Sensis® *Business Index*

Special Report

for the

Department of Communications, Information Technology and the Arts

ICT Production in Australian SMEs

November 2004

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Introduction

The Sensis® *Business Index – Small and Medium Enterprises* is an ongoing series of surveys designed to track confidence and behaviour in the small business sector.

The primary objectives of the *Index* are to track small and medium business activity over the past three months; expectations over both the next three and 12 months; and to measure overall confidence within the small business community. A second purpose is to provide an independent, objective channel for reporting proprietors' experience and attitudes on key issues. The Sensis® *Business Index* is based on a sample size of 1,800 SMEs from metropolitan and regional areas of Australia.

The Sensis® *Business Index* enables broad scrutiny of the SME market, as well as an understanding of trends and issues relevant to this sector. It examines the differences in attitude and experience between regional and metropolitan SMEs, and between small and medium enterprises. The aim of the Sensis® *Business Index* is to reflect the attitudes and behaviour of approximately 99 per cent of the Australian SME business sector.

As part of the May 2004 Sensis® *Business Index*, questions were asked covering the production of information and communication technology (ICT) goods or services in SMEs. SMEs were asked whether they produced ICT goods or services, whether they exported ICT goods or services, what ICT goods or services they produced, why they produced them, the extent of production or modification within the firm and the extent of ICT specific employment.

For the purposes of this analysis, ICT goods and services included (but were not necessarily limited to) hardware, components, software, advice or consultancy on computers or software, database development, repair of high technology equipment and web design. In addition, the sector that was traditionally defined as producing ICT was defined as including ANZSIC codes 2841, 2842, 2849, 2852, 4613, 4614, 4615, 7120, 7831, 7832, 7833 and 7834.

One aspect of this research was to test the hypothesis that ICT production was happening in industry sectors that were not traditionally considered ICT focused. To test this hypothesis, analysis by ANZSIC classification was performed. Another focus of this research was to see the extent of exports from ICT production. To investigate these linkages data was analysed by the export profile of firms, a data item that is collected as a standard component of the Sensis® *Business Index*.

The *Index* is an initiative of Sensis as part of its commitment to this vital business sector. Surveying was conducted by Sweeney Research between 14 April and 7 May 2004.

This report was completed for the Australian Government Department of Communications, Information Technology and the Arts.

About the Survey

Since its inception in 1993, the *Business Index* has been one of the most comprehensive and regular surveys of small businesses in Australia. Historically, the Business Index has focused specifically on businesses employing 19 people or fewer. In November 2000 it was expanded to cover the medium business sector, while the regional and industrial sectors were also enhanced.

The May 2004 *Business Index* results are based on telephone interviews conducted with 1,800 small and medium business proprietors. The sample size is divided between 1,400 small businesses and 400 medium businesses (the latter defined as businesses employing between 20 and 199 people).

Businesses interviewed for the May 2004 *Business Index* were drawn from all metropolitan and major non-metropolitan regions within Australia. Quotas were set on geographical location and type of business in order to produce the standard sample structure shown below. Where replacement businesses are recruited, this sample structure is maintained.

At the analysis stage, results were weighted by selected Australian New Zealand Standard Industrial Classification (ANZSIC) divisions within the metropolitan and non-metropolitan region of each state and territory. This ensured the sample reflected the actual small and medium business population distribution. The Australian Bureau of Statistics (ABS) Business Register, as at June 1998, was used to weight the sample to be representative of the total business population.

Interviewing for this latest survey was conducted over the period 14th April to 7th May 2004.

Location of Business

	Total	Metro	Non-metro
New South Wales	300	240	60
Victoria	300	240	60
Queensland	300	165	135
South Australia	225	195	30
Western Australia	225	195	30
Tasmania	150	90	60
Northern Territory	150	90	60
Australian Capital Territory	150	150	-
Total	1800	1365	435

Division

Manufacturing	200
Building/Construction	250
Wholesale Trade	150
Retail Trade	250
Accommodation, Cafes and Restaurants	100
Transport/Storage	150
Finance and Insurance	100
Communication, Property and Business Services	300
Health and Community Services	150
Cultural, Recreational and Personal Services	150
Total	1800

ICT Production in Australian SMEs

EXTENT OF ICT PRODUCTION IN AUSTRALIAN SMES

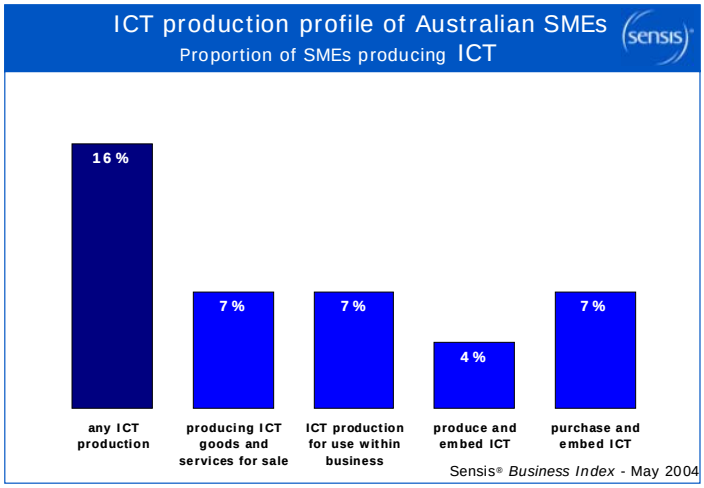
The May 2004 Sensis® *Business Index* found that overall 16 per cent of SMEs were involved in some form of production of information and communication technology (ICT) goods or services. This included:

- those firms that produced ICT goods and services for sale (seven per cent of all SMEs);
- those firms that produced ICT for use within their business (seven per cent of all SMEs);
- those firms that produced ICT that was then embedded in non-ICT goods and services that they sold (four per cent of all SMEs); and
- those firms that purchased ICT components and then embedded them in other goods and services (seven per cent of all SMEs).

As would be expected, there was some overlap between these four categories, with some SMEs being involved in many facets of ICT production, but overall, 16 per cent of all SMEs reported at least some involvement in some facet of ICT production.

Traditionally, ICT production has been thought of as predominantly occurring within the ANZSIC codes 2841, 2842, 2849, 2852, 4613, 4614, 4615, 7120, 7831, 7832, 7833 and 7834. The ICT sector, as defined by these ANZSIC codes, accounted for three per cent of the weighted sample of the May 2004 Sensis® *Business Index.*

Interestingly, only 60 per cent of firms in the ICT sector had been involved in any aspect of ICT production. However, it should be kept in mind that many SMEs in this sector will be involved with other aspects of the ICT industry apart from production, for example distribution of technology, and this survey was aimed purely at production.



However, more importantly, of the ICT production that was found to occur in this survey, only 11 per cent of firms occurred within the ICT sector, with the vast majority (89 per cent) of production occurring in firms outside the ICT sector. Approximately 26 per cent of ICT production, by value, occurred within the ICT sector. These findings are examined in greater detail in the following section.

INDUSTRY PROFILE OF ICT PRODUCING SMES

The May 2004 Sensis® *Business Index* found that the industry sector with the highest proportion of SMEs reporting some level of ICT production was the communications, property and business services sector, where some 29 per cent of firms reported some level of involvement in at least one facet of ICT production. SMEs in the retail and wholesale trade sectors also reported levels of ICT production that were above average, with the manufacturing sector, the cultural, recreational and personal services sector and the finance and insurance sector all reporting over 10 per cent of SMEs with some level of ICT production.

As mentioned previously, whilst SMEs in the ICT sector have a high propensity to be producing ICT goods or services, the vast majority of firms that have some involvement in ICT production appear to be outside the ICT sector. Whilst the graph on the right looks at ICT producing SMEs by broad ANZSIC Division, Table 1 examines in detail the two-digit ANZSIC classification of ICT producing SMEs to gain an understanding of the extent of sectoral involvement in ICT production. A list of relevant ANZSIC codes to three and four-digit level is provided for information at Appendix 2.

This analysis shows that the greatest concentration of ICT production is in the Business Services sector. Within this grouping, apart from Other Business Services, the greatest concentration is in the computer services classification. The Other Business Services classification, which has the highest concentration of ICT producing SMEs includes four-digit ANZSIC classifications such as Employment Placement Services, Security and Investigative Services and Contract Packing Services, as well as various other Business Services that are not classified elsewhere in the ANZSIC code. Note that in Table 1, a percentage of zero indicates that the ANZSIC code occurred, however in very low levels.

Most ICT producers were small firms with less than 20 employees (91 per cent). However, the propensity for medium firms to produce ICT was greater, with 28 per cent of medium firms being involved in some form of ICT production, compared to only 16 per cent of small firms.

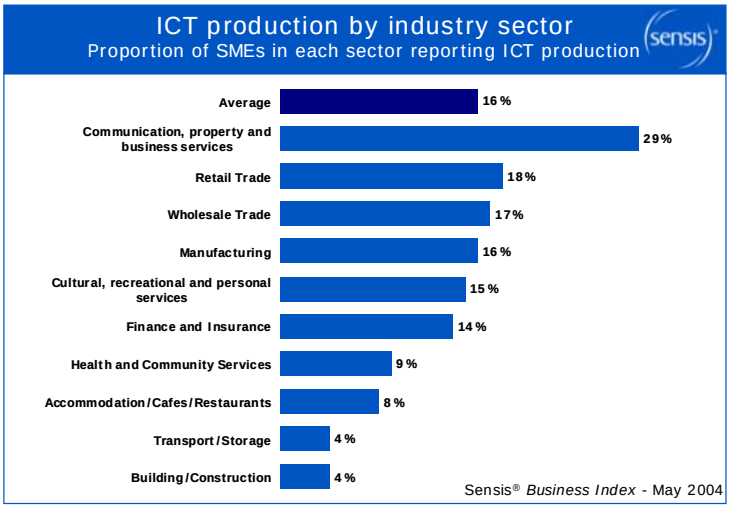
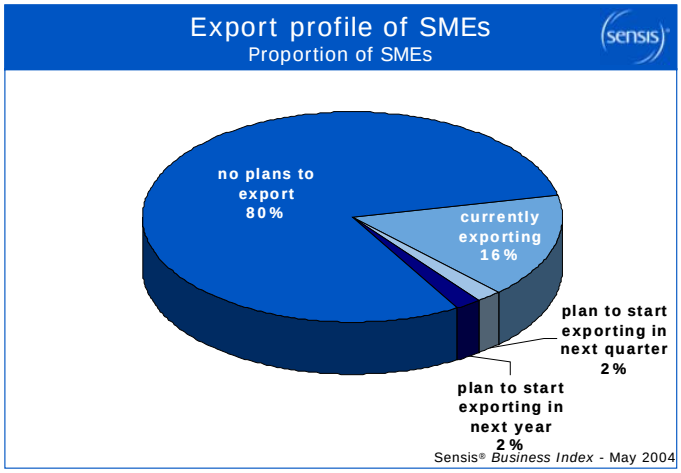


Table 1 ANZSIC Classification of ICT producing SMEs

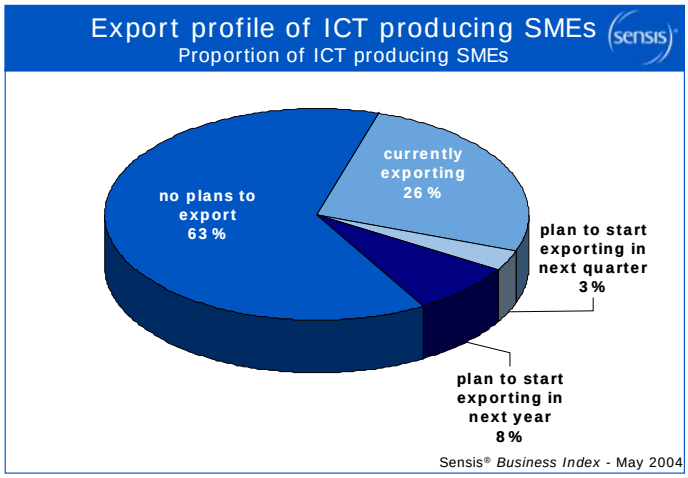
ANSZIC Code	Percent
21 Food, beverage and tobacco manufacturing	2
22 Textile, clothing, footwear and leather manufacturing	1
24 Printing, publishing and recorded media	1
25 Petroleum, coal, chemical and associated product manufacturing	0
26 Non-metallic mineral product manufacturing	0
27 Metal product manufacturing	1
28 Machinery and equipment manufacturing	2
29 Other manufacturing	1
41 General construction	1
42 Construction trade services	3
45 Basic material wholesaling	1
46 Machinery and motor vehicle wholesaling	4
47 Personal and household good wholesaling	3
51 Food retailing	1
52 Personal and household good retailing	17
53 Motor vehicle retailing and services	2
57 Accommodation, cafes and restaurants	2
61 Road transport	0
65 Other transport	0
66 Services to transport	1
67 Storage	0
71 Communication services	6
73 Finance	2
75 Services to finance and insurance	2
77 Property services	0
78 Business services	34
782 Technical services	2
783 Computer services	9
784 Legal and accounting services	4
785 Marketing and business management services	4
786 Other business services	15
86 Health services	4
87 Community services	0
91 Motion picture, radio and television services	2
92 Libraries, museums and the arts	0
93 Sport and recreation	3
95 Personal services	3
96 Other services	1
Total	**100**

EXPORT PROFILE OF ICT PRODUCING SMES

The May 2004 Sensis® *Business Index* found that the vast majority of SMEs (80 per cent) were not currently exporting and had no plans to commence exporting within the next year. Overall, 16 per cent of SMEs reported that they had exported in the past year. Two per cent of SMEs reported that they were planning to commence exporting in the current quarter with a further two per cent indicating that they had plans to export in the year ahead.



However, the export propensity of SMEs who had some level of ICT production was much higher than for the SME population in general. The May 2004 Sensis® *Business Index* found that over a quarter (26 per cent) of SMEs who reported some ICT production were currently exporting. In addition to higher actual export propensity, the likelihood that an SME was planning to start exporting in either the next quarter or the next year was also considerably higher for those SMEs that reported ICT production compared to those that did not have any ICT production. As can be seen in Table 2, those SMEs who produced ICT were 20 percentage points less likely to have no plans to start exporting than those SMEs who had no ICT production (63 per cent com[pared to 83 per cent).



SMEs in the ICT sector were more likely again to be currently exporting (29 per cent), or be planning to start exporting in the next quarter (six per cent) than either SMEs that were producing ICT in general or other firms. SMEs in the ICT sector were less likely than ICT producers generally to be planning to commence exporting in the next year (three per cent compared to eight per cent).

Table 2 Export profile of SMEs by ICT production and for the ICT sector

	Any ICT Production?		ICT Sector?		Total
	Yes	No	Yes	No	
Exported goods/services overseas in last three months	26%	14%	29%	15%	16%
Plan to start exporting in next three months	3%	2%	6%	2%	2%
Plan to start exporting in next twelve months	8%	1%	3%	2%	2%
No plans to start exporting	63%	83%	62%	81%	80%
Total	100%	100%	100%	100%	100%

ICT PRODUCTION FOR SALE

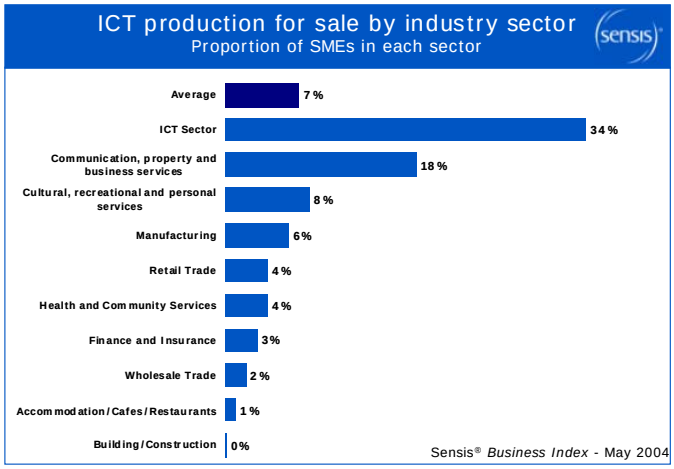
In order to provide SMEs with an idea of the breadth of goods or services that could be encompassed by the term ICT, SMEs were given examples of ICT production. These included hardware, components, software, advice or consultancy on computers or software, database development, repair of high technology equipment and web design, however, ICT production was not limited to these goods specifically.

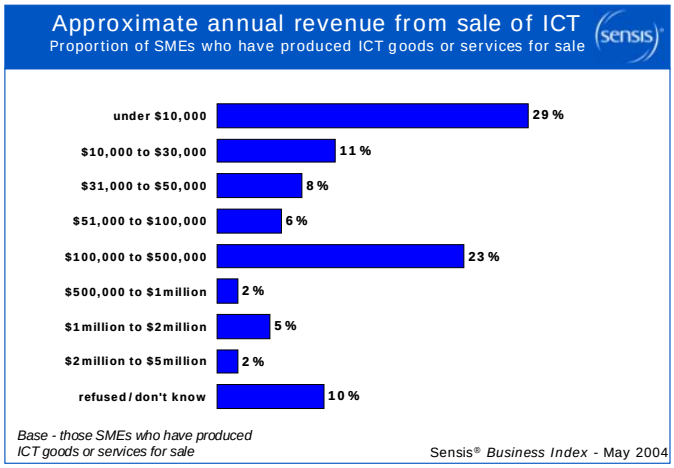
When asked whether their business produced any ICT goods or services for sale, seven per cent of all SMEs responded that they did. Whilst there was some production in most sectors, the bulk of production was in the communication, property and business services sector, where 18 per cent of SMEs reported that they produced ICT for sale. The survey did not detect any ICT production for sale in the transport and storage sector.

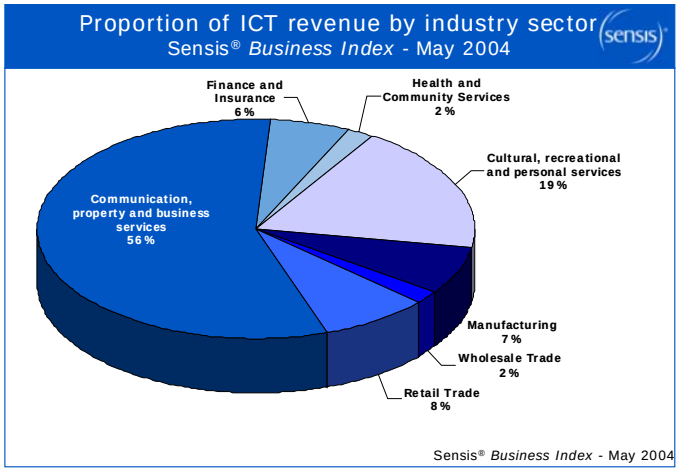
The most frequent amount of revenue gained from the sale of ICT that SMEs had produced for sale in the last twelve months was under $10,000, however almost a quarter of ICT-producing SMEs reported obtaining revenue between $100,000 and $500,000. Using a midpoint calculation, the total amount of revenue from the sale of ICT goods and services produced by SMEs is in the vicinity of $23.5 billion[1], which is approximately 3 per cent of Australia's Gross National Income. As a very conservative estimate, using the lowest point of each revenue range, the total amount of revenue would be at least in the order of $15.5 billion. Approximately 26 per cent of ICT production, by value, occurred within the ICT sector.

On average, 58 per cent of those exporting SMEs that reported producing ICT goods and services for sale reported that they had exported ICT goods or services. Firms in the ICT sector were slightly above average, with 66 per cent of exporting ICT firms producing ICT specifically for export.

Most of these ICT exports were for relatively small amounts, with the most frequent amount of export revenue in the last twelve months being between $10,000 and $30,000. Again, using a midpoint calculation, this equates to exports of ICT goods and services of approximately $1.4 billion. Using the lowest level of each revenue range gives a lower bound for export revenue of at least $850 million from SME ICT exports.







[1] This calculation assumes a midpoint value of production for each revenue range against a weighted base of 52 852 firms, which was split as shown against the various revenue ranges.

Table 3 ICT items produced for sale by SMEs

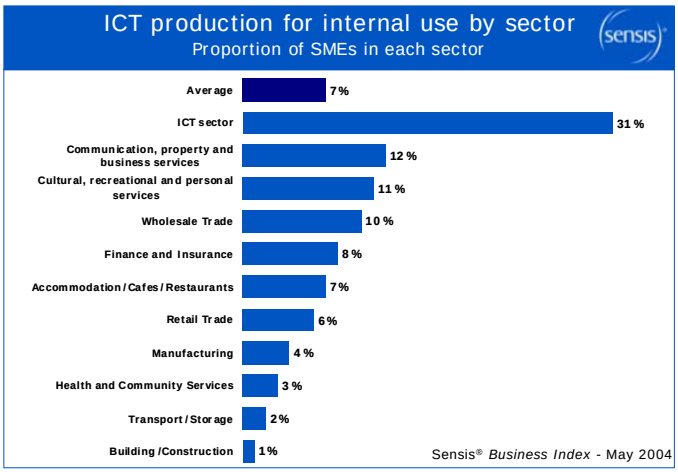
Base – those SMEs who produced ICT goods or services for sale in each sector (an average of seven per cent of all SMEs)

ICT ITEMS PRODUCED	AVERAGE	INDUSTRY SECTOR									
		Manufacturing	Construction	Wholesale trade	Retail trade	Communications, property and business services	Finance and insurance	Health and community services	Cultural, recreational and personal services	Accommodation, cafes and restaurants	
Packaged and customised software	29%	*	*	*	*	*	*	*	*		
Computer and data processing services (eg website design, software services etc)	21%	*	*		*	*		*			
Computer hardware	20%	*	*	*	*	*		*	*		
Hardware and software maintenance	18%	*		*	*	*	*	*			
Computer consultancy services	16%	*			*	*	*				
Information storage and retrieval services	11%			*	*	*					
Installation and cabling services	11%	*		*	*	*					
Electronic equipment	8%	*		*	*	*		*	*		
Telecommunications services	8%	*		*	*	*			*		
Computer and communications part and components (eg circuit boards, chips)	7%	*		*	*	*		*	*		
Computer and communications consumables (eg floppy disks, CDs, toner cartridges etc)	7%	*		*	*	*					
Communications hardware	5%	*		*	*	*					
Software programs	5%	*			*	*			*		
Other	11%	*		*	*	*		*	*	*	

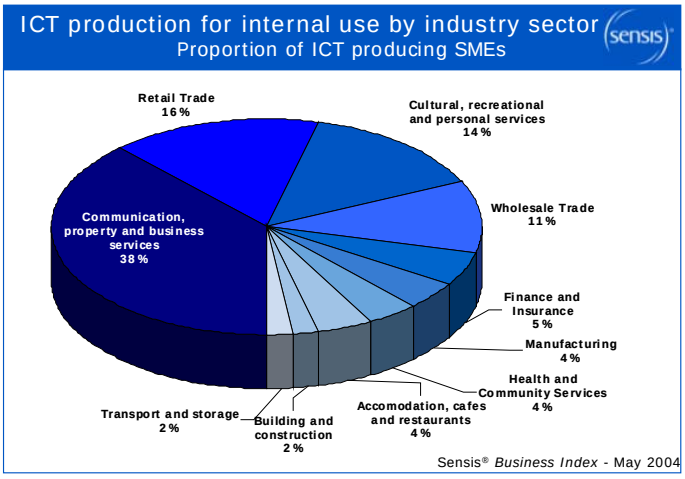
* indicates a sector nominating that item of ICT production

ICT PRODUCTION FOR INTERNAL USE

When asked whether their business produced any ICT goods or services specifically for use within their business, seven per cent of SMEs responded that they did. Whilst there was some production in all sectors for internal use, the communication, property and business services sector was again the sector with the greatest propensity for ICT production for internal use, with 12 per cent of SMEs in that sector reporting that they produced ICT for internal use. Not surprisingly, production for internal use was significantly higher within the ICT sector, with 31 per cent of those firms reporting that they produced ICT goods or services specifically for internal use.



The items most frequently produced for internal use were computer and data processing services such as website design and software services, which was nominated by 38 per cent of firms that had produced ICT for internal use. The next most frequently produced item was information storage and retrieval services, closely followed by packaged and customised software.



The main uses of ICT that was produced for internal use within the business was the general running and maintenance of the business, with 36 per cent of SMEs who were involved in ICT for their internal use nominating this as the reason. Apart from that, accounting and financial analysis, advertising, stock control and software applications were the main applications that were nominated by SMEs.

The main reasons that SME had produced ICT goods and services for their own use was that suitable goods and services were not available off the shelf (39 per cent of those that undertook ICT production for internal use). A large proportion of SMEs who were involved in this facet of ICT production also believed that it was more cost effective (29 per cent). Having a specialised business area was also a key reason to undertake ICT production for internal use (15 per cent).

Table 4 ICT items produced for internal use by SMEs

Base – those SMEs who produced ICT goods or services for internal use in each sector (an average of seven per cent of all SMEs)

ICT ITEMS PRODUCED FOR INTERNAL USE	AVERAGE	INDUSTRY SECTOR									
		Manufacturing	Construction	Wholesale trade	Retail trade	Transport/storage	Communications, property and business services	Finance and insurance	Health and community services	Cultural, recreational and personal services	Accommodation, cafes and restaurants
Computer and data processing services (eg website design, software services etc)	38%	*	*	*	*	*	*	*	*	*	*
Information storage and retrieval services	22%	*	*	*	*		*	*	*		*
Packaged and customised software	21%	*	*	*	*	*	*	*	*	*	*
Software programs	12%		*	*	*	*	*	*		*	*
Computer and communications consumables (eg floppy disks, CDs, toner cartridges etc)	11%			*	*		*		*	*	*
Hardware and software maintenance	11%	*	*	*	*		*	*		*	*
Communications hardware	10%	*		*	*		*				
Computer hardware	7%	*	*		*	*	*			*	
Telecommunications services	6%	*			*		*		*	*	
Computer and communications part and components (eg circuit boards, chips)	2%	*	*	*	*		*				
Electronic equipment	1%				*	*	*				
Installation and cabling services	1%	*			*		*				
Computer consultancy services	1%	*			*		*	*			
Other	9%	*		*	*	*	*	*	*	*	

* indicates a sector nominating that item of ICT production

Table 5 Uses of internally produced ICT by sector

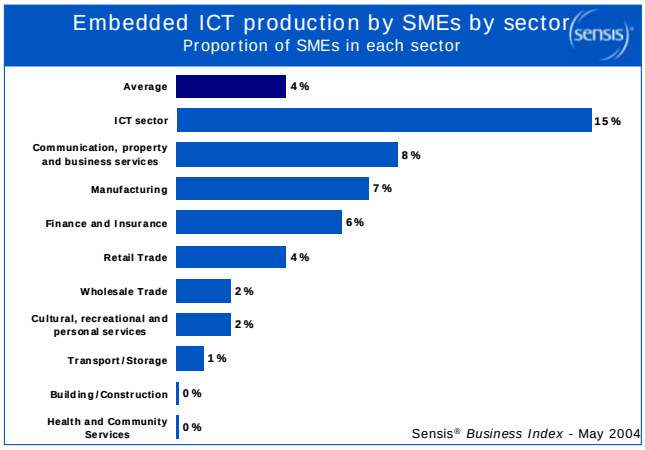
Base – those SMEs who produced ICT goods or services for internal use in each sector (an average of seven per cent of all SMEs)

APPLICATIONS THAT INTERNALLY PRODUCED ICT GOODS AND SERVICES ARE USED FOR	AVERAGE	INDUSTRY SECTOR									
		Manufacturing	Construction	Wholesale trade	Retail trade	Transport/storage	Communications, property and business services	Finance and insurance	Health and community services	Cultural, recreational and personal services	Accommodation, cafes and restaurants
General running and maintaining the business	36%	*	*	*	*	*	*	*	*	*	*
Accounting/financial analysis	12%			*	*	*	*	*	*		*
Advertising	10%	*	*	*	*	*	*	*		*	
Stock control	9%	*	*	*		*	*	*	*		
Software applications	9%	*		*			*	*			*
Website development	8%				*	*	*	*			
General computer programs	6%						*	*		*	
Promoting business/services to customers	5%	*			*		*				
Educational material/for clients	4%			*			*		*	*	
General information	4%		*	*	*		*				
General communications	3%		*		*		*		*		
Keep staff aware of new products	1%			*	*				*		
Fund raising	0%									*	
Other	16%	*	*		*	*	*	*	*	*	

* indicates a sector nominating that application

PRODUCTION OF EMBEDDED ICT

Overall, the May 2004 Sensis® *Business Index* found that four per cent of SMEs produced ICT goods or services that they then embedded in another non-ICT good or service which they sold. SMEs that were located in the ICT sector were far more likely to have produced and embedded ICT than average (15 per cent compared to four per cent on average). The survey did not detect any production of embedded ICT by SMEs in the accommodation, cafes and restaurant sector.



ICT that was produced by SMEs and embedded resulted in a wide array of end products. Whilst software was the main end-product, other end-products ranged from education and training services, hardware, waste water treatment systems and electrical equipment. These products were each nominated by in excess of five per cent of SMEs who had produced and embedded ICT, but there were numerous other products that SMEs mentioned, ranging from gaming equipment, security alarms, financial plans, lighting systems and motor vehicles.

The main types of ICT components that were produced and embedded in these items included software (39 per cent), micro chips (19 per cent), hardware (13 per cent) and control systems (10 per cent).

The main reason that SMEs gave for having produced ICT that they then embedded in other end-products was that it was not available off the shelf or that it was not produced elsewhere (23 per cent and 21 per cent respectively). A significant proportion of the SMEs who undertook this activity believed that it was more cost-effective to produce these items themselves (17 per cent). Needing to have custom made components was a reason that was also given by a significant proportion of SMEs (11 per cent).

Table 6 End products containing embedded ICT components produced by SMEs

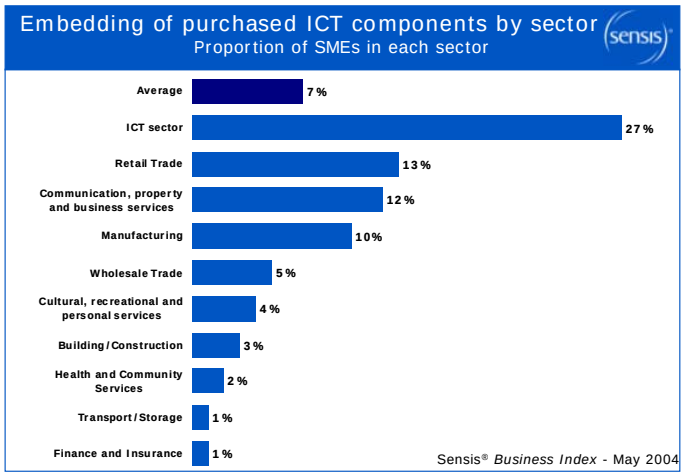
Base – those SMEs who produced ICT goods or services to embed in end-products in each sector (an average of four per cent of all SMEs)

END PRODUCTS CONTAINING EMBEDDED ICT COMPONENTS	AVERAGE	INDUSTRY SECTOR								
		Manufacturing	Construction	Wholesale trade	Retail trade	Transport/storage	Communications, property and business services	Finance and insurance	Health and community services	Cultural, recreational and personal services
Software	16%	*		*	*		*	*		*
Education/training	10%						*	*		
Hardware	9%	*			*		*			
Waste water treatment systems	8%		*		*		*			
Electrical equipment	6%			*	*		*			
Alarm systems/security	5%	*					*			
Management systems	5%						*			*
Database systems	5%			*			*			
Financial plans	5%						*	*		
Control systems	5%	*	*	*	*		*			
Printer	4%	*		*	*		*			
Electrical machinery	4%	*		*	*					
Websites	3%	*					*			
Gaming equipment	3%	*			*					
Phone cards/mobile phones	2%				*					
Consultancy work	2%						*	*		
Faxes	2%			*	*					
Digital copiers	2%			*	*					
Controllers	2%	*	*							
CDs	1%				*					
Multi function	1%			*						
Internet/web based	1%						*			
Motor vehicles	1%					*				
Switches	1%	*								
Lighting systems	1%	*								
Microchips	1%						*			
Components	1%	*		*	*		*			
Electronic various	0%			*						
Other	20%	*			*	*	*		*	*

* indicates a sector nominating producing that end product

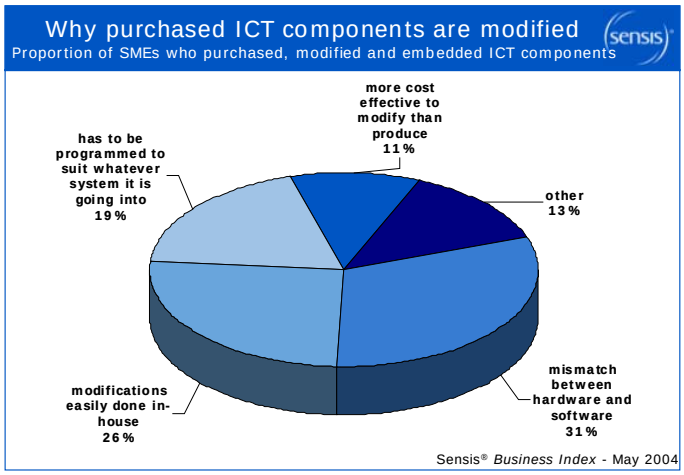
EMBEDDING OF PURCHASED ICT COMPONENTS

Overall, the May 2004 Sensis® *Business Index* found that seven per cent of SMEs reported having embedded ICT components that they had purchased elsewhere into goods and services that they sold. The survey did not detect any embedding of purchased ICT components into goods and services sold by SMEs in the accommodation, cafes and restaurant sector.



The main ICT components that SMEs reported purchasing and embedding into their goods and services included software (37 per cent), micro chips (13 per cent), and mother boards and circuit boards (11 per cent).

The main end product that SMEs were producing which included purchased, embedded ICT was software, which was nominated by 28 per cent of those SMEs who were involved with embedding purchased ICT into their products. While this was by far the most frequent response, other responses nominated by over five per cent of those firms that were involved with this activity included electrical equipment, micro chips, alarm systems, cameras and control systems.



Almost three-quarters (74 per cent) of SMEs that embedded purchased ICT components reported that they were able to use these components directly off the shelf. Of those SMEs that had to undertake modification, the main reason was because of a mismatch between the hardware and software (31 per cent), followed by the modification being able to be done easily in-house (26 per cent), programming of the component to suit the end product (19 per cent) and the belief that it was more cost-effective for them to purchase and modify a component than to produce the entire component themselves (11 per cent).

For those firms that undertook modification themselves, two-thirds (67 per cent) had employees modify the component, with four per cent using a consultant, and 29 per cent reporting that it varied depending on the circumstances.

Table 7 End products containing embedded ICT components purchased by SMEs

Base – those SMEs who purchased ICT goods or services to embed in end-products in each sector (an average of seven per cent of all SMEs)

END PRODUCTS CONTAINING EMBEDDED ICT COMPONENTS PURCHASED BY SMEs	AVERAGE	INDUSTRY SECTOR								
		Manufacturing	Construction	Wholesale trade	Retail trade	Transport/storage	Communications, property and business services	Finance and insurance	Health and community services	Cultural, recreational and personal services
Software	28%	*		*	*	*	*	*	*	
Electrical equipment	9%	*	*	*	*		*			
Micro chips	8%	*			*		*		*	
Alarm systems/security	7%	*	*				*			
Cameras	7%				*					*
Control systems	6%	*	*	*	*		*			
Phone cards/mobile phones	4%	*			*					
Management systems	4%	*	*		*		*			
Hardware	4%	*	*	*	*		*		*	*
Electronic – various	4%	*	*		*		*			
Computers	4%	*	*	*	*		*			
Electrical machinery	4%	*		*	*		*			
Various equipment	3%	*	*		*		*			*
Motor vehicles	4%				*		*			
Internet/web based	3%				*					
Kilns	3%	*		*	*					
Waste water treatment systems	4%		*		*		*			
Consultancy work	2%						*			
Printer	2%	*			*		*			
CDs	2%				*		*			
Components – various	2%	*		*			*			
Lighting systems	2%	*	*							
Websites	1%				*					
Financial plans	1%						*			
Digital copiers	1%				*					*
Engine	1%	*			*	*				
Controllers	1%	*	*							
Switches	0%		*	*			*			
Batteries/battery charger	1%	*	*	*						
Faxes	0%				*					
Other	13%	*	*	*	*	*	*	*	*	*

* indicates a sector nominating production of that end product with purchased embedded ICT

ICT SPECIFIC EMPLOYMENT IN SMES

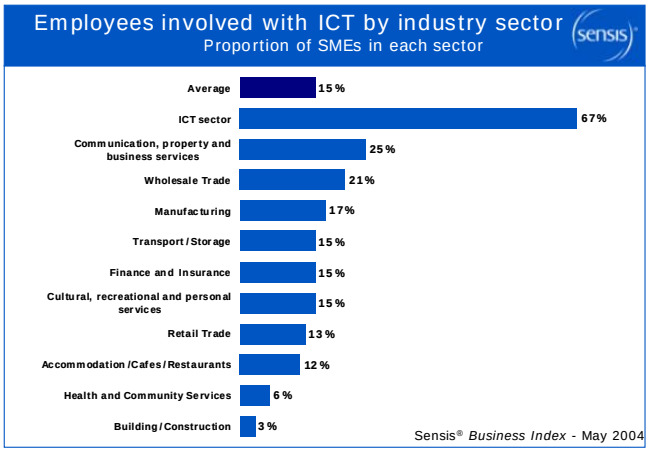
The May 2004 Sensis® *Business Index* found that 15 per cent of SMEs reported having employees involved with ICT. The sector with the highest propensity for ICT employees was the communications, property and business services sector, where one-quarter of SMEs reported having employees who were involved with ICT. Of those SMEs in the ICT sector, two-thirds (67 per cent) reported having staff that were involved with ICT.

Of the firms who had employees involved with ICT, just over one-third (35 per cent) reported that they had employees who were solely dedicated to ICT.

The main occupation of employees that were involved with ICT was that of an IT technician. This was followed by sales staff and accountants/accounts staff. However, with SMEs having relatively small numbers of staff, there was a broad range of occupations which had some involvement with ICT, including the owners, administration staff and engineers, down to financial controllers and patent attorneys.

Likewise, the type of tasks that ICT dedicated staff were undertaking was broad. Whilst one-quarter of SMEs who had ICT dedicated employees reported that they looked after servers and systems, other frequently reported tasks included designing and updating websites (11 per cent), advising and consulting (10 per cent) installation, preparation or writing of software (10 per cent), financial administration, production or management (9 per cent), programming systems (9 per cent), maintaining internal networks (8 per cent) and research and information (8 per cent), as well as a broad range of other tasks that were mentioned less frequently which ranged from the monitoring of e-mail to the writing of software specifications.

For those staff who were not solely dedicated to ICT, their main occupation was to look after servers and systems, designing and updating websites, installation and preparation of software and providing consultancy services.



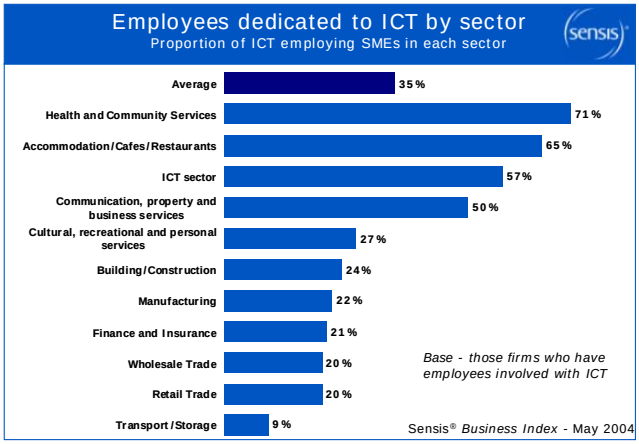


Table 8 Main tasks for ICT-dedicated employees

Base – those SMEs who had ICT dedicated employees (an average 5 per cent of all SMEs)

MAIN TASK	Percentage of SMEs with ICT dedicated employees
Looking after server/systems	25%
Designing and updating websites	11%
Offering advise/consultancy	10%
Software installation/preparation/writing	10%
Financial administration/production/management	9%
Programming systems	9%
Maintaining internal network	8%
Research and information	8%
Database development/installation	5%
Sales	3%
Monitoring of e-mails	3%
Training	3%
IT department	3%
Marketing	3%
Working on security within the system	3%
Writing software specifications	2%
Hardware installation/preparation	2%
Selling telephone systems	0%
Others	12%

Table 9 Occupations of employees involved with ICT

Base – those SMEs who had employees involved with ICT (an average 15 per cent of all SMEs)

OCCUPATION	Percentage of SMEs who had employees involved with ICT
IT technician	21%
Sales people	13%
Accounts/accountant	11%
Business manager/office manager	9%
Owner	9%
Admin	5%
Engineer	4%
Management – various	3%
Secretarial	3%
Director/managing director	2%
Program development officer	1%
Consultant	1%
Financial controller	1%
Operations manager	1%
Electrician	1%
Customer service	1%
Patent attorney	0%
Others	13%

Appendix 1 - Questions

WE ARE INTERESTED IN WHETHER YOUR COMPANY ITSELF IS A PRODUCER OF INFORMATION OR COMMUNICATIONS TECHNOLOGY, COMMONLY REFERRED TO AS ICT. THIS CAN INCLUDE HARDWARE, COMPONENTS, SOFTWARE, ADVICE OR CONSULTANCY ON COMPUTERS OR SOFTWARE, DATA BASE DEVELOPMENT, REPAIR OF HIGH TECH EQUIPMENT, WEB DESIGN AND SO ON. ICT PRODUCTION CAN INCLUDE GOODS OR SERVICES PRODUCED FOR SALE AS WELL AS TECHNOLOGY YOU PRODUCE FOR YOUR OWN INTERNAL USE

Q32a.	Firstly, does your business produce any of these types of information and communications technology goods or services **for sale**?	(CONTINUE) YES.....1 (GO TO Q33) NO 2
b.	What ICT goods or services do you sell?	COMPUTER HARDWARE ..... 1 COMMUNICATIONS HARDWARE ..... 2 ELECTRONIC EQUIPMENT ..... 3 COMPUTER AND COMMUNICATIONS PARTS AND COMPONENTS (eg. Circuit boards, chips etc) ..... 4 COMPUTER AND COMMUNICATIONS CONSUMABLES (eg. Floppy disks, CDs, toner cartridges etc) ..... 5 PACKAGED AND CUTOMISED SOFTWARE ..... 6 COMPUTER AND DATA PROCESSING SERVICES (eg. Website design, software services etc) ..... 7 INFORMATION STORAGE AND RETRIEVAL SERVICES..... 8 INSTALLATION AND CABLING SERVICES ..... 9 HARDWARE AND SOFTWARE MAINTENANCE..... 10 COMPUTER CONSULTANCY SERVICES ..... 11 TELECOMMUNICATIONS SERVICES ..... 12 Other (Specify)……
c.	And what was your approximate revenue from the sale of these goods and services in the past year?	Under $10,000 ..... 1 $10,000 to $30,000 ..... 2 $31,000 to $50,000 ..... 3 $51,000 to $100,00 ..... 4 $101,000 to $500,000..... 5 $501,000 to $1 million..... 6 $1.1 million to $2 million ..... 7 $2.1 million to $5 million..... 8 Over $5 million ..... 9 (Refused/Don't know) 10
d.	**If Q7A = YES ASK D AND E – OTHERWISE GO TO Q33:** Were any of these goods or services exported?	(GO TO E) YES ..... 1 (GO TO Q33) NO 2

Q32 e. What was the approximate value of these exports?	Under $10,000 ..... 1 $10,000 to $30,000 ..... 2 $31,000 to $50,000 ..... 3 $51,000 to $100,00 ..... 4 $101,000 to $500,000 ..... 5 $501,000 to $1 million ..... 6 $1.1 million to $2 million ..... 7 $2.1 million to $5 million ..... 8 Over $5 million ..... 9 (Refused/Don't know) 10

Q33a. Does your business produce any information and communications technology goods or services specifically for use within your business?	(GO TO B) YES ..... 1 (GO TO Q34) NO ..... 2 (GO TO Q34) DON'T KNOW 3
b. What ICT goods or services do you produce for internal use?	COMPUTER HARDWARE .....1 COMMUNICATIONS HARDWARE .....2 ELECTRONIC EQUIPMENT .....3 COMPUTER AND COMMUNICATIONS PARTS AND COMPONENTS (eg. Circuit boards, chips etc).....4 COMPUTER AND COMMUNICATIONS CONSUMABLES (eg. Floppy disks, CDs, toner cartridges etc).....5 PACKAGED AND CUTOMISED SOFTWARE.....6 COMPUTER AND DATA PROCESSING SERVICES (eg. Website design, software services etc) .....7 INFORMATION STORAGE AND RETRIEVAL SERVICES .....8 INSTALLATION AND CABLING SERVICES .....9 HARDWARE AND SOFTWARE MAINTENANCE .....10 COMPUTER CONSULTANCY SERVICES.....11 TELECOMMUNICATIONS SERVICES.....12 Other (Specify)……
c. What applications do you use these goods and services for in your business?	
. . . .	
d. Why do you produce these things yourself rather than purchase from outside suppliers?	Not available off the shelf.....1 More cost effective.....2 Other (specify).....3

Q34a. Does your business sell any end products or services which are not ITC products or services in their own right – but which **contain ICT components** (either hardware or software) **which your business produces**?	(GO TO B) YES ..... 1 (GO TO Q35) NO ..... 2 (GO TO Q35) DON'T KNOW 3
b. What end products are these? (IDENTIFY UP TO 5)	
. . . .	
c. What ITC components do they include?	
. . . .	
d. Why do you produce the components yourself?	Not developed or produced elsewhere ..... 1 Not available off the shelf..... 2 More cost effective ..... 3 Other (specify)..... 4

Q35a. Does your business sell any end products or services which are not ITC products or services in their own right – but which **contain ICT components** (either hardware or software) **which you buy off the shelf**?	(GO TO B) YES ..... 1 (GO TO Q36) NO 2
b. What end products are these? (IDENTIFY UP TO 5)	
. . . .	
c. What ITC components do they include?	
. . . .	
d. Are you able to use these components directly "off the shelf" (that is you do not have to modify it at all)?	(GO TO 36) YES ..... 1 (ASK E) NO ..... 2 (ASK E) VARIES 3
e. Why do you modify it?	Mismatch between hardware and software..... 1 Modification easily done in-house ..... 2 More cost effective to modify than produce it..... 3 Other (specify).....

f. Do your employees undertake the modification or do you engage an external consultant to modify it?	EMPLOYEES MODIFY .....1 EXTERNAL CONSULTANT MODIFIES .....2 VARIES 3

Q36a. Do you have any employees who are involved in information and communications technology?	(GO TO B) (GO TO C1)	YES .....1 NO 2
b. Are they solely dedicated to information and communications technology?	(GO TO D) (ASK C)	YES .....1 NO 2
c. What are their main occupations?		
. . . .		
d. What are their main information and communication technology-based activities?		
. . . .		

Appendix 2 – Relevant ANZSIC codes

This report refers to codes from the Australian and New Zealand Standard Industrial Classification (ANZSIC), as published by the Australian Bureau of Statistics. The codes listed below are provided to assist with the interpretation of the data in this report, but the inclusion of a code in this Appendix is not an indication that ICT production occurred within SMEs listed in these codes.

Division C Manufacturing
- 21 Food, beverage and tobacco manufacturing
  - 211 Meat and meat product manufacturing
  - 212 Dairy product manufacturing
  - 213 Fruit and vegetable processing
  - 214 Oil and fact manufacturing
  - 215 Flour mill and cereal food manufacturing
  - 216 Bakery product manufacturing
  - 217 Other food manufacturing
  - 218 Beverage and malt manufacturing
  - 219 Tobacco product manufacturing
- 22 Textile, clothing, footwear and leather manufacturing
  - 221 Textile fibre, yarn and woven fabric manufacturing
  - 222 Textile product manufacturing
  - 223 Knitting mills
  - 224 Clothing manufacturing
  - 225 Footwear manufacturing
  - 226 Leather and leather product manufacturing
- 24 Printing, publishing and recorded media
  - 241 Printing and services to printing
  - 242 Publishing
  - 243 Recorded media manufacturing and publishing
- 25 Petroleum, coal, chemical and associated product manufacturing
  - 251 Petroleum refining
  - 252 Petroleum and coal product manufacturing n.e.c.
  - 253 Basic chemical manufacturing
  - 254 Other chemical product manufacturing
  - 255 Rubber product manufacturing
  - 256 Plastic product manufacturing
- 26 Non-metallic mineral product manufacturing
  - 261 Glass and glass product manufacturing
  - 262 Ceramic product manufacturing
  - 263 Cement, lime, plaster and concrete product manufacturing
  - 264 Non-metallic mineral product manufacturing n.e.c.
- 27 Metal product manufacturing
  - 271 Iron and steel manufacturing
  - 272 Basic non-ferrous metal manufacturing
  - 273 Non-ferrous basic metal product manufacturing
  - 274 Structural metal product manufacturing
  - 275 Sheet metal product manufacturing
  - 276 Fabricated metal product manufacturing
- 28 Machinery and equipment manufacturing
  - 281 Motor vehicle and part manufacturing
  - 282 Other transport equipment manufacturing
  - 283 Photographic and scientific equipment manufacturing
  - 284 Electronic equipment manufacturing
    - 2841 Computer and business machine manufacturing
    - 2842 Telecommunication, broadcasting and transceiving equipment manufacturing
    - 2849 Electronic equipment manufacturing n.e.c.
  - 285 Electrical equipment and appliance manufacturing
    - 2852 Electric cable and wire manufacturing
  - 286 Industrial machinery and equipment manufacturing
- 29 Other manufacturing
  - 291 Prefabricated building manufacturing
  - 292 Furniture manufacturing
  - 294 Other manufacturing

Division E Construction
- 41General construction
  - 411 Building construction
  - 412 Non-building construction
- 42 Construction trade services
  - 421 Site preparation services
  - 422 Building structure services
  - 423 Installation trade services
  - 424 Building completion services
  - 425 Other construction services

Division F Wholesale trade
- 45 Basic material wholesaling
  - 451 Farm produce wholesaling
  - 452 Mineral, metal and chemical wholesaling
  - 453 Builders supplies wholesaling
- 46 Machinery and motor vehicle wholesaling
  - 461 Machinery and equipment wholesaling
    - 4613 Computer wholesaling
    - 4614 Business machine wholesaling n.e.c.
    - 4615 Electical and electronic equipment wholesaling n.e.c.
  - 462 Motor vehicle wholesaling
- 47Personal and household good wholesaling
  - 471 Food, drink and tobacco wholesaling
  - 472 Textile, clothing and footwear wholesaling
  - 473 Household good retailing
  - 479 Other wholesaling

Division G Retail trade
- 51 Food retailing
  - 511 Supermarket and grocery stores
  - 512 Specialised food retailing
- 52 Personal and household good retailing
  - 521 Department stores
  - 522 Clothing and soft good retailing
  - 523 Furniture, houseware and appliance retailing
  - 524 Recreational good retailing
  - 525 Other personal and household good retailing
  - 526 Household equipment repair service
- 53 Motor vehicle retailing and services
  - 531 Motor vehicle retailing
  - 532 Motor vehicle services
- 57 Accommodation, cafes and restaurants
  - 571 Accommodation
  - 572 Pubs, taverns and bars
  - 573 Cafes and restaurant
  - 574 Clubs (hospitality)

Division I Transport and storage
- 61 Road transport
  - 611 Road freight transport
  - 612 Road passenger transport
- 65 Other transport
  - 650 Other transport
- 66 Services to transport
  - 661 Services to road transport
  - 662 Services to water transport
  - 663 Services to air transport
  - 664 Other services to transport
- 67 Storage
  - 670 Storage

Division J Communication Services
- 71 Communication services
  - 711 Postal and courier services
  - 712 Telecommunication services
    - 7120 Telecommunication services

Division K Finance and Insurance
- 73 Finance
  - 731 Central bank
  - 732 Deposit taking financiers
  - 733 Other financiers
  - 734 Financial asset investors
- 75 Services to finance and insurance
  - 751 Services to insurance

Division L Property and Business Services

77 Property services
- 771 Property operators and developers
- 772 Real estate agents
- 773 Non-financial asset investors
- 774 Machinery and equipment hiring and leasing

78 Business services
- 781 Scientific research
- 782 Technical services
- 783 Computer services
  - 7831 Data processing services
  - 7832 Information storage and retrieval services
  - 7833 Computer maintenance services
  - 7834 Computer consultancy services
- 784 Legal and accounting services
- 785 Marketing and business management services
- 786 Other business services
  - 7861 Employment placement services
  - 7862 Contract Staff services
  - 7863 Secretarial services
  - 7864 Security and investigative services (except police)
  - 7865 Pest control services
  - 7866 Cleaning services
  - 7867 Contract packing services n.e.c.
  - 7869 Business Services n.e.c.

86 Health services
- 861 Hospitals and nursing homes
- 862 Medical and dental services
- 863 Other health services
- 864 Veterinary services

87 Community services
- 871 Child care services
- 872 Community care services

91 Motion picture, radio and television services
- 911 Film and video services
- 912 Radio and television services

92 Libraries, museums and the arts
- 921 Libraries
- 922 Museums
- 923 Parks and gardens
- 924 Arts
- 925 Services to the arts

93 Sport and recreation
- 931 Sport
- 932 Gambling services
- 933 Other recreational services

95 Personal services
- 951 Personal and household goods hiring
- 952 Other personal services

96 Other services
- 961 Religious organisations
- 962 Interest groups
- 963 Public order and safety services

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