![The Learning Federation logo]

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Impact on the multimedia and elearning industry of the sustainable national digital curriculum resource supply for schools agreement

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Report by Convergent Consulting

Convergent	Consulting

... when decisions matter

12 May, 2009

Disclaimer and Confidentiality

The information contained in this document has been obtained from various sources including discussions involving a range of stakeholders identified herein. While we have endeavoured to cross check and verify the accuracy of information supplied wherever possible, we have, nevertheless, taken the information supplied by all sources in good faith.

In the interests of confidentiality, and not wishing to commercially prejudice any stakeholder involved in the consultation process, we have not identified the specific opinions or views of individual stakeholders.

It should also be noted that this is a broad impact study and as such does not purport to be a definitive business-case or justification for any of the propositions suggested. Further analysis and investigation will be required.

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1. EXECUTIVE SUMMARY

Phase 3 of The Le@rning Federation's (TLF) activity is coming to an end on 30 June 2009. New funding arrangements have been agreed to for TLF for the next financial year (2009/10). Under the new funding model, approximately $7.56 million (around half the previous funding levels) will be provided to TLF for the delivery of a base service to grow the national pool of digital curriculum resources. Fundamental to the proposal is the concept of resource-sharing, drawing resources from many sources, including States and Territories, into the national pool but ensuring that those resources share all the quality attributes now guaranteed by The Le@rning Federation, including the attribute of being free from further copyright charges when used in any Australian school. [1]

As a result of these new funding arrangements and change in focus post Phase 3, TLF has requested Convergent Consulting to provide a report on the impact on Australian multimedia developers and eLearning industry.

Specifically, we were asked to consider and report on the following five issues:

- The economic impact on the developer industry of The Le@rning Federation.
- The impact The Le@rning Federation has to the level of skill within the multimedia and eLearning industry for the development of multimedia educational content.
- The capacity for developers to leverage these skills for other markets.
- Business and funding opportunities that leverage the expertise developed working with The Le@rning Federation.
- The ongoing relevance of the market framework established by The Le@rning Federation of specifications and distribution networks for creating digital content for schools.

1. The economic impact on the developer industry of The Le@rning Federation

To date, TLF has had a positive economic impact on TLF's 15 panel suppliers and so, conversely, we expect the negative impact of any reduced funding-levels will also be significant. This will occur for two key reasons. Firstly, a number of the suppliers are have become highly dependent on TLF for their revenues and so a reduction in TLF workflow could be expected to severely impact these firms' profitability and may well result in the shedding of employees directly associated with the development of TLF work. This latter point should be noted by TLF stakeholders, as the suppliers may shed much of their TLF-specific skills base – possibly making it harder to 'pick-up' development activity, at some later date, should TLF stakeholders so desire.

Secondly, due to the economies of scale involved with TLF development work, the profitability of TLF work is very dependent on the amount of work contracted to a particular supplier. A key point that should also be noted by TLF stakeholders is that any reduction in overall funding post July 2009 means that the importance of aggregating demand, and using a select panel of suppliers, will be even more vital in ensuring suppliers are able to maintain sufficient scale to sustainably deliver the type of production work produced to TLF's existing standards.

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[1] *AESOC/MCEETYA TLF Agreement for Funding for 2009/10 – A Sustainable National Digital Curriculum Resource Supply for Schools, 31 October 2008*

Outside the 15 TLF developers, we expect that the impact of any reduced funding will be relatively modest on the overall Australian eLearning sector, which is largely dominated by Corporate sector spend.

2. The impact The Le@rning Federation has to the level of skill within the multimedia and eLearning industry for the development of multimedia educational content

We found TLF has had a very positive impact on pedagogical design, project management, resource planning and QA process skills for developers. Indeed, most suppliers mentioned that they used the TLF's project management, resource planning and QA processes with other eLearning clients. The adoption of many of TLF's technical and project standards by both state jurisdictions and various federal government agencies is also seen by suppliers as a key testament to this view.

As outlined in Section 8, a key defining feature of TLF market engagement with developers is that TLF has, to date, borne most of the market and product development risks. Hence, developers who have expanded into other markets have needed to obtain these product and market development skills from other non-TLF sources. This is an issue we believe requires more balance and is addressed further in the last issue we were asked to address.

3. The capacity for developers to leverage these skills for other markets

We found that many of the generic process management skills gained by developers are readily transferable to other markets. For example, in terms of the very large corporate eLearning market, one interviewee mentioned that the corporate market standards for eLearning in international markets, such as the US and Europe, were more stringent than that of the Australian corporate market. Hence, the higher standards of TLF were seen as a benefit in being able to meet the requirements of these markets.

A couple of the developers interviewed provided good examples of skills leverage. For example, one developer had recently won a contract with Disney's educational unit in developing English language learning material for the Chinese market. Another developer had successfully expanded into the United Kingdom K-12 market through contracts with the London Grid for Learning.

In the case of developers who had expanded into other markets, it was made clear that, while the TLF skills they had acquired formed an important part of their success, there were other key skills also required - including higher levels of creativity, technical knowledge, as well as market development and sales skills.

4. Business and funding opportunities that leverage the expertise developed working with The Le@rning Federation

We found that TLF provides 'bread and butter' income to developers, enabling sustainability and scale to exploit other opportunities. In other words, TLF represents a predictable low-risk, low-return cash-flow, allowing developers to gain sufficient scale and sustainability as a business to expand into more higher-risk, higher-return business opportunities.

We also found that TLF continues to provide solid and respected credentials. The fact that a developer is part of the TLF preferred supplier panel is seen as a key benefit for developers. It

shows that the developer's business has already been through a stringent due diligence process and can meet TLF's well recognised standards and QA framework. This particularly applies in Australia, where TLF is reasonably well recognised within the large public-service sector.

We found, however, that TLF developed IPR appears of limited value and that many suppliers lack international distribution and reach to exploit it in any case.

5. The ongoing relevance of the market framework established by The Le@rning Federation of specifications and distribution networks for creating digital content for schools

In our view, the established market framework creates significant value-add to schools sector and the developers alike. While TLF continues to successfully deliver upon this framework, we noted that four major market developments have occurred since the original inception of TLF:

o   Centrally commissioned, top-down, curriculum aligned materials will now only likely form part of the overall eLearning environment in classrooms.

o   The 'digital divide' is as likely to be driven by differences in teacher skill levels and variations in leadership and support as it is by unequal access to infrastructure and content;

o   Our way of viewing and valuing intellectual property has changed considerably. Value is being seen much more around the relationship and human capital development, than it is around the output of the process[2] (i.e. the copyright attached to content).

o   With the new Sustainable National Digital Curriculum Resource Supply for Schools Agreement for Funding for 2009/10, it is now possible that funding to the developer industry may reduce, procurement may be decentralised and that several strategic agendas and visions for K12 eLearning may arise.

As a result of these major developments, some changes are likely to add significant value to both developers and the K-12 sector going forward. The key areas that we believe would add value are:

1. Enabling alternative technologies and content development approaches

Due to a combination of educational, technology and social forces, TLF (and its stakeholders) currently experience a natural tension between:

> A: *ensuring universal access to the same pedagogically designed content; and*
> B: *facilitating access to technologically more advanced content of less certain pedagogical integrity and origin..*

To date, TLF and stakeholders have understandably favoured A, but due the aforementioned market developments it may now be time to consider re-weighting this balance. While this

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[2] *Monash University, "The value of the intellectual capital created by The Le@rning Federation digital curriculum content initiative", 2009*

potentially has significant equity and educational integrity issues attached to it, the alternative is that students, parents and teachers will ultimately bypass what that they perceive to be an inflexible system doesn't provide for their needs and expectations. To this end, several initiatives could be contemplated, including:

i.   Raise the technical and accessibility development standards to the most 'common practice', rather than a minimum practice, so that digital materials developed meet the majority needs;

ii. Completely dispensing with copyright and making the content 'open source'. This would allow users and private sector developers opportunities to freely edit, supplement, improve and enhance TLF-commissioned material for various education system sub-markets;

iii. Allow TLF materials to be freely accessible to anybody over the internet. This would improve ease of access (i.e. no logins) and allow parents, student and teachers to access the content anytime and at any location they so choose. It may even raise the awareness of the quality of the content in other markets and lead to opportunities for the developers to access opportunities that leverage off their expertise and familiarity with the content.

2. Developing a benefit-risk sharing arrangement with the developers that better exploits the strengths of each party

One of the key defining features of TLF market engagement with developers is that TLF has, to date, borne most of the product development and market demand risks. While this framework presents some benefits, and has reduced risks to the supplier community, it does not necessarily work to the strengths of the private sector, which is generally considered to be a better manager of investment and product development risks.

In considering this issue, we believe there are three possible models to consider going forward. The first is the demand-led models used in the UK, namely the e-credits scheme and, more recently, the London Grid for learning (LGfL). While both schemes adopt some level of risk sharing with the supplier community, based on the market success of their product with end-users, the main risk issue with adopting similar schemes in Australia is that there must be a reasonably large and mature demand market. That is, the schools and other potential purchasers of content must possess sufficient discretionary e-learning content spend to create a sustainable demand market.

The second model, and the one we recommend, is the centralised, supply-side focussed, procurement model. To some extent this is the model TLF already operate under, however, as outlined in Appendix A, the model adopted by the VET sector in the development of its 'Toolboxes' takes this further. Without making any comment on the quality content produced by the VET model, from a business model perspective it does have some attractive benefits in that it promotes competition amongst suppliers for the best creative ideas; teams of people; educational strategies, as well as price. A key difference between this approach and TLF's current approach is that all of the design and development is completely outsourced to the supplier and there is little hands-on work conducted by the sponsor (eWorks). Hence, most of the development risk is borne by the suppliers.

The third model is for TLF and/or the various education authorities to 'insource' development work. The advantages of this option is that it removes the 'overhead' associated with tendering and managing contracts with private sector developers and, arguably, provides the education

sector greater control of its costs and production processes. The main and considerable disadvantages of this third model is that it lacks competitive rigour, is structurally inflexible and will likely lead to duplication and inefficiencies over the longer term. Instead, if education authorities (or their subsidiaries) are keen to develop digital learning materials in their own right we would note that they could become a supplier under the second model anyway.

3. Developing a co-ordinated procurement approach that ensures an adequate scale is maintained

As explained in Section 4, developers believe that a minimum annual spend is required to support the high fixed overheads involved in developing greenfield resources for the formal education sector. Further, considerable cost saving (circa 20-30%) can be achieved across the schools sector via the centralised joint procurement of content. Hence, moving forward, it is important that TLF stakeholders continue to centrally aggregate their procurement needs and establish a preferred panel that is commensurate in size to this collective spend.

4. Developing a leadership role guiding Australian developers on the priorities and aims of the schools sector

We believe that establishing a central strategy, development and policy group, covering the entire schools (and possibly even the entire formal education) sector would be enormously valuable to the developer industry. Such a body would be responsible for signalling to the market such important information as:

o   the longer term priorities, aspirations and challenges facing the sector;
o   the current standards and quality expectations of the Australian education sector;
o   the realistic commercial opportunities that are likely to arise, including those outside the realm of direct content development, such as cultural change management and support;
o   successful case studies and approaches;
o   how to develop networking and partnering opportunities;
o   key contacts and information about current initiatives.

2.   BACKGROUND and INTRODUCTION

2.1   The Le@rning Federation

The Le@rning Federation (TLF) has been funded since its establishment in 2001 to procure digital curriculum resources, support technical infrastructure and develop agreements on technical, intellectual property management and educational soundness specifications. Funding has been for two development phases, amounting to around $120 million. In 2009/2010, TLF has been funded for approximately $7.56 million through the Sustainable National Digital Curriculum Resource Supply for Schools agreement to support maintenance and brokering of digital curriculum resources and infrastructure. This will result in changes to the current level of service being provided by TLF, resulting in a transition to a base service to grow the national pool of digital curriculum resources.

One of TLF's major responsibilities in Phase 2 was to stimulate the market and multimedia developers via the commissioning of a broad range of digital curriculum resources in the form of interactive multimedia. This work was largely outsourced to the multimedia and eLearning industry. Over 30 developers in both Australia and New Zealand have been utilised over Phases 2 and 3 of the initiative. TLF now operates a preferred supplier register of 15 companies to provide the required resources.

Phase 3 of TLF's remit has required a focus more on broadening its procurement model rather than market stimulation. In working toward meeting these requirements, TLF has worked with around 30 cultural, scientific and educational institutions, licensed material from overseas and from a range of domestic jurisdictions, swapped content with other organisations and shared content with other jurisdictions.[3]

2.2   TLF's Requirements

Phase 3 of The Le@rning Federation's (TLF) activity is coming to an end on 30 June 2009 and new funding arrangements have been agreed to for TLF for the next financial year (2009/10). Fundamental to the new funding proposal is the concept of resource-sharing, drawing resources from many sources, including States and Territories, into the national pool and ensuring that those resources share all the quality attributes now guaranteed by The Le@rning Federation, including that of being free from further copyright charges when used in any Australian school.[4]

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[3] *Discussions with Stuart Tait, General Manager, TLF, 29 April 2009*
[4] *AESOC/MCEETYA TLF Agreement for Funding for 2009/10 – A Sustainable National Digital Curriculum Resource Supply for Schools, 31 October 2008*

- The capacity for developers to leverage these skills for other markets.
- Business and funding opportunities that leverage the expertise developed working with The Le@rning Federation.
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In addition, after submission of our draft report we were asked to provide more analysis and recommendations on:

o the quantum of funding needed to sustain developers under the new AESOC framework post July20 09';
o the strengths and weaknesses of insourcing v outsourcing of development work;
o determining if the Australian market is large enough to support demand-led procurement approaches and, if so, what market pre-conditions are necessary;
o how to retain a viable developer industry going forward under a more decentralised funding model;
o what new tool/technologies TLF should focus on;
o what needs to be done beyond the development of content to successfully launch into schools.

2.3   Overview of our Approach and Information Sources

Our approach to this consultancy can be broadly broken down into four phases:

1. Review background developments;
2. Identify key issues for analysis and conduct desk-top research;
3. Test and verify our desk-top research with industry consultations;
4. Complete analysis and compile report.

In undertaking this work, we have interviewed a number of industry participants, seeking their comments on the digital content industry and economy in general, as well as more specific feedback in relation to TLF's role. We have also conducted our own independent research and relied on our industry knowledge and expertise to provide our opinions on various matters.

Phone interviews were conducted with the following industry and policy participants:

Person	Organisation
Wil Monte	Millipede
Richard Gijsbers & Graham Whelan	eLearning.org
Craig Dow Sainter	Roar Film
Damian O'Sullivan	FinPa
Sue Beveridge & Tim Hand	DET NSW
Michael Burke	Liquid Interactive
Jillian Dellit	TLF Secretariat
John Butterworth	AIMIA
Mia Garlick & Andrew Scarvell	DBCDE
Vivienne Blanksby	Australian Flexible Learning Framework

3. RECENT DEVELOPMENTS IN THE eLEARNING and MULTIMEDIA MARKETS

3.1 Multimedia Industry Trends and Developments

Since our last review of the multimedia industry, contained in our 2005 report, there appears to have been sustained growth in industry activity, despite continuing skills shortages and recent adverse economic conditions.

A key driver of this rapid industry growth has been the rapid rise in broadband uptake (e.g. 3G cellular, fixed broadband, digital television), the proliferation of new devices (e.g. iPhones, laptops, iPODs, PDAs etc) and online applications and content (e.g. websites, blogs, e-commerce etc). Each of the developments has combined to provide attractive 'tailwinds' for the multimedia industry's growth.

Further, the multimedia industry is generally considered an 'enabler' to many industry sectors, such as the education, health, defence, banking, media, entertainment and communications sectors. Most of these sectors are engaged in many forms of digital enterprise, whether it is commercial, instructive or informative. The multimedia market impacts performance, efficiency, gains and outcomes across the board and so is fairly resilient (although not immune) to economic cycles.

The AIMIA "Digital Services Index – Measuring the Australian Digital Service Industry" (Nov 2008) measures four key areas of investment and expenditure by organisations in Australia:

- Marketing related Professional Services
- Technology, software and hardware
- Infrastructure, hosting and connectivity
- Media related content, services and applications including online advertising

Key outcomes reveal that:
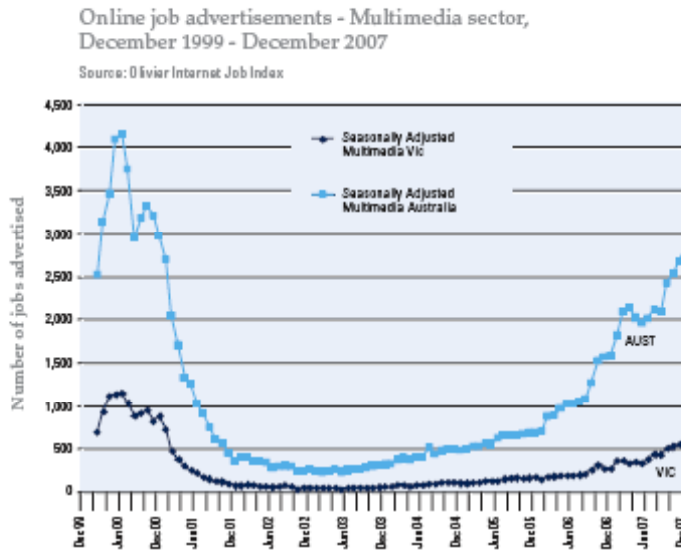
- In 2008, 14.3% of enterprise expenditure is related to digital services; this equates to an industry worth$17.9 billion in 2008; and
- By 2009 enterprises and organisations in Australia will engage with 40% of their customers through digital services.

Anecdotally, as an indication of the health and growth of the sector, AIMIA advised that its memberships have tripled since 2004.

Skills Shortages

Multimedia Victoria's 2008 "ICT Skills Snapshot: The State of ICT Skills in Victoria"[5] notes an increase in online multimedia job advertisements in both Victoria and Australia as at December 2007. The rate of increase in Victoria in the preceding 12 months was 127%, and the national increase was 78%.

Online job advertisements - Multimedia sector, December 1999 - December 2007

Source: Olivier Internet Job Index

The Information Technology Contract and Recruitment Association (ITCRA) collects ICT job placement data. ITCRA data shows the average number of suitable job applications per job placement. A relatively small number of suitable applications per placement suggest that there is a skills shortage. In 2007, there were on average 5.1 suitable applicants per job vacancy in Victoria, with the top three ICT occupations with a shortage being security specialists (1.6 applications per vacancy, web or E-commerce developers (2.2), and telecommunication developers, field engineer and software application/developers (2.3):[6]

In terms of days taken to fill a job placement, ITCRA data indicates a skills shortage by the longer period it takes to fill a vacancy. In 2007, it took an average of 27.3 days to fill an ICT vacancy in Victoria, compared with 20.9 days in 2005-06. The top three ICT positions that took a relatively longer time to fill compared with the average were web/e-commerce master/administrator (71.5 days per vacancy), web or multimedia designer (44.7) and CIO/CTO/Information Management/ICT Manager/Infrastructure Manager (32.8)

Web 2.0

Aside from the aforementioned rapid growth in broadband uptake, the proliferation of devices, online applications and content, one of the most significant developments to hit the multimedia and eLearning market has been the amazingly rapid growth and uptake of so called Web 2.0 technologies. Table 3.1 summarises some of these developments.

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[5] http://www.mmv.vic.gov.au/Assets/2090/1/ICT_Skills_Snapshot_Aug08.pdf , p10
[6] http://www.mmv.vic.gov.au/Assets/2090/1/ICT_Skills_Snapshot_Aug08.pdf

Table 3.1: Web 2.0 Technology Developments

Web 2.0 technologies	Description	Category of technology
Wikis, commenting, shared workspaces	Facilitates co-creation of content/applications across large, distributed set of participants.	Broad collaboration
Blogs, podcasts, videocasts, peer to peer	Offers individuals a way to communicate/share information with broad set of other individuals.	Broad communication
Prediction markets, information markets, polling	Harnesses the collective power of the community and generates a collectively derived answer.	Collective estimation
Tagging, social bookmarking/filtering, user tracking, ratings, RSS1	Adds additional information to primary content to prioritize information or make it more valuable.	Metadata creation
Social networking, network mapping	Leverages connections between people to offer new applications.	Social graphing

These Web 2.0 technologies are having a profound impact on virtually all industry sectors. For example, in examining the impact on advertising agencies, Brian Solis and Deirdre Breakenridge in _Putting the Public Back in Public Relations_, write:

'Many [advertising] executives still view blogs as random musings, social networks as places where people troll for friends, and other social places as founts of pure narcissism. Most notably, companies fear letting go of control and acknowledging that the wisdom of the crowd can be a powerful group (sic).

'In actuality, companies lost 100% control of their communications a long time ago. People are discussing their brands, products and services right now, across multiple forms of Social Media, with or without them. Plugging their 'ears' and pretending none of this is taking place isn't going to help the situation or make it go away. Quite honestly it will only make things worse for the brand. The key is to let go and embrace the chaos.'

No industries are immune for the massive groundswell of communication and social changes that are being enabled by technologies outside of their traditional control, such as those enabled by Web 2.0 developments. In the above case study, for example, if one were to substitute the word 'teacher' for 'executives' and 'learning' for 'brand/products/services', one can easily envisage the potential impact on the learning profession.

3.2   eLearning Industry Trends and Growth

Global and Australian eLearning market sizes

The global eLearning market is very large. According to one analyst[7], it estimated to turnover US$56 billion p.a. by 2010, although other estimates we have seen put it around half this amount. In comparison, the global education and training market is estimated to turn over around US$2000   billion p.a., so eLearning indicatively still only represents about 2-5% of industry turnover - when viewed across the total corporate, tertiary and K-12 sector spend.

The Australian eLearning market is around 1-2% of the global market. We estimate there are in the order of 300 businesses directly operating in the Australian eLearning space, employing 2,400 people and turning over $600m p.a[8]. Most of the businesses are small, employing an average of eight people.

eLearning Industry trends

Like many industries trying to constantly sell new products, there is much marketing hype about various technologies, market trends and the desires of end-users to see certain features from products. Remembering that the eLearning industry is dominated by the corporate market, the recent trends in the industry appear to include:

1. <u>That the market is no longer as technology-focussed</u>. The industry appears less driven by LMS technology vendors (and their catalogues of associated content) and more motivated by companies that focus on the business and/or learning needs of the end-customer.

2. <u>Blended learning is in</u>. Single modes of delivery, whether purely instructor led or technology led, appear to be losing favour. Blended learning uses the strengths and benefits of each delivery mode.

3. <u>Build and launch models are out</u>. Most eLearning initiatives focus on infrastructure (e.g. computer hardware and broadband access) and eLearning content, with scant attention paid to change management, marketing, communications and ongoing support. These later issues have turned out to be instrumental to success.

4. <u>Communities and collaboration are to be championed</u>. Isolated e-learners tend to struggle for motivation. Collaborative learning environments (often enabled by Web 2.0 technologies) give learners support and make them feel part of a group.

Of the above four broader eLearning industry trends, we believe the third one is particularly relevant to TLF and the schools sector. As identified in our 2005 report, the major impediment identified to successfully integrating TLF's eLearning content into schools was seen as laying less with the supply-side of content production and more with promoting and supporting teacher usage and demand for content. In our 2005 Report, we noted that:

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[7] *Global Industry Analysis, " elearning: A Global Strategic Business Report":2007*
[8] *Largely extrapolated from a recent survey by the e-learning Industry Association of Victoria Elearning Industry Census, Nov 2007*

"Most Education Authorities (EAs), are viewed as being significantly under-prepared and under-resourced for the massive undertaking of deploying and integrating digital curriculum content into classrooms. This concern was not so much around ICT infrastructure per se (or lack of), but more around:

- o *the professional development of teachers;*
- o *the ability of teachers to develop and re-shape content for their own needs;*
- o *the support services teachers would require in order to blend e-learning with regular curriculum;*
- o *the ability to select and procure appropriate service and support from the private sector; and*
- o *the development of over-arching and supportive e-learning policies and procedures."*

The Australian schools sector is not alone in this predicament. For example, in the UK, despite ten years of 'transformational policies' and significant funding on an array of infrastructure initiatives, only about 10% of UK schools and further education colleges view themselves as having embedded ICT into their teaching processes[9].   Case Studies into those schools that had successfully embedded ICT found that those that had made most progress were those that:

- developed the necessary skills to engage effectively with the technology. Creating structures to facilitate the use of ICT were found to be as important as, if not more important than, buying the equipment. This was achieved through formal and informal training, with the latter often proving the more beneficial;
- bought teachers and other staff into the overall strategic vision for learning and the associated strategies for the use of ICT; and
- where the 'physical conditions' of the school and the ICT facilities, in particular, were conducive.

In another report[10], searching for why the so-called 'ICT transformation' of UK schools had failed to materialise, the authors identified that the 'compliance and risk aversion' culture of teaching staff was a significant barrier. In other words, in a culture of centrally defined 'good teaching practice' that was externally scrutinised on a constant basis, schools and teachers were not adequately incentivised to take the necessary risks required in order to innovate and progress their teaching craft towards the integration ICT. The report suggests that strategies that rewarded innovation (even failed innovation) had to be considered if it were to supplant a system operating under such tight direction, control and constant external examination of any perceived failures.

As stated in the final section of the report, we believe a new market framework could be considered that mobilised the skills and expertise of the private sector in managing this change process in schools. A key reason being that Australia's corporations and government enterprises have, in many cases, have already been 'transformed' by similar technological developments and thus there is already a great deal of change management tools and techniques that could be used to assist teachers and staff through this process.

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[9] *Moving Towards e-Learning in Schools and FE Colleges: Models of Resource Planning at the Institution Level, PWC 2004*

[10] *E-learning policy and the 'transformation' of schooling: a UK case study. Adrian Mee*

3.3. Issues confronting eLearning in Schools today

Teacher time and resources

education.au[11] identifies a number of issues confronting educators today:

- Time is the biggest barrier to mastering computer systems;
- Technology is still an innovation rather than a mainstream;
- There is a need to invest in providing support and professional learning to enable teachers to embed technology in their teaching; and
- most start with Google or Wikipedia (research among 1200 participants).

Research by the NSW Centre for Learning Innovation[12] (May 2007) supports these findings. It noted that teachers want to access to resources with little fuss and more efficiency, given that they don't often have a lot of time. Apart from Google, teachers will also access education-specific search engines and sites such as the NSW DET site and Teaching and Learning Exchange (TaLe) website.

The vast and growing choice of available eLearning resources

Like it or not, students (and teachers) have a vast and growing array of highly accessible eLearning resources available to them. There are a huge number of resources, a few examples of which are:

- Public Institutional Websites. For example, the BBC, the ABC and a vast array of other public institutions have developed some exceptional learning experiences that are available online and free.

- Commercial Websites/applications. For example, Mathletics and Disney have developed resources that are proving to be very attractive and appealing to some students.

- Mobile Phone applications For example, there are commercial packages that utilise mobile phones to teach foreign languages in an engaging and entertaining way.

- Contemporary online content. For example, Teachers can download contemporary content (e.g. a Youtube video download of President Obama's inauguration address) and present it to a class.

- Teacher and student generated content. Teachers and students can elect to produce and share learning content via collaborative online communities.

- Interactive whiteboards are increasingly becoming pre-loaded with learning content.

- Commercial curriculum-aligned content. Although not deployed in Australia, commercial and public providers have produced full suites of curriculum aligned content for the K-12 sector and are seeking to deploy it into public and private schools, as well as for use for home schooling[13].

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[11] http://www.educationau.edu.au/jahia/webdav/site/myjahiasite/shared/papers/ACELPP-GB.pdf
[12] http://www.cli.nsw.edu.au/cli/files/TUOR_final.pdf
[13] www.k12.com and "A National Primer of K12 online learning", NACOL 2007

While all of the above choices represent different products that may or may not be suitable for the classroom, they nonetheless demonstrate that there will not be one single or homogenous eLearning experience available to students. Teachers and students will 'pull down' content according to their own learning preferences, interests, technical knowledge, accessibility constraints, cultural bias and product awareness.

Technology hardware and infrastructure/bandwidth

The Australian Council for Education Research (ACER) confirms what our discussions also heard: that the take-up of ICT in the Australian education sector is strongly dependant on the availability of infrastructure, computers, networking and professional development.[14] Interviewees felt that these limitations (as well as the lowest common denominator TLF design stands) mean that exciting multimedia developments in gaming, interactivity, etc cannot be utilised.

To address the gaps in technology infrastructure, hardware and content in schools, the Federal Government has commenced the deployment of its $2 billion Digital Education Revolution policy, aimed at creating a world-class education system in Australia. The initiative involves a series of stages, including:

- A National Secondary School Computer Fund;
- Fibre Connections to Schools initiative – fibre to the premises broadband connections;
- access to training in the use of ICT for new and continuing teachers;
- the supply of online curriculum tools and resources to students and teachers;
- the development of online learning and access to enable parents to participate in their child's education; and
- the development of support mechanisms to provide assistance for schools in the deployment of ITC provided through the NSSCF.

Further, in association with state and territory school authorities and the Catholic and independent school sector, the Federal Government will deploy funds to develop curriculum resources in alignment with the national curriculum, in accordance with agreed quality and technical standards. It will also provide access to and promote the usability of learning resources from a range of digital repositories.[15]

eLearning of the Future

Today's students expect technology – they are digital natives, plugged in to an array of devices to watch, listen and interact. Learning tools will need to utilise these mobile tools and devices to continue to engage tomorrow's students. The eLearning world of the future for these students will embrace:
- learning and teaching in immersive virtual worlds;
- 3D virtual learning environments;
- second life;
- active worlds;
- collaborative virtual gaming worlds.

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[14] http://research.acer.edu.au/cgi/viewcontent.cgi?article=1001&context=digital_learning
[15] http://www.deewr.gov.au/Schooling/DigitalEducationRevolution/Pages/Onlinecurriculumresourcesanddigitalarchitecture.aspx

All of these significant changes will have pedagogical implications for the development of new digital content. Our discussions with digital content developers, industry representatives and education administrators revealed several common themes for the future of eLearning in Australia. Most importantly, all agree that technology and its associated social developments cannot be ignored.

In addition, there are a number of other enabling issues:

- Innovation will drive the transformation in learning;
- Cost-effective broadband access for all schools is essential;
- An interactive digital curriculum is needed;
- A focus on student, teacher and parental involvement is required;
- Teachers need to be e-savvy;
- There must be continual teacher professional development in eLearning;
- Education faculties need to train teachers in eLearning.

There is also some agreement that students will become increasingly demanding in the way in which technology is used in the classroom – a simple online or CD-ROM experience will not be enough. Students will want to see and use developments such as interactive and immersive learning and will want to move from being passive to active participants in learning.

education.au in its paper "Innovating with Technology: The Challenge to Education Policy, Leadership and Management" states that future education services will be:

- web based and accessible anywhere there is a connection;
- using wireless;
- using mobile devices that can be moved freely from school to home;
- operating in an open environment of open services, open content and open networks using open technical standards; and
- personalised for the learner to learn and manage their own learning in their own way.[16]

One of the common themes arising from our interviews was that there is a need for digital curriculum content to enhance existing learning tools, with rapid changes in available technologies (moving from pure instruction to an electronic and on to a digital environment) and increasing expectations from students relating to the use of ICT in the classroom. However, digital curriculum content needs to be flexible and accessible, both in terms of usability and availability on a number of alternative technologies, including laptops, interactive whiteboards, MP3 players and mobile phones. Social networking was also identified as a tool being increasingly used by students.

In a study to look at the way young people learn[17], the NSW Department of Education report noted that there are two key concepts that are of a socio-cultural nature and central to the understanding of how young people learn in a digital environment:

- Cognitive activity – the learner is largely engaged by both the medium and the message of learning; and

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[16] http://www.educationau.edu.au/jahia/webdav/site/myjahiasite/shared/papers/innov_tech_GW06.pdf
[17] https://www.det.nsw.edu.au/media/downloads/strat_direction/schools/ccp/aboutccp/stulearnenv.pdf

- Social interaction – allows for the questioning, development and analysis of what is being learned.

The findings of the report clearly showed that young people understand learning to be a dynamic process, which best happens when they are substantively engaged, in contrast to being procedurally engaged. The study also found that those surveyed are not only information gatherers, but are also seeking tools that will enable them to be creative producers.

4.   THE ECONOMIC IMPACT ON THE DEVELOPER INDUSTRY BY TLF

We have reviewed the direct impact on both the TLF Panel Suppliers and the broader eLearning and multimedia industry itself.

TLF Panel suppliers

TLF has had a positive economic impact on TLF's 15 panel suppliers to date and so, conversely, we expect the negative impact of any reduced funding-levels to also be significant. This will occur for two key reasons.

Firstly, a number of the suppliers have become highly dependent on TLF for much of their income. For example, at least two firms we know of have derived up to half their annual revenues from TLF. Hence, a reduction in TLF workflow could be expected to severely impact these firms' profitability and may well result in the shedding of employees directly associated with the development of TLF work. This latter point should be noted by TLF stakeholders, as the suppliers may shed much of this TLF specific skills base – possibly making it harder to 'pick-up' development activity at some later date, should TLF stakeholders so desire - especially when one considers the likely diffusion of former employees into an industry characterised by skills shortages.

A reasonable question to ask is why these developer firms couldn't replace TLF's business activity with other clients? Indeed, we would expect that would be the first remediation step most firms would pursue. However, it did become clear in our conversations with industry bodies such as AIMIA and with the developers themselves, that the industry tends to specialise in fairly distinct vertical market niches and that moving from one client base to another is difficult. Suppliers often tend to specialise with K-12, TAFE/RTO, University or Corporate eLearning sectors due to their limited size. To move from one sector to another not only requires a slightly different skills set but, more importantly, a range of client contacts and sector reputation that cannot be quickly gained. Larger firms with a more diversified client base will be less susceptible to this issue; smaller firms with a high dependency of TLF business will likely suffer the most.

Secondly, due to the economies of scale involved, the profitability of TLF work is very dependent on the amount of work contracted to a particular supplier. This largely comes about due to the high business overheads required to undertake TLF work which require a critical mass of TLF business in order to cover the overheads involved. Thus, profitability tends to increase the greater the scale of TLF work that any one developer can secure. In fact one supplier suggested that at least $400k p.a. of work was required to cover TLF specific costs and derive a reasonable profit margin. A key point coming out of this that should also be noted by TLF stakeholders is that any reduction in overall funding, post July 2009, means that the importance of aggregating demand and using a select panel of suppliers will be even more vital (than pre July 2009) in ensuring that suppliers are able to maintain sufficient economies of scale to sustainably deliver the type of production work produced to TLF's existing standards.

The broader eLearning and digital content industries

From an overall Australian eLearning market perspective, we expect that the impact of any reduced funding will be relatively modest. Historical TLF funding of around $10 million p.a. across

15 suppliers represents less than 2% of the $600m p.a. Australian eLearning market[18]. According to the stakeholders interviewed, the vast majority of these eLearning revenues are derived from the corporate market and the K-12 schools sector is seen as quite a small and specialised component of the market. Consequently, outside the K-12 sector and the 15 TLF panel members, we see little direct flow-on effect to the economic health of the broader Australian eLearning sector.

The impact on the overall Australian multimedia market will be even smaller. AIMIA estimate this market to worth up to $17 billion (depending on how one wishes to define multimedia content) and has thousands of companies operating within the industry. Obviously, TLF business activity represents a very small proportion of this vibrant and growing market, and so the overall effect will be minimal.

5. THE IMPACT TLF HAS TO THE LEVEL OF SKILL WITHIN THE MULTIMEDIA AND ELEARNING INDUSTRY FOR THE DEVELOPMENT OF MULTIMEDIA EDUCATIONAL CONTENT

A very positive impact on pedagogical design, project management, resource planning and QA process skills

All of the developer businesses interviewed referred to a very structured skill-set required to undertake and successfully complete TLF projects to the required levels of QA. While much of this was initially seen as a negative in the early stages of TLF (e.g. in our 2005 review), overall interviewees were now much more positive about the longer term benefits on their own pedagogical design, project management skills and QA procedures. Specifically, the main benefit of skills development and the applicability of TLF work to other clients are considered to be the ability to work towards specifications, milestone establishment, testing and the approvals process.

Most suppliers mentioned that they introduced the TLF's project management, resource planning and QA processes with other eLearning clients and this has proven to be a significant differentiator with clients and assisted them in being more efficient in their production processes.

Given that TLF is seen by the eLearning industry to be a benchmark in project management of developer work, the general perception is that if you can work on a TLF project successfully, then you can work to the QA requirements of most content development marketplace. The adoption of many of TLF's technical and project standards by both state jurisdictions and various federal government agencies is seen by suppliers a key testament to this view.

An arguable impact on the creative, technological and market development skills

As is apparent from the above, the development of pedagogical, project management and QA skills is seen as a major benefit by suppliers working with TLF. However, a number of developers interviewed did make it clear that TLF is (deliberately) not making use of state-of-the-art or leading edge content-rich and immersive technologies, and are instead seeking to satisfy the "lowest common denominator" technical requirements of the TLF stakeholders involved in the development processes. Further compounding the issue is that TLF assigned project managers,

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[18] As estimated in Section 3

content experts and instructional designers were seen to be doing much of the 'creative' and 'design' activity.

For many developer staff, TLF work therefore is not seen as being as exciting as other work involving creative, design development and bespoke project management from the ground-up. Larger roles were seen as important for developer staff, giving them a sense of owning the work rather than just doing the work. For the business owner, too, it is important to keep staff engaged and motivated and to be able to retain them within the business, given the acquisition of important skills sets they have learned from TLF work.

To this end, many interviewees noted that once a staff member had earned his/her stripes on TLF projects (and learnt very sound development processes) they were usually ready to move on to other challenges that allowed greater autonomy, creativity and were technically more challenging in their nature. Having said his though, another supplier made an important point that not all staff are "created equal" and that some (albeit a minority) were quite content to continue with TLF style work and actually enjoyed the predictability and precision required.

Contrasting this view of developers, who obviously have their own priorities to satisfy, are a few important counter points from the education sector's perspective:

- Firstly, as was evident in our discussions with Educations Authorities and further articulated in the Monash University ACER Report[19], is that, in general, the State Educations Authorities believe the content produced was an excellent fit for the purpose in which it was designed. We believe this apparent paradox arises due to the differing priorities of the educators and the private sector developers, the latter of which are more likely to be concerned with the potential commercial exploitation of the content, which would be improved if it were seen as technologically state-of-the-art, attractively-packaged and engaging for potential buyers. Educators, on the other hand, are more likely to be looking at the pedagogical integrity and learning outcomes that will be achieved with the content, along with its accessibility for teachers and students in a range of end-user technology environment, including environments where there is no on-line access at all.

- Secondly, the developers are only involved with greenfield TLF projects and, to date, have not been exposed to TLF's broader Phase 3 procurement framework that includes alternative technology platforms (e.g. mobile phones) and the collaborative work with cultural institutions and other established content suppliers, where some technical standards have been relaxed.

Finally, with regard to market development skills, and as outlined in Section 8, a key defining feature of TLF market engagement with developers is that TLF has, to date, borne most of the market and product development risks. Hence, developers who have expanded into other markets have needed to obtain these product and market development skills from other non-TLF sources. This is an issue we believe requires more balance and is addressed further in Section 8.

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[19] "The value of the intellectual capital created by The Le@rning Federation digital curriculum content initiative", 2009

6. THE CAPACITY FOR DEVELOPERS TO LEVERAGE THESE SKILLS FOR OTHER MARKETS

Many generic process management skills are readily transferable to other markets

As mentioned previously, the skills-set acquired from TLF work generally provides a subset of the skills developers require to leverage their activities into other eLearning sectors and markets, both domestically and globally. It was noted by many interviewees that the pedagogical, project management and QA skills are readily transferable to other eLearning project undertakings, regardless of sector or market. Most digital content development businesses have a range of clients, including the school and VET education sectors, online advertising, web site development and corporate learning.

In terms of the very large corporate eLearning market, one interviewee mentioned that the corporate market standards for eLearning in international markets, such as the US and Europe, are more stringent than that of the Australian corporate market. Hence, the higher standards of TLF were seen as a benefit in being able to meet the requirements of these markets.

A couple of the developers interviewed provided good examples of this skills leverage. For example, one developer had recently won a contract with Disney's educational unit in developing English language learning material for the Chinese market. Another developer had successfully expanded into the United Kingdom K-12 market through contracts with the London Grid for Learning.

Our discussions indicated, however, that not all digital content developers are looking for such growth and are happy with the way in which their businesses currently operate, both in terms of size, turnover and relationships with TLF.

In the case of developers who had expanded into other markets, they made it quite clear that, while the TLF skills they had acquired formed an important part of their success, there were other key skills that were also required. These generally include higher levels of technical knowledge and creativity, as well as market development and sales skills.

TLF content production skills are less likely to be transferable

As previously mentioned, most developers see the TLF end product as being designed to cater for the lowest common denominator of user interface and access infrastructure available in any one school district. To them, the opportunity to exploit the product with further commercial development to address a wider and more technically capable market was seen as quite limited. The result, in their view, is that TLF produced content only exploits a fraction of the technical, creative and immersive technologies that are available. Developers would like to see standards that assumed the use of broadband connectivity and allow the use of more recent software products. The former point was particularly seen as important as designing content for standalone (i.e. not online) usage was seen as particularly limiting.

Another reason TLF content production skills may have limited transferability is that they are heavily rounded in 'learning objects' based methodologies. While we are not saying that learning

objects are unlikely to form an important part of the future eLearning market, it is however clear that learning objects based content will only form a sub-set of the market (See Section 3).

7. BUSINESS AND FUNDING OPPORTUNITIES THAT LEVERAGE THE EXPERTISE DEVELOPED WORKING WITH TLF

TLF provides 'bread and butter' income, enabling sustainability and scale to exploit other opportunities

Most developers tended to describe their contracts with TLF as important 'bread and butter' work underpinning their business growth. In other words, it had come to be seen as a fairly predictable and steady revenue stream, as well as known quantity in terms of the resources and costs that are needed to execute (i.e. TLF represented a predictable low-risk, low-return cash-flow). While developers certainly did not see TLF contracts as a 'road to riches', due to the aforementioned low-margin nature of the work, a number did, however, see it as critical to them gaining sufficient scale and sustainability as a business to expand into more higher-risk, higher-return business opportunities.

Notwithstanding the above, it must be said that a select few interviewees suggested that TLF work was 'bottom feeding' and didn't provide long term sustainability for business growth. They took this view as they saw the majority of 'value add' design and project management work being undertaken by TLF itself, while the low-value content creation was allocated in a piecemeal contracted fashion to panel participants. This sense of funding and workflow certainty was, perhaps paradoxically, perceived to be an inhibitor to business growth and opportunity. That is, in their view, the low-risk, low-return, nature of TLF contracts has led developers to becoming risk-averse and unwilling to take greater creative and business risks, where they learn to take on development risks and exploit their IP to a greater degree.

While we can see the theoretical rationale with this argument, in practice, however, we found no overwhelming evidence of TLF development work conspiring against developers taking on more risky business development activities. In fact, many developers appeared to have diversified away from project-based, lower-end development work and, as discussed elsewhere in this report, there are a number of success stories. The key message was, however, that in order to sustain these riskier business development activities, the developers had found that the reliable supply of TLF work helped sustainably underpin their business's financial stability.

TLF provides solid and respected credentials

The fact that a developer is part of the TLF preferred supplier panel is seen as a key benefit for developers. It shows that the developer's business has already been through a stringent due diligence process and can meet TLF's well recognised standards and QA framework. This particularly applies in Australia, where TLF is reasonably well recognised within the large public-service sector.

Interviewees also believe the credentials they acquire by working with TLF add to their potential to win work overseas, but that time and resources (cash and people) generally restrict business opportunities.

Overall, though, interviewees were happy to continue with TLF projects, both for financial reasons and for the more intangible asset of experience and credentials.

TLF developed IP appears of limited value and most suppliers lack international distribution and reach anyway

Under arrangements organised by TLF, developers are permitted to use and exploit TLF commissioned content in international markets. So far, this initiative would appear to have had some, albeit limited, value to developers.

While developers advised that the use of IPR had been useful to them in being able to demonstrate their credentials and abilities to prospective customers via the display of their TLF learning objects, their direct use of IP has been limited for the following reasons:

- Most international jurisdictions want their content produced for their own language, culture and curriculum needs, hence, there is limited applicability in the direct importation of any TLF content developed for Australian and NZ schools;
- TLF learning objects (like most learning objects), have proven not to be as re-usable as first envisaged by the industry. Instead, ground-up development has generally been the development path on most new projects (which renders TLF IP as essentially valueless);
- As mentioned previously, TLF content, while pedagogically sound and robust, is not generally seen as taking advantage of the latest technologies and so are not considered 'content rich' or as engaging for students and teachers as other competing content.

One of the main inhibitors to leveraging into other markets is that many of the smaller developers on TLF's panel simply do not have the financial backing to undertake the investigation of new international market opportunities. The development of international distribution channels takes a long time and involves significant investment and risk. One interviewee suggested that this was a reason that TLF should consider reducing the panel size even further (i.e. below 15) and focus on a small number of larger developers who possess the resources for expansion.

8. THE ONGOING RELEVANCE OF THE MARKET FRAMEWORK ESTABLISHED BY TLF OF SPECIFICATIONS AND DISTRIBUTION NETWORKS FOR CREATING DIGITAL CONTENT FOR SCHOOLS

In our Phase Two report into TLF's activities, we found that TLF had, generally, created a solid and robust market framework that clearly defined the expectations for the development of quality online curriculum resources. Key aspects of the market framework included:

- setting technical standards and frameworks;
- setting instructional design standards and methodologies;
- specifying developmental and QA procedures; and
- establishing a systems environment.

In this review, we again found that TLF had continued to successfully execute, and even improve upon, the above framework. This is exemplified by the development of the Scootle distribution portal and the ongoing high regard by the developer community for TLF's design standards, developmental and QA procedures. Metadata standards and SCORM compliance were also highly valued by the State Education Departments, as was the fact that all content was aligned to curriculum, was pedagogically sound, reflected Australian culture (including content sourced from cultural institutions) and was copyright free.

Another development during Phase 3 has been that multimedia developers, through the use of being granted a TLF "Class C" licence, are able to commercialise derivative material from the original content developed for TLF.

In sum, in our view, the framework creates significant value-add for both TLF produced content and 'greened' external content. That is, schools and teachers can comfortably and quickly search and utilise IPR free, curriculum-aligned and pedagogically appropriate materials. This ease of use would seem to be a cornerstone requirement for the successful deployment of eLearning materials into all Australian and NZ classrooms.

The other benefit of the Australian/NZ-wide market framework is that it makes it clear to the developer community what the required standards will be for bespoke school-sector commissioned content. The alternative is that, in the very small Australian/NZ market, multiple standards are adopted for each jurisdiction, which would invariably increase compliance costs for any developer working across jurisdictions. It would of course also make sharing and enhancing content between jurisdictions much more problematic.

While TLF continues to successfully deliver upon the market framework, a key remaining question arises as to the continuing relevance of the framework. In particular, we note that four major developments have occurred since the original inception of TLF market framework, in that it is now apparent that:

o Centrally commissioned, top-down, curriculum aligned materials will only form part of the eLearning environment in classrooms. As outlined in Section 3, there will be a multitude of materials derived from a large number of sources. Further, much of this material will also be developed 'bottom-up', adapted to particular learning/teaching styles and will be exchanged

and modified within collaborative and interconnected communities (outside formal educational structures and processes).

o The 'digital divide' is as likely to be driven by differences in teacher skill levels and variations in leadership and support as it is by unequal access to infrastructure and content;

o Our way of viewing and valuing intellectual property has changed considerably. Value is being seen much more around the relationship and human capital developed, than it is around the output of the process[20] (i.e. the copyright attached to content). In fact, the whole 'open source' paradigm of freely sharing the source-code of content is not a benevolent act by industry, but is instead predicated on the view that certain developers make better returns and are more competitive, if they focus on refining and adapting existing source code and selling their general project and technical expertise.

o With the new Sustainable National Digital Curriculum Resource Supply for Schools Agreement for Funding for 2009/10, it is now possible that funding to the developer industry may reduce, procurement may be decentralised and that several strategic agendas and visions for K12 eLearning may arise.

As a result of these major developments, some changes are likely to add value to both developers and the K-12 sector going forward. The key areas that we believe would add value are:

1. Enabling alternative technologies and content development approaches;
2. Developing a benefit-risk sharing arrangement with the developers that better exploits the strengths of each party;
3. Developing a co-ordinated procurement approach that ensures an adequate scale is maintained; and
4. Developing a leadership role guiding Australian developers on the priorities and aims of the schools sector.

We review each four of these as follows:

1. Enabling alternative technologies and content development approaches

As previously noted, there is the perception that TLF caters for the lowest common denominator needs, largely because of the limitations of technology in many schools and because the content is centrally designed, quality assessed and then delivered through the formal 'walled gardens' of Education Department networks.

Against this understandable ideal to ensure universal access to the same standard of content in every classroom, there are several powerful countervailing forces at play, such as:

• The underlying infrastructure and hardware continuing to be rolled out in a non-homogenous way across the schools sector[21]; and

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[20] Monash University, "The value of the intellectual capital created by The Le@rning Federation digital curriculum content initiative", 2009

[21] From a policy perspective, we note the recent trend towards equalisation of infrastructure. For example, the Federal Government's Digital Education Revolution could be expected to gradually see this problem addressed (e.g. with its Fibre Connections to Schools initiative, which will see the deployment of fibre to the premises broadband connections for schools)

- Individual schools/teachers/students are taking on very different attitudes, preferences and approaches to utilising eLearning resources;
- Internet and mobile technologies providing access to an almost huge amount of 'competitive' content, at the click of a button - for teachers, parents & student - regardless of their location.

Research conducted by the Department of Education, Employment and Workplace Relations in 2008 (Exemplar Schools Using Innovative Technologies) noted that a 'one size fits all' approach to ICT is not appropriate given the many differences between learning communities. The report states that:

> "*Rather than adopting an approach based on identifying and distributing educational 'best practice', we advocate a more flexible alternative based on the concept of 'appropriate practice'. This involves assisting schools to identify the unique needs of their community and educating school leaders about the ICT operations available to help them address these needs.*"[22]

For TLF (and its stakeholders) there is a natural tension between:

> A: *"ensuring universal access to the same pedagogically designed content"* and
> B: *"facilitating access to technologically more advanced content of less certain pedagogical integrity and origin"*.

To date, TLF and stakeholders have understandably favoured A, but due to the above forces it may now be time to consider re-weighting this balance. While this potentially has significant equity and educational integrity issues attached to it, the alternative is that students, parents and teachers will ultimately bypass what that they perceive to be an inflexible system doesn't provide for their needs and expectations.

To this end, several initiatives could be contemplated, these include:

i. Raise the technical and accessibility development standards to the most 'common practice', rather than a minimum practice, so that digital materials developed meet the majority needs;

ii. Completely dispensing with copyright and making the content 'open source'. This would allow users and private sector developers opportunities to freely edit, supplement, improve and enhance TLF commissioned material for various education system sub-markets. It is also worth noting, as reviewed in Section 7, that the value of direct copyright is not clear-cut and may well be worth very little;

iii. Allow TLF materials to be freely accessible to anybody over the internet. This would improve ease of access (i.e.no logins) and allow parents, student and teachers to access the content anytime and at any location they so choose. It may even raise the awareness of the quality of the content in other markets and lead to opportunities for the developers to access opportunities that leverage off their expertise and familiarity with the content.

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[22] http://www.deewr.gov.au/Schooling/DigitalEducationRevolution/Documents/exemplar_schools_report_pdf.pdf , p99

Note, by the above we are not suggesting TLF abandons the existing development standards, search and distribution systems. For the benefits outlined, we suggest they should remain in place as a 'base-service' platform. Rather, we believe the change suggested in initiative (1) above, would be aimed at catering for the majority of needs, while the supplementary content development and distribution systems that may materialise (via initiatives 2 and 3) will better position the market to cater for those seeking a service beyond 'appropriate practice' or those who may be seeking to 'dumb down' the content to provide services for the 'lowest common denominator' needs, or those who may be seeking to repackage/repurpose it for other markets.

2. Developing a benefit-risk sharing arrangement with the developers that better exploits the strengths of each party

Perhaps one of the key defining features of TLF market engagement with developers is that TLF has, to date, borne most of the product development and market demand risks.

- <u>TLF bears most of the product development risks</u>. As explained previously, TLF take a hands-on role in the project planning and is generally considered to be responsible for large components of the development process (e.g. instructional design, QA, testing etc). This situation is quite contrary to most public procurement practices where development risks are primarily placed on private sector (e.g. the design and delivery of a toll-road, hospital, IT project etc where the contractor is responsible for delivering on time and budget). The advantage of this approach has been that TLF have been able to award work to smaller suppliers or those suppliers best placed to provide the most value-add from an eLearning content development perspective. Had this risk management decision not been the case, development work would have been more likely to be awarded to supplier(s) who could both manage and cope with the inherent development/execution risks. In practicality, this would have more than likely been a much smaller panel of larger and well-funded suppliers with superior project management skills (e.g. large IT service companies);

- <u>TLF bears all of the market-demand risk</u>. Essentially, all TLF projects 'fully fund' the content development costs so that there is no market demand risk to the developers. An alternative approach could have been that TLF only partially funded the development and that additional compensating revenues were only gained by suppliers as and when demand uptake from schools took place. This approach again presented less risk to developers and ensured the schools did not need to concern themselves with paying for IPR at a later date.

While the above framework presents some clear benefits, and has reduced risks to the supplier community, it does not necessarily work to the strengths of the private sector, which is generally considered to be a better manager of investment and product development risks. The advantage to the private sector developers in taking on this greater risk exposure is that they will have the potential to earn greater revenues, should their products gain wide appeal.

In addressing this issue, we believe there are three possible models to consider. The first is the discretionary demand-led models used in the UK, namely the e-credits scheme and, more recently, the LGfL. Both these schemes are reviewed in Appendix B. While both schemes adopt some level of risk sharing with the supplier community, based on the success or otherwise of their product with end-users, the main risk issue with adopting similar schemes in Australia is that there must be a reasonably large and mature demand market. That is, the schools and other potential

purchasers of content must possess sufficient discretionary eLearning content spend to create a sustainable demand market.

The second model is the centralised, supply-side focussed, procurement model. To some extent this is the model TLF already operate under, however, as outlined in Appendix A, the model adopted by the VET sector in the development of its 'Toolboxes' takes this model further. Without making any comment on the quality content produced by the VET model, from a business model perspective it does have some attractive benefits in that it promotes competition amongst suppliers for the best creative ideas; teams of people; educational strategies and price. A key difference between this approach and TLF's is that all of the design and development is completely outsourced to the supplier and there is little hand-ons work conducted by the sponsor (eWorks). Hence, most of the development risk is borne by the suppliers. A limiting factor, however, is that there is no ultimate risk-return sharing between the developer and the sponsor based on the market-demand appetite for the content.

While this second model lacks this market-demand element, in our opinion it is likely to pose the best option for the Australian schools sector going forward, the main reason being that we believe the chances of establishing sustainable demand-market across the entire schools sector is fairly unlikely given the number of jurisdictions involved and the likely 'administration costs' in establishing an artificial demand-situation, such as the e-credits scheme in the UK. Also, if education authorities (or their subsidiaries) are keen to develop digital learning materials in their own right we note they could still become a supplier under this model anyway.

The third model is for TLF and/or the various Education Authorities to 'insource' development work. The advantages of this option are that it removes the 'overhead' associated with tendering and managing contracts with private sector developers and arguably provides the Education Sector greater control of their costs and production processes.

The main disadvantage of this third model is that it lacks competitive rigour and is structurally inflexible. That is, if TLF builds this capability in-house, there would likely be a lack of competition for ideas, skills and costs associated with each new development project (compared with say the second model). Alternatively, under a decentralised arrangement, if each Education Authority builds it own in-house capability then, again, there is likely to be a lack of competition for ideas, skills and cost on new projects, as well as the potential for significant capability duplication between each Education Authority, which, in some cases, may also not be able to develop sufficient economies-of-scale to efficiently deliver product anyway. The focus, instead, is likely to be on keeping in-house developers fully utilised, which, in our view, would tend to encourage Education Authorities to pursue their own projects in relative isolation from each other.

While it could be argued that the overall costs of production are lowered by not outsourcing development to the private sector, we would also point out that some of these cost savings can be fairly superficial and do not necessarily fully reflect the flexible structural arrangements enjoyed. For example, if there are changes in demand for development work then there is the flexibility to add or subtract developer capacity without the need for redundancies or the hiring of temporary contract staff.

3. Developing a co-ordinated procurement approach that ensures an adequate scale is maintained

As explained in Section 4, developers believe that a minimum annual spend is required to support the high fixed overheads involved in developing greenfield resources for the formal education sector. Further as found in the University of Monash-ACER research, considerable cost savings (circa 20-30%) are achieved across the schools sector via the centralised joint procurement of content. Hence, moving forward, it is important that TLF stakeholders continue to centrally aggregate their procurement needs and establish a preferred panel that is commensurate in size with this likely collective spend. One supplier mentioned $400,000 was a likely figure on the annual spend per supplier, while we note in the VET sector Toolbox Project, spend in the order of $500,000 per supplier seems fairly indicative. Clearly these figures would need to be verified, but working to some broad formula makes sense. Note, we are not saying there should be any guarantees of work for any particular supplier, but believe that maintaining a competitive tendering environment within a preferred panel of suppliers provides the appropriate balance between competition and scale.

4. Developing a leadership role guiding Australian developers on the priorities and aims of the schools sector

Private sector investment tends to seek and thrive on as much clarity as possible in the markets in which they choose to operate[23]. As such, developers will usually only consider an appropriate investment or resource allocation to a market when there are relatively clear trends and clarity around the opportunities available. This is particularly so for public-sector driven opportunities, where the labyrinth of decision-making processes and ever-changing funding priorities can become quite confusing and concerning for private sector suppliers.

For this reason we believe that establishing a central strategy, development and policy group, covering the entire schools (and possibly even the entire formal education) sector would be enormously valuable to the developer industry. Such a body would be responsible for signalling to the market such important information as:

o   the longer term priorities, aspirations and challenges facing the sector;
o   the current standards and quality expectations of the Australian education sector;
o   the realistic commercial opportunities that are likely to arise, including those outside the realm of direct content development, such as cultural change management and support;
o   successful case studies and approaches;
o   how to develop networking and partnering opportunities; and
o   key contacts and information about current initiatives.

In the absence of such a body guiding the overall sector, it is likely that strategies will diverge across the Education Sector and the corresponding information flow will become fractured and lack credibility within the developer community. In such an uncertain environment it difficult for business to make investment and resourcing plans that might also be to the benefit of the education sector.

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[23] This is a key reason why market research and consulting firms are so often engaged by companies seeking to enter new markets, and have become such a large industry within themselves.

APPENDIX A: e-Works and Toolbox Development for the VET Sector

e-Works' manages the development of Flexible Learning Toolboxes on behalf of the Australian VET Sector. Toolboxes are interactive eLearning and assessment resources that support nationally endorsed training packages. e-Works' projects are aimed at implementing the application of ICT to increase participation and improve learning outcomes in the VET and Adult Community Education (ACE) sectors.[24]

Each year, the 11 national Industry Skills Councils identify priority course areas for interactive resource development for the VET sector. e-Works then takes these priorities to national tender each February for the development of Toolboxes to support these training needs. Only Registered Training Organisation (RTO) businesses are permitted to tender for these projects, although, these RTO's often sub-contract the multimedia aspects of development work to private sector developers. This decision was taken to ensure that the end product presents a focus from teachers and the educational sector, with Toolboxes focusing on strategies to promote learning rather than information presentation only.

In submitting their tender, each RTO must put together its team for fulfilment of the tender requirements. That is, unlike TLF projects, e-Works does not put together its own team for each project; instead, each tenderer nominates a team of experts for the complete assignment. Many of the RTOs have their own multimedia departments or hire a multimedia partner for involvement in the project. e-Works does not use a preferred supplier panel, however, there is a core group of reliable providers that e-Works often utilises. Nationally, there are around 5-10 RTOs with the capabilities to consistently provide the product needed.

Projects are typically around $200,000 and involve the development of between 5 to 8 competencies/subjects within a course. These are delivered by the end of each year, following testing on a number of platforms.

The selection process for a successful tenderer is score-based against five criteria. Tenderers must:

1. Show an understanding of the particular course area being developed and the industry to which it relates;
2. Show an understanding of learners and their different needs, such as levels of literacy or educational background, visual v numerical v other presentations, etc. Then present a comprehensive and sound educational strategy for those learners showing what the product will do in terms of its educational features (including an outline of a sample sequence)
3. Show understanding of the technical requirements
4. Describe project management, quality assurance and risk management strategies
5. Describe the team and the organisation

Of these criteria, the second is considered the most important.

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[24] www.eworks.edu.au

Tenderers also need to provide a budget which shows value for money.

After selection, each project team is required to provide a proof of concept, whereby a sample product is developed and the interface can be checked against education strategies and understanding of technical guidelines.

e-Works does not play a hands-on role in the project. However, a range of quality control measures are well-established, as well as strict criteria regarding educational standards, interactive learning, technical preferences and equity rules. e-Works also undertakes an annual workshop for education, technology and project managers to address and reinforce these issues in the Toolbox development they are undertaking.

e-Works also utilises a mentor system to provide strategic advice to each project team. Further, there are also a series of checkpoints for oversight of the project, including a half-yearly visit to each project developer. Prior to delivery of the tool boxes, testing is required on a number of platforms.

One of the key differentiators of e-Works is that its copyright licences are given to users to customise or change the product for its own purposes/needs. The licence is provided on a 'share and return' basis, whereby the user that customises the product is required to return the changed product for sharing with the broader VET community. A repository has been established which can accommodate these new versions.

Tool boxes on CD-ROM are available for purchase at a fairly nominal cost of $400 per tool box. Individual learning objects are free of charge.

In terms of implementation and support for teachers, one key initiative has been to set up Toolbox champions in each jurisdiction These Toolbox Champions can assist with:

- Organise and conduct professional development activities.
- Mentor teams wishing to implement Toolboxes.
- Provide advice about using the Toolboxes.
- Disseminate information and broker other types of support (eg. customisation).

There is also a comprehensive Toolbox help desk that teachers can call or email for support and assistance.

Appendix B: Two UK based School Projects

Curriculum Online schools project

In our Phase 2 report, we noted that the Curriculum Online schools project in the United Kingdom had received increased funding support and that the e-credits scheme had resulted in significant increases in the purchase of eLearning products. However, there had been limited success in the commissioning of digital content, the promotion of efficient procurement by schools or the stimulation of new opportunities for multimedia companies that were not already traditional publishers/suppliers to schools.[25]

Since this report, the Curriculum Online project and eLearning credits scheme have closed. Access to the catalogues of these services was closed as a result of funding changes to the programs at the end of August 2008. It is now no longer possible to use eLearning credits to purchase digital resources. A new program, the Harnessing Technology Grant, is now the main source of funding for ICT in schools. Funding is allocated to local authorities, who determine the basis on which to distribute the grant to eligible schools and can also keep up to 25% of their allocation for purchasing on behalf of all schools.

A limitation of spending the Grant is that it must be on capital purchases. As such, digital curriculum content services that involve annual subscriptions are not automatically covered.

The London Grid for Learning (LGfL)

The London Grid for Learning (LGfL) was launched in June 2000 and is an initiative of the 33 London local authorities to provide broadband connectivity, managed services and online content for the London education community. LGfL's initial challenge was to provide true broadband connectivity to London's 2,600 schools. In addition to infrastructure and connectivity, LGfL provides online educational content through its portal. The development and acquisition of online material is directed by an Editorial Board. The LGfL also provides a range of managed services.[26]

Discussions with a multimedia developer that has successfully exported its skills and knowledge overseas revealed that the LGfL approach to the management of IP provides benefits for both the commissioning organisation (LGfL) and the developer undertaking the assignment. Under the LGfL model, the developer is able to provide its content at less than commercial rates and retain the IPR to the product. By retaining the IPR, the developer is able to sell the digital resource to schools other than those within the 33 boroughs of London that make up the LGfL. This provides a return to both parties – the LGfL receives a sound, unique and relevant product at a substantially discounted price (up to 80%-90%) and the developer is able to generate considerable revenue out of the project by selling the product to a wider market of 153 boroughs outside London.

Throughout the content development process, LGfL maintains close linkages with the developer, providing constant input and feedback regarding new projects, opportunities, etc. LGfL provides teachers and subject matter experts for workshops to establish the parameters and scope of the

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[25] Convergent Consulting, The Le@rning Federation - Market Linkages Review, March 2005, p9
[26] http://cms.lgfl.net/web/lgfl/about/history

project and to ensure it relates to the curriculum. The final product is one that can be repackaged, redeveloped and rebadged (although credit is usually given to LGfL's role in the product development). Because the developer works on a licence-recurring revenue model, it is important that the product is relevant, used and re-licensed.