

**The new research and development tax incentive –
exposure draft legislation and explanatory materials**

Submission by Ernst & Young

5 February 2010

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

Dear Sir/Madam

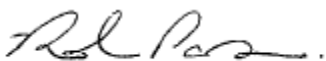
Response to "The new research and development tax incentive - exposure draft legislation and explanatory materials"

Ernst & Young is pleased to make this submission in response to the "The new research and development tax incentive - the exposure draft legislation (ED) and explanatory materials (EM)" regarding the proposed legislation for the new research and development (R&D) incentive to be introduced from 1 July 2010.

We submit that the draft R&D tax credit legislation does not accomplish government policy intentions of encouraging and supporting R&D activity whilst achieving revenue neutrality through the elimination of low value R&D claims.

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 faithfully

A handwritten signature in dark ink, appearing to read 'Robin Parsons'.

Robin Parsons
Partner

Object of The Division

We note that the object as outlined in the draft R&D tax credit legislation deviates significantly from the object of the existing R&D tax legislation.

The object of the existing scheme is written to encourage and incentivise the development of innovative products, processes and services through a research and development endeavour undertaken by Australian companies. Further to this the existing object promotes an environment that is conducive to increased commercialisation of new processes and technologies. In short, the existing object appears to be suited to fostering a culture of innovation in Australia and in line with the current government policy aim of increasing the number of businesses investing in R&D as outlined in numerous government communications. 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*. The policy document clearly outlined that:

“the Australian Government will aim to increase the number of businesses investing in R&D over time – fuelled by the introduction of a new R&D Tax Credit, which will double the tax incentive for small-business R&D (restoring it to pre-1996 levels), and lift the base tax incentive for R&D by larger firms.”¹

The object of the proposed R&D tax credit provides a stark contrast to the existing object and its tone is one which is out of step with the current Australian Government policy of increasing R&D activity. The new object sets a tone of limitation through multiple layers of barriers rather than one of encouraging business to view the tax credit scheme as a mechanism that encourages business investment in innovation. It is our view that the existing R&D tax scheme's object is better suited to match the policy and intent of the government to support innovation in Australia. To this end we would suggest that the draft object be reviewed and re-drafted. One suggestion is “The object of this Division is to encourage industry to conduct R&D activities and promote innovation in Australian businesses.”

Revenue Neutrality

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.

Senator Carr has recently re-stated that a “key design feature”² of the new R&D tax credit is revenue neutrality. Upon reviewing the draft legislation, it is our view that this key design feature will not be met. We outline below the reasons why this feature will not be met as a consequence of the draft legislation's design:

- The requirement for core activities to be both considerably novel and involve high levels of technical risk, along with tighter definitions around these terms, will significantly reduce the amount of core R&D that will be deemed eligible and will also exclude organisations undertaking R&D to claim at all. This requirement is in contrast to the current "or" test with more generous definitions incentivising high risk R&D activity or innovative activity.

¹ Department of Innovation, Industry, Science and Research 2009 'Powering Ideas: An Innovation Agenda for the 21st Century' p.6

² Roberts, P 'It's a double cross for R&D' The Australian Financial Review, 1 February 2010, p.53

- The narrowing of eligible supporting activities to activities where the dominant purpose is supporting R&D activities, combined with additions to the list of exclusions (including software development), will limit the extent of supporting activity that can be claimed.
- The far greater exclusions of feedstock from R&D claims will greatly reduce support for companies needing to test and trial invention in a production or mine site setting. Some expenditure is quarantined from the feedstock rules however this currently only includes conceptual design activity.
- Removal of the 175% incremental deduction that is currently available to claimants with a continuous three year claim history will impact the level of claims being made. The 175% premium concession is more generous than the 45% R&D tax credit that is equivalent to a 150% R&D tax concession.
- Tightening of expenditure not at risk will restrict ability of contractors to claim the proposed tax credit where an expectation of economic return is anticipated irrespective of the level of innovation and technical risk faced. This contradicts a recent ruling issued by the ATO.

For the reasons outlined above, the acceptance of the draft R&D tax credit legislation in its current form would most likely result in a revenue positive outcome.

Productivity and Business Expenditure on Research and Development (BERD)

Australia's performance in relation to business expenditure on R&D over the past decade has been outpaced by the rest of the world. This fact as well as the Commonwealth's falling expenditure on innovation as a share of GDP has been linked to Australia's relatively weak performance in productivity growth and competitiveness when compared to the rest of the world³. In one of the government's primary policy communication documents relating to innovation, *Powering Ideas: An Innovation Agenda for the 21st Century*, it has been acknowledged that a sustained neglect of policy has resulted in Australia's relatively poor innovation performance leading to less than desirable outcomes in Australian competitiveness and productivity.

The new R&D tax credit was put forward as one pillar of the Australian Government's policy response to the challenge of overcoming Australia's less than desirable performance in innovation and, by extension, productivity growth. The policy response can be viewed as generally positive in the sense that the level of incentive being offered to both small and large firms was to be increased. In the same policy communication the government communicated that a tightening of the definition of R&D and the eligibility criteria for the R&D tax credit would be enacted to focus the incentive on "genuine" R&D. However, even with the proposed tightening and refocus, the policy intent clearly outlines an increasing level of support for the small and medium business sector engaged in R&D and a revenue neutral design feature.

In our view the current manifestation of the proposed new R&D tax credit legislation represents a general reduction in support for businesses undertaking R&D and therefore directly contradicts the government's policy aim of overcoming the previous years of innovation policy neglect culminating in lower than optimal performance in Australian productivity.

We view the ED's compounding limitations (tightening the definition of R&D activity as well as the eligible expenditure classes associated with the activity) as the singular most pressing need to address in order to alleviate a negative impact on BERD in Australia.

³ Department of Innovation, Industry, Science and Research 2009 'Powering Ideas: An Innovation Agenda for the 21st Century' p.2
Submission to draft R&D tax incentive legislation

It is the government's contention that the tax credit is expected to induce more R&D for several reasons⁴ including shifting support in favour of small and medium sized businesses. Our view is that the exposure draft legislation in its present form would fail to meet this policy assertion. Specifically the exposure draft legislation design fails to take into account the mode by which small and medium enterprises undertake R&D in Australia. An example of this can be seen through the introduction of the dominant purpose test to supporting R&D activities. This change can penalise the effective use of scarce resources available to small and medium enterprises for multiple purposes. This change also seems at odds with government commentary where it was recognised that:

*"firm-based [R&D tax credit] incentives increase innovation, especially in businesses that face financial constraints – and that includes many smaller firms"*⁵.

Why deny small and medium enterprises from accessing R&D tax benefits because of their requirement to efficiently use their resources?

The introduction of the R&D tax concession in Australia coincided with a significant increase in business expenditure on R&D however Australia still ranks below the OECD average as a proportion of GDP⁶. While the government's policy intent has been clearly communicated as one of supporting innovation and R&D, the instrument to execute this policy intent, the draft R&D tax credit legislation, will fall short of realising the government's aims. It is for this reason that we are of the opinion that, in its current form, the R&D tax credit would result in a decline in BERD and as a consequence the flow on effects may be an increased difficulty in arresting productivity decline in Australia.

Tightening of Core R&D Activity Definition

Section 355-25(1) of the draft legislation defines *Core R&D activities*:

"Core R&D activities are experimental activities that:

- (a) are systematic and investigative; and*
- (b) involve considerable novelty and high levels of technical risk; and*
- (c) are conducted for the purpose of acquiring new knowledge or information, including knowledge or information about the creation of new knowledge or information, including knowledge or information about the creation of new or improved materials, products, devices, processes or services;*

other than activities mentioned in subsection 355-35(2) (excluded activities)."

The consultation paper released in September 2009, argued the merits of a revised definition for eligible R&D activity that, in its opinion, is: "better aligned with the Frascati Manual and international practice. Currently Australia has one of the broadest definitions of R&D (when compared to the Frascati Manual). Many countries, including the United Kingdom and the United States, take a narrower approach".

Whilst the factual accuracy of the above statement could be argued on a number of bases, including citing jurisdictions where a broader approach is taken, there are more significant issues with the draft definition of eligible R&D activities when compared with the existing legislation and consultation paper.

⁴ Department of Innovation, Industry, Science and Research 2009 'Powering Ideas: An Innovation Agenda for the 21st Century' p.47

⁵ Department of Innovation, Industry, Science and Research 2009 'Powering Ideas: An Innovation Agenda for the 21st Century' p.45

⁶ Department of Innovation, Industry, Science and Research 2009 'Powering Ideas: An Innovation Agenda for the 21st Century' p.45

The consultation paper contained the following suggested definition for core R&D activities:

“Eligible R&D activity will be defined as systematic, investigative and experimental activity that:
(a) involves both innovation and high levels of technical risk; and
(b) is for the purpose of producing new knowledge or improvements”.

The consultation paper goes on to explain that the definition of core R&D will not alter the systematic, investigation and experimental (SIE) or purpose requirements.

We reiterate our following comments in our submission dated 26 October 2009 to the consultation paper:

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 highlighted⁷:

- “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”;
- Allowing, once an element of R&D was identified, to “claim as much as 80% or more of all expenditure elements in the project”; and
- “it is clear that such ‘whole of mine’ claims are gaining for themselves a degree of support disproportionate to the benefits”.

In our view the draft legislation goes significantly further than introducing ‘and’ to the existing definition of innovation or high levels of technical risk, as suggested during the consultation process. Please refer to Appendix 1, 2 and 3 for examples where eligible R&D would not occur under this proposed definition.

It appears the government is using the perceived sins of a few to punish the vast majority of companies who see the R&D incentive as a means of offsetting a small part of the risk associated with developing new products and processes in a competitive global market.

The draft legislation introduces a number of new or significantly revised tests which create a series of compounding hurdles that will be required to be met before a company can access the R&D tax credit. These include SIE, considerable novelty and the purpose of knowledge/improvements (PKI) test.

The EM argues the only R&D that is worthy of support is that which might not have been undertaken in the absence of the R&D tax credit, and that the ‘R&D tax incentive is not intended as a subsidy for innovation in general’⁸.

This appears to require a company to have a mind to the R&D tax credit as potentially being the determining factor in whether it will undertake novel activities that involve high levels of technical risk.

It is highly unlikely a tax credit with a headline rate of 10% to 15%, that uses concepts and definitions that are based in pure research and academia, is difficult to interpret and has high compliance costs, will be a sufficient incentive for a company to justify proceeding with a project involving innovation or technical uncertainty.

⁷ Department of Innovation, Industry, Science and Research 2009, ‘Venturous Australia - building strength in innovation’ p.109

⁸ The Treasury, ‘Exposure Draft- Tax Laws Amendment (Research and Development) Bill 2010 - Explanatory Materials’ para 2.7

In the event the R&D tax credit is the reason a project goes ahead, what is disappointing is the fact that the draft legislation introduces a series of non commercial, compounding and complex requirements that appear to be designed to prevent genuine assistance.

As a consequence, a company that determines it meets the proposed definition will find that individually or in combination, the dominant (or sole) purpose, feedstock or software tests will leave them with little or no financial benefit from accessing the R&D tax credit.

Narrowing of Supporting R&D Activities

Dominant Purpose

The draft R&D legislation puts forward the concept of dominant purpose in its definition of supporting R&D activities in s355-35(1):

“Supporting R&D activities are activities undertaken for the dominant purpose of supporting core R&D activities”.

This is in contrast to the current legislation where supporting activities are eligible where they are carried on for a purpose directly related to the carrying on of core activities. It is also in contrast to other legislation with similar R&D provisions.

There is a practical business reality which is not respected with the concept of dominant purpose. Where possible, businesses often undertake tasks for more than one purpose to maximize the return on scarce resources. For smaller entities, the requirement to maximize outcomes from the one economic activity is part of daily business.

For example, where a test of a new product or device is trialed in a production environment, production teams will endeavour to maintain (even at reduced levels), production operations whilst R&D functions work with them to test new concepts. This not only allows production to be maintained and operations to not be unduly disrupted, it makes good economic sense. Where possible, a company would avoid a shut-down of operations to allow a specific R&D trial. This dual purpose approach would have difficulty satisfying the dominant purpose test, and there would be continued uncertainty and confusion about the application of the dominant purpose requirement. Inevitably, there would be a need for additional (and unnecessary) documentation counter to the business process commonly employed to ensure R&D claims are legitimately substantiated around the concept of dominant purpose.

Additionally, it is often important that new concepts are trialed in full scale, production environments. Researchers need to understand the realities of the challenges of their new ideas, and do not want to test in isolation. It is important concepts are tested in production environments.

The dominant test is not sympathetic to R&D undertaken in a production trial. Rather, it favours the more pure research typically seen in a university or CSIRO setting, where production trials are far less common, and research is done in isolation. The dominant purpose concept does not allow for the commercial and R&D realities that companies operate under and in fact, penalizes good business practice and is commercially counter-intuitive.

We do not believe it is the policy intent for such production trials to be excluded from eligible R&D. Rather, it maybe the intent to net outputs off against R&D claims, which is achieved in the subsequent feedstock provisions.

Rather, the supporting provisions should largely read as the current legislation. We do sympathise with the concern as to the extent of some R&D supporting activities when compared to the extent of the related core activity. The extent of supporting activities should be commensurate with the related core activities but this concept is not reflected in the draft legislation as it stands, rather it greatly reduces eligible support.

Extension of Exclusion List to Supporting Activities

The extension of the exclusion list to supporting activities is a compounding factor which coupled with the more stringent eligibility requirements, is a disincentive for companies to access the R&D tax credit.

Other than a cost reduction measure, the activities listed in the exclusion list could be extended to include value adding, necessary supporting activities to core activities, and of no lesser importance than other categories. This tightening will result in an indiscriminant reduction in the value of R&D tax credit that can be accessed.

Additionally, the exclusion list has been extended by sub-sections 355-35(o) - 355-35(r). These are specific software provisions that unfairly target the IT industry, with no policy explanation as to why this industry is not deserving of support. The effect on the IT industry is explained further below.

Appendix 1, 2 and 3 demonstrate how R&D projects with high spillover potential are affected by these proposed supporting activity limitations.

Expenditure Not At Risk

The expenditure not at risk provisions under section 355-405 of the draft legislation, seek to emulate and expand on the previous provisions provided under s 73CA of the current legislation⁹.

The proposed rules seek to prevent claimants making R&D claims on expenditure where consideration is received as a direct or indirect result of expenditure on R&D. The provisions are designed to apply to a very broad range of scenarios. This may well prevent claims from entities who conduct R&D and are compensated for it, or likewise where the claimant (or its associates) receives other types of compensation for the R&D conducted, such as a payment under a warranty, or insurance policy.

Augmented Feedstock Provisions

Existing Rules & Limitations

The existing feedstock provisions apply where goods/materials are produced/acquired and are the subject of processing/transformation in R&D activities. They operate to reduce the claim for expenditure on the inputs by the value of the outputs produced. Limitations on the current feedstock rules are applied both in terms of the input costs that the feedstock provisions apply to (i.e. only input costs for items to be subject to processing/ transformation), and the outputs (only the amounts that are produced in that year of income).

⁹ Which was originally introduced to deal with Syndication R&D claims and guaranteed returns to investors.

Overall Object

It is clear that under the proposed feedstock provisions in section 355-450, the rules have been significantly expanded with the objective of eliminating R&D support for activities which are already profitable¹⁰. On further analysis, this objective is erroneous, contradicts the stated government innovation policy, and takes an overly simplistic view of business R&D. In any case, as currently drafted, the proposed legislation is far too broad to achieve this objective, extremely complicated to administer, and will likely not lead to the outcome desired.

Punishing Success- An R&D Incentive for Failure?

It is clear that for an innovation policy to be successful, it cannot and should not punish successful R&D outcomes. Yet, this is exactly what the proposed broader feedstock rules will do: where a real-world R&D project is successful there is likely to always be valuable outcomes (other than knowledge or information).

Indeed these proposed provisions seem to be directly at odds with the objective of “additionality” that is sought as part of the broader benefits of the innovation policy. The likely “additional” benefits to R&D may well be outcomes other than knowledge or information- for example, improved products, new discoveries that have the benefit of enhancing industry-wide efficiencies, non-tangible benefits, safety, environmental and other benefits. These are potentially targeted under these proposed rules.

Rules are too Broad- Distant Nexus with Activity and Time

1. Outputs- Nexus

The nexus between the R&D activity and the output under the proposed feedstock provisions is extremely broad- any output could be captured (other than information and knowledge). The output may only have a minor or indirect nexus to the R&D activity that generates it, but it could still be captured¹¹.

2. Outputs- Intangibles

The proposed feedstock provisions apply to **any** output produced. This could potentially include intangible outputs (other than information or knowledge), such as goodwill and intellectual property. It is quite possible, for example, for a direct intangible output of the R&D to be an enhancement of the companies’ goodwill and brand value.

These intangible outputs are hard to assign a market value to, and are an ancillary benefit that is received by the company.

3. Time

The proposed rules do not have any time limits; thus any output that is produced by the R&D at any time, even if produced many years later, could potentially be subject to the feedstock provisions. For example, where a new drug compound is developed, but the product containing the new compound is only manufactured after five years (a typical lead time), the output that is subject to the feedstock provision may only be produced many years after the R&D is conducted.

This creates difficulty in the application of the rules both legally and practically. The proposed feedstock provisions could apply even where the output is extremely distant and unlikely. And

¹⁰The Treasury, ‘Exposure Draft- Tax Laws Amendment (Research and Development) Bill 2010 - Explanatory Materials’ para 2.51

¹¹ To be subject to the proposed feedstock provisions the output need only be “produced by the R&D activities”.

should these be successful then the feedstock provisions would act to reduce the claim (i.e. as a retrospective penalty on R&D success).

From a practical perspective it is difficult to go back and calculate a feedstock adjustment amount- working out the amount of the past R&D deduction that relates to the feedstock output (possibly many years later). The process of actually going back and adjusting the R&D tax credit amount, many years after the event, may also not be practical. Issues such as inflation and market value adjustments (assigned vs actual) further complicate the matter and diminish the attractiveness of the R&D tax credit.

Proposed Solution

The proposed feedstock rules are too indiscriminate and broad and are unlikely to provide effect to the government's stated innovation policy. It is important to remember that these provisions only apply after the new (tougher) criteria for the R&D tax credit are met. The example in Appendix 2 highlight how the feedstock provisions will considerably lower the support companies will receive and reduce the incentive for businesses to undertake high value R&D projects.

It is our view that the proposed strict application of the integrity measures under subdivision 355-F would likely achieve the objectives of restricting claims relating to situations where there is compensation for any R&D conducted or "other" (unwarranted) benefits received. In particular the proposed "expenditure not at risk" provisions (section 355-405) are likely to limit claims where a claimant would otherwise receive a benefit for an R&D activity.

If the current wording is retained (which is not our preference), for the new feedstock provisions, we suggest the following modifications:

a) More Guidance in Determining Market Value

The new requirement to determine a "market value" will add complexity into the production chain where a value may be difficult to discern. We suggest that the emphasis be put on actual amounts received or likely to be received (except for non-arms length transactions).

b) Extension of Quarantined Expenditure Types

Certain expenditures will be "quarantined" from the feedstock calculations; the list of quarantined expenditures should be extended to include the following activities which provide high spillover benefits and should be supported:

- pre-feasibility and feasibility activity/ design work undertaken prior to financial investment decision - probably captured under "conceptual design", clarify to include these phases of a project which are R&D intensive and have high spillover benefits;
- salary expenditure- certain types of expenditure have the potential to provide higher spillover and other benefits. Expenditure on employing R&D staff provides a spillover in training, knowledge, productivity and employment;
- commissioning activity- heavily focused on the practical aspects of utilising the other parts of the R&D process;
- overhead expenditure- overhead expenditure is an important category that exists in most other jurisdictions around the world to allow a portion of expenditure that relates to R&D, but would otherwise be difficult to identify, to be claimed; and
- development and testing of prototypes- critical stage in the R&D process, with significant spillovers. Success in R&D cannot be achieved without this.

c) *Intangible Outputs*

As discussed above- these should be excluded and only tangible outputs included.

d) *Limitations on Time*

We suggest an approach consistent with the current provisions- i.e. the feedstock provisions only apply to outputs generated in the year of income in which the R&D is conducted. This will still capture production-type R&D, and outputs that result from shorter term R&D (which may often have a lower value add). This eliminates issues associated with the practicalities of clawing back from prior years or having to use a trading stock type approach¹².

Impacts to the Software Industry

It was never the policy intention for the R&D tax credit to be accessed for business-as-usual IT system upgrades, however, it is our view that the new policies for software eligibility have gone too far to legislate for the above case and as a result has a 'compounding effect' in its application. Unlike any other type of project, for a software activity to be eligible for the R&D tax credit under the new proposed rules, it **must** now satisfy all the following:

1. the core activity must now satisfy a tighter R&D definition (the 'and' test) (section 355-25);
2. the supporting activities must have a dominant purpose to supporting the core activity (section 355-35(1));
3. it must make a commercial return from the direct supply to customers (the new multisale test) (section 355-35(2)(o)), and;
4. it cannot claim as core or supporting any activity associated with the integration of off-the-shelf commercial software, off-the-shelf open source software or any computer software services not otherwise covered by this section (sections 355-35(2)(p), (q) and (r)).

We are of the view that this new policy is at-odds with how software is develop in the commercial world and sends the wrong message to the Australian software industry about the value of software innovation; it fails to recognise and reward the high risk investments that companies take with software projects. It would appear that the compound effect of this policy does not incentivise software activities, but instead deters legitimate software activities by increasing the administrative complexity in assessing software activities.

Appendix 3 is an example of the likely impact the draft R&D tax credit will have on current software R&D claims.

As discussed previously, the Cutler report did not find any specific areas of concern in relation software activities. Instead, its report recognises the substantial spill-over benefits in productivity improvements and growth as a direct result of software development activities. In one particular area, it even recommended without reservation that many of the open source software developments, whilst it may not satisfy the current multiple sale test, should be an area worthy of

¹² Proposed refinements, *Exposure Draft- Tax Laws Amendment (Research and Development) Bill 2010 - Explanatory Materials*, para 2.62. The proposal to utilise a trading stock approach to R&D, is even less practical than the clawback method, and would in many cases lead to R&D claims being made with no foreseeable benefits. Under this approach the benefits would be deferred until such as time as the market value of the outputs can be determined. Because there are no time limit restrictions, this could be many years (especially in industries with long lead times, such as biotechnology, resources and IT), and even then the benefits may be minimal (especially if the R&D is successful and the output value high). Furthermore such a system would eliminate most of the cash flow benefits that a refundable tax offset could provide to these claimants.

support from the R&D tax credit¹³. On 19 January 2010, Prime Minister Kevin Rudd announced an ambitious new target of 2% productivity growth per year (up from 1.4%) for Australia's national productivity and growth rates. The Prime Minister stated that productivity growth must play the central role in building Australia's future economic growth and points to improvements to the IT infrastructure, including the National Broadband Network, as a key enabler of business innovation. Cutler's report coupled with those of the Prime Minister would appear to be clear statements in advocating the benefits of IT as an enabler for productivity growth.

Furthermore public subsidies such as the R&D tax credit is clearly recognised as a suitable tax policy instrument that can improve productivity¹⁴ and that current policy clearly dictates that business innovation, which includes R&D, must be increased in order to achieve targeted productivity growth rates. However the proposed changes around the eligibility of software activities would appear to be at odds with its policy objectives and therefore have a negative impact on business innovation in the software industry.

The new software rules fail to recognise the value and the spillover benefits that the IT industry brings to improving our Australian and global standards of living and therefore advance the national economy enabling Australia 'to punch above its weight' at a global level. An example of this is Google Maps which is an Australian invention.

It is our view that software projects be considered like any other project or industry sector, and should not be subject to specific requirements such as the multisale test and also the specific exclusions in relation to integration of off-the-shelf commercial or open source software and computer software services.

The proposed multisale test coupled with the exclusions in relation to software activities would effectively result in the majority of software development and activities not being eligible for the R&D tax credit. Given the prevalence of software as an enabler throughout the economy and across all industry sectors, the exclusions in their current form are not representative nor support the majority of software development being undertaken by the software industry and does not support software development being undertaken by all other industry sectors.

On this basis, we have made two recommendations for change to the software provisions which will continue to encourage spending on software development both within the IT sector and also in other areas of industry where software is a critical enabler. Our recommendations would support the policy intentions of the proposed legislation by appropriately targeting software related activities that are not the policy's intention (system upgrades), incentivising those which are most likely to generate spillover benefits and also providing support smaller innovative firms.

Recommendation 1 - Multi-Sale Test

Our first recommendation is to **remove** the multisale test completely from the draft R&D tax credit legislation.

Whilst removal of the multisale test is our preferred option, we are amenable to an **amendment to** the proposed **sub-section 355-35 (2) (o)** to include the terms 'or indirectly' and 'in relation to' resulting in the paragraph to read as follows:

- o) "developing computer software, except:

¹³ Department of Innovation, Industry, Science and Research 2009, 'Venturous Australia - building strength in innovation' p.109.

¹⁴ The Treasury, 'Exposure Draft- Tax Laws Amendment (Research and Development) Bill 2010 - Explanatory Materials' paras. 1.7 to 1.10

- i for the purpose of making a commercial return directly **or indirectly** from the supply **in relation to** that software to two or more entities (the recipients), each of which is not an associate of an entity for which that software is developed and is not an associate of any other recipient;
- ii for purposes including that purpose.”

The reasoning behind this recommendation is that the proposed change in relation to the exclusion of software development not for the purpose of making a commercial return directly from the supply is short sighted. It is not flexible in supporting the new paradigm of software development and we therefore recommend that the multisale test be removed or as a minimum the paragraph be amended to include the words ‘or indirectly’.

The proposed multisale test does not take into account the advent of mass-adoption internet services which dominate much of the workflow in Australian business. As such, it has little conception of the new forms of software distribution such as hosted software, Software as a Service (SaaS) and various other distribution and software revenue models that have replaced the traditional licensing and shipping of physical software media which aligned well to the multiple sale criteria of the last century. The revenue channels for some businesses has changed significantly and as such we believe the multisale test in its proposed form has the potential to restrict a considerable amount of innovative software development that utilises a more Internet focused revenue model. A notable example would be the software development activities of Google, which derive a lot of their income from a web advertising revenue model and attract user traffic through the innovative browsers and tools they provide on the Internet. Therefore by including ‘or indirectly’ would allow software developers undertaking legitimate R&D to claim for those activities where the main source of revenue is not directly from the supply of that software.

Pure online companies which rely solely on the Internet as the only channel in generating revenue will be hardest hit by the proposed rules. The development of online systems that are currently licensed to wide number of users may fail this test if the software is licensed for zero or notional amounts instead earn revenues through the sale of products or services via its online systems (for example Amazon, ebay, online brokering companies). Many new services are also being developed and only offered online and receive revenue from the sale of products etc via that service or by way of transaction fee which would not satisfy the multisale test requiring the direct supply of the software for more than a zero or nominal charge. Applying the multisale test in conjunction with the excluded software activities, these types of developments would be ineligible for the R&D tax credit. This is an illogical result, considering the development of a new service and all new services that are being developed are being developed for and offered online.

The multisale test does not merit the new frontiers in software innovation that are constantly pushed through the development collective of the Open Source Software community. The specific criteria of the multiple sale test has the potential to stifle the liquidity of knowledge transfer in relation to Open Source Software in which enterprises can gain valuable development knowledge and expertise by sourcing a product and making it available to the wider community. This has substantial spillover effects to the open source community because developers get access to software and code with which they can improve upon in their own software designs and potential for commercialisation of their software. In exchange the enterprise will benefit by getting further enhancements and software engineering hours that trickle back in as a result of the open source community’s efforts.

An example is Google Wave which is the development of a new tool for communication and collaboration on the web (which will be available for free) and is being developed on a new open protocol which will allow software developers to create free tools that use the Wave protocol.

Applying the multisale test to the Google Wave development and the further development of free tools that use the Wave protocol would be ineligible for the R&D tax credit as the developments are not for the purpose of making a commercial return directly from the supply of the software. This result is absurd considering the cutting edge R&D nature of the development.

With the paradigm shift towards 'cloud computing', many new developments adopting this model will not satisfy the proposed multisale test as cloud computing customers consume resources as a service and pay only for resources they use similar to the utility model or on a subscription basis. The requirement for the direct commercial return from the supply of software would not be met by these types of developments.

The draft consultation paper¹⁵ acknowledges that the current multiple sale test is an outdated articulation of policy intent and further acknowledges that it did not fully appreciate the extent and effect of e-commerce when it was drafted over 20 years ago and this was widely supported by the IT industry as a positive move in the right direction. The ED, however, appears to be in conflict with the position adopted in the draft consultation paper and deals very harshly in terms of level of support provided to a sector that whilst engaging in 'genuine' R&D activities, will receive limited support from the government despite satisfying many of the key technical eligibility (of innovation and high levels of technical risk).

We maintain that software projects should be considered like any other project or industry sector, and should not be subject to specific requirements of the multiple sale test, given the prevalence of software as a product or an enabler throughout the economy and across all industry sectors. Our firm belief is that the treatment of software-related R&D activities should be exactly the same as all other R&D, given the pervasiveness of software as a major technological enabler and productivity enhancer in the digital economy of the 21st century.

Recommendation 2 - Amendment of the Software Activities Listed in the Exclusion List

We make the following recommendations to **sub-section 355-35 (2) (p), (q) and (r)**:

- p) integrating off-the-shelf commercial computer software;
- q) integrating off-the-shelf open source computer software;
- r) computer software services not otherwise covered by this subsection.

Specifically, we suggest that the three specific exclusions above be replaced by a single exclusion proposed below:

- p) Routine in-house systems upgrade activities.

The inclusion of the three activities as excluded activities highlights a lack of understanding of the commercial realities in developing software. This is demonstrated in the commentary in relation to the reasons for the exclusion of these activities where the EM¹⁶ states:

*".. the list now clarifies that software activities are not R&D activities where they consist of integrating off-the-shelf commercial or open source computer software. These activities are excluded from being R&D because they are directed at taking software or pieces of software that are already available and integrating or combining them using **known techniques and technology**. In addition, these activities are excluded from being core R&D*

¹⁵ The Treasury, 'The new research and development tax incentive: consultation paper', Sept 2009, para 73.

¹⁶ The Treasury, 'Exposure Draft- Tax Laws Amendment (Research and Development) Bill 2010 - Explanatory Materials' paras. 2.46.

*activities because of the nature of integrated software output as such that the **level of technical risk and innovation of such output is impossible to determine.***"

The two statements (highlighted in bold) are contradictory in nature. The assertion that integrating software uses known techniques and technologies is not always true. In fact, in practice, the integration activities may lead to the development of new techniques in data extraction, management and manipulation. A simplistic example would be any Artificial Intelligence (AI) system that would fundamentally have at its heart an off-the-shelf commercial database system integrated with an in-house developed proprietary predictive algorithm that is able to learn, analyse, interpret and makes decisions on future state events based on existing data sets. Such outcomes would, in our opinion, satisfy the innovation **and** high levels of technical risk tests, however, the current exclusions would act to prevent such projects from accessing the R&D tax credit.

The EM states that the exclusion of integration activities in relation to off-the shelf commercial or open source computer software is due to the fact that the level of technical risk and innovation is impossible to determine. How can the assessors, whilst on one hand acknowledge that the level of technical risk is impossible to determine, on the other hand state that the integration uses known techniques and therefore imply that there is no technical risk? This explanation for the exclusions is flawed on many levels as integration of off the shelf and open source products with other applications, systems, platforms and architectures usually involves an element of technical risk and/or may result in innovative methods to overcome the technical problem but, may not necessarily result in an innovative outcome.

Secondly, to exclude activities from being core R&D activities because the assessors are unable to determine the level of innovation or technical risk clearly highlights the lack of industry knowledge and expertise in the assessment of software claims. We make the observation there is an opportunity for the assessors of the R&D tax credit scheme to be better educated and informed in the areas of software, as opposed to resorting to policy instruments to legislate against genuine R&D activities from being eligible.

Finally the exclusions listed in relation to software are too broad and no examples or case studies have been provided in the EM in relation to how these proposed exclusions would operate in practice. The EM merely states that the terms in these sections "would have their normal meaning as used by industry". As there is significant uncertainty in relation to how these exclusions would operate, we cannot support these three exclusions in their current state.

In terms of administration, software claims would effectively need to bridge two tests:

1. The specific exclusion recommendations above with regard to routine upgrades; and
2. The general R&D definition.

We acknowledge the stated policy intention to exclude software activities that are considered to be routine such as business-as-usual system upgrades. We would contend that our proposed change is in line with our understanding of this policy directive to ensure that routine system upgrades, for example the upgrading or replacing of an in-house accounting system, should remain unsupported by any R&D tax incentive program. In our view, the proposed replacement of these excluded activities with the following activity "routine in-house system upgrade activities" ensures that such system upgrade activities of a routine nature are specifically excluded from being either core or supporting activities. As part of this recommendation we also advocate that the government supplement the current EM with detailed examples in relation to how this exclusion would be applied broadly to projects to provide guidance and certainty for claimants.

Other Recommendations

Grouping Provisions

The draft tax credit grouping provisions have now been aligned with the small business entity provisions under Division 328, requiring the aggregate turnover of 'connected' entities to be included when considering eligibility of the refundable R&D tax credit. This changes the grouping requirement from a control test exceeding 50% ownership of an entity to being 'connected' and therefore grouped at 40%. Not only will this change exclude more small to medium enterprises from access to the Refundable Tax Credit, opposing the guiding policy objective of redistributing benefit towards SME entities, it also adds complexity to the legislation and can result in a company being connected with two entities who each control 40% or more of the entity. In line with the policy objective of providing benefits to SMEs we recommend that grouping or 'connected' rules apply at greater than 50%, consistent with the treatment under the R&D Tax Concession.

Depreciation

The new R&D tax credit removes the concept of providing incentive to companies when first testing or commissioning an R&D asset by allowing the depreciation to be claimed from the point of 'installed ready for R&D purposes'. As a company will not consider an asset to be 'installed ready for producing assessable income' until the asset is tested or commissioned, without the overriding R&D provision, companies are unable to recognise the cost associated with operating an R&D asset during the critical testing phase. The testing or commissioning phase is typically quite short, proves the R&D result or creates an opportunity for 'debugging' and typically does not result in saleable product. The broad focused feedstock provisions (which in our opinion are too broad) will ensure that if a company is selling product during the commissioning phase, the associated depreciation cost will be reduced under the Feedstock calculation. We recommend that legislation is introduced to allow depreciation to be calculated from the time an asset is 'installed ready for R&D purposes' to recognise the importance of testing or commissioning in undertaking an R&D project.

Impact on Franking Accounts

The new R&D tax credit flowing through to a company's dividend franking account (DFA) adds complexity to the reporting requirements of the organization and can lead to higher error rates. The complex rules preventing a DFA from decreasing below zero requires companies to have a separate mechanism for carrying forward the DFA 'liability' due to accessing the R&D tax credit. Unless a mechanism is introduced for the Tax Office to advise companies of the correct treatment to their DFA, following lodgement of their annual tax return, there is considerable risk of companies incorrectly paying franked dividends in future years.

Associate Payment Provisions

The tax act has specific anti-avoidance provisions to cover situations where a company may seek to manipulate a situation for a tax advantage. For this reason we do not see the need to complicate standard accounting practices to recognize payments to associates on a cash basis where a company reports under an accruals method. The movement away from standard accounting practices will not only complicate preparation of claims for SMEs, it will also increase chance of errors.

Prepayment provisions

The movement away from standard income tax practices to account for prepayment when they are consumed rather than when incurred will further complicate accounting practices for companies and lead to higher error rates with companies tax returns. As an expense is allocated to a project relative to R&D use, if the prepayment was less than 100% related to the R&D activity, the R&D apportionment of its expense would reduce the claim appropriately. Where the expense is 100% for an R&D use but the prepayment extends over several years of the R&D project, a timing difference will result which will have no net impact on the value of R&D benefit received over the longer term.

Integrity Rules and R&D Conducted for a Foreign Resident

The draft legislation does not remove the integrity rules, specifically section 355-405 from applying. Without removing the “expenditure not at risk” requirement for R&D conducted for a foreign resident, expenditure satisfying section 355-215, will become ineligible under section 355-405.

Core Technology

The removal of the core technology from the R&D tax credit potentially prevents companies from accessing any deduction for expenditure incurred to acquire established technology to use as a platform to develop new technologies. As the PKI test with the EM excludes activity relating to companies from internally developing technology that may be accessible on a world wide scale, the act would appear to encourage the purchase of core technology, but prevent the deduction of any such expenditure. We recommend that core technology is deductible at 100% under general tax provisions, or if not under any other provisions, be afforded deductions consistent with the treatment under the old R&D tax concession.

Registration Requirements

The new registration requirements call for the separation of core and supporting R&D activity within the R&D Application. Companies do not naturally dissect a project into these classifications, but rather look at all activities necessary to achieve an objective. This requirement imposes a greater administration burden, particularly upon SMEs, completing the Registration form and may discourage companies from accessing the R&D tax credit.

Documentation Requirements

The draft R&D tax credit legislation has removed the requirement for a company to hold an R&D Plan in order to claim the R&D tax credit; however the EM requires that sufficient planning documentation be maintained. The EM should go further to state what would be considered sufficient documentation for a variety of different projects.

Increased power of the Board

The proposed R&D tax credit regime is to operate on a self assessment basis, however AusIndustry has increased autonomy to reject R&D Registrations of core and/or supporting activities or change the classification between core and supporting following lodgement of the R&D Applications. The Board may make findings about the R&D entity and the nature of the activities both before and after registration, and make these decisions without requesting further information from the client. These changes increase the uncertainty around self assessment as entities would have to wait until they are registered to be assured that no amendments have been made. This approach would be equivalent to a current section 39L assessment which is against the intended self assessment approach. Additionally the draft legislation imposes no time limit upon AusIndustry in regards to registering a company, which further creates uncertainty for the Applicant.

Conclusions

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 again question whether the removal of 175% premium and international 175% has in itself funded the expansionary aspects of the proposed changes.

Further to this overall point, we highlight in this paper the extremes of the ED namely:

- a) Limitations of core R&D activities being overly harsh and inconsistent with previous reports released;
- b) The tightening of supporting R&D activities through the dominant purpose test and expansion of the exclusion list such that high value R&D is caught, limiting the positive spillovers that the R&D tax credit is seeking to support;
- c) The inclusion of the multisale test and software activities in the exclusion list which further disadvantages and erodes the competitiveness of the Australian software industry; and
- d) The complex and broad feedstock provisions that unfairly penalises success and promote a conflicting message to the government policy statements.

We have also highlighted other minor areas of concerns.

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

Appendix 1 - Enhanced Offshore Drilling Capability by Development of New Drilling Tools

Background

The offshore oil and gas industry spends significant time and resources acquiring data from exploration and appraisal wells to make decisions regarding feasibility of commercialising oil and gas reserves. Current technology for drilling these wells relies upon using a variety of drill bits and processes to penetrate rock of varying strengths and consistencies. The variability in rock type is exacerbated in offshore environments where many wells must extend to depths of greater than 1,000 meters.

Each time a drill bit is required to be changed due to a change in conditions significant time is taken to remove the drill assembly from the well, reattach the desired drill bit and continue drilling. The process of removing and changing drill bits results in greater cost in rig hire time, increased exposure of staff and equipment to cyclones and extreme weather events, greater amounts of fuel being used which increases the carbon foot print of the activity and greater risks of well collapse, loss of well control or spill of drilling fluids into the environment when continually removing the drilling assembly. Due to these reasons, significant research and development is undertaken by the oil and gas industry to develop drilling processes and tools that maximise drilling rates and significantly reduce the total drilling time.

The enhanced offshore drilling capability project involves the development of drilling tool that is configured to maximise drilling penetration rates in a variety of conditions due to its novel configuration of teeth within the drill assembly. Exploration conducted by the company within the region indicates that the company will initially have to drill through difficult sandy soil that is known to collapse back on itself, however the existence of an ancient subterranean reef system interposes layers of hard rock shelves which quickly dull drill bits and increase the risk of bits getting stuck in the harder rock. The company anticipates the deeper drilling will encounter dense geological structures that will quickly dull standard drill bits and greatly increase drilling time. The company must also ensure that the drilling can be completed in the shortest time possible as the well will be located in a region referred to as 'cyclone ally' with the drilling rig only being available in February when cyclones frequent the area.

Due to the anticipated difficulty and importance of a swift drilling campaign, the company is considering the development of a novel drill bit that has additional teeth sitting within the assembly shaft that will descend as required to replace used teeth, eliminating the need to bring the drill assembly back to surface to replace the worn drill bit. There is significant technical risk in trialling this innovative drill bit as the configuration of the drill assemble increases the risk of the bit getting stuck in the well if the teeth get obstructed during their decent. If this were to occur, the assembly would have to be left in the well and the well plugged and abandoned without achieving the objective of obtaining data regarding the presence of any hydrocarbon. The high level of technical risk has deterred other competitors from moving away from proven technology options and developing similar tools.

The success of this project will more than halve the drilling time from nine to four days, minimise the environmental and carbon footprint of drilling activity, provide the company with a new tool and procedure that can be applied in future drilling campaigns or commercialised via sale to competitors and provide valuable data regarding the success of the exploration drilling.

Core R&D Activities

The testing of the novel drill bit contains extremely high levels of technical risk due to the compounded factors of the complexity of the novel drill bit design and the difficulty presented by

the geological structure both increasing the risk of the assembly getting stuck. There is also considerable risk that although initial indications predict that the teeth will descend as intended, the friction placed upon the tool in a real world drilling environment will prevent the teeth being replaced which would require the removal of the whole assembly once the first set of teeth get stuck and defeat the objective of the project. Significant uncertainty also exists regarding the bits ability to drill through loose sand, there is considerable risk that the tool may receive incorrect messages due to the lack of resistance and not replace teeth if they break off during drilling.

The project is undertaken in a systematic and investigative manner. The activities undertaken in the project include systematic acquisition and processing of data to determine the tools desired functionality, development of various hypothesis in relation to possible designs, conceptual design of the drilling assembly, teeth configuration and teeth replacement mechanism, small scale prototype development, laboratory scale investigations of prototype, redesign as necessary and construction of a full scale prototype, testing of full scale prototype in real world conditions. These activities can potentially lead to the discovery of new knowledge in relation to offshore drilling technologies.

However, the novelty criteria of the core R&D is a concern for this project as drilling in offshore conditions using a drill assembly is not novel, it could be interpreted that this is an adaptation of an existing technology and hence fail the considerable novelty requirement under the new R&D tax credit, hence disqualifying the project from an R&D claim.

Supporting R&D Activities

The activities identified as supporting activities such as project management and drilling of the exploration well to test the drill bit and data gathering are directly related to the core-R&D activity and are necessary in order to ensure that the R&D project is successful and that the technology can be commercialised.

Both the list of excluded activities and the change in definition of supporting activity to now include only activities that are undertaken for the dominant purpose of supporting the core-R&D activity will have significant impact on this project.

Given the high cost of drilling in an offshore environment, the shareholders demand that all drilling activity is undertaken to support the company's commercial objective of finding and commercialising hydrocarbon fields. This requires that the well development plan set out a robust well testing program following the drilling activity to confirm the presence of hydrocarbons and acquire data regarding the quantity and quality of any hydrocarbon discovery. Given the dual purpose of drilling, firstly to test the drill bit, and secondly to acquire data for the exploration program the dominant purpose requirement will not be met and the cost will be excluded from any R&D claim.

The new list of excluded supporting activity will also prevent any of the necessary supporting costs from being claimed under the tax credit as exploration activity is excluded both as a core and now as a supporting R&D activity. The well being classified as an exploration well for both industry reporting and financial reporting purposes will result in the disqualification of any of the associated costs from being considered under the R&D tax credit, regardless of the direct nexus to the core R&D activity.

Feedstock Rule

As the well is exploration by nature, no hydrocarbon will ever be produced from the well. Following data retrieval, the well will be capped and abandoned, it is unlikely that the feedstock provisions would apply.

Appendix 2 - Assessment of Feasibility of Using Biofuel Blends in Operating Mine Machinery

Background

In line with the public responsibility to foster environmentally sustainable operations, in particular in sensitive environments such as the Hunter region, research and development activities to investigate the usage of different biofuel blends in mine machines used in day to day operations have been undertaken. The blends are tested in the machines against various parameters, including machine performance, life expectancy and emissions. This is complex and highly technically risky, as many of these industrial machines have exacting fuel requirements and have not been designed to operate on biofuels and will be operated beyond their intended design performance.

To date, no mining company has undertaken such significant investigations to assess the performance of biofuel blends for the purpose of utilisation in mining operations. The result of the R&D project will assist with identifying optimal blends of biofuel that can be efficiently used for mining machines to minimise emissions and subsequently have minimal impact on performance and life expectancy.

Given the huge potential risks to the business and that many of the benefits are external (e.g. pollution, carbon dioxide (CO₂) emission, environmental harm), this is a project with significant additionality and external spin-off benefits. Without R&D tax incentives, the decision as to whether or not this environmentally beneficial project should be conducted will be affected.

Core R&D Activities

The biofuel experiments are undertaken in a systematic and investigative manner where each different biofuel blend is tested against various pre-determined parameters to prove or disprove the hypothesis that particular blends of biofuel can be used effectively to operate the mining machines.

The project also results in the development of new knowledge in terms of biofuel blends that are optimum for usage in various mining machines, and also define ideal operating parameters to beneficially exploit the benefits of biofuel usage with minimal impact to performance and machine life expectancy.

The project involves high levels of technical risks as there is a significant performance limitation caused by the use of biofuels in machines due to the inherent characteristics of biofuel chemistry. The importance of the mining machines to the operations further compounds the risk factor of this project. In addition, the food for fuel debate has forced the diversion from the traditional plant based biofuel blends to tallow based biofuel blends, where the difference of chemical compositions may affect current experiment results.

The project is novel in terms of the scale and variety of machines and biofuel blends used. Although it's a world first in this aspect, biofuels have already been used in other machines such as light private and commercial vehicles. This may weaken the element of novelty of the project and may lead to the activity being classified as a non core-R&D activity and disqualify the project from the R&D tax credit.

Supporting R&D Activities

The change in the definition of supporting activity to now include only activities that are undertaken for the dominant purpose of supporting the core-R&D activity will have significant

impact on this project. A majority of the activities identified as supporting activities such as testing of the mining trucks filled with biofuel blends and the resulting maintenance and monitoring of the trucks' chemical analysis of oil and emissions testing are directly related to the core-R&D activity and are necessary in order to ensure that the core-R&D activity can be undertaken.

However, as the site is also an operating and producing site, the supporting activities as stated above are also used in the normal operations of the mine site and not only for R&D, and there is the potential that the new definition will not qualify these activities as supporting activities. This will significantly reduce the amount of expenditure claimable for activities that are vital for the undertaking of the core-R&D activity.

Feedstock Rule

The R&D activity involves trialling mining trucks and other equipment with the biofuel blends and assessing the resulting performance/maintenance needs of the engines and associated equipment. As the operations are directly related to the production of coal and reduction of carbon emissions, feedstock rules may apply to the costs associated with the outputs. The feedstock provisions are unclear as to the extent of the outputs that may be captured.

The new feedstock rule may result in the need to offset the R&D expenditure against any marketable coal resulting from the operation of the trucks and other equipment, any potential carbon credits that are received as a result of emissions reduction or the dollar value of the biodiesel that may be sold to subsidiaries or external parties. The extent of the nexus required between the output and the R&D activities is unclear from the legislation.

In addition, the feedstock rule will not only apply to the core-R&D activity, but will also span through any eligible supporting activity.

Appendix 3 - Development of Innovative Software Products

Background

In line with the increasing popularity of online digital content, an increasing number of commercial clients are in search of improved services to enable the publication and management of their digital materials online. At present, no existing technology in the world offers robust and scalable publishing and content management services that provide high levels of reliability, efficiency, flexibility and ease at the same time.

To gain a significant competitive advantage in an industry where new ideas and technologies proliferate very quickly, other functionalities that require significant innovation have been identified, due to the absence of any similar technologies in the market.

Due to the quantity of available digital material and the speed that they increase, significant research needs to be undertaken to ensure that efficient and scalable algorithms are developed to cater for the exponentially increasing catalogue size. The need for efficient and robust applications is compounded by the increasing number of online users, where some online applications can receive up to millions of hits a minute.

The increased load that must be handled by the applications, requires the development of scalable search algorithms, development of efficient coding techniques, and applications designed to minimise response time and maximise bandwidth availability to provide commercial and private clients with flexible yet reliable and robust applications.

Core R&D Activities

Research to develop the required DigiMedia library and retail applications, is undertaken in a systematic and investigative manner, where each application is developed in a modular fashion. Background research is carried out to compare the required specification of the applications against the current available technology. Algorithms and process flows are designed based on the system requirements and are tested for efficiency, correctness and reliability, which will prove/disprove the hypothesis that a specific level of efficiency can be achieved by the developed applications.

The project will also result in the development of new knowledge in terms of improved search algorithms, improved data storage techniques, and more efficient and interactive interfaces. This knowledge can be applied across other similar applications in the industry.

The project is also technically risky as there is no guarantee that the developed algorithms and applications will perform as intended, especially as this is the first time that such an attempt has been made. Even if the application works correctly, there is still a high level of technical risk that the application may not be able to cope with the extremely high loads it will be exposed to, and may fail to provide reliable service.

Although this is the first time such an online digital media application has been developed with high levels of integrity, reliability and flexibility, and exhibits high levels of technical risks, the project may be deemed as a mere progression to the next evolutionary state. This may weaken the element of novelty of the project and may lead to the activities involved to be classified as non core-R&D activities, and disqualify the project from the R&D tax credit.

Supporting R&D Activities

At present, digital media is electronically housed within a database storage solution. The proposed DigiMedia application will act as an enabler to provide customers with access to the digital media stored within this database. As a result, the database must be seamlessly interfaced with the DigiMedia application. Although this may not be a straight forward task, it does not form a core part of the hypothesis being tested, but rather supports the program of R&D being undertaken as the solutions to be developed cannot be tested without digital media. As a result, it is considered a supporting activity.

Due to the increasing size of the business and a need for greater storage space, the company wishes to link many of its current systems to the database storage solution. As a result, the company proposes to replicate the DigiMedia interface to be developed, and apply it to other systems. This makes good sense, as the DigiMedia interface will be developed to a point where the majority of interfacing issues will have been addressed.

The change in definition of supporting activity to only include activities that are undertaken for the dominant purpose of supporting the core-R&D activity, will have a significant impact on this project. Due to the fact that the DigiMedia interface was developed to interface many systems to the database storage solution, and not for the sole purpose of interfacing the DigiMedia application, the dominant purpose requirement will not be met and the cost of developing the interface will be excluded from any R&D claim.

In developing the DigiMedia application, the company have decided to integrate an open-source software solution. The open-source software solution would comprise less than 5% of the final solution developed. Background research has discovered that the integration of this open-source software, would be both a novel and technically risky undertaking. However, the company believes that its integration would be essential to test the project's hypothesis.

The inclusion of open-source software integration within an R&D activity exclusion list, excludes this activity from being claimed as either a core or supporting activity, even though it could meet both the tests of considerable novelty and high levels of technical risk, and sole purpose of supporting an R&D activity.

Multisale Test

The DigiMedia application will be developed to enable customers to purchase digital media in a manner that is currently not available within the market. It is proposed that customers must first register with the DigiMedia application, before they can begin purchasing digital media. No fee is charged to register. Once registered, the customer can purchase digital media through the application, and pay for purchased digital media electronically.

Whilst the DigiMedia application itself has an implied license with customers registered, the application is not sold to any external parties. The company plans to recoup expenditure spent on R&D, through the sale of digital media through the DigiMedia application. As a result, the DigiMedia application would not satisfy the multisale test, as the application itself does not receive any commercial return. Consequently, the entire R&D project would not be eligible for an R&D tax credit.