

ITC's stake in research heart-searching

The reshaping of the role of the university researcher as not only a national resource but someone also accountable for national resources has led to heart searching which is boiling over into acrimony on some campuses. TOM GOSLING looks behind one such debate over the relationship between the Illawarra Technology Centre and the University of Wollongong

The University of Wollongong, nestled among native trees at the foot of the spectacular Illawarra escarpment just south of Sydney, exudes peace and comfort. But as in all universities, the outward calm is illusory.

Beneath the surface over the past few months a bit of a slanging match has been going on, with accusations of mismanagement broadcast on the E-mail network and spilling out into letters in the local press.

Most recently, the resentment of a small group of disgruntled staff has focused on the university's commercial arm, the Illawarra Technology Corporation (ITC).

The ITC's squat, rather bland two-tone-green buildings in the modern corporate style are the first edifices to greet the visitor entering the campus through the main gate.

The first stage of the three-stage complex was opened by former Science Minister (now a professorial fellow at Wollongong) Barry Jones in 1986, amid great hopes that it would build bridges between academics and the world of business.

In business terms the ITC appears to have been developing successfully, with a turnover growing from \$300,000 in 1986 to \$13.6 million last year, and projected to exceed \$15 million in 1991-92. Apart from a recession-induced loss of \$1.3 million last year, it has traded profitably.

But it does have an image problem: like the MFP in the wider Australian community, it is mistrusted by at least some academics and envied as a new and unduly privileged enclave.

Rumours have been circulating for some time suggesting possible improprieties in the corporation's finances.

These rumours were fuelled late last month by a decision of the university council to vote \$600,000 to ITC following its trading loss.

The decision was announced by press release to the local daily newspaper, the Illawarra Mercury, and immediately two of the administration's severest critics sprang into print deploring this "bail out" using "taxpayers' money".

The critics, Associate Professors Ted Steele and Professor John Schuster, called for an open inquiry into the ITC's management, intimating that somebody could have been playing "fast and loose with other peoples' money".

These were serious accusations, but when pressed the critics were unable to deliver evidence of malfeasance.

In an interview with *Campus Review Weekly*, it appeared that Professor Steele really objected to it because it has been accompanied by a push to identify certain research strengths within the university.

He believes the vice-chancellor, together with ITC managing director Jim Langridge, wants to formalise certain groups that already have substantial backing by the ITC and make those the research priorities of the university.

"At the same time as this was being mooted through limited-circulation memos (in April or May this year) some departments were told they would no longer be able to apply and have access to any internal research funds," Steele claimed.

"That money would now be moved and handed over to the likely winners, those under the ITC umbrella.

"Fundamentally that's wrong. All academics should have the right to at least apply for scholarly or research funding, whether they get it or not: universities have to nurture diversity, as well as the high fliers.

"I believe there was an attempt to hijack the money without open discussion. If universities start to become operations where one or two individuals make decisions and basically say the rest of the population has to wear it, sooner or later free thinking academics will rebel."

Steele's accusations have clearly annoyed the vice-chancellor, Professor Ken McKinnon, who says remarks in the university's E-mail system have been "beyond the normal bounds of civilised discourse, by a long way".

McKinnon rejects totally both the suggestion that university funds have been used improperly to "bail out" the ITC, and that decisions on research priorities have been made without the required discussion.

On the first point, he says the \$600,000 payment was a "capital problem" which simply relieved the ITC of its obligation this year to meet a capital debt on its buildings.

The money came from development funds, not the recurrent budget, and in view of the fact that the ITC has a substantial asset base (the buildings are worth \$12 million) which would revert to the university, there was no risk in council's decision.

ITC managing director Jim Langridge also rejected the "bail out" suggestion, pointing out that only last year ITC made a cash payment of \$600,000 in the other direction (to the university).

The council's decision, he said, should be seen as a recognition that ITC could afford to buy buildings for the university buildings in good times, but had to "stick to the knitting" during a recession-induced downturn in profit.

The total flow of money from the university to ITC throughout its existence has been a \$1.6 million payment for building Stage 1, plus the \$600,000, plus part-payment of Langridge's own salary.

On the second point, McKinnon said the university's research priorities were emerging from an internal "sieving process" which he was not personally involved in.

"Nobody in this university is being prevented from doing what they want to do, because in fact curiosity and the energy that goes with it is one of the great driving forces.

"But unless you create a critical mass of researchers in some fields you can't hope to show up above the international surface.

"The cost of doing some research is so high in terms of specialised equipment that a university this size can only specialise in a few areas, and naturally they will come out of the strengths we already have or could have.

"In materials engineering, for instance,

you need an electron microscope to do good research, and they come at half a million dollars apiece.

"Once you've got one, you do have a commitment to keep going in that area or you've wasted your cash — and you can't buy it for one researcher, you must have a team of people or it's uneconomic.

"You can't even cover the waterfront. Within a single discipline you have to concentrate on some aspects and that becomes an emphasis, a strength.

"These emphases are emerging in all universities and you should not have nine universities all doing the same thing, or there will be no benefit to Australia, so there's a certain amount of sorting out that has to be done."

As for the decision-making process, McKinnon says the structures at Wollongong have been changed twice in the past 10 years and are those wanted by staff.

"They weren't what I asked for — I would have had a lot more streamlined and workable ones.

"I think what people really mean by democratic is that they don't want any change: they'd like to go back to the pre-1987 days when they were comfortable and were left alone without having to justify themselves in any way."

McKinnon is "perfectly happy" with the fact that the university has deliberately set itself to encompass both pure and applied research and to try to capture research results for practical use by industry or the community.

"Australia's great failure in the past has been that it has claimed a reputation for science but it hasn't been able to convert that science into things that are of value to the world or to Australia in particular.

"The blame lies with both universities and businesses. The universities haven't come far enough and business hasn't invested enough in research.

"In order to bridge that gap, one effort that can be made is to establish a corporate structure on the edge of the university, which is what ITC is, which is not subsidised by hidden subsidies as many efforts in universities are."

Under the direction of Jim Langridge, ITC's functions were drawn together last year into seven operating divisions: advanced engineering systems, information technology, resources, international, training and professional development and corporate services.

The company structure is designed to attract companies who might not want to set up their own research laboratories, but also don't want to give money to universities unless it will be properly accounted for, has a clear program, and will not end up subsidising teaching and other activities.

A \$3 million contract has been won from the giant Japanese company Canon for telecommunications research aimed at developing the "cordless office", in which elements such as fax machines and computers can be moved anywhere in a room.

A contract for more than \$1 million has been taken out by Elcom for energy efficiency research, and the Water Board has supported fundamental research into microwave treatment of sewage sludge that promises a possible solution to the sewage outfall problem.

In each of these cases, ITC has had a structure which persuades collaborators the work will be done efficiently, working to time and with a concentration of effort.

Although ITC enables pure research to be taken to a point where it might become

a product or a process, it is generally left to others to build the commercial plants and get products marketed.

A somewhat different pattern is for industry to come and establish laboratories on site, as has occurred with Telecom, Nortel and Elcom, in areas where the university has particular strengths.

ITC also assists in setting up and exploiting patents from university research, helps to develop individuals inventions, and has a strong consulting function, as exemplified by the Centre for Technology and Social Change, which has made significant contributions to Government science and industry policies.

The company also provides English language training for overseas students, new forms of training at advanced level, and is now exploring overseas consultancy possibilities.

Langridge summarises ITC's approach as "bringing commercial direction to academic endeavour", but concedes that there are as yet relatively few examples — only four, in fact — of products that have actually reached the market place.

The first and most successful of these has been an electronic data interchange company called National Electronic Information Service (NEIS), which between 1986 and 1989 built up software expertise similar to that used by banks in transferring payments electronically.

This was purchased by the State Bank of NSW in two stages in 1989 and 1990, netting ITC a tidy \$2.1 million profit, and in the bargain helping an Australian bank to maintain its competitive edge.

The second has been a major automation system for Qantas Flight Catering, enabling it to load items automatically onto economy class trays.

The first of its kind anywhere in the world, this system involves nine interacting computer-controlled machines linked by a conveyor and networked to a single console.

Worked out in collaboration with Qantas staff, the "pre-set line" is now used to prepare trays for the airline's 77 and 767 aircraft, and has potential for international markets in airline catering and the beef industry.

ITC had in fact started marketing the product to airlines in partnership with Qantas when the Gulf War devastated airline profitability, and sales plans have been put on hold until profitability returns. So far the project has not cost ITC any money, nor has it earned any.

The third and fourth products, also in the area of automation, have involved prototypes worth more than \$440,000 each and have potential for manufacture under licence and export.

They are machinery to automatically assemble eight components forming a veterinary pharmaceutical for cattle, and high-speed vision technology to detect defects in human pharmaceutical products.

This relatively small number of completed products is a handicap ITC and Jim Langridge have to live with, for the time being, because the rest of what the Corporation is doing is still in the research and development stage.

"We're obviously very pleased with the sewage sludge project, but we're still awaiting the final decision from the Water Board, and the telecommunications projects are only part way through their life cycle," Langridge said.

"We have major projects with Canon, OTC, Telecom and Nortel but they're only say 18 months into their cycle ... we're expecting products to be available in 12 months from many of those contracts, and there are other areas of activity like food processing where we're still early in the cycle.



Langridge: approach

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Flinders and the University of South Australia have appointed **Andrew Downing**, currently senior lecturer in electrical and electronic engineering at Adelaide University, its foundation professor of biomedical engineering in their joint faculty of engineering.

Dr Ken Hodge, of Otago University school of physical education, will be the NZ Olympic team's first sport psychologist during the Barcelona Olympics.

Anthony Perry, head of mechanical engineering at Melbourne University, has been selected by the California Institute of Technology as its Sherman Fairchild distinguished scholar for 1992.

Professor Perry, who was elected to the Australian Academy of Sciences in 1987, is internationally recognised for work in turbulence, the topology and geometry of three dimensional flow separation, and vortex structures. His work has practical application in fields including the prediction of drag on vehicles, ships and aircraft.

Kay Barney has joined the ANU public relations team. Barney was previously media relations officer with Qantas Airways. An ANU economics graduate, she has worked at the Australian Financial Review as a jour-

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nalist, and as an economist for the Industry Commission and Rothschild Australia.

Associate Professor **Stan Hotop**, dean of law at the University of Western Australia, has been appointed to the Administrative Appeals Tribunal as a part-time member.

Dr Pat Shannon, of community and family studies at Otago University, and Professor **Tony Worsley**, of ANU, are to undertake the external review of the South Australian Health and Social Welfare Council Program.

Associate professor **Ann Trotter**, of Otago University's history department, currently on leave at the London School of Economics, has been awarded a guest lectureship at Tokyo University for the winter semester in the department of international relations.

Tony Thomas, Elder Professor of Physics at the University of Adelaide, will receive the inaugural Convocation Medal for outstanding achievement by a graduate of Flinders University.

Thomas is internationally known for his research in theoretical particle and nuclear physics, particularly the study of the structure of the proton and neutron. He has served on planning committees at several major nuclear laboratories in Canada, the United States and Switzerland which have played a key role in determining the direction taken by much of the international research in nuclear and particle physics during the past decade.

Dr Bill Sawyer, of the school of biochemistry, University of Melbourne, has been appointed to a personal chair in the university's faculty of medicine, dentistry and health Sciences.

Dr Sawyer has won an international reputation for his investigations of the dynamics of membrane and cytoskeletal proteins using advanced spectroscopic techniques. His research interests also include studies in physical biochemistry and cell biology.

Warren Bebbington, a distinguished Australian musician and musicologist, is to take the Ormond Chair of Music in the University of Melbourne's faculty of music, visual and performing arts. Professor Bebbington has been dean of music at the University of Queensland since 1985.

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"The Qantas project took five years from the initial design idea through to installation because you go through a number of prototypes, but in two years we'll have a much longer list of completed products."

Langridge would prefer Australian companies to benefit from collaborating with ITC, but finds most Australian companies are unwilling to fund research from the initial idea to the market place.

"I have little trouble getting funding say for the first 15 per cent of the R&D cycle, and no problems when the project is say 15 per cent from the end, when the market's in sight.

"But the culture in Australia is such that no-one wants to fund that yawning chasm in the middle, and that is forcing us offshore for funding.

"In Australia everybody knows that only one in 10 projects come off, so they want to know which is the one, and they'll invest in it.

"In the US and Europe they invest in the 10 knowing that the returns on the one will more than offset the losses on the nine.

"It's just not realistic to expect to invest in winners every time. If it is seen as negligence every time I make an investment decision in something that doesn't turn out to be a winner, then I guess I'll go on being negligent."

For the future, he foresees great opportunities for Australia in food processing industries, but is concerned that once again we will operate as a provider of materials and that foreign firms will come in to do the processing and market the products into Asia.

"ITC will be looking at is bringing its particular expertise and capabilities to bear in this area.

"It's not up to us to bring in the venture capital, but what we would say is that Australia doesn't have to invite foreign firms in to set up processing plants... the technology's actually here."

ITC is evidently a force to be reckoned with, and while the enthusiasm of McKinnon and Langridge is infectious, it is by no means clear that the academic community shares their values.

A more accurate picture of campus sentiment may be available in a few weeks, when science and technology studies lecturer Brian Martin will have completed a survey to be published in the first edition of his proposed new E-mail newsletter.

At this stage, Martin says, it is impossible to say how widespread dissatisfaction is, but it is certainly greater than in previous years.

The ITC, he said, could be considered symbolic of "deeper concern" about the Dawkins reforms, where the university is going, and who's making decisions about it.

In this, Martin is beating along a similar (though not identical) path to the vice-chancellor, who senses some academics feel threatened by being asked to "show more clearly that the effort that results from public support continues to be worth public support".

"Not only are universities being asked to work across a broader spectrum of pure and applied research," McKinnon says, "but the Dawkins 'clawback' provision means research money for universities to allocate internally has been taken away and put over into the ARC.

"If a scientist wants to do research now it's increasingly a matter of going to the ARC or finding another external source, and there are some who dislike that.

"So what's at stake with the ITC is that because it generates its own funds it's threatening to some people, and they're quite anxious to chop it off as a competitor." □

Geographic information systems

Curtin University of Technology will offer what it claims as the country's first bachelor of science degree in geographic information systems from 1992.

The three-year program will include intensive theoretical and practical studies of the structure and use of GIS and spatial analysis. Seen as a "hard science" course, it includes mandatory units in maths, computing, graphics, computational geometry, remote sensing and geodesy.

Students will also choose a minor field of concentration, with options including environmental information science,

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remote sensing, geography, urban and regional studies, and computing science.

The course complements the university's graduate diploma in geographic and land information systems, and coincides with the division of the school of computing into distinct departments of computing science and geographic information systems.

Advanced BSc

Macquarie University has introduced a BSc (Advanced Program) with entry

requirement of at least 93 on the HSC.

A select group of students (quota 20) will enter the program in 1992. The program is centred on mathematics, but flexible enough to include substantial courses in computing, statistics, physics, electronics, accounting or philosophy.

Extra classes will be provided by top staff abreast of, and contributing to, exciting new research in their fields. The students will be supervised for vacation research projects to develop research skills and to apply course material.

The Advanced Program leads into a career of scientific research with Government or University.

Politics Administration

"The New Political World of Educational Administration" is the theme for the Australian Council for Educational Administration conference being held between September 15-19 at Seaworld, Nara Resort at the Gold Coast. Speakers will include: Prof Sir William Taylor, VC of the University of Hull; Prof Michael Fullan, Dean of Education, University of Toronto; and Dr Helen Sungaila, principal of the Australian Catholic University's Queensland Campus.

Contact: Dawn Weir, Qld. Institute for Educational Administration (07) 870 2122.

Tourism

A two-day seminar for the tourism industry and local government will be held between September 25-27 at Invercauld House, Lismore Campus, University of New England. Contact: Ellen Kronen, Centre for Tourism, University of New England-Northern Rivers, (068) 20 3920

History

The Australasian Historians of Medieval and Early Modern Europe Eleventh Conference will be held at the University of Adelaide between September 27-30.

Contact: History Department, Dr Brodsky, (08) 228 5613.

Language

The 16th annual congress of the applied Linguistics Association of Australia will be held at James Cook University from September 29 to October 2. Registration: \$90 for members (students \$65) or \$110 for non-members (students

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\$75). The professional and teachers program will cost \$35. Contact: Prof Richard Balduaf (077) 814667.

Science

The 60th ANZAAS Congress, an "optimistic conference promoting the advancement of science in the Australian community", will be in Adelaide this year, from September 31 to October 3.

Contact: Margaret Burke, 08 228 5174. Registration inquiries to Jackie Thompson, (08) 228 4777.

Ecotourism

The first ecotourism conference, which aims to define ecotourism, set standards for Australian industry, and assess planning needs for the protection of cultural and natural heritage, will be held at the University of Queensland from September 25-27.

Contact: Linda Frew (07) 365 7000

Institutional Research

Swinburne is to host the 1991 conference of the Australasian Association for Institutional Research from October 1-3. The theme is "Technology, Communication and Techniques: Their impact on Institutional Research in the 1990s". A keynote address by Terry Moran, chief executive officer of the State Training Board, on "Current and future demands on institutional research: a TAFE chief executive officer's perspective"; a session on "TAFE planning and management"; and a panel discussion on the relevance of in-

stitutional research to vocational education and training are oriented to TAFE colleges' needs.

Contact: Conference secretary, Susan Brain (03) 819 8911 ext 8659

Sport

The University of Western Sydney, Macarthur will be hosting the 1991 Australian Tertiary Sports Team Challenge, to be held at Valentine Sports Park in Parklea, Sydney, from November 22-24, 1991. National teams will be selected in October at the National Student Winter Games in Canberra. The sports to be contested are men's and women's basketball, men's and women's volleyball, men's soccer and women's netball. For further information, contact Craig Chung (02) 772 9337.

CALL FOR PAPERS

Humanities

Reforming the Humanities, February 6-7 1992. Hosted by UNSW. Possible areas: government policy and funding; vocational outcomes; new degree structures and directions; postgraduate education reform; history of the humanities; how we may defend and theorise the humanities.

Abstracts of 700 words for papers of 10, 30, or 50 minutes by December 1 1991 to: Erica Travers, UNSW Students Union, PO Box 1, Kensington 2033. Phone 02 663 0461 Fax 02 662 1702.