

Universities, Creativity and the Real World?

Paul Draper

**Queensland Conservatorium Griffith University
p.draper@griffith.edu.au**

Matthew Hall

**Partner, Swaab Attorneys
mdh@swaab.com.au**

Jenny Wilson

**Griffith University Office for Commercialisation
Griffith University Nathan Campus,
jenny.wilson@griffith.edu.au**

Abstract

The University sector is yet to agree on a uniform approach for balancing the rights of student and staff creators with those of the institution, an essential element for certainty in collaborative relationships. This paper discusses pressing issues for creative practitioners and how the University might deal with intellectual property and creative practice as applied to staff, student and university collaborations.

Introduction

Australian universities that receive research funding from the Australian Research Council (ARC) are obliged under the funding conditions to have Intellectual Property (IP) policies in place (ARC, 2004; clause 23.1). These University policies regulate academic output and its ability to interact with the commercial world. Established through university approval processes they use general language to try to cover the range of academic outputs and diverse industry usage. There is little guidance from the law and no clear understanding of policy effect upon researchers whose output is impacted by their terms.

The development of desktop authoring software and Internet publishing has directed attention to the value of new media outputs from the academic arena. Universities are thus re-evaluating their stance on ownership of copyright works (Fine & Castagnera, 1998), bringing the potential economic value of creative arts output to the attention of university policy application. Originally developed with science considerations in mind,

university IP policies now seek to incorporate work not considered in their original drafting – policies designed to work with the industry practices of the laboratory do not sit easily with those of the music, film or commercial art studio. Rather than undertake a full review of the policy changes, attempts have been made to modify science-designed approaches in a piecemeal fashion, resulting in increased uncertainty for academic staff and collaborating industry partners.

The resulting documents are often out of date with industry changes and fail to offer guidance or certainty to academic staff or administrators who are charged with their implementation. As a result, such policies represent neither the 'real world' of law and business, nor the commonsense 'real world' of the creative arts academic.

A Balancing Act

University IP policies and management processes represent an attempt to balance two positions: i) traditionally recognised principles of academic freedom, and ii) increasing imperatives to maximise returns from public investment. The rights of academic staff to self-determine what research to undertake, the methodology to adopt, how the results are to be disseminated and to whom, is traditionally protected by the 'treasured existence . . . of a set of working principles and practices known as academic freedom' (Laughlan, 1996; p. 346). The ability to direct and manage research and academic process manifests as an inextricable link between academic freedom, the integrity of research and researcher, and the legal right to determine the direction and use of academic endeavour. Meyer (1998) citing Rochelle Dreyfuss, observes:

. . . faculty have in their works, namely possessory, integrity and reputation interests. The possessory interest is 'fulfilled by composing a work that satisfies the creator's initial vision'. The integrity of the work is 'endangered by the process of compromising that vision with commercial demands'. The reputational interest 'turns on how the work is presented to the public'. (p. 17)

The impetus to generate income from commercial agreements has been propelled by the increasing focus of governments to maximise the benefits of research through closer collaboration with the commercial sector (Cornish, 1992). In Australia, a plethora of policy papers spurred universities to position themselves as a critical component of the national innovation system (Harman & Harman, 2004) focussing the research

environment on industry and commercialisation concerns (ARC, 2004). Government policy now categorises the 'exploitation of [University] research as one of their marks of success' (Cornish, 1992; p. 14). The extent of the relationships between academic and university activities has meant that any challenge to autonomy of ownership of research output engenders strong and emotional responses (Naughton, 2002). This is particularly so in the relationship between the academic practitioner-researcher and their creative products.

The Introduction of University Intellectual Property Policies

Under the powers vested in universities by their establishing Acts, the sector began to introduce policies to regulate and to achieve academic *égalité* in the industry engagement process. Resultant policies while varying considerably, had similar core reasons for their introduction (Monotti, 1997):

The encouragement of creativity; the promotion of excellence in research; maximisation of the benefit of intellectual property resources; encouragement and facilitation of commercialisation and the clarification of ownership and rights in intellectual property. (p. 14)

The Australian Government further encouraged universities to adopt these policies (ARC, 2000) by specifying the establishment and maintenance of 'effective policies and practices on IP ownership and management' (p. 39) as part of its strategic action for improving Australia's performance in commercialisation. It assisted the introduction of IP policies into university culture by tying such practices to the receipt of government funding. After several iterations, the Australian Vice-Chancellors' Committee (2002) produced guidelines which outlined objectives to be considered in policy development that demonstrated the need to seek balance between academic freedom and commercial imperatives. However, while the guide emphasised that it was 'not intended to be taken as prescriptive' (p. 14), it focused much of its guidance on issues relating to university ownership of IP.

Policy Direction, University Ownership and Patentable Inventions to Copyright

As Loughlan (1996) observes 'much of the drive towards the commercialisation of university research was . . . inspired by the huge financial success of the biotechnology industry in the 1980s, since the discoveries which made that industry possible were made in the universities' (p. 347). Thus the university IP ownership debate was initially focused on patents and inventions with little attention paid to copyright and artistic output (Weedon, 2000). The growth of the computer industry has been attributed as a factor for the inclusion of copyright as *university owned* IP Rights (IPR) (Kulkarni, 1995). The extension of university ownership focus to include literary works marks an interesting policy development point, destroying, as Cornish (1992) notes:

. . . the separate pigeonholing of literary effort and scientific research, under which the former fell to be protected by copyright and the latter by patents and as trade secrets, with quite distinct regimes affecting the ownership of these different rights. (p. 14)

The trend has continued positioning multimedia and Internet-based outputs under university ownership claims, thus fully capturing copyright in sound, visual arts and text. Unlike patentable inventions – which require a conscious action by the inventor to introduce research output into the public domain – copyright exists automatically on creation and covers the traditional output of the majority of academic staff scholarly papers. This broad inclusion brings particular difficulties for policy application and claims of university ownership of all academic copyright has brought the academic freedom vs. commercial imperative debate to higher profile (Campaign for Cambridge Freedoms, 2002).

What the Creative Arts Practitioner Expects

In this example, the creative arts academic comes from the perspective of a musician composer where the expectations follow the conventions found in the music industry. As will be shown, the implementation of this is made somewhat complex by the nature of music-making in higher education and the differences between teaching and professional practice.

Music composition. At law, as reflected in standard professional practice, unless employed to compose, a composer owns the copyright in a composition. If there is a different lyricist, then the composer owns the rights in the musical work and the lyricist owns the rights in the lyrics. If there are multiple writers, the IP is shared equally or in agreed splits.

Sound production. In the recording industry the distribution of copyright and asset acknowledgement is split in a number of ways: the songwriter/composer either enters into a publishing agreement with a commercial publisher and receives royalty payments based on commercialisation receipts or otherwise, 'self-publishes'. Income is also received for any public performance of the work by others from licences granted by collecting societies, eg, in Australia, from the Australasian Performing Right Association (APRA). The rights in any sound recordings are an independent copyright asset, owned by the producer or recording company in equal partnership with the performer. In many cases the performers' rights are signed over to the record company as a condition of the recording deal in return for royalty payments based on receipts. The producer and composer also earn licence fees through the public performance or 'synchronisation' of the recording via collecting societies including APRA, the Phonographic Performance Company of Australia (PPCA) and the Australian Mechanical Copyright Owners Society (AMCOS).

However, even if an individual does not own any rights in the copyright (either because of an employment relationship or an agreement) the creator has 'moral rights', including the right to be attributed as the creator. These can be important rights for artistic creators, that have no equivalent in scientific practice and that, consequently have little if any emphasis in IP policies. In higher education, these clear industry positions are often blurred by the nature of the environment and/or lack of university policy that adequately understands and deals with these matters or the overlap between output that may be commercialised and that which may be used for further research or teaching, or both. There are also benefit sharing rules that do not reflect commercial industry practices, do not take into account benefits that can be generated in an academic environment, and do not make an attempt to deal with the identification and sharing of non-monetary benefits, including in terms of teaching loads or publication credit.

For example, the orchestra is a large unit which may comprise staff and students from differing instrumental programs and year levels; it often incorporates visiting musicians and alumni in a given project; there may be performances, recordings, ticket sales and marketing events – teaching and research may exist within cross-curricula activity and the interdisciplinary of instrumental, composition, technology, corporate and administrative viewpoints. The music academic may build a significant body of compositions, repertoire and/or performance technique which is passed on not only through direct instruction but by active collaboration in authentic and engaging contexts which, in the scientific paradigm, would be clearly recognised as 'publications' for funding and other purposes.

Sound production does not involve only mechanical recording(s) of the event(s) but also may include oversight of a range of activities in the musical development process. The academic producer may manage budgets and timetables, instruct musical artists in performance, is often centrally involved with musical arrangements and uses any number of specialised sound tools to record, edit, process and assemble music/audio data to professional standards according to commercial/artistic conventions where specifications vary from music CD, to film, Internet and multimedia. When an academic musician creates or produces *original* compositions and recordings, the expectation in the higher education environment is that:

- i) all creators – ie, the academic staff and/or the student co-contributors – are credited for their contributions;
- ii) that all composers be free to distribute and leverage this new knowledge for the purposes of further research or teaching – in this way the expectation is not different to any other academic expectation in respect of scholarly papers.

A Case Study in University IP Policies and the Law

A recent conference exercise (Draper, Hall & Wilson, 2005) demonstrated the inconsistencies between academic expectations, university application of policy, and interpretation of a given scenario in accordance with law. The scenario, typical of a practical situation in a university music department was outlined and played out to explore the ownership expectations arising from these viewpoints. The fictitious policy

was based on typical clauses compiled from existing university IP policies from across Australia. The following table highlights key extracts from this composite policy:

1.0 Ownership of Intellectual Property Created by Staff members	
1.1	The University owns all intellectual property rights, excluding copyright, in any matter, article, document or other thing created or discovered by any staff member where the matter, article, document or thing is created in the course of the creator's duties of employment by the University and it is created with substantial contribution of University resources.
1.2	The University owns the following copyright works created in the course of the duties of employment of any member of staff: <ul style="list-style-type: none"> • Course materials (including materials in electronic form) • Works prepared at the specific direction of the University either under a consultancy or as part of employment duties • Works which must be owned by the University in order to facilitate the use, protection or commercial exploitation of University intellectual property • Sound recordings, cinematograph films, television broadcasts, sound broadcasts, published editions of a work, photographs, video recordings or computer programs created with substantial contribution of University resources
2.0 Ownership of Intellectual Property Created by Students	
2.1	Normally the University will not claim any proprietary interest in any intellectual property rights in any matter, article, document or other thing developed solely by students during their enrolled studies. However, the University may assert a proprietary interest in such intellectual property rights where: <ol style="list-style-type: none"> (a) development of the intellectual property has involved substantial use of University resources and/or services beyond those needed to meet subject or course requirements; (b) development of the intellectual property has resulted from use of University intellectual property; (c) the intellectual property forms part of the intellectual property generated by a team of which the student is directly or indirectly a member.
3.0 Ownership of Intellectual Property Created by Visitors	
3.1	Adjunct academic appointees, visiting fellows and other individuals working at the University and making significant use of the University's resources and facilities shall be treated for the purposes of this policy, for the period of the appointment, as if they were University academic staff.
3.2	As a condition of any visitor: <ol style="list-style-type: none"> (a) Having access to and use of any University resources; (b) Having access to and any use of any University intellectual property (c) participating in any teaching or research activities of the University ("visitor privileges")
	The University may require that visitor to do one or more of the following things: <ol style="list-style-type: none"> i) Do all things and sign all instruments necessary to assign to the University, or another person designated by the University, any intellectual property created by that visitor arising from that visitor being granted any visitor privileges: and ii) Give consent in relation to any moral rights he or she may have in the relevant work.
3.3	The University will recognise the publication rights of visitors subject to any overriding commercial imperative.

4.0 Distribution of Commercial Benefits	
4.1	All commercial benefits received by the University shall be distributed as follows, after the University first deducts any costs: One third to the originator; One third to the originator's department; and one third to the University central funds.
4.2	Students who assign their intellectual property rights, and if required to do so, give consent in respect of any moral right he or she may have in the work are, subject to any agreement, entitled to a share of any commercial benefits that the University receives from developing that intellectual property according to clause 4.1(above)

Table 1: IP Policy Excerpts (a composite of real IP policies in effect in Australian universities)

The Scenario

The following case was constructed to represent the staged development of a musical composition through to its subsequent commercial application. At the end of each stage, a question was posed to conference attendees comprising predominantly of academic creators. This audience, led by the representative academic creator on the panel, were asked to comment on what they would expect the 'commonsense' answer to be. The panel then strictly applied the constructed IP policy to provide the University response, followed by an interpretation of the scenario question and response from a legal perspective. The results of this exercise are summarised below.

***STAGE 1:** Professor A starts composition on a university piano. He decides to finish this composition as part of a class to demonstrate the composition process to students. Professor B, who is visiting the class from another university, is also attending. During the class both Professors, with the input from Student A, finish the composition.*

Q1. Who owns the intellectual property in the composition?

- *Academic Expectations:* The audience generally agreed that the composition was owned by the writers, ie, the two Professors and Student A, although most felt that any split should be agreed early in the process. It seemed that there was widespread understanding of music composition in higher education, based upon a long-standing tradition of PhD folio publications utilising music scores as text, and the role of music publication houses similar to that used by academics for books and research.
- *Policy Application:* Professor A owns IPR in the composition due to his initial contribution (Clause 1.1). The University owns IPR in the composition that was

created by Professor A in class as part of his teaching (Clause I.2). The University, by assignment, owns any IPR in the composition contributed by Professor B (Clause 3.2). The University owns IPR in the composition contributed by Student A (Clause 2.1 & 2.1b). Thus the University and Professor A own the composition.

- *Legal Interpretation:* If the policy is an 'enforceable contract' then the student composers will not own any rights because they are part of a 'team' that makes use of university resources. Neither professor will own any rights if the composition is part of 'course materials' – unfortunately, the policy gives no guidance in answering this question, however, if the composition is not 'course materials', both professors will own rights in the composition in equal shares with the University.

STAGE 2: Professor B takes notes of the composition process during the class and wants to publish a research paper. She also wants to incorporate the composition and the example of the composition process into her teaching portfolio at her own university.

Q2. Can Professor B publish her paper and incorporate into her teaching?

- *Academic Expectation:* Some felt that the second university had no right to reuse any such material in teaching. Others believed that the IP should be shared, but the material could not exit the parent institution without permission from all participants. Many thought the process should have been clarified earlier, eg, that as a visiting professor, any contributions were only to be made in the context of the University engagement and that no such work should leave the institution. Some believed that all songwriters should be free to collaborate and share in the outputs of the creative work which could be disseminated and re-used in any context the collaborators saw fit.
- *Policy application:* Subject to any overriding commercial imperative, the University will recognise Professor B's publication rights (Clause 3.3) However, Professor B would have no right to incorporate into her teaching material or to commercialise.
- *Legal Interpretation:* At law, irrespective of whether the composition is not 'course materials', Professor B has no restriction in using and publishing the composition. As a part owner she is entitled to exploit the work (except to grant an exclusive licence) without the permission of any other owner. If Professor B is not an owner, her

University will be an owner with the 'parent' University, and will similarly be able to allow Professor B to use the material.

STAGE 3: Professor A produces and records the composition using the University's recording facility with a view to publishing the recording. The composition is played by volunteer student performers.

Q3. Who owns the intellectual property in the sound recording?

- *Academic Expectation:* Most thought that the University would own the recordings and were unaware of industry conventions re. the split of compositions and sound recording master licences. Discussion followed about educational vs. professional software licences used to record and produce the work – could education licences be used to commercialise products? Some believed that there were complications, however, follow-up responses from some software companies and distributors that indicated this was not the case and that the University was free to distribute commercial products arising from the production of works. Ultimately, the answer depends on the terms of the particular installation licence. It was also indicated that if students have purchased educational licences in their time at university, when they graduate they cannot continue to commercialise their work with these same tools and are required to upgrade to professional licences.
- *Policy Application:* The University owns IPR in the sound recording (Clause 1.2 plus AVCC guidelines). The student performers own IPR in the sound recording (Copyright Act). Thus the sound recording is owned in equal shares by each of the student performers and the University.
- *Legal Interpretation:* Unless each performer has agreed to transfer their rights of ownership as 'performers' any further commercialisation of the recording may be difficult, if only from an administrative and benefit sharing point of view. The policy does not adequately deal with these ownership issues as a result of the recent Free Trade Agreement (FTA) amendments.

STAGE 4: Professor A is approached by a film company who wants to use composition in a new educational documentary that they are producing.

Q4. Can Professor A agree to allow the company to use the recording?

- *Academic Expectation:* Most participants thought not, but tended to agree that it would be in the interests of everyone that the University should negotiate with the film company for an agreement that would best serve the composers, sound producers and the University. Given the revealed nature of recording licences, many felt this should be approached as per existing arrangements for patents and consultancies. The terms should be explored fully in terms of assignments rather than ownership.
- *Policy Application:* The composition is owned by the University and Professor A. The sound recording is owned by the University and student performers, Thus Professor A has no authority to agree to allow the company to use the recording.
- *Legal Interpretation:* At law, Professor A can allow the film company to use the composition (again, provided it is not an exclusive licence) without the need to involve any other owners. However, the University, as the owner of the rights in the sound recording must be involved in granting rights to use the recording. As the owner of the rights from students, the University is able to conclude a non-exclusive agreement for use of both the composition and the recording without the involvement of Professor A. There will be added complexity if any of the owners are members of any collecting societies or have professional publishing contracts. As a result, they may not have rights in the output. This conflict between industry professional practice, collecting society membership and University commercialisation goals is not dealt with in the policy.

STAGE 5: The documentary is well received, particularly the sound track. The Company subsequently approaches Professor A to release the sound track commercially for purchase on CD and for broadcast. Professor A's University sees the commercial possibilities and wishes to commence negotiations with the company.

Q5. Who is entitled to returns from the commercial sales?

- *Academic Expectation:* Many believed that Professor B should have no ownership, being engaged as an external visitor. Some felt that all composers should receive returns. In terms of the sound recordings, most believed that the returns should be split between the University (for facilities, support and company negotiations), the sound producer and the performers.
- *Policy Application:* Due to the overriding commercial potential, the University revokes Professor B's right to publish (Clause 3.3); the University claims ownership of Professor A's IPR in the composition (Clause 1.2). The University obtains assignment of IPR in sound recording from student performers. Thus as owner of the composition and sound recording, the University and the company are entitled to returns from commercial sales. The University offers Professor A a share of commercial proceeds (Clause 4.1); the University offers student performers share in commercial benefits (Clause 4.2) following recoupment of costs expended.
- *Legal Interpretation:* Benefits are determined under the policy with all proceeds going to the creators until a certain level is received, and then split between creators, school and University. Administratively this may be very cumbersome. It also does not take into account the impact of industry arrangements, publishing agreements and collecting society membership. The policy focuses on monetary benefits only.

Q6. Who does the company need to credit on the film and the CD recording?

- *Academic Expectation:* The University, the sound producer, the performers and the composers all need to be credited. There was some disagreement that Professor B should be included in any way and if so (like industry) this should require the permission of Professor B's employer and agreement between the two Universities.
- *Policy Application:* Professor A, Professor B and Student A as co-authors of the composition and the student performers.
- *Legal Interpretation:* At law, unless there is another agreement, credit will be limited to the University and the composers. Producers of sound recordings (unlike those of films) do not have any moral right of attribution. Performers will have moral rights, including a right of attribution, when FTA amendments to the Copyright Act come

into force. If the University controls the negotiation, there is no protection under the policy for composers, producer or performers that the University will not reach a different agreement as to credits, requiring only a credit for the University.

Concluding Remarks

If certainty and reward is to be maximised it is necessary that all copyright owners or possible owners – including the University – enter into clear and enforceable agreements dealing with the use of technological resources, ownership of the rights, delineation of uses that can be made of the material, and the sharing of benefits (both monetary and non-monetary) that may flow. Consideration needs to be given to who is best placed to own the work, who is best placed to commercialise the work (which may not necessarily require ownership) and how the benefits can be shared equitably.

This may be achieved by the development of more equitable IP policies that respond appropriately to artistic and cultural academic output, together with increased awareness and education of all participants in the value of the IP rights that they create. This requires a considered review of existing policies which attempt to force creative academic output into a structure developed for scientific research. It requires education of administrators, academics, students and arts professionals in the unique issues that are faced when dealing with artistic IP output in the university environment, so that a balance between academic freedom and commercial return can be better maintained and leveraged in the future.

References

- ARC (Australia Research Council). (2004). Funding Agreement for ARC Linkage Projects for Funding commencing in 2005. Canberra: AGPS. [Online] Available: <http://www.arc.gov.au> [30 May 2005].
- ARC. (2000). *Research in the National Interest: Commercialising University Research in Australia*. Canberra: AGPS. [Online]. Available: http://www.arc.gov.au/pdf/00_03.pdf [10 May 2005].
- AVCC (Australian Vice Chancellor's Committee). (2002). *Ownership of intellectual property in universities: policy and good practice guide*. Canberra: AGPS. [Online]. Available: http://www.avcc.edu.au/documents/publications/IP_ownership_discussion_paper.pdf [30 May 2005].

- Campaign for Cambridge Freedoms. (2002). Website, United Kingdom. [Online] Available at: <http://www.cl.cam.ac.uk/~rja14/ccf.html> [3 July 2005].
- Cornish, W.R. (1992) Rights in university innovations. The Herchel Smith Lecture for 1991. *European Intellectual Property Review* 1992, 14 (1), pp. 13–19.
- Crespi, S. (1997). Intellectual property and the academic community. *European Intellectual Property Review*, 19 (1), pp. 6–10.
- Draper, P., Hall, M., & Wilson, J. (2005). Universities, Creativity and the Real World? *Sixty minute panel presented at Speculation and Innovation: Applying Practice Led Research in the Creative Industries Conference*, Brisbane: Queensland University of Technology. 30 March – 1 April 2005.
- Fine, C.R. & Castagnera, J.O. (2003). Should there be corporate concern? Examining American university intellectual property policies. *Journal of Intellectual Capital*, 4 (1), pp. 49–60.
- Harman, G. & Harman, K. (2004). Governments and universities as the main drivers of enhanced Australian university research commercialisation capability. *Journal of Higher Education Policy and Management*, 26 (2), July 2004, pp. 153–169.
- Kulkarni, S.R. (1995). All professors create equally: why faculty should have complete control over the intellectual property rights in their creations. *Hastings Law Journal*, 47, pp. 221–252.
- Loughlan, P. (1996). Of patents and professors; intellectual property, research workers and universities. *European Intellectual Property Review*, 18 (6), pp. 345–351.
- Meyer, M. (1998). To promote the progress of science and the useful arts: the protection of and rights in scientific research. *The Journal of Law and Technology*, 39, pp. 1–42.
- Monotti, A. (1997). Who owns my research and teaching materials my university or me? *Sydney Law Review*, 19 (4), December 1997, pp. 425–471.
- Naughton, J. (2002). Goodbye to Silicon Fen: Why doesn't Cambridge University understand the link between intellectual freedom and prosperity? *The Guardian Unlimited*, 4 August 2002. [Online]. Available at: <http://observer.guardian.co.uk/comment/story/0,6903,768429,00.html> [10 July 2005].
- Weedon, R. (2000). Policy approaches to copyright in HEIs. *A study for the JISC Committee on Awareness, Liaison and Training (CALT)*, Centre for Educational Systems, University of Strathclyde. [Online]. Available: <http://www.strath.ac.uk/ces/projects/jiscipr/report.html> [30 May 2005].
- Wood, F. & Meek, L. (2002). Over-reviewed and underfunded? The evolving policy context of Australian higher education research and development. *Journal of Higher Education Policy and Management*, 24 (1), pp. 7–25.

Biographical statement

Paul Draper

Dr. Draper designed and developed the computing, e-learning and music recording infrastructure at Queensland Conservatorium Griffith University. He been centrally involved in student professional development, industry /community linkage programs and the expansion of postgraduate research training. His current projects focus on practice-led research utilising the recently-launched IMERSD facility: a 5.1 surround-sound, film post-production and multimedia authoring studio for industry collaboration.

Matthew Hall

Matthew is an experienced intellectual property, information technology and e-commerce lawyer and registered trade mark attorney. He has expertise in identifying, protecting and commercialising intellectual property rights and has a particular interest in digital content and rights management. Matthew is the chair of the Australian Interactive Media Industry Association's privacy taskforce and lectures on the commercialisation of intellectual property at the Australian National University.

Jenny Wilson

Jenny is the Business Development Manager for Arts and Education at Griffith University and has over 14 years experience in income generation, industry collaboration and business development within the university sector in Australia and Europe. Her expertise includes market research, feasibility assessment, training needs analysis, product development and University-government-industry relations. Jenny is a UK Patent Office accredited trainer and represented the UK university sector in the development of the European Union policy on Innovation