

A decorative graphic on the left side of the page. It consists of a series of vertical lines of varying heights that form a triangular shape pointing to the right. From the tip of this triangle, a solid yellow triangle extends diagonally upwards and to the right, filling the upper right portion of the page.

The new research and development tax incentive consultation paper

Submission by Ernst & Young

26 October 2009

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General Manager
Business Tax Division
The Treasury
Langton Crescent
PARKES ACT 2600

Dear Sir/Madam

Response to “The new research and development tax incentive” consultation paper

Ernst & Young is pleased to make this submission in response to the questions and principles outlined in The Treasury’s consultation paper “The new research and development tax incentive”¹ (the consultation paper) regarding the proposed measures for the new research and development (“R&D”) incentive to be introduced from 1 July 2010.

We submit:

- The guiding policy objectives should be eliminating lower value-adding R&D, but only to the point of revenue neutrality. We do not possess detailed estimates of the cost of elements of the program, but are concerned that the proposals will be net revenue positive. We question whether the removal of 175% premium and international 175% has in itself funded the expansionary aspects of the proposed changes;
- We support the *Guide to the R&D Tax Concession* but would welcome expanded clarification of less obvious examples;
- We recommend the additionality test and spillovers concepts within the consultation paper be viewed as guiding principles, but not embedded within legislation. We have highlighted in this paper use of this approach in some of our recommended changes;
- The concept of innovation “and” high levels of technical risk should be rejected, primarily because it will have a significantly negative impact beyond revenue neutrality and it does not target low value-adding R&D;
- In general, some of the lowest value-adding R&D can be found in the deficiencies of the current feedstock provisions. We recommend changes in this area, as an alternative to the suggestions at question 4; and
- We recommend the removal of the multiple sale test for software, along with some other suggestions around improving the software aspects of the scheme.

¹ Released on 18 September 2009, source - <http://www.treasury.gov.au/contentitem.asp?NavId=037&ContentID=1599>

We set out our reasoning for our submission further in the attached paper. If you would like to discuss this submission in more detail please contact me on 08 9429 2251.

Yours sincerely

A handwritten signature in black ink, appearing to read 'Rob Parsons', followed by a period.

Robin Parsons
Partner

Guiding Policy Objectives

Firstly, we understand the guiding policy objectives for the design of the R&D Tax Credit are to:

- Maintain support for the R&D tax incentive at similar levels to prior years and “on an underlying cash basis, implementation of the new R&D tax incentive is to be revenue neutral over its first four years of operation”; and
- In tightening eligibility for the new R&D tax incentive, the new ineligible areas should be those that are least value-adding R&D.

We submit that the consultative paper, by implication, significantly undervalues the revenue saving from scrapping the 175% premium and international 175% provisions. With specific modelling, it may be evident that these two elements fully pay for the increasing assistance through the proposed credit mechanism, thus requiring no other adverse amendments.

Further, it appears that the consultative paper proposes changes to the current program that, in their entirety, would be revenue positive. Put another way, not all the constraints on R&D concessions need to be accepted to achieve revenue neutrality, and the task at hand is to highlight those that would be most effective at removing the least value-adding R&D and also achieve revenue neutrality.

We submit the redesign of the R&D tax incentive should not be a process in:

- Aligning Australia with other jurisdictions; and
- Targeting particular industries or groups.

As such, the below response rejects some concepts, modifies others and accepts some concepts. However, in doing this, it is believed revenue neutrality is broadly satisfied, and the newly ineligible activities are the least value adding.

Principle 1 and Question 1 – Supporting Australian R&D

The concept of Australian based R&D activities being the dominant form of support should be maintained.

We agree with the commentary in the paper with respect to the irrelevance of the location of IP and retaining the tenure and substance of the “on own behalf” rules. Section 73B(9), and its objectives of only one claimant for an R&D activity, should be maintained.

It may also be necessary to provide clear commentary on the “on own behalf” provisions to differentiate between developments that do not have guaranteed returns, compared to developments that are speculative with the objective (but not the certainty) of market acceptance and success.

Principle 2, Principle 3 and Question 2 - The Tax Credit

We agree unused tax credits should be carried forward to offset future tax liabilities. It would be desirable and would enhance the new proposal if the credit could be offset against other taxes, such as GST. We note in principle 3 that the refundable credit can be used to offset GST.

With respect to question 2, the current deductible at 100% expenditure should retain its deductibility under the R&D tax mechanisms. There are occasions when this expenditure is not otherwise deductible.

Principle 4 - Administration

There is a need for the joint administrators of the R&D tax incentive to provide the guidance and certainty to claimants, as outlined in principle 4. This has been lacking to date, and where guidance is provided, it covers only the obvious situations. This is again evidenced in Appendix A to the consultation paper and the 3 examples cited. Despite this, the *Guide to the R&D Tax Concession* ("the Guide") is a useful tool, and should be maintained in a similar, regularly updated, format.

To be more useful, guidance should be given on the less obvious areas, both in the Guide and in new avenues. One suggestion would be to publish sanitized versions of actual reviews by AusIndustry, similar to ATO interpretative decisions (ATOIDs).

There is already a pre-registration process for R&D activity available to provide certainty to claimants. However, we regard the lack of timeliness with this process to be inhibiting in its use. We would favour an overhaul of this process to make it timely and less onerous. Alternatively, a variant of this would be to allow a private ruling process, similar to the ATO processes, however, we would again suggest any ruling process be as real time as possible, as such guidance is often needed at a juncture when time critical investment decisions are being made.

Principle 5

We agree with the additionality test, however, propose to embed the concept in a broad sense. We see this broad concept as difficult to legislate on a conceptual level, and have concerns that its application will unduly require companies to demonstrate they would have not undertaken certain activities. It is not desirable to have a test that requires you to prove the negative.

Similarly, the spillovers concept is difficult to legislate and administer, and this is highlighted at paragraph 49. It is also unclear as to what would constitute a spill over under the concessional program. The principle of supporting only Australian based activity, and associated provisions around ensuring that R&D results are exploited for the benefit of the Australian economy, are current and effective ways to promote local R&D and the consequential benefits that arise.

Principle 6 - Innovation and high levels of technical risk

In principle 6 the Government is suggesting that a Core R&D activity will be required to contain both innovation and high levels of technical risk. The principle argument put forward for this change from the previous "or" test is that the compounding phrase will better delineate R&D that is deserving of a subsidy.

We submit there are 5 reasons to reject this proposal.

Firstly, the idea of denying a subsidy for activities which contain innovation and some level of technical risk (other than high) seems counter to the analysis and subsequent publications released by the Department of Innovation, Industry, Science and Research in 2009. On 12 May 2009, the Government outlined its innovation agenda for Australia over the next decade in *Powering Ideas: An Innovation Agenda for the 21st Century*² ('the Innovation Agenda report'). In this document innovation is frequently referred to as the key to advancements in productivity growth and competitiveness as well as critical to lifting per capita incomes in Australia. This report also highlights the impact of innovation pipelines being shut down and the undesirable results that follow.

We agree with the Innovation Agenda report in that innovation is a key component to securing growth and competitiveness and innovative (but not technically risky) activities in an R&D context should attract a subsidy in their own right. In this way entrepreneurial innovators will be rewarded and the R&D tax credit may present an incentive for more organisations to adopt innovation. This would cover those situations in which basic or applied research yields an innovation discovery, yet has not had to overcome any particular technical risks, as discussed in detail below.

Secondly, the concepts of innovation and technical risk have been some of the most subjective areas of this law. It is often difficult to clearly identify both elements, but it is easier for the claimants, the regulators and the courts to be comfortable that at least one element is present.

As such, the "or" test (that is, looking to innovation or high levels of technical risk) is more likely to provide certainty and clarity than the "and" test, not least of all because 23 years of history, experience and case law supports this. In our experience of AusIndustry assessments, never has an assessor conceded both innovation and technical risk existed. It is true that inherently the assessor knows that only one element is necessary, and so understands there is little consequence in not accepting both is evident, however, it is still a considerably higher element of burden on the applicant to be able to satisfy both tests.

Thirdly, *venturousaustralia*³, the report by the Review of Australia's National Innovation System chaired by Dr. Terry Cutler, did not highlight the current "or" test as being the source of concern with allowing low value R&D access to the concession. Rather, the report was specific and highlighted:

- "aggressive use of the R&D tax concession to make claims for a very large share of expenditure in large one-off projects like mines and civil engineering" [page 109, *venturousaustralia*]. ;
- Allowing, once an element of R&D was identified, to "claim as much as 80% or more of all expenditure elements in the project" [page 109, *venturousaustralia*]. ; and
- "it is clear that such 'whole of mine' claims are gaining for themselves a degree of support disproportionate to the benefits" [page 109, *venturousaustralia*].

Although we take issue with some industry specific aspects to Dr Cutler's comments, it would appear critical that specific amendments to address the areas of low value-adding R&D would be

² http://www.innovation.gov.au/innovationreview/Documents/PoweringIdeas_fullreport.pdf

³ „Venturous Australia – building strength in innovation, an overview" by the Review of Australia's National Innovation System, released on 9 September 2008 - Source: <http://www.innovation.gov.au/innovationreview/Pages/home.aspx>

preferred over a more general “and” test. Indeed, Dr Cutler highlighted that the very areas of concern were both “new and technically risky” [page 109, *venturousaustralia*]. One could conclude from this that the “and” test will not necessarily address the only real concerns raised by *venturousaustralia*.

Fourthly, and contrary to some views expressed through the public consultation process, the “and” test would limit higher value R&D, and still permit lower value R&D. We will discuss later at Appendix 1 through examples, how high value R&D has moments of brilliance (innovation) followed generally by years of thorough systematic, investigative and experimental (SIE) activity to overcome the many technical problems faced in bringing brilliance to a sustainable and successful commercial reality. Such momentary innovation in an R&D project lifecycle does not sit well with an assessment process linked more to activity based assessment (and not viewed necessarily as a whole project). It maybe possible to interpret the current legislation such that moments of brilliance can be tied forward to current activity efforts around eliminating high levels of technical risk. However, our practical experience in AusIndustry review situations suggest that, if the “and” test is introduced, assessors will want to see both elements in every core activity claimed (and not on an overall project). This is a key practical difficulty that we see as problematic with the “and” test.

Alternatively, we also highlight in Appendix 1, how some high value R&D will be innovative, but not necessarily satisfy high levels of technical risk.

Lastly, and probably most importantly, the reduction in support will be dramatic and severely limit the amount of R&D claimed, for many of the reasons outlined above. We submit the “and” test will result in far more R&D activity being ineligible for the R&D tax incentive than envisaged by the consultation paper. The “and” test will grossly exceed the government’s objective of revenue neutrality, and should be rejected as both not meeting this objective and not discretely addressing the concerns of Dr Cutler.

Principle 7 and Question 4 - Supporting Activities

We submit that the *venturousaustralia* report highlighted that broadly the production phase of company operations can cause most concern with disproportionate beneficial claims. It would appear consistent with the report that it is this area where limitation in definition should be centred.

The consultative paper also comments on this point at paragraph 57, highlighting the exacerbation in the quantum of claims comes when commercial activity is claimed as a supporting activity. We submit this is the area to concentrate in the tightening process because:

- It, at times, has represented the area of high value claims. Following on from this, it alone could provide the revenue return needed to fund the savings needed;
- It predominantly will be an area of low-value adding R&D;
- It can help embed the concept of additionality; and
- It was the area most identified by *venturousaustralia* as a continuing threat to large-scale revenue risk.

Question 4 follows on from this discussion, addressing concerns around supporting activities; and asks whether such expenditure should:

- (a) be capped as a proportion of expenditure on core R&D?
- (b) only be eligible where they are for the sole purpose of supporting core R&D activity?

- (c) exclude production activities or dual role activities?
- (d) only be eligible on a net expenditure basis?
- (e) attract a lower rate of assistance than core R&D?

However, options (a), (b) and (e) are less targeted to this commercial or production activity than (c) and (d) in their application. We also oppose options (a) and (e) on a secondary level, because they greatly increase the complexity in expenditure reporting that challenges accounting systems. We discuss this later in this response and at Appendix 3.

Venturousaustralia and the consultation paper highlighted these particular areas of concern with supporting activities, and we submit it is far more desirable to focus the narrowing of the definition wherever possible to address particular concerns.

As such, we submit any narrowing should use a (d) style mechanism, but in terms of the legislation drafting, we would re-characterise (d) as expanding and deepening the current feedstock provisions.

Before exploring this option further, we again question whether the removal of 175% premium and international 175% has in itself funded the expansionary aspects of the proposed changes, and so ultimately question the need for any change.

However, and if required, we favour modifying the feedstock provisions over any other option in question 4 because it:

- mirrors the additionality concepts imbedded in the consultative paper;
- is consistent with the idea that reward should be given for those activities beyond "normal" commercial production;
- supports companies when they need it most - before revenue streams are received from particular R&D endeavours; and
- builds on the feedstock provisions already existing.

We support the comments made in paragraphs 66 - 68, but not paragraph 69. Paragraph 66 highlights the need to have some form of direct nexus, that is, the provisions shouldn't be written so broadly as to capture any future feedstock output from prospective R&D activity now. As such, we reject the "total recoupment" approach of paragraph 69.

This expansion of the feedstock provisions would specifically exclude activity unrelated or distant to the inputs. The project lifecycle at Appendix 2 highlights these areas - namely pre-feasibility activity prior to financial investment decision, commissioning activity, and dedicated R&D facilities or the like.

From the attached typical project lifecycle, there are clearly non-production aspects to company operations, namely pre-production activity and dedicated R&D and other facilities. By their very nature, these activities are beyond normal commercial production. It would be inappropriate to subject these activities to "additionality" concepts, simply because they are already "additional" by their very nature. It would be unfortunate to have a situation where existing R&D facilities, dedicated to R&D and not related directly with production, are considered non-additional, because the company has always had them. Similarly, pre-production activity often has R&D elements embedded, mainly to reduce the inherent technical challenges, so as to allow companies to make investment decisions with as much certainty as possible and as free as possible of major technical

challenges. Again, the company often undertakes these activities, but it is wrong to suggest this is not additional to standard production operations.

We submit the theme of the consultative paper would support such specific exclusions from amendments restricting the R&D concessions (either by legislation or specific example in the EM, but preferably both). However, it is important to clearly exclude these non-commercial, R&D style activities, from any broad based restriction on feedstock eligibility.

In terms of protecting revenue, these areas would typically represent less than 20% of project expenditure, often as low as 5%.

Conceptually, the legislation should ensure full support of early stage project development or activity undertaken by R&D centres and the like, without imposing limitations upon supporting activities. This would provide high-value add to the areas that need it, whilst still providing limitations to the definition to most of industry operations.

In terms of what could be included under a broader feedstock definition, this would fall under 2 categories:

- Define the current feedstock definition to include more or all expenditure on inputs (subject to the above); and
- Broaden the current feedstock provisions to be more explicit in the outputs that fall under the provisions.

The extent of the expansion of the feedstock definition (both for activity and expenditure classification) will be a function of the revenue needed to pay for other aspects of the tax concession overhaul (if any).

Question 4 - Accounting for core and supporting activity.

Implicit in question 4 (a) and (e) is the need to separately account for expenditures associated with core and supporting activity.

This separate accounting is also suggested at paragraph 47 of the consultative paper, and has previously been raised in proposed changes to R&D Plan guidelines.

However, the differentiation of core and supporting activity expenditure is not currently undertaken by the majority of company accounting systems. Appendix 3 highlights the real cost of compliance of such a requirement, and argues the benefit to the resulting R&D is nil.

Furthermore, the increased cost of administration both on the regulatory and claimant viewpoint is unwarranted, unnecessary and adds nothing to the value of the concession.

Question 5 - Excluded Activities

Other than the possible expansive definition of the feedstock provisions discussed above, we see no need to further exclude certain activities in seeking to achieve the broad objectives of the reform, mentioned at the start of this submission.

The excluded activities listed in Appendix C of the consultation paper have been appropriate over the years, and provide limitations desirable in an incentive to R&D that the tax concession represents. Given the expanded limitations proposed for feedstock, it is our contention that further exclusions are not necessary for revenue saving reasons.

Moreover, we would argue many of the excluded core activities are appropriate, directly supporting activities, without which core activity could simply not proceed. In particular, necessary data gathering essential to conduct core experimental activity is a non-production, important aspect of the currently claimed activities.

Software & Question 6

We agree with the Consultation Paper's assessment in relation to Question 6 that the treatment of software development in relation to R&D tax claims is a complex area. This complexity is compounded by the fact that the landscape in software development moves rapidly irrespective of whether the software development activity results in a product in its own right or enables a new or improved product, process or service.

Given the prevalence of software as a product or an enabler throughout the economy and across all industry sectors, we support the removal of the multiple sale test in determining eligibility for software projects as it is quite clearly an outdated articulation of policy for the 21st century. In that regard, software projects should be considered like any other project or industry sector, and should not be subject to specific requirements such as the multiple sale test.

Our view extends to treating the eligibility of software-related R&D activities in exactly the same manner as all other R&D. We do not see a valid reason for subjecting software development activities to a different definition. Furthermore, we strongly recommend against the exclusion of certain activities simply on an assessment of the desired outcome. For example, whilst we agree that large-scale ERP implementations, where the basic work is predominantly customisation and/or configuration of ERP software, is less likely to meet the definition of eligible R&D activities, we also recognise that in some instances this type of activity might result in eligible R&D activities. The definition of eligible R&D activities, therefore, should remain as the primary means by which claimants can self assess, and government assessors review, such claims.

On the aspect of reviewing the UK model as one where software activities are defined, we would suggest caution should Australia seek to adopt its approach to software R&D based on the UK or other jurisdictions, in particular, to examples of what is considered likely or unlikely to qualify under paragraphs 76 and 77. The examples provided suggest high-end research activities and projects that are likely to be undertaken in academia and research institutions and do not properly consider the commercial application of software engineering and development, which would represent over 90% of software R&D tax claims. In commerce, companies are not likely to be engaged in the development of new operating systems or languages (unless their core business is in operating systems), nor is it likely that they are developing new encryption techniques (unless their core business is in encryption software).

However, innovation can come from the bringing together of existing concepts in new ways through applied software engineering that often involves innovation and/or high levels of technical risks with outcomes around new and improved processes (often through automation) and new products and services. Such R&D activities and projects will increasingly become both more prevalent and relevant in the new digital economy across all industry sectors. Such projects provide significant spillover effects and national benefits to Australia and should continue to be encouraged and strongly supported by the new scheme.

We provide 2 case studies to demonstrate our points above at Appendix 4.

Conclusions

We submit that the changes described above satisfy the objectives of revenue neutrality, and that the newly ineligible activities are the least value adding.

Our key recommended changes and comments are summarised as follows:

- The guiding policy objectives should be eliminating lower value-adding R&D, but only to the point of revenue neutrality. We do not possess detailed estimates of the cost of elements of the program, but wonder if the proposals are net revenue positive. We question whether the removal of 175% premium and international 175% has in itself funded the expansionary aspects of the proposed changes;
- We support the *Guide to the R&D Tax Concession* but would welcome expanded clarification of less obvious examples;
- We recommend the additionality test and spillovers concepts within the consultation paper be viewed as guiding principles, but not imbedded within legislation. We have highlighted in this paper use of this approach in some of our recommended changes;
- The concept of innovation “and” high levels of technical risk should be rejected, primarily because it will have a significantly negative impact beyond revenue neutrality and doesn’t target low value-adding R&D;
- In general, some of the lowest value-adding R&D can be found in the deficiencies of the current feedstock provisions. We recommend changes in this area, as an alternative to the suggestions at question 4; and
- We recommend the removal of the multiple sale test for software development and it being subject to the same definition of R&D as all other activities.

We both welcome the opportunity to make this submission, as well as welcome any further input should you wish to further discuss.

Appendix 1 – Case Studies against “and”

Generic Drugs: Innovation, but not high levels of technical risk

A growing number of Australian firms are engaged in activities that involve R&D to improve generic drugs or develop new improved chemical entities (“ICEs”). The companies that invest in R&D activities to create ICEs or super generic drugs often develop improved formulations of existing drugs, novel combinations of existing generic drugs or advanced delivery mechanisms for the drug. The work that is completed is novel and results in the company being able to secure intellectual property (IP) protection for its invention.

Australian biotechnology/pharmaceutical firms are being drawn to competing in the value added generic drug development field as the novel IP generated can be protected, the technical development is less risky and the time to market is much shorter than for the development of new chemical entities (NCEs). Although the ICE development path requires a host of SIE activities with varying levels of risk to bring the innovation to fruition, the nature of the development of ICEs may be considered by the industry as less technically risky than developing NCEs.

For these primary innovators introducing the “and” test will add an extra level of uncertainty as to whether a range of activities in the technical development path with ultimately qualify as a core activity. The “and” test has the ability to deny high end innovators access to the R&D tax credit.

Momentary Brilliance: High levels of technical risk, but only moments of innovation.

This case study has been sanitized, however represents a real fact set. This particular company has a famous history, starting with a brilliant invention that was recognised and received a number of innovation awards at the time. The awards were for innovation with respect to fundamental aspects of a particular industry. This was a radically different concept to the conventional thinking, and had the potential to reshape the fundamentals of the industry.

From these inventive early days, a dedicated company was established to exploit the innovation. The entity still exists nearly 40 years after this first moment of brilliance. Undoubtedly the awards were for the innovative design, and this sort of discovery captures the imagination and can provide great inspiration to many a budding inventor.

However, the following decades is a story of highs and lows as the company undertook the lengthy process of taking momentary brilliance to commercial success. This long process is heavy in SIE activity to overcome the vast variety of technical challenges and commercial hurdles that characterise the realities of commercialising innovation. The company has been a regular claimant of the R&D tax concession, as well as receiving R&D grant funding. However, rarely in those years would the innovation that started the company be replicated. Rather, in the subsequent years only activity to overcome high levels of technical risk was undertaken.

With an activity-based registration and eligibility process being the fundamental structure of the R&D tax concession, in this case, the “and” test would rarely be met in a given activity. However, the project as a whole would clearly have both. As such, activities would be subject to the challenge that they do not individually contain innovation and high levels of technical risk. Potentially, in the later years of this project, claims would be rejected by AusIndustry assessors as lacking both innovation and high levels of technical risk.

Appendix 2 – Feedstock excluded areas.

The table below maps the typical life cycle of project development. This can be applied to various industries, and demonstrates that in any industry, there is a period of higher risk early stage investment, and period of development or commissioning, and a period where revenues are generated through production, mining, manufacturing or the like.

Larger corporate entities will generally have a suite of such projects in a portfolio of investments. As such, different projects will be more or less likely to attract R&D support, depending on their point of development. However, most companies will have an element of R&D within some of their projects in any given year.

The non-shaded areas we submit should be specifically excluded from any broadened feedstock provisions, and the shaded areas should be eligible R&D activity, but subject to new, broader feedstock provisions as described in this paper.

This should be achieved with specific legislative provisions, and strengthened with appropriate Explanatory Memorandum detail and example.

Early Stage (Pre-Investment Decision)	Construct (Asset under construction)	Commission (Asset on the Asset Register)	Post Commissioning (Depreciating)
<ul style="list-style-type: none">➤ Fundamental technical uncertainty➤ No associated production Feasibility studies Conceptual design Pre-engineering Prototype design and testing	<ul style="list-style-type: none">➤ Project recognised on balance sheet as Work In Progress Detailed design Procure Construct	<ul style="list-style-type: none">➤ Commercially recognised and defined period Plant testing Systems testing Performance testing Trails	 Production Optimisation Debottlenecking
<div>R&D Centres</div> <div>Development Hubs</div> <div>Dedicated Engineering Teams</div>			

Appendix 3 – Increased complexity for accounting systems to differentiate core and supporting activity.

Modern accounting systems used by large companies can dissect expenditure data of a company in a number of different ways: so that finance functions can accurately report to shareholders, assess, manage and improve performance, and to provide data to a variety of regulatory authorities.

Generally expenditure for R&D tax concession purposes relies on activity based costing. This costing is also the style of report relied on by management to manage performance, and is reporting readily produced by accounting systems. This reporting needs to be modified in part by the tax function or their advisers to adapt for specific R&D rules, for example, partial R&D use of tax assets, however, is the core basis for R&D tax reporting.

Activity reporting generally falls into two categories:

- Stages of a manufacturing, building or mining process. Each stage is specifically allocated expenditure, mainly as a management tool to find efficiency and control costs; or
- Project cost coding. This relates to non-production activity, such as an R&D project, a pre-feasibility project, or a marketing program. These activities are captured at a management level to ensure compliance to budgets and to understand the cost of such initiatives. However, there would rarely be further division of expenditure at an activity level.

Driven by this accounting approach, staff understand and regularly time write to either production phases or non-production projects. They rarely would break their time beyond this, say into core and supporting definitions found in the tax legislation. Similarly, external costs such as consultants and consumables would not be further divided. Lastly, tax fixed asset registers would allocate depreciation to production and projects, but not beyond into sub-activities based on tax law.

Although modern accounting systems could differentiate core and supporting activity, the entire corporate accounting functions do not culturally do this, mainly for the lack of need and the irrelevance to their company and their specific R&D needs. The difficulties in imposing such a systemic change are:

- The general working populace, and specifically R&D, engineering and technical staff, would need to have expertise in the subtlety of definitional differences between core and supporting activity. As we know, the same activity can be core for one R&D project, but supporting for another project. The degree of expertise and understanding is not normally possessed by non-tax professionals;
- Accounting and support personal would also need to understand the difference, to allow for correct data entry and data analysis;
- Contractors and sub-contractors would need to provide more detailed invoices to allow the mapping of their activity to the principles R&D, and would also need the requisite training; and
- Accounting systems, although able, would still need to be process improved.

Accounting systems naturally report on costs in relation to projects for non-production activities. Capturing eligible R&D expenditure on a project basis sits naturally with this. Further dividing this expenditure into subtle and often complex divisions based on tax law does not. It is a practical complexity that is real, highly expensive and adds no benefit to the R&D output.

In addition to imposing additional expense upon large companies using sophisticated accounting systems, the requirement to account separately for core and supporting activity will create administrative and financial barriers to small companies. Companies who do not have the complex accounting systems and process will find the changes necessary to allow this level of reporting to be cost prohibitive which may prove to be a deterrent to small to medium enterprises accessing the tax credit, possibly exponentially larger in effect than for larger companies.

Appendix 4 - Software Case Studies.

Case study 1 - A large corporate would like to improve its knowledge of what its customers want. It embarks on a project to develop new knowledge and insights that is harnessed from the existing corporate knowledge. Because data is spread out over multiple systems and databases in various metadata formats, the company develops new data extraction techniques and algorithms that are innovative in the IT industry. A prototype is then developed and tested using open source technologies. Subsequently, it is made available via the public domain in various open source forum (not the full application but the concepts). The prototype is then further developed to the specific company problem and undergoes a series of in-house testing, feedback and modification. After 12 months of research and development, the project is deemed a success. Staff and contractors involved in the project may move on to other organisations and the knowledge is passed on creating significant spillover effects and benefits to the advancement of the IT industry as a whole.

Case study 2 - A large corporate would like to replace its general ledger system with a new ERP system. In undertaking this project, the company decides to also undertake business process improvement activities so as to streamline its inventory management activities, improve operational efficiencies, improve staff productivity and drive down cost per transaction. This system is used for internal back office activities only. The redesigned processes are not innovative, however, the current system architecture is not flexible enough to process the increased volume as a result of the business process as the system is "not configurable" to the company's new requirements. As a result, the company develops its own software (which is innovative) to solve this problem. (Note that the company could have replaced its entire IT infrastructure to the tune of millions of dollars but it was not commercially feasible to do so). This was also recognised by the ERP vendor as being innovative. Results are then published in IT industry publications and the company receives an industry innovation award for its role in successfully leading a large scale IT transformation project. Staff and contractors involved in the project may move on to other organisations and the knowledge is passed on creating significant spillover effects and benefits to the advancement of the IT industry as a whole.

In both cases above, under current laws, it is likely that both projects would be deemed ineligible as they would fail the multiple sale intention test. However, in building on the concept of additionality proposed by this paper, we would suggest that both projects, either fully or partially, would satisfy the R&D requirements. In Case 1, all associated core and supporting activities could be eligible. In Case 2, we would suggest that the implementation of a general ledger ERP system would probably not satisfy the R&D definition as it is a straight forward configuration of a known product, however, the work undertaken in developing a solution to solve an industry problem would qualify. In both cases, we recognise that the development of software is a complex area and it is sometimes difficult to draw the line as to where R&D starts and where it finishes.

We would welcome further guidance in the assessment of such projects.