

SCIENCE AND INNOVATION STRATEGY FOR SCOTLAND: CONSULTATION PAPER

Submission prepared by

Peter van Bruchem – Intellectual Property Consultant

www.petervanbruchem

ip@petervanbruchem.co.uk

077 266 20912

4 January 2007

Executive Summary

Scotland has valuable resources that are being under-utilised. These resources are in the form of the intellectual assets, including intellectual property (IP) which are derived from publicly funded research and other non-research based innovative activity undertaken within governmental or public sector bodies or by the private sector under government procurement contracts.

These intellectual assets should be considered as a resource of public sector organisations, alongside their physical capital, cash reserves, and human capital, all of which are at the disposal of these public sector organisations to help them do their jobs in serving the Scottish community. This will necessarily require a greater understanding of those assets as well as appropriate investment in the development of policies, processes and systems to ensure those assets are identified, captured, protected as appropriate and effectively managed.

Furthermore government-owned or funded intellectual assets could be more effectively used as levers of economic growth in Scotland and to generate environmental and societal benefits. Effective utilisation of these intellectual assets will in many cases necessitate government involvement in commercialisation of those assets. It should however be noted that this can be effected in partnership or via the business community in Scotland.

The submission suggests that Scotland may possibly benefit from a reconsideration of the approach taken to the Commercialisation of research-derived IP generated with public funding and that in the context of Government owned or controlled entities such IP should be considered as an intellectual asset and managed for the broader strategic benefit of the organisation.

This submission suggests that the Scottish Executive re-examine its approach to allocation of IP rights in government contracts and commercialisation of that IP with a view to seeing how it may be utilised as a driver of innovation and economic growth. It is also suggested that Scotland may benefit from considering how the Scottish Executive could reduce barriers to innovative Scottish companies selling new technologies to Government organisations.

The submission also contains some specific observations in relation to the themes contained in the consultation paper and the consultation questions.

About the author

In mid 2006 I relocated from Perth, Western Australia to Edinburgh with my Scottish wife, to develop a business providing intellectual property related services to Scottish organisations. I trained as a lawyer in Western Australia and hold a Master of Laws from the University of Western Australia focused on Intellectual Property.

This submission has been heavily influenced by my experiences between 1998 and 2005 while working for the Western Australian Government as Manager of the Government Intellectual Property Support Unit and from experiences consulting back to government agencies in Western Australia from 2005 to 2006.

In my role with Government I had a range of responsibilities related to the development, review and implementation of the Government's Intellectual Property Policy. The Policy was aimed at getting government departments and agencies to more effectively manage their intellectual property and to commercialise their IP to generate economic, social and environmental benefits for Western Australia. I was advisor to and executive officer of the Government's IP Policy Council and was the primary author of two iterations of the Government Intellectual Property Policy as well as other useful publications. I provided IP 'helpdesk' services to Western Australian government agencies in implementing the Policy and assisted with numerous commercialisation projects involving government-owned IP. Throughout the duration of my role I worked very closely with both the university sector and private sector due the important roles played by those sectors both in the development and commercialisation of government-owned innovations.

After leaving employment with Government early in 2005 I undertook a number of consulting projects for government agencies aimed again at helping them to implement the Government IP Policy and manage and commercialise their IP. My clients included government agencies involved in a range of activities including regulation of the environment and water, health sector, government chemistry laboratory, further education sector and the land information agency.

My most significant consulting project was for the Departments of Water and Environment, developing an agency-specific intellectual property policy, IP governance framework, and comprehensive implementation strategy as well as leading the implementation of the strategy. The implementation strategy covered all aspects of the Departments' dealings that impacted on intellectual property asset management, including: project planning, contract planning, procurement, human resources, performance management, publication, resource administration and finance.

Since arriving in Scotland I have met with many people from across the Scottish innovation landscape and have gained a good appreciation of both the similarities with the innovation system in Australia and of the subtle and significant differences. I have also read many relevant publications both in the context of researching this submission but also for a project I am currently undertaking for the Scottish Funding Council investigating knowledge transfer activities in the Scottish Further Education Colleges (as part of the project team led by TL Dempster Strategy & Research).

I refer readers to my website www.petervanbruchem.co.uk which contains several of the publications that I developed for the Western Australian Government. Please contact me direct for any inquiries relating to this submission or my experiences in Australia.

Peter van Bruchem
ip@petervanbruchem.co.uk
mob: 077 266 20912.

Introduction

Government's role in the innovation landscape is usually seen as funder and policy maker. Governments are also creators, owners and users of innovations or intellectual assets in their own right. Governments (including government owned, controlled or funded bodies) annually expend large sums of public money to improve services provided to the community and to support the growth of the economy in their region. A great deal of this expenditure results in the creation of things that are intellectual assets, many of which are protected or protectable as intellectual property.

Intellectual assets are created by public sector employees and through the procurement of goods and services and by recipients of public money. These intellectual assets are developed for the intended use of the relevant government body and in many cases, the use of the body's immediate stakeholders. These assets can often be utilised in a way which not only meets the asset's intended use but also can leverage additional value for the organisation and its stakeholders.

Relevant examples of intellectual assets owned by public sector organisations include computer software, training or educational products, accreditation systems and any material improvement to systems, processes, products (which may not have the qualities of invention entitling the innovation to patent protection).

Commercialisation of intellectual property (IP) derived from public sector funded research has for some time been recognised as a source of economic benefits or growth and accordingly has been supported and encouraged by governments worldwide. Policy makers have tended to focus on IP derived from research undertaken in the universities and government owned, controlled or funded research institutes.

More recently the focus has been broadened in some jurisdictions to include government-owned or controlled IP which is not just derived from research based activities. Many IP related initiatives also have focussed upon the capture and protection of IP, and in effect, the conversion of intellectual assets into intellectual property. Governments are also starting to realise that they can utilise these non-research based intellectual assets as levers of economic growth. Several jurisdictions have taken initiatives looking at IP generated in government organisations other than just research based IP, including Australia (most states and Commonwealth Government), Singapore, Canada and the United States.

In this submission the term commercialisation is given a relatively broad meaning and basically includes any transaction concerning intellectual property rights, whether for commercial or other consideration and including any step in the process of taking the IP or product in question to the market, such as transfer of the IP to a company to develop and distribute the IP or product.

Important commercialisation related initiatives in Scotland and UK

There are some noteworthy examples of initiatives for which the Scottish Executive should be commended as outlined below:

- The establishment of innovation focal points within the Scottish NHS trusts and the establishment of Scottish Health Innovations Limited.
- The support of University Knowledge Transfer (KT) activities by the Scottish Funding Council (SFC).
- The proposals by the SFC to support KT activities in Further Education (FE) Colleges.
- Some support and encouragement by SEERAD of knowledge transfer and commercialisation activities by SEERAD funded research providers (query whether the support of commercialisation activities could be improved).

- The establishment of the Intellectual Assets Centre (which also provides some support to public sector organisations in Scotland relating to their intellectual assets (including IP)).

In addition to the Scottish initiatives other initiatives from the rest of the UK warranting a mention include:

- The Patent Office (UK) Guidelines for Intellectual Property in Government Research Contracts for Public Sector Purchasers of Research and Research Providers.
- Steps taken by Research Councils to support knowledge transfer and commercialisation activities.
- The wider markets initiative which supports government agencies raising revenue from non-traditional sources.

What is suggested in this submission is in effect an extension of the above initiatives to also deal with intellectual assets generated through government's non-research activities and a reconsideration of the steps taken to encourage and support non-university public sector research derived IP.

Intellectual Asset Management and IP Commercialisation

There is a tendency to overlook the potential value of intangible assets generated within the Government and public sector and as a result these assets are often underprotected and underutilised.

It is suggested that all organisations involved in the generation of intellectual assets should view that IP or IA as resources at the disposal of the organisation which it can use to assist it to achieve its objectives. This objective may be to generate revenue but may also include any other operational goals. Taking this approach also impacts on how a public sector body undertakes its commercialisation activities. By being more strategic with its intellectual assets, commercialisation becomes more than a just a revenue raising activity and more intertwined with the day to day activities of the organisation.

It is also useful to mention a report produced by Sir Michael Lyons for the British Treasury in Westminster in 2004 entitled "Towards Better Management of Public Sector Assets" ("the Lyons Report"). In that report it was noted that public sector bodies were not efficiently managing their intangible assets (including IP) this message has been repeated in a couple of subsequent National Audit Office reports. While the Lyons Report was written from the angle of government efficiency it is suggested that virtually all public sector organisations in Scotland could more effectively manage and utilise their intellectual assets both in order to contribute to improved government efficiency and also to realise benefits outside of government.

An impact of governmental or public sector bodies paying more regard to their intellectual assets will necessarily require a greater understanding of those assets as well as appropriate investment in the development of policies, processes and systems to ensure those assets are identified, captured, protected as appropriate and effectively managed.

In preparing this submission the author had some discussions with the Intellectual Assets Centre (IA Centre) who agreed for the author to indicate their support of the direction of this submission insofar as it relates to the desirability of improving the management of intellectual assets in the public sector and also to indicate their encouragement of suppliers to be innovative in this area.

Comments on Commercialisation of non-research based government-owned Innovation

There are some characteristics of the government IP and commercialisation environment which are not well understood but which can be quite significant in understanding how to structure initiatives to support and encourage commercialisation in this sector. A number of these characteristics are set out below. Please note that this list is not intended to be comprehensive.

1. Governments often invest in the development of products containing IP to the point where they can use the product (eg software, educational or training products, technical solutions to identified problems). As a result the products maybe closer to being market ready than early-stage IP from other sectors and may require less expenditure on further product development.
2. Governmental organisations often do not have competitors in their area of interest and the IP can be licensed outside the area of interest with no negative impact on the organisation – potential licensees or users of government technologies are often governments in other jurisdictions.
3. Much of the IP developed within government is automatically protected by copyright and no steps are necessary to secure protection (other than ensuring ownership is secured in the contracts relating to the development of the IP).
4. Many commercialisation opportunities for government-owned innovations are largely market driven and based on passive and often non-intentional marketing of the products through mechanisms such as newsletters, innovation awards, conference and presentations.

Benefits from Commercialisation

Commercialisation does not need to be driven solely by commercial motives but in many cases successful commercialisation is necessary to see other non-commercial objectives met. An example of a non-commercial objective can be seen in most research projects or projects resulting in IP generation funded by the public. The objective is usually to achieve a certain result, whether that be improved patient care or the development of a device to improve monitoring of water quality. In many cases the non-commercial objective can be better achieved through the commercialisation of IP derived from the original project as injection of money from commercial sources can sometimes be the only way that the project will achieve its intended outcome.

The range of benefits that can be generated through commercialisation are illustrated in the Western Australian Government's Intellectual Property Policy. That policy requires that government agencies actively seek to optimise the economic, social and environmental benefits to Western Australians from the use and commercialisation of government owned intellectual property in conjunction with the business community. The policy sets out a list of benefits that can flow from use and commercialisation of IP including:

- contribution to the development of the business community;
- the development of employment opportunities;
- enhancement of human capital through skill and knowledge exchange;
- revenues flowing into Western Australia as a result of the commercialisation of the IP (*this could be revenues to government OR to the business community*);
- capital investment in knowledge based industries and research and development infrastructure;
- increases in Government efficiency and effectiveness;

- social and environmental benefits from broader take up of the IP in the community;
- creation of new research and training opportunities;
- transfer of technologies from other jurisdictions to Western Australia; and
- creation of new knowledge based industries.

It is suggested that benefits as listed above are accessible from the commercialisation of government-owned IP in Scotland.

Commercialisation myths and challenges

Commercialisation of intellectual assets or intellectual property is generally not well understood. This is even more so the case in the public sector. People hold certain views about what commercialisation is and that can affect their views about whether or not it is appropriate or how it should be conducted. Many of these views are often misconceived and unnecessarily prevent commercialisation activities that, if properly conducted, may be beneficial to the organisation and the region. This part of the submission outlines what some of these views might be and suggest a possible response. A number of challenges will be faced in trying to roll out IP initiatives in government and possible solutions.

This section is by no means intended to be comprehensive in its coverage of the myths and challenges that will be faced and is instead intended to be indicative of the sorts of issues that will be faced and demonstrate that most of these issues can be overcome or addressed and needn't necessarily be barriers to commercialisation.

Myths

Myth 1: Commercialisation interferes with or is inconsistent with the role of governments / Commercialisation and operational use of IA/IP are mutually exclusive

It is sometimes assumed that commercialisation in the context of government-owned IP will result in the public paying for services that would otherwise be provided free of charge. It is suggested that many opportunities for commercialisation of government-owned IP relate to licensing opportunities outside of the region governed, for example, to similar governmental organisations outside of Scotland.

If intellectual assets or IP can be utilised or commercialisation to assist government to operate more efficiently or effectively, as is suggested is the case, then this should be seen as consistent with or supportive of the role of government.

Myth 2: Commercialisation should be left to the private sector / Non-commercial public sector bodies should not be involved in commercialisation

This is often said because the commercial sector has the skills and experience in commercial matters that government lacks and also on the assumption that the 'commercialisation' activities being considered are with the end consumer. In the commercialisation process there are often many steps and even the step of transferring the IP from its original owner to a person or organisation who will then develop it and take it to market is 'commercialisation'. This first step needs to be done responsibly and if the owner lacks the necessary skills and experience it can contract them in.

Myth 3: You cannot benefit local companies (or companies in Scotland) without having problems with the EU state aid restrictions.

While the Scottish Executive will need to be careful how it approaches this issue there will be ways in which it can operate to bring local benefits. An approach taken in Western Australia to deal with a similar restriction in an inter-jurisdictional government procurement agreement was not to focus on location or ownership of the businesses it dealt with but instead to focus on the benefits brought to the local community, in terms of employment, R&D investment etc. A similar approach may work in Scotland.

Myth 4: Commercialisation of government owned IP is unfair competition with the private sector

The issue here is that sectors of industry might complain if the government was seen to compete with industry in say, the commercial sale of software packages.

Any potential value as of government-owned IP or intellectual assets could be described as ‘accidental’, in so far as it is not developed for the purpose of taking to the market as such and public sector bodies may not necessarily need to take development cost into account when commercialising such IP. Added to this, the magnitude of some government projects particularly software related projects, is such that the private sector will not be likely to invest in the development of the software in the absence of a client paying for its development. The solution when a public sector body is offering IP or a product on the market may be to offer the IP at market price.

It should also be highlighted that commercialisation of government IP can produce new opportunities for industry to sell products that they could not themselves justify building due to their cost and comparatively small market.

Myth 5: The outcome of publicly funded projects should be in the public domain

It is sometimes suggested that if IP is derived from public expenditure it should be made available to the public free of charge. In some cases making the IP available will be the very reason behind its creation. This is often not the case, especially if the IP in question is not purely information, and the public interest may be better served by not making the IP freely available.

It would be nonsensical to suggest that all things developed with public funds should belong to the public. Things developed with public funds should be dealt with in a way that is for the general greater public good. This does mean that on some occasions public funds go to generate private good or wealth where that private good or wealth is also in the public good, for example public funds going to a private company which will generate greater benefit for the people of Scotland the public funding they receive – eg societal, economic or environmental benefits.

Myth 6: Commercialisation and knowledge transfer are mutually exclusive

In some cases the desired purpose for the project can be achieved through non-commercial dissemination or sharing of the results of the project. This is often referred to as “Knowledge Transfer”. Non-commercial knowledge transfer is often seen as an alternative to protection and commercialisation of intellectual property with the apparent consequence of commercialisation only being considered if the knowledge derived from the research can’t be transferred in a non-commercial way to benefit the objectives of the institution. It is suggested that two concepts should not be seen as mutually exclusive.

Commercialisation or broader utilisation of IP can result in benefits to Scotland that are in addition to any benefits that could be obtained in non-commercial knowledge transfer. It is suggested that this objective should be pursued in a manner consistent with the objectives of the organisation generating (or funding the generation) of the IP.

Myth 7: Commercialisation is too risky for governmental organisations to be involved in

It is sometimes said that commercialisation is risky and so much so that governmental organisations should steer well clear of it. As with any activity in the commercial arena commercialisation of IP brings with it certain risks. If these risks are identified they can be minimised and mitigated against so that in many cases the commercialisation project can proceed without exposing government to unacceptable levels of risk.

Challenges

Challenge 1: Incentives for individual public sector bodies – retention of revenues

It is important that public sector organisations have suitable incentives to undertake commercialisation activities. One way of providing this is permitting the organisation to retain some or all of revenues from commercialisation activities without a commensurate reduction in its future budgetary allowance. It may be appropriate to place some restrictions on the use of those funds and perhaps require proposals as to what such revenues are to be used for. It is suggested that agencies should be able to utilise revenues from IP commercialisation activities to support the infrastructure to support further commercialisation activities.

Challenge 2: Incentives or rewards for individual public servants

Successful commercialisation usually requires involvement of the inventor or developer or project manager of the IP in question. Encouraging the involvement of staff may require be easier to achieve with suitable rewards or incentives which can be difficult in the public sector. Some jurisdictions have developed structures for use in the broader public sector, such as some work done by the Cabinet Office in England in the late nineties.

Challenge 3: Knowledge/awareness

Any new initiative requires steps to raise awareness or understanding. Some of what is required might be able to be provided through organisations such as the IA Centre, however more specialist training will be required for key staff in government organisations which may be able to be at least partially accommodated by training courses offered by organisations such as the Licensing Executives Society of Britain and Ireland and AURIL (the Association for University Research and Industry Links). It is suggested that some training specifically targeting government or public sector bodies would be warranted due to the differences from the university and private sectors.

Challenge 4: Cultural obstacles – this is not core business/this is not how we operate/modus operandi

There is not as yet a general acceptance in the UK that government IP can and should be commercialised this is in part due to commercialisation activity being seen as non-core or not how government agencies operate. Effective commercialisation may require agencies to take a broader view of core business and what their role is, both in terms of considering things that benefit core business to be activities they should engage in and also in terms of their role in being actively concerned in generating benefits to a broader range of stakeholders than their immediate stakeholder group.

What might be required if the Scottish Executive wishes to support such an initiative is to in effect give permission to agencies to undertake such activities, which could be done through the issuing of a suitable policy statement and then to be supportive of such activities in words and actions including suitable funding.

Comments on the Scottish Executive's approach to commercialisation of research-based IP

In December 2001 the Patent Office (UK) released Guidelines for Intellectual Property in Government Research Contracts for Public Sector Purchasers of Research and Research Providers. Some activity has been taken in Scotland presumably, at least in part, in response to the Patent office guidelines. An analysis of those guidelines raises a number of questions for both research purchasers and providers that may not to have been considered in great depth in Scotland (or south of the border for that matter). The focus on commercialisation of public sector funded research seems to be driven from two perspectives, the raising of revenue for research organisations and the establishment of Scottish-based technology startups (with the latter getting a lower priority) rather than on the strategic benefit that can be gained by the Research purchaser or provider by virtue of the commercialisation of the IP.

It is suggested that there are some major questions public sector purchasers of research could or should be asking including:

- “Why are is the research being purchased?”
- “Can the commercialisation of IP derived from that research benefit the purpose for which the research was purchased?”
- “Are you/your stakeholders getting optimal value from your spend on research?”
- “Can IP generated in the course of research you purchase be better utilised to enable you to extract greater value from your research spend, either for you or your stakeholders?”
- “Is the research provider adequately funded or resourced to effectively manage and commercialise IP that might arise in the course of the research funded by the research purchaser?”
- “Who should fund commercialisation activity?”
- “What about if the commercialisation of such IP could benefit the purpose for which the original research was purchased?”

It is suggested that Scotland may possibly benefit from a reconsideration of the approach taken to research derived IP generated with public funding. In the context of Government owned or controlled entities, such IP should probably be considered as an intellectual asset and managed for the broader strategic benefit of the organisation as discussed above.

The role of government purchasing in supporting innovation

In many jurisdictions government purchasing regulations require consideration to be given to allocating ownership of intellectual property developed in that contract to the company developing the IP in the course of a government contract. The main reasons behind this is a general view that the developer of the IP will be in better position to further use and exploit the IP than the government agency procuring the project including the IP to be developed. This is both due to the developer's intimate knowledge of the IP developed and of their connection to the relevant market.

The Scottish Executive's purchasing regulations do not require consideration of this issue. It is noted by way of an aside that the approach taken to IP ownership in development contracts let by the Scottish Intermediary Technology Institutes (ITIs) is to separate the commercialisation of the IP developed in those contracts from the development contract. In the course of the author's role with Western Australian Government, options for combining these two issues were investigated and it is suggested that reconsideration of this issue may be warranted.

It is suggested that the Scottish Executive re-examine its approach to allocation of IP rights in government contracts and commercialisation of that IP with a view to seeing how it may be utilised as a driver of innovation and economic growth.

Another issue of some concern to technology companies in Scotland is how difficult it can be to sell innovative products into the government market. This is an additional component of the issue of supporting local businesses through government purchasing, which has gained some attention recently, including in the local press. One of the most important steps in the growth of innovative local companies is for them to obtain customers for their products or services. It is understood that many such companies have had greater difficulty selling to Scottish government organisations than to overseas organisations and this is generally put down to the highly risk averse nature of Scottish government purchasing officers.

It is suggested that consideration was given to how the Scottish Executive could reduce barriers to innovative Scottish companies selling new technologies to Government organisations.

Specific Comments against Themes

Theme 1: Maintaining and Developing the excellence of the Science research base

Comments on long term aspirations:

It might be useful if reference was made to the ends or objective behind the aspirations. It is suggested that this could be something along the lines of “the well-being of the people, economy and environment of Scotland”. The final aspiration listed also refers to the role of science in informing policy making. It is suggested that it might also be useful to look at making specific reference to the practical application of science-derived developments in Scotland and the benefits that can come from such application.

Comments on action points:

The action points include identifying the need to link in with UK funders and increasing Scotland’s influence in the UK science agenda. Linked to this issue, it is suggested that it might be worth considering pushing for greater control to be placed in Scottish hands over UK funded science activities in Scotland. It is noted that a number of Research Councils have significant activities in Scotland but that the research agenda and the knowledge transfer and commercialisation strategies for those Research Councils are driven from England and conducted for the benefit of the UK rather than specifically for the benefit of Scotland. In some areas it may make sense to transfer either ownership or funding control over research council activities in Scotland to the Scottish Executive or a body reporting to the Scottish Executive.

It is understood that in some circumstances it would be difficult for Research Council activities in Scotland to exist separated from their counterparts, however they could continue to collaborate with English counterparts. Separation could also open up greater opportunities for collaboration in Europe or elsewhere if that is seen to be in the best interests of Scotland.

Theme 3: intensifying knowledge exchange between academia and business

General Comments

This theme does not adequately consider the non-academic parts of the science base in Scotland, for example, the contribution made by the Further Education colleges. It is also suggested that there may be too heavy a focus on just the economic benefits rather than broader societal benefits.

Comments on long term aspirations

The paper could take a broader look at the research as well as non-research based ‘knowledge’ or innovations.

Additional suggested action points

- Consider reviewing approach taken/inquire as to what is being done to implement Public Sector Intellectual Property Guidelines as issued by the Patent office in 2001.
- Consider program to capture and make available IP/innovation from government/public sector (as done in health sector).

Theme 4: Expanding business innovationGeneral Comments

Measures of R&D miss other significant business innovation such as in the banking and finance sector (as identified in a recent SSAC paper entitled “Patterns in business R&D”). It is suggested that much work undertaken in software development is also not captured, for example software development services undertaken in the course of building a custom software product for a client. Related to this is that many of the major software development projects undertaken in Scotland will be for public sector bodies. This raises the question as to who owns (or should own) the IP in those custom software products and be responsible or capable of commercialising the Software. The market for custom software products is often incorrectly assumed to be non-existent or insignificantly small.

Some government programs in Australia address this issue, such as the WA Government IP Policy, the Commonwealth Government’s ITIP Guidelines and the Queensland government’s establishment of the Office of ICT Commercialisation under which the Queensland Government is releasing ICT intellectual property to industry for the purpose of commercialisation.

Suggested additional action points

- Consider implications of Government approach to IP ownership in procurement (refer to discussion above).
- Consider how the Scottish Executive could reduce barriers to innovative Scottish companies selling new technologies to Government organisations.

Theme 5: modernising science education and promoting science careersGeneral Comments

One of the significant barriers to people choosing science as a career is linked to how scientists are often funded from grant to grant which does not provide any medium or long term financial stability. Scotland may benefit from the investigation of longer term funding strategies or other mechanisms to reduce the lack of financial uncertainty.

Theme 7: developing better use of science by governmentGeneral Comments

Government use of science is not just about developing good policy but also about facilitating the implementation of the outcomes from science activities, for example in healthcare, addressing environmental issues or power generation.