

# Index rates innovation in Australian industry

The IBM-Melbourne Institute Innovation Index is the first inter-industry, multi-indicator study to measure the rate of innovative activity in Australia.

By Laura A'Bell

IBM Australia and the University of Melbourne's Melbourne Institute of Applied Economic and Social Research have launched an Innovation Index of Australian Industry.

The IBM-Melbourne Institute Innovation Index of Australian Industry's inaugural study analyses key economic data to provide a measurable rating of Australia's innovation activity by industry since 1990.

The Innovation Index, which fills a gap in current innovation research, was conceived by IBM Australia and has been developed by Melbourne Institute researchers.

Claimed to be the first study to reflect the complex nature of innovation via an inter-industry, multi-indicator analysis approach, the Index measures how local industry innovates in providing products and services.

Contributors to industry innovation are addressed by analysing innovation intensity across six key data groups – research and development, patenting, trade marking, design, organisational/managerial transformation, and productivity.

Innovation trends are captured across 13 categories of Australian industry – as defined by ANZSIC (Australian and New Zealand Standard Industrial Classification) – over a period of 15 years since 1990.

Tracking the evolving innovation performance of the Australian economy is expected to provide business leaders, analysts and policy makers with a rigorous and insightful new measure to assess industry and national economic performance.

IBM Australia and New Zealand CEO Glen Boreham says the Innovation Index embodies IBM's commitment and investment to innovation and the prosperity of the Australian economy in a globally competitive market.

"There is no doubt that Australia's industry leaders are embracing innovation to drive growth. However, according to the results of the Innovation Index there is the potential for much more to be done.

"Our hope is that by empowering local industry leaders with the necessary information we can, together, have a more informed debate and

build Australia's global economic future on a path of successful and competitive innovation."

Melbourne Institute Senior Research Fellow Dr Paul Jensen, says: "Innovation is one of those concepts that everyone – from economists to business strategists, and politicians to policymakers – embraces with vigour since it is well-known that innovation is critical for productivity growth and economic prosperity.

"However, it is a difficult concept to measure. The Innovation Index tackles this issue head-on using a rigorous and transparent methodology and mix of subjective and objective data. The result is an impressive Index of the rate of change of innovative activity across all Australian industries over a 16 year period".

More details: [http://uninews.unimelb.edu.au/articleid\\_4187.html](http://uninews.unimelb.edu.au/articleid_4187.html)

## Diamonds will be too hard to hack

'A 100 per cent secure' telecommunication system is in sight.

By Rebecca Scott

A device that draws on the properties of diamond to combat internet hackers has won a University of Melbourne research team first prize in the security division of the 2007 Secrets of Australian ICT Competition.

The device has been developed by Quantum Communications Victoria (QCV) researchers in the University's School of Physics.

The award recognises innovation in science that will have an impact on information communication technology across the areas of commerce, health and communications.

QCV Director, Dr Shane Huntington, says the University's technology promises significant gains in the highly secure communication of sensitive information by financial institutions, security agencies, governments and individuals.

Welcoming the Secrets of Australian ICT Competition award, he says, "It shows that we are developing a product that will help industry."

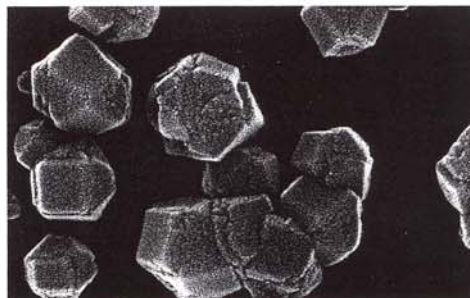
Dr Huntington says current communication systems are not fool-proof. Hackers or eavesdroppers can extract information from optical fibres without either the sender or receiver being aware eavesdropping has occurred.

"Our device will enable a new 100 per cent secure telecommunication system to be developed.

"Using a unique diamond-based device which produces a single particle of light – a single photon – we are able to detect eavesdroppers and stop highly sensitive information being intercepted or stolen," he says.

The QCV device is an on-demand single photon source (SPS) module designed for existing commercial Quantum Cryptosystems.

Dr Huntington says the module is based on diamond because it is the only material capable of delivering single photons reliably at room-temperature over a prolonged time.



Secure communication: Diamonds grown in a School of Physics reactor, seen at 60 000 magnifications through an electron scanning microscope.

The device requires growing diamond crystals directly onto the tips of optical fibres using a proprietary technique. The single photons emitted by the diamond crystal then travel down the optical fibre.

A working version of the dia-

mond-based SPS module has been demonstrated in the laboratory. The technology is now being engineered for robustness and compatibility for integrating into existing telecommunication systems.

See: QCV website [www.qcvictoria.com](http://www.qcvictoria.com)

## 'Fertility aid' may be fatal flaw for mozzies

By Nerissa Hannink

Health threats from common human disease-carrying insects such as mosquitoes could be reduced by killing bacteria that significantly aid the insects' fertility, according to a University of Melbourne study.

A study of the evolution of the bacteria *Wolbachia* has found that, after initially being parasitic and detrimental to the insect, the bacteria have entered a mutually beneficial relationship with their host – enhancing the insect's fertility.

Professor Ary Hoffmann and Dr Andrew Weeks, working in the University's Department of Genetics, have used the Californian fruit fly (*Drosophila*) as a model in their experiments.

*Wolbachia* is spread from an infected male insect to an uninfected female insect. Findings from the *Drosophila* study show that within 20 years infected females have gone from having reduced fertility (with a 15-20 per cent reduction in egg production) to a 10 per cent increase in egg production under laboratory

conditions. The results suggest that smaller, but similar changes are occurring in nature.

### ADVANTAGE

"This is the fastest rate of evolution for this relationship observed so far – we know of no previous examples where an evolutionary shift towards mutualism has been observed in a period of decades in nature," says Dr Weeks.

Professor Hoffmann says the increased fertility seems to provide an advantage in nature. "We predict

that the bacteria will continue to be present in the insects for future generations and may even evolve to become essential to the host.

"We could take advantage of this evolving situation by killing off the bacteria inside insects such as mosquitoes. Because the bacteria increase fitness, this strategy could reduce mosquito numbers and their ability to spread diseases like malaria and dengue fever," says Professor Hoffmann.

The research has been published in the April issue of *PLoS Biology*.

## Briefly

### Up Close on med tourism

Medical anthropologist Dr Andrea Whittaker (Asia Institute) discusses the growing phenomenon of medical tourism in Asia on the latest episode of the University's audio podcast series, Melbourne University *Up Close*. In conversation with *Up Close* host Sian Prior, Dr Whittaker also tackles the practice and impact of illegal abortions in Thailand. Listen to Dr Whittaker at <http://upclose.unimelb.edu.au>

### Hong Kong law

Representatives from 12 major international law firms and three Hong Kong universities participated in a Hong Kong Law Careers Fair at the Melbourne Law School recently. More than 200 law students visited the Fair to discuss career opportunities. The Law Students Society also launched the 2007 International Careers Guidebook at the Fair, which provides students with valuable information to navigate the wide range of global careers available.

### Youth forum

Two undergraduate Arts/Law students from the University of Melbourne, Jordie Rust and Alan Wu, opened the recent National Youth Affairs Conference in Melbourne. They led almost 700 youth workers, researchers and young people from around Australia in discussing the big issues confronting young people and their participation in society. Several academics from the University presented research at the Conference.

### FinanceNow!

Finance students at the University of Melbourne are plugged in to a daily market information program which they can personalise to meet their individual needs for particular types of data. The update now has 1100 participants whose feedback indicates all welcome it as a useful addition to their course materials. The Department of Finance provides the dynamic update through its dynamic FinanceNow! program which uses the University's Learning Management System.

### Law in London

Six University of Melbourne Law students have been offered training contracts after doing clerkship programs with a prominent UK law firm in 2006. They completed the programs during vacation placements in the London office of Linklaters, working in various practices from Media and Communications to Litigation. Linklaters has come back to the Law School again this year for its next batch of recruits.