

The Creative Sector in New Zealand -

Mapping and economic role

Report to New Zealand Trade & Enterprise

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Preface

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Executive Summary

The New Zealand creative sector was responsible for almost 121,000 jobs at the time of the 2006 Census (6.3% of total employment). These are divided between

- 35,751 *creative specialists* persons employed doing creative work in creative industries
- 42,300 *support workers* persons providing management and support services in creative industries
- 42,792 *embedded creative workers* persons engaged in creative work in other types of enterprise

The most striking feature of this breakdown is the fact that the largest group of creative workers are employed outside the creative industries, i.e. in other types of businesses. Even within the creative industries, there are fewer people directly engaged in creative work than in providing management and support.

Creative sector employees earned incomes of approximately \$52,000 per annum at the time of the 2006 Census. This is relatively uniform across all three types of creative worker, and is significantly above the average for all employed persons (of approximately \$40,700).

Creative employment and incomes were growing strongly over both five year periods between the 1996, 2001 and 2006 Censuses. However, when we compare creative and general trends, we see two distinct phases in the development of the creative sector:

- rapid structural growth over the five years to 2001 (especially led by developments in ICT), with creative employment and incomes increasing rapidly at a time when they were growing modestly across the whole economy;
- subsequent consolidation, with growth driven by more by national economic expansion than structural change, and creative employment and incomes moving in parallel with strong economy-wide growth.

Other important trends revealed by the data are that

- the strongest growth during the decade was in embedded creative workers, especially over the first five years. The weakest growth was in creative specialists, with support workers in creative industries in the middle rank,
- by far the strongest growth in creative industries' employment was in *Software* & *digital content*, which trebled in size over the decade

Comparing New Zealand with the United Kingdom and Australia, the two southern hemisphere nations have significantly lower proportions of total employment in the creative sector (both in creative industries and embedded employment). New Zealand's and Australia's creative shares in 2001 were similar (5.4% each), but in the following five years, our share has expanded (to 5.7%) whereas Australia's fell slightly (to 5.2%) – in both cases, through changes in creative industries' employment.

The creative industries generated \$10.5 billion in total gross output in the March 2006 year. Resulting from this was value added totalling \$5.1b, representing 3.3% of New Zealand's total GDP.

Overall, value added in the creative industries represents 49% of industry gross output, which is higher than the average across the whole economy, 45%. This is a reflection of the relatively high labour intensity and high earnings of the creative industries.

Industries which have an above-average ratio of value added to gross output are usually labour-intensive, especially when wages and salaries are above average. This is true for *Software & Digital Content and Architecture, Design & Visual Arts*, with ratios of 60.4% and 55.2% respectively.

However there is significant variation in this ratio between different parts of the creative industries, with some parts (e.g. *Software & Digital Content* and *Architecture, Design & Visual Arts*) generating even higher value added relative to output, and others (e.g. *TV & Radio, Publishing* and *Music & Performing Arts*) less, because of high capital intensity and import content.

When we take into account the impact of the creative industries' demand for goods and services from its suppliers and consumption spending from incomes earned, we estimate that there is an addition to economic activity of:

- \$30.9 billion in gross output, \$41.4b in total
- \$15.1b in value added, \$20.3b in total
- 158,100 people employed, 234,600 in total

The total economic impact of the creative industries is approximately four times their direct output and value added, and three times their direct employment.

Their effect on output and value added is roughly in line with the average over all industries, although the effect on employment is significantly lower. This is because of the relatively high labour intensity (and high earnings) of the creative industries, which generate below-average demand from suppliers, but normal levels of demand though expenditure from incomes.

Drawing on these numbers and conclusions, we suggest some (slightly speculative) directions for future research. The goal is to better understand the contribution the creative sector makes to productivity growth; in particular, the distinctive contributions from creative firms and embedded creative workers.

The ideas for future research can be organised into the several categories:

• Understanding the categories of the creative sector- who is doing the business? In other words, examine via more fine grained research (at a firm level perhaps) just what is the **creative** contribution from the different aspects of the creative sector industries. It may be possible to categorise these in terms of more or less striking innovations.

- Investigate the relationship between the characteristics and the performance of the various creative industries/ sectors;
- Look more closely at innovation at an industry level e.g. using an index of relative growth of exports, and see if this can be related to intensity of use of creative inputs;
- Undertake case studies of the creative sector;
- Undertake case studies of the embedded contribution to growth in the firms and industries that employ them, by examining taking several high performing non-creative industries (in the same way as proposed for the creative sector).
- Look at the aggregates drawing on the broad picture of the extent of the numbers of creative workers embedded within the different industries, consider the extent to which these might explain aspects of the industries' varied performance in terms of exports, growth and so on.
- This might be able to extended to examine issues like the type of creative workers that are most effective when embedded, or test the hypothesis that each industry has its own particular requirements for embedded creative workers that overwhelms any generic contributions from say design, or IT.

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1. Introduction

This report presents an analysis of the creative sector in New Zealand, applying the methodology that the Queensland University of Technology's Centre of Excellence for Creative Industries and Innovation (CCI) calls the *Creative Trident* to New Zealand data to see how much it reveals about the size and growth of the 'creative economy', including some thoughts about its wider impact.

2. Analysis – the creative contribution

2.1 Definitions

'Creative industries' is a new term in academic, policy and industry communication. It looks to capture new economy dynamics which older words like 'the arts', 'media' and 'cultural industries' did not. Significantly, it highlights the integrated value chain relationships between industries rather than focusing on the 'silo' constructions of individual industries.

The framework here is based on the *Creative Trident* developed in the Queensland Creative Industries Strategy $(2004)^1$, and used in SGS and CIRAC $(2005)^2$. Six creative segments are the basis for mapping and valuing the creative sector:

- Advertising & Marketing
- Software & Digital Content
- Architecture, Design & Visual Arts
- Publishing
- Software & Digital Content
- Film, TV & Radio³

The *Creative Trident* consists of three of the four quadrants the New Zealand employment scene can be broken into (see Table 1):

- *Creative Specialists* people in defined creative occupations employed within the defined creative industries;
- *Support* people employed within the creative industries who are not working in the creative occupations, but perform the essential sales, management, secretarial, accounting and administrative functions;

¹ Queensland Department of State Development (2004), Creativity is Big Business, A Framework for the Future

² SGS Economics and Planning Pty Ltd in conjunction with Creative Industries Research and Applications Centre (2005) *Mapping Queensland's Creative Industries: Economic Fundamentals*. Technical Report, CIRAC, Queensland University of Technology.

³ The composition of these segments in terms of standard industry and occupational classifications is shown in Tables Table 14 and Table 16 in 4.4Appendix A

• *Embedded* - people employed within the defined creative occupations that are working outside the creative industries.

The fourth quadrant (the balance) includes all other employment in the economy.

2.2 Where are we? The picture in 2006

2.2.1 Employment

At the time of the Census of Population and Dwellings, 2006, there were 120,843 people employed in creative segments, i.e. in creative industries and/or occupations.

			Industry	
		Creative	Other	Total
ion	Creative	35,751	42,792	78,543
cupat	Other	42,300	1,807,809	1,850,109
Ő	Total	78,051	1,850,601	1,928,652

Table 1 Creative employment trident in 2006Number of persons employed

Total creative employment 120,843

Notes: (1) All numbers are randomly rounded to the nearest multiple of 3. Source: Statistics New Zealand, *2006 Census of Population and Dwellings*

Creative jobs make up 6.3% of total New Zealand employment. The creative industries represent 4.0% of total employment, and creative occupations 4.1%.

Table 2 Creative employment shares in 2006 Shares of total employment, percent

			Industry	
		Creative	Other	Total
ion	Creative	1.9	2.2	4.1
cupat	Other	2.2	93.7	95.9
Oc	Total	4.0	96.0	100.0

Total creative employment 6.3

Source: Statistics New Zealand, 2006 Census of Population and Dwellings

Table 3 Creative employment by segment in 2006

	Creative Industries			Other industries	All industries	
	Creative Specialist	Support	Total	Embedded	Total Creative	Trident
Advertising and Marketing	2,118	3,675	5,793	8,778	10,896	14,571
Architecture, Design and Visual A	11,955	10,413	22,368	11,364	23,319	33,732
Film, TV and Radio	3,681	4,248	7,929	990	4,671	8,919
Music and Performing Arts	2,262	1,230	3,492	2,121	4,383	5,613
Publishing	6,456	7,953	14,409	6,153	12,609	20,562
Software and Digital Content	9,279	14,781	24,060	13,386	22,665	37,446
All Creative Segments	35,751	42,300	78,051	42,792	78,543	120,843
Share of Workforce	1.9%	2.2%	4.0%	2.2%	4.1%	6.3%
Total Workforce						1,928,652

Number of persons employed

Notes: (1) All numbers are randomly rounded to the nearest multiple of 3. Source: Statistics New Zealand, *2006 Census of Population and Dwellings*

Looking at the location of creative employment in more detail provides some useful insights. Persons in creative occupations are not concentrated in creative industries – in fact, they are in a minority within:

- creative industries more people are employed in support occupations than as creative specialists 54.2% and 45.8% respectively.
- creative occupations 54.5% of total employment of people in creative occupations is embedded outside the creative industries, against 45.5% within them.

	E		
Industry division	Embedded	Total	Share
Agriculture, Forestry & Fishing	444	134,202	0.3
Mining	57	4,125	1.4
Manufacturing [*]	5,691	215,955	2.6
Electricity, Gas, Water & Waste Services	414	9,705	4.3
Construction	1,857	148,554	1.3
Wholesale Trade	4,188	97,989	4.3
Retail Trade	2,886	195,156	1.5
Accommodation & Food Services	786	110,289	0.7
Transport, Postal & Warehousing	756	81,246	0.9
Information Media & Telecommunications [*]	1,308	37,548	3.5
Financial & Insurance Services	2,655	63,960	4.2
Rental, Hiring & Real Estate Services	1,413	54,210	2.6
Professional, Scientific & Technical Services [*]	5,829	153,930	3.8
Administrative & Support Services	1,947	65,670	3.0
Public Administration & Safety	3,432	80,910	4.2
Education & Training	3,969	141,516	2.8
Health Care & Social Assistance	972	159,609	0.6
Arts & Recreation Services [*]	717	32,625	2.2
Other Services	1,611	77,244	2.1
Not Stated	1,860	63,480	2.9
Grand Total	42,792	1,927,923	2.2

Table 4 Embedded employment in 2006 Numbers employed

Notes: (1) Industry divisions denoted thus [*] include creative industries(2) All numbers are randomly rounded to the nearest multiple of 3.

Source: Statistics New Zealand, 2006 Census of Population and Dwellings

In terms of employment of embedded creative employees in various 'non-creative' industries:

- Agriculture, Forestry & Fishing and Transport, Postal & Warehousing have the lowest shares (under 1%).
- The highest shares among industry divisions (excluding those which do include creative industries) are in *Electricity, Gas Water & Waste Services* and *Wholesale Trade* (4.3% each); and *Financial & Insurance Services* and *Public Administration & Safety* (4.2% each).

Some idea of the reasons for these results come when the list of actual occupations selected as creative is reviewed against the type of workforce in each of these industry groupings (see Table 16 in Appendix A below).

2.2.2 Incomes

Creative employment generates above-average incomes. Mean average incomes for creative segments were just over \$52,000 per annum in 2006, which is 27.8% higher than the average across the workforce as a whole. This is surprisingly uniform across all types of employment in the creative segments.

Table 5 Creative incomes in 2006

			Industry			
		Creative	Other	Total		
tion	Creative	\$52,750	\$51,750	\$52,210		
supal	Other	\$51,720				
Occ	Total	\$52,190		\$52,040		

Mean annual income, \$

Total workforce \$40,710

Notes: (1) All numbers are randomly rounded to the nearest multiple of \$10.

Source: Statistics New Zealand, 2006 Census of Population and Dwellings

However, this uniformity does not extend to different creative segments.

Table 6 Creative incomes by segment in 2006

Mean annual income, \$

	C	reative Industrie	es	Other industries	All industries	
	Creative Specialist	Support	Total	Embedded	Total Creative	Trident
Advertising & Marketing	\$69,580	\$53,140	\$59,150	\$64,470	\$65,460	\$62,350
Architecture, Design & Visua	\$47,060	\$41,980	\$44,700	\$40,840	\$44,030	\$43,400
Film, TV & Radio	\$56,110	\$54,530	\$55,260	\$43,810	\$53,500	\$53,990
Music & Performing Arts	\$37,640	\$33,800	\$36,290	\$29,660	\$33,780	\$33,790
Publishing	\$40,920	\$40,760	\$40,830	\$35,400	\$38,230	\$39,210
Software & Digital Content	\$66,830	\$64,800	\$65,580	\$64,290	\$65,330	\$65,120
All Creative Segments	\$52,750	\$51,720	\$52,190	\$51,750	\$52,210	\$52,040
Total Workforce						\$40,710

Notes: (1) All numbers are randomly rounded to the nearest multiple of \$10. Source: Statistics New Zealand, *2006 Census of Population and Dwellings*

Table 7 Creative relative incomes by segment in 2006 Mean annual incomes relative to total workforce average, percent

	с	reative Industries	3	Other industries	All industries	
	Creative Specialist	Support	Total	Embedded	Total Creative	Trident
Advertising & Marketing	170.9	130.5	145.3	158.4	160.8	153.2
Architecture, Design & Visua	115.6	103.1	109.8	100.3	108.2	106.6
Film, TV & Radio	137.8	133.9	135.7	107.6	131.4	132.6
Music & Performing Arts	92.5	83.0	89.1	72.9	83.0	83.0
Publishing	100.5	100.1	100.3	87.0	93.9	96.3
Software & Digital Content	164.2	159.2	161.1	157.9	160.5	160.0
All Creative Segments	129.6	127.0	128.2	127.1	128.2	127.8

Source: Statistics New Zealand, 2006 Census of Population and Dwellings

Creative employees in *Advertising & Marketing*, *Software & Digital Content* and (to a lesser extent) *Film, TV & Radio* enjoy incomes significantly above the average over the whole workforce; those in *Music & Performing Arts*, significantly lower.

Across all industries, using the classifications of interest here,

- creative specialists are the highest income group;
- support employees in most creative industries enjoy incomes only slightly less than creative specialists. This is understandable, as the support employees would include a mix between clerical and similar employees with lower incomes, and managers (who would generally be former creative specialists) ;with higher incomes
- there is no clear relationship between incomes of people in creative occupations in creative and other industries in some occupations, embedded employees have incomes only marginally lower; in others there is a wide gap between the two groups (indeed, embedded employees in such situations mostly have lower incomes than support employees in creative industries).

	Incon	ne
Industry division		%
Agriculture, Forestry & Fishing Mining Manufacturing [*] Electricity, Gas, Water & Waste Services Construction Wholesale Trade Retail Trade Accommodation & Food Services Transport, Postal & Warehousing Information Media & Telecommunications [*]	\$45,040 \$65,110 \$46,810 \$66,000 \$44,180 \$61,350 \$38,270 \$32,160 \$56,300 \$76,750	122.1 110.1 112.3 123.6 103.8 127.9 139.2 146.7 132.3 151.6
Financial & Insurance Services Rental, Hiring & Real Estate Services Professional, Scientific & Technical Services [*] Administrative & Support Services Public Administration & Safety Education & Training Health Care & Social Assistance Arts & Recreation Services [*] Other Services Not Stated Grand Total	\$74,670 \$49,200 \$62,590 \$50,880 \$58,000 \$34,480 \$48,240 \$40,030 \$42,660 \$36,340 \$51,750	125.0 99.5 107.1 140.8 109.8 84.8 124.8 124.8 124.6 124.4 127.6 127.1

Table 8 Embedded incomes in 2006

Mean incomes of persons in creative occupations, annual and relative to industry average

Notes: (1) Industry divisions denoted thus [*] include creative industries

(2) All dollar values are randomly rounded to the nearest multiple of \$10.

Source: Statistics New Zealand, 2006 Census of Population and Dwellings

Figure 1 Embedded incomes in 2006

Mean incomes of persons in creative occupations, annual \$ (LHS); relative to industry average % (RHS)



Embedded creative employees usually earn above-average incomes relative to other employees in the same industries – on average, 27.1% higher.

As the table above shows, the only two exceptions are

- *Rental, Hiring & Real Estate Services,* where they earn incomes approximately equal to the average (this industry enjoyed incomes significantly above average, in part because of real estate agents' incomes during the property boom); and
- *Education & Training Services,* where they earn incomes 15% below the industry average (this group may be dominated by music teachers, and if so would be predictable, given musicians' low incomes generally).

2.2.3 Comparison with Australia and the UK⁴

The attached table compares creative employment in this country, Australia and the United Kingdom. It draws on recent CCI work.⁵

Table 9 Creative employment in New Zealand, Australia and the UK

Percent of total workforce

		Crea Creative	ative indust	Other industries		
Country	Year	Specialist	Support	Total	Embedded	Trident
Australia	1996	1.3%	1.9%	3.1%	1.5%	4.6%
	2001	1.7%	2.0%	3.7%	1.7%	5.4%
	2006	1.5%	1.9%	3.4%	1.8%	5.2%
New Zealand	2001	1.4%	2.3%	3.7%	1.7%	5.4%
	2006	1.5%	2.5%	3.9%	1.8%	5.7%
United Kingdom	2001	2.1%	2.6%	4.7%	2.4%	7.1%
	2003	2.3%	2.2%	4.4%	2.5%	6.9%
	2006	2.5%	2.1%	4.5%	2.5%	7.0%

Source: Analysis by CCI of custom tables of Australian, NZ and UK Census data and UK LFS data for 2003 and 2006; from Higgs and Cunningham (2008)

Throughout this decade, the United Kingdom has had a significantly higher share of its labour force employed in both the creative industries and embedded employment in other industries.

It appears that New Zealand and Australia had similar shares in 2001, in both creative industries and embedded employment, but since that time, New Zealand's share has risen whereas Australia's has fallen. This trend has been concentrated in the creative industries – the embedded employment share is comparable and has grown slightly in both countries.

More detailed analysis of embedded employment change in Higgs and Cunningham (*ibid*) suggests that embedded employment has grown in most industries, with falls only *Property & Business Services* and *Education* (in both countries) and *Government Administration & Defence* (New Zealand only).

⁴ Note: for consistency all figures used in this section are drawn from the CCI work cited.

⁵ Higgs, Peter and Stuart Cunningham (2008) Embedded Creatives - Revealing the extent and contribution of creative professionals working throughout the economy Paper presented to The International Forum on the Creative Economy 2008

2.3 Analysis of changes, 1996-2006

2.3.1 Employment

The chart below shows employment change across the 1996, 2001 and 2006 Censuses. Data limitations mean that the employment and income figures are not comparable to those in the previous section,⁶ so we have focussed on growth rates.



Figure 2 Change in creative employment 1996-2006
Percent

Source: Statistics New Zealand, Censuses of Population and Dwellings

Total creative employment increased by 58% over the decade (4.7% per annum on average), with largest percentage growth in embedded creative workers, up 69%. In contrast, other employment grew by 'only' 22.5% in the decade (2.1% per annum).

Growth in creative employment was similar over the two inter-censual periods, whereas general employment growth was largely concentrated in the 2001-06 period. The growth in creative employment is particularly impressive in the when we consider that the latter period was one of the strongest expansions of employment in New Zealand's post-War history.

However, the picture is slightly more complex than this. The largest growth in numbers of persons employed over both inter-censual periods has been in support workers in creative firms. If we look at the *shares* of employment growth, we

⁶ These data are based on older industry and occupational classifications (Australia New Zealand Standard Industrial Classification 1996, New Zealand Standard Classification of Occupations 1993), whereas the tables in the previous section are based on classification structures which have superseded them. As 1996 and 2001 data are not available according to the latest classifications, 2006 data have been re-expressed according to the earlier ones to enable estimates of growth in a consistent basis. For this reason, 2006 data in these tables differ from those the previous section. See Tables Table 15 and Table 17 *in Appendix A for lists of the relevant industries and occupations.*)

find that these support workers accounted for over 40% of the increases in creative employment in both periods.



Figure 3 Shares of employment growth, 1996-2001 Percent

Source: Statistics New Zealand, Censuses of Population and Dwellings

Embedded creative workers experienced the middle ranking growth rates in both periods, and creative specialists the lowest.

Looking at creative segments, the pattern of strong growth is largely across the board, but not uniform:

Figure 4 Change in creative employment by segment, 1996-2006 Percent



Source: Statistics New Zealand, Censuses of Population and Dwellings

- by far the highest growth was in *Software & Digital Content*, whose employment more than doubled in the first five years, and increased more than threefold over the decade.
- in contrast, persons employed in *Publishing* fell slightly over both inter-censual periods.
- all of the other segments displayed healthy, albeit not spectacular, employment growth.

At the start of the period, the largest creative segment was *Publishing*, employing a third of creative employees; but the end, its share was about one fifth (admittedly, of a much larger industry). *Software & Digital* Content more than doubled its share, from 13 to 28%, and by the end of the decade was the largest of the creative segments.

2.3.2 Incomes

The chart below illustrates growth in incomes over the last decade.



Figure 5 Change in creative incomes 1996-2006

Not only are creative incomes above the workforce average, but they have been increasing more rapidly. They grew 47.1% (3.9% per annum on average) over the decade to 2006. In comparison incomes in other industries and occupations grew by an average of 39.3%, 3.4% per annum.

The higher growth in creative incomes coincided with the equivalent growth in creative employment between 1996 and 2001; creative incomes were increasing at no more than the general rate over the subsequent five years.

Hence, there was a 20.6% margin between creative and other incomes in 1996, but in the two subsequent periods this had widened to 27.5%.

Source: Statistics New Zealand, Censuses of Population and Dwellings

Figure 6 Change in creative incomes by segment, 1996-2006 Percent



Source: Statistics New Zealand, Censuses of Population and Dwellings

Within the creative segments, only employees in the rapidly growing *Software & Digital Content* segment experienced above-average income growth between 1996 and 2001, with income growth in *Film, TV & Radio* around the average. In general, creative employees' incomes were growing by *less* than the norm across the labour force.

However, high incomes, above-average growth and spectacular employment growth in *Software & Digital Content* lifted the creative industries' earnings growth above the average over this time⁷.

The situation was reversed over the second five yearly period, when incomes grew by 20.4% across the whole labour force. Incomes in *Software & Digital Content* were growing much more slowly than in the other creative segments and the economy as a whole, and those in *Film, TV & Radio* somewhat less.

⁷ Indeed, average growth across the creative industries exceeded growth in any individual segment because of this compositional effect.

3. Economic contribution of creative industries

3.1 Overview

We have estimated the economic contribution of the creative industries in terms of two key measures:

- Gross Output equivalent to revenues at market prices
- *Value Added* gross output less purchases of goods and services from other industries ("intermediate inputs"); value added is broadly equal to returns accruing to labour, assets and owners (Compensation of Employees, Consumption of Fixed Capital and Net Operating Surplus respectively).

Table 10 Economic contribution of Creative Segments\$m, current dollars; year ended 31 March 2006

	Gross Ou	Gross Output		Value Added		
Creative Segment	\$m	%	\$m	%	%	
Publishing	2,274.0	21.6	945.5	18.4	41.6	
Music & Performing Arts	244.3	2.3	75.1	1.5	30.8	
Architecture, Design & Visual Arts	1,466.7	13.9	809.3	15.7	55.2	
Software & Digital Content	3,203.0	30.4	1,934.0	37.6	60.4	
Advertising & Marketing	1,048.0	9.9	511.0	9.9	48.8	
Film, TV & Radio	2,297.0	21.8	875.0	17.0	38.1	
TOTAL	10,533.1		5,149.9		48.9	
Sources: Statistics New Zeala	nd, NZIER					

In the year to March 2006, the creative sector generated \$10.5 billion in total output. The largest segments were *Software & Digital Content* with \$3.2b (30.4% of the creative total), and *Film, TV & Radio* and *Publishing* with \$2.3b each (21.8% and 21.6% respectively); the smallest, *Music & Performing Arts* with only \$244 million (2.3%).

Value Added is generally regarded as the most accurate measure of the economic contribution of specific industries, as it represents the *addition* to economic activity from these industries, excluding inputs which are part of production elsewhere in the economy. It is also comparable to the production measure of Gross Domestic Product (GDP).

Value added generated by the creative sector totalled \$5.1b in the March 2006 year. This was 3.3% of New Zealand's total GDP for the year.

The contribution of individual segments to total creative value added largely follow the pattern for gross output. The largest contributors were *Software & Digital Content* (\$1.9b), *Publishing* (\$0.9b)and *Film, TV & Radio* (\$0.9b). The former segment's share of creative value added, 37.6%, was higher than its share of gross output; those of the latter two segments were lower, and not a great deal

higher than that of the fourth-ranked industry, *Architecture, Design & Visual Arts* (\$0.8b, 15.7%).

One apparently curious result is that *Libraries* and *Museums* have negative value added. In 2006, these industries had direct revenues of \$64m, versus intermediate inputs of \$87m, Compensation of Employees of \$56m and Consumption of Fixed Capital of \$23m. The difference was presumably met from subsidies which are excluded from value added. This is also likely to be a significant factor in the relatively low value added of *Music & Theatre Productions*.

Overall, value added in the creative industries represents 48.9% of industry gross output, which is higher than the average across the whole economy, 44.5%.

Industries which have an above-average ratio of value added to gross output are usually labour-intensive, especially when wages and salaries are above average. This is true for *Software & Digital Content* and *Architecture, Design & Visual Arts*, with ratios of 60.4% and 55.2% respectively.

Conversely, where industries have a below-average ratio of value added to gross output, this is usually a result of low transformation of inputs, high capital intensity, high use of imports, low wages and salaries, or a combination of these factors.

In this category in the creative sector are *Music & Performing Arts, Film, TV & Radio* and *Publishing*, with ratios of 30.8%, 38.1% and 41.6% respectively – in all cases, lower than the economy-wide average.

The result for these segments initially appears counter-intuitive. Possible explanations include:

- for *TV & Radio*, because of high capital intensity and import content (as most television programming is imported rather than produced locally);
- for *Publishing* and *Music & Performing Arts*, because of high capital intensity and/or low wages and salaries.

(See Table 18, Appendix B below, for estimates of individual creative industries' gross output and value added.)

3.2 Wider effects

3.2.1 Overview – multiplier effects

One aspect of the way creative industries contribute to the New Zealand economy is the way their activity, and the incomes they generate, create demand for goods and services in the wider economy.

The technique used to assess this is known as *multiplier analysis*. Multipliers are estimates of an industry's *backwards linkages* - how each dollar's activity in that industry increases total economic activity through demand for supplier industries'

output, and consumption from incomes (wages, dividends) generated throughout the value chain.

Multipliers can also be used to estimate *forwards linkages* – the relationship between creative output and production in industries that purchase it. This essentially describes the disposition of creative output, but is of limited value for further analysis.

The size of a multiplier for a given industry is determined by the interconnectedness of that industry with the rest of the economy. Typically the more a given sector relies on inputs from businesses in other sectors, the larger its multiplier will be.

In this analysis we provide multipliers for the same variables as in the above section - output, value added and employment – and for two types of multiplier -

- *Type I, Indirect effects* arising from the impact of a given industry's demand for supplying industries' output (sometimes known as *production induced effects*).
- *Type II, Induced effects* arising from the stimulus to consumption from incomes generated in the original industry and its suppliers (sometimes known as *income or consumption induced effects*).

Multipliers are generally expressed as a ratio, with Type II multipliers as the cumulative effects of indirect and induced effects. So if an industry has a Type 1 output multiplier of 1.50 and a Type II output multiplier of 2.10, this means that every dollar's output produced by that industry results in an additional 50 cents output in its supplier industries; and another 60 cents on top of that when the personal incomes from all of those industries are spent on consumption.

The multipliers used in this analysis are derived from Input-Output (I-O) tables originally sourced from Statistics New Zealand. Multipliers are defined for 126 industries. None of the industries which make up the creative segments correspond exactly with those 126 industries; they are all part of larger industry combinations. Therefore we have used the multipliers for the relevant industry combinations⁸.

⁸ This differs from the approach in the original analysis of the Queensland creative industries (SGS and CIRAC 2005), in which multipliers were derived from surveys of creative firms.

3.2.2 Results of multiplier analysis

Multiplier effects for creative segments' gross output are shown below⁹.

	Direct	Туре І	Туре II
Creative Segment	\$m	\$m	\$m
Publishing	2,274.0	4,196.4	8,969.2
Music & Performing Arts	244.3	459.7	1,037.4
Architecture, Design & Visual Arts	1,466.7	2,660.2	5,975.3
Software & Digital Content	3,203.0	5,396.1	12,757.2
Advertising & Marketing	1,048.0	2,019.3	4,246.9
Film, TV & Radio	2,297.0	3,751.9	8,425.2
TOTAL	10,533	18,484	41,411
Implied Creative multipliers		1.755	3.932
Average all industry multipliers		1.889	4.008
Source: NZIER			

Table 11 Creative segments multiplier effects –gross output

The interpretation of this table is that the \$10.5b output of the creative sector results in

- an extra \$8.0b output from supplier industries, making \$18.5b in total
- an extra \$22.9b in consumption stimulated by incomes earned in the creative industries and its suppliers, producing \$41.4b in total.

Comparing the implied gross output multipliers for the creative sector with those across the whole economy, the creative sector has lower Type I multipliers, and slightly lower Type II multipliers. This is consistent with the creative industries' above-average value added ratios – they induce below-average production from suppliers (because of below-average intermediate inputs); but they generate above-average incomes, and hence the consumption effect is higher.

⁹ The underlying calculations for the individual industries that make up the creative segments are shown in Tables Table 19, Table 20 and Table 21 in Appendix A.

Multiplier effects for creative segments' value added are shown below.

	Direct	Туре І	Type II
Creative Segment	\$m	\$m	\$m
Publishing	945.5	1,714.2	3,683.0
Music & Performing Arts	75.1	148.3	328.7
Architecture, Design & Visual Arts	809.3	1,519.9	3,337.1
Software & Digital Content	1,934.0	3,207.9	7,074.2
Advertising & Marketing	511.0	1,109.9	2,441.7
Film, TV & Radio	875.0	1,504.2	3,410.4
TOTAL	5,150	9,204	20,275
Implied Creative multipliers		1.787	3.937
Average all industry multipliers		2.494	3.995
Source: NZIER			

Table 12 Creative segments multiplier effects –value added

The interpretation of this table is that activity in the creative sector results in \$5.2b value added in that sector¹⁰, and

- an extra \$4.1b value added from supplier industries, \$9.2b in total
- an extra \$11.1b value added across the whole economy, as a result of consumption from incomes earned in the creative industries and its suppliers, \$20.3b in total

The comparison of implied value added multipliers for the creative sector with those across the whole economy gives the same result as for gross output - lower for Type I, slightly lower Type II – for the same reasons.

¹⁰ Value added and employment multipliers are used for calculation in the same way as gross output multipliers, but strictly speaking, these multiplier effects are indirect – they arise from the value added and employment associated with the output multiplier effects.

Multiplier effects for creative segments' employment are shown below.

	Direct	Туре І	Type II
Creative Segment	Number	Number	Number
Publishing	15,852	25,795	42,108
Music & Performing Arts	3,096	4,537	6,503
Architecture, Design & Visual Arts	20,817	34,756	57,088
Software & Digital Content	21,612	37,471	68,207
Advertising & Marketing	5,550	11,808	21,148
Film, TV & Radio	9,534	19,644	39,519
TOTAL	76,461	134,011	234,573
Implied Creative multipliers		1.753	3.068
Average all industry multipliers		2.560	4.493
Source: NZIER			

Table 13 Creative segments multiplier effects –employment

The interpretation of this table is that activity in the creative sector results in employment of 76,461 people in that sector, and

- an extra 57,559 people in supplier industries, 134,011 in total
- a further 100,563 people across the whole economy, as a result of consumption from incomes earned in the creative industries and its suppliers, 234,573 people in total

Both types of employment multiplier effects are significantly weaker for creative industries than on average, reflecting the fact that this sector is among the most labour intensive. This means its impacts on other sectors will be less intense in the employment response that occurs – other sectors just do not have the same high proportion of extra workers added.

4. Where does this take us?

4.1 What the numbers reveal

This analysis has given us a snapshot of the creative sector (as of 2006), the first time that this has been done for New Zealand using the world-leading CCI framework.

The creative sector was responsible for approximately 121,000 jobs at the time of the 2006 Census (6.3% of total employment).

The most striking feature of creative employment is the fact that the largest group of creative workers (42,800 people) are employed outside the creative industries, i.e. in other types of businesses. Even within the creative industries, there are fewer people directly engaged in creative work (35,800 people) than in providing management and support (42,300 people).

Creative sector employees earn incomes significantly above average (\$52,000 versus \$40,700 per annum), and these incomes are relatively uniform over the three types of worker.

Value added generated by the creative industries totalled \$5.1b in the March 2006 year, 3.3% of New Zealand's total GDP. The creative industries generate relatively more value added relative to gross output than is the norm over the New Zealand economy as a whole (49% versus 45%), because of high labour intensity and high incomes.

Creative employment and incomes were growing strongly over both five year periods between the 1996, 2001 and 2006 Censuses. However, when we compare creative and general trends, we see two distinct phases in the development of the creative sector:

- rapid structural growth over the five years to 2001 (especially lead by developments in ICT), with creative employment and incomes increasingly rapidly at a time when they were growing modestly across the whole economy;
- subsequent consolidation, with growth seeming to be driven more by national economic expansion than structural change (evidenced by creative employment and incomes moving in parallel with strong economy-wide growth).

Other important trends revealed by the data are that

- the strongest growth during the decade was in embedded creative workers, especially over the first five years. The weakest growth was in creative specialists, with support workers in creative industries in the middle rank,
- by far the strongest growth in creative industries' employment was in *Software* & *digital content*, which trebled in size over the decade

Comparing New Zealand with the United Kingdom and Australia, the two southern hemisphere nations have significantly lower proportions of total employment in the creative sector (both in creative industries and embedded employment). New Zealand's and Australia's creative shares in 2001 were similar (5.4% each), but in the following five years, our share has expanded (to 5.7%) whereas Australia's fell slightly (to 5.2%) – in both cases, through changes in creative industries' employment.

The total impact of creative industries is approximately four times its direct output and value added, and three times its direct employment, when we take into account the impact of its demand for goods and services from its suppliers and consumption spending from incomes earned.

Its effect on output and value added is roughly in line with the average over all industries, although the effect on employment is significantly lower. This is because of the relatively high labour intensity (and high earnings) of the creative industries, which generate below-average demand from suppliers, but normal levels of demand though expenditure from incomes.

4.2 Drawing the threads together

This investigation of the Creative Sector in New Zealand has used analytical approaches pioneered in Australia. It has allowed the rich data content of the New Zealand Census collection to be harvested¹¹ and turned into results about the way creative people (those in creative industries and/or occupations) are employed in the economy.

The examination has given us two clearly-separated sets of implications. These, in fact, mirror the interest that observers have taken in the creative contribution, as they usefully relate to:

- the creative industries *per se* the parts of the economy where the outputs are traditionally seen as embodying the creative talents of the various innovative skills. This sector turns out to employ less than half of the people working in creative occupations, and people in such jobs in creative firms are outnumbered by their co-workers in support and management roles.
- the embedded contribution creative people working outside the creative industries. This has not been as closely examined as the first category of contribution, but shows up clearly in this research. It is likely given the scale of the New Zealand creative sector to have greater potential than the creative industries, because the scope for leverage is greater.

4.3 Looking further out

Just taking the analysis to this point has been a path breaking effort. Unfortunately like many such journeys the preparation and ground clearing work

¹¹ This has all been subject to rigorous restrictions to ensure anonymity for all data and responses.

(particularly establishing the rights to data and them clearing it through the processes) has taken longer and absorbed much more energy than anyone expected. What this means is that the results have been less complete and far reaching than we expected at the onset of the task.

Nevertheless, we can make some slightly more speculative comments on the basis of the work to date and look towards testing and potentially verifying these in a later phase of the work.

4.3.1 Thinking in a more risky way

What we have done for this section is to relax our usual requirements on the degree of support we demand before putting forward a comment. This material is less well founded and therefore more open to question – or perhaps optimistically, can be seen as yet to be proven.

The approach has been to look at the results and try to develop some ideas that can be looked at further. The framework that we adopted for this was to seek to examine ideas that might contribute to advancing our understanding of the way the creative sector and its components contribute to the fundamental interest here: *the overall process of productivity enhancement in New Zealand*.

In brief, an improvement of productivity comes about if:

• similar valued goods and services can be produced with less costly inputs;

or

• production can be given some different treatment that allows it to reap a greater return to the producer,

or

• production inputs are redirected into higher valued products.

How might the creative sector contribute to growth? The potential application of creative inputs is via such routes as:

- innovative cost-saving ideas, such as new design to lower production costs, using fresh materials that are cheaper, or finding a different packaging that is either less expensive or permits a lower cost transport solution.;
- remaking existing products so they can be presented to markets differently and thereby achieve higher prices;
- coming up with "new products," that conceptually recombine existing inputs into new patterns that collectively have a greater value.

If we consider, even as a thought experiment, the ways that creative ideas affect the economy, this can occur through two channels:

• in a manner that is "leveraged" whereby a creative approach (generated by creative workers) has impacts that spread out to affect their whole firm; giving

the firm an edge in its relevant market and thus the potential to grow faster than the economy in general. This can be characterised as "high powered";

or

• in a manner where the ideas from the creative individuals is just part of the general stock in trade of their businesses. Some of these will result in an edge to the firm; others will merely compensate for the faults of management or high cost inputs. This can be thought of as "low powered".

A further dimension is to think of differences in the nature of the contribution between the creative industries and embedded creative workers. Creative firms make a direct contribution to economic activity in their own right, including exports. However, given the scale of the creative industries in the economy, the indirect influence of the entire creative sector - i.e. the application of creative ideas to other types of activity - almost certainly offers greater potential benefits.

This can be thought of through the application of the most basic industrial economics tool – delving into the reasons for firms' "make or buy" decisions -

- When does it make sense for a firm to employ its own in-house creative team, and when is it better to contract for creative services with specialist firms? In what circumstances would it do both?
- When are the two types of creative inputs substitutes, and when are they complements?
- Can understanding these choices and the reasons behind them help explain the current distribution of creative employment?
- Could this understanding go some way to suggesting desirable directions for the for creative sector, for policy purposes?

4.4 Possible future work

From the numbers here and the more speculative ideas just discussed, we can draw up a potential set of projects that could be seen as carrying the investigation forward.

Our approach is to try and use the springboard provided by this overview to spark more detailed consideration of what is driving the results and what the results are saying about the way in which creative people and industries contribute to a more innovative, competitive New Zealand.

The ideas can be organised into the several categories:

• Understanding the categories of the creative sector – who is doing the business? In other words, examine via more fine grained research (at a firm level perhaps) just what is the *creative* contribution from the different aspects of the creative sector industries. It may be possible to categorise these in terms of more or less striking innovations.

- Investigate the relationship between the characteristics and the performance of the various creative industries/ sectors:
 - More descriptive investigation by looking at the different types of creative workers, industry by industry. These could be grouped into subclasses if possible.
 - Look more closely at innovation at an industry level e.g. using an index of relative growth of exports, and see if this can be related to intensity of use of creative inputs (contracted creative firms and/or embedded employees), or according the profiles coming out of the earlier suggestion. Compare these to see what is happening.
 - Case studies of the creative sector. Take several innovative parts of the sector and try to substantiate various models of the way creative workers contribute. Data and investigation by usual combination of established sources and interviews.
- Undertake case studies of the embedded contribution
 - Take several high performing non-creative industries and examine in the same way as proposed above for the creative sector.
 - Look at the aggregates drawing on the broad picture of the extent of the numbers of creative workers embedded within the different industries, consider the extent to which these might explain aspects of the industries' varied performance in terms of export, growth and so on.
 - This might be able to extended to examine issues like the type of creative workers that are most effective when embedded, or test the hypothesis that each industry has its own particular requirements for embedded creative workers that overwhelms any generic contributions from say design or IT.

Appendix A Creative industries mapping

The tables below show industry and occupational classifications and the creative segments to which they are mapped.

Tabl Indust Creat	le 14 Creative industries - segments ries per the Australia-New Zealand Standard Industry Clas tive industry 206	sification (ANZSIC) 2006 Creative segment
2591	Jewellery & Silverware Manufacturing	Architecture, Design & Visual Arts
5411 5412 5413 5414 5419 5420 5511 5514 5521 5522 5610 5621 5622 5700 5910 5921	Newspaper Publishing Magazine & Other Periodical Publishing Book Publishing Directory & Mailing List Publishing Other Publishing (except Software, Music & Internet) Software Publishing Motion Picture & Video Production Post-production Services & Other Motion Picture & Video Activities Music Publishing Music & Other Sound Recording Activities Radio Broadcasting Free-to-Air Television Broadcasting Internet Publishing & Broadcasting Internet Service Providers & Web Search Portals Data Processing & Web Hosting Services	Publishing Publishing Publishing Software & Digital Content Publishing Software & Digital Content Film, TV and Radio Film, TV and Radio Software & Digital Content Software & Digital Content Software & Digital Content
6010 6921 6924 6940 6991	Libraries & Archives Architectural Services Other Specialised Design Services Advertising Services Professional Photographic Services	Publishing Architecture, Design & Visual Arts Architecture, Design & Visual Arts Advertising and Marketing Architecture, Design & Visual Arts
7000	Computer System Design & Related Services	Software & Digital Content
8910 9002 9001 9003	Museum Operation Creative Artists, Musicians, Writers & Performers Performing Arts Operation Performing Arts Venue Operation	Architecture, Design & Visual Arts Architecture, Design & Visual Arts Music & Performing Arts Music & Performing Arts

Source: CCI

 Table 15 Creative industries - segments

 Industries per the Australia-New Zealand Standard Industry Classification (ANZSIC)

 1996

Creative NZSIC96	e industry	Creative segment
2413	Services to Printing	Publishing
2421	Newspaper Printing or Publishing	Publishing
2422	Other Periodical Publishing	Publishing
2423	Book & Other Publishing	Publishing
2430	Recorded Media Manufacturing & Publishing	Music and Performing Arts
2941	Jewellery & Silverware Manufacturing	Architecture, Design and Visual Arts
7821	Architectural Services	Architecture, Design and Visual Arts
7834	Computer Consultancy Services	Software and Digital Content
7851	Advertising Services	Advertising and Marketing
7852	Commercial Art & Display Services	Architecture, Design and Visual Arts
9111	Film & Video Production	Film, TV and Radio
9121	Radio Services	Film, TV and Radio
9122	Television Services	Film, TV and Radio
9210	Libraries	Publishing
9220	Museums	Architecture, Design and Visual Arts
9241	Music & Theatre Productions	Music and Performing Arts
9242	Creative Arts	Architecture, Design and Visual Arts
9251	Sound Recording Studios	Music and Performing Arts
9252	Performing Arts Venues	Music and Performing Arts
9259	Services to the Arts N.E.C.	Music and Performing Arts
9523	Photographic Studios	Architecture, Design and Visual Arts
Source:	CCI	

Table 16 Creative occupations - segments Occupations per the Australia-New Zealand Standard Classification of Occupations (ANZSCO) **Creative occupation Creative segment** ANZSCO 131111 Advertising & Public Relations Manager Advertising & Marketing 139911 Arts Administrator or Manager Music & Performing Arts 211111 Actor Music & Performing Arts 211112 Dancer or Choreographer Music & Performing Arts Music & Performing Arts 211113 Entertainer or Variety Artist 211199 Actors, Dancers & Other Entertainers Nec Music & Performing Arts Music & Performing Arts 211213 Musician (Instrumental) Music & Performing Arts 211214 Singer 211311 Photographer Architecture, Design & Visual Arts 211411 Painter (Visual Arts) Architecture, Design & Visual Arts 212112 Media Producer (Excluding Video) Film, TV & Radio 212113 Radio Presenter Film, TV & Radio Film, TV & Radio 212114 Television Presenter 212211 Author Publishing Publishing 212212 Book or Script Editor Film, TV & Radio 212311 Art Director (Film, Television or Stage) 212312 Director (Film, Television, Radio or Stage) Film, TV & Radio Film, TV & Radio 212314 Film & Video Editor 212317 Technical Director Film, TV & Radio 212399 Film, Television, Radio & Stage Directors Nec Film, TV & Radio 212411 Copywriter Advertising & Marketing 212412 Newspaper or Periodical Editor Publishing Publishing 212413 Print Journalist Publishing 212415 Technical Writer 212416 Television Journalist Film, TV & Radio Publishing 212499 Journalists & Other Writers Nec 224611 Librarian Publishing 225113 Marketing Specialist Advertising & Marketing 225111 Advertising Specialist Advertising & Marketing 232111 Architect Architecture, Design & Visual Arts 232112 Landscape Architect Architecture, Design & Visual Arts 232311 Fashion Designer Architecture, Design & Visual Arts 232312 Industrial Designer Architecture, Design & Visual Arts 232411 Graphic Designer Architecture, Design & Visual Arts Software & Digital Content 232414 Web Designer 232511 Interior Designer Architecture, Design & Visual Arts 232611 Urban & Regional Planner Architecture, Design & Visual Arts 261111 ICT Business Analyst Software & Digital Content 261112 Systems Analyst Software & Digital Content 261212 Web Developer Software & Digital Content 261311 Analyst Programmer Software & Digital Content 261312 Developer Programmer Software & Digital Content Software & Digital Content 261313 Software Engineer 261399 Software & Applications Programmers Nec Software & Digital Content 263211 ICT Quality Assurance Engineer Software & Digital Content Software & Digital Content 263213 ICT Systems Test Engineer 312111 Architectural Draftsperson Architecture, Design & Visual Arts 313113 Web Administrator Software & Digital Content 399312 Library Technician Publishing 399411 Jeweller Architecture, Design & Visual Arts 399512 Camera Operator (Film, Television or Video) Film, TV & Radio 399513 Light Technician Music & Performing Arts Music & Performing Arts 399514 Make Up Artist Music & Performing Arts 399516 Sound Technician 399599 Performing Arts Technicians Nec Music & Performing Arts 599711 Library Assistant Publishing 599912 Production Assistant (Film, Television, Radio or Stage) Film, TV & Radio 599913 Proof Reader Publishing

Source: CCI

Table 17 Creative occupations - segments Occupations per the New Zealand Standard Classification of Occupations 1993 (NZSCO93) **Creative occupation Creative segment** NZSCO93 12251 Advertising & Public Relations Manager Advertising & Marketing 21311 Systems Analyst Software & Digital Content 21411 Architect Architecture, Design & Visual Arts 21413 Landscape Architect Architecture, Design & Visual Arts 21452 Naval Architect &/or Ships' Surveyor Architecture, Design & Visual Arts 24311 Publishina Archivist Art Gallery &/or Museum Curator Architecture, Design & Visual Arts 24312 24321 Librarian Publishing 31181 Draughting Technician Architecture, Design & Visual Arts 31211 Computer Programmer Software & Digital Content Photographer Architecture, Design & Visual Arts 31311 Camera Operator Film, TV & Radio 31312 Sound Recording Equipment Controller Music & Performing Arts 31313 33611 Author & Critic Publishing 33612 Reporter Publishing 33613 Editor Publishing 33614 Sub-Editor Publishing 33615 Copywriter Advertising & Marketing 33621 Sculptor, Painter & Related Artist Architecture, Design & Visual Arts 33631 Graphic Designer Architecture, Design & Visual Arts 33632 **Fashion Designer** Architecture, Design & Visual Arts 33634 Industrial Designer Architecture, Design & Visual Arts 33635 Paste Up Artist Advertising & Marketing 82635 Hat Maker Architecture, Design & Visual Arts 33636 Interior Designer Architecture, Design & Visual Arts 33641 Composer, Arranger &/or Conductor Music & Performing Arts 33642 Instrumentalist Music & Performing Arts 33643 Singer Music & Performing Arts Music & Performing Arts 33651 Dancer Dancing Teacher &/or Choreographer Music & Performing Arts 33652 Music & Performing Arts 33661 Actor 33662 Artistic Director Music & Performing Arts 33671 Radio & Television Presenter Film, TV & Radio 33681 Clown, Magician, Acrobat & Related Worker Music & Performing Arts 41411 Library Assistant Publishing 41432 Proof-Reader Publishing 73131 Jeweller & Jewellery Repairer Architecture, Design & Visual Arts 73132 Gem Cutter & Polisher Architecture, Design & Visual Arts 73318 Desktop Publisher Advertising & Marketing 81323 Glass & Ceramics Painter & Decorator Architecture, Design & Visual Arts

Source: CCI

Appendix B Creative industries' output, value added and employment

The tables below are equivalent to those in the body of the report, for the individual creative industries.

The tables below were used to derive the initial estimates, and results were aggregated to produce the estimates for creative segments.

	Gross O	Gross Output		Value A	Ratio of VA/GO		
Creative industry	\$m	%		\$m	%	%	
Services to Printing	236.7	2.2		101.4	2.0	42.8	[2]
Newspaper Printing or Publishing	1,111.4	10.6		476.1	9.2	42.8	[2]
Other Periodical Publishing	507.0	4.8		217.2	4.2	42.8	[2]
Book & Other Publishing	378.5	3.6		162.1	3.1	42.8	[2]
Recorded Media Manufacturing & Publishing	35.3	0.3		15.1	0.3	42.8	[2]
Jewellery & Silverware Manufacturing	110.0	1.0		41.0	0.8	37.3	[1]
Architectural Services	493.0	4.7		334.0	6.5	67.7	[1]
Computer Consultancy Services	3,203.0	30.4		1,934.0	37.6	60.4	[1]
Advertising Services	1,048.0	9.9		511.0	9.9	48.8	[1]
Commercial Art & Display Services	576.0	5.5		293.0	5.7	50.9	[1]
Film & Video Production	870.0	8.3		289.0	5.6	33.2	[1]
Radio Services	636.4	6.0		261.3	5.1	41.1	[2]
Television Services	790.6	7.5		324.7	6.3	41.1	[2]
Libraries	40.4	0.4		(11.4)	-0.2	-28.1	[2]
Museums	23.6	0.2		(6.6)	-0.1	-28.1	[2]
Music & Theatre Productions	76.0	0.7		17.0	0.3	22.4	[1]
Creative Arts	176.0	1.7		92.0	1.8	52.3	[1]
Sound Recording Studios	20.6	0.2		5.3	0.1	25.8	[2]
Performing Arts Venues	41.4	0.4		10.7	0.2	25.8	[2]
Services to the Arts N.E.C.	71.0	0.7		27.0	0.5	38.0	[1]
Photographic Studios	88.1	0.8		55.9	1.1	63.5	[3]
TOTAL	10,533.1		ę	5,149.9		48.9	

Table 18 Economic contribution of Creative Industries \$m, current dollars; year ended 31 March 2006

Notes and Sources:

- Data are customised output from the 2006 Annual Enterprise Survey for the relevant industry.
 Data are NZIER estimates based on customised output from the 2006 Annual Enterprise Survey and the 2006 Census of Population and Dwellings, for these industry combinations. The estimation methodology results in a uniform VA/GO ratio for all industries within the combination.
- [3] Data are NZIER estimates based on customised output from the 2006 Annual Enterprise Survey and the 2006 Census of Population and Dwellings, for the larger (3 digit ANZSIC) industry group which includes this industry.

Sources: Statistics New Zealand, NZIER

Table 19 Creative industries multiplier effects –gross output

	Direct	Тур	be l	Тур	e II	
Creative industry	\$m	Multiplier	\$m	Multiplier	\$m	_
Services to Printing	236.7	1.939	459.1	4.008	948.8	
Newspaper Printing or Publishing	1,111.4	1.833	2,037.6	3.930	4,367.4	(1)
Other Periodical Publishing	507.0	1.833	929.5	3.930	1,992.3	(1)
Book & Other Publishing	378.5	1.833	693.8	3.930	1,487.2	(1)
Recorded Media Manufacturing & Publishing	35.3	1.833	64.8	3.930	138.9	(1)
Jewellery & Silverware Manufacturing	110.0	1.611	177.2	3.508	385.8	
Architectural Services	493.0	1.722	849.0	4.129	2,035.5	
Computer Consultancy Services	3,203.0	1.685	5,396.1	3.983	12,757.2	
Advertising Services	1,048.0	1.927	2,019.3	4.052	4,246.9	(1)
Commercial Art & Display Services	576.0	1.927	1,109.8	4.052	2,334.2	(1)
Film & Video Production	870.0	1.633	1,421.1	3.668	3,191.1	(1)
Radio Services	636.4	1.633	1,039.5	3.668	2,334.2	(1)
Television Services	790.6	1.633	1,291.4	3.668	2,899.9	(1)
Libraries	40.4	1.889	76.3	4.299	173.6	(1)
Museums	23.6	1.889	44.6	4.299	101.6	(1)
Music & Theatre Productions	76.0	1.889	143.6	4.299	326.7	(1)
Creative Arts	176.0	1.889	332.5	4.299	756.6	(1)
Sound Recording Studios	20.6	1.889	38.9	4.299	88.5	(1)
Performing Arts Venues	41.4	1.889	78.2	4.299	178.0	(1)
Services to the Arts N.E.C.	71.0	1.889	134.1	4.299	305.2	(1)
Photographic Studios	88.1	1.670	147.0	4.106	361.5	
TOTAL	10,533		18,483.5		41,411.2	

Notes: (1) Industries that have identical multipliers are part of larger industry combinations in the Input Output tables.

Source: NZIER

Table 20 Creative industries multiplier effects – value added

	Direct	Тур	e I	Тур	e II	
Creative industry	\$m	Multiplier	\$m	Multiplier	\$m	
Services to Printing	101.4	2.045	207.4	4.532	459.6	
Newspaper Printing or Publishing	476.1	1.788	851.4	3.828	1.822.6	(1)
Other Periodical Publishing	217.2	1.788	388.4	3.828	831.4	(1)
Book & Other Publishing	162.1	1.788	289.9	3.828	620.6	(1)
Recorded Media Manufacturing & Publishing	15.1	1.788	27.1	3.828	58.0	(1)
Jewellery & Silverware Manufacturing	41.0	1.579	64.7	3.202	131.3	. ,
Architectural Services	334.0	1.662	555.1	3.621	1,209.4	
Computer Consultancy Services	1,934.0	1.659	3,207.9	3.658	7,074.2	
Advertising Services	511.0	2.172	1,109.9	4.778	2,441.7	(1)
Commercial Art & Display Services	293.0	2.172	636.4	4.778	1,400.0	(1)
Film & Video Production	289.0	1.719	496.8	3.898	1,126.4	(1)
Radio Services	261.3	1.719	449.3	3.898	1,018.6	(1)
Television Services	324.7	1.719	558.1	3.898	1,265.4	(1)
Libraries	(11.4)	2.020	- 22.9	4.512	- 51.2	(1)
Museums	(6.6)	2.020	- 13.4	4.512	- 30.0	(1)
Music & Theatre Productions	17.0	2.020	34.3	4.512	76.7	(1)
Creative Arts	92.0	2.020	185.8	4.512	415.1	(1)
Sound Recording Studios	5.3	2.020	10.7	4.512	24.0	(1)
Performing Arts Venues	10.7	2.020	21.6	4.512	48.2	(1)
Services to the Arts N.E.C.	27.0	2.020	54.5	4.512	121.8	(1)
Photographic Studios	55.9	1.631	91.2	3.778	211.3	
TOTAL	5,150		9,204.4		20,275.1	
Implied Creative multipliers		1.787		3.937		

Notes: (1) Industries that have identical multipliers are part of larger industry combinations in the Input Output tables.

Source: NZIER

Table 21 Creative industries multiplier effects – employment

	Direct	Ту	pe I	Ту		
Creative industry	Number	Multiplier	Number	Multiplier	Number	
Services to Printing	1,221	1.617	1,974	2.578	3,147	
Newspaper Printing or Publishing	6,654	1.692	11,255	2.882	19,175	(1)
Other Periodical Publishing	2,310	1.692	3,907	2.882	6,657	(1)
Book & Other Publishing	1,767	1.692	2,989	2.882	5,092	(1)
Recorded Media Manufacturing & Publishing	150	1.692	254	2.882	432	(1)
Jewellery & Silverware Manufacturing	1,221	1.370	1,673	2.089	2,551	
Architectural Services	7,065	1.611	11,381	2.729	19,278	
Computer Consultancy Services	21,612	1.734	37,471	3.156	68,207	
Advertising Services	5,550	2.128	11,808	3.810	21,148	(1)
Commercial Art & Display Services	5,340	2.128	11,361	3.810	20,348	(1)
Film & Video Production	4,467	2.061	9,204	4.145	18,516	(1)
Radio Services	2,352	2.061	4,846	4.145	9,749	(1)
Television Services	2,715	2.061	5,594	4.145	11,254	(1)
Libraries	3,900	1.454	5,670	2.061	8,037	(1)
Museums	2,235	1.454	3,249	2.061	4,606	(1)
Music & Theatre Productions	1,284	1.454	1,867	2.061	2,646	(1)
Creative Arts	3,348	1.454	4,867	2.061	6,900	(1)
Sound Recording Studios	285	1.454	414	2.061	587	(1)
Performing Arts Venues	720	1.454	1,047	2.061	1,484	(1)
Services to the Arts N.E.C.	657	1.454	955	2.061	1,354	(1)
Photographic Studios	1,608	1.384	2,225	2.117	3,405	
TOTAL	76,461		134,011.0		234,573.0	
Implied Creative multipliers		1.753		3.068		
Notoo: (1) Industrias that has	a identia	ا منځان معر ا			بامعام المعاد	ote

Notes: (1) Industries that have identical multipliers are part of larger industry combinations in the Input Output tables.

Source: NZIER