Illustration: **Me.id**

...and at the Media Lab Europe they think they know how to ensure it's always on tap

AND NOW, in the words of Monty Python, for something completely different. The Dublin-based Media Lab Europe (MLE) is housed in a grey stone building that, for the better part of a hundred years, served as the Guinness Brewery hop store. Externally it has the visual charm of a Victorian jail; the interior, however, is decidedly swish. The brick walls are the colour of fruitcake, slim cast-iron columns support the ceilings, and the time-polished wooden floors give off the scent of hops on a warm day – so it's said. It looks for all the world like the home of a fashionable architectural practice or an up market advertising agency. Actually, it's something much more interesting.

MLE is the European offshoot of the world-famous MIT Media Lab (ML), founded in 1985 by MIT Professor Nicholas Negroponte and the late Jerome Wiesner (one-time science adviser to President Kennedy). In general, development laboratories have down-to-earth aims, with an emphasis on technologies judged to promise reasonably short-term prospects of a commercial return. In contrast, the goals of ML and MLE seem almost otherworldly – summed up by Simon Jones, who took over as chief executive of MLE in October

SIMON JONES CAREER AT-A-GLANCE

1986-1992	Lecturer, University of Wales, Bangor and University of Nottingham
1992-2002	ARM/Royal Academy of Engineering Research Chair in Embedded Systems, Loughborough University
1998	Guest professor, Technical University of Dresden
2001-2003	Dean of Engineering and Design, University of Bath
2003	Chief Executive, Media Lab Europe

last year, as "looking for significant step changes in the way technology interacts with people, and the way people interact through technology". And he doesn't envisage such changes occurring in the immediate future. "Media Labs is an unorthodox and sometimes wilfully anti-establishment organisation," Jones argues, "that deliberately sets out to avoid all forms of incremental research, addressing a future 15 to 20 years from now."

PASSION AND HINTERLAND

These novel objectives are matched by a somewhat unusual mix of researchers and a highly distinctive approach to research management. The researchers, or "innovators" as Jones prefers to call them, come from a wide range of disciplines – there are scientists, engineers, medical personnel, artists, musicians and philosophers. Their personal qualities are also crucial. "We look for people with passion, a hinterland, and an absolute commitment to interdisciplinarity," he says, "Our artists must be excited by and prepared to engage with technology, and our engineers need to be eager to learn from the working methods of artists."

A belief in the benefits of an interdisciplinary approach to research is central to the ML/MLE philosophy. "Great innovation undoubtedly comes from interdisciplinarity," insists Jones. The trick is to overcome the problems normally found in getting people from different backgrounds to work effectively together. The ML/MLE solution to this challenge lies its 'democentric' system of research management.

The innovators are organised into a number of research groups headed by a principal investigator, with each group having its own distinct mission and focus of interests. The mission of the Human Connectedness group, for example, is to "conceive a new genre of technologies and experiences that allow us to build, maintain and enhance relationships in new ways". Essentially, the various groups pursue their research objectives by conceiving and conducting a series of illustrative research projects – the demos. "Somebody has the germ of an idea; then they go and do it," is how Jones summarises the demo instigation process. →

BREAKOUT FOR TWO

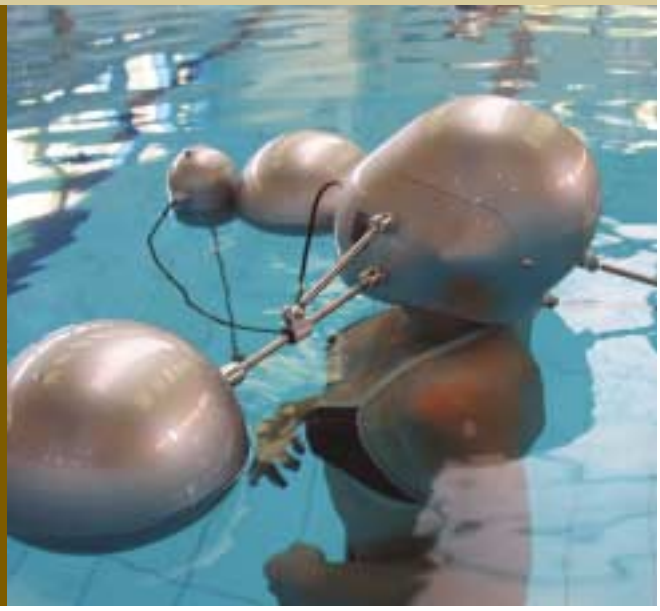
Traditional sports foster team spirit through the shared experience of a physically taxing competitive activity. Breakout for two is a cross between soccer, tennis and the Breakout video game, designed to foster the same sense of camaraderie over a distance. Participants in remote locations must throw or kick a real soccer ball at a local physical wall to break through a projection of virtual 'blocks' that obscure a live video image of the other player. The blocks are synchronised – when one player breaks through a block, the same block disappears from the other player's screen. The player who breaks through the most blocks wins.

Results from trial games have been encouraging, with players reporting that they "got to know each other better and became better friends". A future application could lie in a 'virtual athletic facility' for engaging in sport at a distance.

THE ISO-PHONE

The Iso-phone demo is a wonderful illustration of MLE unorthodoxy in action. Conventional wisdom holds that, when it comes to communication, the richer the media experience the better. But perhaps conventional wisdom is simply wrong, and the quality of telephonic communications is at its highest when the effects of 'distracting' senses are either eliminated or muted into insignificance. Iso-phone users float in water, held at human body temperature, while wearing a helmet that blocks out all peripheral sensory simulation. Three floats keep the wearer's head above the surface of the water. There's a microphone and earpiece inside the helmet, and Iso-phone 'floaters' talk to each other over short-range wireless links.

Early trials of Iso-phone conducted in a swimming pool were very encouraging, resulting in plans to build two temperature-controlled immersion tanks to study the benefits of minimalist communications in greater detail. "Time just flies," according to an MLE investigator and Iso-phone user.



THE ART OF THE DEMO

Think about the problem of team-building between the members of an engineering development team scattered across several continents. The phone and email are fine, up to a point, but wouldn't it be wonderful if we could use technology to capture – at a distance – some of the bonding potential of shared participation in a physically exhausting sport? That's the germ of an idea. The next step is to build some sort of networked game (see 'Breakout for Two' box, p33) that will serve as a platform for demonstrating and evaluating the idea – that's the demo.

"We do research in science and engineering," says Jones, "but we use the methods of artists and architects. Artists do installations – some paint, some sculpt. Engineering is the humanities of the 21st century, and our demos are our installations."

The obvious questions are who pays for all this and how is the programme of demonstrations determined? As in just about everything else, ML/MLE has its own unique line on funding. The approach pioneered at the MIT ML, and also being pursued at MLE, is to rely on industrial 'subscriptions' as the major source of income. For annual payment of around €300,000 a company can become an MLE partner. In exchange partners get privileged access to MLE's staff and technology, including royalty-free licensing rights over the intellectual property developed at both ML and MLE – worth around €48m according to Jones. What they most definitely don't get, is the right to explicitly direct

"ENGINEERING IS THE HUMANITIES OF THE 21ST CENTURY." *– SIMON JONES, CHIEF EXECUTIVE, MLE*

MLE's programme of demo-based research. "We don't do contract research," insists Jones. "There's no sense in which our partners give us euro or yen in exchange for doing X."

INFORMED CHOICES

What does occur, according to Jones, is a subtle and mutually beneficial interplay between the interests of MLE's investigators and the problems and concerns of MLE partners. "The old research model where you had a linear progression of fundamental, basic, strategic and applied research, followed by product development and manufacturing, just doesn't apply anymore," he says. "The truth is that in the IT and 'performance' industries the most fundamental and interesting research problems are being generated by the people producing products. Our principal investigators have the right and responsibility to decide the direction of their research. At the same time they are

required to be aware of where our partners see the long-term technology transitions occurring, and to use this knowledge to inform their choice of research projects."

Partners may not be getting specific answers to immediate problems, but Jones believes the ML/MLE research model is offering them something of much more lasting value. "Our partners, naturally, have links with lots of conventional contract research organisations," he says. "What they value in MLE is a relationship with people who challenge orthodoxy and deliberately do things in a different way. The benefits of this relationship take many forms. Obviously, it includes the IP generated by our demos, but there's also an informal technology due-diligence function that comes from working with our investigator, along with technology networking outside the closed world of trade associations and technical working groups. The key benefit, however, comes from being associated with an innovation process that helps inform the key strategic decisions relating to technology that are going to affect a business in the medium to long-term timescale."

"From a business perspective, slow and steady is an entirely rational strategy, which, in the short term, has much to recommend it. However, if you fail to innovate then, sooner or later, you'll be overtaken. MLE is about many things, but, ultimately, we're a catapult into the future."

BE INSPIRED

MLE is a fascinating, even inspirational, sort of place, but it's only going to thrive if enough companies are willing to buy into the proposition that a multidisciplinary, relatively free-wheeling research model necessarily provides unique insights into the technological future. The signs are mixed. Pre the NASDAQ correction and the end of the dotcom boom, MIT ML was getting 95% of its income from industry. In 2003, however, around 25% of MIT ML's income came from the US government, and a $115m building programme, originally announced in 1999, is officially on hold.

MLE's opening in 2000 was made possible by an injection of €35m from the Irish government. This paid for the building and provided 'pump priming' income for the lab's initial phase of development. Currently MLE has 14 sponsors, but, according to Jones, it needs around 30 to reach its target of being "self-sustaining" in two to three years. Jones admits that money is much tighter than it used be, while maintaining that "over the last few months, things have undoubtedly been better".

So, if you're a finance director of a high-tech company, and you're beginning to wonder if improving prospects might justify a €300,000 a year punt on the technological future, Simon Jones would love to hear from you. ■

RELAX TO WIN

The work of the MindGames research group – home of the Relax to Win demo – is centred on attempts to "constructively influence the state of the human mind through a combination of sensory immersion, intelligent bio-feedback and multi-modal interface technologies". Perhaps surprisingly, Relax to Win is rather fun. It's a video game based in a visually striking virtual world – providing the immersion element – in which two players race a pair of red and green dragons. Galvanic contacts on the players' fingers sense their individual states of stress, and this stress signal is used to control the speed of the dragons. The lower the stress the faster the dragon, so it's the most relaxed player who wins.

Given a suitable input device you can see that this might be a valuable addition to the game set of the typical mobile phone. More seriously, clinical studies are currently underway to evaluate the game's potential as an aid to relaxation training in the treatment of childhood problems such as anxiety, phobia and post-traumatic stress management.