THE UNIVERSITY OF MELBOURNE

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IBM® – Melbourne Institute 'Innovation Index of Australian Industry'

MELBOURNE INSTITUTE
of Applied Economic and Social Research

Contents

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Foreword

Glen Boreham,
CEO and Managing Director
IBM Australia, New Zealand

IBM Australia is proud to present the IBM-Melbourne Institute 'Innovation Index of Australian Industry' – the first comprehensive, inter-industry, multi-indicator approach to measure the rate of innovative activity in Australia.

There is no doubt that innovation is a key driver of economic growth and is vital to the prosperity of the Australian economy. Simply doing the same things better is an agenda of the last decade.

Today, businesses in every sector of Australian industry know they need to do things differently to succeed. As a result, we are seeing more opportunities for innovation than ever before, as well as new approaches to innovation itself.

Innovation in the 21st century is about more than just invention. It is about businesses being open, multidisciplinary and collaborative in the new ways they look to work and think in order to generate not just new products, but also new industries and new knowledge.

At IBM, we have always understood the importance of innovation and the breakthrough thinking that spans technology, business and society. For nearly a century, IBM has chosen to live at the intersection of these values. This choice has enabled our company to create value for our clients, provide rewarding careers for our people, and be a progressive force in the societies in which we do our work – including Australia.

This Index embodies IBM's commitment and investment in innovation and the prosperity of the Australian economy in a globally competitive market. Our hope is that by empowering local industry leaders with the necessary information we can, together, continue to build Australia's global economic future on a path of successful and competitive innovation.

Professor John Freebairn
Director, Melbourne Institute of Applied
Economic and Social Research
The University of Melbourne

Innovation in the development of new and better products and services, and of lower cost production methods, is critical for Australia's sustained economic prosperity. The IBM – Melbourne Institute 'Innovation Index of Australian Industry' employs modern statistical techniques to combine data on R&D activities, intellectual property approvals and productivity growth to provide a valuable and unique picture of the evolving innovation performance of the Australian economy, and for thirteen broad industry categories, from 1990 to the present.

The IBM – Melbourne Institute 'Innovation Index of Australian Industry' provides industry analysts and policy makers with useful new insights on the important missing ingredient that drives economic growth.

Executive Summary

Innovation is an important, but ultimately very difficult concept to define and measure. In this report, the IBM – Melbourne Institute 'Innovation Index of Australian Industry' constructs the first comprehensive, inter-industry, multi-indicator approach to measuring the rate of innovative activity in Australia.

The main observations to be drawn from the IBM – Melbourne Institute 'Innovation Index of Australian Industry' are:

- The rate of innovative activity in Australia has increased by 25.8 per cent during the period 1990 to 2005 with particularly strong growth experienced since 1996. The overall increase in the rate of innovative activity since 1990 is 1.6 per cent per annum.

- However, there was a downturn in the rate of innovative activity of 2.6 per cent in 2005 (relative to 2004). Only two components of the Innovation Index—R&D intensity and trade mark intensity—reported increases in the rate of activity in 2005.

- After reaching its peak in 2002, the rate of patenting activity in Australian industry has experienced a downward trend since then. At the same time, however, the level of R&D intensity has been steadily increasing.

- The largest reported increase in innovation activity in 2005 relative to 2004 has been in the health and community services industry (23.8 per cent) and the transport and storage industry (5.1 per cent). The only other industries to report increases in innovative activity were personal and other services (2.3 per cent) and property and business services (2 per cent).

- The largest reductions in innovative activity in 2005 relative to 2004 were observed in wholesale trade (–12.6 per cent) and cultural and recreational services (–9.0 per cent).

- Despite being at the leading edge of best practice, the mining industry has experienced a fall in the rate of innovative activity since 2001. Its performance in 2005 suggests that it is now only just above the average industry in terms of innovative activity. Much of this seems to be attributable to a dramatic decrease in patenting activity in the industry.

- For the first time in 2005, the health and community services industry performed above the average industry in terms of its innovative activity. Much of the observed increase can be attributed to increased activity in both R&D and trade mark activity in the industry. Coupled with this has been a strong increase in organisation/managerial innovative activity and technological advances in this sector.

IBM – Melbourne Institute 'Innovation Index of Australian Industry'

Innovation—which is typically defined as the introduction of something 'new and useful'—is widely regarded as the wellspring of economic prosperity, since the introduction of new processes, techniques, products and services drives productivity growth. However, innovation is much more than the introduction of new processes, techniques, products and services, since it also relates to a wide range of activities such as how people organise themselves, how businesses are structured and how products are packaged.

Despite the fact that innovation is relatively easy to conceptualise, several variants of its meaning exist and identifying what is 'new' is not unambiguous. For example, should something that is simply an imitation of practices used by other companies be called an innovation? While such new-to-the-firm innovations are clearly important, since they foster productivity growth within the firm, many people would not regard this as innovation. Rather, they would think of innovation in a narrower (and grander) sense—that is, as involving something which is new-to-the-world, such as the creation of penicillin or the launch of the personal computer.

In trying to measure the extent of innovative activity, we also need to consider whether we should include the many 'useful' new products which are abandoned because they don't find a niche market or the organisation that created them goes out of business. Should such 'innovations' be counted in an exercise which is designed to identify the level of innovative activity? Or are we really only interested in those innovations which are successful, however this is measured?

For the purposes of this report we adopt a broad definition of 'innovation'. We include innovations which are both new-to-the-world (such as patents) and those which may be simply new-to-the-firm (such as trade marks). We also seek to include all innovative activities, not just the few that achieve success, which we do by including data on R&D expenditure and employment since it embodies elements of both successful and unsuccessful innovation (not all R&D projects end up in marketable products and services or new processes). And while relying heavily on activities which create a paper trail, such as patent and trade mark applications, we supplement this with survey information on the R&D activities and organisational reforms of businesses. This provides us with the broadest possible conception of all those activities which constitute innovation in Australian industry.

Even with a clear definition of 'innovation', a further problem lies in its measurement, since many innovative activities are trade secrets or improvements in production processes which are not reported outside the innovating organisation. As consumers we may see the effects of such innovations (in terms of better products or lower prices), but it is less clear how to include the innovations in an index of innovative activity since they are essentially unobservable. Here we measure these types of innovations indirectly, through the inclusion of industry-by-industry productivity, since any internal process innovations should ultimately be reflected through productivity improvements.

In terms of coverage, we include innovative activity in all one-digit Australian New Zealand Standard Industrial Classification (ANZSIC) industries (see Appendix 2 for details). However, we exclude non-market sector industries—such as government and defence, education, not-for-profit health services, as well as agriculture, forestry and fishing. Included therefore are mining, manufacturing, construction, utilities, wholesale trade, retail trade, accommodation, cafes and restaurants, transport and storage, communication services, finance and insurance, property and business services, the for-profit part of health and community services, cultural and recreational services, and personal

and other services. In general, we include government trading enterprises, but not the non-traded government sector such as education. Nonetheless, the Innovation Index presented here is a comprehensive measure of the level of activity in Australian industry since it covers the vast majority of businesses, industries and organisations active in Australia.

Thus, the IBM – Melbourne Institute 'Innovation Index of Australian Industry' tracks patterns in the rate of innovative activity across a wide range of Australian businesses. The Innovation Index itself covers changes in the rate (rather than the level) of innovative activity from 1990 up to the present. It covers innovations relating to goods and services, business processes, and organisational and managerial functions. These dimensions are measured by six industry data series comprising in the table below:

There are three main sources of data used to construct the Index. The Australian Bureau of Statistics (ABS) supplied data on productivity, R&D employment, R&D expenditure employment and value added by industry. We also used ABS data to construct the weights used to reflect the relative importance of each component of overall business performance in the Innovation Index (using two recent ABS surveys of innovation in Australia which reported results on the proportion of sales income that resulted from the introduction of goods/services, processes and organizational/managerial innovations). For a detailed account of the methodology behind the construction of the IBM – Melbourne Institute 'Innovation Index of Australian Industry', see Appendix 1 of this report.

In addition, IP Australia supplied the data on patent, trade mark and design applications. These are matched through to business listings from the Yellow Pages to produce industry series. The Melbourne Institute of Applied Economic and Social Research supplied the data on organisational/managerial innovation through its annual enterprise level 'Management and Innovation Survey', which has been conducted every year since 2001.

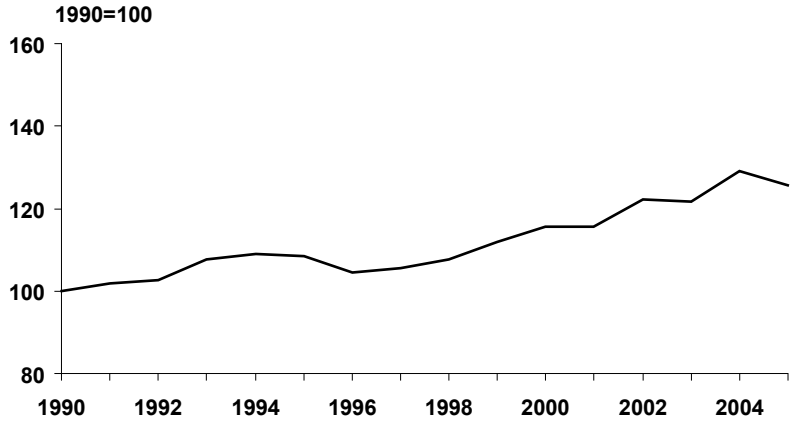
- R&D intensity (measured by R&D expenditure as a per cent of total value added and R&D employment as a per cent of total employment);
- Patent intensity (measured by the number of patent applications per person employed);
- Trade mark intensity (measured by the number of trade mark applications per person employed);
- Design intensity (measured by the number of design applications per person employed);
- Organisational/managerial innovation (measured by responses to questions in the Melbourne Institute Management and Innovation Survey relating to such things as: the extent of business resources devoted to organisational change—for example, restructuring and changes in work practices; managerial change—for example, new management techniques and enterprise bargaining; and the marketing of new products or processes); and
- Productivity (value added per person employed).

Innovation in Australian Industry Increases from the Late 1990s

The IBM – Melbourne Institute 'Innovation Index of Australian Industry' grew by 25.8 per cent during the period 1990 to 2005 (or 1.6 per cent per annum). Following average growth of 1.4 per cent per annum from 1990 to 1995, the level of innovative activity in Australia as measured by the Innovation Index dipped sharply in 1996, before recovering fairly steadily thereafter. There was, however, a fall of 2.6 per cent in the year 2005.

The table below presents a breakdown of the six components of the Innovation Index. The strongest growth over the entire period has been in R&D intensity and in trade mark intensity. The Table also indicates that the only positive incremental changes in 2005 relative to 2004 were in trade mark intensity (3.9 per cent) and R&D intensity (2.1 per cent). All other components of the Innovation Index experienced negative incremental changes in growth in 2005; productivity (–0.8 per cent), patent intensity (–10.0 per cent), organizational/managerial innovation (–2.2 per cent) and design intensity (–22.8 per cent).

The IBM – Melbourne Institute 'Innovation Index of Australian Industry'



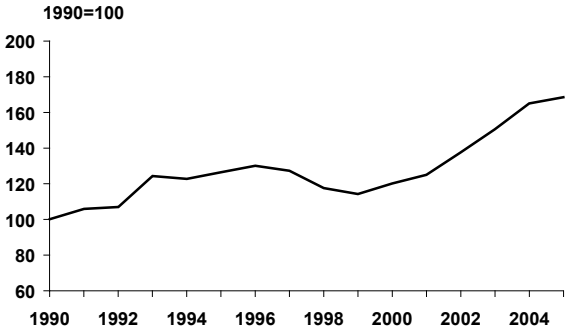
	1990	1995	2000	2004	2005	% change 2004-2005	Trends 2004-2005
Innovation Index	**100.0**	**108.5**	**115.7**	**129.2**	**125.8**	**-2.6**	▼
R&D intensity	100.0	126.5	120.1	165.2	168.7	2.1	▲
Patent intensity	100.0	91.2	120.6	140.5	126.4	-10.0	▼
Trade mark intensity	100.0	142.9	157.3	191.1	198.6	3.9	▲
Design intensity	100.0	95.7	82.7	78.6	60.7	-22.8	▼
Organisational/managerial innovation (2001=100)	na	na	na	100.2	98.0	-2.2	▼
Productivity	100.0	108.3	122.6	129.5	128.4	-0.8	▼

na Not available

Components of the Index

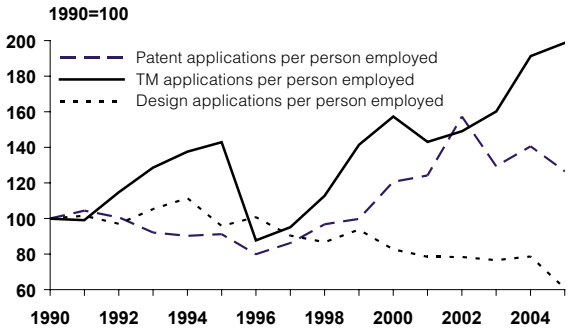
R & D Intensity

Although many innovations are introduced by firms without formal R&D laboratories, R&D remains a key component of the business community's innovative activities. We combine three related dimensions of R&D to provide a measure of R&D intensity. Excluding the dip in the R&D intensity from 1996 to 1999, there has been fairly steady growth over the period from 1990 to 2005.



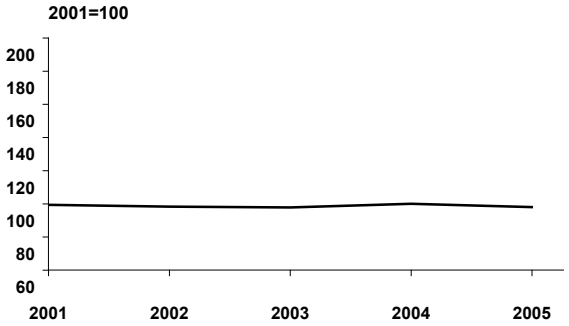
Patent, Trade mark & Design Intensity

Patents, trade marks and designs are also components of the Innovation Index. Although there are many difficulties with using IP as a proxy for innovation (for example, patents are only used in a small number of industries), it remains a cornerstone of the way innovation is typically measured and so is included in the Index. Although patent intensity has fallen in the last year, there has been strong growth in trade mark intensity since 2001.



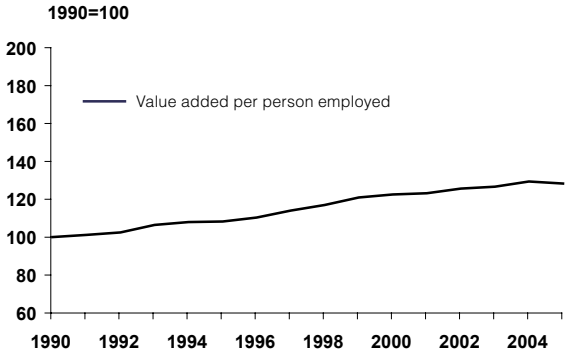
Organisational / Managerial Innovation Index

Meanwhile, there have only been marginal changes in the level of activity in organisation and managerial innovations. Since 2001 there has been a drop of 2 per cent in the level of organisational/ managerial innovations in Australia. This indicates the level of activity in this component of the Innovation Index is very stable.



Productivity

A measure of productivity is included to reveal the effects of innovation more broadly. Productivity growth in Australia averaged 1.7 per cent per annum from 1990 to 2005 (2.1 per cent from 1990 to 2000 and 0.9 per cent from 2001 to 2005), around 1.0 per cent higher than during the 1980s. Empirical evidence suggests that this widely observed increase in productivity growth reflects increased efficiency (or 'multi-factor productivity') rather than just capital deepening.



Innovation Index – Breakdown by Industry

Disaggregation of the Innovation Index by industry provides a detailed insight into the trends in the various industry Innovation Indexes across one-digit ANZSIC industries. Table 2 indicates that wholesale trade has been the standout performer over the entire period—its Innovation Index score for the year 2005 was 218.7 (1990=100), which is much higher than the index scores of the next highest industries. However, this masks the fact that index for wholesale trade actually fell in 2005 by 12.6 per cent.

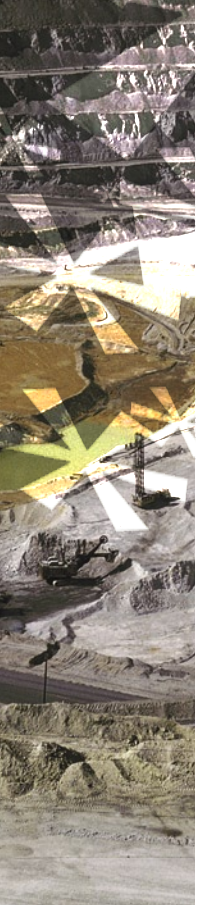
In terms of the incremental change from 2004 to 2005, the most notable increases in innovative activity were in health and community services (23.8 per cent); transport (5.1 per cent); and personal and other services (2.3 per cent). Most other industries experienced negative growth including wholesale trade (–12.6 per cent); cultural and recreational services (–9.0 per cent); communication services (–6.7 per cent); retail trade (–5.5 per cent); and finance and insurance (–1.2 per cent).

Although there were some industries which recorded Innovation Index falls during the period 1990 to 2000 (most notably construction, and property and business services), it is encouraging to note that most industries experienced positive rates of growth in the period that followed, that is, 2000 to 2005. Given the importance of innovation for economic prosperity and growth, this bodes well for the Australian economy.

It is not the purpose of this report to attempt to untangle the many competing factors which may have caused the observed increase in innovative activity—which include government programs designed to stimulate R&D and provide seed funding to small entrepreneurs—but the evidence clearly suggests overall that Australia has been performing fairly well since 1990, despite the small fall in the Innovation Index in 2005.

Table 2. Innovation Index by Industry — five yearly intervals

	1990	1995	2000	2004	2005	% change 2004-2005	Trends 2004-2005
Mining	100.0	151.5	170.7	142.1	138.8	-2.3	▼
Manufacturing	100.0	131.3	143.8	172.6	161.2	-6.6	▼
Electricity, gas and water	100.0	134.2	185.1	172.2	162.2	-5.8	▼
Construction	100.0	77.9	77.4	92.8	92.2	-0.6	▼
Wholesale trade	100.0	155.3	215.5	250.3	218.7	-12.6	▼
Retail trade	100.0	115.4	122.9	129.6	122.5	-5.5	▼
Transport and storage	100.0	105.6	110.0	118.8	124.8	5.1	▲
Communication services	100.0	128.0	162.6	180.8	168.7	-6.7	▼
Finance and insurance	100.0	119.9	143.8	190.2	187.9	-1.2	▼
Property and business services	100.0	89.1	84.0	102.5	104.5	2.0	▲
Cultural and recreational services	100.0	97.8	109.4	123.4	112.3	-9.0	▼
Personal and other services	100.0	101.9	119.4	132.2	135.3	2.3	▲
Health and community services	100.0	93.8	106.7	114.2	141.4	23.8	▲
All Industry Innovation Index	**100**	**108.46**	**115.74**	**129.21**	**125.82**	**-2.6**	▼



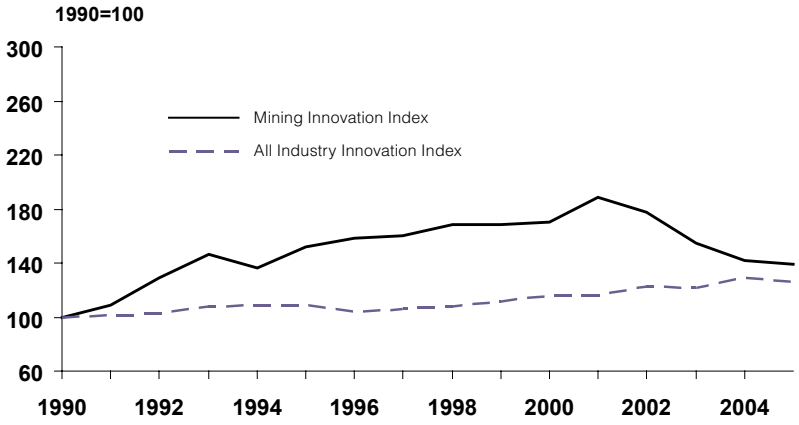
Mining Innovation Index

The mining industry historically has been an important part of the Australian economy. The industry has experienced a resurgence in recent years, following a period of slower growth, as a result of increased demand, especially from China, and associated increases in prices. As can be seen from the chart below, the mining Innovation Index increased by approximately 80 per cent from 1990 to 2001, but has since fallen to a level some 39 per cent above that of 1990.

Much of the observed increase in innovative activity since 1990 appears to be related to changes in R&D intensity, which has increased dramatically. In fact, R&D intensity was almost three times greater in 2005 than it was in 1990. At the same time, however, there has been an alarming fall in the level of patent intensity—which has fallen by 68.2 per cent in the last year. Similar trends can be observed in design intensity. On the other hand, trade mark intensity has increased steadily since 2000.

Average productivity growth in the mining industry from 1990 to 2005 was 2.7 per cent per annum, above overall industry productivity growth in Australia of 1.7 per cent per annum. Despite this, mining industry productivity growth has declined sharply since 2001. Arguably this decline reflects the somewhat unanticipated nature of the recent and ongoing boom in mining, which has thus required significantly increased inputs of labour to meet increased demand in the face of the usual delays in the bringing 'on stream' of new capital stock and capacity. Industry analysts expect this downward trend in mining productivity to reverse in the coming years.

Mining Innovation



	1990	1995	2000	2004	2005	% change 2004-2005	Trends 2004-2005
Mining Innovation Index	**100.0**	**151.5**	**170.7**	**142.1**	**138.8**	**-2.3**	▼
R&D intensity	100.0	210.7	216.8	213.9	271.4	26.9	▲
Patent intensity	100.0	181.8	123.0	73.6	23.4	-68.2	▼
Trade mark intensity	100.0	70.5	85.6	111.8	161.2	44.2	▲
Design intensity	100.0	224.1	76.7	22.6	19.9	-11.9	▼
Organisational/ managerial innovation (2001=100)	na	na	na	78.8	80.7	2.4	▲
Productivity	100.0	144.2	188.7	153.6	142.1	-7.5	▼

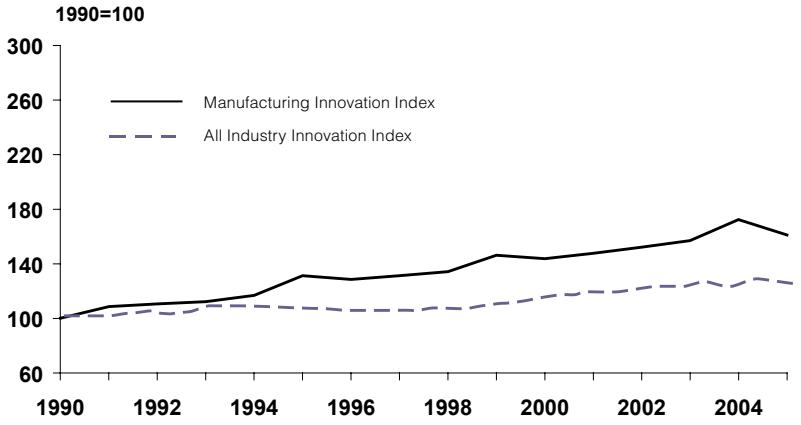
Manufacturing Industry Innovation Index

The manufacturing industry in Australia has been subjected to increasing competitive pressures in recent decades. This has resulted in a shift towards the production of relatively more transformed manufactured goods over time. The manufacturing Innovation Index shown in the chart below suggests that innovation in the manufacturing industry has grown fairly steadily throughout the period and has exceeded that of the Australian economy overall in the past fifteen years.

Although the contribution of R&D to overall innovative activity dipped around 1999 to 2001, it has subsequently recovered steadily. R&D intensity as a component of the manufacturing Innovation Index has grown by between 89 per cent during the entire period. Of particular note is the relatively weak growth in the index of design intensity compared with trade mark intensity and, to a lesser extent, patent intensity.

Productivity growth in manufacturing since 1990 has averaged 2.2 per cent per annum, which is similar to its growth rate during the 1980s, but above average productivity growth in Australia of 1.7 per cent since 1990. The trend in manufacturing productivity during this period was a positive one, despite a fall of 0.4 per cent in 2005. The overall growth in productivity has occurred in an environment of ongoing reductions in tariff protection and significant increases in import competition from low-cost producers in Asia, particularly China. The incentive to innovation provided by the opening of the sector to competition combined with increased flexibility in product and factor markets and the uptake of information and communication technologies (ICTs) have boosted the productivity of companies able to survive in this increasingly competitive environment.

Manufacturing Industry



	1990	1995	2000	2004	2005	% change 2004-2005	Trends 2004-2005
Manufacturing Innovation Index	**100.0**	**131.3**	**143.8**	**172.6**	**161.2**	**-6.6**	▼
R&D intensity	100.0	143.4	136.5	185.2	189.4	2.3	▲
Patent intensity	100.0	118.2	180.4	211.7	206.9	-2.3	▼
Trade mark intensity	100.0	173.1	228.1	280.9	273.9	-2.5	▼
Design intensity	100.0	135.6	118.4	132.8	85.9	-35.3	▼
Organisational/managerial innovation (2001=100)	na	na	na	102.0	98.2	-3.7	▼
Productivity	100.0	110.4	121.5	137.6	137.1	-0.4	▼

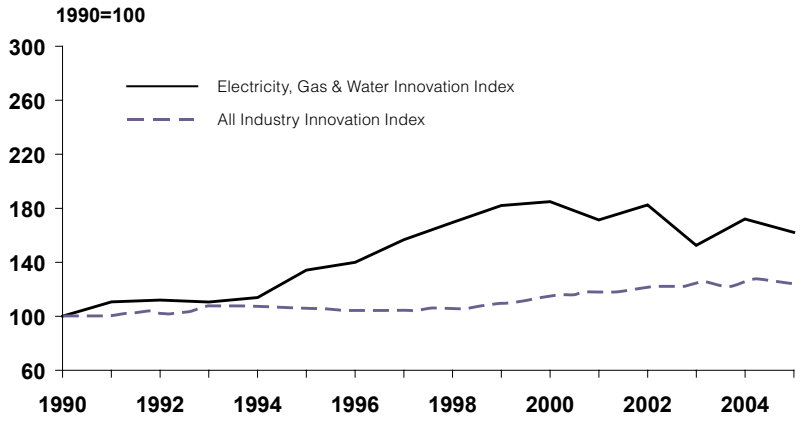
Utilities Industry Innovation Index

Innovation in the electricity, gas and water industry in Australia, as shown by the utilities Innovation Index, has exceeded that of Australian industry overall for most of the period since 1990. Having said that, innovation in this sector has been trending downwards since 2000, with fluctuations in the IP components the most likely cause of this, as well a moderation in productivity. This sector has undergone widespread change in the past decade due to the privatisation and deregulation of utilities industries.

R&D intensity as a component of innovation has risen strongly since the year 2000, having fallen through much of the 1990s. Overall R&D intensity rose by 95 per cent between 1990 and 2005. IP components of the Innovation Index data (which include patents, trade marks and designs) relating to the utilities industries have been extremely volatile during the period under review. This may be partly due to the fact that the IP applications data are relatively few in number and thus appear to be 'lumpy' when measured. Having said this all three measures ended the period higher, especially the index relating to trade mark intensity.

Productivity growth in the utilities industry has been relatively high and relatively volatile during the period under review, with average annual growth of 3.9 per cent, vis a vis 1.7 per cent for Australian industry as a whole. Increased competitive pressures resulting from micro economic reforms introduced from the mid to late 1980s have no doubt played a role here. Having said this, annual average productivity growth has slowed sharply in recent years, from 7.5 during the 10 years to 2000 to –3.4 per cent in the ensuing five years.

Utilities Industry



	1990	1995	2000	2004	2005	% change 2004-2005	Trends 2004-2005
Utilities Innovation Index	**100.0**	**134.2**	**185.1**	**172.2**	**162.2**	**-5.8**	▼
R&D intensity	100.0	79.6	73.4	174.7	195.5	11.9	▲
Patent intensity	100.0	308.2	145.7	243.5	120.8	-50.4	▼
Trade mark intensity	100.0	173.4	608.3	241.6	298.1	23.4	▲
Design intensity	100.0	0.0	223.6	147.4	135.4	-8.1	▼
Organisational/managerial innovation (2001=100)	na	na	na	102.3	107.5	5.1	▲
Productivity	100.0	140.8	203.9	182.9	169.7	-7.2	▼

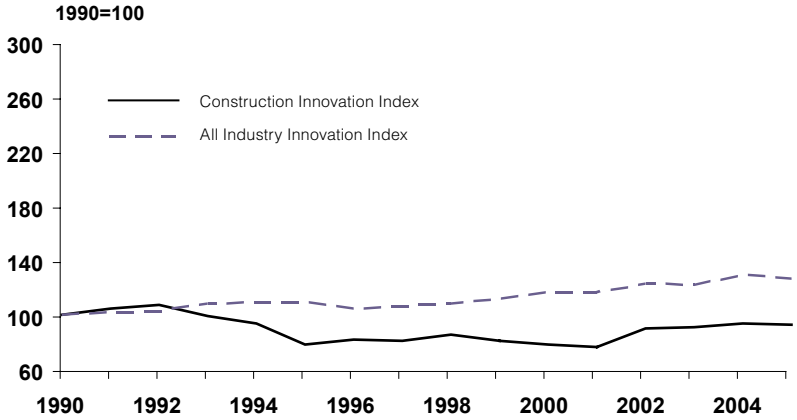
Construction Industry Innovation Index

The construction Innovation Index has failed to keep pace with overall innovative activity in Australia during the course of the period under review, having declined overall up until 2001, before rising slightly thereafter. The recent rise in the construction index appears to reflect an increase in R&D intensity, as well as a sharp increase in trademark intensity.

Mirroring the trend in the overall construction Innovation Index and the R&D indexes for this industry, the IP component indexes trended down from 1990 before turning up again around 2000, at least in the case of the patent and trade mark measures. Patent intensity fell again in 2005 and trademark intensity rose dramatically—the lumpy nature of these applications may account for this volatility. But it is also likely that the innate nature of the industry limits the role of such applications in overall industry development.

At just 1.2 per cent per annum, average productivity growth in the construction industry since 1990 has been below the average of Australian industry (1.7 per cent). Productivity growth in construction was also relatively volatile during the period with negative growth recorded in five out of 15 years. This poor relative performance most likely reflects in part the intrinsic nature of the industry, being relatively less exposed to foreign competition and with perhaps less gains to be achieved from the application of new ICTs and R&D than some industries. Capital deepening contributed relatively little to labour productivity growth for much of the period under review.

Construction Industry



	1990	1995	2000	2004	2005	% change 2004-2005	Trends 2004-2005
Construction Innovation Index	**100.0**	**77.9**	**77.4**	**92.8**	**92.2**	**-0.6**	▼
R&D intensity	100.0	64.3	38.7	102.2	113.7	11.3	▲
Patent intensity	100.0	54.3	65.1	88.6	78.5	-11.4	▼
Trade mark intensity	100.0	138.7	78.5	92.2	278.4	202.0	▲
Design intensity	100.0	81.1	30.3	27.9	23.5	-15.8	▼
Organisational/managerial innovation (2001=100)	na	na	na	97.6	86.8	-11.1	▼
Productivity	100.0	101.9	114.9	122.0	118.1	-3.2	▼

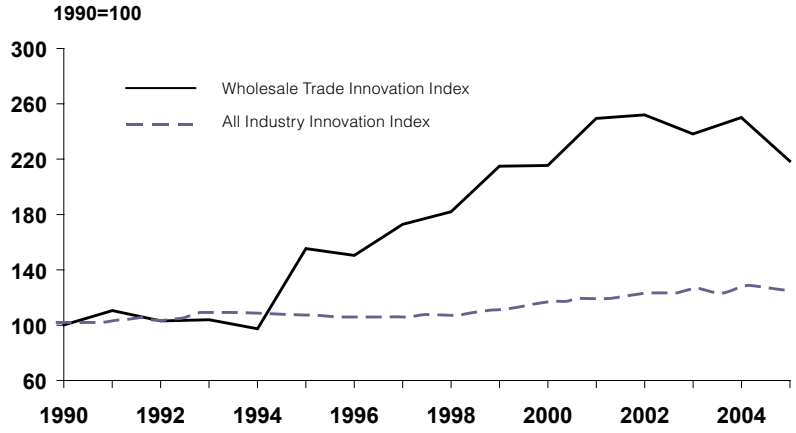
Wholesale Trade Industry Innovation Index

The wholesale trade industry has been one of the biggest winners from developments in and the spread of ICTs in the past 15 years or so, as is reflected in the wholesale trade Innovation Index shown below, which has increased by almost 219 per cent in the fifteen years to 2005.

R&D has played an important role in innovation in this industry, with fairly steady and strong growth in this index, in particular from 1997 on. The IP index components have been much more volatile than the R&D index for the wholesale trade industry, and generally much stronger. Both patent and trade mark applications in particular have grown very strongly, before turning down in 2005, while design applications have exhibited a less marked increase overall.

Productivity growth in the wholesale trade industry has been strong during the period under review, with average annual growth of 4.5 per cent. A number of factors have contributed to these productivity gains. The correlation between productivity growth and the uptake of ICTs in the distributive trades has been widely noted (for example, innovations such as barcoding and automatic re-ordering processes have transformed the industry from a storage-based system to a fast flow distribution network). The contribution of efficiency gains to productivity growth has been substantial. R&D effort has been of considerable importance in this process. Competition and flexibility have also been found to be influential to productivity growth in the wholesale trade sector.

Wholesale Trade Industry



	1990	1995	2000	2004	2005	% change 2004-2005	Trends 2004-2005
Wholesale Trade Innovation Index	**100.0**	**155.3**	**215.5**	**250.3**	**218.7**	**-12.6**	▼
R&D intensity	100.0	104.5	147.7	183.3	214.4	17.0	▲
Patent intensity	100.0	155.6	286.5	323.8	311.0	-4.0	▼
Trade mark intensity	100.0	221.0	301.8	389.2	343.9	-11.6	▼
Design intensity	100.0	163.3	193.7	208.0	132.2	-36.4	▼
Organisational/managerial innovation (2001=100)	na	na	na	99.7	93.8	-5.9	▼
Productivity	100.0	111.6	154.0	181.9	190.9	4.9	▲

Retail Trade Industry Innovation Index

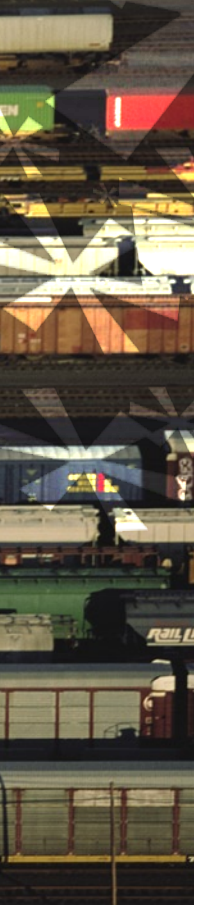
The retail trade Innovation Index has grown moderately during the period since 1990, increasing at about the same rate as the overall all-industry Innovation Index. Increases in both the R&D and IP components contributed to this rise. While growth in the Innovation Index for the retail sector outpaced that of the index for Australia overall, productivity in the retail industry slightly underperformed overall industry productivity growth in Australia as discussed below.

The R&D component of the retail sector Innovation Index fluctuated around a fairly flat trend for most of the period under review, before bouncing sharply higher in 2005. Meanwhile, the IP measures of innovation have been more volatile, with only the trade mark component appearing to show a longer term upward trend overall.

Annual average productivity growth in the retail sector during the period under review was 1.6 per cent, just below the Australian average of 1.7 per cent. The retail trade sector also benefited from an increase in R&D investment and the uptake of ICTs during the period under review, compared with the 1980s, albeit not to the extent of some other industries. As the economy's largest employer the scope for gains in labour productivity are somewhat limited. The sector has also been subject to significant competitive pressures as well as changed operating conditions in the past decade or so, with increasing amounts of product being sourced in overseas markets as well as changes in distribution practices.

Retail Trade Industry

	1990	1995	2000	2004	2005	% change 2004-2005	Trends 2004-2005
Retail Innovation Index	**100.0**	**115.4**	**122.9**	**129.6**	**122.5**	**-5.5**	▼
R&D intensity	100.0	94.9	112.7	105.6	221.6	109.8	▲
Patent intensity	100.0	73.3	98.8	110.7	96.3	-13.0	▼
Trade mark intensity	100.0	217.7	230.1	277.3	246.6	-11.1	▼
Design intensity	100.0	132.8	121.4	106.0	94.2	-11.1	▼
Organisational/managerial innovation (2001=100)	na	na	na	105.1	108.3	3.0	▲
Productivity	100.0	104.6	118.9	127.6	126.2	-1.1	▼



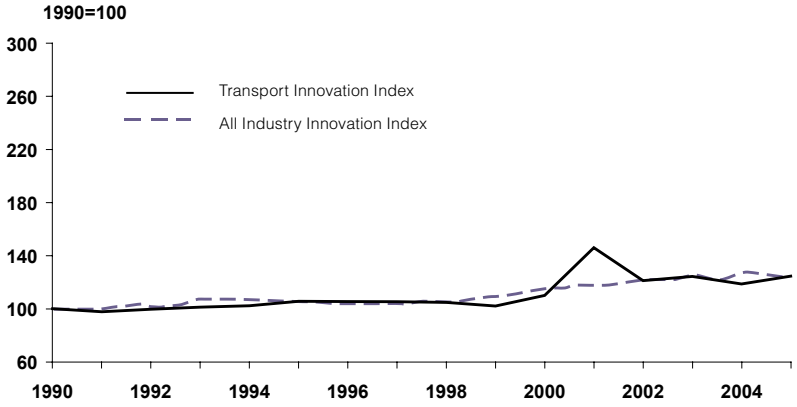
Transport & Storage Industry Innovation

The transport and storage industry Innovation Index shown in the chart below has grown fairly much in line with overall innovation in Australia during the period since 1990. This sector has gained significantly from the application of ICTs, which have lowered transport costs, in the period since the early 1990s.

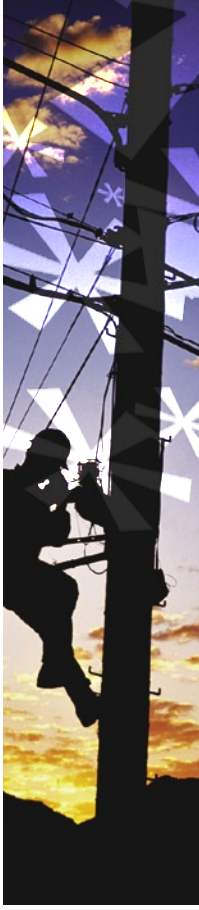
The moderate improvement in innovation in the transport industry since around 2000 has been significantly due to an upturn in the R&D index, as shown in the table below. Meanwhile, the IP components of the index (patents, trade marks and designs) relating to this industry have been fairly volatile in the past 15 years, with only the trade mark applications measure showing a reasonably steady upward trend. This volatility probably reflects the lumpy nature of IP applications.

Annual productivity growth in the transport and storage industry averaged 2.8 per cent from 1990 to 2005, above the Australian average of 1.7 per cent. Productivity growth in this industry has benefited significantly from developments in and the application of ICTs since the early 1990s. Consistent with this, Productivity Commission estimates suggest that the multi-factor productivity, or efficiency, contribution to labour productivity in this industry during the 1990s was substantial. Having said this, as with Australian productivity growth overall, productivity growth in the transport and storage sector has slowed in more recent years.

Transport & Storage Industry



	1990	1995	2000	2004	2005	% change 2004-2005	Trends 2004-2005
Transport Innovation Index	**100.0**	**105.6**	**110.0**	**118.8**	**124.8**	**5.1**	▲
R&D intensity	100.0	63.4	41.7	100.4	135.7	35.2	▲
Patent intensity	100.0	64.5	56.9	60.2	67.7	12.5	▲
Trade mark intensity	100.0	187.2	209.0	229.4	296.1	29.1	▲
Design intensity	100.0	150.9	84.1	39.0	93.7	140.3	▲
Organisational/managerial innovation (2001=100)	na	na	na	93.6	85.7	-8.4	▼
Productivity	100.0	115.7	132.5	148.0	150.1	1.4	▲

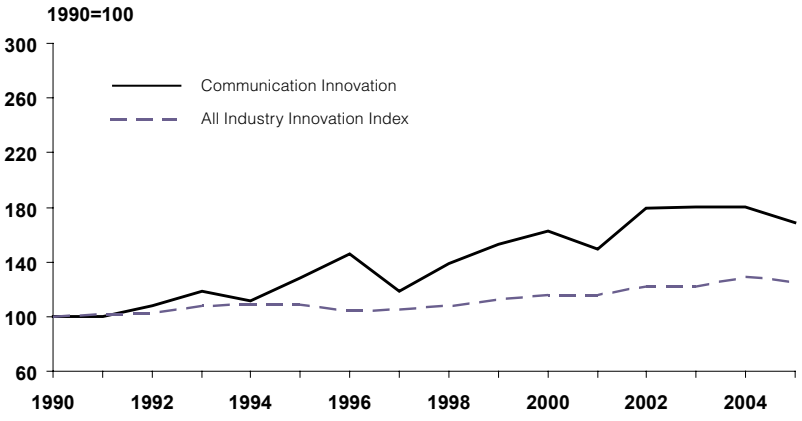


Communication Services Industry Innovation Index

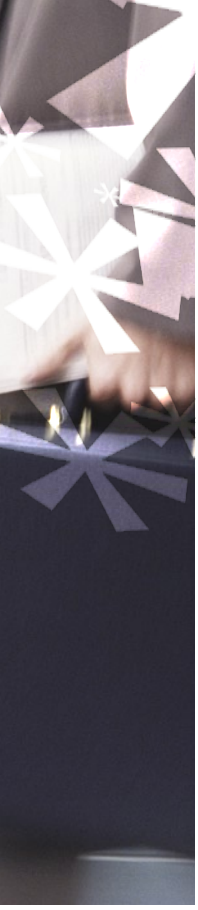
Growth in the communication services Innovation Index has been slightly higher than that of the all-industry Innovation Index since the early 1990s, although the gap between the two indexes almost closed in 2005. This situation is in contrast to the performance of productivity in the communications sector and Australian industry overall during the past 15 years. The explanation for this difference probably lies in the fact that Australia imports, rather than develops and manufactures, most of its ICT requirements. The latter most likely explains the relatively moderate growth (compared with some industries) in R&D relating to communications – despite this being the industry which in effect has been a driver of productivity growth in many other industries during this period. The R&D component index of the innovation index was lower than its initial level in 1990 for most of the period under review.

Productivity in the communication services industry has been much higher than in most industries, growing by 6.2 per cent per annum since the early 1990s compared with 1.7 per cent per annum for Australian industry overall. ICTs can affect productivity in three ways. First the technological advances in hardware and software raise 'multi-factor productivity' growth in countries involved in production. Second, from a user's point of view, rapid technological ICT advances are treated as embodied changes in capital inputs (contributing to capital deepening and labour productivity growth). Finally, diffusion of ICTs can bring 'multi-factor productivity' gains from spillovers and complementary product and process innovations.

Communication Services Industry



	1990	1995	2000	2004	2005	% change 2004-2005	Trends 2004-2005
Communication Services Index	**100.0**	**128.0**	**162.6**	**180.8**	**168.7**	**-6.7**	▼
R&D intensity	100.0	62.8	37.8	98.1	93.2	-5.0	▼
Patent intensity (1995=100)	na	100.0	151.4	74.5	50.6	-32.1	▼
Trade mark intensity (1995=100)	na	100.0	458.9	339.9	286.1	-15.8	▼
Design intensity (1995=100)	na	100.0	68.4	34.4	32.4	-5.8	▼
Organisational/managerial innovation (2001=100)	na	na	na	117.9	100.0	-15.2	▼
Productivity	100.0	153.3	209.1	237.5	235.6	-0.8	▼



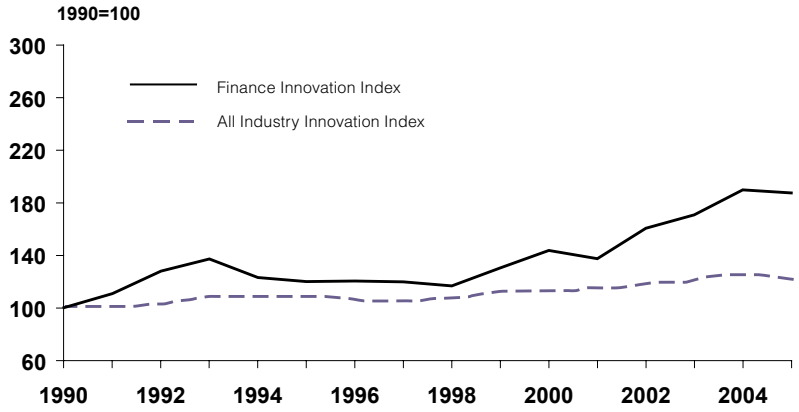
Finance & Insurance Industry Innovation Index

Innovation in the finance and insurance industry has risen strongly during the course of the period under review, as shown in the chart below. In particular, from 1990 to 2004 the finance and insurance Innovation Index rose by 90 per cent, before dropping back slightly in 2005. As discussed below in relation to the productivity performance of the finance sector, this innovation was related to the diffusion of ICTs in this industry.

Growth in the R&D component of the finance and insurance Innovation Index has been extremely volatile during the period since 1990, in particular recovering strongly following a dip the late 1990s. The IP intensity components have also been extremely volatile during the period under review, with two of the three components ending the period at a lower level than they started. Trade mark applications per person employed, however, rose strongly overall.

Average productivity growth in the finance and insurance services industry from 1990 was 3.1 per cent per annum, substantially above average productivity growth in Australia of 1.7 per cent. According to the Productivity Commission the finance and insurance sector has been the largest investor in ICTs, which has contributed to the acceleration of financial intermediation and strong productivity growth in the sector. Strong growth in R&D expenditure has played an important role in this process. However, as with some other industries, average productivity growth has slowed sharply in more recent years (from 4.4 per cent in the ten years to 2000 to 0.5 per cent per annum on average from 2000 to 2005).

Finance & Insurance Industry



	1990	1995	2000	2004	2005	% change 2004-2005	Trends 2004-2005
Finance Innovation Index	**100.0**	**119.9**	**143.8**	**190.2**	**187.9**	**-1.2**	▼
R&D intensity	100.0	164.2	159.3	537.6	577.0	7.3	▲
Patent intensity	100.0	52.8	66.2	80.1	73.6	-8.1	▼
Trade mark intensity	100.0	200.2	351.7	419.0	388.9	-7.2	▼
Design intensity	100.0	66.0	32.9	35.3	11.1	-68.6	▼
Organisational/managerial innovation (2001=100)	na	na	na	96.6	94.6	-2.1	▼
Productivity	100.0	124.6	153.2	162.3	156.8	-3.4	▼

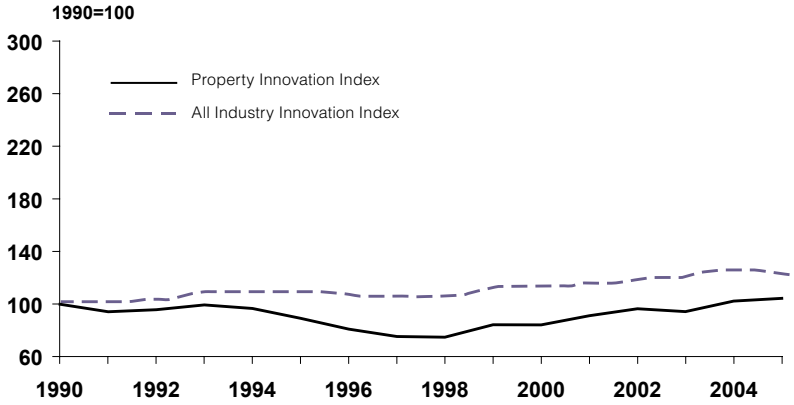
Property & Business Services Industry Innovation Index

The Innovation Index relating to the property and business services industry has underperformed that of the index for overall Australian industry in the period since 1990. Consistent with this, productivity growth in this sector has been much lower than that of industry overall.

The R&D intensity component relating to the property sector grew strongly during the last fifteen years. By the end of the period this index had grown by 242 per cent from its 1990 level. In the case of IP innovation only trade mark applications grew steadily throughout the period; the patent and design application measures actually fell overall.

Average productivity growth in the property and business services industry from 1990 was well below the Australian average at just 0.2 per cent per annum, in addition to being relatively volatile. Arguably the relatively limited scope for this industry to benefit from some of the drivers of productivity growth elsewhere in the past decade and a half may account for this relatively poor performance, although even the Productivity Commission has said that knowledge about productivity trends in this sector is relatively thin. Unlike most other industries being looked at, however, average per annum productivity growth in this industry was higher in the later third of the period under review at 1.2 per cent, vis-a-vis –0.3 per cent in the first ten years.

Property & Business Services Industry



	1990	1995	2000	2004	2005	% change 2004-2005	Trends 2004-2005
Property Innovation Index	**100.0**	**89.1**	**84.0**	**102.5**	**104.5**	**2.0**	▲
R&D intensity	100.0	156.3	147.2	232.7	242.0	4.0	▲
Patent intensity	100.0	53.8	54.9	69.7	67.9	-2.6	▼
Trade mark intensity	100.0	116.4	119.5	127.5	176.5	38.4	
Design intensity	100.0	72.4	36.6	45.5	21.8	-52.1	▼
Organisational/managerial innovation (2001=100)	na	na	na	100.8	99.4	-1.4	▼
Productivity	100.0	93.2	96.3	104.8	101.9	-2.8	▼

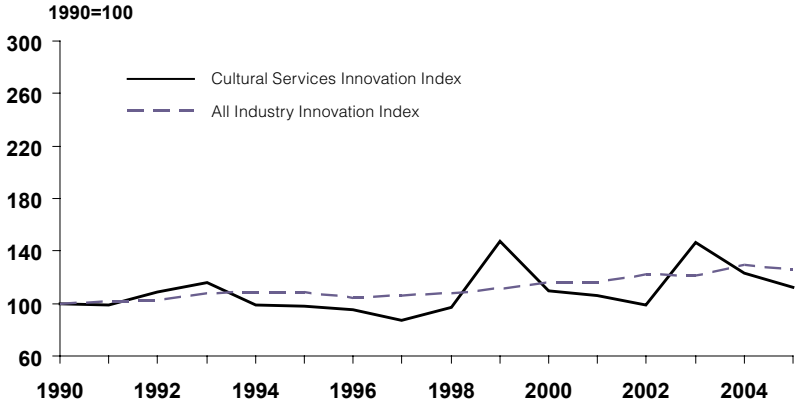
Cultural & Recreational Services Industry Innovation Index

Innovation in the cultural and recreational services industry has broadly kept pace with innovation in Australian industry overall in the period under review. Having said that, the cultural services Innovation Index was relatively volatile and ended the period lower than the all-industry Innovation Index. Given that the intrinsic nature of this industry is such that it lends itself less to innovation in the form of automation than some other industries, such a performance is arguably a reasonably strong one.

The R&D component declined overall throughout the period, and was relatively unstable. Meanwhile, the variability in IP applications has been such as to make interpretation of this data extremely difficult. Such volatility may result from the fact that IP applications data in this industry are relatively few in number and thus appear to fluctuate considerably when measured.

Average productivity growth in the cultural and recreational services industry from 1990 was well below the Australian average at just –0.3 per cent per annum. Having said this, average annual productivity growth improved over the course of the period. As with some other service industries, such as property services, the relatively limited scope for this industry to benefit from some of the key drivers of productivity growth elsewhere in the past decade and a half probably accounts for this relatively poor performance. Specifically, some services are not easily automated or affected by technological improvements.

Cultural & Recreational Services Industry



	1990	1995	2000	2004	2005	% change 2004-2005	Trends 2004-2005
Cultural Innovation Index	**100.0**	**97.8**	**109.4**	**123.4**	**112.3**	**-9.0**	▼
R&D intensity	100.0	50.9	31.1	81.6	54.4	-33.3	▼
Patent intensity	100.0	151.3	158.3	202.0	188.5	-6.7	▼
Trade mark intensity	100.0	115.3	167.9	188.9	166.4	-11.9	▼
Design intensity	100.0	55.8	62.6	69.7	44.1	-36.7	▼
Organisational/managerial innovation (2001=100)	na	na	na	109.2	109.9	0.6	▲
Productivity	100.0	90.8	92.2	98.8	94.1	-4.8	▼

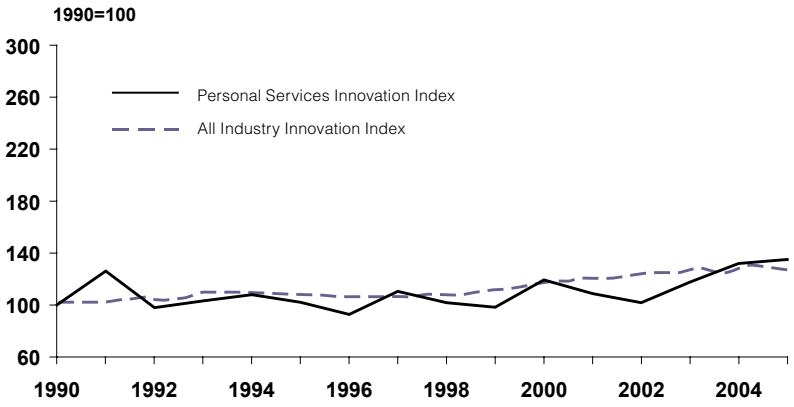
Personal & Other Services Industry Innovation Index

Growth in the personal and other services industry Innovation Index has slightly outpaced growth in the overall all-industry Innovation Index, as shown below. The personal services index grew by 35 per cent during the course of the 15 years to 2005, compared with 25 per cent for the Australian index. The general situation in this industry is similar to that of the cultural services industry just reviewed, in that moderate to strong growth in innovation was not matched by similar growth in productivity.

The R&D component of the personal services industry Innovation Index was relatively volatile and showed negative growth throughout much of the period. Having said this, R&D intensity picked up somewhat in 2005. The IP index components meanwhile were extremely volatile during the period under review, with only the trade mark measure exhibiting an upward trend overall. The small number of IP applications in this industry has no doubt contributed to the apparent volatility shown in this chart.

Productivity in this sector has underperformed compared with the national average since 1990, with average growth of just 0.7 per cent compared with 1.7 per cent nationally. As with some other service industries, the labour intensity of this industry and its intrinsic nature, being less easily automated or affected by technological improvements, means there is less scope for increases in productivity due to ICT-related capital deepening and efficiency gains.

Personal & Other Services Industry



	1990	1995	2000	2004	2005	% change 2004-2005	Trends 2004-2005
Personal Services Innovation Index	**100.0**	**101.9**	**119.4**	**132.2**	**135.3**	**2.3**	▲
R&D intensity	100.0	58.5	36.2	67.7	99.3	46.7	▲
Patent intensity	100.0	45.0	82.0	98.3	96.6	-1.7	▼
Trade mark intensity	100.0	275.7	353.5	435.2	466.9	7.3	▲
Design intensity	100.0	94.0	103.8	13.4	65.4	388.1	▲
Organisational/managerial innovation (2001=100)	na	na	na	114.3	104.1	-8.9	▼
Productivity	100.0	99.3	106.5	111.3	110.4	-0.8	▼

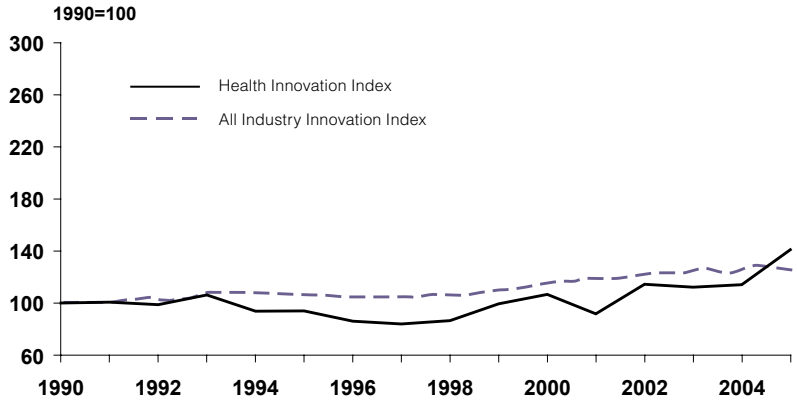
Health & Community Services Industry Innovation Index

The health and community services Innovation Index has underperformed the all-industry Innovation Index during much of the period since 1990, with the obvious exception of 2005, when health innovation rose appreciably. The overall picture in this industry fits the pattern of some other service industries where the role of an individual human being cannot be easily replicated or automated (think, for example, of such industry employees as nurses, doctors physiotherapists and social workers).

The R&D measure of innovation kicked up strongly in 2005, recording one of the strongest R&D intensity year-on-year changes (2005 on 2004) of all the sectors. This followed a long period of decline from 1990 to 2000. The IP components of the Innovation Index, meanwhile, have been similarly volatile to those relating to some other service industries.

Productivity in this sector, as with some other industries in the service sector, has underperformed the national average since 1990, with average growth of just 1.0 per cent compared with 1.7 per cent nationally. Meanwhile, productivity growth was reasonably steady throughout the course of the period. Despite the labour intensive nature of this industry, there may be scope for further productivity growth resulting from the application of ICTs in certain areas of production such as automated capture of patients' vital signs.

Health & Community Services Industry



	1990	1995	2000	2004	2005	% change 2004-2005	Trends 2004-2005
Health Innovation Index	**100.0**	**93.8**	**106.7**	**114.2**	**141.4**	**23.8**	▲
R&D intensity	100.0	56.6	34.5	70.4	120.5	71.2	▲
Patent intensity	100.0	61.8	62.0	122.4	113.8	-7.0	▼
Trade mark intensity	100.0	159.5	142.1	188.7	652.6	245.8	▲
Design intensity	100.0	122.4	478.7	25.8	31.1	20.5	▲
Organisational/managerial innovation (2001=100)	na	na	na	112.2	119.4	6.4	▲
Productivity	100.0	105.2	110.9	114.9	116.8	1.7	▲

Appendix 1: Construction of the IBM – Melbourne Institute 'Innovation Index of Australian Industry'

The IBM – Melbourne Institute 'Innovation Index of Australian Industry' is constructed using the following equation:

$$(1) \quad I = \lambda_1(RD) + \lambda_2(Patents) + \lambda_3(Trademarks) + \lambda_4(Designs) + \lambda_5(OrgMan) + \lambda_6(Productivity)$$

Where λ_j denotes the intensity of the j-th measure of innovative activities—R&D intensity which is the mean of R&D expenditure as a proportion of valued added, R&D employment and R&D research staff as a proportion of total employment (RD); Patent applications per person employed (Patents); Trade mark applications per person employed (Trade marks); Design applications per person employed (Designs); the mean of three survey questions from the Melbourne Institute's Management and Innovation Survey on the extent of business resources devoted to organisational change (e.g. restructuring, changes in work practices), managerial change (e.g. new management techniques, enterprise bargaining) and the marketing of new products or processes (OrgMan); and Value added per person employed (Productivity). Thus, there are six distinct components of the Innovation Index. Each data component is disaggregated by one-digit ANZSIC industry and year.

By including numerous dimensions in our quantitative measure of innovation, we capture information about the extent of innovative activity within an industry at different stages of the innovation pathway. Each of these items captures different points in the innovation lifecycle. R&D data, for example, captures both the initial investment made in conducting research about a potential innovation and the subsequent expenditure made in conducting the trials necessary to ensure that the innovation actually works. Note that the R&D data relate to internal expenditure on research and development and do not include expenditure (or employment) contracted out to third parties. Intellectual property, such as patent, trade marks and designs, reflect the outputs of innovative activity—these are typically observed after the R&D process has been completed and new products (or modifications of existing products) are launched on the market. The effect of combining these dimensions into an innovation index is to provide us with a much more comprehensive picture of the breadth and depth of innovative activity across all stages of the innovation pathway. Note, however, that this implies that the components of the Index are not mutually exclusive—some research expenditure no doubt results in patent applications while spending on development is probably also captured in the productivity component.

To compute the Innovation Index, we need to know the importance of each individual component since the components do not necessarily have equal importance. That is, we need to know the values of the weighting factors (the s). To do this, we use estimates of enterprise expenditures on the development, introduction or implementation of three types of innovation—new and significantly improved goods and services; operational processes; and organizational/managerial processes from the ABS publication Innovation in Australian Business (see cat. 8158.0 2005; Table 2.14, column 4). The average responses to these questions have been used to weight the components of the Index.

The main expenditure during 2004-05, was expenditure on goods and services innovations. This comprised 48.6 per cent (1.8/3.7) of all business innovations. We use industry data on R&D, patents, trade marks and registered designs to proxy for this type of innovation. Separate information we have on the relative importance within this type of innovation suggests that R&D is the most important indicator followed by patents and trade marks (see Bosworth and Rogers 2001; Feeny and Rogers 2003). Accordingly, we allocate the sub-weights between these components in declining order (18.2, 12.2, 12.2 and 6.0). The shape of the Index is not sensitive to reasonable variation in these weights (see next page).

The contribution to the Index from operational process innovations is 35.2 per cent (1.3/3.7). We apply this weight to our measure of Productivity. The contribution from organisational and managerial innovations is 16.2 per cent (0.6/3.7) and we apply this to the mean of the three survey questions used to construct the variable OrgMan.

Since the data from the ABS publication Innovation in Australian Business is an average of the entire population of Australian enterprises, we apply the weights equally across all industries in our Index. Ideally, if more data were available, we would apply industry-specific weights since it is probable that the impact of patents in the pharmaceuticals sector is quite different to that in the mining industry. Weights must be invariant with respect to time so a change in the Index represents changes in the underlying fundamentals (i.e. types of innovative activity) not changes in the weights per se. Using this approach, our final estimating equation is:

$$(2)\quad I = 18.2(RD) + 12.2(Patents) + 12.2(Trademarks) + 6.0(Designs) + 16.2(OrgMan) + 35.2(Productivity)$$

To eliminate distortion caused by applying the same weights to all industries covered by the report, we forced the Index to equal 100 in 1990. This means that the Index in industries which report zero or very low levels of some components are not affected by the inclusion of the component. For example, accommodation, cafés and restaurants have very few patents but the variable patents per person employed is so small in every year that it hardly affects the height and rate of change of the accommodation, cafés and restaurants' Index.

In order to examine the robustness of our results, we conducted sensitivity analyses by applying different weights to the R&D, patent, trade mark and design components of the Index. Specifically, we varied the R&D weight by ± 33 per cent (i.e. from 12 to 24); the patent and trade mark weight by ±16 per cent (i.e. from 10 to 14); and the design weight by ±33 per cent (i.e. from 4 to 10). The results of the sensitivity analysis indicate that the overall shape of the Index is robust to different assumptions regarding the weights—in fact, the correlations between the various estimations we conducted as part of the sensitivity analysis ranged from 0.9269 to 0.9997. In other words, the overall pattern in the rate of innovative activity was consistent across all estimations.

Separate R&D data were unavailable for the following industries prior to 2002: wholesale trade; retail trade; electricity, gas and water; construction; transport and storage; communications; health and community services; cultural and recreational services; and personal and other services. For the period from 1990 to 2001, R&D expenditure and R&D persons employed were interpolated from the data, and for 1990 to 2003, R&D researchers were interpolated from the data in these industries. No R&D data are available for: agriculture, forestry and fishing; or accommodation, cafes and restaurants. Data on patent, trade mark and design applications (from IP Australia) were collated at the industry level by matching the name of the business to business listings in the telephone book.

The survey data used to construct OrgMan were collected from the Melbourne Institute's Management and Innovation survey, which has been conducted annually at the Melbourne Institute since 2001 and includes about 200 valid responses a year (i.e. approximately 1000 observations in total). Firms included in the Management and Innovation Survey are drawn from the largest 1500 firms in Australia across a wide range of industries. Although there are no small firms in the sample frame, the survey is representative in terms of its inter-industry composition (for more details on the survey and some analysis of the results, see Jensen and Webster 2004).

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Appendix 2: Industrial Classifications and Definitions

Business and production units generally typically undertake a range of activities which may include, for example; manufacture, research, wholesaling and insurance. However, for the purposes of classification, this report is based on data that assigns businesses according to their sole primary activity. As such, the classification of business units will depend on the level of aggregation of businesses within the economy. For example: a research division located within a manufacturing enterprise will be included in the 'manufacturing' industry, while its stand alone counterpart will be included in the 'property and business services' industry.

There will always be some ambiguity for businesses operating on the margins between industries and businesses which alter the type of work they do over time. While every care, and in the case of the official Australian Taxation Office considerable expense, is taken over the classification of businesses, it is not possible to have the exact same classifications across different business datasets. We use the ABS business R&D publication (cat. 8104.0) as our baseline classification to which other datasets should conform. Accordingly, the Innovation Index for the most part excludes non-trading public sector organisations such as CSIRO, government research bureau and university research institutes. It was not possible however to exclude these organisations from the productivity component of the Index. This incongruence will only distort the final index to the extent the productivity change of the non-trading public sector varies from the industry average.

Definitions

R&D (research and development): Creative work undertaken on a systematic basis, in order to increase the stock of knowledge, including the knowledge of people, culture and society, and the use of this stock of knowledge to devise new applications.

R&D employment: R&D researchers, technicians and secretarial and clerical staff associated with the R&D activity measured in person years of effort.

R&D research employment: R&D personnel involved in the conception or development of new products/processes. Excludes executives concerned primarily with budgets and human resources measured in person years of effort.

Person employed: Average number of persons employed by the industry over the year (derived from quarterly surveys).

Productivity: Value added (adjusted for inflation) divided by persons employed.

Business: All organisations whose primary activity is the production of goods and services for sale to the public at a price intended to at least cover costs. Includes private businesses and government trading or financial enterprises. Excludes government departments, CSIRO and the higher-education sector. Includes separately registered entities with its own ABN such as university spin-offs.

Patent applications: Number of filings by businesses with an Australian address of complete, standard patent applications. To be patentable, an invention must be novel, involve an inventive step; be useful and able to be manufactured.

Trade mark applications: Number of filings by businesses with an Australian address of trade mark applications. A trade mark is a sign that is intended to be used, to distinguish the goods or services of one trader from those of another. A trade mark can be a word, name, number, aspect of packaging, shape, colour, sound or scent, or any combination of these.

Design applications: Number of filings by businesses with an Australian address of design applications. A registered design protects the visual appearance of a manufactured or hand made product, such as shape, configuration, pattern or ornamentation, as opposed to the function of that product.

ANZSIC: Australian and New Zealand Standard Industrial Classification. This system is the official classification system used for Australian (and New Zealand) industry for data collection purposes, and is aligned with the international system of industry classification.

Melbourne Institute Economic Indicators

Introduction

The Melbourne Institute of Applied Economic and Social Research was established in 1962 and is a department of the Faculty of Economics and Commerce at the University of Melbourne. As part of its research activities the Melbourne Institute produces monthly leading and coincident indexes of economic activity; undertakes monthly and quarterly surveys of consumer perceptions and expectations; and conducts a monthly survey of consumer price movements. All of the associated published reports are sponsored by external organisations—Westpac Banking Corporation (the indexes of economic activity and consumer sentiment), the Reserve Bank of Australia (consumer inflationary expectations and the wages survey), ING DIRECT (the household saving and investment survey) and TD Securities (the inflation gauge).

The indexes of economic activity report, first published in 1985, provide leading and coincident indicators of aggregate activity.

The consumer surveys relate to the following key areas: consumer sentiment, inflationary expectations, wage changes and household saving and investment behaviour. The survey of consumer sentiment was first undertaken in 1973 and was conducted on a quarterly basis until 1976, a six-weekly basis from 1976 to 1986, and has been conducted monthly ever since. The survey of consumer inflationary expectations began in 1973 as a quarterly survey but was converted to monthly from 1993. The quarterly wages survey was introduced in 1998. The quarterly survey of household saving and investment behaviour was first undertaken in 1993. Survey responses can in all cases be cross-classified by age, sex, the presence of children, household size, voting intention, education, home ownership, state, capital city, education, occupation, household income and work status. Extensive time series data relating to the surveys are available. At least 1200 people are interviewed each month.

The monthly inflation gauge was first published in July 2003 as an experimental measure of monthly shifts in consumer prices.

Indexes of economic activity

The leading index of economic activity is a weighted average of eight economic series which typically lead economic activity by six to nine months. The index includes building approvals, share prices, materials prices, real money supply, over-time worked, gross operating surplus, labour costs and US industrial production.

The coincident index of economic activity is a weighted average of six economic series which are typically coincident with economic activity. The index aims to give a more up-to-date picture of economic activity than conventional measures such as GDP. The coincident index includes real retail trade, civilian employment, unemployment, industrial production, non-farm product and real household income.

Consumer sentiment

The consumer sentiment index is an average of five component indexes reflecting respondents' views about their current and prospective household financial situation; the one-year and five-year economic outlook; and current buying conditions for major household items. Each month expectations about the outlook for unemployment are also surveyed. Each quarter perceptions in regard to buying conditions for cars and dwellings, the wisest place to invest savings and news about economic conditions are also included. The latter specifically refers to politicians, government, taxation, wages, inflation, unemployment, money, the Australian dollar, business, economic conditions, farming, overseas influences and union power.

Each quarter the Melbourne Institute produces a states' report which presents the above data in relation to consumer sentiment (with the exception of 'news heard' data) for NSW, Victoria, Queensland, Western Australia and South Australia.

Consumer inflationary expectations

Each month consumers are surveyed about whether, and by what percentage, they believe prices will rise or fall in the coming year.

Wages

The quarterly wages survey records employees (self-reported) wage changes over the preceding twelve-month period. Unlike other surveys which measure the level of earnings per person, this survey aims to measure the growth in wage rates. These data add to our knowledge about wages and provide a useful alternative to ABS measures of earnings per person; it is also a complement to the labour cost index.

Household saving and investment

The quarterly household saving and investment report presents survey findings on households' current financial position, saving behaviour, reasons for saving, preferred investments and debt position.

Inflation gauge

The inflation gauge estimates month to month price movements across a wide ranging basket of goods and services in the main capital cities of Australia and is based on the methodology used by the ABS in calculating the quarterly consumer price index. As such, it provides a more timely measure of inflationary pressures in the economy than the official quarterly measure of consumer price changes.

IBM – Melbourne Institute 'Innovation Index of Australian Industry'

The IBM – Melbourne Institute 'Innovation Index of Australian Industry' tracks patterns in the rate of innovative activity among Australian businesses (including government trading enterprises but not the non-trading government sector such as education) since 1990. Innovation is defined as the introduction of new and improved ways of enhancing business productivity.

The Innovation Index is designed to record the intensity (i.e. rate of change) of a wide range of industry innovation in relation to goods and services, technical operations, and organisational, managerial and marketing functions. Six industry level data series comprising: research and development; patenting; trade marking; design registration; productivity; and organisational, managerial and marketing reforms; are included in the Index. Each series is divided by a measure of economic activity to give an intensity measure. Relative weights, which mimic each series' respective contribution to overall innovation, are used to add the series together.

The resulting integrated index is a comprehensive summary of the rate of innovative activity among businesses in Australian industry.

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