Tasmanian ICT Innovation and Research

Report

2008

About the Centre for Innovative Industry Economic Research:

CIIER is an Asia-Pacific Centre, formed to create a facility, repository, and think-tank for consistent, competently researched, up-to-date, and analysed data on employment, markets, revenue streams, R&D, processes and management methods, specifically focussed on high technology, innovative, and emerging industries. CIIER produces the 'Top 250' ICT Industry Research Report, widely recognised as the leading creditable indicator of trends in the Australian ICT industry, and conducts detailed analysis and reporting on Information Technology, and Reports on other high technology industries.

Whitehorse Strategic Group Ltd provides the analysis for this project.

Whitehorse. Is an Australian owned management consulting practice specialising in ICT Market Research and analysis, ICT policy and strategy, especially in the Government sector, Information Management, and Economic Development.

Introduction

It is well recognised that the ICT industry in Australia is a key productivity enabler for other industries, but direct ICT employment, both in total and relative to other industries, shows that the ICT industry is also a major employer. By the broadest definition, ICT employment accounts for nearly 5.5% of total Full Time Equivalent (FTE) employment in Australia, more than many other Australian industry sectors, including Mining; Electricity, Gas and Water supply; Banking and Finance; and TV, Radio, Media. The ICT industry is also a significant source of export revenue, and accounts for nearly 80% of ICT R&D performed in this country.

TASICT received funding approval from the Intelligent Island MAPP program to perform a Tasmanian ICT Industry Capability Assessment to be conducted annually over a period of three years. The intent of this project is to assess the Tasmanian ICT sector size and structure, capabilities, diversity, rate of growth, economic contribution, export performance, market reach and investment attractiveness, and to identify opportunities, strengths and weaknesses of the Tasmanian ICT industry and determine the economic impact of ICT as an enabling industry in the State economy. The Project aims fall into four sub-projects;

1. Yearly Assessment of Tasmanian IT industry, including SWOT
2. Economic Impact statement
3. ICT Skills forecasting project
4. Developing an assessment mechanism and applying it to the support programmes indicated

This Report has been prepared to give an overview of the current state of Tasmanian ICT Innovation and R&D, both private and public, with a *SWOT* analysis of the Tasmanian ICT Industry, based both on this report and the 2008 Tasmanian ICT Industry Sector Assessment report. A report on Tasmanian ICT Industry Skills profile and needs is also scheduled to be published. Annual ICT Sector assessments will be produced in 2009 and 2010.

Research Support

We would like to express our appreciation to the following people for their helpful responses and supply of information to our researchers for this report:

Body	Respondent
Intelligent Island	**David Chen**, Project Officer, Innovation, Science, and Technology, Department of Economic Development and Tourism
CSIRO	**Dr Stephen Giugni**, Chief Executive - Tasmanian ICT Centre
UTAS	**Professor Peter Marshall** - Deputy Head of School and Woolworth's Chair in Information Technology and Systems, School of Computing and Information Systems, Faculty of Science, Engineering and Technology, University of Tasmania; **Associate Professor Paul Turner**, School of Computing and Information Systems, Deputy Research Coordinator; **Dr, Byeong-Ho KANG**, Associate Professor, School of Computing and Information Systems, University of Tasmania; **Dr. Christopher Lueg**, Professor of Computing, University of Tasmania; **Dr Ray Williams**, School of Computing and Information Systems, University of Tasmania; **Dr. Christine Gardner**, Faculty of Education, University of Tasmania, Project Leader, Enhancing IMT effectiveness and Organizational Learning
AIRC	**Kieran O'Brien**, Research Fellow, Australian Innovation Research Centre University of Tasmania
TPAC	**Professor Nathan Bindoff**; **Dr. Ray Williams**

ICT Research and Innovation in Tasmania

Public Sector Research

Tasmania based public sector Institutions and organisations involved in ICT related Research and Development include the University of Tasmania, both faculties and research centres; the CSIRO Tasmanian ICT Center, and the Tasmanian Partnership for Advanced Computing,

University of Tasmania Faculties:

School of Computing and Information Systems

Research Areas (as described by the University):

Computer science

Computer science projects are based on an algorithmic or structural problem in the use of computers. They may be focused on an application area, but the emphasis is on improving the basic algorithms used in that application area. The research may be described as pure basic or strategic basic research. Examples are algorithms used in bioinformatics, compilers for multi-cellular parallel computers, new artificial intelligence techniques, core mobile computing techniques, etc.

Information research

Information research is based on the use of an information resource, such as a database, the Internet, or digital repositories. The research is generally described as strategic basic, or may be applied research. The research may involve better use of the resource, adaptive search strategies, security, information forensics, distributed data systems, open access services, application of mobile technology to service delivery, etc.

Multi-disciplinary research

The key in multi-disciplinary research is a close linkage with a non-ICT partner or topic with a real application problem, on which the project is based. The research is generally described as applied research, or may be strategic basic research. Examples include visualization of echoes from a multi-beam sonar, recognition of marine animals (such as fish, scallops) from video or camera images, providing pharmaceutical interaction advice, computing in education, etc.

Faculty of Education

Some projects involve ICT tools and their use in educational processes

School of Pharmacy - Unit for Medication Outcomes Research and Education

UMORE is an innovative e-Health R&D provider focused on the design and evaluation of ICT solutions to improve the safety and quality of health care delivery, including the use of medications. Over the past 5 years UMORE has attracted funding of $4.5M to Tasmania for R&D across a diverse mix of projects in a unique collaboration between university-based health and ICT specialists, state agencies, health professionals and the local and national ICT industry. Several systems are now undergoing commercialisation.

University of Tasmania (Research Centres)

University Research Institutes

TAFI Tasmanian Aquaculture and Fisheries Institute
TIAR Tasmanian Institute of Agricultural Research
IASOS The Institute of Antarctic and Southern Ocean Studies
Menzies Research Institute

Cooperative Research Centres

The CRC Program is a Commonwealth Government funded programme which promotes cooperative research between government, industry and universities. The University of Tasmania has an extensive involvement in the CRC program, and is a key partner in two CRCs that are based at UTas.

Cooperative Research Centre for Forestry
Bushfire Cooperative Research Centre
Cooperative Research Centre for Sustainable Tourism
Cooperative Research Centre for Antarctic Climate and Ecosystems
Cooperative Research Centre for Smart Internet Technology
Cooperative Research Centre for Aquafin

Faculty based Research Initiatives

Australian Innovation Research Centre (AIRC)
Funded by the Department of Economic Development and Tourism, to support R&D policy and Innovation by conducting the Tasmanian Innovation Census

CSIRO/Tasmanian ICT Centre
The Centre is jointly funded by CSIRO and the Australian Government through the Intelligent Island Program, which is administered by the Tasmanian Department of Economic Development and Tourism.

Tasmanian Partnership for Advanced Computing (TPAC)
The Tasmanian Partnership for Advanced Computing (TPAC) is part of the Australian network of advanced computing facilities, and is a member of the Australian Research Collaboration Service (ARCS) who aim to provide long-term eResearch support services for the Australian research community with a particular focus on interoperability and collaboration infrastructure, tools, services and support.

TPAC is located at the University of Tasmania in Hobart, and its partners are the University of Tasmania, CSIRO Marine & Atmospheric Research, the Australian Government Antarctic Division, Antarctic Climate & Ecosystems Cooperative Research Centre (ACE CRC), Bureau of Meteorology Research Centre, and the Australian Maritime College.
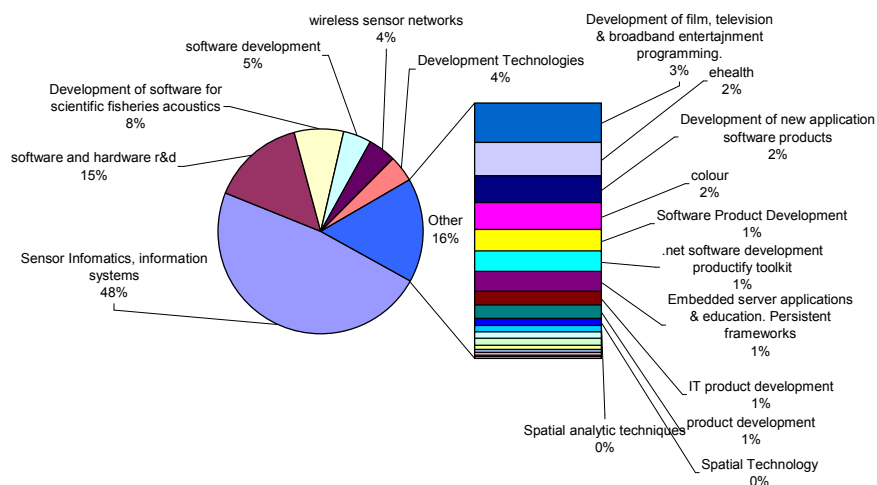
Private sector research

The ICT Sector Assessment Report contained an analysis of Tasmanian ICT Industry R&D derived from a Survey conducted between July and November 2008. Thirty-five ICT industry companies responded, spending over $29 million per annum on ICT research and development in Tasmania, with software and software services companies spending over $17 Million per annum on ICT R&D. The CSIRO Tasmanian ICT Centre data was also included.
 (The actual private sector expenditure will be higher, and it is likely that the scope of ICT industry R&D will be wider, than that indicated by this research).

Whilst software products research is the largest component of expenditure, and some research also takes place specifically into education and training, the range of focus of this research is the most diverse. The diversity reflects the fact that the aggregate R&D effort is derived from a larger number of small enterprises, each with their own agenda.

Tasmanian ICT Industry Survey R&D responses
Range and proportion of response research focus (excluding telecoms and undefined)

wireless sensor networks
4%

software development
5%

Development of software for
scientific fisheries acoustics
8%

software and hardware r&d
15%

Development Technologies
4%

Development of film, television
& broadband entertainment
programming.
3%

ehealth
2%

Development of new application
software products
2%

colour
2%

Software Product Development
1%

.net software development
productify toolkit
1%

Other
16%

Sensor Infomatics, information
systems
48%

Embedded server applications
& education. Persistent
frameworks
1%

IT product development
1%

Spatial analytic techniques
0%

product development
1%

Spatial Technology
0%

The range and diversity is amplified, if we exclude the monolithic telecommunications research focus and the "undefined" (where companies indicate that they do research but do not identify further). E.g. "scientific fisheries", "entertainment programming", "colour", "aquaculture technology".

The ICT Industry sector assessment concluded that Tasmanian ICT industry performs well on R&D in comparison to the national norm, and contributes to a significant proportion of Tasmanian ICT research that has been attributed to client industries.

Synergy with Industry

CIIER researchers find that the main driver for research related to use of ICT technology seem to be the University of Tasmania. A number of researchers are interacting closely with small innovative pockets of the ICT industry and with CSIRO and TPAC, utilising the latter's national and international partners and funding.

Whilst some ICT SME's are heavily engaged in R&D in several projects in the vertical sectors, others only operate as service providers for government departments and agencies.

Big national or international traditional ICT players (Telecommunication providers, Hardware, Software providers or Consultancies) do not seem to get involved in Tasmanian R&D, though they may have sites in Tasmania.

The results of the Tasmanian Innovation Census, conducted by AIRC, showed that 45.5 % of all firms that have been classified as innovating firms collaborate with UTAS. According to current projects listed by Researchers of the School of Computing and Information Systems, most of these Collaboration Partners seem to be technology or services providers based outside of the classical ICT industry sector[1].

UTAS and CSIRO research projects focus mainly on Marine and Antarctic Research, Agriculture, Environmental, e-Health or Pharmaceutical and forensics.

Companies involved in these projects seem to have their key expertise in several areas including ICT software/ hardware development or consulting. Very active players like Myriax, Verdant, Insite4 or others have their origin in specific market sectors and, in some cases, have later developed their ICT expertise to support these business areas. Their focus is on the development of ICT solutions to solve market specific problems or to translate market specific processes.

Another strong research focus is the e-learning and web based education field.

Whilst most UTAS initiated projects are based on a variety and combination of smaller funds located from different origins. CSIRO and TPAC draw from large national or international resources provided by their national and international research partners.

As a local arm of the Commonwealth Scientific and Industrial Research Organisation (CSIRO), CSIRO's Tasmanian ICT Centre was officially established in November 2008 with 30 research staff. Located at Battery Point, Hobart it currently runs 7 projects in the Information and Communication Technology category.

- □ Smart sensor networks, monitoring Tasmanian pasture
- □ Ensuring sustainable water resource use
- □ Tailored diet information
- □ Data analysis tools to improve the health and wellbeing of Australians
- □ TasMAN: the Tasmanian marine analysis network
- □ Transforming the way we manage energy
- □ Improving prawn feeding efficiency

Only a few ICT corporates like the Powercom Group and Myriax, with a strong focus in related technology (marine or health) are involved in these projects. Most of the other partners are public sector. The overall investment in this project portfolio is about $6M per annum.
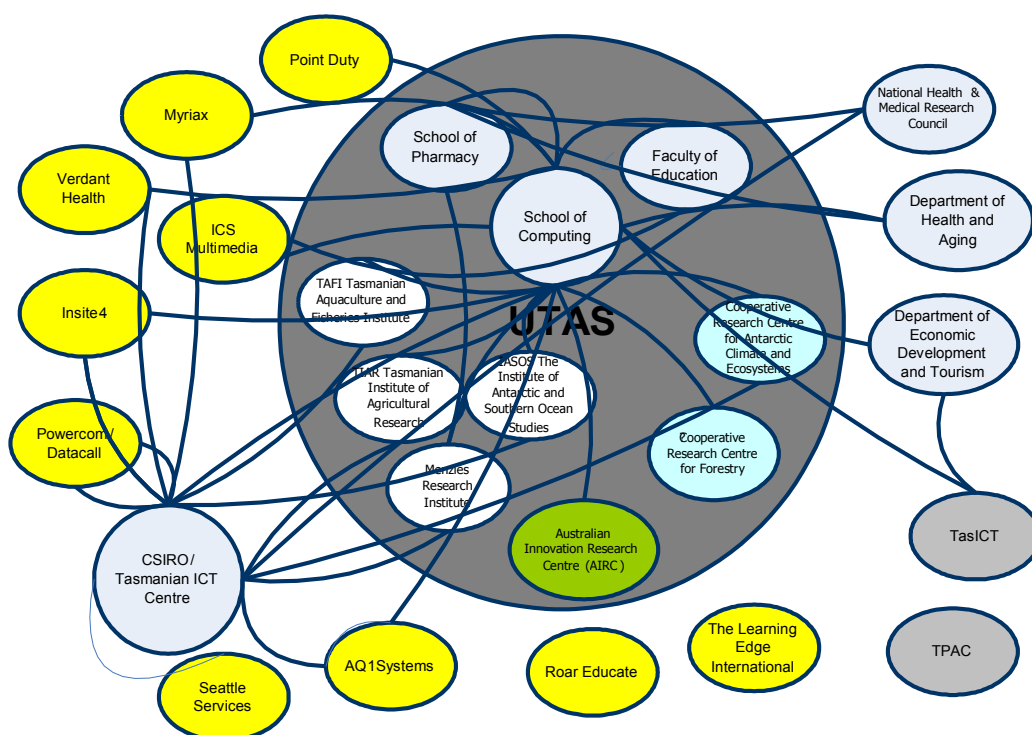
TPAC has been established to support researchers through development of e-Research services and deployment of e-Research services (mainly in the marine and earth systems science space), particularly in the management of digital assets and data sets on a federated basis development. Currently about 57 types of data, millions of files of climate data and data

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[1] refer to the UTAS/WARP database and to related research publications for project details

simulations are supported. Total storage covered by these data sets is ~60 Terabytes and growing rapidly. TPAC operates HPC and data storages at UTAS. These hardware facilities are shared across the University, staff from ACE CRC and to a lesser extent CSIRO and Australian Antarctic Division.
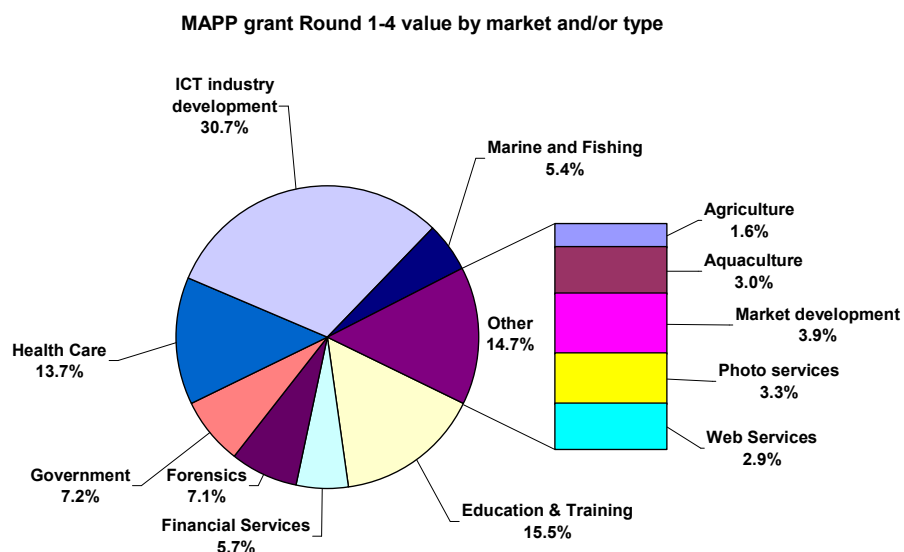
TPAC is funded through the ARCS (NCRIS) with a total turnover of approximately 1.2 million per year.

The "mud-map" below shows some of the inter-relationships and synergies that have been identified.
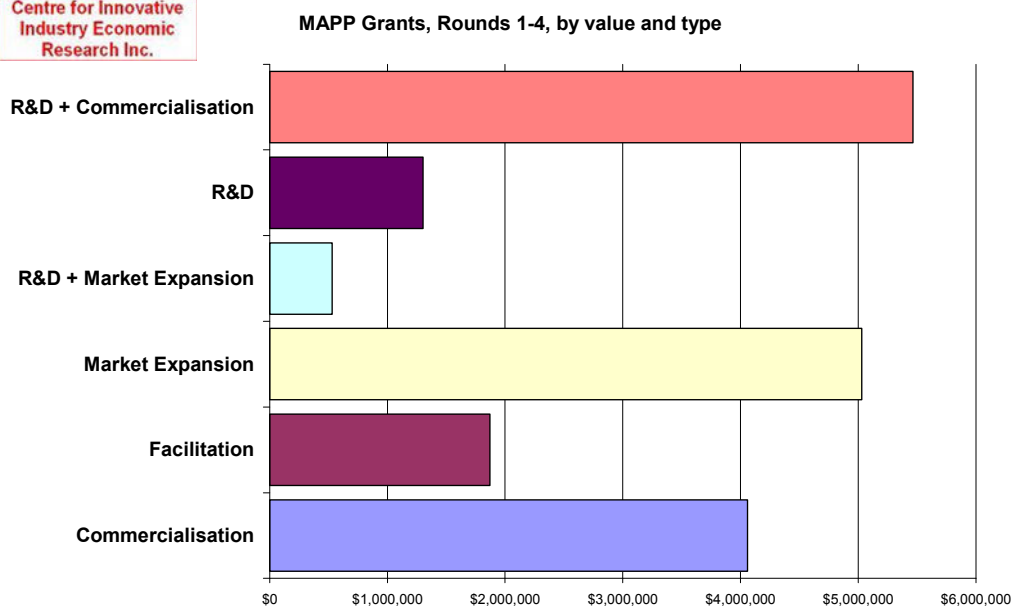
Intelligent Island Program - MAPP grants

The Intelligent Island Program has been a major source of funding for the finalisation and commercialisation of ICT research into products and services. To date, $ 18.25 M has been granted to companies providing Software, Hardware and Services to the following markets:

MAPP grant Round 1-4 value by market and/or type

Almost $ 5.6 M has been granted to companies in the Tasmanian ICT industry, with a split of $ 1.87 for support programs like industry assessments, marketing training and recruitment initiatives and $3.73 M for basic software development and commercialisation to be used in a variety of markets.

MAPP Grants, Rounds 1-4, by value and type
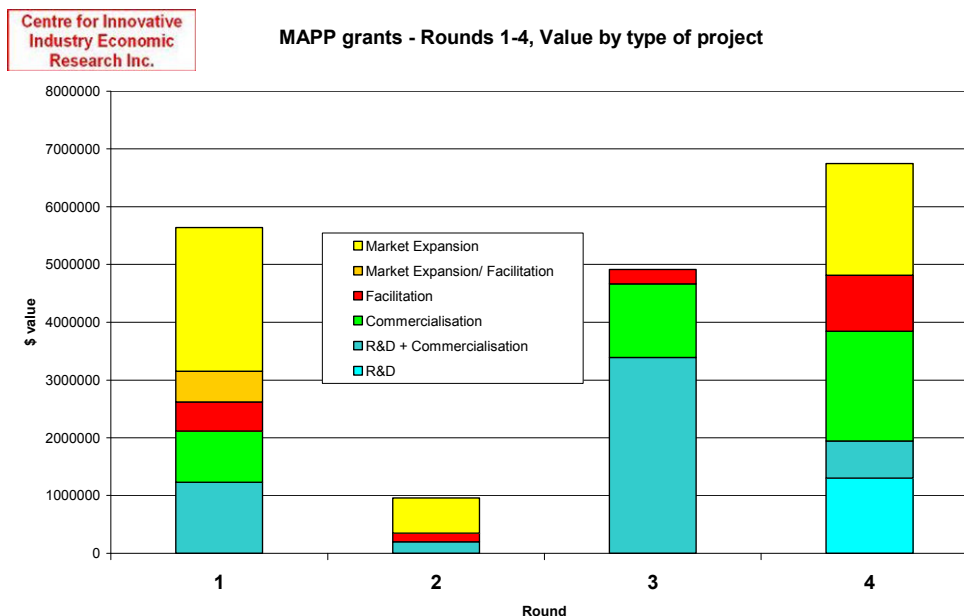
Amongst these grants the highest amount awarded to a single project was for the development of the iQTI Assessment Platform and Integrated Games Engines with a contribution of $ 1.8 M, and there were two projects to develop a Java based regression and performance testing framework, and its subsequent commercialisation, with a total of $ 1.3 M.

The education and training market has been granted $ 2.84 M to commercialise existing e-learning tools, and to expand to international markets, and $ 2.5 M was awarded to commercialise existing products and to expand business in the Health and Aged Care market.

Most of the Intelligent Island funding appears to have been provided to enable corporates to commercialize their products, rather than to explicitly fund further product development or research. Some of the projects have additional R&D components, but there is a strong focus on investments in commercialisation initiatives.

MAPP grants - Rounds 1-4, Value by type of project
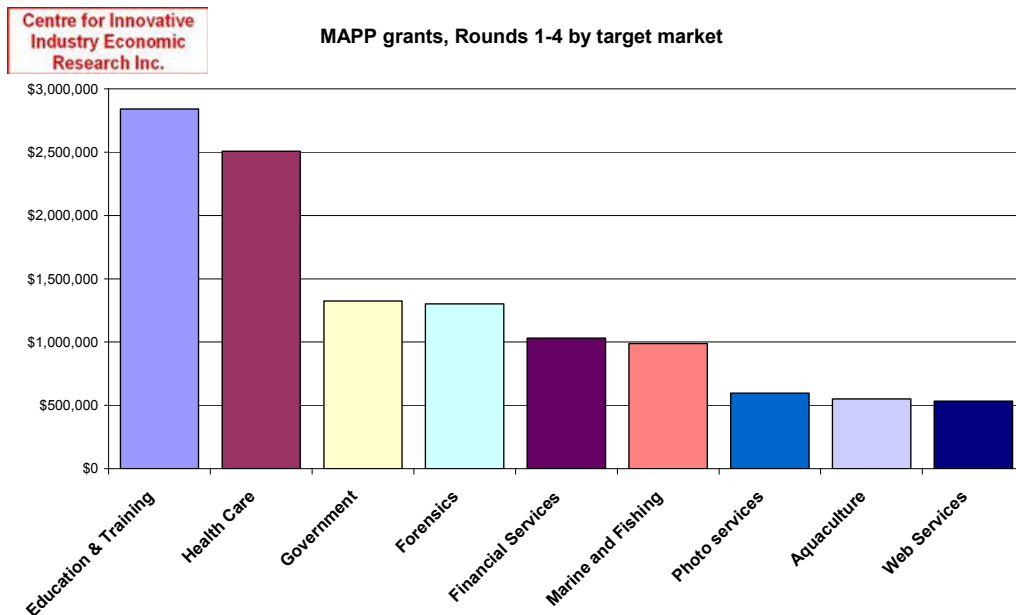
It is also somewhat surprising that the path of funding has not seemed to follow the logical course, through R&D, to commercialisation, to facilitation and then to market expansion. The chart above shows significant variation in funds allocation each round, and, significantly, far more R&D in rounds 3 and 4, than in rounds 1 and 2. That said, the funding approach seems to fall into two distinct halves, with the structure of funding in Rounds 3 and 4 much closer to the logical norm.

Some of the MAPP recipient companies are listed as Research Companies on the web based Tasmanian Science and Technology Map [2], which was launched in May 2008.
An analysis of MAPP grants by target market (removing those which are specific to ICT industry development, or simply broad market expansion), provides an interesting opportunity to compare research activity with perceptions of commercial market significance to the industry.
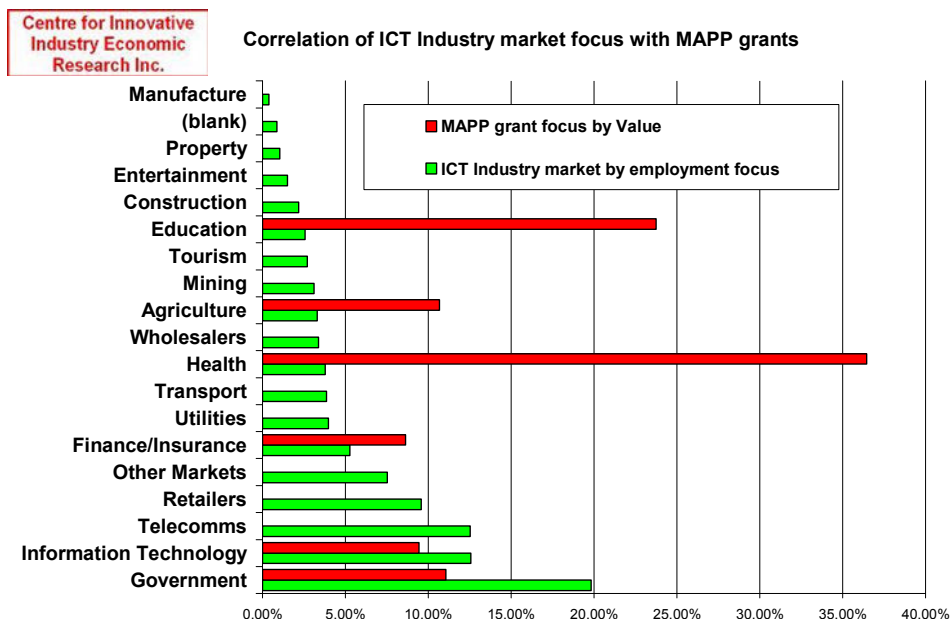
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[2] Science and Technology Capability Map : http://www.iris.tas.gov.au/__maps/Scitech/
This map has been implemented as an initiative of the Department of Economic Development and Tourism, however contribution was voluntarily, and the map is believed by a number of respondents to be incomplete. We were unable to verify this, as the map is presented in Adobe SGV, which has recently been discontinued as a supported product by Adobe.

MAPP grants, Rounds 1-4 by target market
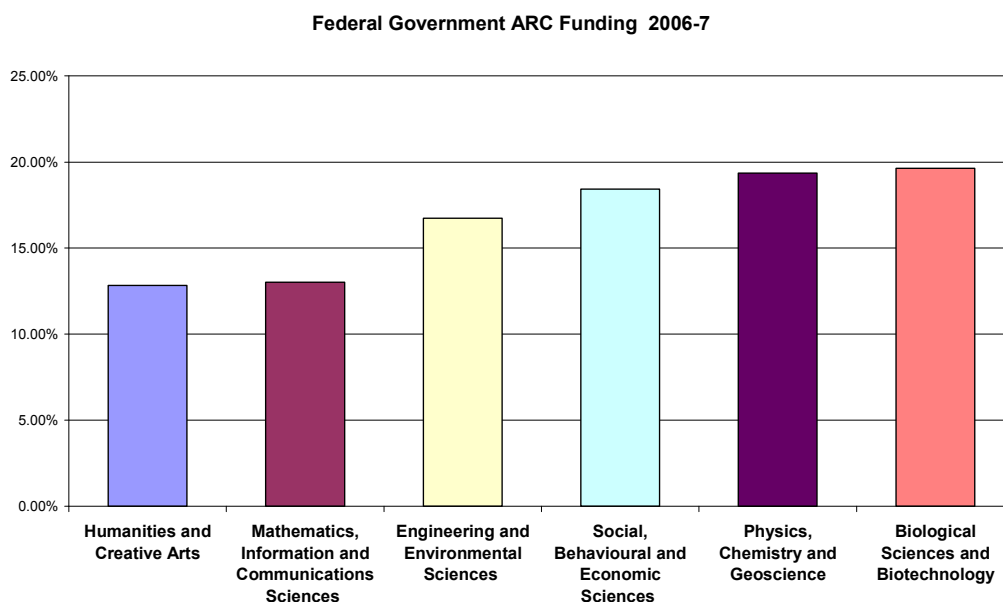
The chart above shows MAPP total values by the target market derived from specific project descriptors. The chart below shows how the percentage value of these grants measures up to the ICT market foci of Tasmanian ICT industry companies.

Correlation of ICT Industry market focus with MAPP grants

It is clear that some market groups – education; health; agriculture; finance, are relatively strongly supported by MAPP funding, whereas some other markets that are perceived by the Tasmanian ICT industry as significant to them, are less well supported, or have not been fund recipients. This variance in allocation may identify opportunity for further commercial benefit to be achieved in the future, in relatively well-funded research sectors, or opportunity for research funding to be targeted, in less well-funded research sectors of commercial significance. Alternatively, it may also illustrate the varying capability of organisations to construct well-presented research funding applications, as it is not uncommon for organisations specialising in the health and education market sectors to be more experienced in such processes.

This capacity for comparatively better levels of ICT research funding in Health applications or research support has been noted in other studies, and was specifically noted in submissions to the Federal Government Innovation review, led by Terry Cutler.

As an illustration, the chart below shows ARC funding for 2006-7. It should be noted that this does not include the National Health and Medical Research Fund, which is specifically targeted to Health, on top of a large part of the biological sciences and biotech funding listed below. Education funding can come from any of the categories, but is more likely to be found in the humanities and social groupings.

Federal Government ARC Funding 2006-7

It is worth noting that the Australian ICT industry is 20 times the employment size of the Australian Biotechnology industry, and has delivers far higher export earnings, yet ARC funding to biotech is 1.5 times greater than it is to ICT.

It is not surprising, therefore, to see that some of the funding for ICT research quoted by UTASis skewed in this manner, and we believe it is likely that the direction and focus of ICT research at the University, however valuable the knowledge gained, is likely to be driven less by real market needs, or by the potential for Tasmanian ICT industry growth, but more, to at least some degree, by the currently biased availability of research funding in Australia, and the lesser opportunity for ICT researchers to gain funds for other, equally worthy, research, that might be more related to desired industry outcomes.

SWOT

The SWOT analysis below is derived from the data and analysis in both this report and in the Tasmanian ICT Industry Sector Assessment report also developed under this project. In providing this analysis we have borne in mind that the majority of conventional swot analysis displays a tendency for the "strength" components to be described in terms that relate predominantly to personal characteristics or cultural differentiators.

Flattering terms such as innovative; export oriented; outward looking; hard-working; valuing lifestyle choices; are often applied as they emerge from self-assessment. Conversely, "weaknesses" are more frequently described in infrastructural terms. i.e., poor broadband access; skills shortages; high costs.

The difficulty in "strengths" reflecting this approach with this approach is that swot analysis only has real value if it is structured in such a way that the potential is evident to:

- o leverage the strengths,
- o mitigate the weaknesses,
- o exploit the opportunities, and
- o Counter the threats.

Conventional strength traits such as those above, only have validity for leverage where the particular strength trait delivers a comparative advantage. The problem for such analysis of the ICT industry in Tasmania is that Australia is remarkably homogenous in its culture, and even the infrastructural strengths of the ICT industry in Tasmania are often equally the strengths of the ICT industry in the rest of Australia.

It is therefore necessary to try to identify strengths of the ICT industry in Tasmania which are different to those in the rest of Australia, or at least in some way "stronger". We have therefore tried to minimise the "personal characteristic" strengths, and focussed on those more likely to provide commercial advantage.

Strengths

Australia's main strengths in ICT	Tasmania's main strengths in ICT
long-term experience in the field, compared to many other countries	Ditto
the professional expertise and quality of our personnel	Ditto
relatively low costs for software development (compared to US and Europe);	Tasmanian ICT staff costs are lower than in some other parts of Australia
strong Unix and open source skills;	Ditto
multicultural work-force and language skills;	Ditto, but not as much depth as Melbourne or Sydney
well educated and open society;	Ditto
well established and representative industry bodies;	Ditto, with Tasmania having both national and State based bodies in place
competitive and discerning domestic market	Ditto but too small to have the critical mass to sustain a growing ICT industry
technological leadership in a number of vertical markets;	Identified potential in aquaculture, multimedia and education markets
technological leadership in some technical niches;	Identified potential in spatial data
higher quality finished software products than world norms.	Ditto

Leverage

Leveraging of these strengths would appear to be most possible in respect to concentration on the identified markets and niches, and in identifying others. Lower staff costs might give some potential to leverage syndicated ICT development from other, more expensive, locations.

Weaknesses

Australia's main weaknesses in ICT	Tasmania's main weaknesses in ICT
the difficulty of gaining appropriate investment capital,	Ditto
maintaining domestic market share and developing supportive relationships with the public research base	Easier to maintain domestic market share, but too small a market
Lack of perception by Government (in some States) of ICT economic significance and value	Much less so in Tasmania, Government has solid ICT focus. Weaknesses appear more to do with delivery than intent. It is likely however, that the significance of ICT to growth and sustainability of the whole economy is under-appreciated
Broadband infrastructure availability and cost	Worse in Tasmania than many other parts of Australia
Access to export markets	Ditto
Access to appropriate skills	Ditto, and exacerbated by lower wages than other States
Lack of R&D focus	Ditto

Mitigation

Mitigating these weaknesses cannot be addressed by the industry alone. There are many points at which Government policies, both State and national, affect demand and market share, with privatisation among utilities in energy, communications and transport; government outsourcing; health, education and other Government contracting among the more important policy approaches.

The lack of availability of capital is a constant problem for innovative industries with no effective "second board" market, coupled with the well established bank aversion to intellectual property, or anything other than real estate, as a negotiable asset for security.

Lack of ICT research synergy can be mitigated by more appropriate research funding structures, and by better levels of consultation, however it is a national, rather than a Tasmanian, problem.

To illustrate the economic significance of ICT policy, and how important the broadband problems are, a recent report by the Australian Local Government Association (ALGA)[3] blamed the former Howard Government for not improving the nation's "dire state of broadband". ALGA claims Australia continues to lose a potential $3.2 billion and 33,000 jobs due to poor broadband infrastructure. Some of this loss, of both revenue and jobs, would be in Tasmania. (estimated by CIIER at $6.4 million loss and nearly 700 jobs).

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[3] ALGA - State of the Regions 2008

Opportunities

Exploiting Exports

Despite the economic downturn, there remain significant ICT export opportunities, especially for software, but the selection of market destination and timing is even more important. The US, despite its size, may not offer the most opportunity, especially in the current economic climate. Former Commonwealth countries are closer to Australia in practices and legislation, and they offer many export opportunities. The most significant emerging markets are in South East Asia, Central Asia and Eastern Europe. As a general rule, those countries with greater cultural compatibility to Australia offer the easiest potential market entry (e.g. New Zealand, UK, Singapore, India, Canada, Malaysia).

The Tasmanian ICT industry might also consider a sectoral targeted software export strategy, based upon specific vertical market missions to selected regional and country targets. There may also be scope for more structured links between firms within the vertical markets being explored, exploiting any commonality of interest.

Exploiting Client instigated software development

There is significant software production outside the dedicated ICT industry. Whilst most of this work might be undertaken by the ICT industry, the IP is usually owned by the client. There is a presumption, therefore, that there must be a significant amount of 'hidden' software product that could provide additional revenue for the ICT industry, and that this should be exploited.

We caution, however, that there are inherent differences between the requirements for internal use of software and the production of marketable, supportable, cost-effective, software product, and a misunderstanding of such differences leads to poor product, increased costs, and little market penetration.

The most effective way to exploit this opportunity is, during client specific software development, to identify potential software products at the design and contract point, not at the end of the project.

The development of mechanisms for shared exploitation of intellectual property, and the consideration of product oriented design briefs as part of this process, would also require significant changes to many current ICT procurement processes, especially by Government. (This approach is embodied in one of the recommendations of the review of the National Innovation System, conducted by a team led by Dr Terry Cutler in 2008[4].)

Exploiting R&D Cooperation

A notable feature of the ICT industries is that, historically, the vast majority of ICT-related R&D in Australia (over 80%) is conducted in the private sector[5]. As a result, public sector research has hitherto played a relatively small role in ICT-related innovation. Nevertheless, the establishment of NICTA, and the concentration on ICT R&D in Tasmania by CSIRO, TPAC and UTAS, means there are opportunities for Tasmanian ICT developers to forge stronger linkages with ICT focused R&D projects, and to identify what commercial exploitation might be achieved, especially in the areas already under research focus. The CSIRO ICT Centre remains an opportunity, rather than strength, for the domestic ICT industry, because, despite the significant MAPP funding provided for its establishment, its engagement with the ICT industry appears to be very limited to date. This may be because of its current research focus, which appears to be concentrated on other Tasmanian industries, e.g. marine analysis and prawns, rather than on the local ICT industry. It is up to the Tasmanian ICT industry to explore research opportunities with CSIRO as they arise.

It would probably be helpful if linkages established with each of these research groups included a stronger involvement by the industry in the early phases of consideration and selection of appropriate fields of research, so that market research could be undertaken in parallel, and the potential for commercial exploitation of the research enhanced accordingly.

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[4] Venturous Australia - Overview – Recommendation 10.6

[5] DCITA/CIIER Software Industry in Australia- Globally competitive – Domestically Undervalued Part A pp79-80

Exploiting the World ICT industry

A strategy of engagement with multinationals from particular regions could also be pursued. A number of overseas owned ICT companies have extensive operations in Australia, and, in some cases, a history of significant investment and research in Australia. Attracting ICT multinationals to locate locally can increase employment, and create flow on investment. Some overseas owned ICT companies have active and supportive linkages with local companies through clusters and networks, some work closely with Australian industry and some with Australian research bodies. Many of these activities are of direct benefit to the Australian ICT companies with which the overseas owned companies relate. Such strategic engagement depends upon strategic benefit for the MNCs concerned, or it could not be encouraged or sustained, and the key strategic benefit that is normally required by MNCs is enhanced market access and/or increased market share.

Threats

The biggest threats to the Tasmanian ICT Industry are, we believe:

- o complacency by the Industry, and
- o apathy towards it by others.

Complacency by the Tasmanian ICT industry that it can sustain and grow without too much change could derive from a lack of appreciation of how much global factors impact upon domestic markets, and from assuming that the strong support the industry has received from the Intelligent Island program over the last four years will continue forever.

Apathy towards the Tasmanian ICT industry by other industries and Government could derive from a lack of economic appreciation of the significance of the Tasmanian ICT industry to the Tasmanian economy, and/or a change in the attitude of the Tasmanian government over time.

Countering the threats

To counter the threat of complacency, the industry could benefit from a reality check, and the economic downturn we are already experiencing will deliver this. As with all such downturns, the stronger companies will seize the opportunity to grow market share.

To counter the threat of apathy towards it, the ICT Industry could improve its public image and publicity by consistent strong messages backed up with facts and figures, provided both through the press, and, perhaps by direct contact to other industry sector representatives.

As an example of the paucity of coverage of ICT matters in the Tasmanian press , a search for **'ICT Industry'** on the Launceston Examiner web-page found only 4 results in the last 12 months, all about II MAPP grants, (with three of these on the same day, probably from the same release), and only 7 results for the entire archive.
29/10/2008
North misses out on bulk of IT grants
Grant to aid aged care, disability software bid
Tassie IT firms share $6.7m in grants
26/01/2008
 IT firms share $6 million Intelligent Island programme supports innovative development

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The Tasmanian ICT industry should also continue to work cooperatively with government, and provide government officials with information and the opportunity to engage, so that whatever political changes may occur from time to time, the bureaucracy knows and understands the Tasmanian ICT industry.

Conclusion

Tasmanian ICT research and innovation takes place across the public and private sector. The research focus is diverse, and there are a number of useful research partnerships - with other research bodies; with international companies; with non-ICT Tasmanian companies; and with some Tasmanian ICT companies.

The range and diversity of identified research projects may mean that some are lacking critical mass, and the low funding allocations reported would support this suggestion. One of the largest funding allocations from MAPP was to the CSIRO Tasmanian ICT centre, and whilst there are a small number of research and commercial collaborations in place or emerging, it would appear that further synergy with local ICT industry interests could be sought.

The Tasmanian ICT industry sector shares many of the same strengths and weaknesses, and some of the same opportunities, with the ICT industry sectors in other Australian States. The major differentiating weakness for Tasmania is inadequate and expensive broadband. It is encouraging, therefore to see the Tasmanian Government addressing this issue, both through supporting enhanced broadband competition, and through its potential involvement in the Australian Government National Broadband Network project.

The Intelligent Island Program is likely to have been responsible for some of the significant growth in parts of the Tasmanian ICT Industry sector, both in employment and revenue, over the last four years. A key concern, therefore, is the potential loss of impetus to this growth and viability, as this program comes to its conclusion. The economic benefit that a strong and viable domestic ICT industry delivers to the rest of the State is, on the evidence, not well appreciated either outside the ICT industry, or among some parts of Government. The public and media appear to be unaware, or, at best, ill-informed, of the economic benefits they could enjoy, so maintaining current levels of government commitment may be more difficult in the future, in more straightened financial climes.

TasICT can play a key role in proselytizing the economic benefits of ICT and Innovation to all sectors of the economy, both directly through the media, and by providing information to, and working cooperatively with, other stakeholders and Tasmanian industry and professional bodies. This proselytizing role alone could help to change the outcome of any debate on maintaining the current strong Tasmanian Government commitment to a continuing, growing, and viable Tasmanian ICT Industry.

LIST of MAPP grants – Rounds 1-4

Company Name	Project Title	Total Awarded	Market	Type
Irrisys	Commercialisation of Irrisys products Remote Start / PumpGuard	$288,000	Agriculture	Commercialisation
Pan Logica Pty Ltd	Neptune	$550,000	Aquaculture	Commercialisation
Educational Programs and Services Pty Ltd	The Giant Classroom	$200,000	Education & Training	Market Expansion
Roar Educate	Roar Active Education	$600,000	Education & Training	Commercialisation
Roar Film Pty Ltd	Roar Educate	$400,000	Education & Training	Market Expansion
The Learning Edge International Pty Ltd	The Learning Edge - International Expansion Project / e-Learning Project	$1,638,271	Education & Training	Market Expansion
Future Medium Pty Ltd	INVESTRAK	$491,634	Financial Services	R&D + Commercialisation
KPM Pty Ltd	Financial services IT products development & commercialisation	$540,000	Financial Services	R&D + Commercialisation
Point Duty Pty Ltd	Point Duty Intelligence System	$1,300,000	Forensics	R&D + Commercialisation
ICS Multimedia Pty Ltd	Commercialisation of an Integrated Tourism Management System	$722,550	Government	Commercialisation
Prologic Pty Ltd	TVPC	$600,000	Government	Commercialisation
Assistive Technologies Pty Ltd	Proxi-Mate	$283,667	Health Care	Commercialisation
Healthcare Software Pty Ltd	Market Development of PharmCare	$607,417	Health Care	Market Expansion
Intelitec Pacific Pty Ltd	Inerva Enterprise Finance	$580,000	Health Care	Commercialisation
Medscope Pty Ltd	Medication Review Mentor	$434,458	Health Care	Commercialisation
Nunatak Systems Pty Ltd	Resicare	$600,000	Health Care	Market Expansion
AS Consulting	K2B	$1,000,000	ICT industry	Facilitation
Etech Tasmania Pty Ltd	QTI Assessment Platform and Integrated Games Content Engines	$1,800,000	ICT industry	R&D + Commercialisation
In-tellinc Pty Ltd	Sales Focused	$293,600	ICT industry	Facilitation
JadeLiquid Software Pty Ltd	JadeLiquid Java web services testing framework	$1,331,700	ICT industry	R&D + Commercialisation
TasICT	The Tasmanian ICT Industry Support Program	$576,956	ICT industry	Facilitation
ZAPTZ Pty Ltd	Zaptz EzyApp	$595,000	ICT industry	R&D
Myriax Pty Ltd	4D visualisation and analysis software for spatio-temporal marine data sets.	$988,000	Marine and Fishing	Market Expansion
Autech Research Pty Ltd	ACTS	$708,700	Marketing	R&D
OnPix	Point Shoot Print - OnPix Market Expansion Project	$596,600	Photo services	Market Expansion
Packaged Solutions (getbusi)	getbusi market expansion and intelligent URL filtering project.	$532,300	Web Services	Market Expansion/ Facilitation

List of University Of Tasmania ICT Research projects

UTAS Researcher	Project	Partners	Funding
Dr. Byeong-Ho KANG,	Intelligent Web Monitoring System	Supported by Asian Office of US Air Force.	About 150,000 including > some extra funding from other organization)
Dr. Byeong-Ho KANG,	Expert Systems in Robots	IPMS Co. Ltd, and MOSTiTECH Ltd in South Korea	About $50,000
Dr. Byeong-Ho KANG,	Data Mining from clinical data	Supported by CSIRO	35,000 Ph.D Scholarship
Dr. Byeong-Ho KANG,	Intelligent Tutoring System for Energy Center: Recycling of energy for environment	Supported by Huyndai Steel Co. Ltd in Korea	Confidential
Dr. Byeong-Ho KANG,	Medication Review System	Collaboration with the School of Pharmacy	no funding
Dr. Byeong-Ho KANG,	Intelligent Tutoring System for the Education in Nursing and Medicine.	Collaboration with the School of Medicine and School of Nursing.	no funding
Professor Peter Marshall	Farmers Perspectives Relating to Innovative Uses of ICT in Tasmanian Agriculture	CSIRO Tasmanian ICT Centre, support sought from the Tasmanian Department of Economic Development and Tourism] /Professor Frank Vanclay [Professorial Fellow in Rural Sociology, Tasmanian Institute of Agricultural Research (TIAR)]	grand total for 3 years approx $ 262,000 including Tas ICT scholarship $ 30,000
Professor Peter Marshall	Determination of critical success factors in ICT product development (principally software development) in Tasmanian SMEs	CSIRO Tasmanian ICT Centre/ Dr Judy Young, , Dr Phyl Willson	Scholarship valued at $30,000 per year for 3 years
Professor Peter Marshall	Making the Most of Fast Internet investment in Tasmania: with special attention to Education and Health service delivery in rural and regional towns.	Professor Joan Abbott-Chapman, Professor of Education, University of Tasmania, and Associate Professor Sue Kilpatrick, University Department of Rural Health, University of Tasmania/benefit from help and facilitation by Mr. John McCann, CEO Tasmanian Electronic Commerce Centre.	estimated costs around $ 1,200,000 over 3 years
Professor Peter Marshall	Business Process Management and Outsourcing in a Financial Services SME	Dr Judy Young, , Dr Phyl Willson	proposal state, no further information
Professor Peter Marshall	Internet Supported Distributed Decision Making - especially for remote communities	Professor Christopher Lueg,.	proposal state, no further information
Dr Ray Williams School of	Automated Video Analysis System for Assessment of Marine Animal Populations in Ocean Environments.	none outside UTAS	Winifred Violet Scott Charitable Trust ($A 27,500).
Dr Ray Williams	Marine and Climate Data Discovery and Access Project	Dr Peter Turner (CSIRO Marine and Atmospheric Research), Dr Ken Suber (CSIRO MAR), Dr Glenn Smith (CSIRO MAR), Dr Matt Paget (CSIRO), Dr Tim Pugh (Bureau of Meteorology), Dr Fanel Donea (BoM), Mr Jason Lohrey (Arctitecta Pty Ltd).	National Collaborative Research Infrastructure Strategy ($A 1,000,000 overall).

Dr Christine Owen	Information flow and teamwork in Incident Control Centers	Jan Douglas, Bushfire Co-Operative Reseach Centre University of Tasmania, Gregory Hickey Bushfire Co-Operative Reseach Centre, Anette Salter PhD research student, Faculty of Education, University of Tasmania	
Dr DW Reid; Ms JK Busch; AssocProf P Turner; Mrs EA Cummings; Mrs HL Cameron-Tucker; Dr S Beggs; Professor EH Walters; Professor SJ Foote	Tasmanian community network of mentors and smart information technology solutions (SITS) for families affects by cystic fibrosis		Grant Tasmanian Community Fund $130.000
AssocProf P Turner; AssocProf T Ross	Top-up Scholarship:Methodologies for the Implementation of Micro Mobile Information Systems in the Cold Chain and the Resulting Implications of Time Temperature Logging for Models of Microbial Growth	Seafood CRC Company Ltd	Seafood CRC Company Ltd/ Scholarship-Postgraduate Research $29.700
Dr R Wood-Baker; Professor EH Walters; Professor AL Robinson; Professor MR Nelson; AssocProf P Turner; Dr JL Scott	A comprehensive self-management programme for chronic obstructive pulmonary disease in the community	National Health & Medical Research Council	National Health & Medical Research Council/ $ 375.375
Dr DW Reid; AssocProf IJ Lamont; Dr LF Roddam; AssocProf M Camara; AssocProf P Turner	Mechanism of exacerbations in cystic fibrosis lung disease	National Health & Medical Research Council	National Health & Medical Research Council/ $ 245.750