INTELLECTUAL PROPERTY OFFICE

Intellectual asset management

for universities

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Intellectual Property Office is an operating name of the Patent Office

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FOREWORD

I am delighted to introduce this guide to IP strategy for senior Higher Education decision makers.

As Director General for Knowledge and Innovation, I am very much aware of the importance of the role of IP in ensuring that we derive maximum benefit from the knowledge we create from our public investment in Higher Education, Science and Research and Innovation.

It is vital that we achieve the maximum impact from the wide range of contributions that our universities make to the economy and society; and the funding and research councils are working to support and incentivise this. It is therefore now more important than ever for Higher Education leaders to take a strategic view of their institution's intellectual assets and how to achieve and demonstrate public value from them.

Since the first IPO guide in 2003, there has been great progress - income from interactions between UK universities and business and other users has nearly doubled to over £3bn in 2009-10 - supported and incentivised by public funding. Universities and users now have a sophisticated understanding of the wide range of beneficial interactions involving university intellectual assets and the partnerships they can build.

However, we have an increasingly diverse Higher Education sector and individual institutions will need different strategic approaches to managing IP to reflect their individual academic strengths, their partners and stakeholders and their business models. I hope that this Guide will assist in the generation of IP policies that allow each institution to seize the opportunity and meet the responsibility to use their IP to secure maximum benefit for the economy and society.

Professor Sir Adrian Smith
Director General Knowledge and Innovation

EXECUTIVE SUMMARY

► INTRODUCTION

The creation and dissemination of knowledge is at the heart of every university activity. The challenge is realising how this knowledge can best be utilised as an asset that can provide the maximum value to the economy, society and the university itself. Many universities are now fully aware of how to commercialise the IP arising from their research base. However, there is now a much broader appreciation that impact extends beyond the simple commercialisation of patents. Universities now need to be able to create an overall strategy for managing their IP in line with their mission.

This Guide is for vice-chancellors, senior decision makers and senior managers in universities and is intended to help them set strategies to optimise the benefits from the intellectual assets created by their staff and students. The Guide does not provide an IP strategy that can be applied across all institutions as there is no "one size fits all" approach to IP management. Instead, it will assist in the generation of a strategic blend of approaches to IP specific to each individual institution's strengths and missions, that can help secure optimum benefit for the economy, society and the university. It identifies the key features that need to be considered in order to build a strategic framework for the managing of IP, and these are summarized below.

► RECOGNISING THE BENEFITS OF IP AND THE BUSINESS MODEL

There are three main roles for IP in the university business model, and all universities need to consider these roles within their own mix of disciplines, and their own business model, and to align their policies and procedures. The emphasis placed on these roles in order to optimise the benefits that can arise from them is likely to differ from institution to institution to reflect the individual nature of the institution's business model. These roles are:

- **Maintaining freedom to operate:** Much of the IP generated by universities supports their own research and teaching, and therefore universities must ensure that they protect their own freedom to operate. For example, policies are needed to manage the IP in teaching materials in order to ensure continuity following departure of an academic, or to ensure that a researcher can publish his research following any research contract to ensure future access to the work being undertaken.

- **Translating knowledge with immediate application:** Universities accumulate and integrate state of the art knowledge in the fields in which they operate and then transfer this knowledge, for example through teaching, providing continuing professional development and research. The effective protection of any proprietary teaching models and materials and research results needs to be considered in order to support the most effective transfer of such knowledge. Knowledge without knowledge transfer is of no value to organisations established with a good public motive.

- **Creating and managing new knowledge:** The vast majority of a university's output is put directly into the public domain by publication in journals or by free dissemination. The ability of researchers to publish must be preserved, but industrial contracts and IP protection need to be considered, for example by educating researchers on the necessity to file a patent application before publishing, or by allowing industrial partners to request delays in publication in order to accommodate patent filing. IP related activities may generate a small, but welcomed, proportion of a university's revenue, but can have a wider economic impact by enabling new knowledge to create new jobs and deliver innovation to the economy.

► CREATING BLENDED IP STRATEGIES

There are a number of activities that a university engages in that are ultimately IP-related. Each university will have a different blend of these activities and of disciplines, and this blend needs to be reflected in the allocation of resources to support them. Whilst some of these activities are interdependent, others can produce conflicts if not carefully managed. For example, conflicts between commercialising software and "open source" release can be reduced by introducing uniform licences that allow both approaches. Similarly, some activities are capable of showing a direct profit and economic benefit such as technology transfer and CPD, whilst other instances of knowledge exchange can be at a cost; investment in student entrepreneurship may not have a direct return to the university but can make a significant contribution not only to students employability but to the economy. Each university therefore needs to be clear about the benefits of an activity and how that relates to their mission and overall business model.

EXECUTIVE SUMMARY

As the business models of universities differ, then their IP strategies will also need to differ in order to be in line with their overall business model. These strategies will necessarily become a blend of strategies covering a wide range of different activities, and every institution will create a different, distinctive IP blend.

► STRUCTURING IP POLICIES

In order to create the best environment for IP to be produced and transferred to practical use, a university must have a suite of IP policies and practices that reflect the university's mission. The policies have to sit in a complementary way with the core objective of knowledge creation, scholarship and learning. An IP policy should at the very least ensure that there are arrangements in place for sharing any commercial returns from commericalisation of IP, that recognizes the range of IP activities of the university, and that displays a balance of engaging in IP work for reputational benefit, for positive social and economic impact, and for fiscal returns. Different institutions may put a different emphasis on the voice of the student, research, academic or administrative communities in their policies; this again emphasises that a one size fits all approach does not apply and that policies and practices must be consistent with the institutional structure to deliver them. However, even though universities need to develop IP policies that are consistent with their own individual mission, those areas where policies are needed are the same for all. Having structured its IP policies appropriately these then need to be effectively communicated both inside and outside the institution.

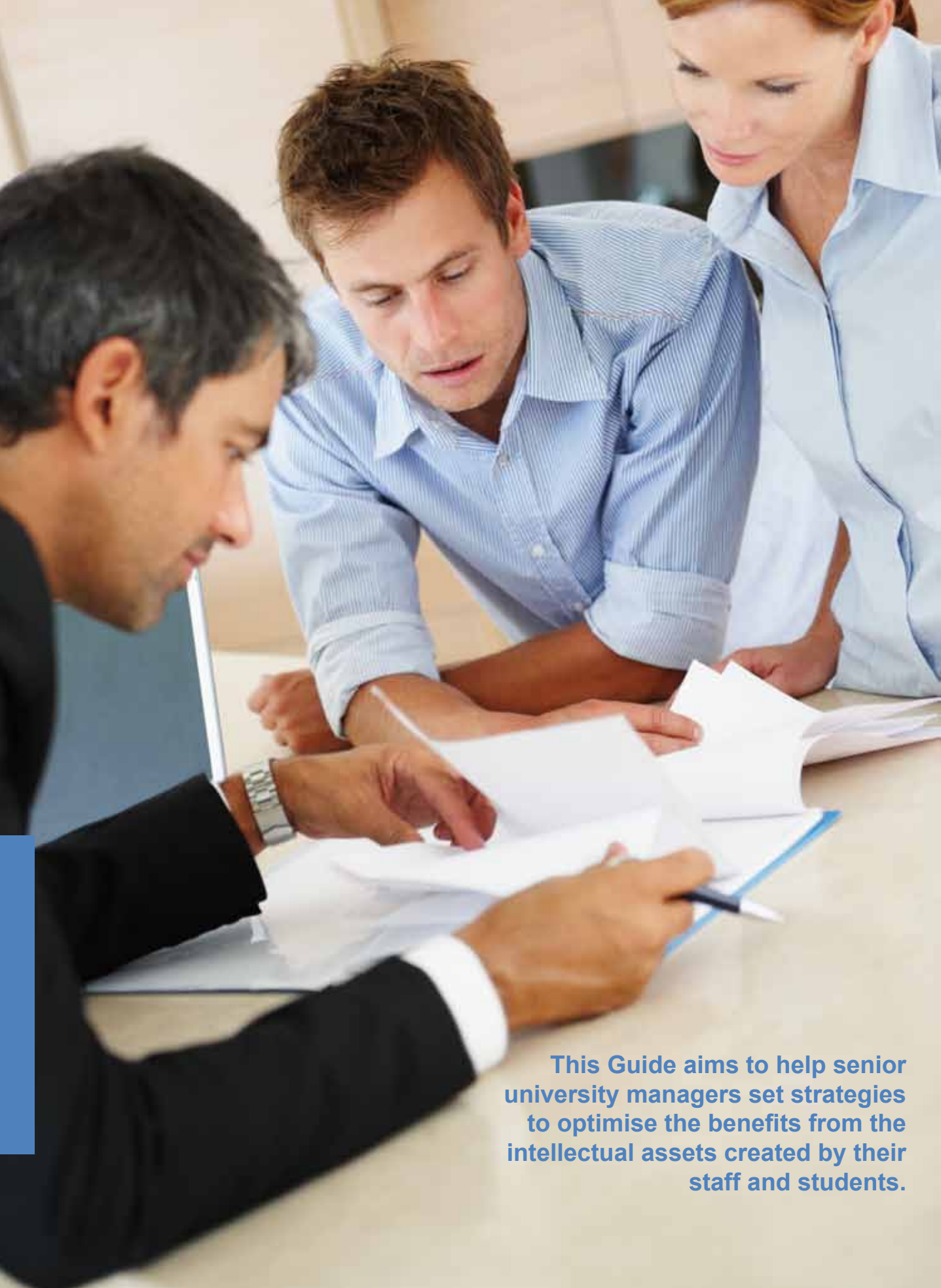
► IP CONTRACTS AND AGREEMENTS

Universities often find it advantageous to work in collaboration with industrial partners or other universities in order to exploit their research. In order to do this they need to have IP agreements in place that ensure that they secure the rights to continue to use existing IP and to exploit the IP that arises from research, whilst also balancing this with working collaboratively with other institutions, public or private. There are three key points that need to be considered in forming IP contracts: the difference between ownership and access rights, the charitable status of universities and the consequences of commercialisation behaviours, and the need to behave ethically.

IP ownership is not essential; it is possible that the goals of a project or department can be met simply by being able to use a piece of IP and therefore the terms on which access rights are granted are critical. IP agreements should therefore be negotiated on a case by case basis. The Lambert tool kit for collaborative research is one initiative aimed at increasing the flow of IP from universities to business, and represents a consensus bargain between industry and academia. It is based on the principle that one size does not fit all in IP agreements by offering a set of agreements that cover a range of common scenarios. Regardless of the nature of the IP agreement, the core requirement of a university's freedom to operate and ability to use results in future research need to be embodied within it.

► CONCLUSION

This Guide illustrates the need for universities to look at their IP policies in relation to their individual business models. This enables universities to set overall IP strategies that optimise the benefits that can be gained from use of their IP and to enhance knowledge transfer. Although the areas where policies are needed are the same across all institutions (such as staff ownership, student ownership), it is the substance of these policies that differs from institution to institution. As business models of universities differ, their IP policies will also differ in order to extract maximum benefits from their IP portfolios.



This Guide aims to help senior university managers set strategies to optimise the benefits from the intellectual assets created by their staff and students.

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PATENTS - Protect technical inventions, such as products or processes which are new and are not an obvious development of what has gone before.

CHAPTER 1
INTRODUCTION

► THE PURPOSE OF THIS GUIDE

This Guide aims to help senior university managers set strategies to optimise the benefits from the intellectual assets created by their staff and students. “Intellectual assets” is a broad term that varies in definition; in the context of this Guide, “intellectual assets” extends beyond intellectual property rights to the know-how and trade secrets of the staff and students. In particular it seeks to assist institutions to develop an intellectual property strategy that is consistent with their wider policy framework, their organisation, and their contribution to the economy and society. IP management in universities is an extensive area, and this Guide provides a broad overview for senior managers. More detailed and up to date information and resources relating to specific areas will be available online to accompany the Guide.

The key starting point for the development of an effective strategy is to set clear institutional principles. For example, is the strategy driven by commercial goals or by the broadest possible engagement with users? Universities are charities established for the public good and as such their strategy for intellectual assets needs to balance commercial return and public benefit.

Having decided an institution’s overall goal this then needs to be set in a clear policy framework which should address three areas:

- **An internal IP policy that sets out the rules for staff and students regarding any IP that they generate**, including disclosure, ownership and engagement with third parties, as well as providing incentives to ensure compliance with the policy;
- **A policy regarding collaborative and contract research** is recommended, with guidelines governing ownership and use which are compatible with the mission of each party. Any IP-related issues need to be clarified as early as possible in contemplating any research project, and particularly in the case of a collaborative research project;
- A knowledge exchange policy is also needed to establish a framework for commercialisation, such as licensing or spin-offs, together with clear guidance on the sharing of financial returns from knowledge transfer activities, and places such commercialisation in the context of institutional goals.

An example of an approach to the management of IP in publically funded institutions is the European Commission Recommendation on the management of intellectual property in knowledge transfer activities[1]. This provides a code of practice concerning the management of IP, and three main sets of principles that are recommended for IP management.

Most institutions have by now largely addressed these matters. What is less clear is the extent that these policies are aligned with the specific characteristics of the university. The rules and policies surrounding an institution’s IP must complement its mission, and this Guide focuses more squarely on some of the issues that may assist in creating an IP policy that is suitable for your individual institution.

► WHAT IS IP?

Intellectual property in its broadest form is the manifestation of ideas, creativity and invention in a tangible form. Care must be taken not to take too narrow a view. Many researchers make the assumption that intellectual property means primarily patents and therefore it is of no direct relevance to them. Copyright is relevant to all university academic staff and students; copyright is in research results and in the tools and materials used for teaching. There is a need to distinguish between intellectual property as described above and intellectual property rights (IPRs) which are legal forms of protection for intellectual property.

The IP legal framework consists of specific registered rights (patents, trade marks and registered designs), non registered rights (copyright and design right) and common law rights. The terms “hard IP” and “soft IP” have been coined to distinguish between various rights, but there is no universally recognised definition in this area[2,3]. It is universally agreed that hard IP relates to patents at least, but it can also include trade marks, copyright and designs, along with several specific niche rights such as plant breeder’s rights and database rights.

1 C(2008)1329 http://ec.europa.eu/invest-in-research/pdf/ip_recommendation_en.pdf (See Annex A)
2 Andersen B “IP and publicly-funded knowledge production October 2010; Available online at http://www.ipo.gov.uk/ipresearch-flow-201010.pdf
3 ISIS Innovation “A Literature Review on the Efficiency and Effectiveness of University Intellectual Property (IP) Models for the Generation, Identification and Exploitation of “Soft” (Non-Patent and Non-Trademark)” for SABIP Oct 2009

Soft IP is universally accepted as tacit knowledge or "know-how", and has also been used to describe people and their skills. Its definition can be extended to include software, plant or animal varieties and in some broad definitions encompasses any IP right that is not patented or patentable. Regardless of its definition, soft IP is becoming an increasingly valuable asset when it is utilised in an effective way, particularly in universities that are strong in arts, humanities and social sciences. Universities have tended to focus too much on hard IP and, within that, on patentable IP. Businesses responding to more than one survey[4,5] about the relative impact of IP protection methods have ranked confidentiality agreements, which can be used to protect tacit know-how, as more relevant to protecting their IP than formal IPRs. The data of the Higher Education Business Community Interaction Survey similarly indicates that, for universities, their soft IP brings revenue returns several times greater than formal IP licensing, although the latter is not insignificant. The strategic blend between revenue generation and other benefits is discussed in later chapters.

THE FOUR MAIN AREAS OF INTELLECTUAL PROPERTY

COPYRIGHT - A right which arises automatically if certain conditions are met. It protects a wide variety of works, including original literary, dramatic, musical and artistic works, software, film, sound recordings and broadcasts.

PATENTS - Protect technical inventions, such as products or processes which are new and are not an obvious development of what has gone before.

TRADE MARKS - Distinguish the goods and services of one undertaking (i.e. a company/ organization) from another.

DESIGN RIGHTS - Protect the visual appearance of products; there are registered rights which confer a monopoly as well as unregistered rights which give lesser protection.

► WHY IS THERE A NEED FOR THIS GUIDE?

The first edition of this Guide was published in 2003, at a time of increased interest in the commercialisation of IP arising from the university research base. However, much has changed since then in the world of IP commercialisation and in the context in which it is undertaken. There have been developments in innovation theory, most notably the growth of the "open innovation" paradigm, where use of external ideas and innovations as well as internal can enhance advancement of a technology. In addition there has been a general evolution of 'mass collaboration' and 'user-generated' innovation approaches facilitated by new social media tools, and non-IP business assets such as business models have also grown in value.

The Government cast a vote of confidence in science and research by protecting its Higher Education Innovation Fund budget with a flat-cash, ring-fenced settlement for 2011-15. This protection was given because of compelling evidence that a strong research base is vital for our future as a nation in a global knowledge economy. This applies to both fundamental, curiosity-driven research and research related to the challenges facing business and public services

Public funding for research and knowledge exchange will focus even more strongly on excellence and on maximising the benefits for the economy and society. **This focus makes it more important than ever for Higher Education leaders to take a strategic view of their institution's intellectual assets and how to achieve and demonstrate public value from them**. Both Government and the Higher Education community should recognise the wide range of contributions researchers make through the impact of their work to the economy, society, public policy, culture and quality of life. The public would expect us to maximise the benefits of excellent research they pay for.

Higher Education funding bodies and the Research Councils are working together so that support and incentives to bring universities and business closer together are delivered coherently. Research Councils' Pathways to impact encourage researchers to consider beneficiaries and the future pathways towards impact from inception. Research

4 Pitkethly R UK "Intellectual Property Awareness Survey" May 2010
5 Robson S & Kenchatt M "First findings from the UK Innovation Survey 2007"; April 2008

Councils support collaborative research and training. The Higher Education Funding Council for England (HEFCE), Higher Education Innovation Funding (HEIF) and the Charity Support and Business Research elements of Quality Related research funding (QR) support universities' capacity to work with business and charities and provide strong incentives. The Research Excellence Framework (REF) will recognise universities achievements in terms of impacts from excellent research, and the higher education funding bodies decided that a weighting of 25 per cent for impact would give due recognition to the economic and social benefits of excellent research. However, given that the impact assessment in the 2014 REF will still be developmental, the weighting of impact in the first exercise will be reduced to 20 per cent, with the intention of increasing this in subsequent exercises. This is a very significant shift from the previous Research Assessment Exercise but this should not be seen as undermining basic research and a move to short term applied research given that impact will only be assessed on work of international quality research (2* and above).

There has been great progress in interactions between UK universities and business and other users, more than doubling in real terms since 2001 to over £3bn in 2009-10, supported and incentivised by public funding. Data from the Higher Education Business and Community Interaction Survey show a wide range of interactions, many of which will involve IP indirectly, as well as variation between institutions. Direct IP transactions represent less than 3% of knowledge exchange income, but are a highly visible and much discussed aspect of research commercialisation[6,7,8,9]. It is, therefore, clear that universities have a greater role to play. The consensus of these reports has been that universities should be clear that the purpose of the IP created by them is to create wider social and economic benefit, and not only revenue generation. In addition, the role of the knowledge transfer office no longer focuses only on an intellectual property professional service, but has a broader role in the innovation system. These changes have forced new reflections on the content of the Guide, particularly as IP commercialisation has become more complex.

Each institution needs clear objectives in its IP strategy, and this Guide aims to demonstrate how these objectives should be developed within an individual institution in order to gain the maximum overall benefit from its IP. This Guide will not provide an IP strategy that can be applied across all institutions; institutions and their business models are individual and there is no "one size fits all" approach to IP management. What this Guide intends to do is assist in the generation of IP policies that are specific to each institution, and will secure maximum benefit.

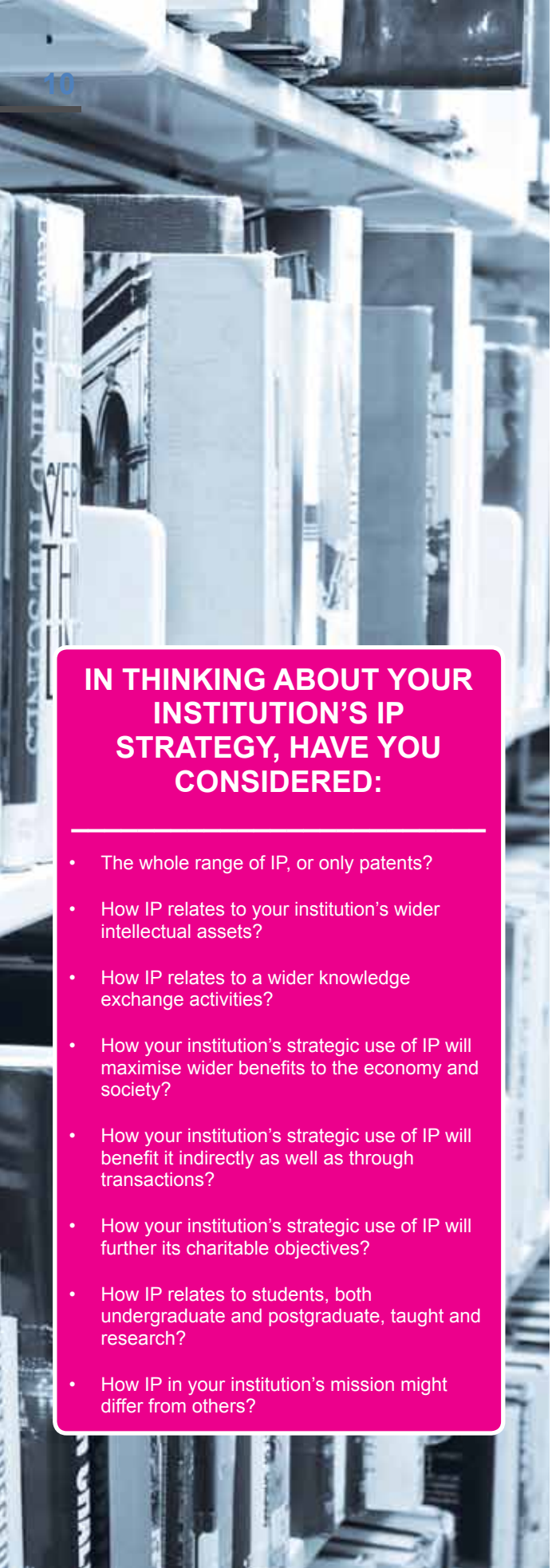
► CHARITABLE STATUS AND INTELLECTUAL PROPERTY COMMERCIALISATION

Although this Guide aims to demonstrate how the maximum value can be gained from IP, universities are charities, and this cannot be ignored. IP generated from university research is a charitable asset to be used for public benefit in support of the university's objectives by the trustees. The Charity Commission has recently provided some detailed guidance on Research and the charitable status of universities[10]. It incorporates and updates previous guidance on the commercialisation of IP arising from research.

In summary for research to be regarded as "charitable":

- the research must further charitable aims and be conducted for the public benefit;
- the subject matter of the research must be a useful subject for study;
- the knowledge acquired from the research must be disseminated (made available) to the public within a reasonable time frame;
- any private benefits (for example, exclusive benefits to a commercial company arising from a research project) must be "incidental" to achieving charitable purpose; that is, reasonable, necessary and in the interests of the charity.

6 Lambert Review of business- university collaboration (December 2003)
7 Funder's Forum Report ("Saraga Report") (July 2007)
8 The Wellings review "*Intellectual Property and Research Benefits*" (Sept 2008)
9 The Sainsbury Review "Race to the Top" (October 2007)
10 http://www.charity-commission.gov.uk/Charity_requirements_guidance/Specialist_guidance/Education/higherres.aspx



IN THINKING ABOUT YOUR INSTITUTION'S IP STRATEGY, HAVE YOU CONSIDERED:

- The whole range of IP, or only patents?
- How IP relates to your institution's wider intellectual assets?
- How IP relates to a wider knowledge exchange activities?
- How your institution's strategic use of IP will maximise wider benefits to the economy and society?
- How your institution's strategic use of IP will benefit it indirectly as well as through transactions?
- How your institution's strategic use of IP will further its charitable objectives?
- How IP relates to students, both undergraduate and postgraduate, taught and research?
- How IP in your institution's mission might differ from others?

Further clarification of what is intended by these terms is given in the Charity Commission guidance. The characteristics of a project are evidenced in its contract, but rarely are two contracts the same in wording and context, and care must be taken to interpret the guidelines carefully.

As well as being important for ensuring that a university complies with charity law, the decisions made affect the way a project is accounted for financially and, possibly, taxed. A detailed discussion of appropriate corporate arrangements for research and commercialisation of IP is beyond the scope of this handbook and appropriate guidance should be obtained. An example of how other charities deal with this balance is set out clearly in the guidance from the Wellcome Trust where they seek to balance healthcare benefits and commercial gain.

CHAPTER 2
IP AND THE UNIVERSITY BUSINESS MODEL

► BACKGROUND

IP in the broad sense underpins all of the activity of a university. Codified knowledge, research results, tacit knowledge, know-how, technology ideas, publications and a huge range of copyright material and the human connections that enable cross-fertilisation from one discipline to another – all these things feed through and emerge from research, teaching, consultancy, and the many other things that universities do. The role of universities as stewards of this knowledge for all has come under great scrutiny of late, and they have been asked to find ways to use this remarkable knowledge pool ever more creatively. This responsibility creates a great opportunity for universities to find new ways to make a difference and, in some cases, to find new ways to finance their activities. However, there is a wide range of institutional types, with different strengths and different objectives, and ultimately different business models. As a consequence of this, the management of IP will differ from institution to institution; there is no one IP model or strategy that we would advocate. Instead, a strategy needs to be directed to "best fit" the objectives and/ or business model of the institution.

► RECOGNISING THE ROLE OF IP IN THE BUSINESS MODEL

The first step in setting up a system for the management of IP within a higher education context is to recognise how IP fits within the specific institutional business model. Whilst every institution will have a different balanced collection of business aims and goals, ultimately IP in a broad sense touches on practically all of the revenue streams open to them, and all the missions they pursue. What is often less clear cut is which IP strategy will best capture value for the institution as an organisation, and some IP strategies will pull in opposite directions.

The challenge of balancing the different models for commercialising IP is often expressed in rather simple binary terms – either IP is published or it is commercialised, either software is released under open source models or it is commercialised. In reality, these seemingly binary conflicts are not helpful and in the real world they can often be resolved in a way that enables more than one goal to be met. IP strategies will necessarily differ depending upon the desired outcomes, and therefore if universities understand the ways IP underpins their own overall business model, they can use their IP in ways that achieve the blend of outcomes that most meets their needs.

There are a number of reasons why universities need to worry about how the IP they generate should be used. **First**, much of the IP universities generate (in the broad sense as we must now consider it) supports their own teaching and research activities. As a consequence, universities must take care to protect their own freedom to operate. **Secondly**, universities have developed capabilities in supporting the process of translating knowledge with immediate application into the wider society and economy. **Thirdly** the research base (and indeed innovation in education) creates new knowledge and provides a broad foundation for innovation throughout academia and business, often communicated through scholarly conferences, publications or collaborative research, teaching, but also through technology transfer. This feeds into future (but not necessarily immediate) commercial and public applications. Arguably this is the highest impact activity, and must be preserved and encouraged. These key mechanisms for use of IP are all tied to revenue generating possibilities, either through the universities' core business (in the first case) or through a variety of non-core mechanisms.

There are so many ways in which IP touches the work of universities, even talk of a single strategy can be unhelpful as it can be seen to imply a uniform approach – rather universities should develop their own "strategic blend" that suits their own circumstances and opportunities. This strategic blend can then be used by the university to balance the allocation of resources in a way appropriate for their business model.

► THE BENEFITS OF IP AND THE BUSINESS MODEL

All universities will need to consider all three of these roles for IP within their policies and procedures and their overall business model, but their emphasis may well be very different from institution to institution. Universities with a teaching focus may consider that the protection and franchising of course design and teaching materials is the strongest IP role. A research intensive university with a strong track record of licensing and spin-outs may consider the other roles to be stronger candidates for investment. Once the

balance of roles for IP in the university business model has been analysed and recognised, the institution must look at the benefits that can be gained from each and the strategies that they might choose to employ. This strategic blend will be appropriate to that institution's specific business model. Some of these benefits and strategies are discussed below, although it should be pointed out that this is not an exhaustive list and that many other benefits can be gained from the strategic use of IP.

Maintaining Freedom to Operate

Teaching and Learning

Universities teach courses in some disciplines that have been established for centuries, in others that are relatively recent. Markets for courses change and some universities have been innovative in designing new courses that meet rising demand – either from employers or from students. Course concepts are relatively easily replicable and often difficult to differentiate between institutions in the minds of applicants. A key barrier to entry is the effort required to create, design and validate a new course. Academics are mobile, and it is difficult to distinguish between works commissioned by the university and works owned by individuals. Some universities have given careful consideration to policies governing management of IP in teaching and course materials. Such policies may be contentious and need careful discussion, but in an increasingly marketised environment for students, protecting market position and freedom to operate may be a necessary investment.

Research

IP arising from research contracts can become contentious when private and government sponsors are involved. The biggest challenge in effective contracting is ensuring the right to publish and the right to use for continued research. Contracts which cede control of IP without due thought will often compromise a researcher's ability to build knowledge cumulatively and may also allow a third party to restrict the university's freedom to conduct and publish future research. Similar issues arise when commercial licences to university IP are negotiated. IP policies covering contract negotiations must not only deal with rights to derive commercial benefit, but also protect where possible future academic research and publication plans.

However, developing a "one-size fits all" approach to IPR and research contracts is unlikely to be effective. With all aspects of IPR the context and the goals need to be considered at the level of the project activity. Many of the issues relating to IPR and research contracts are to do with a failure on both sides to discuss and identify the specific issues and instead to seek a quick solution. This may in the end consume more time than an initial frank conversation about the use of the results of the project by both parties.

Consultancy, services and contract research

Universities often provide routine services to business, governments and charities. These may be as varied as engineering problem solving, materials testing, manufacture of drugs for clinical trials, analysing policy options for governments or providing business advice. In all these cases, clients will rightly expect ownership of outputs for their own use, but universities must consider the need to preserve their own "background" IP (i.e. IP which is generated prior to, or independent of the activity in question), and developments from such IP (e.g. improved methods of analysis). The client is often only interested in very specific rights and has no interest in constraining university activities but the contractual wording can inadvertently do so.

Translating Knowledge with Immediate Application

Good universities are repositories of current, state of the art knowledge in the fields in which they operate. Of course, one important mechanism for transfer of this knowledge is through teaching students, but there are many others.

Problem-solving

Often companies and organisations with a problem to solve can benefit from this knowledge. This can be through a direct relationship with the university – such as paying for testing in materials labs, or asking for help devising a marketing strategy. Often this is mediated through government schemes to subsidise the activity, such as Knowledge Transfer Partnerships (KTPs) or innovation vouchers. In this case the IP is not always protectable, but is rather a consequence of collective know-how and access to facilities. In this case, IP outputs (such as copyright subsisting in any reports or other deliverables) are often only relevant to the client. Nevertheless, as

noted above, care is required in contracting to preserve the university's background IP, and any developments of the background IP that come out of the project (an improvement to a university's test assay should probably not be allowed to become the property of a company which has paid for a test on one of its own compounds, for example). In addition, it is generally important to ensure that client relationships are not exclusive (i.e. that the university is free to work with other companies in the field, although there may typically be restrictions on using reports or other deliverables previously generated for one company in new projects for others).

Private Consultancy

In many universities, academics are permitted to engage in private consultancy for a portion of their time. This is an important mechanism for knowledge to be translated across the boundary of the university (in both directions) and may have a role in reinforcing other mechanisms listed here. A delicate balance between encouragement and policing is required to ensure that conflicts with other aspects of activities are managed and monitored, to avoid ambiguities that can lead to misunderstandings and, potentially, expensive litigation. Universities should ideally have policies to ensure that private consultancy does not conflict with, for example, commercialisation activities, and to make sure that academics are appropriately advised as to their personal risks.

Continuing Professional Development

Of course, it is not only students studying for a degree that benefit from a university's knowledge. CPD accounted for over £0.5 billion of income to universities in 2008-09 and represents a continual refreshing and updating of the knowledge base of the UK. Again, suitable IP management strategies should be in place to protect know-how and ensure proprietary teaching models are protected where appropriate.

Creating and Managing New Knowledge

Free dissemination

Universities are constantly creating new knowledge. The vast majority of this output is put directly into the public domain through publication in journals and free dissemination, including through institutional repositories. Included in this output are theses of students; universities need to uphold the rights of postgraduate students to have their theses examined and to publish their results in the public domain in order to establish their research careers. Furthermore, the preservation of the right for academics to publish as they see fit is a cornerstone of university research. This domain can also intersect with industrial contracts and IP protection; processes have been developed by many universities to manage this potential conflict – for example, by educating researchers of the need to file patents before publishing, or by allowing industrial partners to point out opportunities for filing patents and to request delays in publication in order to accommodate this.

Sponsored research

Often research is created as part of a project funded by someone external to the university under a contract – usually business or Government. A great deal of work has been done elsewhere on managing the potential conflicts this generates, notably by the Lambert working group, and more recently the NIHR "mICRA" contracts[11]. Recent guidance on how charities should reconcile research for private organisations with their charitable status has been published by the Charity Commission[12]. Processes for managing the terms of sponsored research will be a part of the blended strategy of most universities.

11 http://www.nihr.ac.uk/infrastructure/Pages/micra.aspx
12 See Reference 10

Technology Transfer

Universities in the UK generated £84m in revenues from IP-related activities in 2009-10, but this is a small part of the economic impact of this new knowledge in creating jobs and delivering innovation into the economy. The bulk of this income was royalties. A royalty of 1% into a university means that for every £1 a university receives the product generated at least £99 for others. The total value of spin-out businesses floated or sold by trade sale between 2003 and 2010 exceeded £4bn. This activity requires the development of processes for managing formal IP rights, and for actively engaging with the market to place IP where it can best be exploited. Whilst this activity has the potential for generating steady profits for a university this is generally not the case. Even the most successful universities generate a small proportion of their revenues from IPR although such income can be important. Occasional very large payoffs have resulted from technology transfer in the past, although such successes are very rare and unpredictable and therefore difficult to factor into financial predictions. The more important aspect of income from IPR is that it is a proxy for profits and economic benefit made by others as a consequence of university intellectual outputs.

Care should be taken by universities in setting unrealistic expectations to profit from IPR. The conversion of research into use is more important as a construct than the simple measurement of revenue. Having said that effective IPR protection strategies can still be important even where financial returns are low to the institution.

Student Entrepreneurship

Notable in the last decade has been the enormous increase in students seeking to start their own business after leaving university, or even while they are there. Universities have developed a variety of models for supporting these activities, directly investing in new businesses, providing premises, providing mentoring support and introducing students into business networks. Again, the university needs to have a clear strategy, both for introducing clarity over the ownership of student IP, the provision of support, and whether they derive returns through formal equity or the hope of future philanthropy. Perceptions of enterprise support by applicants are also increasingly important as many will have been made aware of enterprise and business at secondary school.

► BLENDED STRATEGIES

It is not possible to be prescriptive about what universities “should” do, and this list does not pretend to be exhaustive. What universities “should” do to optimise public benefit from their intellectual assets will depend on their strengths and missions; as autonomous institutions in receipt of public funding it is their decision, and responsibility, to find the right blend. Rather, this list illustrates many of the IP-related activities that universities engage in (and that IP underpins a great deal of everything they do!). Each university will have different blends of these activities, and will need to take account of that blend in the allocation of resources to their management and support. In addition, these activities are not discrete – many of them are interdependent and others can produce conflicts if not carefully managed. In assessing strategic blend, an institution’s Higher Education Business Community Interaction (HEBCI) Survey data will provide much, if not all, of the information required to understand historic activity. In looking forward, managers should consider the extent to which existing activity is consonant with the strategic vision for their university. At a time when universities are considering ways to differentiate themselves in a changing marketplace, the blend of knowledge exchange is an important plank of strategy.

Managing Conflict

The potential for conflict in the IP landscape is large, but a coherent strategy can do much to reduce this. It provides a clear framework for research and technology transfer offices to work within and helps communication with the academic community and students. Broad acceptance of the university approach to IP ownership and revenue sharing is an important factor in having a successful technology transfer organisation. Apparent ideological conflicts between commercialising software and open source release can be vastly reduced by introducing uniform licences that permit both approaches and by providing knowledgeable support to academics and students.

Income and Profit

It is natural for attention to focus on the ability of institutions to generate direct income from commercial activity, and the sector generated almost £3bn in income from knowledge exchange activities in 2009-10. Some of these activities are capable of showing a direct profit as well as providing an economic benefit – technology transfer and CPD being prime examples. In other cases, knowledge exchange can be a cost, but can lead to other benefits – investment in student entrepreneurship may not have a direct return to the university. Clarity about the benefits of an activity to the university is important, together with clear costing and pricing strategies in those cases where there is a paying client. Making a surplus to support other activities is becoming ever more desirable, but it is rare to see universities engage in knowledge exchange (KE) activities where there is no discernible economic or social impact. It is important that universities understand the cost of all their activities (for example through using TRAC (Transparent Approach to Costing)[13]) in order to remain sustainable and to be able to take into account other considerations, such as their social mission and long term strategic relationships, in setting prices in a market. The investment in intellectual assets in financial terms produces outputs that are not wholly financial.

Dual Support Income Streams

In the present HE funding environment the Impact Agenda is having increasing implications for University core research funding in both arms of the dual support system. The government has provided coherent support and incentives for impact, funding for knowledge exchange capacity, and has factored the assessment of impact into research funding, both through the recognition of impact from excellent research in the REF and through Research Council Pathways to Impact and direction of funding towards priority themes. Universities' approaches to IPR will therefore need to complement their wider knowledge exchange strategies. The incorporation of the value of IP into such a strategy will depend upon the institution's mission and the nature of the IP that will be generated, but a clear institutional strategy is becoming more and more important. Whilst it would be unwise to build growth in these hoped-for income streams too deeply into a business case for investment (as government funding for research is highly selective) it is important to recognise the importance of knowledge exchange in government metrics, which in turn results in funding resources for the public purse.

Competing to Recruit the Best Students

In the context of reduced funding, competition for the best students is likely to increase. Similarly in the context of increasing unemployment, the importance of student enterprise is also likely to grow. The ability of an institution to prepare students for enterprise as well as employment will be increasingly attractive to prospective applicants. It is in the interests of students to have a basic understanding of intellectual property and enterprise as part of their overall employability.

The Blended Strategic Model

When the previous Guide was written, IP policies in universities were very similar. Things have moved on and universities are increasingly finding ways to design their IP strategy in line with their overall business model. As the business models of universities differ, the IP strategies will necessarily differ too; they are becoming a blend of diverse strategies covering a wide range of different activities. Sometimes, when parts of an institution evolve separately, boundaries between IP-related activities can produce conflict. It is the job of institutional management to ensure that the approach to IP is consistent across a whole institution, contributing to the overall KE goals of the institution.

13 http://www.jcpsg.ac.uk/guidance/about.htm

IN DEVELOPING YOUR INSTITUTION'S IP STRATEGY, HAVE YOU CONSIDERED:

- How your institution's strategic use of IP will complement all of its missions?
- Which areas of activity are most important to its mission and how will strategic use of IP will support this?
- The role of your institution's strategic use of IP in the business model that achieves this?
- Is the planned strategic blend optimal to your institutions strengths, mission, sources of income and opportunities to benefit the economy and society?

► CONCLUSION

IP is at the heart of a huge array of university activities, and should therefore be considered a major tool to enhance those activities and achieve the institution's business goals. The challenge lies in recognising how IP can be used strategically in an individual institution.

Whatever the economic climate, institutions considering greater investment in knowledge transfer, including recognition and protection of IP, will require an appropriate return to the institution. The return will necessarily include elements of monetary reward for both the institution and the inventors both directly and indirectly, social benefit appropriate to the institution's charitable status, and economic impact in the form of profits for private firms (that are nevertheless compatible with the charitable mission) that can be measured and demonstrated to public funders. Every institution will create a different, distinctive IP blend.

CHAPTER 3
STRUCTURING IP POLICIES

► BACKGROUND

All higher education institutions are concerned with the creation and dissemination of knowledge. The challenge for university IP managers, policy makers and head of academic departments is to discern the value of such knowledge, and to devise a policy that best realises its value or assets. Once an institution has determined its overall business model, it needs to structure IP policies that complement the model whilst delivering maximum benefit and implement that appropriately across its subject mix.

As touched upon in the previous chapters, IP policies should follow the business model of the universities. The European Commission Recommendation referred to in Chapter 1 provides one means of linking IP policies with the university's business model. This chapter will concentrate upon the principles of preparing IP policies particularly focusing on the formulation of an internal IP policy and a knowledge transfer policy. Chapter 4 will then focus upon the practical aspects of IP policies, including those surrounding collaborative and contract research, ownership and access.

► CONSIDERATION OF THE UNIVERSITY'S MISSION

A university IP policy should reflect the mission of the institution. Whilst the mission of the University of the Arts London, for example, will differ significantly from that of Imperial College London, their IP policies will have some elements in common but will also have differences. The culture of universities is changing, and an IP policy should both reflect and contribute to that change. Vice-Chancellors were first tasked with introducing IP policies in the 1990s. The inclination then was to draft a document that claimed ownership by the institution of any and all IP generated within the institution.

The IP policy has to complement the core objective of knowledge creation, scholarship and learning. An institution has a duty to develop policies and support services which create the best possible environment for IP to be created and to be transferred into practical use, but in a way that meets the public interest as well as generating revenues for the originating institution and students/researchers. The central features of an IP policy should be:

- Arrangements for sharing any commercial returns from commercialisation of IP which provide for appropriate benefit accruing to the originators of the IP;
- Recognition of the range of IP activities in the university; and
- A balance of engaging in IP work for reputational benefit, for positive social and economic impact and for fiscal returns.

► DRAFTING IP POLICIES

Those drafting IP policy should reflect on the position of the different stakeholders within the academic community. Whilst it is important for senior management to champion a policy in order for it to command the respect it deserves, different institutions may put a different emphasis on the voice of the student, research, academic or administrative communities in their policies, again demonstrating that a "one size fits all" approach does not apply. In creating a suite of policies, the institution needs to ensure that it encourages the desired behaviours in each part of its community.

GUIDANCE FOR STAFF AND STUDENTS

The IP policy is relevant to all categories of workers and students that comprise the university community. The IP statutes (Copyright Designs and Patents Act 1988, Patents Act 1977) describe the ownership status of intellectual property generated by employees and consultants. Less clear is the situation where IP is generated by a student pursuing a course of study, or a research student working on a project funded by a third party. Consequently blanket provisions to cover all eventualities that might be anticipated are difficult to draft. Nevertheless, the policy should provide clear rules for staff and students, particularly regarding disclosure and confidentiality and ownership. The policy should also provide incentives to promote compliance and implementation of the IP policies. Students sign up to university regulations and these regulations need to be aligned with the IP policy and need to express the position clearly and unequivocally. In the same way the IP policy needs to be considered in the context of a suit of other policies and documents (for example contracts of employment).

► THE ELEMENT OF OWNERSHIP

IP ownership rules and policies for staff and students often differ considerably. Excessive fragmentation of IP ownership can be detrimental to collaboration and successful exploitation of IP. For example, it is possible that IP (e.g. in the form of data, code, text, know-how or a patent application) which is generated and owned by a student could be withheld from a supervisor, or that an academic collaborator could be prohibited from using such IP in future research. Furthermore, an individual university may have a different policy on ownership of different types of IP. For example, a university may take ownership of inventions and arising patents but not of scholarly works covered by copyright, although it may retain the right to copy student works for its own purposes.

Policies that seek to address asymmetry in ownership by assigning student IP to a university may raise matters of legality and equity, which need to be carefully handled.

Many people may have been involved in the work that leads up to IP creation and the work that subsequently reduces it to practice, such as staff, students or collaborators from elsewhere; many of these will not actually own any of the IP that is eventually generated, for example simply supervising someone else's work will not in itself give rise to any rights to IP. The legal rules of IP ownership are different for university employees and non-employees such as students, consultants, clinicians, honorary academics and employees of other bodies. It is an important responsibility to ensure that any arrangements which researchers have with others about IP they have created do not conflict with their obligations to the university under the IP policy. This will apply in particular to consultancy agreements and sub-contracting arrangements with other institutions and to any arrangements that an institution makes with third party publishers.

Non-disclosure agreements (NDAs) may also need to be considered. These are written agreements that record the conditions under which information or ideas can be disclosed in confidence. Confidentiality provisions may form part of a broader agreement, such as the contract of employment, but if such an agreement is not in place then an NDA may be useful[14]. Ownership in relation to contractual obligations and access rights will be discussed in more detail in Chapter 4.

Staff Ownership

Almost all universities now claim ownership of IP generated by their fixed-term and tenured staff, whether funded internally or by major public sources, such as the Research Councils. This is consistent with the general provisions in IP laws which give broad ownership rights to employers. There are a few exceptions, but these typically reflect situations where, for historical reasons, there are variations in the terms of employment; some staff may possess contracts entitling them to retain IP they generate. It is a strong feature of academic life that researchers, for example doctoral students, need unfettered rights to at least publish their work and it is possible to cater for this separately from ownership/access rights. For example, some universities explicitly waive their rights in terms of copyright in academic publications submitted for peer review.

It is essential that employment contracts are updated or at least reviewed to ensure that they are consistent with the policies of the university on staff IP ownership.

Student IP ownership

The relationship between students and IP can be more complex in view of the different categories of student: undergraduate and post-graduate who, in turn, may have different contractual relationships with their university based on their funding. Undergraduates, increasingly in the creative sector can generate significant IP products such as designs, artworks and writings. Further, a significant proportion of students are considering start-ups which is to be encouraged in engendering an entrepreneurial culture.

In general, universities have no automatic statutory claim to IP generated by students given that they are not employees, but many universities do provide conditions for IP ownership in their IP policy/terms and conditions. If this is the case then the policy rationale needs to be established so that not only the individual interests of the fee-paying student are accommodated but also to ensure that their ability to contribute to the economy and society after they graduate is not compromised. Having clear policies about students abilities to use the IP they generate combined with mechanisms which actively support them in doing so are therefore important.

14 http://www.ipo.gov.uk/nda.pdf

With growing expectations that universities should assist in economic development and, in particular, with the growth of the student enterprise agenda, the issue of management of student IP will become increasingly significant. An important aspect of this enterprise agenda is the integration of IP tuition and awareness seminars within the student curriculum. This is being addressed at a UK wide level by the National Council of Graduate Entrepreneurs (NCGE), the Intellectual Property Office and courses provided by AURIL and PraxisUnico.

Some universities have sought to address these issues in the registration process. This has often taken the line of a blanket assignment of all IP that is generated by students in the course of their time at a university. However, a study on the subject indicates that there is a trend away from blanket positions on ownership. For example, assignment might be sought on a case-by-case basis, where valuable IP arises. In limited or special circumstances the differential treatment of IP may be considered where some IP is automatically assigned to the student and other parts retained in a given faculty. However, differential treatment tends to carry a risk of confusion and demands very close involvement and understanding by the student. Rather the situation is more likely to arise where a post-graduate student is engaged on different projects in a laboratory which have different ownership regimes of which the student should be aware.

It is also common to distinguish between undergraduate and post-graduate students and, in turn research-based and non-research based post-graduates. Furthermore, student ownership of IP can be perceived as a particular problem in research projects sponsored by industry. For this reason it is common for research and CASE studentships to be subject to a three-way contract that assigns ownership to one party (the university or the sponsor).

With any approach, but particularly when seeking blanket assignment, it is advisable that the process and rationale are clearly explained. This might be achieved by including prior notice in student prospectuses with a more detailed explanation in the relevant student registration pack. However, often these issues are only identified when they arise and here the involvement of knowledge transfer staff is valuable to navigate those involved to beneficial and appropriate outcomes. Acknowledging student contributions in terms of the benefits such as supporting patent costs, and the distribution of royalty income or equity can be powerful incentives for achieving full consent to assignment of student generated IP.

Many universities treat the position of students wholly in line with the revenue sharing arrangements for staff. This has a sensible ring to it and can ease relationships considerably. The risk and expense of IPR protection falls to the university, but the creator, whether staff or student, is treated equitably when returns are generated.

► ETHICAL POLICIES AND CONFLICT OF INTEREST

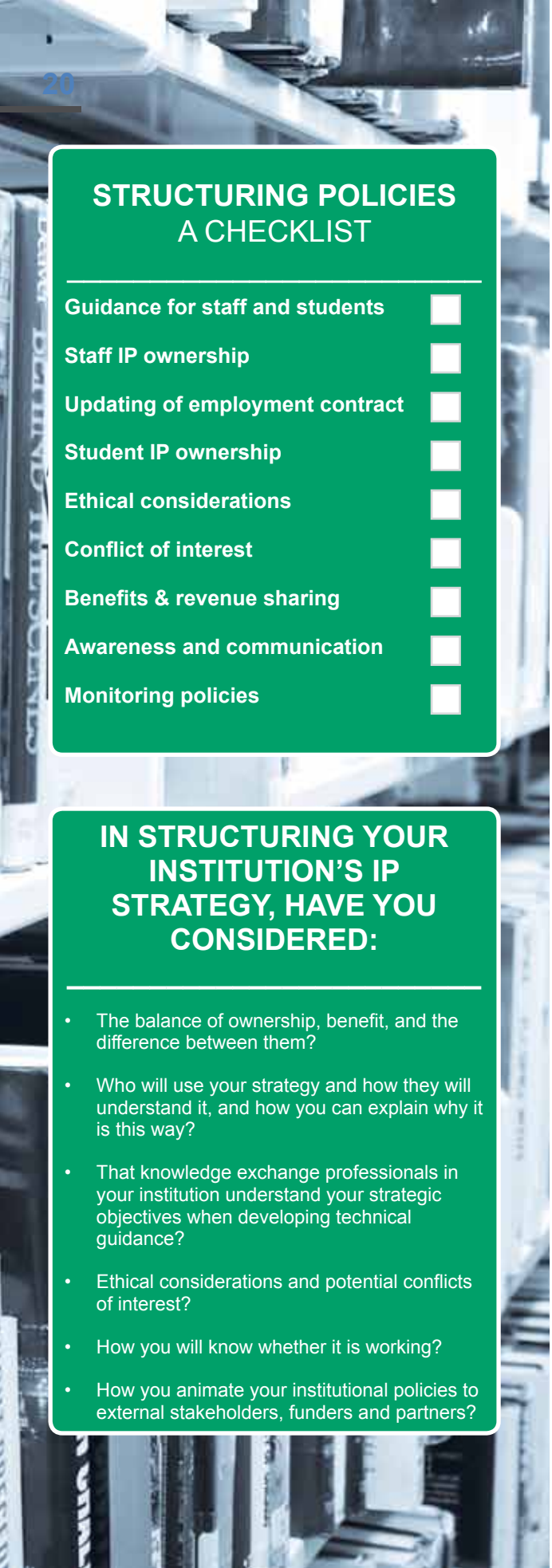
In constructing an IP policy it is important that it acknowledges that there could be both conflict of interest issues and ethical matters to consider. Examples of both could be where a researcher who holds shares in a spin-out company is also responsible for a department's contract service work for firms (e.g. testing and analytical services) or where potential investors in a spin-out company may be associated with activities that the institution would consider harmful to its reputation. It is important that any references to these conflict and ethical issues in an IP policy are completely aligned with an institution's guidelines and rules for such matters and references/links made to the relevant conflict and ethical policies, where such matters need to be clearly addressed.

► BENEFITS AND REVENUE SHARING

IP can be commercialised by selling, licensing or by the creation of a spin-out company. The institution should have a policy in place that allows the consideration of all types of exploitation mechanisms and all types of exploitation partners. The decision to sell or license IP rather than to create a spin-out company not only varies from institution to institution, but from technology to technology and from founding academic to founding academic. Therefore clear rationales that cover when to sell, license or create a spin-out company should be in place, and the policies should include guidance on the sharing of any financial returns.

When drafting a policy in relation to exploitation it is useful to be aware of the pros and cons of licensing or spin-out, in order to have an idea of which form of exploitation is most suitable for the IP or technology surrounding it. Access to knowledge transfer services should be available in order to provide legal, commercial and financial advice for IP protection and enforcement.

Any policy concerning revenue sharing should seek to be as simple as possible to ease communication. Such a policy needs to be considered in the context of the behaviour it will engender and take into account that returns can often be small but on occasion significant.



STRUCTURING POLICIES
A CHECKLIST

- [ ] **Guidance for staff and students**
- [ ] **Staff IP ownership**
- [ ] **Updating of employment contract**
- [ ] **Student IP ownership**
- [ ] **Ethical considerations**
- [ ] **Conflict of interest**
- [ ] **Benefits & revenue sharing**
- [ ] **Awareness and communication**
- [ ] **Monitoring policies**

IN STRUCTURING YOUR INSTITUTION'S IP STRATEGY, HAVE YOU CONSIDERED:

- The balance of ownership, benefit, and the difference between them?
- Who will use your strategy and how they will understand it, and how you can explain why it is this way?
- That knowledge exchange professionals in your institution understand your strategic objectives when developing technical guidance?
- Ethical considerations and potential conflicts of interest?
- How you will know whether it is working?
- How you animate your institutional policies to external stakeholders, funders and partners?

► AWARENESS AND COMMUNICATION

Research undertaken for the National Council of Graduate Entrepreneurship showed that, even if a university might have an excellent IP policy in place, it was usually very much unnoticed by the academic community. Messages about IP and the IP policy fit well together. Those messages find a natural place in the induction processes for staff, researchers and students in order to raise awareness. As the awareness of IP may be low it is necessary to ensure that staff are made aware of the obligations (such as confidentiality) which could be very serious for the institution if not honoured, as well as the opportunities arising from their own and the institution's IP.

Communication should take place regularly, and can be through a variety of channels, such as seminars, intranet resources or hard copy guides.

► MONITORING POLICIES

A policy should be reviewed regularly and on a consultation-style basis. There may be changes in the law affecting IP and the university's policy, and so an alert system, such as with a legal firm, might be appropriate in case the legal aspects change out of sequence with the formal review cycle.

CHAPTER 4

IP CONTRACTS – OWNERSHIP AND ACCESS RIGHTS, AND BENEFITS OF COLLABORATIVE RESEARCH

► GENERAL CONSIDERATIONS

The key issue in considering IP agreements is how to secure rights to continue to use existing IP and to exploit IP which arises from a new research project, and also how to balance this with working collaboratively with other institutions be they public or private. In forming IP contracts universities should bear in mind three key points:

- The difference between ownership and access rights and flexibilities available to both universities and companies to use their own and others IP rights;
- Their charitable status and the consequences of commercialisation behaviours;
- The need to behave ethically.

Ownership is not always necessary to guarantee these rights but nonetheless requires careful consideration since it raises fundamental questions about the nature and recognition of personal contribution to invention and creativity. Thus an important distinction needs to be drawn between ownership and access rights. There is often confusion about these fundamental principles that can create difficulties in embarking on potentially IP-intensive collaborations.

Ownership often brings with it the demands and the burden of the management of a piece of IP; however, it is possible that the goals of a project or department can be met simply by being able to use a piece of IP. Obviously the terms on which access rights are granted are critical, and most universities will seek to negotiate ownership, and other aspects of the IP agreements, on a case-by-case basis. The outcomes of such negotiations may come to be interpreted by sponsors as university policy, and therefore the reasons why certain positions have been taken need to be articulated. The university will also need to monitor how it is perceived by sponsors.

As key players in our economy, universities have an important role to play in ensuring that IP in the UK is used to best effect for innovation and growth. While offering free access and transfer of their IP to the private sector might be a laudable approach, IP owning institutions need to ensure that the IP is put to best effect and not simply hoarded or used to block other worthwhile endeavours (another implication of the public good obligation of universities as charities). Further, at a more technical level the university needs to be aware of its liabilities should companies ask for attendant warranties and indemnities on any IP they transfer. Equally, there is a role for universities to help companies understand that they might not need to own IP in order to exploit it and develop their business. Flexible terms of access to university IP may be sufficient.

As discussed in Chapter 1, the overriding principle of a universities' charitable status is that the IP it generates should be used for public benefit. Evidently companies are part and parcel of developing IP into products which benefit the public, and a thorough understanding of the consequences of commercialisation within the charity legal framework and policy are required. But a move into commercial use does not necessarily mean that the public use obligation has been fulfilled. It also goes without saying that ethical practices are integral to, and accepted norms, of a university's ethos. However, some thought needs to be given to unintended consequences of the way in which IP transferred to other organizations is used. For example "humanitarian" access right clauses may be considered when providing IP relating to medicines to ensure that the eventual products are accessible to populations in least developed countries.

Two major advancements relating to the management of university IP have taken place since the original edition of this booklet was published in 2003; The Lambert tool kit for collaborative research was launched in 2005 and updated in 2008 and, as referred to in Chapter 1, the European Commission published its recommendation on "*The management of intellectual property in knowledge transfer activities and Code of Practice for universities and other public research organisations*"[15] in 2008. Crucially both of these initiatives are aimed at increasing the flow of IP from universities to businesses and are flexible enough to accommodate considerations of type and value of returns that universities may expect.

15 See Reference 1

► THE LAMBERT TOOL-KIT FOR UNIVERSITY BUSINESS COLLABORATION[16]

The Lambert system represents a pre-negotiated "consensus bargain" between industry and academia. It was developed by the Lambert IP Group which captured the collective experience of the UK's technology transfer community. The Lambert system is predicated on the principle that IP agreements necessarily can never be a "one size fits all". Rather, it offers a set of agreements that provide coverage for a range common scenarios and which have their origins in contemporary issues of policy regarding the handling of IP in public-private collaborations.

The fundamental requirements of universities for freedom to publish, the ability to use results in future research and to ensure that results are put to the appropriate use are embodied collectively in the suite of Lambert model agreements (See Annex). The agreements differ in apportioning rights to own and to use IP between academic and industry parties depending on the nature and terms of the industrial partner's participation. They are configured to achieve a bargain that accommodates asymmetries in information and investment.

The tool-kit comprises:

- A decision guide
- Five model agreements for bilateral partnerships between one academic and one industrial party (see Annex)
- Four consortium agreements
- Extensive guidance notes with links from terms in the model agreements
- A project outline
- Other materials such as confidentiality and materials transfer agreements

The most commonly used agreement is Lambert Agreement 1 where the university owns the IP and gives industry a non-exclusive license to use it. This is configured on the basis that the university is the major contributor of at least the intellectual resources and that it leads on development. Here the university can control how IP generated on a project is used in the future. Lambert Agreement 4 represents the opposite relationship to Agreement 1 and is usually used where the industry party provides the major funding resource to enable work to take place which otherwise would not have. This agreement allows the industry party to control IP through ownership but maintains the freedom for the academic partner to use it for teaching and further research.

Other agreements cater for uncertainty about future value. Pre-occupations about the anticipated value of IP can stall negotiations at an early stage; it is often not possible to estimate what IP arising from a project will be worth. Some of the Lambert agreements therefore provide an "option", a "right of first refusal" which allows industry partners to defer considerations about whether they need to own or have an exclusive access to the IP until such time as it might become significant. Other agreements have built in a compensation/success payment mechanism should the IP developed by an industry partner become commercialised and generate revenues. The exception to the general partitioning of rights is Lambert agreement 5 which effectively represents a contract research agreement. This allows a company for reasons of commercial sensitivity to withhold publication rights. This is usually balanced by favourable funding conditions, typically at least full costs (i.e. 100% of Full Economic Costs (FEC)).

A characterising feature of "Lambert" is its iterative decision guide that takes the user through the questions they need to ask. The model agreements are of course voluntary and can be amended as parties see fit but at least provide a starting point to negotiation and help save time and resources through having not to re-hash arguments on every aspect of negotiable issues. A survey by AURIL in 2009 of universities and public sector organisations indicated that over two thirds of knowledge transfer offices had found that the Lambert agreement had simplified the process of constructing contracts with a third indicating they saved money. However, uptake on the demand side, by companies, has not been extensive. There is a role for universities, the

16 http://www.ipo.gov.uk/lambert Oct 2008

CBI and others here to make companies more aware of the availability of the Lambert agreements in negotiating IP transfer.

The purpose of the decision guide is to ensure that both parties have considered the future use of the results by both parties. It is important to have this discussion at the project level and for both parties to consider and agree the principles around IP and the research results before committing to decisions regarding detailed wording of contractual agreements.

► KEY ASPECTS OF CONTRACTS RELATING TO IP OWNERSHIP AND EXPLOITATION

Background and Foreground IP

Background IP is the intellectual property an organisation already has in its possession before entering a collaborative agreement. It can also encompass IP which the organisation is developing alongside a collaborative project that is not directly generated by or connected to that project (This latter type of background IP is sometimes referred to as "sideground"). The first question to consider is what background IP does the institution/department hold? Firstly, it should be apparent that IP is not merely that which is formally protected for example by patents. Indeed the majority holding of a university's IP is likely to be in teaching materials, software and output works such as literature or film or sound in the case of arts centred-universities.

IP which arises in the course of a defined collaboration is usually referred to as "foreground". Similar to the consideration of background the type of foreground that may arise in a collaborative project should be considered and how different aspects of it may be managed. For example, a project may give rise to new information which is relevant to teaching materials, it may generate potentially patentable inventions, or software which is generally automatically protected by copyright.

Most collaborative agreements make some reference to background IP and careful consideration should be given to how much access to background is provided. For example, it is often the case that contracts will allow collaborators to use their background IP for the purposes of the particular collaboration at issue. Problematic issues that often arise particularly in relation to background are about the extent to which a collaborator is entitled to use another party's background IP beyond the particular project in which they were involved. For example, an industry partner may wish to use a collaborator's background to further develop foreground arising from a project but after a project is completed. One party may also want to use another party's background in related projects which are ongoing in their organisation. A company may also wish to develop the foreground commercially and require the background to do so. This can, in turn, raise questions about the extent to which a company's affiliates or third parties access the background IP.

Improvements

It is strongly advised to establish a clear understanding and agreement about the ownership and subsequent use of IP on improvements made on a piece of foreground IP and also background if its use is necessary to further develop the foreground. For example a company may work on a piece of foreground technology and make beneficial modifications to it, generating distinctly new foreground (which for example may be the subject of a patent application in its own right). If there is no clear agreement to this new foreground then the university party may not have any entitlement to use that new foreground although it may have initiated and contributed to its development.

Joint ownership

A study[17] showed that in 2001-2005 universities are joint applicant in 1.7% and 2.5% of UK and European patent applications respectively. This compares with an average of 31% of joint ownership in domestic and 5-9% of European applications.

The prevailing view is that joint ownership of IP can be particularly problematic and, in general, is best avoided. This is particularly true of joint ownership with overseas organisations because of legal and cultural differences which can quickly lead to significant cost escalation.

Factors that dissuade joint ownership include:

- Potential complexity in protecting IP in the absence of clear decisions over who is responsible for obtaining (and paying for) protection of registered IP rights;

17 An analysis of the characteristics of small and medium enterprises that use intellectual property Mark Rogers, Christian Helmers and Christine Greenhalgh Harris Manchester College, Oxford University and Oxford Intellectual Property Research Centre October 2007

- Once a patent is jointly owned all of the owners must give consent to licensing arrangements, although this can be overridden by an Order of the Intellectual Property Office tribunal or the Court;

- Potential licensees of a technology will prefer to avoid dealing with more than one owner, as this complicates the negotiation process and can embroil them in disputes between joint owners;

- While contractual provisions can be put in place to spread the benefits and risks of licences it is not uncommon for the default joint ownership provisions to be considered as favourable to commercial organisations;

- Joint ownership is particularly problematic when international collaboration and exploitation is anticipated because the law for joint ownership can vary significantly between different countries. For example, in some countries any joint owner can take action on the patent without having to secure the agreement of or notify other owners, whereas in other countries, they can only act together;

While joint ownership can introduce difficulties, it should not be dismissed out of hand. There may be benefits in sharing the risk of defending a patent and also in exploiting inventions. Also less tangible benefits can arise. For example, in seeking to build long term partnerships parties may enter into a joint ownership agreement as an indication of goodwill, although a carefully considered contract will be required to avoid the pitfalls identified above. However, in general joint-ownership is a more complex and therefore a more costly and risky exercise for universities, in particular.

The key issue with ownership is that it needs to be clear what has been created and who owns it. Clarity of ownership is critical to future IP protection and use. The use of automatic assignment in agreements without clarity of identification of what is assigned creates real problems later.

► NEGOTIATIONS WITH OVERSEAS ORGANISATIONS

It goes without saying that collaboration is increasingly global. Many of the principles outlined above apply to working with overseas partners. In addition, it is important to be aware of critical differences in national laws relating to IP and also the cultural position when dealing with overseas partners.

There are several sources of guidance about negotiating IP overseas. Notably these include the "CREST" cross border collaboration tool-kit[18] which was initiated by the UK during its presidency of the EU in 2006 and adopted some of the Lambert themes. It includes a cross-border decision guide and fact sheets about different aspects of IPR that impact on research collaborations, for example confidentiality, *"professor privilege"* in certain countries, contract law, freedom of information etc. It also provides an interactive tool allowing the laws on certain aspects of IP to be compared between different countries.

Further to its "IP recommendation" mentioned above, the EU Commission has also produced a more detailed practice guidance on *"Improving knowledge transfer between research institutions and industry across Europe: embracing open innovation"*[19] in 2007.

the Intellectual Property Office in collaboration with UKTI has produced a set of IP primers giving information about the IP systems in USA, China, India, Korea, Brazil and Vietnam[20] and is currently working with Chinese and Brazilian authorities to develop a framework for international IP transactions to promote innovation and technology transfer in low carbon technologies

► ACCESS RIGHTS, LICENSING AND ASSIGNMENTS

The rights for access should be considered in terms of present and future potential uses. These uses not only concern the ability of an institution to carry on research in its own vein and to use the results of other parties in a collaboration in its future research, but also to use results in future collaborations. This

18 http://ec.europa.eu/invest-in-research/policy/crest_cross_en.htm EU Commission 2006
19 http://ec.europa.eu/invest-in-research/pdf/download_en/knowledge_transfe_07.pdf. EU Commission 2007
20 http://www.ipo.gov.uk/whyuse/business/business-support.htm

is where the concepts of the scope of further use and possibly retention of rights to sub-license should be considered. Also care should be taken so that the granting of licences does not conflict with existing obligations, or limit the potential future use of a piece of IP in another collaboration or another field, application or territory.

Different forms of a licence provide different levels of flexibility and control. For example a stronger bargain may be able to be struck with an exclusive licensee in terms of reciprocal compensation but this may limit broad dissemination. Non-exclusive licences necessarily provide greater scope for dissemination but less bargaining power on returns, although the aggregate income from non-exclusive licences can be greater. Another option is to secure an exclusive licence by field or by territory. This will enable an IP proprietor to exploit its IPR in multiple markets which a single company may not be able to target effectively.

Confusion can exist between the terms 'sole' licence and 'exclusive' licence. An exclusive licence excludes even the owner of the IP, the licensor, from using the IP. A sole licence, where a single licensee has the right to use the IP, in contrast means that both the IP owner and the single licensee can make use of the IP. This means that the licensor can still compete with the licensee.

While universities may often elect to retain ownership of arising IP it might be possible, and an equally or more effective of way to achieve their requirements, to transfer (assign) IP to the sponsor. For example, an assignment agreement may provide for free access rights for further research, revenue sharing and success payments. Before assigning IPR due consideration should be given to the consequences if a collaborating partner fails to exploit the assigned IP. A licence can be terminated for non-performance but an assignment cannot be revoked. It is possible to seek re-assignment but this requires very clear contractual drafting, which may be difficult to enforce.

Universities also need to consider the warranties and indemnities position with regard to licensed or assigned IP and clear limitations should be included in any documentation.

Equally if a university decides to acquire wholesale some IP or "license-in" it needs to be careful to ensure that it does not commit to any warranties which it cannot support.

► USE OF IPR AS A MECHANISM FOR BUILDING R&D COLLABORATIONS

A high volume of university research results are a very long way from the market. This is often the case for university patented technology. Universities need to assess the distance from the market for any IPR and then develop appropriate strategies. For example, it can be challenging to cold sell research opportunities into a business. However, patented technologies have the benefit that they effectively express the outcome of research in the form of a product that can be commercialised; alternatively they can enable a university to express complex scientific activity in a language that a company can understand. This then creates a route for opening conversations with companies which may then result in the company investing in a research relationship with a licensing deal as part of an overall transaction.

Universities should consider their IPR strategies as part of their research strategy rather than their earned income strategy. It is also often the case that assessment of IPR by individual technology offices places too high an emphasis on an individual patent in areas where there are significant numbers of patents (e.g. there are over 90,000 patents in semi-conductor technologies). It is rare that a single patent is sufficient on its own to exploit a technology; universities therefore need to be realistic in their assessment of the coverage and therefore value of their patent portfolio. Patent mapping techniques can be used to explore a particular field to ascertain the extent to which patents cover a particular technology and help identify other patent owners and potential partners. Universities could gain much from re-examining patent pooling as a mechanism to foster collaboration between themselves and others. A fine example is in the MRI field where a patent portfolio created across the universities of Oxford, Aberdeen and Nottingham Universities was pooled by BTG and licensed to numerous companies as a bundle generating in excess of £300m in royalty income. If each university had sought to license each patent on its own the chances of effective licences being agreed is likely to have been limited.

► SPIN-OUT COMPANIES

Spin-out companies are usually created to adapt the research originating from universities into commercial use. They are often created when there is no existing business to approach about a significant breakthrough in a field of work or because the work has clear possibilities to generate many products and applications and so potentially could be extremely valuable. To be effective, a spin out company will need to bring together various assets and resources to commercialise the IP. These resources include money, as well as a specialist management team with skills in finance, marketing and sales. As the spin-outs are legally removed from the institutions, facilities for research and/ or manufacturing are needed, although some IP based spin-out business models will seek to outsource manufacture and distribution. It is also possible to consider creating a spin-out solely to attract some investment to develop IP created within an institution; in such instances the spin-out can be created to license the developed IP rather than to develop a product or a service.

However, the time required and the demands made to commercialise IP via a spin-out are likely to be greater than by licensing to an existing company, although an existing company could include a spin-out from the researcher's own institution. Therefore, whilst it may be tempting to go down the spin-out route to raise capital and retain a degree of independence of development, it is worth thoroughly testing whether it is in practice necessary to do so as a licensing approach may be more suitable. Nevertheless if the IP generated is truly unique and is likely to have a great impact in its field, there may not be a suitable licensee available, or licensing might not be the most appropriate way to gain maximum value from that IP.

► RELATIVE CONTRIBUTIONS TO RESEARCH COSTS

If a university seeks to obtain patents for IP arising from the research funded by the company it will need to manage those patent applications and usually contract a patent attorney to do this. In these circumstances it is commonplace for the industry partner to seek a non-exclusive, world-wide, and royalty free licence on the technology also including the option to sub-licence or assign it to another company. Universities will be in a stronger position to make a case for IP ownership if they can demonstrate the capacity of the IP management office to maintain an IP portfolio effectively. Here, in considering transfer of IP to start-ups the balance between the capability of a university to manage its IP and that of a small company should be taken into account. If such a transfer is made then it is good practice to make provision for reversion of ownership of the IP should the company not survive.

Conversely, if a company seeks to own the IP the collaborating university may seek similar terms and, in particular, unfettered rights to publish the work. However, it is commonplace for clauses relating to publication rights to include "delay" clauses so that the IP owner has reasonable time in which to consider and file patent applications before the results are published. (It is a generally a worldwide principle of patent law that if an invention is made publicly available before a patent is filed it will prevent the grant of that patent (anticipation). This is true irrespective of whether the IP owner itself publishes the invention). There may be benefits to the university if the company takes on the burden of IP ownership. There is scope for the university to not only negotiate rights to use the IP (as in Lambert Research Collaboration Agreement 4) but also to benefit from commercial exploitation, for example as a royalty mechanism or "one off" success payment. The Lambert Consortium Agreement B provides that a company may own and exploit the IP whilst allowing the university to make provisions for financial benefits in a payment plan. It is also important to consider and recognise the potential benefits "in kind" as well as purely monetary gains; this can be accommodated in a contractual arrangement. In any event, when a sponsor seeks to own the IP arising from the research, the university should seek a "licence-back"/ non-exclusive royalty free access rights in order to guarantee unconstrained future research. This is key to a university's ability to bundle together IP arising from several different research projects funded from different sources. However, complications can emerge when seeking to create a comparable assembly of IP based on licences from different types of research funder; this is often a reason why universities seek to maintain ownership of IP.

In a project with multi-faceted technology (for example a diagnostic kit which includes biological inventions and optical sensor technology) it may be most appropriate for the party which has the expertise in one type of technology to own and exploit a particular piece of IP and grant the other collaborating parties non-exclusive rights to use that IP. Such a scenario is provided for by Lambert Consortium Agreement C.

A widely accepted basic principle is that the research sponsor's capacity to negotiate over the ownership of IP is proportional to the degree to which they meet the Full Economic Cost[21] of the research. However, the balance of monetary and in-kind non-monetary contributions to a project should be taken in the round in determining contribution levels. The greater the costs sponsors have to bear, the more likely they will be inclined to claim ownership of the foreground IP. The scope of direct and indirect costs has been addressed in the TRAC[22] guidance developed by the Joint Costing and Pricing Steering Group which comprised higher education funding bodies, universities and colleges and Universities UK.

One argument put forward in favour of companies owning IP is that they will usually have to commit substantial risk capital in the commercialisation process. Anticipated exit points in the investment process allow external investors to calculate levels of commercial risk. Possible investment exit points are very valuable in reducing the investor's perceptions of the risks involved (thus increasing the probability of investment). Particularly in a start-up or spin-out company, possession of IP enhances these exit points and can lower the risk and size of the losses faced; the lower the tradability of the IP portfolio, the less attractive the investment, and tradability is highest when IP is owned. However, even if the university retains ownership of the IP, ways can be found to provide appropriate sub-licensing contingencies that will help to make the company's licences more liquid and consequently help to reduce their investment risk. Transaction costs may be higher than if IP is owned by the company and a significant amount of time may be required to complete a sub-licence which may be longer than that required to assign/ sell the IP.

It is sensible to take account of this issue when conducting negotiations over the ownership of IP.

► SHARING RETURNS FROM EXPLOITATION

Negotiating with research sponsors over shares of potential revenues can be difficult unless there is a shared understanding of the costs and risks associated with seeking to generate these returns and of which party is taking these risks.

Agreement will normally need to be reached over the share of revenue due to one partner from the exploitation activities of another. This brings into question the issue of the valuation of IP, which is complex. Suffice to say that valuing IP, particularly early stage IP, can be very difficult. The Intellectual Property Office has developed some guidance on this and outlines the conventional models for valuing IP: cost, income and market[23]. It is important to set the issue of valuation in the context of the over-riding objectives of a particular collaboration and to be aware of the natural inclination that any party is likely to overvalue their contribution. There are signs that this is a growing problem in some areas of university-business technology transfer.

In determining royalties and/or one-off payments, parties will be keen to reflect their inputs, both intellectual and financial, and existing IP which they bring to the research (background). However, it should be borne in mind that development costs can also be significant and entail risk for manufacturers.

► FREEDOM TO OPERATE

A university, particularly in a collaborative project, will need to take account of IP held by others in order to limit its liabilities for infringement. A due diligence process could be part of the early stage development of new projects. This is not only good practice in risk management and in respecting the IP held by others but may also identify valuable IP which third parties hold (who may be approached for some sort of collaboration, for example through licensing). Essentially due diligence identifies the ability to limit risk and identify opportunities.

In addition universities will want to consider their liabilities if they are required to provide warranties on the IP they grant access to. The Lambert agreements provide alternative arrangements with respect to the obligations of parties to provide warranties. This allows parties to only make commitments as far as they can be reasonably expected to.

21 http://www.dius.gov.uk/science/science_funding/full_economic_costing
22 See Reference 13
23 http://www.ipo.gov.uk/iprpricebooklet.pdf ; http://www.ipo.gov.uk/iprpricechecklist.pdf

In structuring your institution's IP strategy, have you considered:

- When and whether ownership is required for your university, research funders or businesses to achieve their objectives?
- How to best make use of the Lambert tool-kit?
- The distinction between Background and Foreground IP?
- How decisions between licensing and creating a spin-out company based on a specific element or portfolio of IPR are taken?
- The relationship between IP ownership and contributions to the cost of generating it?

► THE RESEARCH EXCEPTION

A patent allows its owner to prevent others from using their invention without permission, but there are some exceptions. Three of these are relevant to research:

- **Acts which are done privately and for purposes that are not commercial** "Private use" allows for private, non-commercial study of a patent. Although many researchers would not class their work as "commercial", any assessment of the risk of patent infringement would have to fully consider the ultimate market related intentions of the experiments.
- **Acts done for experimental purposes relating to the subject matter of the invention** This is often called the "patent research exemption", and allows for research to find out more about the invention claimed in the patent, but does not cover any uses beyond this without the permission of the patent holder. There is a distinction made between experimenting ON a patented invention (which may be permitted by the research exception) and experimenting WITH the invention (usually not permitted). This distinction is important when considering "research tool" patents, i.e. patents which protect inventions that may be useful in research work such as methods or reagents. As research tools are used as an aid to experiments they are experimented WITH, rather than experimented ON, and thus are not covered by the research exception.
- **The "Bolar" exception** This exempts clinical trials carried out to obtain regulatory approval of generic drugs from patent infringement.

CHAPTER 5
MONITORING AND EVALUATION

► BACKGROUND

This chapter considers issues which arise with performance measurement and evaluation. It is intended to assist in the design of internal measures and systems. However, external considerations are very relevant, for three reasons. First, there are real benefits in universities benchmarking their costs and performances against others, and this obviously requires information to be collected and made available on a consistent basis. This is discussed later in this chapter. Second, this Guide is concerned with the management of IP in a narrow sense. Universities transfer knowledge in many different ways, such as consultancy and training. Although IP management needs to interface with these activities, indicators designed to assess the effectiveness of IP management will not be appropriate for measuring the effectiveness of other knowledge transfer activities. This point needs to be emphasised. Thirdly, IP performance, amongst other activities, is monitored by HE funding bodies and government and the data used to influence the amount of public funding available to support knowledge exchange and the mechanisms used to allocate such funding. At present, it is primarily income measures that have the most direct impact on policy although other quantitative data are also widely used. However, only a modest proportion of funding is allocated on the basis of IP income so HEIs should not allow the "tail to wag the dog" by simply collecting basic income data.

There is also a clear distinction between monitoring IP activity as part of the university's mission and formal financial reporting requirements. The Higher Education Statistics Agency collects income from IP in two ways: the Finance Statistics Return reflects the net income after any disbursements (e.g. to inventors) as part of annual finance reporting; the Higher Education Business and Community Interaction Survey (HE-BCI) collects the gross income as a proxy for social and economic impact[24].

Overall, universities have the difficult task of balancing the data and administrative costs associated with deriving specific indicators with those required by others (such as national funding agencies). This task is further complicated for HEIs that developed infrastructures such as external commercial companies to manage IP or have entered into contractual arrangements with IP intermediary organisations.

24 www.hesa.ac.uk/ HE-BCI IP activity table is reproduced at Annex C

► THE MONITORING AND EVALUATION FRAMEWORK

A useful first step is to clarify why monitoring and evaluation are necessary. In particular, universities need to consider the relative importance of demonstrating effectiveness in IP management whilst seeking to identify areas for improvement. The framework needs to encompass 'hard' indicators but also 'softer' assessments of whether general objectives and specific policies are being attained

Performance indicators can fulfil two main purposes. First, they can be used to demonstrate to external organisations that the university is capable of managing IP effectively. This can be important in assisting the university to implement key policies and demonstrate their 'impact' on both the economy and society. One of the reasons some sponsors give for seeking to retain ownership of IP is that they lack confidence in the ability of universities to manage the IP. Hence, the ability to demonstrate an effective track record can be important in negotiations.

Second, performance indicators are obviously helpful in assisting university managers to identify problems and opportunities relating to IP management and to modify budgets and strategies accordingly. In addition, the monitoring and evaluation framework can play a useful role in facilitating the process of learning-by-doing in IP management. Cumulative experience should ideally lead IP management to become more efficient in its internal business processes and more effective in delivering knowledge exchange outcomes. Internal indicators need to be closely aligned with objectives and management processes.

The monitoring framework needs to reflect two further considerations:

- As has been mentioned repeatedly in this Guide, income generation is not the only reason why IP needs to be managed effectively, and factors as diverse as protecting the university's research capabilities and contributing to economic development are also important. It is for each university to decide the relative weight to be given to these factors, but if there are objectives then they must be reflected in the monitoring framework;

- Actual outcomes should be reviewed regularly, to ensure that general principles are being adhered to. Universities need, for example, to have clear principles governing when they are prepared to assign IP to sponsors and on what terms. However, case-by-case decisions will establish precedents, which may become established as the policy norm in the minds of sponsors and researchers. Monitoring needs to check that pragmatic decisions are in line with more general policies.

► INTERPRETING PERFORMANCE INDICATORS AND THE IMPACT OF UNCERTAINTY OF TIME HORIZONS

The long time lags between costs being incurred and revenues being received mean that evaluations of financial performance should be patient and recognise that costs and revenues are decoupled, in the sense that changes in revenues may have little to do with changes in costs. There is usually little direct control over the relationship between IP management costs and revenues. As a consequence of the above universities should use separate evaluation frameworks for revenue and costs. Revenues will often relate to major spend 5 or 10 years before. The cost of the present portfolio needs to be assessed in terms of its potential and the revenue in any one year should not be relied upon to continue at the same level.

The returns to the university's investment in IP management in a given year will relate to IP management activities, and hence costs, in previous years. Similarly, benefits from current investments will occur in future years. This long time-lag has important implications for assessing performance. Chapter 2 suggested that the financial returns from IP management can be central to strategic management and, in particular, can set realistic expectations for commercial interaction. The argument is not that significant financial returns cannot be achieved; it is that they cannot be accurately forecast. Effective IP management is consequently concerned with seeking to maximise the likelihood that unexpected high returns might happen, not with setting targets for financial returns and judging performance against these targets. Of course, where the external partner is from public or voluntary sectors there may be further reason to consider if financial targets are appropriate; it may be the engagement and building of relationships which underpin and enhance the university's broader mission that is considered the return from investment in IPR.

► USING INPUT MEASURES AND RATIOS

Ratios that relate research expenditure to outputs such as patents and licence revenue should be used with caution. Income generated for the university as a result of incurring IP management costs may arise in other areas. If the university seeks to compare the costs and returns from IP it should identify all income sources attributable to effective IP management.

Similarly the ratio between disclosures, patent applications and patents granted may be a proxy for the commercial applicability of research outputs. However, such indicators would need to be viewed over an extended period of time.

Research expenditure

One commonly used input measure is research expenditure which is frequently related to different output measures (patents, licensing, option revenue and start-ups) as a ratio. Indeed, this is currently the only basis on which to draw international comparisons. Although easy to calculate, care should be taken in interpreting such ratios, particularly if they are to be used in making resource/funding allocation decisions. This is because its behaviour is strongly influenced by a wide range of factors, in particular:

- Differences between subjects in the propensity to generate commercial outputs;
- Differences in the proportion of externally funded research that comes with restrictions over exploitation. For instance, contract research funding may tend to be associated with the sponsor owning and exploiting the IP, not the university;
- Differences in the proportion of full costs recovered in research contracts and in whether or not principal investigators' salaries and on-costs are covered by the research grant or payment;

In cases where international comparisons are made the situation is even more complex because research costs are affected by country-specific factors.

Costs of IP management

The costs associated with operating the IP management office can usually be identified. The accuracy of these estimates depends upon a number of factors and different figures have been reported by universities in different surveys.

It is tempting to compare these costs with the revenue generated, giving an estimate of net revenue. Care should, however, be taken when relating costs and revenues for the following reasons:

- The cost of managing the university's IP includes opportunity costs associated with academic time spent on these activities, and also the opportunity costs of university facilities used in the development of IP. Costs may therefore be under-estimated;
- The costs incurred in one year will generate a variable and uncertain stream of revenue in future years. When the university is building up its IP management activity the costs incurred in a particular year will not relate to the revenues received in that year;
- The revenues received by the university as a result of its IP management activities will not be captured solely in income from commercialisation. For instance, an option or licence deal with a company may result in a collaborative or contract research arrangement. This will increase the university's research income, a contribution that may not have taken place without effective IP management.

► MEASURES OF INTERNAL PROCESS PERFORMANCE IN IP MANAGEMENT

Since the first edition of this Guide there has been sustained improvement across the spectrum of knowledge exchange. This success can, in part, be measured in quantitative and qualitative terms. Less than ten per cent[25] of the HE sector do not exert formal ownership over IP and those may be specialist colleges where copyright is a more common form of IP than invention.

While good practice exists in some areas, for example the use of Lambert agreements, the UK HE sector is highly diverse[26], and the balance between research, teaching, graduate enterprise, consultancy, commercial services, CPD, and spin-out companies combined with the range and variety of disciplines needs considered by each institution in determining their overall position. A "one size fits all" approach has little chance of success.

Aspects of internal performance in IP management to consider measuring include:

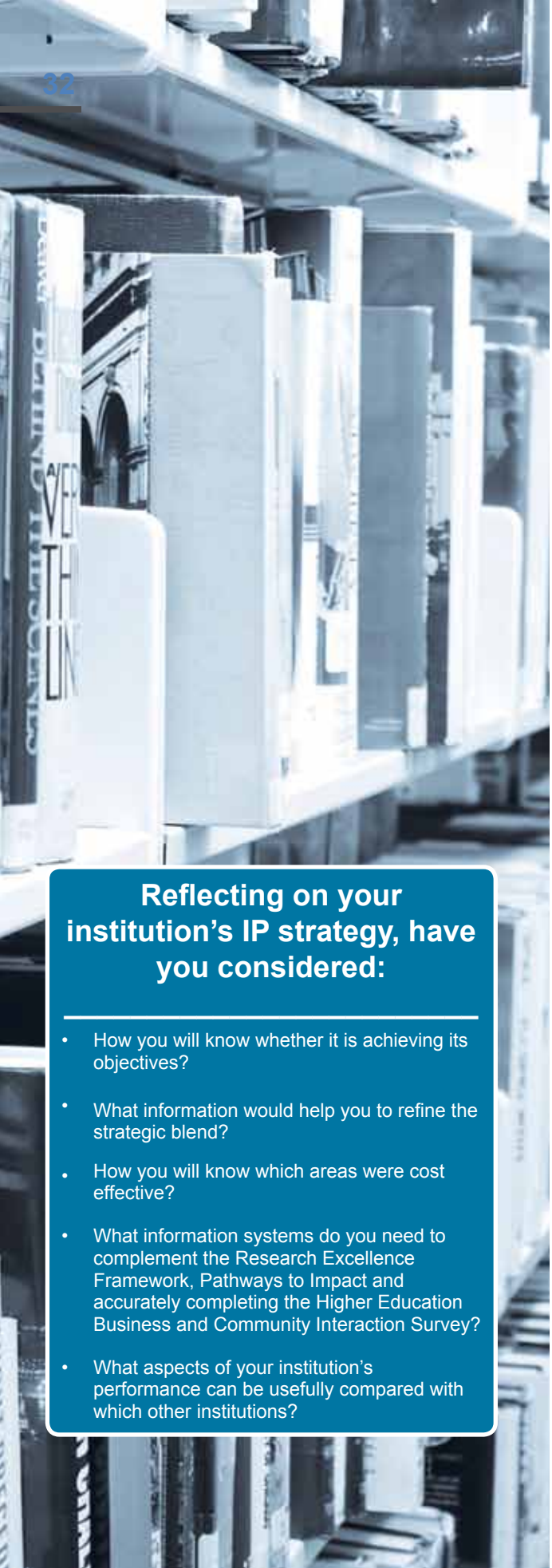
- Deal flow in the IP management office(s) particularly with respect to the distribution of large and complex versus smaller and similar cases;
- Case estimations whittling down the set of cases via procedures such as Stage-Gate® Process[27] can be important in controlling IP management costs by insuring that relatively unpromising cases are abandoned before they incur excessive costs. The number of cases that pass and fail specified investment decision-points e.g. clear "proceed" "do not proceed" decision stages can provide a measure of success in generating new opportunities. Private sector companies' return on R&D can be as heavily influenced by the number of projects that are killed off as by revenues that stem from those projects that reach the market. The same principles apply to IP management in universities;
- Case load queue times: the incidence of delays in starting or completing cases due to log-jams in handling other existing cases;
- Contract drafting iterations: the number of iterations required to complete contracts and the time taken on these iterations.

► SELECTING SUITABLE PERFORMANCE INDICATORS

There may be benefits in UK universities collecting data on a consistent basis for benchmarking purposes, provided that performance can be assessed on a subject-by-subject basis rather than in aggregate.

There are a basket of possible performance measures, and whilst benchmarking can be a valuable exercise, each university needs to decide for itself which indicators from the overall basket of measures are the most useful measure of

25 www.hefce.ac.uk/pubs/hefce/2010/10_14/
26 www.hefce.ac.uk/econsoc/buscom/3stream/research.htm & www.pacec.co.uk/documents/IPFullReport.pdf
27 The Stage-Gate® Process involves the sequential elimination of less promising investment alternatives in favour of the most promising, thus seeking to maximise the ratio of investment returns relative to costs; see http://www.stage-gate.com/knowledge_pipwhat.php



performance against their own goals and objectives. Very few universities would expect to perform effectively across the whole basket of metrics. In fact, some of the measures counterbalance against each other and effective performance in one may mean very limited potential against another.

The context is also important – indicators for collaborative research projects may require distinct processes from simple licensing transactions. Formation of, and interaction with, spin-off companies may also be a significant area for some universities requiring specific structures.

Benchmarking

Each university should identify those indicators which are most appropriate to its aims and objectives. Where possible, these indicators should feed in to broader format to ensure efficient reporting and minimal burden from national data requests.

Nevertheless, these benefit in establishing common indicators since this would facilitate benchmarking and decision making in relation to IP activities.

Reflecting on your institution's IP strategy, have you considered:

- How you will know whether it is achieving its objectives?
- What information would help you to refine the strategic blend?
- How you will know which areas were cost effective?
- What information systems do you need to complement the Research Excellence Framework, Pathways to Impact and accurately completing the Higher Education Business and Community Interaction Survey?
- What aspects of your institution's performance can be usefully compared with which other institutions?

ANNEX A

COMMISSION OF THE EUROPEAN COMMUNITIES

Brussels, 10.4.2008
C(2008)1329

COMMISSION RECOMMENDATION

on the management of intellectual property in knowledge transfer activities and Code of Practice for universities and other public research organisations

(Text with EEA relevance)

EN

COMMISSION RECOMMENDATION

on the management of intellectual property in knowledge transfer activities and Code of Practice for universities and other public research organisations

THE COMMISSION OF THE EUROPEAN COMMUNITIES,

Having regard to the Treaty establishing the European Community, and in particular Article 165 thereof,

Whereas:

(1) When re-launching the Lisbon Strategy in 2005, the Heads of State or Government stressed the key role that better links between public research organisations, including universities, and industry can play in facilitating the circulation and use of ideas in a dynamic knowledge society and in enhancing competitiveness and welfare.

(2) An effort should be made to better convert knowledge into socio-economic benefits. Therefore, public research organisations need to disseminate and to more effectively exploit publicly-funded research results with a view to translating them into new products and services. Means to realise this include in particular academia-industry collaborations – collaborative or contract research conducted or funded jointly with the private sector –, licensing and the creation of spin-offs.

(3) Effectively exploiting publicly-funded research results depends on the proper management of intellectual property (i.e. knowledge in the broadest sense, encompassing e.g. inventions, software, databases and micro-organisms, whether or not they are protected by legal instruments such as patents), on the development of an entrepreneurial culture and associated skills within public research organisations, as well as on better communication and interaction between the public and private sector.

(4) The active engagement of public research organisations in intellectual property management and knowledge transfer is essential for generating socio-economic benefits, and for attracting students, scientists and further research funding.

(5) Member States have in recent years taken initiatives to facilitate knowledge transfer at national level, but significant discrepancies between national regulatory frameworks, policies and practices, as well as varying standards in the management of intellectual property within public research organisations, prevent or hamper trans-national knowledge transfer across Europe and the realisation of the European Research Area.

(6) Following the 2007 Commission Communication[1], setting out approaches for a common European framework for knowledge transfer, the European Council therefore invited the Commission, in June 2007, to develop guidance on the management of intellectual property by public research organisations in the form of a Recommendation to Member States.

(7) This Recommendation seeks to provide Member States and their regions with policy guidelines for the development or updating of national guidelines and frameworks, and public research organisations with a Code of Practice, in order to improve the way public research organisations manage intellectual property and knowledge transfer.

(8) Collaboration in the field of research and development as well as knowledge transfer activities between the Community and third countries should be based on clear and uniform recommendations and practices that ensure equitable and fair access to intellectual property generated through international research collaborations, to the mutual benefit of all partners involved. The attached Code of Practice should be used as a reference in that context.

(9) A number of good practices have been identified that should help Member States to implement this Recommendation. It is for each Member State to choose the procedures and practices best designed to ensure that the principles of this Recommendation are followed, having regard to what would be most effective in the context of that Member State, since practices that are effective in one Member State may not be as effective in another. Existing guidance provided at Community and OECD level should also be taken into account.

(10) The Commission and the Member States should monitor the implementation of this Recommendation and its impact, and foster the exchange of good practices regarding knowledge transfer.

1 COM(2007) 182 final

HEREBY RECOMMENDS THAT MEMBER STATES SHOULD:

1. Ensure that all public research organisations define knowledge transfer as a strategic mission;

2. Encourage public research organisations to establish and publicise policies and procedures for the management of intellectual property in line with the Code of Practice set out in Annex I;

3. Support the development of knowledge transfer capacity and skills in public research organisations, as well as measures to raise the awareness and skills of students – in particular in the area of science and technology – regarding intellectual property, knowledge transfer and entrepreneurship;

4. Promote the broad dissemination of knowledge created with public funds, by taking steps to encourage open access to research results, while enabling, where appropriate, the related intellectual property to be protected;

5. Cooperate and take steps to improve the coherence of their respective ownership regimes as regards intellectual property rights in such a way as to facilitate crossborder collaborations and knowledge transfer in the field of research and development;

6. Use the principles outlined in this Recommendation as a basis for introducing or adapting national guidelines and legislation concerning the management of intellectual property and knowledge transfer by public research organisations, as well as for concluding agreements concerning research cooperation with third countries, or for any other measures to promote knowledge transfer, or when creating new related policies or funding schemes, while observing State aid rules;

7. Take steps to ensure the widest possible implementation of the Code of Practice, whether directly or through the rules laid down by national and regional research funding bodies;

8. Ensure equitable and fair treatment of participants from Member States and third countries in international research projects regarding the ownership of and access to intellectual property rights, to the mutual benefit of all partners involved;

9. Designate a national contact point, the tasks of which should include the coordination of measures regarding knowledge transfer between public research organisations and the private sector, including tackling trans-national issues, in liaison with similar contact points in other Member States;

10. Examine and make use of the best practices set out in Annex II, taking into account the national context;

11. Inform the Commission by 15 July 2010 and every two years thereafter of measures taken on the basis of this Recommendation, as well as their impact.

Done at Brussels, […]

For the Commission

Günter Verheugen
Member of the Commission

Janez Potočnik
Member of the Commission

ANNEX I

Code of Practice for universities and other public research organisations concerning the management of intellectual property in knowledge transfer activities

This Code of Practice consists of three main sets of principles.

The **principles for an internal intellectual property** (hereinafter "IP") **policy** constitute the basic set of principles which public research organisations should implement in order to effectively manage the intellectual property resulting from their – own or collaborative – activities in the field of research and development.

The **principles for a knowledge transfer** (hereinafter "KT") **policy** complement those relating to IP policy by focusing more specifically on the active transfer and exploitation of such intellectual property, regardless of whether or not it is protected by IP rights.

The **principles for collaborative and contract research** are meant to concern all kinds of research activities conducted or funded jointly by a public research organisation and the private sector, including in particular collaborative research (where all parties carry out R&D tasks) and contract research (where R&D is contracted out to a public research organisation by a private company).

1. PRINCIPLES FOR AN INTERNAL INTELLECTUAL PROPERTY POLICY

1. **Develop an IP policy** as part of the long-term strategy and mission of the public research organisation, and publicise it internally and externally, while establishing a single responsible contact point.

2. That policy should provide **clear rules for staff and students** regarding in particular the disclosure of new ideas with potential commercial interest, the ownership of research results, record keeping, the management of conflicts of interest and engagement with third parties.

3. Promote the **identification, exploitation** and, where appropriate, protection of intellectual property, in line with the strategy and mission of the public research organisation and with a view to maximising socio-economic benefits. To this end, different strategies may be adopted – possibly differentiated in the respective scientific/technical areas –, for instance the "public domain" approach or the "open innovation" approach.

4. Provide appropriate **incentives** to ensure that all relevant staff play an active role in the implementation of the IP policy. Such incentives should not only be of a financial nature but should also promote career progression, by considering intellectual property and knowledge transfer aspects in appraisal procedures, in addition to academic criteria.

5. Consider the creation of coherent **portfolios** of intellectual property by the public research organisation – e.g. in specific technological areas – and, where appropriate, the setting-up of patent/IP **pools** including intellectual property of other public research organisations. This could ease exploitation, through critical mass and reduced transaction costs for third parties.

6. Raise **awareness** and basic skills regarding intellectual property and knowledge transfer through training actions for students as well as research staff, and ensure that the staff responsible for the management of IP/KT have the required skills and receive adequate training.

7. Develop and publicise a **publication/dissemination policy** promoting the broad dissemination of research and development results (e.g. through open access publication), while accepting possible delay where the protection of intellectual property is envisaged, although this should be kept to a minimum.

2. PRINCIPLES FOR A KNOWLEDGE TRANSFER POLICY

8. In order to promote the use of publicly-funded research results and maximise their socio-economic impact, consider all types of possible **exploitation mechanisms** (such as licensing or spin-off creation) and all possible **exploitation partners** (such as spin-offs or existing companies, other public research organisations, investors, or innovation support services or agencies), and select the most appropriate ones.

9. While proactive IP/KT policy may generate additional revenues for the public research organisation, this should not be considered the prime objective.

10. Ensure that the public research organisation has access to or possesses **professional knowledge transfer** services including legal, financial, commercial as well as intellectual property protection and enforcement advisors, in addition to staff with technical background.

11. Develop and publicise a **licensing policy**, in order to harmonise practices within the public research organisation and ensure fairness in all deals. In particular, transfers of ownership of intellectual property owned by the public research organisation and the granting of exclusive licences[2] should be carefully assessed, especially with respect to non-European third parties. Licences for exploitation purposes should involve adequate compensation, financial or otherwise.

12. Develop and publicise a **policy for the creation of spin-offs**, allowing and encouraging the public research organisation's staff to engage in the creation of spin-offs where appropriate, and clarifying long-term relations between spin-offs and the public research organisation.

13. Establish clear principles regarding the **sharing of financial returns** from knowledge transfer revenues between the public research organisation, the department and the inventors.

14. **Monitor** intellectual property protection and knowledge transfer activities and related achievements, and publicise these regularly. The research results of the public research organisation, any related expertise and intellectual property rights should be made more **visible** to the private sector, in order to promote their exploitation.

2 With regard to R&D results having several possible application fields, exclusive licences granted without any limitation to a specific field of use should be avoided. Moreover, as a rule, the PRO should reserve adequate rights to facilitate dissemination and further research.

3. PRINCIPLES REGARDING COLLABORATIVE AND CONTRACT RESEARCH [3]

15. The rules governing collaborative and contract research activities should be **compatible with the mission** of each party. They should take into account the level of private funding and be in accordance with the objectives of the research activities, in particular to maximise the commercial and socio-economic impact of the research, to support the public research organisation's objective to attract private research funding, to maintain an intellectual property position that allows further academic and collaborative research, and avoid impeding the dissemination of the R&D results.

16. IP-related issues should be **clarified at management level and as early as possible** in the research project, ideally before it starts. IP-related issues include allocation of the ownership of intellectual property which is generated in the framework of the project (hereinafter "foreground"), identification of the intellectual property which is possessed by the parties before starting the project (hereinafter "background") and which is necessary for project execution or exploitation purposes, access rights[4] to foreground and background for these purposes, and the sharing of revenues.

17. In a collaborative research project, **ownership** of the foreground should stay with the party that has generated it, but can be allocated to the different parties on the basis of a contractual agreement concluded in advance, adequately reflecting the parties' respective interests, tasks and financial or other contributions to the project. In the case of contract research the foreground generated by the public research organisation is owned by the private-sector party. The ownership of background should not be affected by the project.

18. **Access rights[4]** should be clarified by the parties as early as possible in the research project, ideally before it starts. Where necessary for the purpose of conducting the research project, or for the exploitation of foreground of a party, access rights to other parties' foreground and background should be available, under conditions which should adequately reflect the parties' respective interests, tasks, and financial and other contributions to the project.

3 When a PRO engages in contract or collaborative research with an industrial partner, the Commission will automatically (i.e. without any notification requirement) consider that no indirect State aid is granted to the industrial partner through the PRO if the conditions set out in the Community Framework for State Aid for R&D&I (OJ No C323 of 30.12.2006 – in particular points 3.2.1 and 3.2.2 thereof) are fulfilled.

4 Access rights refer to rights granted by the parties to each other, as opposed to licences to third parties. They should determine which parties can use which pieces of foreground/background, for research purposes and/or for exploitation purposes, and on what conditions.

ANNEX II

Identified practices of public authorities that facilitate the management of intellectual property in knowledge transfer activities by universities and other public research organisations

Knowledge Transfer as a strategic mission of public research organisations

1. Knowledge transfer between universities and industry is made a permanent political and operational priority for all public research funding bodies within a Member State, at both national and regional level.

2. The subject clearly falls within the responsibility of a ministry, which is charged with coordinating knowledge transfer promotion initiatives with other ministries.

3. Each ministry and regional government body that carries out knowledge transfer activities designates an official responsible for monitoring their impact. They meet regularly in order to exchange information and discuss ways to improve knowledge transfer.

Policies for managing Intellectual Property

4. The proper management of intellectual property resulting from public funding is promoted, requiring that it be carried out according to established principles taking into account the legitimate interests of industry (e.g. temporary confidentiality constraints).

5. Research policy promotes reliance on the private sector to help identify technological needs and to foster private investment in research and encourage the exploitation of publicly-funded research results.

Knowledge transfer capacities and skills

6. Sufficient resources and incentives are available to public research organisations and their staff to engage in knowledge transfer activities.

7. Measures are taken to ensure the availability and facilitate the recruitment of trained staff (such as technology transfer officers) by public research organisations.

8. A set of model contracts is made available, as well as a decision-making tool helping the most appropriate model contract to be selected, depending on a number of parameters.

9. Before establishing new mechanisms to promote knowledge transfer (such as mobility or funding schemes), relevant stakeholder groups, including SMEs and large industry as well as public research organisations, are consulted.

10. The pooling of resources between public research organisations at local or regional level is promoted where these do not have the critical mass of research spending to justify having their own knowledge transfer office or intellectual property manager.

11. Programmes supporting research spin-offs are launched, incorporating entrepreneurship training and featuring strong interaction of public research organisations with local incubators, financiers, business support agencies, etc.

12. Government funding is made available to support knowledge transfer and business engagement at public research organisations, including through hiring experts.

Coherence in trans-national cooperation

13. In order to promote trans-national knowledge transfer and facilitate cooperation with parties from other countries, the owner of intellectual property from publicly-funded research is defined by clear rules and this information, together with any funding conditions which may affect the transfer of knowledge, is made easily available. Institutional ownership – as opposed to the "professor's privilege" regime – is considered the default legal regime for intellectual property ownership at public research organisations in most EU Member States.

14. When signing international research cooperation agreements, the terms and conditions relating to projects funded under both countries' schemes provide all participants with similar rights, especially as regards access to intellectual property rights and related use restrictions.

Dissemination of knowledge

15. Open access is implemented by public research funding bodies with regard to peerreviewed scientific publications resulting from publicly-funded research.

16. Open access to research data is promoted, in line with the OECD Principles and Guidelines for Access to Research Data from Public Funding, taking into account restrictions linked to commercial exploitation.

17. Archival facilities for research results (such as internet-based repositories) are developed with public funding in connection with open access policies.

Monitoring implementation

18. The necessary mechanisms are put in place to monitor and review progress made by national public research organisations in knowledge transfer activities, e.g. through annual reports of the individual public research organisations. This information, together with best practices, is also made available to other Member States.

ANNEX B
Model Research Collaboration Agreements

There are five model Research Collaboration Agreements, covering one to one projects each providing a different approach in the key area of who is to own, and have the right to exploit, the intellectual property in the results or outcome of the collaborative project.

Lambert Research Collaboration Agreement	Terms	IPR
Agreement 1	Sponsor has non-exclusive rights to use in specified field/territory; no sub-licences	University
Agreement 2	Sponsor may negotiate further licence to some or all University IP	University
Agreement 3	Sponsor may negotiate for an assignment of some University IP	University
Agreement 4	University has right to use for non-commercial purposes	Sponsor
Agreement 5	Contract research: no publication by University without Sponsor's permission	Sponsor

The model agreements are merely starting points and their use is not compulsory, but by using them you may be able to reduce the amount of time and money spent negotiating.

You should decide which of the five approaches best suits your purpose and negotiate with the other party to achieve consensus and a signed agreement before work on the project begins.

Model Consortium Agreements

There are four model Consortium Agreements, for use where more than two parties are collaborating. The four model Lambert Consortium Agreements use the same terminology and have the same structure as the five Research Agreements, but contain additional provisions to cover some of the complications that arise as a result of having more than two parties.

The Consortium Agreements cannot cover all the circumstances that might arise when a group of universities and industrial 'partners' get together to carry out research, but they illustrate terms that might apply in four possible scenarios.

Lambert Model Consortium Agreement	Terms
Agreement A	Each member of the Consortium owns the IP in the Results that it creates and grants each of the other parties a non-exclusive licence to use those Results for the purposes of the Project and for any other purpose.
Agreement B	The other parties assign their IP in the Results to the lead Exploitation Party who undertakes to exploit the Results. (Alternatively the Lead Exploitation Party is granted an exclusive licence).
Agreement C	Each party takes an assignment of IP in the Results that are germane to its core business and undertakes to exploit those Results.
Agreement D	Each member of the Consortium owns the IP in the Results that it creates and grants each of the other parties a non-exclusive licence to use those Results for the purposes of the Project only. If any member of the Consortium wishes to negotiate a licence to allow it to exploit the IP of another member or to take an assignment of that IP, the owner of that IP undertakes to negotiate a licence or assignment.

There are too many possible variations and permutations to cover all of them and the model Consortium Agreements are merely starting points that may be useful in shaping the thinking about the structure of a collaboration, but by using them you may be able to reduce the amount of time and money spent negotiating. You should negotiate with the other parties to achieve consensus and a signed agreement before work on the project begins.

DESIGN RIGHTS - Protect the visual appearance of products; there are registered rights which confer a monopoly as well as unregistered rights which give lesser protection.

ANNEX C

Example of the current format for Intellectual property (IP) data in HE-BCI

	Example of the current format for Intellectual property (IP) data in HE-BCI	Value
1	DISCLOSURES AND PATENTS FILED BY OR ON BEHALF OF THE HEI	
1a	Number of disclosures	0
1b	Number of new patent applications filed in year	0
1c	Number of patents granted in year	0
1d	Cumulative patent portfolio	0
2	LICENCE NUMBERS	
2a	Non-software licences granted	
i	SMEs	0
ii	Other (non-SME) commercial businesses	0
iii	Non-commercial organisations	0
iv	Total number (non-software)	0
2b	Software only licences granted	
i	SMEs	0
ii	Other (non-SME) commercial businesses	0
iii	Non-commercial organisations	0
iv	Total number (software only)	0
3	IP INCOME	(£000s)
3a	Income from SMEs	
i	Non-software licences	0
ii	Software licences	0
iii	Other	0
3b	Other (non-SME) commercial businesses	
i	Non-software licences	0
ii	Software licences	0
iii	Other	0
3c	Income from other non-commercial organisations	
i	Non-software licences	0
ii	Software licences	0
iii	Other	0
3d	SUBTOTAL: IP INCOME	0
3e	Sale of shares in spin-offs	0
3f	TOTAL: IP REVENUES	0
3g	Total costs	0

COPYRIGHT - A right which arises automatically if certain conditions are met. It protects a wide variety of works, including original literary, dramatic, musical and artistic works, software, film, sound recordings and broadcasts.

Institutional biographies

AURIL (the Association for University Research and Industry Links) is the largest professional association that represents all knowledge transfer practitioners in Europe, working to ensure that the new ideas, technologies and innovations flowing from their organisation (Universities, Public Sector Research Establishments, and National Health Service IP Hubs) are taken up for the benefit of economy and society.

We believe investment in science, the exchange and application of knowledge, expertise in the management of IP to meet the needs of business and the community are all recognised as essential components of regional national, and world economic development; so the vital role of innovation and knowledge transfer in meeting the great global challenges and intense competition is imperative
http://www.qub.ac.uk/auril/pages/home.php

The **Department for Business, Innovation and Skills (BIS)** is building a dynamic and competitive UK economy by: creating the conditions for business success; promoting innovation, enterprise and science; and giving everyone the skills and opportunities to succeed. To achieve this it will foster world-class universities and promote an open global economy.
http://www.bis.gov.uk/

The Higher Education Funding Council for England (HEFCE) distributes public money for teaching, research, knowledge exchange and related activities. In 2010-11 HEFCE will distribute over £7.4 billion to 130 higher education institutions and 124 further education colleges.
http://www.hefce.ac.uk/

Within the UK, the **Intellectual Property Office (IPO)** is responsible for the United Kingdom's intellectual property framework, for the delivery of patents, trade marks and registered designs to individual applicants, for the UK engagement on intellectual property issues with the European Patent Office (EPO), the World Intellectual Property Organisation (WIPO) and (within the EU framework) the Office for Harmonisation in the Internal Market (OHIM), which is responsible for the Community trade mark and design rights.
http://www.ipo.gov.uk/

PraxisUnico is an educational not-for-profit organisation set up to support innovation and commercialisation of public sector and charity research for social and economic impact.

PraxisUnico encourages innovation and acts as a voice for the research commercialisation profession, facilitating the interaction between the public sector research base, business and government. PraxisUnico provides a forum for best practice exchange, underpinned by first-class training and development programmes.
http://www.praxisunico.org.uk/

Research Councils UK (RCUK) is the strategic partnership of the UK's seven Research Councils. The Research Councils jointly invest annually around £3bn in research. Their focus is on excellence with impact and nurturing the highest quality research, as judged by international peer review, providing the UK with a competitive advantage.

The seven UK Research Councils are:

- Arts and Humanities Research Council (AHRC)
- Biotechnology and Biological Sciences Research Council (BBSRC)
- Economic and Social Research Council (ESRC)
- Engineering and Physical Sciences Research Council (EPSRC)
- Medical Research Council (MRC)
- Natural Environment Research Council (NERC)
- Science and Technology Facilities Council (STFC).

http://www.rcuk.ac.uk/Pages/Home.aspx

Universities UK (UUK) is the representative organisation for the UK's universities. Founded in 1918, its mission is to be the definitive voice for all universities in the UK, providing high quality leadership and support to its members to promote a successful and diverse higher education sector. With 133 members and offices in London, Cardiff and Edinburgh, it promotes the strength and success of UK universities nationally and internationally.
http://www.universitiesuk.ac.uk/

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