REPORT OF THE 2009 MEDICINES AUSTRALIA MEMBER ECONOMIC SURVEY

THE AUSTRALIAN PHARMACEUTICALS INDUSTRY

WINDS OF CHANGE
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The innovative pharmaceuticals industry, both in Australia and internationally, is facing challenging times. Many block-buster chemical medicines of yesteryear have had their heyday and are coming off patent—opening opportunities for competition from generic brands.

In conjunction with the loss of revenue from these older products, the new generation of medicines, especially the new biologic entities, are costly to develop and produce. In addition, they tend to target more precise, and therefore smaller, areas of therapeutic use. They are unlikely to yield the huge revenues of the block-buster chemical entities they supersede.

In terms of R&D, Australia has been facing competition from emerging clinical trial markets in Asia and South America—especially for the highest cost Phase III clinical trials which involve large numbers of participants.

This economic survey covers the beginning of the period in which the credit squeeze in the United States spun out into what has come to be known as the Global Financial Crisis. We now know that the pharmaceuticals industry came through this crisis relatively unscathed. The importance of the public sector in subsidising medicines meant the sector was somewhat protected from the global downturn. However, the pressure on the Government (the overwhelmingly dominant purchaser of pharmaceuticals in Australia) to return its Budget to pre-crisis surpluses also impacts on the industry as the Government seeks ways to reduce its spending on the Pharmaceutical Benefits Scheme. The recent agreement between Medicines Australia and the Australian Government on the PBS should help provide a predictable policy and business environment for the industry, while securing savings for taxpayers.

One issue is that while the industry today is one of Australia’s most important manufacturing industries in terms of R&D and exports, this has been secured on the back of investment decisions made over the last 20 years. The concern is whether the industry will be able to maintain its leading role as one of Australia’s key manufacturing exporters, considering the ongoing rationalisation, plant closures and challenges the industry faces.

Despite all this, the industry is adjusting to the new operating environment. It is changing with the times. Companies are merging, in large part to expand and leverage R&D pipelines and maximise revenue from

→ Foreword →
medicines already in the market place. Moreover, even in 2007–08, the period of this survey, there was evidence of greater Australian investment in early stage clinical trials, an area of R&D which does not depend on large patient populations and where Australia, with its superior expertise and medical infrastructure, is relatively competitive.

In addition, the new generation of medicines are beginning to make their way to market and biologics are becoming an increasing proportion of Australian companies’ product mix, although new medicines still represent a relatively small, but growing, proportion of revenues.

For all these reasons, it is not surprising that respondents to the survey, while registering some areas of concern, indicated a relatively high level of business confidence for 2010.

Dr Brendan Shaw
CHIEF EXECUTIVE
MEDICINES AUSTRALIA
Executive summary

The pharmaceuticals industry is a significant contributor to Australia. Medicines researched and developed by the industry improve the quality of health care and contribute towards building a strong, innovative Australian economy. The broad Australian pharmaceuticals industry comprises over 40 originator companies (mostly subsidiaries of multi-national companies), up to 10 generic companies, 470 small-scale core biotechnology companies and over 20 world class medical research institutes. It makes a major contribution to Australia’s trade in manufactured goods and it employs highly educated and skilled people.

In short, the pharmaceuticals industry generates health, wealth and jobs for Australians.

Medicines Australia represents the innovative prescription pharmaceuticals industry. Our companies are part of a global industry that invests over $65 billion annually into the research and development of new therapies. Currently there are close to 3000 medicines under development world-wide. Our member companies comprise more than 80% of Australia’s prescription medicines market, and are engaged in the research, development, manufacture, supply and export of medicines. Medicines developed by our member companies benefit millions of Australians on a daily basis. The Australian pharmaceuticals industry as a whole sells over $11 billion worth of medicines domestically.

The Australian industry, as is the case elsewhere in the world, has been confronted with changing operating conditions on a range of fronts in recent years. Global rationalisation is placing increased competitive pressure on the local operations of the industry and has resulted in some loss of jobs in R&D and manufacturing in Australia. The cost and lead-times involved in R&D, always exceptionally high in the pharmaceuticals industry, are significantly increasing with the evolution of the new generation of biologic medicines.

Most importantly, the Australian Government (the effective price-setter for medicines) is concerned about the cost of subsidised medicines. This concern grows as the potential of medicines to prolong life and to treat more effectively a greater range of diseases, combined with the high prices required by more expensive up-front development and production costs, continues to put pressure on the healthcare budget. Successive governments have not always acknowledged that their investment in

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medicines is a sound one. Medicines can relieve pressure on other, more expensive areas of government-subsidised healthcare. They are subjected to increasingly rigorous and comprehensive cost-effectiveness tests not common in other areas of healthcare subsidisation. They constitute a relatively small component of the overall healthcare budget (8% of total healthcare spending on the most recent figures). Despite these considerations, the Pharmaceuticals Benefits Scheme (PBS) has been subject to cost containment measures in every Budget since 2004.

The industry understands government concerns and has worked with governments to ensure that the PBS is sustainable into the future. The PBS reform measures introduced in 2007 will produce savings to government of approximately $6 billion over 10 years, and the savings from the four year PBS agreement which the industry entered into recently will amount to $1.9 billion over five years. The quid pro quo for the industry is a predictable and stable business environment, the cornerstone of its capacity to sustain a viable operating environment in Australia.

Other negotiations with government in the areas of intellectual property rights, R&D tax credits and harmonisation of the ethical assessment of clinical trials should also serve to ensure that Australia remains an attractive destination for pharmaceutical investment.

The results of this economic survey pre-date many of the developments mentioned above. 2008 was by no means an easy year for the industry. PBS reform was kicking in; competition from the generics industry was increasing; and new markets for manufacturing and R&D investment in Asia and South America were impacting on other locations for investment such as Australia. New medicines are becoming difficult to discover and this was of universal concern to the industry and a spur for business rationalisation for global companies. The financial crisis which had developed in the United States was spreading to other areas of the world in the last months of the year, and predictions about the extent of the economic downturn was affecting business confidence. Nevertheless, the Australian innovative medicines industry proved resilient in the face of these challenges.

The Survey Report

This report provides a summary of the Australian pharmaceuticals industry economic survey undertaken by Medicines Australia of its membership in June–July 2009. In some places the report contrasts results from similar data collated by Medicines Australia in 2007 and earlier reports.

This report offers an overview of the state of the innovative pharmaceuticals industry in Australia in 2007 and 2008, its evolution over time and the factors influencing its development. While not necessarily definitive, the fact that the response rate to this survey was 71% and represents companies responsible for almost 80% of Australia’s total pharmaceutical sales, means the survey does provide a representative snapshot of the current state of Australia’s innovative pharmaceutical industry.

The report is divided into several sections representing different facets of the industry in Australia.

Section 1 highlights the global nature of the Australian innovative pharmaceuticals industry and identifies the location of the member companies’ head offices.

Section 2 gives an overall view of respondents’ annual turnover. This section indicates the importance of innovative pharmaceuticals companies with respect to the broader industry in Australia.
Section 3 outlines respondents’ product portfolios as defined by Anatomical Therapeutic Chemical (ATC) classifications and provides the level of specialisation, type of product and contribution to the sales revenues of Medicines Australia member companies.

Section 4 provides an overview of the respondent companies’ manufacturing activity and the trends in pharmaceutical manufacturing in Australia.

Section 5 examines how respondents are engaged in international trade and highlights the trends in pharmaceutical exports of the member companies and the challenges ahead.

Section 6 looks at employment trends and workforce distribution within the research-based medicines industry.

Section 7 summarises capital expenditure amongst respondents and compares this to findings from earlier data.

Section 8 provides an in-depth view on the sorts of R&D activities respondents are engaged in. It identifies which stages of R&D receive the most investment in Australia.

Section 9 summarises respondents’ views on the industry’s operating environment and, more specifically, how these environmental factors influence the development of respondents’ business units in Australia. This section also looks at respondents’ business confidence into the future.

About the survey

The Medicines Australia 2009 industry economic survey provides information on the economic activities of Medicines Australia member companies, as well as insights into the factors that influence their business development in Australia. The survey covers the calendar years 2007 and 2008 as most Medicines Australia member companies report their financial operations this way. Ninety one percent of survey respondents operate on a financial year from January to December.

The survey was sent to all members of Medicines Australia. In total, 32 out of 48 Medicines Australia member companies completed the survey. While not surveying every major pharmaceutical company in Australia, the survey provides a reasonable snapshot of the activity and issues facing pharmaceutical companies in Australia. In the 12 months to December 2009, 32 companies that responded to the survey accounted for over 75% of the total pharmacy sales in Australia.

Presentation of results

It should be noted that not all respondents completed all survey questions and therefore some results in this report will not include all 32 respondents. Where all respondents answered a particular question, the base within figures specifies ‘all respondents’. Where a percentage of respondents provided a response, data in the figures is presented with sample size (e.g. n=30) to indicate the number of respondents for the relevant question. In several places, the results of this 2007 survey are compared to similar data collected by Medicines Australia in 2007. Percentage results throughout the report may not add up to 100% due to rounding or questions that allow respondents to give more than one answer.
Key Findings from the survey

- Overall, companies’ turnover remained stable at just over $10 billion in both 2007 and 2008. However, compared to the 2007 survey results, the growth in company turnover slowed to 3.8% in 2007 and turnover declined (-0.5%) in 2008.

- The headquarters of the majority of the companies are either based in Continental Europe (42%) or in the USA (39%).

- The product mix is changing and biologics are gaining importance. Whilst the majority of the companies (75%) continue to offer chemical entities in their range of products, nearly half of the companies (47%) also had biologics in their product offerings.

- The majority of companies (71%) indicated that up to 25% of their PBS sales revenue in 2008 was derived from off-patent medicines. Others had higher contribution to revenue from off-patent medicines sales.

- New products listed on the PBS in the last two years made little contribution to overall revenues of the companies. Nearly two-thirds of participating companies (63%) indicated that up to 5% of their PBS sales revenue in 2008 was derived from new products listed on PBS in the last two years. Others were likelier to have higher contributions from new products.

- Rationalisation of Australian pharmaceuticals manufacturing continued in 2008. One respondent company that was manufacturing in 2007 was not manufacturing in 2008. Overall, Australian manufacturing output (at ex-factory prices) declined by over $400 million in 2008.

- The majority of manufacturing in 2008 was done either on behalf of respondents’ parent companies (52%) or on behalf of the domestic business unit (43%). Only a small proportion (5%) was contract manufactured locally in 2008.

- Over half (58%) of all the manufacturing reported in the 2008 survey related to late stage (final dispensing/packaging) manufacturing. The remainder was more likely to include formulation through to late stage manufacturing (35%).

- Manufacturing on behalf of a respondent’s parent company predominantly included formulation through to late stage (45%) or late stage only (55%). However, manufacturing on behalf of domestic business units included a small proportion of synthesis/manufacture of active drugs compounds through to final dispensing/packaging stage (13%), in addition to formulation through to late stage (27%) and late stage only (60%).

- Companies’ imports of pharmaceuticals into Australia increased while exports from Australia declined in 2008.

- $6.4 billion worth of pharmaceuticals and raw materials were imported by respondents in 2008. Companies’ primarily sourced their imports from USA (59% of respondents) and Continental Europe (48% of respondents). A small proportion of respondents sourced imports from the Asia Pacific region (7%).

- Just over half of the respondents (n=17) were engaged in export of pharmaceutical products and services in both 2007 and 2008.
$2.63 billion worth of pharmaceutical products were exported by respondent companies in 2008, down 12% from $3 billion in 2007. In the 12 months to December 2008, Australia’s total exports of medicinal and pharmaceutical products was $3.98 billion. The reported exports in this survey account for nearly two-thirds of the Australian medicinal and pharmaceuticals exports in 2008.

Key export destinations in 2008, by value, were South Africa (26%), Asia (41%), Europe (13%), New Zealand (10%) and South America (4%).

The companies surveyed employed over 8500 employees in both 2007 and 2008. The majority of employees (72%) held a bachelor’s degree or higher, with nearly 19% holding a Master’s degree or PhD.

The majority of the respondents (up to 83%) invested in new capital expenditure in both 2007 and 2008. However, the total amount spent on capital expenditure declined from $86 million in 2007 to $66 million in 2008. Over half of all new capital (51%–60%) was invested in IT, physical infrastructure, and purchase of new motor vehicles. The remaining capital was spent either on land and building (up to 20%) or on plant and equipment (up to 30%) in both 2007 and 2008.

Over three-quarters of the respondent companies (79%) were engaged in R&D activities in Australia during 2007 and 2008. Overall investment in R&D increased marginally in 2008. In 2008, of the R&D conducted by respondents (in value terms):

- nearly two-thirds (63%) related to Phase II (15%) or Phase III (48%) clinical research
- with respect to R&D conducted on their own behalf, the majority was either done in house (44%) or was contracted to/in collaboration with hospitals (41%); a minority (8%) was contracted to or done in collaboration with private research companies
- with respect to R&D conducted on behalf of parent companies, the majority was either performed in house (65%) or was contracted to/in collaboration with hospitals (18%); a minority of such R&D (11%) was contracted to or was performed in collaboration with academia (e.g. universities).

A minority of companies (n=7) indicated that their global businesses conducted other R&D in Australia for which their Australian business unit was not responsible. The majority of these R&D activities, by value, related to either Phase III clinical research (41%) or manufacturing/processing R&D (31%) in 2008.

Overall business confidence projected for 2010 reported in the 2009 survey was high.

The majority indicated that they expect their domestic sales revenue to increase (73%). Over half also indicated they expect overall profits to increase (52%). Over half expect their export earnings to remain unchanged (56%). Over two-fifths also expect their employment levels (45%) and capital expenditure (43%) to remain unchanged. Although over two-fifths of the respondents expect their R&D expenditure to increase (46%), larger companies indicated decline in R&D over the next 12 months.
The Broader Pharmaceutical Industry—putting the survey results in context:

**FACTS AND FIGURES**

- The broader Australian pharmaceuticals industry\(^2\) had a total turnover of $20.7 billion in the 2008–09 financial years and employed over 40,000 people with one-third employed in manufacturing sector.\(^3\)

- In 2009, medicinal and pharmaceutical products were Australia’s largest manufactured export. In the 12 months to December 2009, Australia exported pharmaceuticals worth $4.07 billion, up 15% from $3.5 billion in 2006.\(^4\)

- Australia’s broader pharmaceuticals industry spent $929 million on research and development in 2007–08. This comprises $702 million committed to human use pharmaceutical R&D and $227 million on clinical [organs, diseases and abnormal conditions] R&D. Human use pharmaceutical R&D accounted for almost 7% of the total business expenditure on R&D in Australia in 2007–08.\(^5\)

- The Pharmaceutical Benefits Scheme (PBS) paid $7.65 billion in benefits for listed medicines in 2008–09.\(^6\)

- The Therapeutic Goods Administration’s Australian Drug Evaluation Committee recommended 25 new chemical entities for approval for sale on the Australian market in 2008–09.\(^7\)

- The Pharmaceutical Benefits Advisory Committee recommended 146 items for listing on the PBS in 2008–09 and 54 in 2007–08.\(^8\)

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\(^2\) Comprises bio-medical research, biotechnology firms, originator and generic medicines companies and service related segments including wholesaling and distribution


\(^4\) Australian Bureau of Statistics, December 2009, International trade in goods and services, catalogue 5368, Canberra

\(^5\) Australian Bureau of Statistics, Research and Experimental Development, Businesses, Catalogue 8104.0, Canberra

\(^6\) Australian Bureau of Statistics, Research and Experimental Development, Businesses, Catalogue 8104.0, Canberra

\(^7\) Therapeutic Goods Administration, January–June 2009, TGA half yearly performance report

\(^8\) Pharmaceutical Benefits Pricing Authority, PBPA Annual Report for the year ended 30 June 2009
Medicines Australia members represent the originator prescription medicine companies that discover, research, manufacture and supply pharmaceutical products and services globally. The significant presence of multinational companies in Australia reflects the global nature of the pharmaceuticals industry.

Global Headquarters
As shown in Figure 1, the majority of Medicines Australia member company headquarters are based in either Continental Europe (41%) or the USA (38%). A smaller proportion are based in either the UK (13%) or Australia (3%), with one company’s headquarters in both Belgium and the USA.

![Figure 1: Global Headquarters](image)

Continental Europe—Regional breakdown
Of the 32 respondents, 13 head offices were based in Continental Europe and were largely concentrated across Western Europe.

- France (n=4)
- Germany (n=3)
- Belgium (n=2)
- Switzerland (n=2)
- Denmark (n=1)
- Netherlands (n=1)
According to IMS Health data, Medicines Australia member companies accounted for nine out of the top ten (19 of the top 25) leading pharmaceutical suppliers in retail pharmacy sales by value in 2008 in Australia.\textsuperscript{9}

As shown in Figure 2, the overall growth in turnover of the respondent companies in 2008 continued the decline seen in 2007. Respondents reported domestic and export sales turnover of $10.16 billion in 2008, down $60 million from $10.22 billion in 2007. This represents a negative turnover growth in 2008 of 0.5%, compared with 3.8% turnover growth in 2007, 9.8% growth reported in the 12 months to Dec 2006, and similar growth in 2005 (9.4%).

As shown in Figure 3, the majority of the turnover of member companies in 2007 and 2008 was derived from domestic PBS sales (nearly 60% or more) and export sales of prescription medicines (26%–29%). Sales derived from non-PBS medicines also contributed 10%, or close to $1 billion, to respondents’ turnover in 2008.

**Components of Domestic Turnover**

Overall, the companies surveyed contributed $7.2 billion of the domestic sales of prescription and OTC medicines, representing 81% of the total wholesale value of medicines sold in Australia in 2008.\textsuperscript{10} In addition, they exported $2.65 billion worth of goods and services which accounted for nearly two-thirds of Australia’s total medicinal and pharmaceutical product exports in the 12 months to December 2008 ($3.9 billion).\textsuperscript{11}

As shown in Figure 3, the majority of the turnover of member companies in 2007 and 2008 was derived from domestic PBS sales (nearly 60% or more) and export sales of prescription medicines (26%–29%). Sales derived from non-PBS medicines also contributed 10%, or close to $1 billion, to respondents’ turnover in 2008.

\textsuperscript{9} IMS Health 2008, Australian pharmaceutical index, combined ethical and proprietary medicines, 12 months to Dec 2008

\textsuperscript{10} IMS Health 2008, Australian pharmaceutical index, combined ethical and proprietary medicines, 12 months to Dec 2008

### FIGURE 3  Annual Turnover (by components)

<table>
<thead>
<tr>
<th>Year</th>
<th>Domestic prescription (PBS) medicines sales</th>
<th>Domestic prescription (non-PBS) medicines sales</th>
<th>Export sales prescription medicines</th>
<th>Export sales OTC</th>
<th>Export sales Actives and Intermediates</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>$6,088,262</td>
<td>$966,912</td>
<td>$142,763</td>
<td>$2,637,864</td>
<td></td>
</tr>
<tr>
<td>2007</td>
<td>$5,873,971</td>
<td>$937,335</td>
<td>$168,387</td>
<td>$2,924,735</td>
<td></td>
</tr>
<tr>
<td>2006</td>
<td>$5,692,665</td>
<td>$1,243,065</td>
<td>$350,035</td>
<td>$2,067,407</td>
<td></td>
</tr>
<tr>
<td>2005</td>
<td>$5,524,912</td>
<td>$1,157,844</td>
<td>$343,844</td>
<td>$1,476,794</td>
<td></td>
</tr>
</tbody>
</table>

**Prescription medicines**

According to the survey data, prescription medicines (both PBS and non-PBS) were the most important component of domestic sales, nearing 98%. This is consistent with earlier surveys conducted in 2005 and 2007 where over 90% of the domestic sales were derived from prescription pharmaceuticals. The export of prescription pharmaceuticals from Australia contributed significantly to overall earnings in 2007 and 2008.

**Trends**

As shown in Figure 2 above, the domestic turnover of respondents continued to decline in 2008. One reason for this decline was the fall in revenues derived from both prescription and OTC pharmaceuticals in 2007 and 2008. Four companies that reported revenues from exports of OTC medicines in the 2007 survey did not export OTC medicines in 2007 and 2008, resulting in an overall decline in export dollars impacting the overall turnover.
Leading pharmaceutical products—Top 10

In 2008, the top 10 leading pharmaceutical products in Australia to retail pharmacies (in terms of value of sales) were supplied by Medicines Australia member companies. With a few exceptions, these products are also the top 10 global products by value.

<table>
<thead>
<tr>
<th>BRAND NAME</th>
<th>DRUG</th>
<th>COMPANY</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Lipitor</td>
<td>Atorvastatin</td>
</tr>
<tr>
<td>2</td>
<td>Nexium</td>
<td>Esomeprazole</td>
</tr>
<tr>
<td>3</td>
<td>Seretide</td>
<td>Fluticasone with</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Salmeterol</td>
</tr>
<tr>
<td>4</td>
<td>Crestor</td>
<td>Rosuvastatin</td>
</tr>
<tr>
<td>5</td>
<td>Zyprexa</td>
<td>Olanzapine</td>
</tr>
<tr>
<td>6</td>
<td>Plavix</td>
<td>Clopidogrel</td>
</tr>
<tr>
<td>7</td>
<td>Effexor</td>
<td>Venlafaxine</td>
</tr>
<tr>
<td>8</td>
<td>Somac</td>
<td>Pantoprazole</td>
</tr>
<tr>
<td>9</td>
<td>Lucentis</td>
<td>Ranibizumab</td>
</tr>
<tr>
<td>10</td>
<td>Spiriva</td>
<td>Tiotropium</td>
</tr>
</tbody>
</table>

SOURCE: IMS Health, Australian Pharmaceutical Index, December 2009

Products by Anatomical Therapeutic Classification (ATC) classifications

Respondents to the 2009 survey were asked to specify the clinical areas treated by their products in 2008. As shown in Figure 4, of the 28 companies that responded to this question on the survey, just over half had one or more products in the following ATC classes:

- Nervous System—57% or 16 companies
- Antineoplastic and immunomodulating agents—54% or 15 companies
- Anti infectives for systemic use—54% or 15 companies
- Cardiovascular System—54% or 15 companies.

Up to half had their products in the remaining ATC groups (see Figure 4).

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12 IMS Health, Australian Pharmaceutical Index, December 2009

13 Developed in 1976, the ATC classification system is controlled by World Health Organisation (WHO) Collaborating Centre for Drug Statistics Methodology. In the ATC classification system, the drugs are divided into different groups according to the organ or system on which they act and their chemical, pharmacological and therapeutic properties. In this system, drugs are classified into groups at five different levels. The information presented in this report is at the first level of the code and indicates the 14 anatomical groups.
The degree of product specialisation

Companies offer a variety of products for treating or preventing diseases. For the first time in the 2009 survey, the degree of specialisation in product offerings was measured. Respondent companies that had their product/s in one ATC group only were classified as ‘highly specialised’ and those that had products in up to 5 ATC groups were categorised as ‘specialised’. Conversely, companies with products in over 10 ATC groups were classified as ‘highly diversified’ and ones with products in more than 5 and up to 10 ATC groups were classified as ‘diversified’.

This analysis is included in the survey results to benchmark changes in the range of products on offer by member companies over time. The available literature suggests that global pharmaceutical companies will progressively move towards more specialised product ranges in the future and will specialise in treating particular diseases relating to specific organs or systems in the human body. In the past, companies diversified their product offerings to cover a variety of disease states. This measurement will hopefully facilitate monitoring the evolution of pharmaceutical business models over time.
As shown in Figure 5, nearly half of the respondents’ range of products were either specialised (n=9) or highly specialised (n=4). At least 12 companies indicated they had a diversified range, and only two offered a highly diversified range of products in the 2009 survey.

**FIGURE 5**
Degree of product specialisation
(Respondents = 28)

<table>
<thead>
<tr>
<th></th>
<th>0%</th>
<th>20%</th>
<th>40%</th>
<th>60%</th>
<th>80%</th>
<th>100%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highly specialised (1 ATC group only)</td>
<td>14.8%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Specialised (1&gt;ATC Groups&gt;5)</td>
<td>33.3%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diversified (5&gt;ATC Groups&gt;10)</td>
<td>44.4%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Highly diversified (ATC Groups&lt;10)</td>
<td>7.4%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

It is estimated that the percentage of medicines developed from biologics will rise from 18% in 2006 to nearly 27% by 2012.14

**Off patent products—contribution to total sales**

Respondents to the survey were asked to indicate what proportion of their prescription medicines sales in 2008 was attributable to off-patent medicines sales. The majority (71%) indicated that up to 25% of their prescription medicines sales in 2008 were in the off-patent market. (See figure 7).

**FIGURE 6**
Product type (Respondents = 26)

<table>
<thead>
<tr>
<th>Product type</th>
<th>Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemical entities only</td>
<td>35%</td>
</tr>
<tr>
<td>Majority chemical entity, minority vaccines</td>
<td>7.7%</td>
</tr>
<tr>
<td>Majority biologicals, minority chemical entities</td>
<td>11.5%</td>
</tr>
<tr>
<td>Biological entities only</td>
<td>7.7%</td>
</tr>
<tr>
<td>Other</td>
<td>11.5%</td>
</tr>
<tr>
<td>Chemical entities only</td>
<td>34.6%</td>
</tr>
<tr>
<td>Majority chemical entity, minority biological entities</td>
<td>26.9%</td>
</tr>
</tbody>
</table>

**FIGURE 7**
Off patent product sales
contribution (Respondents = 28)

<table>
<thead>
<tr>
<th>Contribution</th>
<th>0%</th>
<th>20%</th>
<th>40%</th>
<th>60%</th>
<th>80%</th>
<th>100%</th>
</tr>
</thead>
<tbody>
<tr>
<td>less than 5%</td>
<td>12.5%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5%–15%</td>
<td>16.7%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15%–25%</td>
<td>41.7%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25%–35%</td>
<td>12.5%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>35%–50%</td>
<td>8.3%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>50% or above</td>
<td>8.3%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
According to IMS Health, over US$84 billion worth of products globally were likely to face generic competition over the next two years to 2012. With an increasing number of products approaching patent expiries, the contribution of generic/off patent products to the overall sales of respondent companies may rise in the coming years.

**Innovative medicines**

Despite significant economic challenges, Medicines Australia members have maintained their commitment to research and development of new medicines. Some medicines are completely changing the treatment patterns for the illnesses they target and improving patient outcomes by dramatically extending survival rates for serious diseases such as cancer, heart disease and HIV/AIDS. Additionally, innovative medicines are improving the efficiency of the healthcare dollar by preventing hospital admissions and surgeries, especially as the Australian population ages.

In 2007 and 2008, a number of new treatments researched and developed by Medicines Australia members were made available to the Australian population.

**New products—contribution to total sales**

Novel therapies are the life blood of the innovative pharmaceuticals industry. In 2008, 25 new molecular entities (NMEs), or components, were launched worldwide. This number has stabilised in recent years after a decline from an average of 30 or more NME launches per year prior to 2002.

To ascertain the contribution made by new medicines to member companies’ prescription product sales, respondents were asked to indicate what proportion of their prescription sales in 2008 was derived from new products introduced in the last two years.

As shown in Figure 8, the majority of respondents indicated that new products contributed less than 10% of their overall prescription sales in 2008. This is consistent with some available data showing that it could take up to six years for a new medicine listed today to reach its peak sales or full potential.

**FIGURE 8 New products sales contribution (Respondents = 28)**

<table>
<thead>
<tr>
<th>Proportion</th>
<th>Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>less than 5%</td>
<td>63.2%</td>
</tr>
<tr>
<td>5%–10%</td>
<td>15.8%</td>
</tr>
<tr>
<td>10% or more</td>
<td>21.1%</td>
</tr>
</tbody>
</table>

This should be cause for concern for the Government and the innovative pharmaceuticals industry alike. When new medicines are more cost-effective and provide improved health outcomes over existing therapies, then earlier and more rapid uptake would significantly reduce the burden and costs in other healthcare sectors and to the Government.

On average, a new medicine will have approximately eight years on the market before patent expiry. This apparent ‘lag’ in uptake of new medicines means, from an industry perspective, that the likelihood of obtaining a good return on investment in R&D is reduced, with consequent impacts on future medicines research.

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15 IMS Health, *Success in a period of global uncertainty, perspectives on the Australian market*, 6 August 2009
16 IMS Health, *Success in a period of global uncertainty, perspectives on the Australian market*, 6 August 2009
17 Centre for Strategic Economic Studies, *The impact of PBS reforms on PBS expenditure and savings*, Victoria University 2009, p. 29
18 Centre for Strategic Economic Studies, *The impact of PBS reforms on PBS expenditure and savings*, Victoria University 2009, p. 29
Manufacturing Activity

Pharmaceutical manufacturing in Australia

Pharmaceuticals manufacturing accounts for approximately 1% of Australia’s total manufacturing workforce, but accounts for almost 10% of Australia’s manufactured exports by value.19

According to the survey, nearly two-fifths of the respondents (n=11) were engaged in manufacturing in 2007. One respondent to the survey that was engaged in manufacturing in 2007 was not manufacturing in 2008.

Manufactured outputs (at ex-factory value)

As shown in Figure 9, in 2008, the overall value of manufactured outputs at ex-factory values were $4.17 billion, down 9% from $4.57 billion in 2007. The value of manufactured outputs at ex-factory values had increased through 2006 and 2007, largely due to a few companies that expanded their manufacturing operations significantly during 2006.

The vast majority of manufacturing in 2008 (95%) was done either on behalf of respondents’ parent companies (52%) or on behalf of the domestic business unit (43%). Compared to 2006, the value of manufactured outputs peaked in 2007 and started to decline in 2008. This will have significant impact on the overall manufactured outputs for domestic and export markets and for manufacturing employment in the industry and Australia.

Type of manufacturing activities

As with the global pharmaceuticals industry, the Australian business units comprise mostly major pharmaceutical groups. A minority of these businesses manufacture active pharmaceutical ingredients (API). The majority are either involved in manufacturing from the formulation stage through to packaging stage or undertake the fill/finish stage only.

As a proportion of manufacturing, over half (58%) of all the manufacturing by the respondents in Australia in 2008 related to late stage (final dispensing/packaging) manufacturing. The remainder was more likely to include formulation through to late stage manufacturing (see Figure 10).

**FIGURE 10** Type of manufacturing activities (Respondents = 10)

<table>
<thead>
<tr>
<th>Type of Manufacturing</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacture at the final dispensing/packaging or fill/finish stage only</td>
<td>$2,265,879</td>
</tr>
<tr>
<td>Formulation/manufacture of final products through to final dispensing/packaging</td>
<td>$1,458,465</td>
</tr>
<tr>
<td>Synthesis/manufacture of active drug compounds through to final dispensing/packaging</td>
<td>$235,546</td>
</tr>
</tbody>
</table>

Trends in manufacturing

The worth of the Australian pharmaceuticals manufacturing industry’s value-added activity was over $1.8 billion in 2006–07. The overall growth in value-added activity has not kept pace with the rest of the manufacturing economy since 1999–2000. The sector clearly needs to make investment in its current technology infrastructure to meet the dual challenges of increasing the worth of value-added activity and remaining internationally competitive.

According to the Pharmaceuticals Industry Strategy Group: ‘If Australia is to maintain a viable pharmaceuticals manufacturing sector, companies will need to make the transition to a high value added future. This will require significant capital investment to move into qualitatively different, higher value added activity.’

Biological based manufacturing is of growing importance. Australia, with its stronger intellectual property provisions, highly skilled workforce, maturing biotechnology sector and world class medical research institutes, may be better placed than many other countries to benefit from a new era of high value-added biologics manufacturing, which has the potential to create and sustain high value jobs in Australia.

Furthermore, as exemplified in the recent pandemic alert, having the capacity to manufacture vaccines in Australia meant that Australia was among the very first countries that had early access to world class H1N1 influenza vaccine. Preserving and sustaining a viable high technology medicines industry in Australia may provide critical support to Australia’s economic and health security.

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20 Australian Bureau of Statistics, Manufacturing Industry, Australia, 2006-07, Catalogue 8221
Exports

As shown in Figure 11, 17 respondent companies were exporting goods and services in both 2007 and 2008. They exported $2.65 billion worth of goods and services in 2008, down $354 million from $3 billion in 2007. These exports accounted for nearly two-thirds of Australia’s total medicinal and pharmaceutical exports in the 12 months to December 2008.23

Compared to the 2007 survey results, exports growth continued into 2007, albeit at a lower rate compared to the previous two years where they were growing at almost 35% per annum in nominal terms. Respondents’ exports fell 12% in 2008 to $2.65 billion.

Australian export destinations

In 2008, the top five destinations for respondent companies’ Australian pharmaceuticals exports by FOB (free on board) value were:

- Asia—41%
- South Africa—26%
- Europe—13%
- New Zealand—10%
- South America—4%.

These five countries accounted for the vast majority of respondents’ overall exports (94%) in 2008 (see Figure 12).

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**Figure 11: Export Value**

<table>
<thead>
<tr>
<th>Year</th>
<th>Value in Billion</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>$1.87</td>
</tr>
<tr>
<td>2006</td>
<td>$2.52</td>
</tr>
<tr>
<td>2007</td>
<td>$3.00</td>
</tr>
<tr>
<td>2008</td>
<td>$2.65</td>
</tr>
</tbody>
</table>

Apart from physical goods, a minority of the respondents (n=5) were also involved in exporting services internationally. Services worth $50 million were exported from Australia during 2008. This is an increase of nearly $20 million or a 66% increase over the reported services exports in 2006. Services exported from Australia included management expertise relating to finance, clinical research and information management.

**Imports**

Member companies reported $6.4 billion in imports relating to human use pharmaceuticals in 2008. Overall imports increased by $317 million. Nearly 30% of all imports related to active raw material. Nearly $2 billion worth of active raw material was imported into Australia in 2008, up from $1.3 billion in 2007. Other imports were more likely to be related to PBS medicines (up to 55%) in both 2007 and 2008. According to the Australian Bureau of Statistics, in the 12 months to December 2008, Australia imported close to $8.4 billion worth of medicinal and pharmaceutical products overall.24

**Emerging markets**

South Africa continued to grow as a prominent market for Australian pharmaceuticals exports. In 2008, it accounted for over 26% of all the respondents exports, up from 20% in 2006. Another promising new market for Australian exports emerged in 2008. South America accounted for over 4% of all reported exports in 2008, up from just 0.4% two years prior. As a proportion of all exports in 2008, Europe and Canada’s shares fell, while exports to the USA, Japan and Middle-East grew marginally.

**Pharmaceutical Services Exports**

Trends in trade

Currently pharmaceuticals are the largest high technology export from Australia. In the 12 months to January 2010, pharmaceuticals overtook the car industry ($4.07 billion versus $2.5 billion) to become the largest high technology manufactured Australian export [see Figure 13]. The Australian pharmaceuticals industry has been a consistent exports performer since the early 1990s.
However, Australia has a narrow exporter base and the majority of exports originate from a minority of companies. Australian pharmaceuticals exports are highly vulnerable to manufacturing rationalisation. In 2008, three respondent companies accounted for over 90% of the reported exports. Furthermore, at least two of the three respondents indicated that they would be downsizing/rationalising their manufacturing facilities in Australia in the near future. It is unknown at this time whether or how this would affect the overall magnitude of exports from Australia.
Respondent companies employed 8,771 people in 2008, similar to the number of employees reported in 2007 (8,791 people). Nearly half of all employees in both 2007 and 2008 were marketing and sales professionals. Nearly one-fifth were employed in support functions comprising human resources, information technology, quality assurance, administration and warehouse/distribution. Over a thousand people were employed in manufacturing/engineering in both 2007 and 2008 [see Figure 14]. Another twelve hundred were employed either in regulatory and medical areas or R&D roles in both 2007 and 2008.
**Trends in employment**

During 2007 and 2008, there was a steady increase in the number of people employed in R&D roles (a 7.3% increase). The number of people employed in regulatory and medical roles also increased by 4.3% during this period. Employment in manufacturing/engineering declined by nearly 10%. The number of people employed in marketing and sales remained relatively unchanged during 2007 and 2008.

**Education level of employees**

Respondents were asked to identify the highest level of education of their employees. A few (n=6), mostly larger companies, could not provide this information from readily available records. The majority (82%) could provide the breakdown of their workforce by level of education. As shown in Figure 15, the majority of the employees had at least a Bachelor’s degree or higher (73%). Nearly a fifth also had either a Master’s degree (14%) or a PhD degree (5%).

**Figure 15** Employee qualification (Respondents = 26)

<table>
<thead>
<tr>
<th>Qualification</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>No tertiary education</td>
<td>10%</td>
</tr>
<tr>
<td>TAFE or equivalent qualification</td>
<td>17%</td>
</tr>
<tr>
<td>Bachelor’s degree</td>
<td>53%</td>
</tr>
<tr>
<td>Master’s degree</td>
<td>14%</td>
</tr>
<tr>
<td>PhD</td>
<td>5%</td>
</tr>
</tbody>
</table>

The pharmaceuticals industry is a major employer of a highly skilled, mostly science-educated workforce. For many industries that sell products, sales are a function of selling only. However, pharmaceutical representatives require significant levels of scientific training and are tasked on a daily basis to meet with healthcare professionals to share and discuss new scientific evidence regarding their products. They are expected to answer highly technical questions posed by health professionals across the country.

**International intake**

The pharmaceuticals industry is a microcosm of world cultures, incorporating some of the best minds from diverse backgrounds across the globe. At least 19 respondent companies had an international intake of employees in both 2007 and 2008. The majority of new employees who were recruited from overseas were either sales/marketing professionals (13 companies) or corporate managers (12 companies). Nearly half of the companies surveyed also recruited regulatory and medical professionals from overseas. Additionally, up to 5 companies recruited personnel internationally in R&D, manufacturing or other related support functions.
The vast majority of respondents (83%) invested in new capital expenditure in both 2007 and 2008. Although the quantum of investment was much lower compared to earlier years, in 2008 they injected a total of $66 million into the local economy. However, capital expenditure by the industry in Australia has been in decline since early 2004. In the 2007 survey report, it was estimated that the industry invested an average $335.5 million per annum (in 2006 dollars) in the period from 1992/93–1995/96. At this time, Factor (f)25 manufacturing and R&D incentives were in place to attract investment into Australia. According to earlier data collected by the Australian Pharmaceutical Manufacturers Association,26 industry’s capital expenditure was primarily to upgrade manufacturing/distribution plant and equipment and to improve land and buildings. A significant amount was also spent on upgrading IT infrastructure.

Despite the fall in overall capital investment, on average the industry spent around $140.66 million per annum in 2008 dollars in the six years to 2008 on net new capital expenditure in Australia (see Figure 16).

Of the capital expenditure in both 2007 and 2008, the majority of the capital (up to 60%) was invested into IT, lease hold improvements, furniture fixtures and purchase of motor vehicles. The rest was spent on either land and building or manufacturing/distribution plant and equipment. This is a total reversal of the trend in the capital outlay seen in 2004, where the majority was spent on manufacturing/distribution plant and equipment.

25 Under Factor (f), companies were provided with higher notional PBS prices in return for increasing expenditure in R&D and their production value added (PVA) from manufacturing and export activities in Australia
26 The Australian Pharmaceutical Manufacturers Association (APMA) was renamed Medicines Australia in 2002
Trends in capital expenditure

Policy certainty around prices paid for pharmaceuticals and the availability of industry development incentives (tax incentives, for example) have the potential to drive the capital investment choices for pharmaceutical companies. Since 2004, the policy signals received by the industry appear to have done little to stimulate any major capital investment in the Australian pharmaceuticals industry. Policies aimed at achieving short-term savings goals by means of Pharmaceutical Benefits Scheme (PBS) cost containment can reflect poorly on Australia as a market of choice for long-term capital investment. It was noted in the 2007 survey report that, while the pharmaceuticals industry continues to invest in Australia, its capital investment growth has not kept pace with Australia’s broader manufacturing sector. Despite an increase in consumer demand for pharmaceuticals in Australia, since 2004 the Government has used PBS policy instruments to put downward pressure on prices and overall demand, which may have negatively impacted on potential capital investment during this time.

Under normal market circumstances, as aggregate demand increases, suppliers forecast trends and make capital investments to increase capacity to meet future demands. In the Australian pharmaceutical industry, however, where the Government sets prices by virtue of being the overwhelmingly dominant purchaser of medicines, successive increases in demand results in the purchaser moving to reduce the prices paid. This leads to a net zero-sum game for suppliers. With no real gain in future earnings, most capital projects will deliver a net negative net present value (NPV), deterring any further investment into new infrastructure such as land, building, plant or machinery.

According to latest Pollard index of pharmaceutical prices, the prices for prescription PBS pharmaceuticals in December 2009 were 21 index points lower than they were in 1991. Therefore, over time the prices paid for pharmaceuticals have dropped substantially compared to those paid in 1991. The Pollard Index further indicates that the prices of prescription PBS pharmaceuticals started dropping from April 2005 onwards. As shown in Figure 16, this coincides with the period when net new capital investment into the industry in Australia started to dry up.

Prices paid for pharmaceuticals within Australia have a direct and significant impact on the investment made, not only on physical infrastructure but also on future R&D. Policy choices made today will have long-term consequences for the Australian pharmaceuticals industry’s ability to invest into the future.
Over three-quarters of the respondents (79%) were engaged in R&D activities in Australia during 2007 and 2008. Overall investment in R&D improved marginally in 2008. Respondents invested over $370.7 million into Australian R&D activities in 2008.

This suggests that respondents’ expenditure on R&D accounted for almost two-fifths of total Australian BERD on human pharmaceutical products and clinical R&D in 2007–08. Since the innovative pharmaceuticals industry is predominantly geared towards the human use of pharmaceutical products, it is reasonable to interpret that respondents to this survey contributed over half of the total Australian R&D into human use pharmaceutical products in financial year 2007–08.

Of the $370.7 million spent on R&D in 2008, the vast majority was spent on clinical research related to human use pharmaceutical products (90%). A minority was spent on either basic/discovery research (5%) or on manufacturing/processing R&D (5%). A proportion of the clinical research conducted by the respondents was not broken down by stage of clinical research and has been reported as ‘unspecified’ clinical research (see Figure 18).

27 Sector comprising bio-medical research, biotechnology firms, originators and generic medicines companies
28 It is important to note that the ‘clinical’ R&D by socio economic objectives used by the Australian Bureau of Statistics is different to the clinical trials research reported by the respondents. Rather than being research conducted into diseases, organs or abnormal conditions, which may or may not involve use of a medicine, clinical research by respondents involves different phases of testing medicines for safety and efficacy
29 Australian Bureau of Statistics, 2009, Research and Experimental Development, Businesses, Australia 2007–08, Catalogue 8104.0, Canberra
30 Business expenditure on research and development
In value terms, nearly two-thirds (63%) of the entire R&D conducted by the respondents in 2008 related to either Phase II clinical research (15%) or Phase III clinical research (48%). It is likely that the ‘unspecified’ portion of the clinical research may be divided in similar proportion between Phase II and Phase III as specified by other respondents.

The survey asked respondents to provide an estimated break down of their R&D activity by principle sponsors of the R&D. The majority of the R&D conducted in Australia was conducted by Australian business units on their own behalf (37%) and on behalf of their global parent/affiliates (49%). The rest (15%) was performed by their global parent/affiliate directly, for which the Australian business units were not responsible.

**R&D benefactors**

As shown in Figure 19 of the R&D conducted by respondents’ Australian business units on their own behalf in 2007 and 2008, in value terms, the majority (up to 85%) was either performed in-house (44%–48%) or contracted to or in collaboration with hospitals (35%–41%). A minority was contracted to or performed in collaboration with a private research company (8%–10%).

Of the R&D conducted by Australian business units on behalf of their global parent or affiliate, in value terms, the majority was either in-house (65%–67%) or contracted to or in collaboration with hospitals (18%–20%). A minority was either contracted to or in collaboration with academia (10%–11%), such as universities (see figure 20). This reflects the growing importance of Australian-based,
investigator-initiated clinical trials and their contribution towards global drug development.

**Figure 19** R&D conducted by Australian business unit on their own behalf

<table>
<thead>
<tr>
<th>Year</th>
<th>In Australia and contracted to or in collaboration with others (excl other pharmaceutical or biotechnology companies)</th>
<th>Conducted outside Australia</th>
<th>In Australia and contracted to or in collaboration with Public research agencies (e.g. CSIRO)</th>
<th>In Australia and contracted to or in collaboration with Academia</th>
<th>In Australia and contracted to or in collaboration with private research companies</th>
<th>In Australia and contracted to or in collaboration with Hospitals</th>
<th>In Australia and in-house</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>47.6%</td>
<td>34.6%</td>
<td>10.4%</td>
<td>3.8%</td>
<td>7.2%</td>
<td>1%</td>
<td>2.4%</td>
</tr>
<tr>
<td>2008</td>
<td>43.8%</td>
<td>41.1%</td>
<td>8.2%</td>
<td>3.2%</td>
<td>8.7%</td>
<td>1.7%</td>
<td>1.8%</td>
</tr>
</tbody>
</table>

**Figure 20** R&D conducted by Australian business unit on behalf of global parent/affiliate

<table>
<thead>
<tr>
<th>Year</th>
<th>In Australia and contracted to or in collaboration with other pharmaceutical companies</th>
<th>In Australia and contracted to or in collaboration with biotechnology companies</th>
<th>In Australia and contracted to or in collaboration with public research agencies (e.g. CSIRO)</th>
<th>Conducted outside Australia</th>
<th>In Australia and contracted to or in collaboration with others (excl other pharmaceutical or biotechnology companies)</th>
<th>In Australia and contracted to or in collaboration with private research companies</th>
<th>In Australia and contracted to or in collaboration with Academia (e.g. universities)</th>
<th>In Australia and contracted to or in collaboration with Hospitals</th>
<th>In Australia and in-house</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>66.5%</td>
<td>19.6%</td>
<td>10.0%</td>
<td>2.4%</td>
<td>8.4%</td>
<td>12.4%</td>
<td>1.1%</td>
<td>0.1%</td>
<td>1.1%</td>
</tr>
<tr>
<td>2008</td>
<td>65.2%</td>
<td>18.2%</td>
<td>10.6%</td>
<td>3.6%</td>
<td>8.3%</td>
<td>12.9%</td>
<td>1.1%</td>
<td>0.1%</td>
<td>3.6%</td>
</tr>
</tbody>
</table>

Foreign Direct Investment in Australian R&D

In addition to local business investment in R&D, Australia also benefits from the R&D investment done by Australian affiliates’ global parent directly but for which the local business unit is not responsible. Although the share of this direct investment is relatively small at present, it is nonetheless significant. Seven respondents indicated that their global parents/affiliates conducted R&D in Australia in both 2007 and 2008. In value terms, this R&D investment totalled over $100 million in the two years.

As shown in Figure 21, in value terms, the majority of the R&D conducted by the respondents’ global affiliates (up to 72%) in both 2007 and 2008 related to either Phase III clinical research (41%–47%) or manufacturing/processing R&D (24%–31%). It is interesting to note that, as a proportion of total R&D expenditure, the share of Phase I clinical research grew in 2008. Australia has a growing Phase I clinical trial sector that employs over 300 people and earns $50 million per annum in revenue, mostly from overseas companies.32

**Figure 21** Foreign direct investment in Australian R&D (by type of R&D)

<table>
<thead>
<tr>
<th>Year</th>
<th>Basic or Discovery research</th>
<th>Pre Clinical research</th>
<th>Clinical research-Phase I</th>
<th>Clinical research-Phase II</th>
<th>Clinical research-Phase III</th>
<th>Clinical research-Phase IV</th>
<th>Manufacturing/processing R&amp;D</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>4.4%</td>
<td>5.6%</td>
<td>47.2%</td>
<td>23.7%</td>
<td>16.1%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2008</td>
<td>8.3%</td>
<td>4.2%</td>
<td>41.2%</td>
<td>30.6%</td>
<td>15.1%</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Respondents were asked to provide their views on how they see the performance of their Australian business units in the 12 months to July 2010 and also indicate the key opportunities and concerns for the future.

As shown in Figure 22, the majority (73%) saw their domestic sales increasing. Approximately half also anticipated that their overall profits and R&D expenditure would increase. Others were likelier to see their profits (28%) and R&D (29%) expenditure remaining unchanged rather than decreased (21%–25%) in the next 12 months.

Nearly half the respondents believed their employment levels (45%), export earnings (56%) and capital expenditure (43%) remaining unchanged. Others were likelier to predict that their employment (39%) and export earnings (30%) would increase over this period. Respondents who reported seeing their capital expenditure change over the 12 months were slightly more likely to see it decrease (30%) rather than increase (27%) in this time period.

Further analysis by the size of the companies revealed some interesting differences.
Smaller companies (turnover <$100 million in 2008, n=11) were more likely to see an increase in their domestic sales revenue, R&D expenditure, employment and overall profits. They also saw their export earnings and capital earnings unchanged over this period.

Medium sized companies ($100 million < turnover < $400 million in 2008, n=10) were more likely to predict that their domestic sales revenue, R&D expenditure and their overall profits would increase over the 12 months. They also saw their export earnings and employment remaining unchanged. However, their opinions on capital expenditure were divided over this period. A similar number of respondents saw the capital expenditure unchanged or decreasing over the next 12 months.

Large companies (turnover > $400 million in 2008, n=7) were more likely to project an increase in domestic sales revenue over the next 12 months. They anticipated that their capital expenditure, export earnings, employment and overall profits would remain unchanged, while their R&D expenditure would decrease. Only two large companies reported an expected increase in their R&D outlay.

To put things in perspective, it is important to note that large companies contributed up to 69% of the total industry turnover in 2008 as reported in this survey. Their view of the next 12 months would dictate the overall industry direction and performance in the 12 months to June 2010.