

**Centre for Innovative Industry Economic
Research Inc**

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**The Australian software industry and
vertical applications markets:
globally competitive and
domestically undervalued**

**Introduction
Executive summary**

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INTRODUCTION

The project team

The project team was formed under the aegis of the Centre for Innovative Industry Economic Research Inc. (CIER). This newly formed body brings together researchers and industry bodies to further our understanding of the innovative industries, including information and communications technology, biotechnology, nanotechnology and environmental technology.

The project team was supported by the Australian Computer Society (ACS), the Australian Information Industry Association (AIIA), and the Pearcey Foundation.

By necessity, some opinions have been expressed in this report. Those opinions are derived from the collective wisdom of the project team, informed by input from industry sources and from the many previous government and industry reports addressing issues relating to the software industry.

Comments made by software industry focus group participants also reflect their personal viewpoints and experience, and sometimes may not apply to the whole industry, or may reflect perceptions rather than reality. The opinions in this report are those of members of the project team, and do not necessarily represent the opinion of the Australian Government, or of the state and territory governments and industry bodies that contributed to this project.

It has been our intention in this report to present a balanced viewpoint. To the extent that we have failed in this we apologise. We have however, also borne in mind the necessity to draw some conclusions, rather than just to present the arguments. In so doing we have drawn upon the following quotation by Oxford University Professor Richard Dawkins, Charles Simonyi Professor of the Public Understanding of Science, for inspiration:

When two opposite points of view are expressed with equal intensity, the truth does not necessarily lie exactly halfway between, it is possible for one side simply to be wrong.

Background

This project had its genesis in the findings of the *Framework for the future* report prepared by McKinsey & Company in 2002. The McKinsey study concluded that the development of specialised software applications and the provision of specialist skills and services to multinational firms represented the greatest opportunities for Australian firms to participate in the global ICT industry. This study focuses on the first of these identified opportunities, software applications for vertical markets.

The key outcomes identified in the project brief were:

- the development of a map of the Australian software industry, including the concentrations of software firms and capabilities, significant strengths and weaknesses, and relationships between firms, key customers and the innovation base; and
- a strategic assessment of selected vertical software applications markets, and of the potential of these markets as a basis for sustainable growth for Australian software firms.

Vertical applications can be focused on a specific industry, and be closely associated with the work done in that industry (e.g. mining optimisation software), or be focused on activities that span industries (e.g. e-learning).

In the course of this study, focus groups of software developers and other industry participants were held in NSW, Victoria and Queensland, and were hosted by leading players in the Australian ICT industry, with the assistance of the ACS, the Pearcey Foundation, the AIIA, Software Queensland and State Government departments.

These were supplemented by case studies and/or industry meetings in Western Australia, South Australia, the Northern Territory and Tasmania, in order to ensure a sufficient level of Australia-wide coverage. Attendees at the focus group forums, and some other selected firms, were asked to respond to a standardised case study questionnaire in order to provide particular examples of software vertical market success, and to identify factors that have impacted upon their market success or failure.

In addition, each state and territory minister responsible for ICT was contacted to request cooperation from their respective departments. Meetings and/or discussions were held with representatives of Western Australia, Northern Territory, Queensland, South Australia, Tasmania and Victoria.

A number of vertical market experts were also consulted. These consultations supplemented our desk based research and provided a rich source of information.

Reading this report

We have presented the report in two sections. The first part (part A) addresses the industry mapping requirement, including all of those aspects of industry analysis relating to the whole industry. The second part (part B) analyses the selected verticals and the particular opportunities which they present. In order to avoid repetition, the

chapters examining the selected verticals do not repeat aspects that are generic to the entire software industry that are dealt with in the first part of the report. Therefore, the vertical market chapters in part B need to be read in the context of the entire report, not as stand-alone reports.

Mapping

In order to map an industry, it is necessary to understand its dimensions (e.g. employment, revenue, research expenditure and exports), its shape and structure (e.g. ownership, relative size, and components), and its significant features.

An industry does not exist in isolation. Its sustainability is affected by its environment which includes the commercial, legal and regulatory operating environment, the availability of capital and necessary skills and supporting infrastructure of public-sector research and development and the domestic market etc. An industry also displays characteristics that are derived from its history and influences.

For the industry mapping, and to explore the selected vertical applications markets, we have adopted a value or product system approach, thereby, situating Australian software developers in their industry, market and economic contexts. A product system encompasses production system relationships (both transactional and non-transactional) and includes suppliers, producers (firms/industry), distributors, clients and markets, the overarching regulatory framework and collective support infrastructure.

Some definitions

For the purposes of this study, *software firms are firms that develop software for the purpose of selling or marketing a product*, rather than applications that are developed solely for in-house use (emphasis added). Thus, software firms are firms that specialise in the development of software for sale as a product, or that provide software development services (i.e. over 50% of revenue from these activities). The software industry is the cohort of firms that are software firms.

Vertical applications markets include: (i) vertical markets for applications where markets relate to specific industry sectors (e.g. mining, government, health, etc.), and (ii) vertical applications markets relating to specific activities (e.g. e-learning, e-payments, etc.). As an illustration of this complexity, the table below maps some of the relationships between vertical markets and vertical applications that are studied within this report.

Software provided to a vertical market, such as the health sector, consists of both specifically designed health sector software, such as patient management systems, and horizontal software such as security and payment systems, that may or may not be adapted to the specific needs of health sector buyers. The health sector is also a market for vertical products, such as e-learning, that may, again be tailored to the market, but in which the suppliers are often more likely to see many markets as pertinent.

Accordingly, some software suppliers see their market in target-vertical market terms, but others define themselves by their product offerings.

Table 1. Indicative map of relationships between some applications and markets

Applications			Markets					
<i>Vertical</i>	<i>Market Specific</i>	<i>Horizontal</i>	<i>EDU</i>	<i>Mining</i>	<i>Energy</i>	<i>Health</i>	<i>Manu</i>	<i>T&C</i>
		ERP	X	X	X	X	X	X
		Security	X	X	X	X	X	X
		Payment	X	X	X	X	X	X
		Con/Mgt	X	X	X	X	X	X
		Web/Net	X	X	X	X	X	X
		Data/Mgt	X	X	X	X	X	X
	SCADA				X		X	
	CIS/Billing				X			
	CFAS				X			
	RTAC				X			
	CAD						X	
	Mine Mgt			X				
	Exploration			X				
	ECM/BPM						X	
	Financial							X
SCM			X	X	X	X	X	X
Logistics			X	X	X	X	X	X
Telemetry				X				X
e-learning			X	X	X	X	X	X
e-science			X	X	X	X	X	X
Clinical						X		
Clinic/Sup						X		
Patient						X		

Source: CIER Analysis.

Analysis of vertical markets

We have selected a range of vertical markets that include both vertical applications markets and vertical market sectors, in order to explore the breadth of issues. Given the overall scope of the project, the analysis of the vertical markets is inevitably preliminary in nature. The focus is on identifying key features of the markets, vertical market opportunities and the potential of these markets to form the basis for sustainable growth for Australian software firms.

Limitations of the vertical market approach

There are number of limitations to a vertical market approach, in particular the treatment of specialist, non-specialist, in-house and non-market software production. It is implicit in the approach that software is produced by specialist software firms. As a result, there is an inevitable focus on the specialist software producers and a relative neglect of non-specialist producers (e.g. multi product and service firms), in-house production (e.g. extensive development of content and tools within the sector for own use and sharing), and non-market production (e.g. freeware and open source/open access).

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There is also a focus on software development, rather than maintenance. A related limitation is that the focus on vertical software applications markets leads to a neglect of embedded software—be it embedded in hardware products, services or multimedia content. Given the extent of non-specialist, in-house and non-market software production in sectors like education, health and government, and embedded software production across a range of industries, this limitation is significant and must be borne in mind when interpreting the analysis.

EXECUTIVE SUMMARY

This report analyses the Australian software industry and includes a more in-depth analysis of eight selected vertical software applications markets (i.e. education, energy, government, health, ICT, manufacturing, minerals, and trade and commerce). It identifies particular industry strengths and characteristics, and explores export markets of significance and opportunity.

The software industry

The Australian Government's industry development objectives for the ICT industry are: to have a vibrant, competitive and internationally recognised ICT industry that can take advantage of international opportunities and make a greater contribution to economic growth; and to have globally competitive industries that make effective use of ICT.

The software industry is an important and integral component of the Australian ICT industries. It is significant in its own right, as a substantial exporter of products and services, and it is strategically important to the competitiveness and sustainability of all Australian industries, the development of new goods and services with enhanced functionality, and the cost effective delivery of health, education and government services. It is also a highly diverse industry, both in terms of the markets in which it operates and in terms of its geographical location. There is no single centre for the software industry, there are many, and they are all over Australia, in every State and Territory.

The Australian software industry is at an exciting stage of its development. It includes both well-established and mature globally competitive companies, and new and emerging start-ups. It is strongly export focussed, and has a deserved reputation for quality. While it is an integral part of the global ICT industry, it has the capacity to stand on its own feet and compete internationally.

Size and structure of the industry

CIER estimates that in 2004–05, the Australian software product industry employed around 17 000 staff, supported by nearly 7000 development staff, and earned AUD 2.7 billion, of which \$830 million went to Australian developers. International markets accounted for \$290 million of this revenue, with \$226 million going back to the software developers. The industry spends \$66 million a year on R&D.

The computer software and services industry includes a large number of small firms. In June 2003, no less than 97% had fewer than 20 employees and 99.6% had fewer than 100. Nevertheless, a relatively small number of larger firms dominate most markets, of which the majority are foreign based multinationals though there are a few relatively large indigenous software firms.

Capabilities

Australia's main strengths in the development of software products are long-term experience in the field, compared to many other countries, and the quality of software personnel. Specific software industry strengths identified during the focus groups, included: relatively low costs for software development (compared to US and Europe), strong Unix and open source skills, multicultural work-force and language skills, well educated and open society, well established and representative industry bodies, competitive and discerning domestic market, technological leadership in a number of vertical markets, technological leadership in some software niches, and higher quality finished software products than world norms.

There was a strong feeling among those consulted that the relative strength of Australian software producers was under-appreciated and under-valued by other industries and by many in government.

Opportunities

Software export opportunities abound, but there is marked variation between regional, national and vertical applications markets. For a number of vertical markets, the US may not offer the most responsive target, despite its size. The 'common heritage' of the Commonwealth has resulted in a higher degree of commonality in practices and legislation in those countries within or formerly part of that grouping, and they offer many export opportunities.

The most significant emerging markets are in South East Asia, Central Asia and Eastern Europe, but the significance of each of these and the merits of particular countries within the regions, varies depending on the vertical software market, and can vary considerably for particular segments within a specified vertical. As a general rule, those countries with greater cultural compatibility to Australia offer the easiest potential market entry (e.g. New Zealand, UK, Singapore, India, Canada, Malaysia).

The ICT industry might consider a sectorally targeted software export strategy, based upon specific vertical software market missions to selected regional and country targets. There may also be scope for more structured links between firms within the vertical markets being explored, as the limited feedback derived from the various focus groups and case studies has indicated a commonality of interest and the potential for useful cooperation between Australian software developers who are interested in growing their businesses in the same vertical market.

Linkages

In many markets, software developers benefit from close linkages with leading clients, which often drive innovation. Strong user-producer linkages, deep vertical market understanding and clients who are leaders in their industries are the hallmarks of success (e.g. mining software). Conversely, markets with a high degree of mediation, with software sold through the wholesale-retail channel, through multinational channel partners or through embedding in electronic equipment, present many challenges for would-be software developers.

There are also benefits for developers in maintaining strong linkages with a range of players involved in the industry's regulatory and support infrastructure. These include: technical and quality standards bodies, intellectual property and business regulation, professional and product accreditation agencies, business support services, industry networks and clusters, and advisory and support agencies. Of particular importance for Australian software developers are close linkages with skills suppliers, education and training agencies, and finance and venture capital providers.

A number of overseas owned ICT companies have extensive operations in Australia, and, in some cases, a history of significant investment and research in Australia. Attracting ICT MNCs to locate in Australia can increase employment, and often creates flow on investment. Some overseas owned ICT MNCs have active and supportive linkages with local companies through clusters and networks, some work closely with Australian industry and some with Australian research bodies.

Many of these activities are of direct benefit to the Australian software companies with which the overseas owned MNCs relate. Such strategic engagement, however, is always predicated upon strategic benefit for the MNCs concerned, in particular, enhanced market access and/or increased market share. While MNCs can offer significant support to the Australian software firms and the industry more generally, each arrangement needs to be carefully evaluated by the companies concerned.

A notable feature of the ICT industries is that the vast majority of ICT-related R&D is conducted in the business sector. As a result, public sector research plays a relatively small role in ICT-related innovation. Nevertheless, there are opportunities for software developers to forge stronger linkages with ICT focused R&D (e.g. NICTA) and with ICT-related R&D being undertaken in vertical market oriented R&D centres (e.g. in mining, manufacturing, health, etc.).

Such linkages would provide both access to R&D skills, strategic knowledge of technology advances and opportunities relevant to the user industries and the potential to commercialise non-specialist and in-house developed software.

Issues/barriers

The industry's major weaknesses include the difficulty of gaining appropriate investment capital, maintaining domestic market share and developing supportive relationships with the public research base. These weaknesses need to be addressed by the industry, but they cannot all be addressed by the industry alone. There are many points at which policies affect demand and market share, with privatisation of energy utilities, communications and transport, government outsourcing, health, education and defence contracting among the more important.

The local industry needs local demand from lead customers investing collaboratively in lead projects. Privatisation and procurement policies can substantially add to the opportunities for Australian firms if they take into account the potential for development and commercialisation in lead projects by identifying development products at the design and contract point. The development of mechanisms for shared exploitation of intellectual property, and the consideration of product oriented design

briefs as part of this process, would require significant changes to many current public and private ICT procurement processes, but could act as a major stimulus to software product development.

With appropriate policies and programs of support, the Australian software industry can continue to make, and can improve, its significant contribution to Australia's ICT exports and to Australia's overall economic growth.

Some recent analysis has identified significant software production outside the dedicated software industry.. While some non-specialist software development may be translated into marketable software product, a significant amount of will not. There are inherent differences between the requirements for internal use of software and the production of marketable, supportable, cost-effective, software product.

In order to ensure that potential software products can be derived from client specific software, development products need to be identified at the design and contract point. The development of mechanisms for shared exploitation of intellectual property, and the consideration of product oriented design briefs as part of this process, would require significant changes to many current public and private ICT procurement processes, but it is considered that this could act as a major stimulus to software product development.

Vertical applications markets

We have selected a range of vertical markets that include both vertical applications markets (e.g. e-learning) and vertical market sectors (e.g. energy and minerals), in order to explore the full breadth of issues.

The minerals and health software markets seem to offer the most promising opportunities and they have Australian suppliers well established internationally. Segments of the energy, government, ICT, manufacturing and education market verticals also show considerable potential.

Education

Education is characteristically a services market, offering relatively few opportunities to sell stand alone software products. Moreover, there is a strong tendency for non-specialist and in-house development in the education and research market, and adoption of open source/open access, freeware, shareware and 'sharedware' (i.e. software that is created by and freely distributed among teachers and researchers).

Hence, the market addressable by specialist commercial software developers is smaller than overall e-learning and e-research activity would suggest. Such factors as accreditation and approval, the presence of key accreditation gatekeepers, the importance of standardisation and the emergence of purchasing consortia, also tend to influence and constrain market opportunities.

In the key areas of tools and systems, there are already major players in the e-learning software marketplace and in many areas of content development and access. Where these are being challenged (e.g. by the emergence of open access publishing), the tendency to adopt open access and/or open source systems limits commercial market

entry opportunities, unless firms develop sustainable open source/open access business models. There are opportunities in areas such as improved functionality and integration of the various system elements, but increasingly such opportunities require some scale to be commercially exploitable.

Demands for interoperability and preference for open source solutions in the e-research segment are also likely to limit opportunities for Australian software firms, although there may be significant activity in the development of middleware and tools to support the rollout of e-science and grid computing systems.

For all these reasons, the opportunity for Australia to grow firms domestically to become internationally competitive suppliers of software products into the e-learning and e-research vertical application markets may be more limited than market hyperbole during the 'dot com' boom years would have suggested.

Government

There are several promising areas of growth for Australian software developers in the government vertical market. The three standouts CIER identified are content management, security and geospatial technology where the number of Australia players and the strength of the innovation base indicates a level of domestic capability and local expertise which improves the overall probability of success.

There are significant opportunities in developing countries which are enthusiastically embracing e-government. The European countries are being forced to consolidate their e-government sites and they too offer good opportunities for content management providers. If they have not done so already, Australian security software firms might make a concerted attempt to become involved with the US government's security and authentications programs.

The experience could stand them in good stead in other markets. Australian governments might take the opportunity to evaluate local providers of content management tools when undertaking procurement for their e-government websites.

Geospatial and cadastral e-government applications will become more important in the years ahead, although the expense of such systems will, for the time being at least, make them of interest to only the most sophisticated governments.

The basic infrastructure and transaction tools segments do not include significant numbers of Australian developers. We suspect that this is because these areas are the most mature and are already well catered for by larger software firms. Despite the fact that they are growing, seeking a foothold in these segments will be difficult given the level of competition.

Although there is a strong Australian presence, the payment gateway segment is also a crowded market in which vendors should concentrate on value adding and differentiating.

It is likely that customer relationship management (CRM) technology designed for use by government will be an area of increasing activity in the coming years. Australia does not have a strong presence in this market, and those firms that do participate are not

focused on the government sector. These firms may want to consider the e-government vertical market in the future.

Manufacturing

In the manufacturing vertical market, there is an opportunity for Australian software developers to sell specialist modules using the global enterprise resource planning (ERP) vendors as channel partners. In many parts of the world the integration aspects of manufacturing needs also represent opportunities, with the potential to extend the current base-level ERP applications by connecting specialist modules developed for niche markets in Australia.

Developers could also focus on application service providers (ASPs) and Web Services in support of major ERP platform solutions. However, such modular gap-filling will only work if Australian developers are credible with both clients and ERP vendors.

Small developers may need help to develop their channel partner strategies. To prepare themselves for genuine partnering, Australian developers need to focus on manufacturing niches by understanding their particular needs and providing products that do not require extensive configuration or rewriting.

CIIER considers that strategic cooperation with the ERP majors is one of the best opportunities to on-sell locally developed solutions and it is sustainable provided the Australian operation remains sufficiently independent to avoid being acquired or absorbed by the ERP major.

Australian vendors are not locked out of any geographic area, but one size will not fit all markets. Niche specialisation will be the strategy most likely to succeed in mature markets. On the other hand, developing markets offer opportunities to sell non-finance modules and SME specific products.

Few countries are better positioned than Australia to offer integration services to Asia with a combination of country presence and support from base without the difficulties of long distances or significant time zone shifts.

Minerals

Minerals software is one of Australia's success stories. Australia has a strong domestic and international market position, particularly in mine management, exploration, mine planning and geological survey and mapping. Firms range from major international players to new emerging start-ups, and many niche firms with very clear ideas about their preferred product range and target markets. Strong linkages between developers and leading edge clients are important to this success story.

Emerging markets in China, India, Eastern Europe and the Middle East potentially will have significant depth and they are, in many cases, already being served by leading Australian software producers. The export culture and focus of this part of Australia's software industry is very strong.

Industry consolidation is taking place, and it is likely to accelerate. However, this is unlikely to result in a less competitive marketplace, as the circumstances within

Australia are likely to generate new players to champion new technologies or develop new ideas.

A further interesting trend can be seen in moves towards an expansion of target markets outside the minerals industry. Companies, such as Mincom, are now focussing increasing effort on other sectors, such as energy, transport and logistics, and are swiftly becoming significant suppliers into these vertical markets as well as to their traditional market.

Trade and commerce

There is more realism in the trade and commerce vertical market, as firms have discovered that implementation difficulties and internal business process problems have meant that expensive investments in e-commerce platforms and supply chain technology have not delivered the anticipated results. The markets are experiencing growth, but it is not spectacular.

Australian firms looking for large market growth in the e-commerce platform area, payments gateways, and supply chain and logistics will be competing against foreign firms that often have greater experience including with the most demanding clients and markets.

The evidence does not indicate that the e-marketplace, e-procurement and transactional hubs market segments are set for continued dramatic growth. Australian firms involved in these segments should evaluate their options carefully, and continue to monitor developments overseas to see how other firms are realigning their business strategies in response to slow growth. Payment gateway providers are likely to face growing pressure from the large US based operators, which will put pressure on local operators and make independent sales of software difficult.

Australian players in this market segment might consider exploring different payment options, as Bill Express has done with its pre-pay mobile technology. The increasing problem of online fraud will cause changes to the conventional credit card based approach, and to succeed in this area firms will require good relationships with banks and credit card firms, as it will be these organisations that drive standards and set the pace and direction of change.

Because of the complexities involved, the supply chain segment in Australia is not progressing rapidly. Apart from the larger firms that have the resources and commitment to undertake supply chain improvement properly, successes have been moderate. It seems that implementing a successful enterprise wide supply chain project requires doing the 'hard yards', and may simply be beyond many firms. Australian firms working in this segment should select their target markets carefully. Nevertheless, there are some interesting niche developments in the supply chain segment based around web hosted service offerings.

Recent changes in World Customs Regulations mean that there are opportunities and willing customers for state-of-the-art compliance software. The competition in this area appears fragmented, and a well developed platform that can be easily integrated within a business's existing processes and with their existing internal systems may enjoy good

opportunities in many counties. Most Australian firms are small, however, and the difficulty lies in achieving the growth and scale necessary to compete offshore when starting from a small base.

Energy

Investment in both the utilities sector and the energy demand management sector is likely to increase in the coming years, providing opportunities in this vertical market for software firms.

Our analysis indicates that there are several Australian firms positioned to take advantage of some of the opportunities in the Real Time Automation and Control (RTAC) segment (e.g. SCADA and Interval Metering) as well as Trading and Risk Systems, and Enterprise Asset Management Systems.

Australian software firms looking to increase their presence in these areas may need to establish strong relationships with the manufacturers of electrical and gas hardware (e.g. transformers, switches, meters, etc.) to participate successfully in the market.

In the GFAS (geospatial and field automation solutions) segment, Australia has a number of spatial information firms that could participate, but presently do not. The potential also exists for these firms to team up with firms supplying asset management systems, thus adding a geospatial element to these packages and, potentially, take a lead in both areas.

The increasing focus on sustainable energy should stimulate innovation in the energy efficiency segment. The market for architectural products for designing energy efficient buildings and determining energy ratings will continue to grow, but we expect strong competition to come from established CAD package developers.

In the area of operational efficiency, there are opportunities in what is an emerging market. Firms that can productise specialist knowledge resident in the consulting firms and universities may become the most successful players in these areas.

Health

A key opportunity for Australian health software firms lies in taking advantage of rapid change and growing sophistication in e-health in Australia. The fundamental drivers of change will be the level of adoption by the Australian health sector of emerging interoperability standards being promoted by government (e.g. HL7) and the level of commitment to engaging in health informatics standards bodies around the world.

The greater the involvement by Australia in these bodies, the greater will be the profile and level of respect in which Australian health software will be held in foreign markets, and the greater will be the opportunities created by networking.

Recent moves in the US to reduce health care costs through federally coordinated programs, suggests that the health IT models being promoted in Australia will have applicability in that market too, provided that standards are compatible.

The Canadian and New Zealand markets are experiencing similar changes to those in the Australian market. Australian firms that can demonstrate a successful software

product in their local market may also find opportunities in these two markets because of their similarity. Some aspects of India's health sector also appear attractive, including the relatively well financed private hospital chains and the private health insurance market.

The UK is a highly desirable market, but with significant competition. Successful entry into this market requires substantial financial resources and, perhaps, relationships with some of the prime contractors on the key projects.

From the perspective of the various market segments, the Australian software industry appears best placed to make its greatest gains in the areas of clinical support systems and clinical systems, and there are also potential opportunities in patient administration and infrastructure.

Those concentrating on the general practice market in Australia appear to have established barriers to entry for foreign competitors by obtaining large market share, thereby becoming the de facto standard. The situation in sophisticated hospital systems is quite different, with foreign MNCs proving to be tough competition, even in the domestic market.

It is likely that the level of sophistication of Australian software producers will increase, driven by the intense focus by the Australian government on improving the interoperability of IT across the health sector.

Those companies able to meet the demanding requirements of the current suite of e-health projects, as well as securing contracts ahead of tough foreign competition, will be in a good position to compete in sophisticated overseas markets.

Information and communications technology

The ICT market sector offers good opportunities to those who have developed software products able to fill a niche market—particularly for tools. Unlike the application software market, where large multinationals play a dominant role, the software tools market is more accessible to smaller firms—as the large multinationals tend to focus on the high cost, high profile projects for large corporates.

There are a number of leading-edge software products that have the capability to position their Australian developer at the top end of the global market niche and some firms have already achieved this status.

The experience of successful exporting firms shows how difficult it can be to break into, and gain a foothold in, overseas markets where significant competition already exists. For that reason, developing countries with relatively open markets may provide opportunities and the best opportunities may lie in the Asia-Pacific.

This applies to most vertical market software products, except software development languages, where the market presence of MNCs is strongest. Australian-developed products other than languages (e.g. web tools, data integration and data management) would seem to have the capacity to compete alongside products from other countries.

Export opportunities

Export potential was assessed for each of the vertical software market sub-sectors that we analysed, and a ranking was allocated to each of the major international regions for comparison purposes. Regions were categorised for Australian software of each market segment as being a well established market, a strong potential market, or a less advantageous market. One result of this analysis is to show that the significance of regions for export potential varies considerably for particular vertical markets, suggesting a need for significantly different and tailored export programs.

The most significant emerging markets in high-growth regions of the world, include those in South East Asia, Central Asia and Eastern Europe, but the significance of each of these, and the merits of particular countries within the region varies depending on the vertical market, and can vary considerably for particular market segments within a specified vertical.

As a general rule, those countries with greater cultural compatibility to Australia offer the easiest potential market entry (e.g. New Zealand, UK, Singapore, India, Canada, Malaysia).

We would recommend consideration by the ICT industry of a targeted software export strategy, based upon specific vertical market missions to selected regional and country targets.

Globally successful, domestically undervalued

The Australian software industry is globally successful, but we consider that it is domestically undervalued. Its global success has come predominantly through individual entrepreneurial effort, often at great personal sacrifice, rather than from a coordinated industry focused process.

Few software companies are household names and many of the most successful companies are almost anonymous outside the vertical markets in which they operate., but this is, in fact, a mature and well-established industry..

If software can be so successfully exported with little targeted assistance, how much more could be achieved with a little more backing. As noted, some of that backing could come through more consistent purchasing of Australian products in Australia, particularly through increased opportunities to participate in lead projects. Anecdotally, it is reported that other Australian SME's and local government buy Australian products, but larger entities, public and private, are more reluctant to do so.

One focus group comment on the banking and finance sector illustrates this: 'They almost inevitably ignore Australian products and buy imported products that then need extensive modification.' A further, more disturbing comment about a state government was: 'We sell 'x' infrastructure software to governments all around the world, but our own state government bought an imported product that we regularly beat in open competition.'

However, more than just improved domestic market access is required, and the industry must accept responsibility to improve its own performance. While it is not the function of this report to develop or propose how this might be done, some broad suggestions have been derived from the extensive analysis, consultations and focus group discussions.