

# High tech haven

When the head honchos at MIT's Media Lab went looking for a European outpost, chances are it wasn't Dublin's Liberties with its market stalls and thrift shops they imagined. But with lateral thinking, a fab mill building from Guinness and a government grant, Media Lab Europe was born

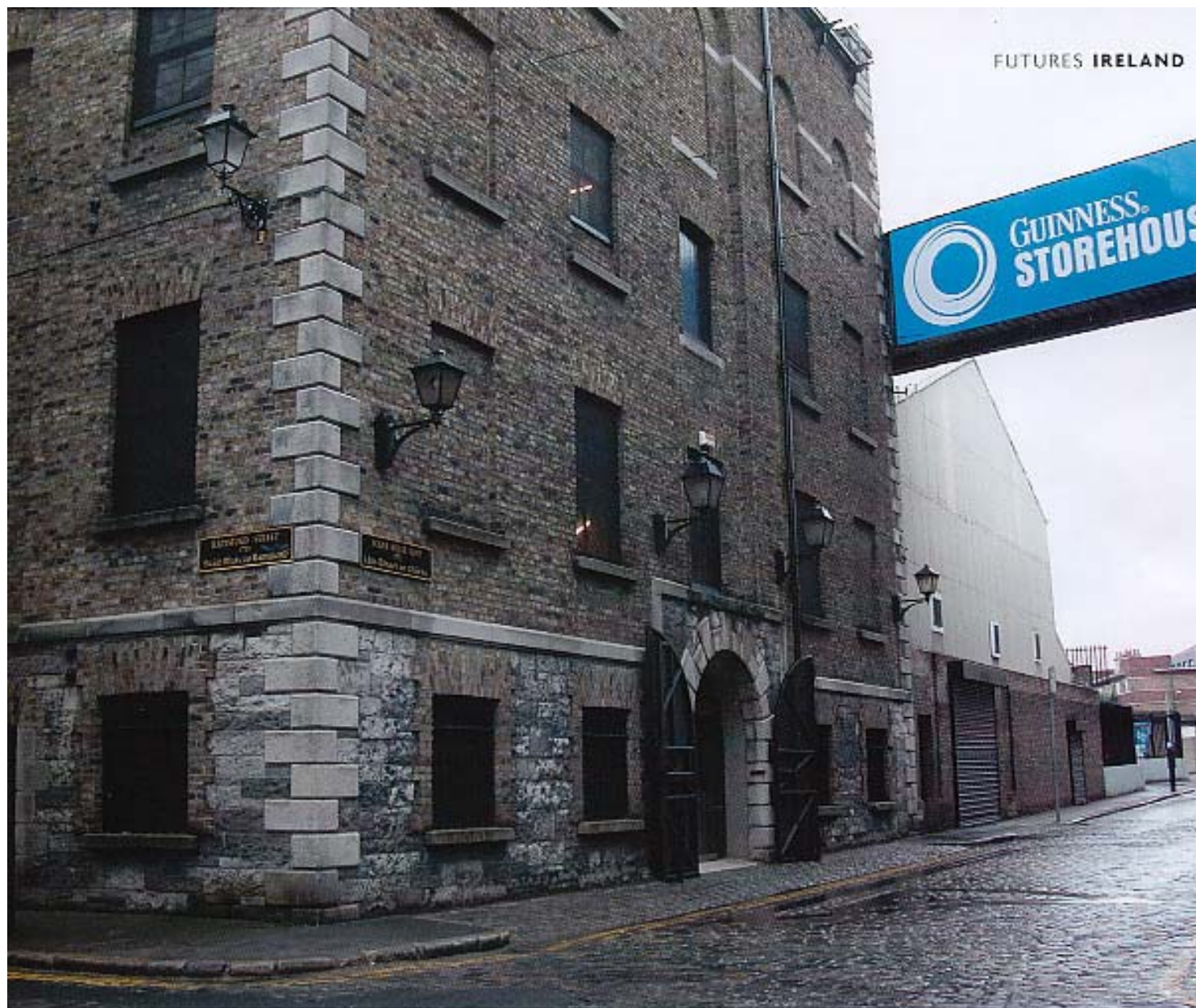
**E**choing what many might suspect, the Guinness brewing operation, a sprawling mass of buildings both old and new spread over 60 acres of Dublin's 'Liberties' district, dominates the city. Every second building in Ireland's capital is, it seems, either brewing the black stuff, selling or advertising it. Guinness reaches out and touches Dublin's inhabitants like few other companies in fewer other cities.

But what Guinness takes from Dublin it gives back with interest and just recently, the company has returned some of the most gorgeous industrial buildings to be seen anywhere in Europe for uses wildly different to those originally intended. The Guinness Storehouse – Guinness's interactive visitor centre – is a must-see tourist attraction and just around the corner is the old Guinness hop store, a similarly tall mill-like building with gloriously imposing heavy-timbered gothic doors. Where once it housed tons of raw

material for the famous drink, now it's the European outpost of America's world-renowned high-tech research establishment, the Massachusetts Institute of Technology's (MIT) Media Lab.

To pass through those doors is to peek at tomorrow's world. Cliché, certainly, but the research teams within are dedicated to interfacing people and technology seamlessly to maximise the benefits of the latter for the former. And innovation extends beyond the actual research, for the vision of Media Lab Europe (MLE) transcends the ordinary. A significant part of the lab's funding comes from companies keen to reap the rewards of innovative thinking – 'profit from ideas' is how MLE describes the relationship. While some schools of thought suggest that to be pure, research must be free of the taint of commercial funding, MLE believes that everyone benefits from the symbiosis of deep thought and dollars.

Though funded in part by commercial entities, much of



the research going on there can be thought as, in a sense, abstract. The lab's researchers are investigating potential and stimulating new ideas from which, often by serendipity, industry and others can benefit. To define that strategy is to examine the work of the Palpable Machines group directed by Sile O'Modhrain. The group investigates sensory perception – particularly 'haptics', the science of touch feedback – and how it might lead to new interfaces for human-computer interaction.

"In real life, sensory systems don't work in isolation," says O'Modhrain. "They work together to give you a percept of the environment you're interacting with and sensory systems trade off each other in very interesting ways in different circumstances."

Similarly, suggests O'Modhrain, "MLE's independence enables us to collaborate freely with anybody, unconstrained by institutional directives. We work jointly with faculty members of academic establishments and hire students to

work on those projects. It means that we can stretch our wings beyond what we can physically achieve at the lab and realise some of the ideas that are here. One of the side-effects is that universities in Ireland have started to collaborate independently but through us – MLE acted as the catalyst."

As well as establishing links with academia, MLE works closely with representatives from all kinds of industries but the lab is not about creating things...

"We're not making products, we're making 'pre-products'," asserts O'Modhrain. "We bring companies into the lab and allow them to engage in the development process with researchers here at an earlier stage than they normally would. Our ideas are realised in the most unexpected ways. Companies see the ideas and say: 'that's a great idea but not what we'd use it for, we'd use it for this...'. An example is an instrument called the 'sensor chair' developed at the lab and designed for [one of the lab's initial projects called] 'brain opera'. You can sit in the chair and

Where once it housed raw materials for the famous stout, the hop store is now home to a high-tech research establishment



wave your arms about to control music using electric field sensing. A car company came to the lab, spotted the chair and said 'we have a problem with baby seats when they're positioned in the front of the car. We don't know which way they're oriented. If we did, we'd know whether or not to deploy airbags in the event of an accident. So they picked up that technology and realised it in a way that solved their problem. That's a serendipitous example of how technologies here get out of the lab – there's a dialogue, we learn from them and they learn from us."

Throughout MLE, compact teams of scientists work in similar circumstances on many interesting projects. One for the sci-fi buffs is Brian Duffy and his Anthropos group's 'Anthropos and Joe', a project which is investigating "...the challenges of understanding and establishing a bond between man and machine. From a human-machine interaction perspective, a socially capable robot facilitates

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the maximum use of the digital world to improve or provide alternative approaches in education, information dissemination, and other aspects of daily life.

"This research aims to explore the illusion of life and intelligence through the development of an amicable anthropomorphic socially-capable robot [which] integrates real-world technologies such as autonomous robotics, social interaction, vision and speech systems, motion behaviour control, local and global sensing technologies and work on smart buildings into an integrated whole. The robot is designed to be expressive, communicative, social and interact with people and the physical environment."

Duffy's team is also researching machine emotional responses among its projects and other groups are looking at speech synthesis (Adaptive Speech Interfaces – Fred Cummins), 21st century stress monitors (Mindgames – Gary McDarby) and maps and their relationship to temporal time (Everyday Learning – Carol Strohecker).

Bringing the Media Lab sites together is 'iCom: The Isis Portal'. iCom is one of the many projects of the Human Connectedness research group directed by Stefan Agamanolis which "aims to build technologies that heighten awareness, strengthen bonds, promote collaboration, convey presence and foster a sense of community between human beings, whether they be co-workers in a business, members of a family or citizens in a nation".

A large wall mounted video screen with a comfy sofa and a low table before it, a rollerball-like control console and a less obvious camera, microphone and speakers, iCom is an always-on communications conduit ('a multi-point awareness portal and A/V communication device' in lab-speak!) between MLE and MIT Media Lab in the US.

What iCom equates to is a video conferencing and bulletin board system which requires no set up, no dialling out, no connection to be made. To chat in real time with a fellow scientist across the Atlantic is a simple matter of sitting at the sofa and choosing from the 'menu' of windows arranged at the right of the main screen. To communicate, just talk. Echo-cancelling speakers take care of acoustic problems and facilitate full-duplex (simultaneous two-way) speech transmission. Those with a simple message to communicate (or a preference not to be seen!) can email a text message to iCom which is read by clicking it in the same way that an iCom user selects a window.

iCom is, if you like, the underlying philosophy of MLE made physical – the symbiosis of communication and technology. MLE's ethic is that scientists from many disciplines working cheek-by-jowl in pleasant, unhurried surroundings will inevitably cross-pollinate, enabling them "to make previously unseen connections between apparently disparate states [and thereby] opening new lines of thought".

Funding is an issue and MLE is active in attracting potential sponsors into the lab to establish possible relationships. Sponsors are entitled to place someone with a research group and to benefit from the ideas generated. Though affiliated with MIT Media Lab, MLE is autonomous and self-funding, which equates to a good deal of activity for everyone – scientists and administrators alike.

It's still early days, but MLE's scientists, its spectacular building and location, and its fundamental importance to Dublin's Digital Hub will surely guarantee longevity and many years of fruitful research projects. 🌟

## Media lovelies

In the 1960s the transformation of computers from electronic card files and calculators to conduits for communication was at first a slow one but when the realisation dawned among computer scientists, the idea quickly gathered momentum. Twenty years later, MIT professors Nicholas Negroponte and Jerome Wiesner noted a similar convergence in computing, publishing and broadcasting and predicted that the interaction between these previously separate disciplines would result in developments in a wide range of technologies such as cognition, holography, electronic music and graphic design. They founded MIT Media Lab in 1985. Fast forward 10 years and co-founder Negroponte was casting about for a possible location for Media Lab expansion. Potential venues as far afield as South Korea and Spain came under consideration but following a lecture Negroponte gave in Dublin during 1998, he was approached and urged to open a lab in Ireland's capital city with initial funding from the Irish government. The lab opened its doors in July 2000 and is now the cornerstone of the 'Digital Hub', Dublin's Silicon Valley.