

**Information Technology Online report on the  
E-business requirements for the Australian  
Tooling Industry**

**University of Western Sydney**

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**Dr Geoffrey Lee,  
Assoc. Prof. Robyn McGuiggan  
Mudiarasan Kuppusamy**



**Tooling Australia**  
Enabling Global Production



### **Executive summary**

This study was commissioned by Tooling Australia to investigate the e-business requirements for the Australian tooling industry. The findings from the study will be used to inform on the development of their new e-business initiative, Tooling Australia Online. The development of Tooling Australia Online has been facilitated by an Information Technology Online grant from the Department of Industry, Communications and Technology and support from several key industry partners.

Tooling Australia Online has four project objectives:

1. increased information dissemination to members
2. improved efficiencies within firms and between member firms
3. increased collaboration within the tooling industry
4. facilitation of domestic and export opportunities.

To determine the e-business requirements, 'end customers' and 'key stakeholders' were interviewed and surveyed in a two stage process. The first stage involved interviewing 35 senior managers, personnel from original equipment manufacturers, T1 suppliers, T2 suppliers, T3 suppliers, toolmakers, allied industry associations, and suppliers to the industry. Interview data were transcribed, with identified key themes guiding the development of the specifications for the e-business platform.

The second stage employed a survey of Tooling Australia members to assess their readiness for and requirements of a website. Data were collated and analysed; resulting correlations confirmed and supported the specifications identified in the first stage.

The analysis of the data suggests that an e-business platform can benefit the Australian Tooling Industry in two fundamental ways. First, Tooling Australia Online will provide the opportunity to showcase individual members, consortiums and collaborative projects to local and overseas buyers. Through

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the website, potential buyers have the options of directly contacting members, consortiums or Tooling Australia for requests for quotations. Second, the website can be developed as an information repository where members and other stakeholders have access to up-to-date industry information. This functionality will allow the automated storage, access and delivery of industry intellectual property to increase efficiencies and enhance the development of collaborative programs.

Furthermore, Tooling Australia Online complements the Advanced Manufacturing Action Agenda marketing initiatives. The website will be designed to integrate government and industry strategic objectives.

The architecture and functionality of Tooling Australia Online meet the objectives of the project and fulfil the requirements of both 'end customer' and 'key stakeholders'. The architecture is detailed schematically with page functionality itemised for the development phase of the project. Finally, this report provides recommendations and identifies future research opportunities.

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### Introduction

The Australian tooling industry is reportedly worth \$1 billion per annum to the Australian economy. The industry is fragmented and comprises approximately 1,200 independent toolmakers, with few firms exceeding \$10 million turnover per annum<sup>1</sup>.

Australian toolmakers have world class skills, technology and capabilities, but they face an increasingly competitive environment. Australia's remote geographic location creates logistical problems when exporting to markets in Europe and North America. In addition, Australia has relatively higher labour costs compared with competitors in developing countries such as India and China. Thus, Australian toolmakers are threatened by lower-priced tooling imports entering the saturated domestic market. Furthermore, original equipment manufacturers (OEMs) in industry sectors such as automotive and aerospace are exerting pressure on the supply chain, forcing toolmakers to meet global benchmarking standards.

Tooling Australia (TA) is the peak tooling industry association, representing approximately 190 Australian toolmakers. The association has received a grant through the Information Technology Online (ITOL) program. The ITOL grant is administered by the Department of Communications, Information Technology and the Arts (DICTA). The ITOL grant will enable TA to develop an e-business platform to address the challenges in meeting global supply chain requirements.

The new e-business platform is being developed to meet four objectives:

1. increased information dissemination to members
2. improved efficiencies within firms and between member firms
3. increased collaboration within the Tooling Industry
4. facilitation of domestic and export opportunities.

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<sup>1</sup> As reported in the industry study "Automotive Tooling Industry Technology Roadmap Study" (2004) William Buck

**Aims of the research**

Tooling Australia commissioned the University of Western Sydney to identify the requirements of key industry stakeholders in the Australian Tooling Industry. These findings will be used in the development of their e-business platform. The functionality of the proposed e-business platform will be determined by analysing stakeholders' needs and requirements.

### Research methodology

Using a systems approach, which recognises the needs of all stakeholders, this research identified and evaluated requirements of both 'end customer' and 'key stakeholder'. The e-business platform will be designed to meet their needs and thus facilitate a market driven approach.

The research was conducted in two stages. The first stage used a qualitative methodology, employing semi-structured interviews of 35 key stakeholders (Appendix 1). Key end customers and stakeholders were purposively selected based upon their industry experience, profile, ability to inform on this research and willingness to participate in the survey. Interviews were carried out in New South Wales, Victoria and South Australia in March 2009. Respondents were senior managers and owners of the targeted organisations; however, to maintain anonymity all respondents are referred to as managers. Interviews lasted from 40 minutes to 3 hours, with an average length of 1 hour. Qualitative interviews were completed at the point of diminishing returns when 'data saturation' occurred, when additional interviews would not have added significantly to the findings.

The interviews were transcribed and analysed to identify the key criteria, attributes and performance measures considered important for the e-business platform. The issues identified in this phase were used as the basis for the second stage of the research, the quantitative survey of the TA members.

The second stage of the research used a survey to assess the e-business readiness and requirements of TA members (n~170). These data provided additional evidence to support and confirm the findings from the qualitative interviews. A pilot survey was developed and administered to 10 TA members, with the feedback used to modify and improve the instrument.

Respondents had a choice of three media channels for responding to the survey. A mail survey was sent to members with an accompanying self-addressed return envelope. Concurrently, members received an email forewarning them and explaining the importance of the survey; the survey was

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attached as an electronic document that could be completed and emailed back to TA. In addition, the email contained a link to the online version of the survey, catering for respondents who prefer using electronic media. Respondents were asked to furnish one reply per organisation via their preferred medium.



### Research findings

The interviews identified five key stakeholder segments that the design of the e-business platform whose needs would have to be met. These are:

- potential buyers (local and export markets)
- Tooling Australia (TA) members
- suppliers to TA members
- federal and state governments
- Tooling Australia management.

### Potential buyers

Potential buyers can be segmented into local and export markets. Buyers can be classified by the specialist industry segment in which they operate, for example, aerospace, automotive, defence or mining. Both local buyers and overseas buyers require specialised tooling companies with demonstrated capabilities to meet global benchmarks in terms of quality, delivery, price, demonstrated experience, additional ancillary services, financial and human resources capabilities.

Local buyers currently generate the majority of the work within the industry, with the automotive industry generating 50–70% of tooling work. The local market includes OEMs<sup>2</sup>, T1<sup>3</sup> suppliers, T2<sup>4</sup> suppliers and other toolmakers (T3 suppliers) who sub-contract out various parts of their production. Whilst local buyers generally know the larger firms within the tooling industry, an opportunity exists to further promote the scope, capability and diversity of

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<sup>2</sup> OEMs: Original equipment manufacturers using components bought from T1 suppliers and/or manufacture selected components for the assembly of the end product.

<sup>3</sup> T1 suppliers manufacture selected components and/or buy-in other components to build used by OEMs to build the end product.

<sup>4</sup> T2 suppliers often manufacture selected components for resale of T1 suppliers.

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smaller and/or geographically remote toolmakers. Furthermore, there is potential to promote these SME toolmakers to T3 suppliers.

The export market is more difficult to assess and identify due to its remoteness and diversity of firms. However, the respondents saw an opportunity to provide up-to-date information to potential buyers via their website. Potential buyers are usually trying to resolve a specific sourcing issue, and the TA's e-business platform will potentially facilitate an appropriate and convenient solution. For example, the internet is an instantaneous and convenient information source for identifying international suppliers.

### **Tooling Australia members**

In size and capability, the Australian toolmaking industry can be described by the generic 80/20 rule. The larger toolmakers (TM) contribute 20% of the industry by number; they are often diversified into several industry sectors and offer competition at various levels of the supply chain. These TMs have the financial resources and ability to proactively market their services. They are able to leverage their size to support long term marketing initiatives both in Australia and overseas. However, when comparing the largest Australian TMs with their overseas counterparts, no local TMs are in the top 200 in the world<sup>5</sup>. The industry website is seen as a positive initiative that promotes the whole industry to export markets.

The smaller TMs, who make up 80% of the industry, have limited resources. Tooling Australia has the opportunity to support these TMs by facilitating marketing initiatives on their behalf. The general consensus within the industry is that smaller TMs are forced to focus on maintaining viability as a result of the decrease in available work and the increasingly competitive nature of the industry. Focussing on viability diverts resources from long term strategic planning, which, for these TMs, includes which markets they should be in; who their customers are; what are their key differentiating factors and value

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<sup>5</sup> As reported in the industry study "Automotive Tooling Industry Technology Roadmap Study" (2004) William Buck

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adding services; what role can they play in the global supply chain; and the need to develop competitive advantage through intellectual property (IP). Like the larger TMs, smaller TMs also regard the new e-business platform as a potential source of new work.

### **Suppliers to the tooling industry**

Suppliers to the toolmakers recognise and support the potential for TA's e-business platform to build their brands and to capitalise on market opportunities. Many seem willing to support the website financially through online advertising and promotional activities. Some suppliers are willing to develop intellectual property (IP) for online distribution that would benefit the whole industry. However, they all recognise the need to justify their financial commitment through statistical validation of the number of potential buyers being exposed to their marketing activities.

### **Government**

The state and federal governments strive to create efficiencies within industries, in particular increasing the viability of the manufacturing industry and providing future export market opportunities for Australian manufacturers. Both state and federal governments see their role as a facilitator of industry-led initiatives to achieve these objectives. The TA's e-business platform, therefore, complements these government aims. Furthermore, the recently released Advanced Manufacturing Agenda<sup>6</sup> provides opportunities for developing the website and integrating the e-business platform in synergy with the whole advanced manufacturing industry.

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<sup>6</sup> Advanced Manufacturing Agenda released 16 June, 2006. Canberra

## **Tooling Australia**

Tooling Australia is a proactive and lean organisation; limited funds require financial prudence. As such, their e-business platform needs to be developed for self-maintenance and to facilitate opportunities for supplier sponsorship. Indeed, TA needs to develop an e-business platform that is cost neutral to their members.

## **Other stakeholders**

Several other stakeholders have been identified as toolmakers who are not TA members: industry media, mass media, and students. The website incorporates functionality and content (such as media releases, industry information and career advice) that will simultaneously satisfy their needs. Whilst their interests are important, the five groups described above are identified as priorities in the development of the TM e-business platform.

## **Summary of findings by stakeholder requirements**

Table 1 shows a matrix that compares key stakeholder requirements by segment with the functionality of the proposed e-business platform. The importance of each issue is represented by the number of stars. The table illustrates the potential to develop website functionality that simultaneously satisfies the needs of various stakeholders.

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**Table 1**

Matrix of functionality and key stakeholder requirements

E-business functionality	Buyers	Tooling Australia's members	Suppliers	Government	Tooling Australia
Basic search by industry sector or product	☆☆☆	☆	☆☆☆		☆☆☆
Advanced search	☆☆☆	☆	☆☆☆		
Capability and capacity guide	☆☆☆	☆☆	☆☆☆		☆
Online RFQ	☆☆☆	☆☆			☆☆☆
Self-maintaining member profiles		☆☆☆			☆☆☆
Self-maintaining supplier profiles			☆☆☆		☆☆☆
Media centre with capacity for various media files for different audiences	☆☆☆	☆☆☆	☆☆	☆☆☆	☆☆☆
Membership enquiries		☆		☆	☆☆☆
Capture visitor data		☆	☆☆☆		☆☆☆
Event calendar		☆☆☆	☆	☆	☆
Links to complementary Australian and international websites of members, suppliers, associations, Government, industry forums, etc.		☆☆☆	☆		☆
Contact details of Tooling Australia	☆☆☆				☆
Tooling Australia profile details	☆☆	☆	☆	☆☆	☆
Industry description page	☆☆☆			☆	☆
Industry project showcase, eg. TIFA Aerospace, TAAG, JSF projects	☆☆☆	☆		☆☆☆	☆☆☆
Sponsorship opportunities and packages		☆	☆☆☆		☆☆☆
Members only area		☆☆☆			☆☆☆
Industry statistics	☆	☆☆☆		☆☆☆	☆☆☆
Collaboration – methods and case studies	☆	☆☆☆		☆☆☆	☆☆☆
Online member surveys		☆			☆☆☆
Email notification of RFQ		☆☆☆			☆☆☆
Online notification via website RFQ		☆☆☆			☆☆☆
IP management and resource	☆☆	☆☆☆	☆☆☆	☆☆☆	☆☆☆
Multi-media IP warehousing	☆☆☆	☆☆☆	☆☆☆		☆
Website metrics and reporting		☆	☆☆☆	☆	☆☆☆

**Key:** ☆ Relatively important to meet the needs of the segment  
☆☆ Important to meet the needs for the segment  
☆☆☆ Of critical importance to meet the needs for the segment

### Discussion

Tooling Australia Online needs to develop an integrated approach to the Tooling Industry to cater for varied stakeholder needs. The website must present a professional 'look and feel' and support the broad initiatives of the Advanced Manufacturing Action Agenda. It must also incorporate protocols of how best to prioritise the representation of individual members, cluster groups and consortiums.

Furthermore, the Australian Toolmaking industry must be differentiated from competitors in North America, Europe and Asia. The website has the potential to efficiently promote the diversity of TA membership; however; it is evident that OEMs and T1 buyers require industry sector specialists. The website needs to convey a single concise message that will appeal to a wide range of buyers from different industry sectors, both local and overseas.

Facilitating local and export orders is a priority. The website's design and functionality must simplify the process of submitting requests for quotations (RFQs). Therefore, a multi-channel approach is recommended, allowing buyers to choose one of three channels that best suits their requirements:

- RFQs are sent directly to TA, who identifies suitable tenders and disseminates information accordingly
- RFQs are lodged online and are available to all members of TA
- RFQs are sent directly to TA members; potential buyers identify suitable tenders through the search functionality of member profiles.

Individual member profiles need to be developed through database drive cascading style sheets that complement the Tooling Australia Capabilities Guide 2006/7. Tooling Australia Online (TAO) should neither replace nor duplicate existing toolmakers' websites; rather, it should provide concise information for potential buyers with links to members' websites. Members without their own website could take advantage of TAO's professionally managed template design. The use of self-maintained website entries will

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minimise TA's maintenance requirements whilst enabling members to change their profile as required.

The implementation and launch of the website will be critical to members' adoption of the website and its ultimate success. Industry champions should be identified and used to promote this project. A staged release of the final version of the website would encourage members repeatedly use the website through allowing members to familiarise themselves with the functionality of the site.

A key strategy to encourage members, visitors and buyers to use TAO regularly is to continually update the website and develop its content. This level of maintenance would require a staff member for an estimated 2–3 days, developing the website into an information hub and thus creating an informational repository for the industry. In addition, as the needs of the industry change, new functionality will be required and so further software development should be anticipated. These regular maintenance and software development costs are estimated to be \$20,000–\$40,000 per annum. To maintain a cost-neutral impact on TA, these costs must be recovered from sponsorship. Suppliers indicated their willingness to provide sponsorship for the TAO in the interviews in stage 1 of the research.

### Recommendations

Through the ITOL project, Tooling Australia has the opportunity to develop an online one-stop-service for its members and partners. The ITOL project has four objectives:

- increasing industry's efficiency
- increasing information dissemination
- increasing industry collaboration
- facilitating export opportunities.

To meet these objectives, the e-business platform needs to become an information repository that showcases Australian toolmakers and their capabilities. As an information repository, it will collect up-to-date useful information, store and sort the information, and provide access to this information. The showcasing of Australian toolmakers, consortiums and successful projects will generate export opportunities for members.

The TAO e-business platform will best realise these aims by matching specific strategies and tactics to each of the ITOL objectives (Table 2). These strategies and tactics then form the basis for the requisite functionality, website pages and databases, as described below.

Website functionality should include but not be limited to:

- database driven cascading style sheets for dynamic content management
- keyword and sector search and advanced search following agreed protocols
- request for quotations (RFQ) platform
- collection and segmentation of potential buyer details for future permission marketing opportunities, and to enable cost effective customer relationship management
- secure log-in for members through password and user identification
- statistical data collection of industry activities
- self-managing member and supplier profiles



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- email notification by individuals or groups
- back-end maintenance user interface.

Website pages should include but not be limited to:

- homepage
- potential buyers RFQ
- member and supplier profiles
- project and industry sector pages
- media centre
- what's on
- careers in advanced manufacturing
- links
- about Tooling Australia
- contact us
- joining Tooling Australia
- news and information repository
- industry statistics
- training programs.

Databases should include but not be limited to:

- supplier profiles
- member profiles
- potential buyers
- email and contact management
- media centre
- news and information
- multi-media applications such as PDFs, text, video, audio, images, PowerPoint and Word documents.

This list is not fully inclusive, but it provides a schematic outline for the development phase of TAO. Further modifications to the design and functionality will be required.

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**Table 2**

Website strategy and tactics

<b>ITOL objective</b>	<b>Strategy</b>	<b>Tactics</b>
Increase industry efficiency	Showcase industry innovations and new developments Promote successful projects and consortium collaboration Links to other websites	Suppliers to provide innovative production case studies and examples IP resource functionality with searchable database Links to relevant websites eg government, international specialist forums, other associations, etc. Catalogue of suppliers and TA members
Increase information dissemination	Become an information repository or hub accessible by members and non-members through a content management system Content development by members and suppliers Reciprocal links with affiliated websites	Database driven content management system that integrate cascading style sheets to display pages and includes the capacity to hold, sort and present multi-media files Search functionality Select email notification to members, suppliers and potential buyers TA to use e-business platform to maintain contact with members and provide up-to-date information Content development by members, suppliers, TA and government, such as TA to provide reports of major events such as trade missions All presentations to be archived Develop links with government bodies, local and overseas associations and forums, etc.
Increase industry collaboration	Provide advice and relevant examples of successful collaborative projects both small and large	Feature case studies of successful collaboration projects Provide guideline on how to develop successful consortiums
International showcase Australian Toolmakers	Demonstrate to potential buyers the successful projects and companies	Websites needs to be both professional and ease to use Show case successful projects Pages for each industry sector Pages for individual members RQFs via multiple channels (online RQF, through TA, direct to TA member)

### Further research

Several future research opportunities will enhance the performance of advanced manufacturers and Tooling Australia Online. These include:

- the collection, analysis and reporting of industry statistics, to enable advanced manufacturers to benchmark themselves against the global market. In addition, these results can be used to monitor the performance of the industry to identify trends over time. Information to be collected includes the value of the industry by sector, changes in types of work activity, changes in export volumes by country, effects of import replacements, and trends in employment levels.
- an evaluation of similar industry websites and e-business collaborative programs in export markets to inform on the development of Tooling Australia Online. Of particular interest are the online networks in Germany, Portugal, and North America.
- a need to identify, quantify and assess niche international markets so that Tooling Australia Online can target export opportunities. Individual firms and collaborations will be able to select the most promising niches and thus undertake effective and efficient target marketing.
- making case studies on industry leaders or champions available on the website. This will serve two purposes: it will demonstrate the 'excellence' of the Australian advanced manufacturers, and it will highlight to industry the potential for innovation to improve business practices. Potential case studies include export market penetration, collaboration and integration projects, quality assurance programs, strategic alliances with customers and process improvements.

**For further information please contact:**

**Dr Geoffrey Lee**

School of Marketing

University of Western Sydney

Locked Bag 1797

Penrith South DC NSW 1797

Phone: 61 2 9852 4074

Fax: 61 2 9852 4185

Email: [g.lee@uws.edu.au](mailto:g.lee@uws.edu.au)

### **Disclaimer**

This report represents an analysis of the views and opinions of the respondents in the study. Due to the dynamic nature of the industry, careful assessment of the findings and recommendations needs to be considered with regard to the application of this report and its findings. It is therefore up to the reader to determine what information (if any) is valid, and how best apply this research.

## Appendix 1

### List of semi-structured interviews

AiAutomotive  
Australian Industry & Defence Network  
Austool  
Bohler-Uddeholm  
Broens Industries  
Calbic  
Calm Aluminium  
Complex  
Columbia Die Sinking  
Denso  
Department of Industry, Tourism and Resources, Canberra  
Diecraft  
Diemould Tooling Services  
Federation of Automotive Parts Manufacturers  
Ford Motor Company of Australia  
Hawker de Havilland  
Hella Australia  
Holden Innovation  
I.S. Teknik  
Metaltec  
Marand Precision  
MtM  
NTS Global Group  
Nylastex Tooling  
Department of Innovation and Regional Development, Victoria  
Pacifica Group Ltd  
Plastool Pty Ltd  
Precise Tooling Australia  
Sage Tool and Die Manufacturing  
Sandviik Coromat  
Sutton Tools  
The Reinvention Network International  
Toyota Motor Corporation Australia  
Tooling Australia  
William Buck Business Advisors Chartered Accountants  
Wright International

## Appendix 2

Selected website page specifications should include but not be limited to:

### For all pages

- a clean modern 'look and feel' with a balance of content and pictures to demonstrate the professional, innovative and technical competence of the industry.
- database driven cascading style sheets to deliver dynamically generated content
- programming, where possible, in HTML and compatible with PC and Mac systems
- Programming to conform to W3C web standards and is compliant with W3C validation service; see [Validation Service page](#).
- header with Tooling Australia name and logo
- left-hand-side (LHS) navigation bar including search and advanced search functionality, search by industry sector, supplier link, members area, media centre, news and events, links, contact us, and links as directed by the project manager
- right-hand side (RHS) advertising space with dynamically generated advertising or specific advertisers sponsoring specific pages; it might have multiple suppliers per page displayed but would need ease of change through the backend maintenance
- log in member by username and password
- footer with contact details and email link
- dynamic pictures to facilitate 'ease' of change.
- multi-media platform

### Home page

- appropriate look and feel; see project manager for specifications
- feature stories with text and pictures dynamically generated
- multiple features on the home page dynamically generated

**Search page**

- by capability and capacity – see TA capability guide
- by name...use alphabetical navigation
- by key word – develop search criteria

**RQF Page**

- ability for customers to contact via direct to firm, through TA to select potential tenders and through TA for all members

**Maintenance**

- user friendly interface
- IP repository management tools

**Members' pages**

- as per the home page
- additional links on LHS that the public does not see; access to statistics for participating
- monthly online survey
- quarterly online survey
- information and news content

**Members' page**

- short description of their business
- capability and capacity guide
- pictures
- ability to link to their website
- ability to load files such as product guides, testimonials, projects
- link to update their own profile
- ability to modify their profiles
- content as per Tooling Australia's 2006/7 capability guide

**Appendix 3**  
Website schematic  
architecture

