixSmart (BIM) provides a source of business intelligence on subscriber activity on their ClixSmart portal, enabling the operator's marketing team to obtain up-to-the-minute intelligence on all portal activity. CPD played a pivotal role in the development of ChangingWorlds' ClixSmart Business Intelligence Manager, an in-depth intelligence-reporting tool for mobile operators. CPD played an important part in providing the development team with the database skills required to deliver this challenging data-centric project efficiently and effectively to a leading US operator.

operators keep both subscribers and advertisers happy”. The development of ClixSmart AP also benefited from analysis done in the ChangingWorlds Innovation Centre (CIC). David explains: “The CIC supports CPD and fosters creativity amongst employees, tapping into the wealth of experience and knowledge represented by our company as a whole. Knowledge captured through analysis and idea generation is then shared throughout the company.

“This approach complements our existing training and knowledge sharing structures and played an important role in the development of Ad Personaliser which is due to be deployed in a major European operator. This research also played a key role in allowing ChangingWorlds to engage with advertising networks and potential partners in the advertising space.” During the BIM project a group of eight engineers completed the *Oracle Database 10g: Introduction to SQL* certifications. Following the completion of this Certification the engineers attended a five day training course in October 2007 in PL/SQL and following the training completed the *Oracle Database 10g: Program with PL/SQL* certification. The time spent on the PL/SQL course and also study time was logged against each engineer’s CPD time card. The engineers could spend up to two hours a week in work studying for their certifications and all certification exams had to be completed by Christmas.

Knowledge management

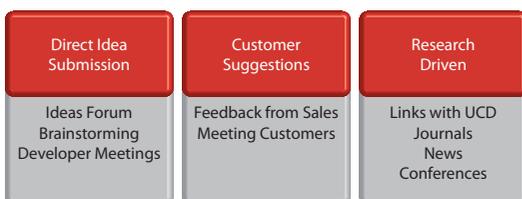
Product development constantly promotes the gathering, capturing and sharing of knowledge and new ideas within the company and complements its existing CPD knowledge sharing processes. Engineers give bite-size briefings on a regular basis after completing training courses, attending conferences or when their work takes them into new areas of knowledge. In this way the entire engineering team can benefit from their experience.

Following the Oracle Certifications our DBA (Database Administrator) ran a set of follow-up internal training sessions and knowledge sharing presentations to the rest of the engineering teams. Knowledge management is key to any successful project and in this case to the development of a new product. Before the project started the project manager set up a project site for storing documentation, sharing information and tracking the project progress.

Quarterly staff appraisals

All ChangingWorlds staff undergo quarterly performance reviews. Every quarter a set of goals are assigned to each member of staff by their line manager. For the team working on the BIM project their goals for Q3 and Q4 2007 and Q1 2008 were related to various different sub tasks within the BIM project.

Innovation and creativity



Project ideas for CIC come from a variety of sources including engineers, customer suggestions, sales and marketing, academic collaborations and the studies of our research team. “The CIC team works closely with our sales

and pre-sales departments to tap into the latest customer-driven trends while also learning through collaborations with academic research teams”, David says. “This work focuses on personalisation and user behaviour analysis and allows us to keep up to date with the diverse cutting edge research going on in the universities today. It has also lead to some academic publications which allow us to develop our thought leadership role.” Importantly, he adds, ideas can also be suggested from any of the company’s engineers. “Engineers working on a customer project who have uncovered some new idea or have been inspired in some new direction thanks to ongoing training can submit ideas to the CIC. If the idea is accepted as a project the engineer in question can transfer into the CIC to lead the initial incubation project for that idea. Other non-engineering staff can also submit ideas and can nominate an engineer to champion their idea.”

Team Rotation

In addition to a core team of research engineers in CIC, engineers rotate in from other departments on a per project basis. If an employee submits a project idea to CIC and this project is taken on then, in addition to winning an innovation award, the submitting engineer gets the chance to team up with a CIC team member and lead the project work in CIC. People who submit ideas are often the most knowledgeable about the idea and want to see it succeed and so make ideal candidates to drive the project forward.

CIC teams the engineer up with a research engineer to complement this individual’s experience and drive with knowledge of user analysis and prototyping experience. If a non-engineering employee, say a sales team member, submits an idea they get to nominate an engineer to work on the project. If the project is successful, the engineer could stay with the project from incubation and prototyping in CIC through to development of their idea in product development.

The CIC also takes on projects suggested by customer feedback or from other sources. For these projects engineers rotate in for a longer period. This gives the engineer an opportunity to try some early stage prototyping and to influence the direction of research projects being carried out. The CIC in turn benefits enormously from the varied knowledge and views of the rotated engineer as CIC cannot hope to replicate the entire evolving knowledge base represented by the company’s engineers.

If the project the engineer is working on is adopted for development then they may well go on to work on the development team.

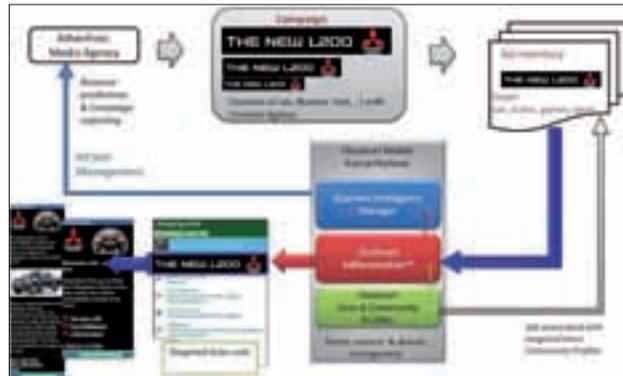
Otherwise, at the end of their rotation, the engineer transfers back to their department to share their experience with the rest of their team.

The core team of CIC research engineers rotates out of the CIC also. In addition to joining sales trips to gain valuable market insight, they also rotate into product development when a project graduates from prototype into full product development. In this way the knowledge and experience gained during the incubation and prototype phases is shared with the product development team.

David sums up: “This is an excellent way to tap into the ever-expanding knowledge pool of the ChangingWorlds team. As engineers learn from customer projects or are inspired by training, this approach allows that enthusiasm to find an outlet in an innovation project thus benefiting the company as a whole. Engineers are incentivised at every step of the innovation process: if an idea is accepted for initial evaluation the idea submitter wins an award. If the project

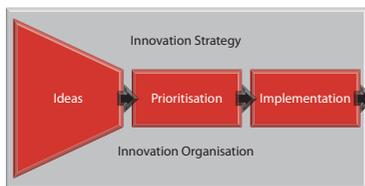
Why ChangingWorlds is the CPD Company of the Year

“CPD in the engineering sector is absolutely critical. Proper attention to CPD is not only important from an individual company’s perspective, it is also necessary to advance Ireland’s case as a destination for foreign direct investment. ChangingWorlds was awarded the CPD Company of the Year award from Engineers Ireland to recognise its excellent organisational practice in the area of professional development for engineers and technical staff and in particular to recognise the commercial success ChangingWorlds has enjoyed as a result of its ongoing investment in innovation and CPD. ChangingWorlds is a model case-study highlighting how CPD is a strategy for success in organisations as it mutually benefits both company and participant employees.” John Power, Chartered Engineer and Engineers Ireland Director General.



Architecture of Mitsubishi's L200 advertising campaign utilising the Clixsmart platform.

then progresses from incubation through to prototype and indeed to development further awards are made along with the esteem earned by leading the project through to fruition.” Projects are chosen and prioritised by an Innovation Council made up of representatives of each department within ChangingWorlds. The function of this council is to review the progress of existing projects and choose new projects that are aligned with the company’s business objectives. This ensures that the CIC research is both relevant and timely. CIC supports this knowledge capture by providing a core team of researchers who can help evaluate new ideas through behavioural analysis, prototyping and initial business case development. The team can also protect any knowledge found by applying for IP protection if appropriate.



Sharing Knowledge

In order to truly benefit from all the knowledge gathered it is important not only to have a transparent and inclusive approach to innovation but also to communicate this knowledge to the company at large. CIC complements the existing CPD training practices by providing touch points with all areas of the company. For example, sales and marketing collateral are produced based on the research and prototypes developed which supports ChangingWorlds thought leadership in the market. CIC supports sales by meeting with customers and it also ‘evangelises’ the company’s technology and research. CIC provides

presentations and progress reports to supplement existing knowledge sharing methods such as bite size briefings and intranet materials and works with development teams to build algorithms and capture potential IP.

Teamwork, training and development

In parallel to the research being carried out in the Innovation Centre (CIC), product development teams were working on developing an ad management system that would allow integration between ClixSmart Navigator Server, ClixSmart Business Intelligence Manager (BIM) and Ad Personaliser. It was essential for the success of this effort that the knowledge gained during market analysis and the CIC research phase be shared with the product development team at an early stage. This enabled the product development team to build a system that lived up to the high service level standards expected of a Tier 1 mobile operator network while taking full advantage of the innovative techniques being developed in CIC. Co-operation and communication between these teams resulted in a system that presented a cohesive and appealing ad management interface to advertisers coupled with an advanced personalised targeting system that could dynamically learn from ClixSmart holistic user profiles and could provide relevant intelligent KPI metrics using ClixSmart Business Intelligence Manager. During this project, training in statistical analysis, database skills and scientific analysis methods were vital to its successful completion. This complemented the ongoing training among the product development team which focused on algorithm performance, architecture and database skills. In particular, engineers are pursuing Oracle and Java certification though CPD accredited courses. The skills learnt here proved particularly vital in dealing with the vast amounts of user data typically involved in the user profiles of a Tier 1 mobile network operator. Φ