The Australian chemical industry continues to face testing times in adjusting to the challenges of globalisation. Future key strategies for firms include: (1) working within existing global value chains, (2) engaging with other globally focused industries, (3) developing an integrated packaging concept for their products and services, and (4) leveraging on the knowledge of others.¹

For over 150 years the central role of the chemical industry in the economic and social fabric of most advanced economies has been demonstrated. During that time the industry has been continuously transformed by the introduction of product and process innovations largely driven by research and development conducted by corporations, universities and national laboratories. The worldwide industry produces over 70 000 different chemical substances valued at over US$1.5 trillion per annum.²

In more recent times, the chemical industry worldwide has faced some serious problems with the evolution of global markets, the growth in regulatory controls, the slowing down of innovation as exhibited in diminishing returns to R&D, and skills shortages.³ Each of these problems has been addressed in a plethora of national reports, each pointing with some urgency to the need for radical changes to be adopted.

Even though the Australian chemical industry is enmeshed with the global industry, many of the problems faced in recent times have been exacerbated in this country by the need to address trade liberalisation following the lowering of tariffs, and more particularly, the absence of any major investments in plant and equipment for parts of the industry to meet current world-scale and international competitiveness. Overall, it is imperative that the Australian chemical industry be highly innovative in order to further develop and maintain some of the strong niche positions that are already identifiable.

The Australian government has addressed some of the issues facing the industry through two Action Agenda Reports.⁴,⁵ These reports show that the chemical industry accounts for about 12% of total manufacturing in Australia, with a turnover of about A$28 billion (1999–2000), and employs over 91 000 people.⁶ In 1999–2000, A$4.5 billion worth of chemical products were exported and A$13.1 billion of chemical products imported – a net deficit of over A$10 billion. Australia accounts for only about 1% of world chemical production and is clearly a significant net importer of chemicals.

Notwithstanding, the authors suggest that the Action Agenda reports fall short of exploring in detail any of the strategies that may be available to the industry at large to innovate and thus achieve a more competitive position.

By examining the evolution of the Australian chemical industry, and especially the transformations that have been effected in the industry during the era of trade liberalisation, the authors found it desirable to consider the industry in terms of three segments:⁶

1 companies involved in the production of high-volume, low value-added products such as mineral-based inorganic chemicals, petrochemicals and bulk polymers
2 companies manufacturing relatively mature special-purpose chemicals on a large scale (e.g. dyes, paints, food additives, photographic materials)
3 companies that operate in high value-added, low-volume chemicals (e.g. pharmaceuticals and products from frontier areas of development such as biotechnology and nanotechnology).

The authors accept that globalisation of the chemical industry and the ‘commoditisation’ of many chemicals means that price advantages lie with scale economies and large, low-cost operations. For example, in the field of petrochemical processing the small-scale and inefficient plants in Australia will increasingly be unable to compete with large complexes now established in the Asian region.

The hope on the horizon comes from observations by the authors over a broad range of case studies, which demonstrate that Australian companies in the chemical industry can meet many niche market needs, and thus the industry can be sustained. The successful case study
companies demonstrate that their positioning in the international industry ‘system’ has been critical, and many have made moves to internationalise early in their development phase – these are the ‘born-global’ companies. Internationalisation not only underpins such companies’ networking and relationship building, but also the way in which they develop their knowledge base and capabilities. Successful innovation in these companies is also clearly associated with:

1. working within the industry value chain (e.g. in speciality pharmaceuticals);
2. engaging in the global value chain of other industries (e.g. polymers in automotive applications);
3. developing an integrated packaging concept for their products and services (e.g. providing comprehensive service packages to back up hardware products as in the case of Orica and their comprehensive capabilities in explosives);
4. leveraging the knowledge of others (e.g. capitalising on the knowledge base which exists in research institutions).

The evidence provided by the authors suggests that the preferred mechanism for sustained development of an Australian identity in the chemicals sector will best be achieved through the adoption of niche strategies following one of the four innovation strategies outlined above. Australia cannot afford to be complacent about its ‘chemical future’. The task at hand is an urgent one, and the urgency is for Australian industry to be more innovative in order to ensure its future global competitiveness.

From a policy perspective the authors suggest that the most important lesson is that the chemical sector should not be considered as the conglomerate that statistical data collections have tended to impose on the analyses, but rather as a series of distinctly different components such as those delineated by the segmental analysis. There is a need to nurture a well-connected and relevant research base, a fertile ground for new entrepreneurs and companies with the agility and foresight to capture the opportunities that arise. Not only that, but government policies should aim to provide a supportive environment for the growth of new and emerging born-global companies, and newborn global activities taken up by existing companies.

References

3. Gross, R.M., Overview of trends in innovation in the chemical industry, reducing the time from basic research to innovation in the chemical sciences – A Workshop Report to the Chemical Sciences Round Table, National Academy of Sciences, 2003, pp. 7–17.

Reach out to your market

Chemistry in Australia has an average monthly circulation of 5104 copies (CAB Audited) and is read by decision-makers in chemical industry and academia. Increase the profile of your business by placing an advertisement or inserting your brochures into our magazine.

For more info please contact
Joanna Dettl
Ph/Fax (07) 3511 6246/6427
Email jamdettl@bigpond.net.au