ICT Research

Maximising the benefits

Phil Robertson
Chief Operating Officer, NICTA
Outline

• Target outcomes
• Engagement approach
• IP Strategy
Firms collaborating on innovation with higher education institutions by size, 2004-06
Australian Research Commercialisation

*Total research commercialisation in Australia (2007)*
- Contract Research and Consultancies $1,233m
- LOA (Licensing and other activity) $221m gross, $214m net (includes Monash IVF assignment $101m, Gardasil $45m)
- Total value of all equity holdings $196m
- Capital raised for start-ups etc $199m

*Lead times for licensing, equity cashed in, etc can be long*
- eg CSIRO Wireless LAN, ~15-20 years)

*Key message*
- R&D Services is the most significant source of Research Commercialisation revenue

ICT R&D FDI Trends

Australia’s Share of ICT R&D FDI Projects

The Cost of Australia’s ICT Trade Deficit

Figure 7.3 ICT Equipment Surplus/Deficit as a Percentage of GDP, 2007 (per cent)

Source: OECD, CSES Analysis.
Barriers to engagement

University, etc. Researchers

- Expertise
- Protected IP
- Flexible use of IP
- Predictable delivery
- Problem solving
- “Reasonable cost”

Large companies

Small companies

Contamination

Diffusion of ideas
“Reasonable cost” and IP

• What is “reasonable cost”? 

IP Opportunity | 0% | f/g IP ownership | 100% |
Research Opportunity | 0% | Payment of % of cost to develop | 100% |
Use of b/g IP |

“reasonable cost” range

Need to understand the current and likely value-chain
Traditional Innovation “Funnel”

- Diversity
- Early stage research
- Development (proof of concept, etc)
- Business

Gating points

Scale

Challenges

- Research
- IP / Technology development
- Products / Services

- Market understanding
Target Innovation Model

Inputs from partnerships

Market/IP knowledge

Strategic IP

IP development

Research

Market positioning

Competitive positioning

Market engagement

Business relationships

IP strengthening

Business Products / Services

By-products

Technology / IP development
Building competitive advantage

Collaboration and contract engagements to build partnering

Protection as a barrier to entry by others

Deep systems level know-how that is difficult to replicate

Research

Technology / IP development

Inputs from partnerships

Deep systems level know-how that is difficult to replicate

Protection as a barrier to entry by others

Diversity

Scale

Market positioning

Competitive positioning

Market engagement

IP strengthening

Business relationships

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IP Strategy
Australian patenting in US
# US patents by Australians (by org’n)

<table>
<thead>
<tr>
<th>First-Named Assignee</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>Total</th>
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<tr>
<td>SILVERBROOK RESEARCH PTY. LTD</td>
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<td>510</td>
<td>533</td>
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<td>474</td>
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<td>24</td>
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<td>30</td>
<td>13</td>
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<td>19</td>
<td>95</td>
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<tr>
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<td>27</td>
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<td>QUALCOMM, INC.</td>
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<td>UNIVERSITY OF QUEENSLAND</td>
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Total 1221
### 2005 US Patents – Top 10 US Universities

<table>
<thead>
<tr>
<th>Rank</th>
<th>University Name</th>
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<tbody>
<tr>
<td>390</td>
<td>University of California</td>
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<tr>
<td>136</td>
<td>Massachusetts Institute of Technology</td>
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<td>101</td>
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<td>90</td>
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<td>71</td>
<td>Johns Hopkins University **</td>
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<td>71</td>
<td>University of Michigan **</td>
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<td>64</td>
<td>University of Florida</td>
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<td>57</td>
<td>Columbia University</td>
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</tbody>
</table>

*20 US Universities had 30 or more US patents granted in 2005*
And note that software can be patented ….

A high proportion of these are ICT companies….
Systematic approach to IP strategy

<table>
<thead>
<tr>
<th>Performance dimensions for competitive advantage</th>
<th>Scope for sustainable competitive advantage</th>
<th>Current competitive position</th>
<th>Strategy for gaining competitive position (including IP Strategy)</th>
<th>To Do</th>
</tr>
</thead>
</table>

But it takes domain knowledge, IP, and R&D experience to develop this kind of strategy…
“Australian ICT IP Inc” (public funded R&D)

• **Need for standard approach to IP**
  – Contracts for research services and licencing
  – Management of portfolios

• **Standard may be too hard to achieve**
  – “Opt-in” default ??
  – “Opt-out” option for special cases

• **Support for**
  – Sector domain knowledge in technologies and IP strategy
  – Management of IP portfolios
  – Reasonable returns to inventors, owners, etc
Summary

• Grow the ICT R&D sector
  – Target greater R&D Services activity

• Engage earlier
  – Build partnerships, know the value chain

• Take a strategic approach to IP
  – Know how industry uses IP
Thank you
For further information on NICTA…
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