

Converting R&D into IP: Policy, strategy & management challenges

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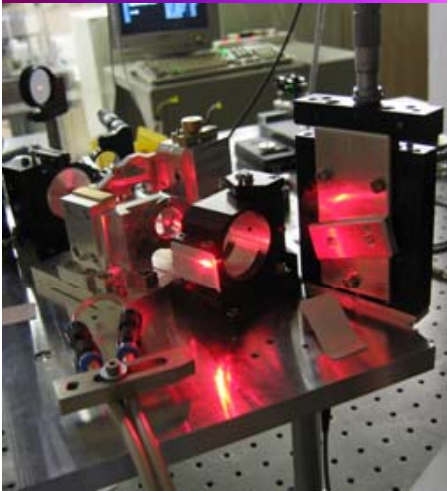
Intellectual Property & Technology Transfer





Different approaches

- Role of & approach to IP differs in different types of organisations
 - 'Public research organisations' [PROs] v industry
 - Universities v science councils
- Focus on IP to be transferred via a 'tech transfer function' at PROs
 - Broader public good objective in addition to commercial
 - IP portfolio tends to be more diverse & diffuse
 - Ownership & benefit-sharing
 - Only one of a number of expected outputs from researchers, esp in universities



Institutional culture

- Not universally accepted that IP management & tech transfer are appropriate or desirable activities for PROs to engage in and devote resources to
 - Skews the research agenda
 - Conflicts of interest & commitment
 - Restricts academic freedom
 - Value added by this activity doesn't justify the expense
 - Proprietisation of research results impedes scientific progress
- But difficult to argue against the proposition that PROs have a duty to contribute to the NSI by performing relevant research and making the results accessible to society
 - Concerns can be addressed



Optimally...

- ‘Universities’ inventions yield products and processes that save lives, diagnose diseases, reduce pain and suffering, improve health, make people see and smile. The net result is patient cures, jobs, a vibrant economy, and continuing innovations.’
 - Remington, MJ (2005). The Bayh-Dole Act at Twenty-Five Years: Looking Back, Taking Stock, Acting for the Future. *Journal of the Association of University Technology Managers*, XVII(1), Summer 2005, 15-31



IPRs from Publicly Financed R&D Bill

- Pending legislation aimed at promoting the effective utilisation of intellectual property derived from publicly financed R&D
 - Institutional arrangements
 - TTOs
 - NIPMO
 - Institutional policy requirements
 - Ownership
 - Benefit-sharing
 - Licensing conditions
 - Government rights



Institutional strategy

- Take into account broader mandate & institutional culture
- Different models
 - Income
 - Service
 - Economic development
- Almost universally accepted that this activity is not a big money-spinner, despite a few 'blockbusters'
 - 1-2% of R&D income generated on average across a national system once activity is established (~8 years)



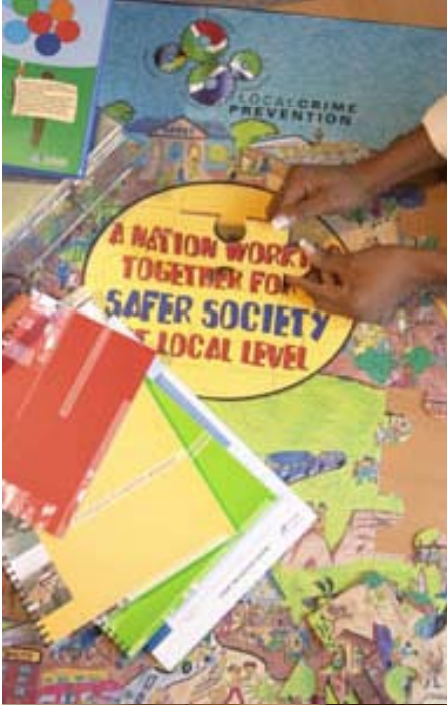
Not a money spinner

- ‘Discoveries that produce financial bonanzas are so rare that policies designed to pursue them would almost always lead to failure.’
 - Canadian Expert Report, 1999
 - The median yearly income of US TTOs is estimated at below US\$500,000
 - Fewer than half of TTOs which are less than 15 years old generate a positive net return for their institution
 - Less than a third of universities whose annual research expenditure is less than US\$100 million have a profitable technology transfer operation
 - Boston University study cited by Crowell (2006)



Projections for SA higher education system

- 200-300 invention disclosures per annum once trained staff are in place
- 500 active licenses within 7-10 years
 - 2 of these generating income >\$1m per annum
 - Overall income R20-40m
- Skewed performance distribution across institutions
 - Some institutions will be performing better than others
 - Difficult to predict which will 'succeed' & which will 'fail'
 - Heher, T (2005). Implications of international technology transfer benchmarks for developing countries. *International Journal of Technology Management and Sustainable Development*, 4(3), 207–225



CSIR IP Strategy

- Position CSIR as a leader in the SA and international scientific community
- Build a high quality IP portfolio to optimise opportunities for technology transfer (both commercially and for social impact), attract R&D and licensing income, and enhance CSIR's research reputation
- Provide leadership in national and international IP matters
- Increase the size of the portfolio
- Maximise the scientific scope/depth of the portfolio



CSIR Tech Transfer Strategy

- Effective transfer of technologies which present an opportunity for improving SA industrial and commercial competitiveness, creating employment, serving social good and improving quality of life
- Provide financial return to CSIR
- Increase CSIR's contribution to SA's social and/or economic development

- Develop local industry
- Seek partners to exploit IP locally
- Keep IP ownership and future R&D in SA
- Pursue BBBEE objectives



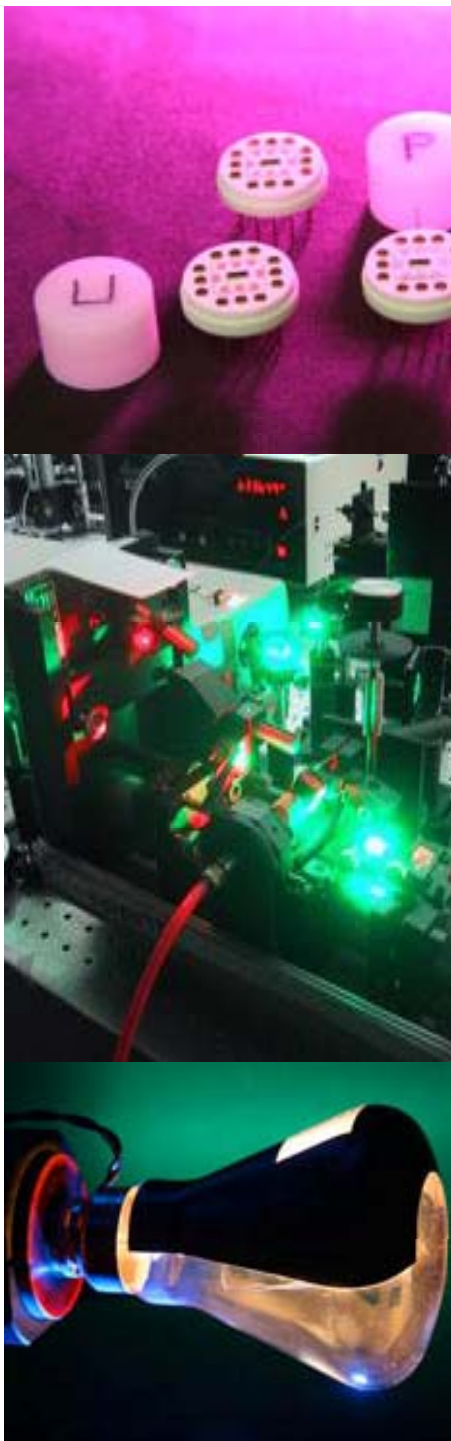
Institutional arrangements

- Role of the Technology Transfer Office [TTO]
 - 'Boundary spanner'
 - Central v devolved
 - Functions & relationships with other support/shared services units
- Policies & procedures
 - Ownership
 - Benefit-sharing



Challenges

- Lack of understanding of real benefits and costs
 - Expensive activity
 - Few dedicated resources eg for patenting
 - Including upfront investment & time lag to break even
 - Low % of “unrestricted” research funding
- Lack of buy-in by researchers
 - Ltd no of invention disclosures
 - “Publish or perish”
- Lack of experience/capacity/skilled individuals
- Lack of entrepreneurs/VC
- Exchange control
- Keeping benefits in SA while ensuring access to global mkts
- Bioprospecting
- Social good v commercial gain imperatives
- Implementation of legislation



Recommendations

- Better data on current activity & performance required
 - Need to agree on appropriate metrics & establish solid methodology
 - Case studies – sharing of experiences
- Creative approach for social good applications & socially responsible technology transfer
- Relationship with industry
 - Do the policy interventions support/hinder/do nothing in respect of industry needs?
- HR needs
- Harmonisation across government departments

Thank you

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CSIR

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