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# Arts and Creative

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in New Zealand



Economics put simply

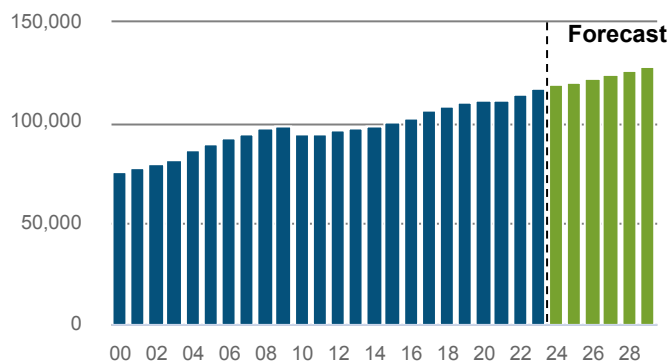
## Arts and Creative

### NEW ZEALAND

How many people worked in the sector in 2023?

# 117,517 filled jobs

4.3% of 2,753,601 in New Zealand



#### CHANGE P.A

Arts and Creative

Total New Zealand

2018-2023

1.5%

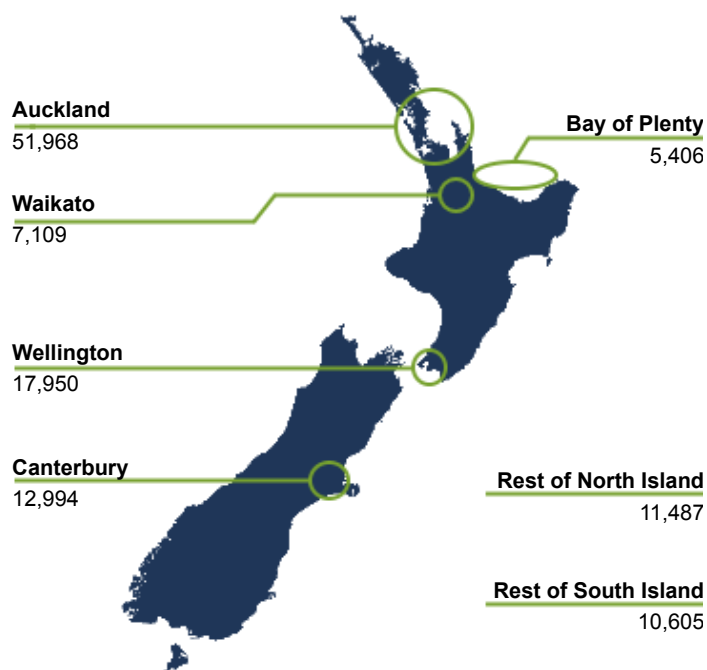
2.0%

2024-2029

1.4%

1.2%

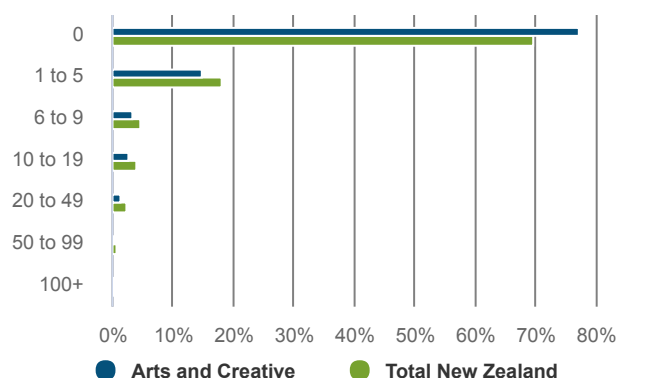
What regions do people work in?



How many businesses were in the sector in 2023?

# 37,157 business units

5.8% of 641,529 in New Zealand



What were the top 5 occupations in 2023?

# 32,218 jobs: top 5 occupations

27.4% of total Arts and Creative in New Zealand

OCCUPATION	LEVEL 2023	CHANGE	
		18-23	24-29 (F)
Graphic Designer	8,208	1.3%	1.5%
Architect	7,722	4.2%	2.8%
Advertising and Public Relations Manager	6,307	3.0%	2.2%
Librarian	5,946	1.2%	1.1%
Music Teacher (Private Tuition)	4,035	1.9%	1.8%

How many people are likely to be in new roles in the sector between now and 2029?

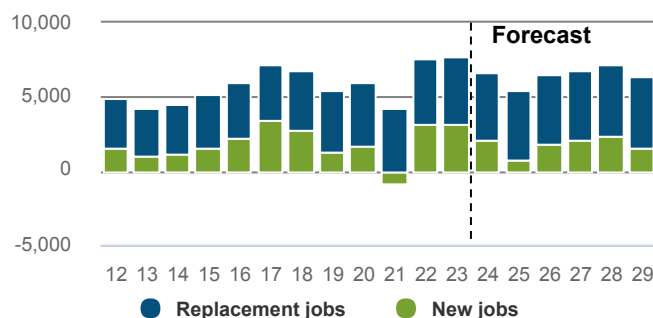
# 39,144 Total job openings

Total New Zealand: 988,630

Total job openings (2024-2029) consists of:

- New jobs: 10,847
- Net Replacement job openings: 28,296

New job openings come from growth in total employment. Replacement job openings estimate individuals leaving an occupation (eg, retirement), net of individuals entering an occupation (eg, returning from parental leave).



## Arts and Creative

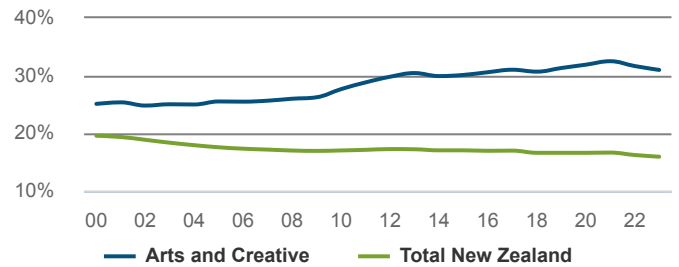
### NEW ZEALAND

How many people were self-employed in 2023?

# 36,448 Self-employed

Workers in the Arts and Creative are more likely to be self-employed than workers in New Zealand as a whole.

**31.0% self-employment rate**  
Total New Zealand: 15.9%



How productive was the sector in 2023?

# \$16,259m GDP

4.3% of New Zealand GDP

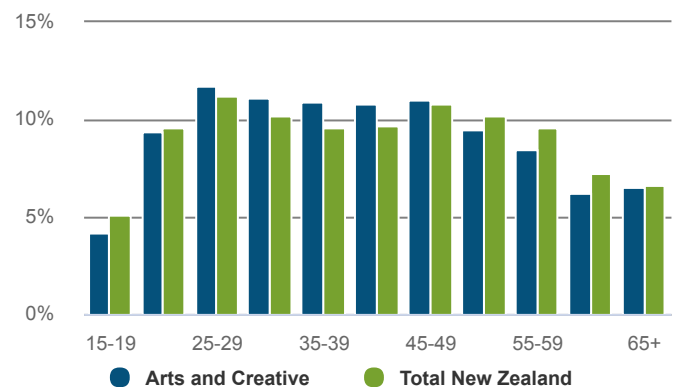
CHANGE P.A.	2018-2023	2013-2023
Arts and Creative	5.1%	4.5%
Total New Zealand	2.7%	3.1%

# \$155,539 GDP/FTE

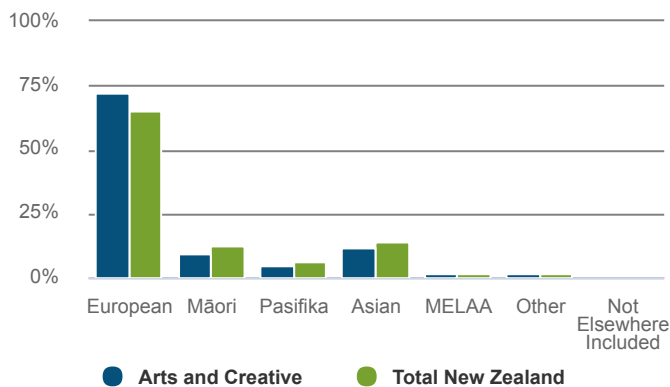
Total New Zealand: \$152,331

3.0% P.A. change from 2018-2023.  
Total New Zealand: 0.2%.

What was the age profile of workers in 2018?



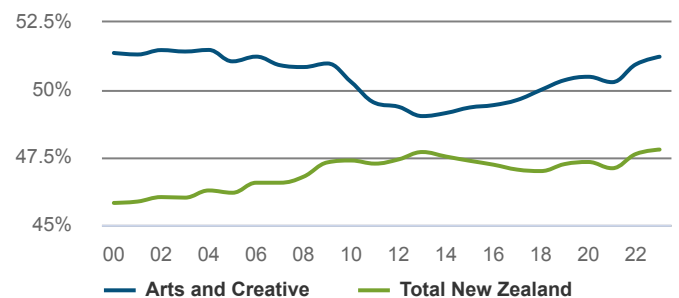
What was the ethnicity of workers in 2018?



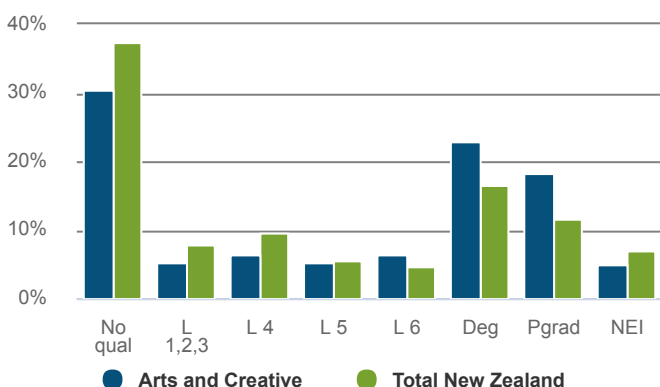
How many workers were female in 2023?

# 51.2% female

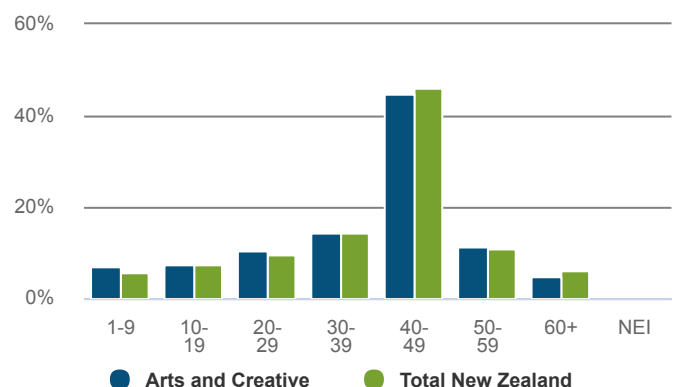
Total New Zealand: 47.8%



What were the workers highest (post school) quals in 2018?



How many hours were spent working in 2018?



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# EMPLOYMENT AND ECONOMY

Growth in a sector is typically underpinned by expanding employment and growth in employment and gross domestic product (GDP). This section looks at current and historic trends in GDP in the Arts and Creative sector in New Zealand as well forecast growth in employment.

## How many people work in the sector?

This section looks at the number of people employed in the Arts and Creative sector and how employment has changed over time. Employment is presented in terms of filled jobs as well as full-time equivalent employment. Forecast employment growth in filled jobs is also provided.

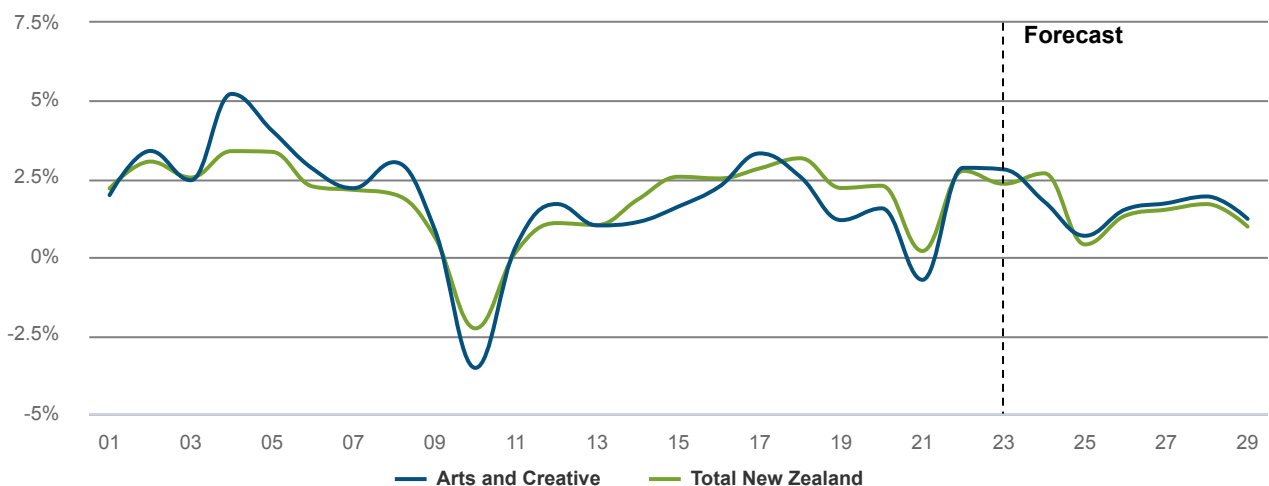
## Employment growth

Employment growth in a sector is driven by a range of factors, including the level of confidence businesses have in their activity outlook. For example, positive employment growth shows that businesses in a sector are confident enough in their activity and outlook to expand their workforce.

The number of filled jobs in the Arts and Creative sector in New Zealand averaged 117,517 in the year to March 2023. The Arts and Creative sector accounts for 4.3% of overall filled jobs in New Zealand. In terms of historical and forecast trends for the Arts and Creative sector in New Zealand:

- Employment grew by 2.8% in 2023 compared with overall growth of 2.4% in New Zealand.
- Employment growth averaged 1.9%pa over the past 10 years compared with overall growth of 2.3%pa on New Zealand.
- Employment is forecast to grow by 1.5%pa between 2023 and 2029. Overall employment in New Zealand is forecast to grow by 1.4%pa over the period.

**Figure 1: Employment growth in New Zealand**



The following table shows filled job employment in the Arts and Creative in New Zealand for selected historic and forecast years. The Infometrics on-line Arts and Creative Sector Profile provides a complete time series of annual employment from 2000 onwards.

**Table 1: Employment in the Arts and Creative sector in New Zealand**

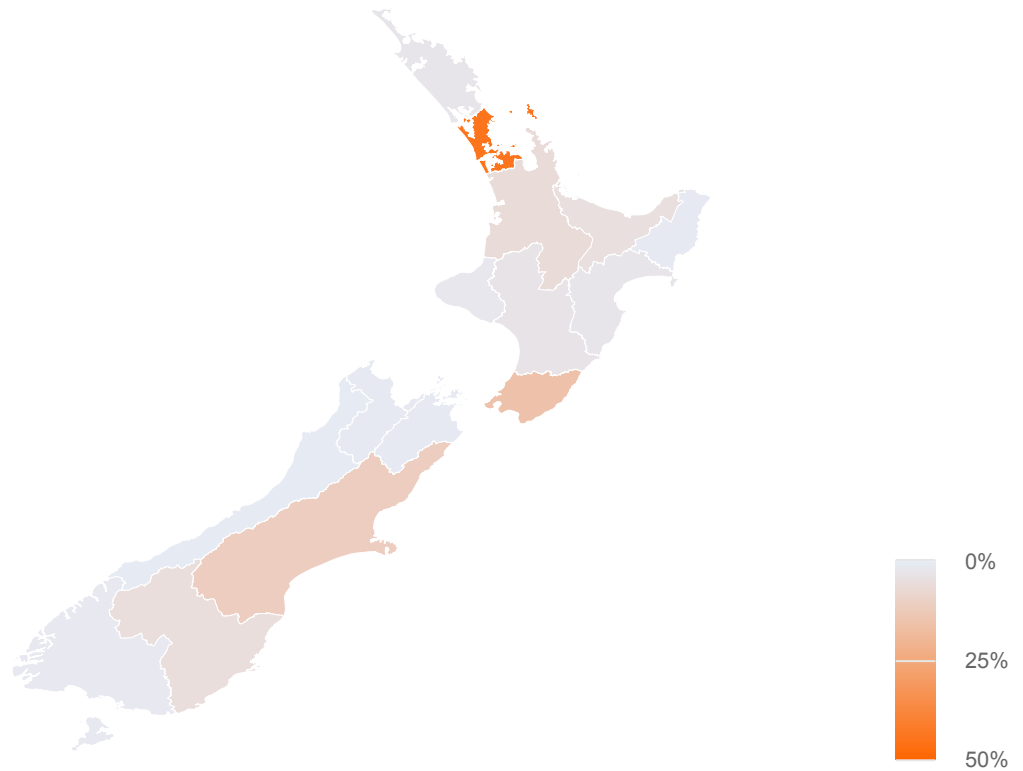
	Arts and Creative			Total New Zealand	
	Employment	% of total	% change	Employment	% change
<b>2003</b>	82,194	4.3%	2.5%	1,918,202	2.6%
<b>2008</b>	97,455	4.5%	3.0%	2,184,929	2.0%
<b>2013</b>	97,793	4.4%	1.0%	2,198,992	1.0%
<b>2018</b>	108,916	4.4%	2.6%	2,498,984	3.2%
<b>2019</b>	110,209	4.3%	1.2%	2,554,343	2.2%
<b>2020</b>	111,934	4.3%	1.6%	2,612,767	2.3%
<b>2021</b>	111,127	4.2%	-0.7%	2,618,023	0.2%
<b>2022</b>	114,305	4.2%	2.9%	2,690,372	2.8%
<b>2023</b>	117,517	4.3%	2.8%	2,753,601	2.4%
<b>2024 (f)</b>	119,606	4.2%	1.8%	2,827,534	2.7%
<b>2025 (f)</b>	120,428	4.2%	0.7%	2,839,144	0.4%
<b>2026 (f)</b>	122,275	4.3%	1.5%	2,877,059	1.3%
<b>2027 (f)</b>	124,387	4.3%	1.7%	2,920,899	1.5%
<b>2028 (f)</b>	126,806	4.3%	1.9%	2,970,578	1.7%
<b>2029 (f)</b>	128,364	4.3%	1.2%	2,999,710	1.0%

## Regional employment

Employment can vary across regions and is largely determined by economic conditions in the area, the makeup of the population and the types of resources available.

This section shows the regional distribution of employment in the Arts and Creative sector in 2023.

**Figure 2: Regional employment in the Arts and Creative sector, 2023**



The following table shows employment in the Arts and Creative sector by region in 2023.

**Table 2: Employment by region in the Arts and Creative sector, 2023**

	Arts and Creative		Total economy	
	Employment	% of NZ	Employment	% of NZ
Auckland	51,968	44.2%	972,299	35.3%
Wellington Region	17,950	15.3%	322,579	11.7%
Canterbury Region	12,994	11.1%	358,948	13.0%
Waikato Region	7,109	6.0%	244,276	8.9%
Otago Region	5,900	5.0%	135,536	4.9%
Bay of Plenty Region	5,406	4.6%	170,833	6.2%
Manawatu-Whanganui Region	3,651	3.1%	125,521	4.6%
Northland Region	2,762	2.3%	82,169	3.0%
Hawke's Bay Region	2,555	2.2%	90,783	3.3%
Taranaki Region	1,800	1.5%	63,348	2.3%
Southland Region	1,252	1.1%	56,466	2.1%
Nelson Region	1,235	1.1%	31,525	1.1%
Tasman Region	887	0.8%	28,533	1.0%
Marlborough Region	808	0.7%	29,149	1.1%
Gisborne Region	720	0.6%	24,770	0.9%
West Coast Region	522	0.4%	16,866	0.6%
New Zealand	117,517		2,753,601	

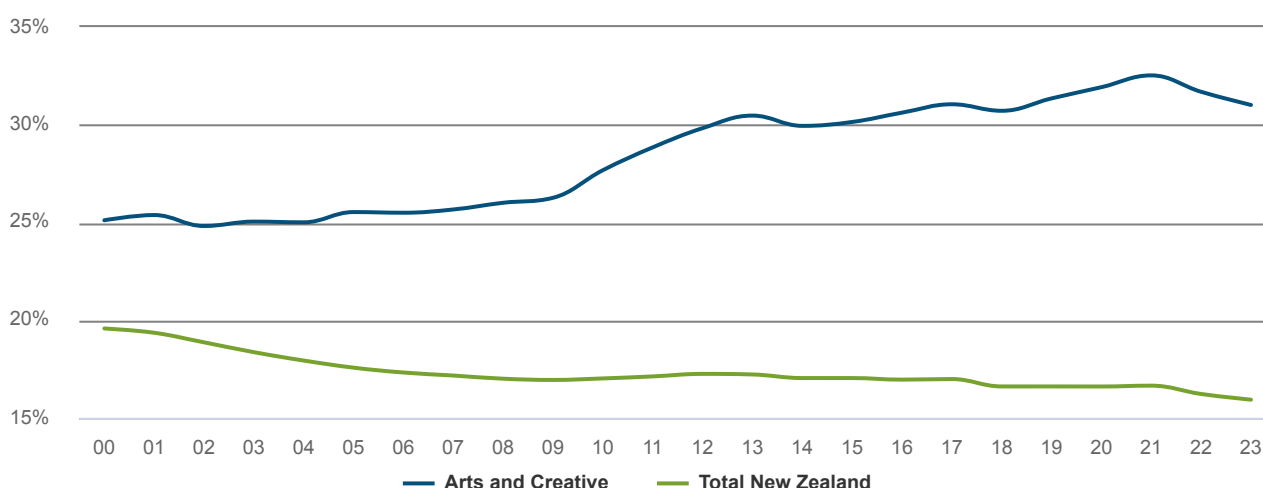


## Self-employment

Approximately one in six people in employment in New Zealand is self-employed. The rate of self-employment varies by sector and is influenced by things such as the types of roles and functions performed by each sector.

In 2023 there were 36,448 people working in the Arts and Creative sector in New Zealand who were self-employed. This equates to 31.0% of the Arts and Creative sector workforce and is greater than the overall self-employment rate in New Zealand of 15.9%. The self-employment rate in the Arts and Creative sector in New Zealand has increased by 5.0 percentage points over the past 15 years compared to overall self-employment rate in New Zealand which has decreased by 1.1 percentage points.

**Figure 3: Self-employment rate in New Zealand**



The following table shows the level of self-employment in the Arts and Creative sector in New Zealand for selected years. The Infometrics online Arts and Creative Sector Profile provides a complete time series of self-employment from 2000 onwards.

**Table 3: Self employment in the Arts and Creative sector in New Zealand**

	Arts and Creative			Total New Zealand		
	Self-employed	% change	self-employment rate	Self-employed	% change	self-employment rate
2003	20,586	3.4%	25.0%	352,293	-0.2%	18.4%
2008	25,348	4.4%	26.0%	371,608	1.0%	17.0%
2013	29,798	3.2%	30.5%	378,776	0.9%	17.2%
2018	33,456	1.5%	30.7%	415,133	0.9%	16.6%
2019	34,552	3.3%	31.4%	424,339	2.2%	16.6%
2020	35,735	3.4%	31.9%	433,962	2.3%	16.6%
2021	36,147	1.2%	32.5%	435,951	0.5%	16.7%
2022	36,221	0.2%	31.7%	436,537	0.1%	16.2%
2023	36,448	0.6%	31.0%	438,754	0.5%	15.9%

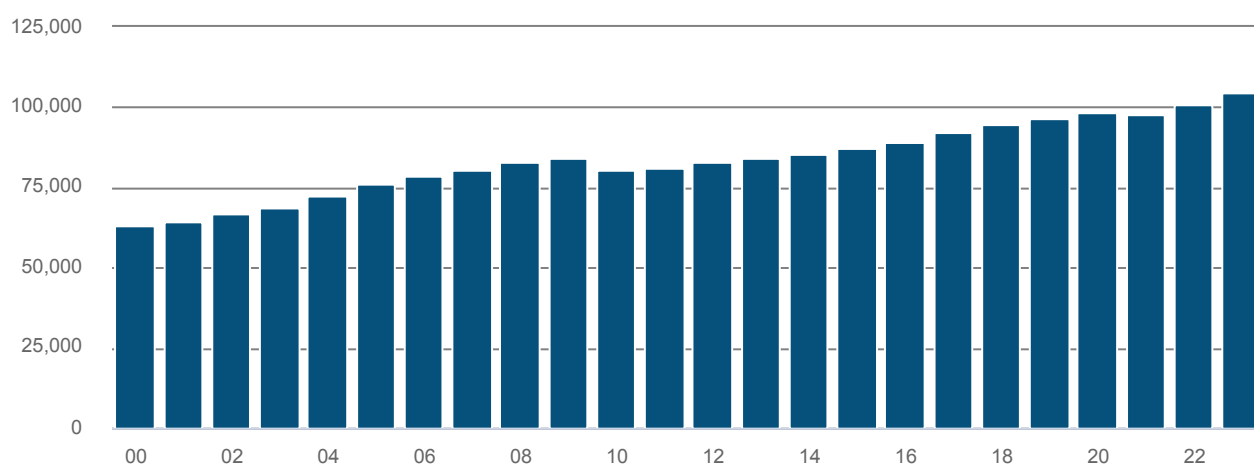
## Full-time equivalent employment

Full-time equivalent (FTE) employment provides a way of looking at the number of filled jobs that takes into account the work-load of people into employment. FTE employment uses full and part-time employment to estimate the equivalent number of full-time employees. Two people who are employed part-time are measured as one FTE.

Using FTEs instead of employment to look at change over time can provide a more consistent comparison of labour resources used in employment over time.

In 2023 there were 104,530 FTEs in the Arts and Creative sector in New Zealand, up 1.5% pa from 15 years ago. Overall FTE employment in New Zealand grew by 1.8%pa over the same period.

**Figure 4: FTE employment in the Arts and Creative sector in New Zealand**



The following table shows FTE employment in the Arts and Creative sector in New Zealand for selected years. The Infometrics online Arts and Creative Sector Profile provides a complete time series of FTE employment from 2000 onwards.

**Table 4: FTE employment in the Arts and Creative sector in New Zealand**

	Arts and Creative			Total New Zealand	
	FTEs	% of total	% change	FTEs	% change
2003	68,793	4.2%	2.8%	1,648,350	2.8%
2008	83,037	4.4%	3.2%	1,901,629	2.2%
2013	83,943	4.4%	1.6%	1,920,629	1.5%
2018	94,553	4.3%	2.8%	2,201,141	3.4%
2019	96,300	4.3%	1.8%	2,263,863	2.8%
2020	98,097	4.2%	1.9%	2,321,579	2.5%
2021	97,665	4.2%	-0.4%	2,329,679	0.3%
2022	100,932	4.2%	3.3%	2,403,991	3.2%
2023	104,530	4.2%	3.6%	2,480,023	3.2%

## How many job openings are forecast in the sector?

Job openings typically arise for two key reasons - business expansion or contraction and people leaving their job. This section draws on Infometrics forecasts (revised in April 2020) to look at job openings arising from new job openings and replacement job openings. Both concepts, along with total job openings are discussed below.

**New job openings** are created when businesses are expanding and are positive about their economic outlook. Conversely job destruction occurs when businesses contract and have a negative perspective of their economic outlook.

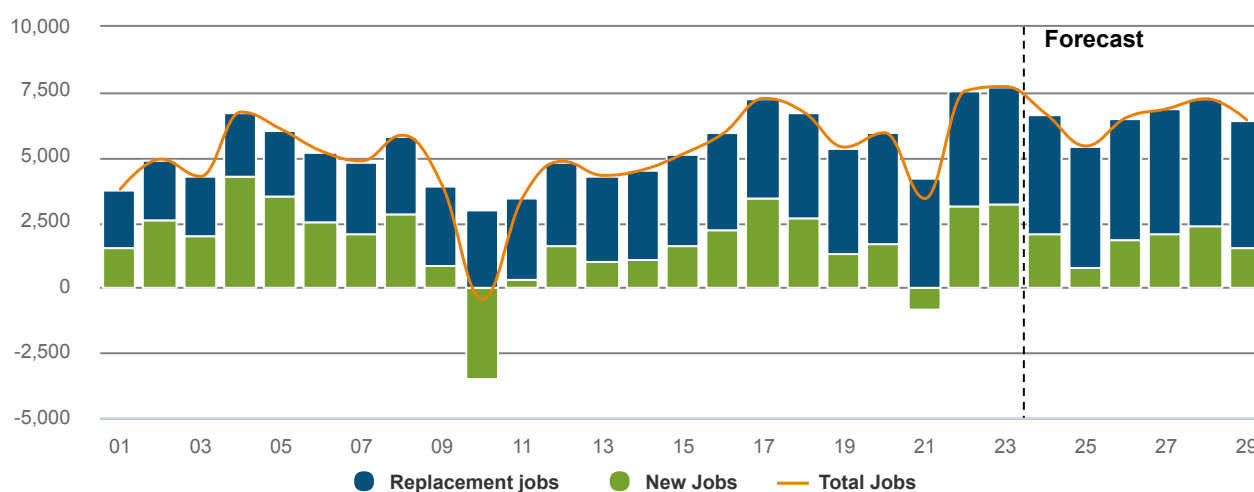
**Replacement job openings** provide an estimate of the net number of job openings in the sector that arise from individuals leaving an occupation (eg, retirement, or migration), net of jobs taken by individuals entering an occupation (eg, returning to the workforce from parental leave).

**Total job openings** estimate overall workers required in a sector as a result of job creation and replacement demand. They are the sum of new job openings and replacement job openings in a given year.

### Total job openings

Infometrics forecasts show 39,144 total job openings in the Arts and Creative sector in New Zealand between 2024 and 2029. Of the forecast 39,144 total job openings, 10,847 are forecast to be new job openings while 28,296 are expected to be due to net replacement job openings.

Figure 5: Job openings in the Arts and Creative sector in New Zealand



The following table shows total job openings in the Arts and Creative sector in New Zealand for selected years. The Infometrics online Arts and Creative Sector Profile provides a complete time series of total job openings from 2001 onwards.

**Table 5: Job openings in the Arts and Creative in New Zealand**

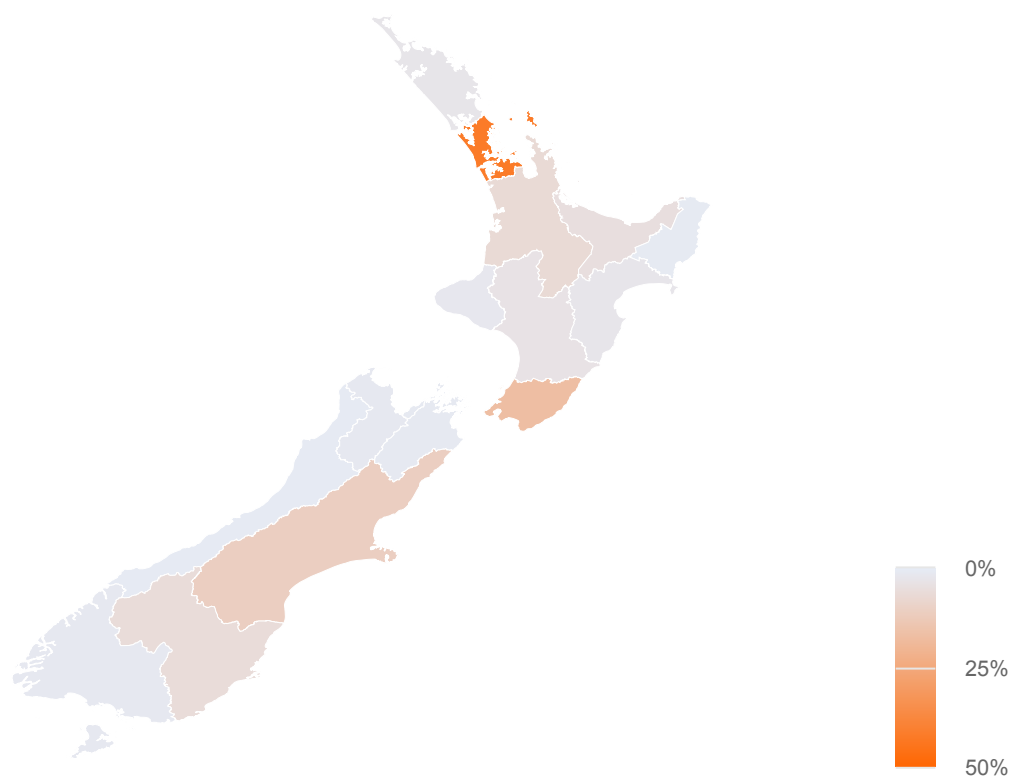
	Arts and Creative				Total New Zealand	
	New jobs	Replacement jobs	TotalJobOpenings	% change	TotalJobOpenings	% change
<b>2003</b>	1,977	2,287	4,264	-13.4%	105,236	-6.7%
<b>2008</b>	2,876	2,964	5,840	20.2%	113,844	0.4%
<b>2013</b>	986	3,315	4,301	-11.2%	102,043	1.5%
<b>2018</b>	2,728	3,994	6,722	-7.3%	177,613	9.0%
<b>2019</b>	1,293	4,094	5,387	-19.9%	160,422	-9.7%
<b>2020</b>	1,725	4,212	5,937	10.2%	167,811	4.6%
<b>2021</b>	-807	4,221	3,414	-42.5%	116,684	-30.5%
<b>2022</b>	3,179	4,363	7,542	121%	187,709	60.9%
<b>2023</b>	3,212	4,496	7,708	2.2%	181,342	-3.4%
<b>2024 (f)</b>	2,089	4,583	6,672	-13.4%	195,036	7.6%
<b>2025 (f)</b>	822	4,609	5,431	-18.6%	132,991	-31.8%
<b>2026 (f)</b>	1,847	4,670	6,517	20.0%	160,618	20.8%
<b>2027 (f)</b>	2,112	4,740	6,852	5.1%	168,108	4.7%
<b>2028 (f)</b>	2,419	4,823	7,242	5.7%	175,751	4.5%
<b>2029 (f)</b>	1,558	4,872	6,430	-11.2%	156,126	-11.2%

## Job openings by region

Forecast total job opening growth is likely to be stronger in some regions than others. Factors contributing to the variation in job opening growth by region include different economic drivers, population growth and age structures as well as resources available.

Auckland is expected to account for 42% of all total job openings in the Arts and Creative sector between 2024 and 2029.

**Figure 6: Regional forecast job openings in the Arts and Creative sector, 2024-2029**



The following table shows forecast regional total job openings in the Arts and Creative sector between 2024 and 2029.

**Table 6: Forecast job openings by region in the Arts and Creative sector, 2024-2029**

	Arts and Creative			Total economy		
	New Jobs	Replacement Jobs	Total job openings	New Jobs	Replacement Jobs	Total job openings
<b>Auckland</b>	4,148	12,206	16,353	88,995	259,892	348,886
<b>Wellington Region</b>	2,028	4,495	6,523	27,350	84,328	111,678
<b>Canterbury Region</b>	1,085	3,105	4,190	34,549	97,703	132,252
<b>Waikato Region</b>	811	1,733	2,543	21,275	66,031	87,305
<b>Otago Region</b>	750	1,494	2,244	16,622	37,962	54,584
<b>Bay of Plenty Region</b>	576	1,299	1,875	17,003	46,671	63,674
<b>Manawatu-Whanganui Region</b>	409	908	1,317	10,281	34,457	44,739
<b>Northland Region</b>	253	673	926	6,397	22,260	28,657
<b>Hawke's Bay Region</b>	241	619	860	7,579	25,115	32,693
<b>Taranaki Region</b>	127	431	558	2,781	16,515	19,296
<b>Southland Region</b>	82	306	388	3,226	15,532	18,759
<b>Tasman Region</b>	154	227	381	2,917	8,038	10,956
<b>Nelson Region</b>	42	292	334	2,101	8,528	10,629
<b>Marlborough Region</b>	107	204	310	2,962	8,284	11,247
<b>Gisborne Region</b>	31	174	205	1,260	6,699	7,959
<b>West Coast Region</b>	5	131	136	810	4,502	5,311
<b>New Zealand</b>	10,847	28,296	39,144	246,109	742,521	988,630

## What is the contribution of the sector to GDP?

Gross Domestic Product (GDP) is a fundamental indicator of a country or sector's economic wellbeing. GDP measures the value added in an industry or sector from the production of goods and services. It essentially measures the value of the land, labour, and capital used in the production process.

### Gross Domestic Product

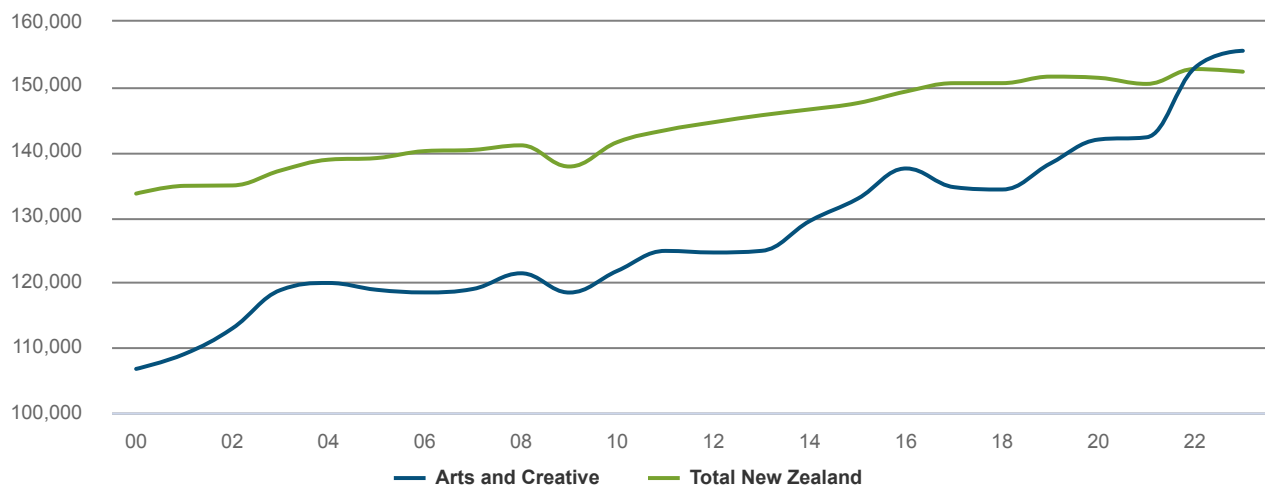
In 2023 the Arts and Creative sector contributed \$16,259m (in 2023 prices) to GDP in New Zealand. This equates to 4.3% of total New Zealand GDP. Key trends in the Arts and Creative sector in New Zealand include:

- GDP in 2023 was up 5.3% from a year earlier. Overall New Zealand GDP grew by 2.9% over the period.
- GDP grew by 4.5%pa over the last 10 years compared with overall New Zealand GDP growth of 3.1%pa.

We can express GDP as a proportion of FTE employment in the Arts and Creative sector to provide an estimate of labour productivity. Growth in labour productivity over time can imply an increase in efficiency and competitiveness.

In 2023 GDP per FTE in the Arts and Creative sector in New Zealand was \$155,539 compared to \$152,331 in the Total New Zealand. GDP per FTE growth in the Arts and Creative sector in the past 10 years has been stronger than overall GDP growth in New Zealand.

**Figure 7: Productivity (GDP/FTE) in New Zealand**



The following table shows GDP (in 2019 prices) and productivity (GDP/FTE) in the Arts and Creative sector in New Zealand for selected years. The Infometrics on-line Arts and Creative Sector Profile provides a complete time series of GDP from 2000 onwards.

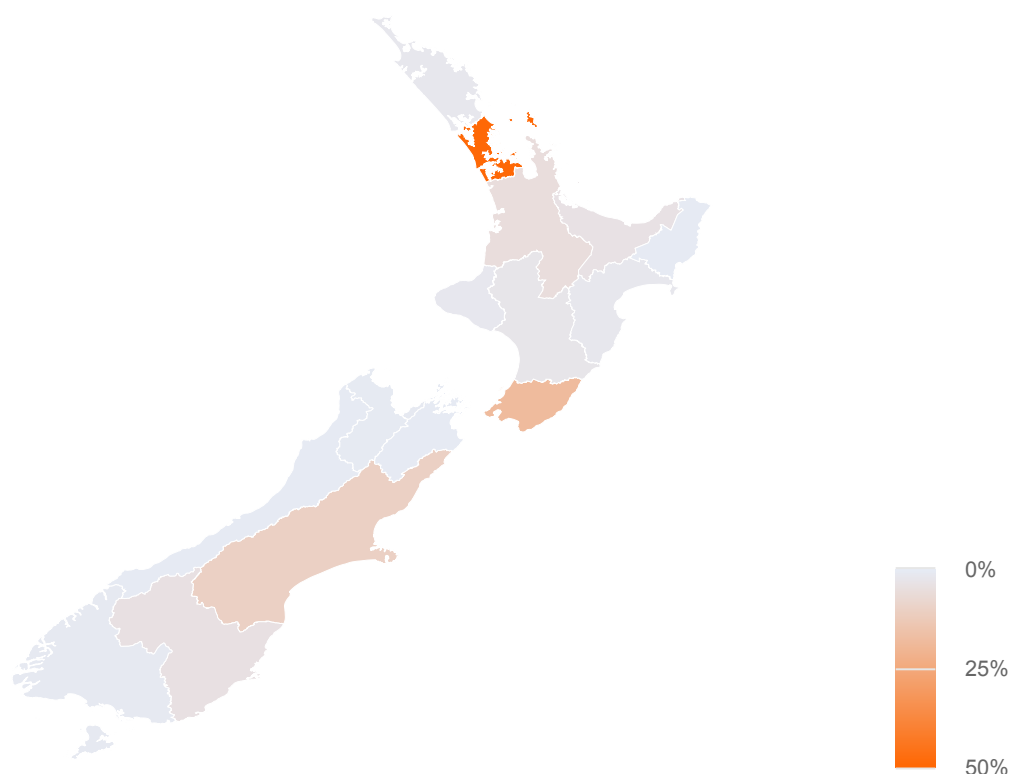
**Table 7: GDP in the Arts and Creative sector in New Zealand**

	Arts and Creative			Total New Zealand		
	GDP (\$m)	% change	GDP/FTE	GDP (\$m)	% change	GDP/FTE
<b>2003</b>	\$8,173m	8.2%	\$118,810	\$226,091m	4.6%	\$137,162
<b>2008</b>	\$10,079m	5.3%	\$121,385	\$268,176m	2.7%	\$141,024
<b>2013</b>	\$10,479m	1.8%	\$124,832	\$279,741m	2.3%	\$145,651
<b>2018</b>	\$12,694m	2.5%	\$134,248	\$331,432m	3.4%	\$150,573
<b>2019</b>	\$13,313m	4.9%	\$138,244	\$343,143m	3.5%	\$151,574
<b>2020</b>	\$13,922m	4.6%	\$141,918	\$351,465m	2.4%	\$151,390
<b>2021</b>	\$13,894m	-0.2%	\$142,263	\$350,520m	-0.3%	\$150,458
<b>2022</b>	\$15,435m	11.1%	\$152,921	\$367,183m	4.8%	\$152,739
<b>2023</b>	\$16,259m	5.3%	\$155,539	\$377,784m	2.9%	\$152,331

## Regional GDP

GDP varies by region due to a number of factors including the size of the workforce, resources available and technology used. In the Arts and Creative sector, Auckland accounted for 48.8% of overall GDP in 2023.

**Figure 8: Regional share of GDP in the Arts and Creative sector, 2023**





The following table shows regional distribution of GDP (in 2023 prices) in the Arts and Creative sector in 2023.

**Table 8: GDP by region in the Arts and Creative sector, 2023**

	Arts and Creative		Total economy	
	GDP	% of NZ	GDP	% of NZ
<b>Auckland</b>	\$7,940m	48.8%	\$143,042m	37.9%
<b>Wellington Region</b>	\$2,936m	18.1%	\$50,174m	13.3%
<b>Canterbury Region</b>	\$1,623m	10.0%	\$46,698m	12.4%
<b>Waikato Region</b>	\$835m	5.1%	\$32,789m	8.7%
<b>Otago Region</b>	\$644m	4.0%	\$16,727m	4.4%
<b>Bay of Plenty Region</b>	\$577m	3.5%	\$20,597m	5.5%
<b>Manawatu-Whanganui Region</b>	\$383m	2.4%	\$14,376m	3.8%
<b>Northland Region</b>	\$272m	1.7%	\$9,727m	2.6%
<b>Hawke's Bay Region</b>	\$269m	1.7%	\$10,321m	2.7%
<b>Taranaki Region</b>	\$216m	1.3%	\$10,174m	2.7%
<b>Southland Region</b>	\$143m	0.9%	\$7,619m	2.0%
<b>Nelson Region</b>	\$120m	0.7%	\$3,443m	0.9%
<b>Tasman Region</b>	\$86.2m	0.5%	\$3,115m	0.8%
<b>Marlborough Region</b>	\$80.0m	0.5%	\$3,848m	1.0%
<b>Gisborne Region</b>	\$69.6m	0.4%	\$2,541m	0.7%
<b>West Coast Region</b>	\$62.7m	0.4%	\$2,594m	0.7%
<b>New Zealand</b>	\$16,259m		\$377,784m	

## How large are businesses in the sector?

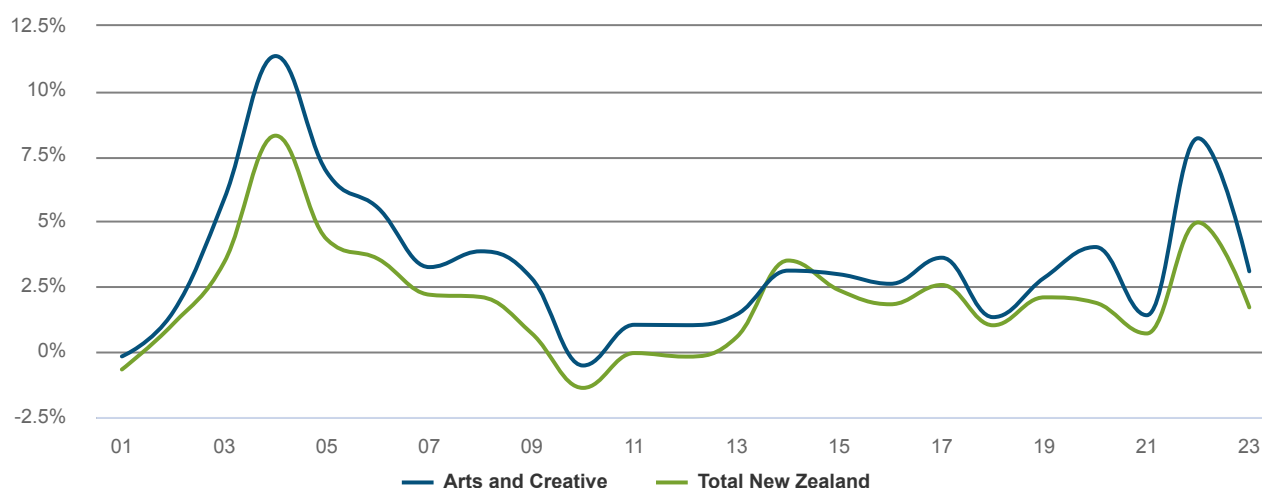
The majority of businesses in New Zealand are small to medium enterprises (SMEs). The number and size of business units in a sector is largely influenced by both the sector's direct economic exposure as well as the typical size of business units within that sector. This section looks the number and size of businesses in the Arts and Creative sector in New Zealand.

Growth in the number of businesses is an indicator of entrepreneurial activity. It indicates an environment in which entrepreneurs are prepared to take risks to start new ventures. For example, positive growth in the number of businesses in a sector reflects increased entrepreneurial activity and economic activity as entrepreneurs are prepared to take risks and start new ventures. Conversely, a decline in the number of businesses indicates that firms have a pessimistic future outlook.

In 2023 there were 37,157 businesses in the Arts and Creative sector in New Zealand. Key trends include:

- The number of businesses in the sector grew by 3.1% in 2023 compared with a growth of 1.7% in the total economy.
- Average business growth in the sector over the past 10 years was 3.3%pa. Over the same period the overall number of businesses in New Zealand grew by 2.3%pa.

**Figure 9: Business growth in New Zealand**



The following table shows the number of businesses in the Arts and Creative sector in New Zealand for selected years. The Infometrics on-line Arts and Creative Sector Profile provides a complete time series of businesses from 2000 onwards.

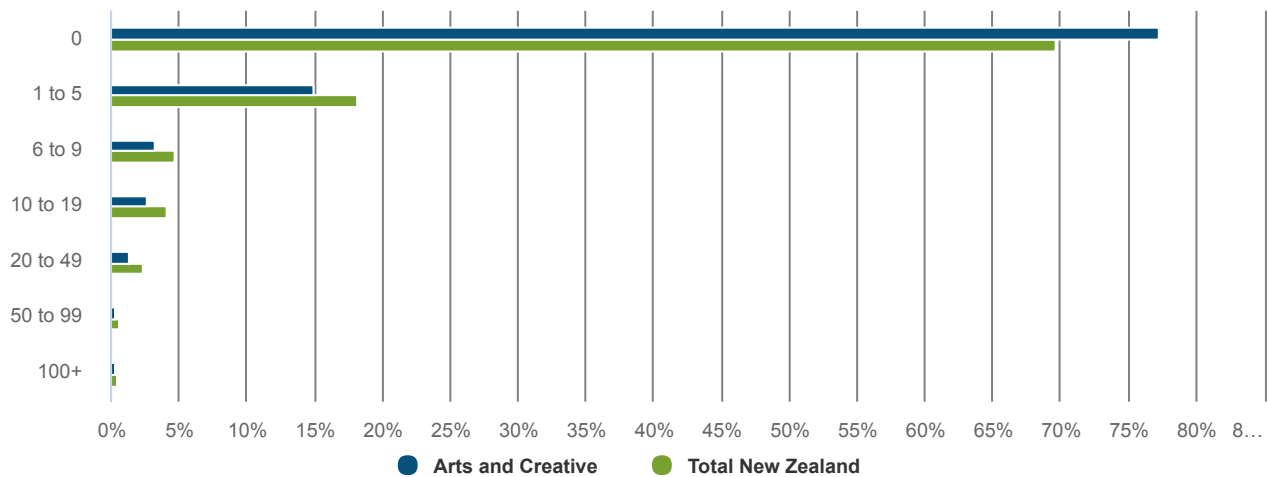
**Table 9: Businesses in the Arts and Creative sector in New Zealand**

	Arts and Creative		Total New Zealand	
	Business Units	% change	Business Units	% change
2003	18,820	5.9%	421,848	3.5%
2008	25,348	3.9%	515,010	2.1%
2013	26,842	1.4%	513,225	0.6%
2018	30,707	1.3%	573,681	1.0%
2019	31,581	2.8%	585,678	2.1%
2020	32,851	4.0%	596,715	1.9%
2021	33,313	1.4%	600,924	0.7%
2022	36,044	8.2%	630,765	5.0%
2023	37,157	3.1%	641,529	1.7%

As well as being a contributor to the economic performance of a sector, the size of businesses is also considered to be an indicator of innovation with larger firms having the capacity and structures to better support innovation.

In 2023 SMEs accounted for 98.1% of all employment in the Arts and Creative sector in New Zealand.

**Figure 10: Businesses by number of employees in New Zealand, 2023**



Further detailed information about business size is available in the Infometrics online Arts and Creative Sector Profile.

# OCCUPATIONS AND SKILLS

Occupations are a set of jobs whose main tasks are characterised by a high degree of similarity. Occupations provide the basis for understanding the broad skill level of the workforce. In this section we examine the current, historical and future occupation and skill makeup of workers in the Arts and Creative sector in New Zealand. To do this we draw on the Australian and New Zealand Standard Classification of Occupations (ANZSCO). An outline of ANZSCO is provided at the end of this report.

## What is the broad occupational makeup of workers in the sector?

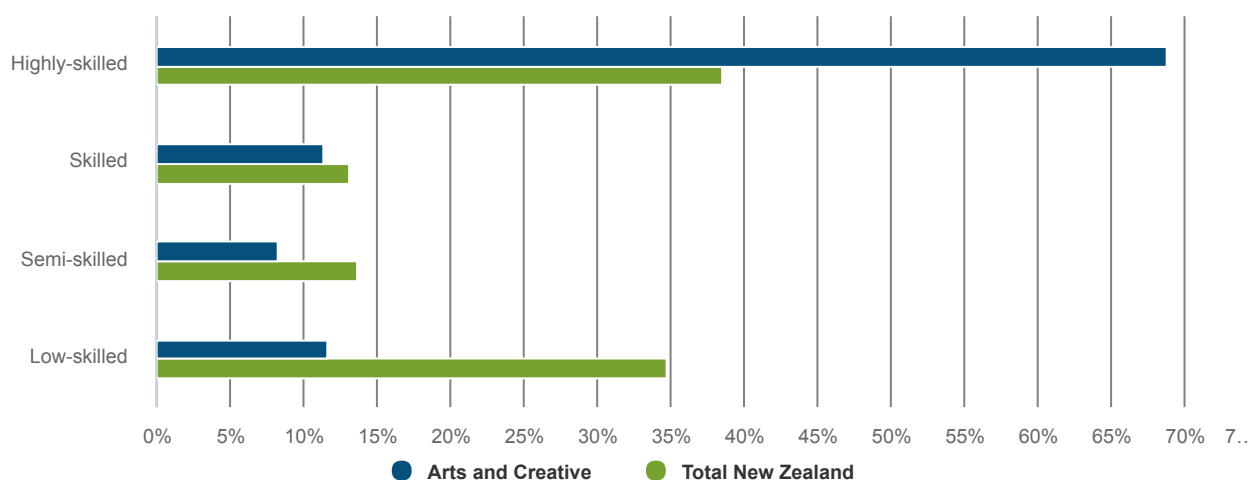
Within a sector, people can perform a diverse range of tasks as part of their job. Occupation categories group the main tasks associated with similar jobs to enable analysis, and can provide a good indication of the broad skill level required to perform these tasks.

### Employment by skill level

Each occupation classification has an ideal skill level that industry have identified as desirable for people to competently carry out the tasks in their role. Grouping occupational classifications by desired skill level provides a high level overview of the the skills required across different sectors.

Approximately 68.8% of the Arts and Creative sector workforce in New Zealand were employed in Highly-skilled occupations in 2023. This is higher than for all occupations in New Zealand (38.4%).

**Figure 11: Employment by skill level in New Zealand, 2023**



The following table shows how Highly-skilled employment in the Arts and Creative sector in New Zealand has changed over time. The Infometrics online Arts and Creative Sector Profile provides a complete time series of employment by all broad skill levels from 2000 onwards.

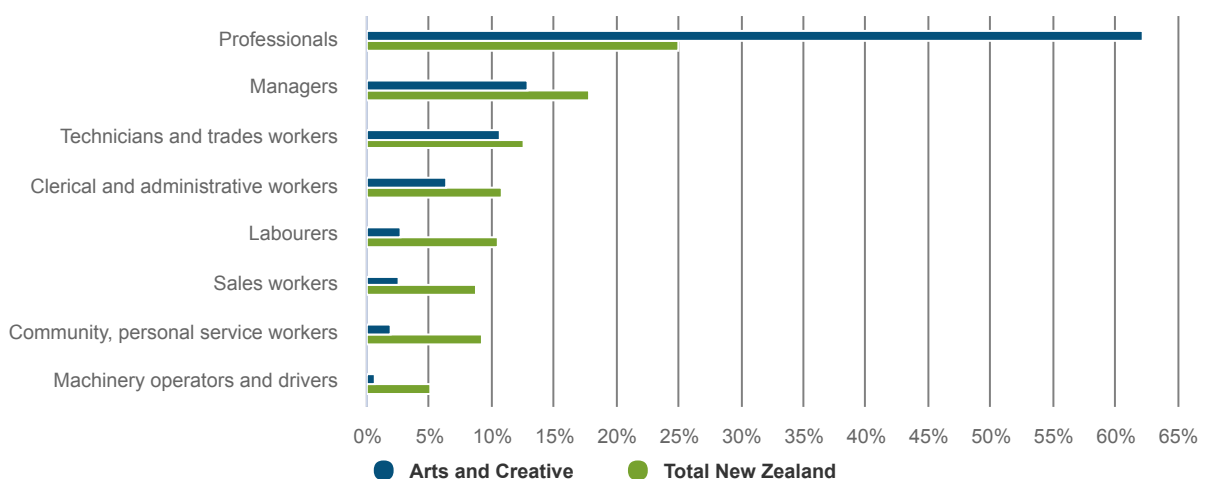
**Table 10: Highly-skilled employment in the Arts and Creative sector in New Zealand**

	Arts and Creative			Total New Zealand		
	Employment	% change	% of total	Employment	% change	% of total
<b>2003</b>	48,107	4.2%	58.5%	627,758	4.0%	32.7%
<b>2008</b>	60,799	4.0%	62.4%	761,164	2.7%	34.8%
<b>2013</b>	63,934	2.1%	65.4%	816,244	2.1%	37.1%
<b>2018</b>	73,308	3.1%	67.3%	938,073	3.5%	37.5%
<b>2019</b>	74,654	1.8%	67.7%	962,006	2.6%	37.7%
<b>2020</b>	76,182	2.0%	68.1%	988,069	2.7%	37.8%
<b>2021</b>	76,273	0.1%	68.6%	998,567	1.1%	38.1%
<b>2022</b>	78,668	3.1%	68.8%	1,031,121	3.3%	38.3%
<b>2023</b>	80,830	2.7%	68.8%	1,058,756	2.7%	38.4%

## Employment by broad occupation

The ANZSCO classification of occupations is broken into five levels. The one-digit occupation classification groups employment into eight broad occupations. The largest broad (one-digit) occupation in the Arts and Creative sector in New Zealand in 2023 was Professionals, with 73,010 jobs (62.1% of all employment in the sector). In 2023 the Arts and Creative sector accounted for 24.9% of all Professionals employed in New Zealand.

**Figure 12: Employment by broad occupation in New Zealand, 2023**



There are 43 two-digit occupations in occupational classifications. The following table looks at employment in the key two-digit occupations in the Arts and Creative sector in 2023. Further details and timeseries data can be found in the Infometrics online Arts and Creative Sector Profile.

**Table 11: Employment by 2-digit occupation in the Arts and Creative sector in New Zealand, 2023**

	Arts and Creative		Total New Zealand	
	Employment	% of total	Employment	% of total
<b>Design, Engineering, Science Professionals</b>	27,199	23.1%	99,510	3.6%
<b>Arts &amp; Media Professionals</b>	24,675	21.0%	25,161	0.9%
<b>Business, HR &amp; Marketing Professionals</b>	11,048	9.4%	151,635	5.5%
<b>Specialist Managers</b>	10,918	9.3%	233,278	8.5%
<b>Other Technicians &amp; Trades Workers</b>	7,743	6.6%	41,934	1.5%
<b>All Others</b>	35,934	30.6%	2,202,083	80.0%
<b>Total</b>	117,517	100%	2,753,601	100%

## What are the top detailed occupations in the sector?

At the most detailed level there are around 1,000 occupational classifications. These classifications capture the specific roles undertaken in the economy. Understanding the detailed occupational makeup of a sector provides valuable insights into the key roles and activities performed.

The top five occupations in the Arts and Creative sector in New Zealand accounted for 27.4% of overall employment in the sector in 2023. Employment in all five of the top five occupations grew between 2018 and 2023.

The following table provides a breakdown of occupational employment in the Arts and Creative sector in New Zealand in 2023. The Infometrics online Arts and Creative Sector Profile provides a complete time series of employment by detailed occupation from 2000 onwards.

**Table 12: Employment by 6-digit occupation in the Arts and Creative sector in New Zealand, 2023**

	Arts and Creative		Total New Zealand	
	Employment	% of total	Employment	% of total
<b>Graphic Designer</b>	8,208	7.0%	8,208	0.3%
<b>Architect</b>	7,722	6.6%	7,722	0.3%
<b>Advertising and Public Relations Manager</b>	6,307	5.4%	6,307	0.2%
<b>Librarian</b>	5,946	5.1%	5,946	0.2%
<b>Music Teacher (Private Tuition)</b>	4,035	3.4%	4,035	0.1%
<b>All Others</b>	85,299	72.6%	2,721,382	98.8%
<b>Total</b>	117,517	100%	2,753,601	100%

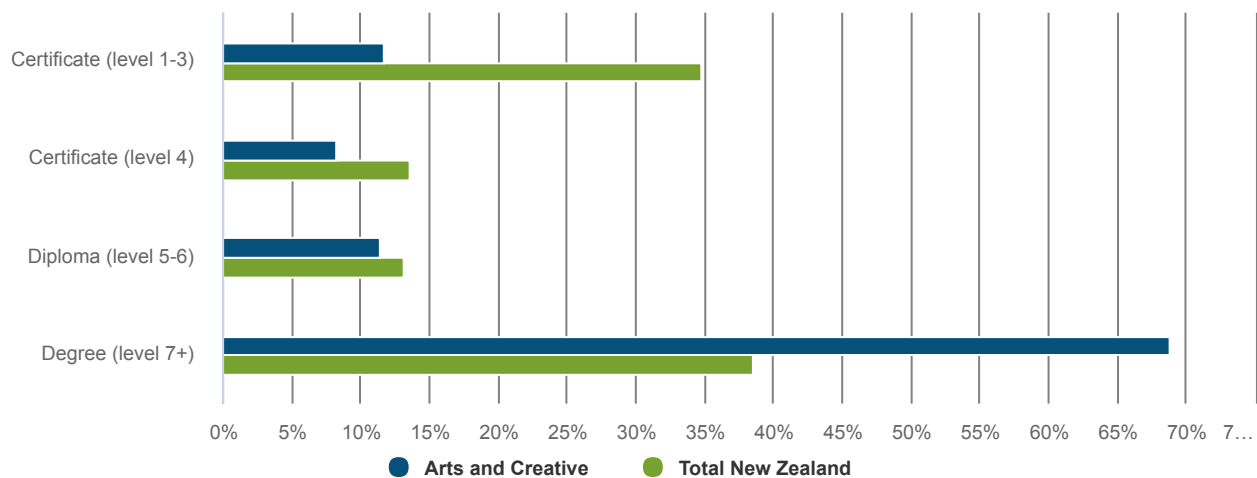
## What qualifications do workers entering the sector need?

Gaining insights into the types of qualifications in demand in a sector and how they relate to skill levels can be useful in identifying and addressing skills gaps.

The Infometrics estimates of qualifications are derived from our occupational estimates by using information by industry (via occupational classifications) about the types of qualifications that are ideally required in each occupation. Our estimates therefore do not describe the educational profile of the sector's actual workforce and instead highlight the type of qualifications that are ideally required. For information about the qualification makeup of workers in the Arts and Creative sector refer to the Demographics section of this report.

Employers in the Arts and Creative in New Zealand ideally require people with a Degree (level 7+).

**Figure 13: Qualifications of workers in New Zealand, 2023**



The following table shows the ideal qualification level and field of study of workers in the Arts and Creative sector in New Zealand in 2023 is a Degree (level 7+) in Creative Arts. A full timeseries of the data in the table back to 2000 is available in the Infometrics online Arts and Creative Sector Profile.

**Table 13: Employment by qualification required and field of study in the Arts and Creative sector in New Zealand, 2023**

	Arts and Creative					Total New Zealand				
	Certificate (level 1-3)	Certificate (level 4)	Diploma (level 5-6)	Degree (level 7+)	Total	Certificate (level 1-3)	Certificate (level 4)	Diploma (level 5-6)	Degree (level 7+)	Total
Natural and Physical Sciences	129	74	176	3,760	4,139	17,277	2,287	10,259	82,854	112,676
Information Technology	854	48	228	2,350	3,480	43,870	2,511	10,677	41,360	98,418
Engineering and Related Technologies	1,352	2,844	1,779	4,187	10,163	155,989	141,825	44,338	109,602	451,754
Architecture and Building	476	2,146	3,535	9,363	15,520	52,531	79,136	19,040	28,459	179,166
Agriculture, Environmental and Related Studies	568	306	173	649	1,696	74,785	19,276	7,546	28,222	129,828
Health	1,063	184	738	1,728	3,712	66,808	12,486	37,208	149,105	265,606
Education	769	145	513	4,671	6,098	40,675	15,995	18,736	139,415	214,822
Management and Commerce	4,483	544	2,093	11,492	18,612	230,409	36,923	115,307	237,217	619,855
Society and Culture	1,634	249	685	15,873	18,442	110,421	15,561	41,006	179,279	346,268
Creative Arts	681	2,256	3,194	26,667	32,797	31,931	8,706	24,528	62,043	127,208
Food, Hospitality and Personal Services	1,656	827	284	90	2,858	132,682	40,149	33,969	1,199	207,999
<b>Total</b>	<b>13,666</b>	<b>9,624</b>	<b>13,397</b>	<b>80,830</b>	<b>117,517</b>	<b>957,378</b>	<b>374,855</b>	<b>362,613</b>	<b>1,058,756</b>	<b>2,753,601</b>



## What jobs are forecast in the sector between 2024 and 2029?

Job openings typically arise for two key reasons - business expansion or contraction and people leaving their job. This section draws on Infometrics forecasts (revised in April 2020) to look at job openings arising from new job openings and replacement job openings. Both concepts, along with total job openings are discussed below.

**New job openings** are created when businesses are expanding and are positive about their economic outlook. Conversely job destruction occurs when businesses contract and have a negative perspective of their economic outlook.

**Replacement job openings** provide an estimate of the net number of job openings in the sector that arise from individuals leaving an occupation (eg, retirement, or migration), net of jobs taken by individuals entering an occupation (eg, returning to the workforce from parental leave).

**Total job openings** estimate overall workers required in a sector as a result of job creation and replacement demand. They are the sum of new job openings and replacement job openings in a given year.

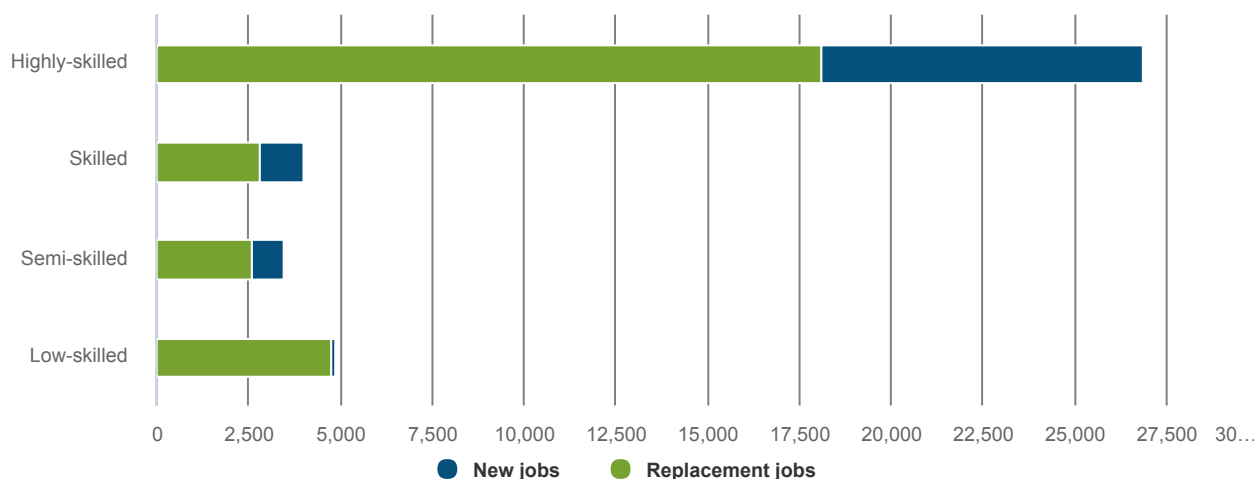
Infometrics estimates there will be 39,144 total job openings in the Arts and Creative sector between 2024 and 2029. Of these job openings:

- 27.7% are likely to be due to new job growth
- 72.3% are likely to be due to net replace demand.

### Forecast job openings

Of the estimated 39,144 job openings between 2024 and 2029, Infometrics estimates that 68.6% are likely to be Highly-skilled jobs.

**Figure 14: Forecast job openings by skill level in the Arts and Creative sector in New Zealand, 2024-2029**

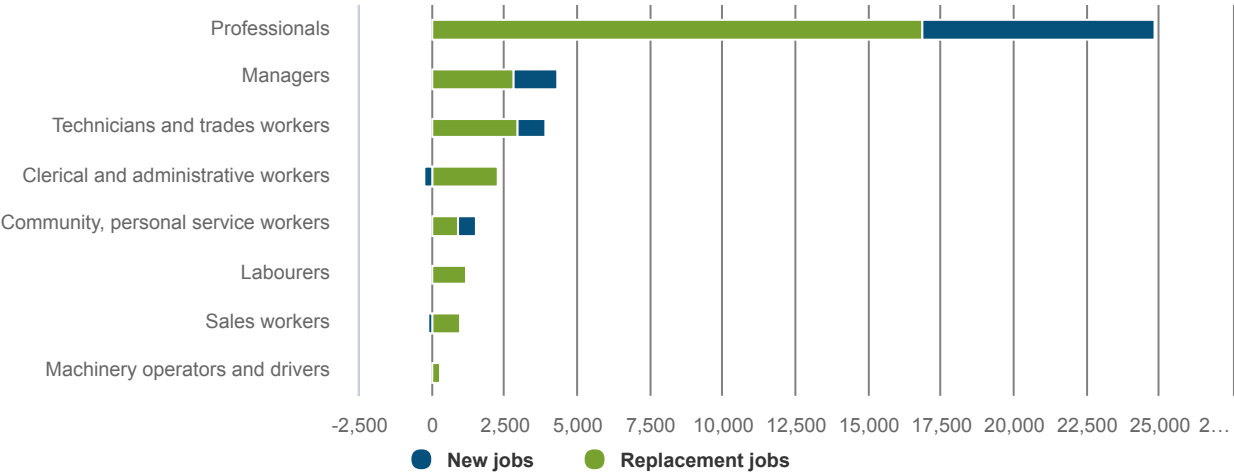


### Job openings by broad occupation

The largest broad (level 1) occupation with job openings in the Arts and Creative sector between 2024 and 2029 is likely to be Professionals, accounting for 63.5% of job openings in the sector. The majority (67.9% of Professionals job openings are expected to be replacement job openings.

A detailed breakdown of annual forecast job openings by broad occupation in the Arts and Creative sector in New Zealand can be found in the Infometrics online Arts and Creative Sector Profile.

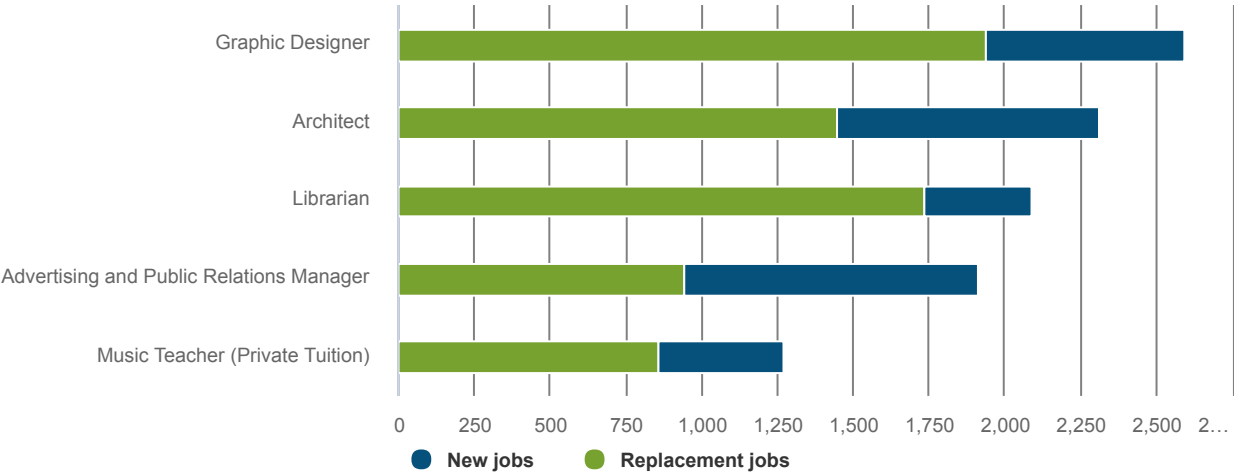
Figure 15: Forecast job openings by broad occupation in the Arts and Creative sector in New Zealand, 2024-2029



Forecast job openings by detailed occupation

The top five detailed occupations in the Arts and Creative sector in New Zealand are expected to account for 26.0% of all job openings between 2024 and 2029. Replacement job openings for these are expected to make up 17.7% of overall job openings in this sector.

Figure 16: Forecast job openings by detailed occupation in the Arts and Creative sector in New Zealand, 2024-2029



The following table shows forecast total job openings by detailed occupation in the Arts and Creative sector in New Zealand between 2024 and 2029. A detailed breakdown of annual forecast job openings by detailed occupation can be found in the Infometrics online Arts and Creative Sector Profile.

**Table 14: Forecast employment and job openings in the Arts and Creative sector in New Zealand by detailed occupation, 2024-2029**

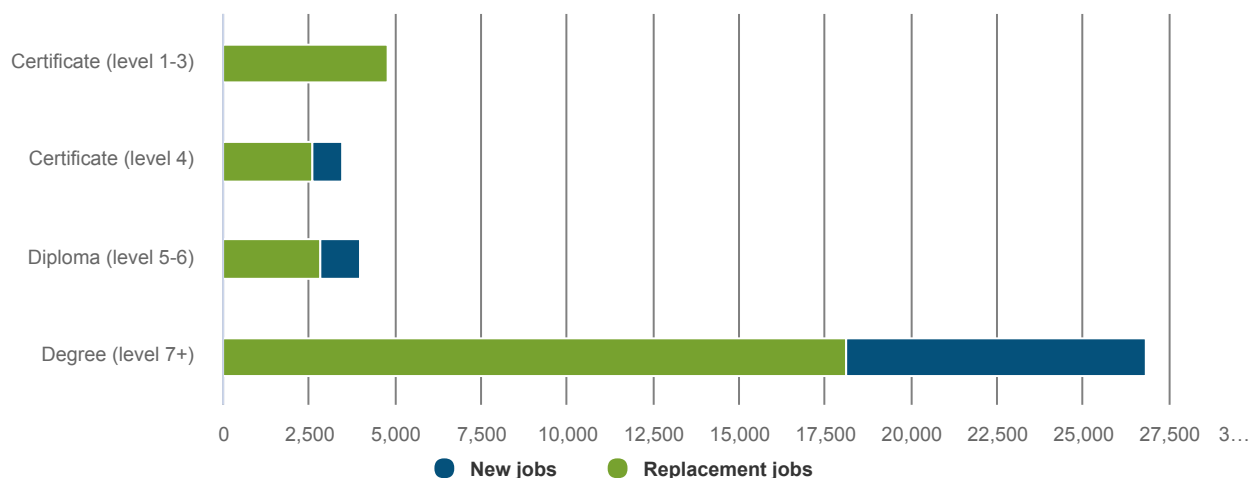
	Arts and Creative					Total New Zealand
	Employment 2023	Employment 2029	New jobs	Replacement jobs	Total job openings	Total job openings
<b>Graphic Designer</b>	8,208	8,866	658	1,935	2,593	2,593
<b>Architect</b>	7,722	8,584	862	1,450	2,312	2,312
<b>Advertising and Public Relations Manager</b>	6,307	7,273	965	946	1,911	1,911
<b>Librarian</b>	5,946	6,296	350	1,738	2,088	2,088
<b>Music Teacher (Private Tuition)</b>	4,035	4,443	408	860	1,268	1,268
<b>All others</b>	85,298	92,902	7,604	21,368	28,971	878,770

## What qualifications are workers in the sector likely to require in the future?

It is useful for learners, prospective employees and employers to know about the types of qualifications that are going to be in demand through job openings in their area of interest.

In the Arts and Creative sector in New Zealand there are likely to be 26,841 Degree (level 7+) between 2024 and 2029. Job openings at Degree (level 7+) account for 68.6% of all job openings in the sector over the period. Most of these job openings are expected to be replacement job openings (18,095 jobs).

Figure 17: Forecast job openings by qualification level in the Arts and Creative sector in New Zealand, 2024-2029



The following table shows the ideal qualifications and fields of study that employers are likely to require in the Arts and Creative sector in New Zealand between 2024 and 2029.

Table 15: Job openings by qualification required and field of study in the Arts and Creative sector in New Zealand, 2024-2029

	Arts and Creative					Total New Zealand				
	Certificate (level 1-3)	Certificate (level 4)	Diploma (level 5-6)	Degree (level 7+)	Total	Certificate (level 1-3)	Certificate (level 4)	Diploma (level 5-6)	Degree (level 7+)	Total
Natural and Physical Sciences	-1	9	6	456	470	1,155	189	1,091	9,121	11,556
Information Technology	-14	5	9	307	307	2,483	148	1,052	6,009	9,692
Engineering and Related Technologies	-9	258	110	491	851	9,167	9,591	5,049	12,832	36,639
Architecture and Building	24	135	352	960	1,471	2,885	206	2,236	1,098	6,425
Agriculture, Environmental and Related Studies	14	30	14	83	140	4,334	1,490	819	1,416	8,059
Health	51	35	72	238	396	7,359	1,532	4,574	22,811	36,276
Education	-9	37	36	580	645	2,811	2,247	1,918	14,834	21,811
Management and Commerce	-98	77	171	1,130	1,280	10,944	3,023	10,714	21,167	45,849
Society and Culture	42	44	84	1,640	1,810	11,662	1,949	5,776	20,105	39,492
Creative Arts	-6	94	304	2,851	3,243	1,895	412	2,662	6,001	10,969
Food, Hospitality and Personal Services	70	125	30	11	235	9,224	5,523	4,515	80	19,342
<b>Total</b>	<b>64</b>	<b>850</b>	<b>1,187</b>	<b>8,746</b>	<b>10,847</b>	<b>63,919</b>	<b>26,310</b>	<b>40,406</b>	<b>115,473</b>	<b>246,109</b>

# DEMOGRAPHIC PROFILE OF WORKERS

A workforce that has a diverse makeup, experience, and opinions is likely to have the ability to make higher quality decisions. This section looks at diversity in the the Arts and Creative sector in New Zealand by examining the demographic makeup of the workforce in terms of age, ethnicity, gender, country of birth, hours worked and highest qualifications.

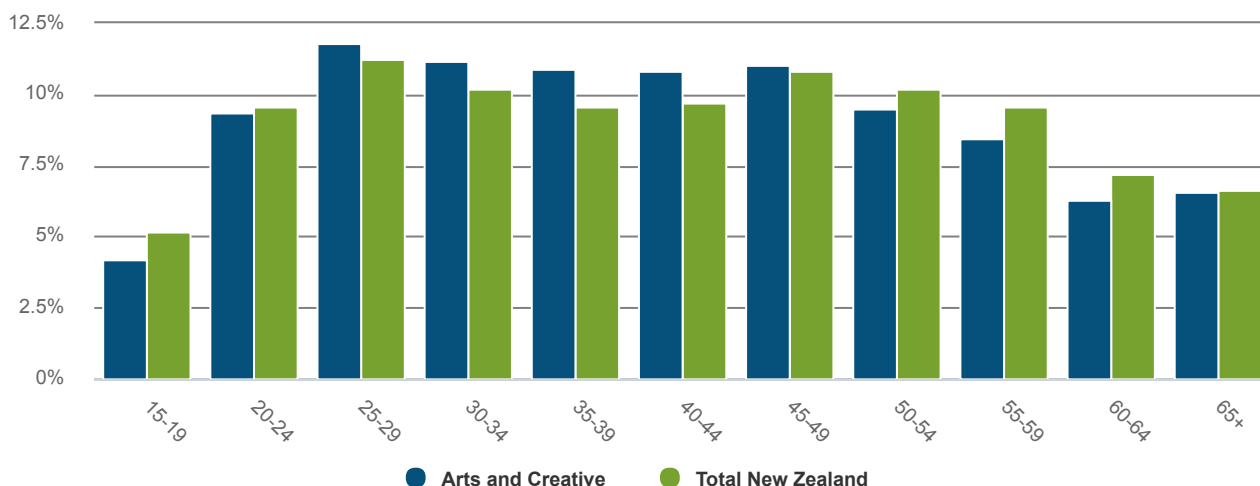
## What is the age profile of workers in the sector?

The age profile of a sector can provide valuable insights into the current and future skill needs of a sector.

For example, a sector with an older age profile can indicate that the workforce is more likely to have fewer formal qualifications and more on-job experience than a sector with a more youthful age profile. An older age profile could also indicate a more immediate need to replace workers who may retire or are more likely to leave the workforce in the coming years.

Workers in the Arts and Creative sector in New Zealand have a slightly younger average age profile than all workers in New Zealand. In 2018 the average of Arts and Creative workers was 42.0 years, compared with 42.4 years for all workers in New Zealand.

**Figure 18: Age of workers in New Zealand, 2018**



The average age of workers in the Arts and Creative sector in New Zealand fell by 0.1 years between 2013 and 2018. Over the same period the overall average age of workers in New Zealand fell by 0.6 years.

The following table shows the age profile of workers in the Arts and Creative sector in New Zealand in 2013 and 2018.

**Table 16: Employment by age in the Arts and Creative sector in New Zealand**

	Arts and Creative				Total New Zealand	
	Employment		Share Of Total		Share Of Total	
	2013	2018	2013	2018	2013	2018
<b>15-19 Years</b>	4,145	4,558	4.2%	4.2%	4.7%	5.1%
<b>20-24 Years</b>	8,942	10,227	9.1%	9.4%	9.0%	9.6%
<b>25-29 Years</b>	9,949	12,818	10.2%	11.8%	9.1%	11.2%
<b>30-34 Years</b>	10,565	12,149	10.8%	11.2%	9.2%	10.2%
<b>35-39 Years</b>	11,229	11,868	11.5%	10.9%	9.9%	9.6%
<b>40-44 Years</b>	12,086	11,780	12.4%	10.8%	11.8%	9.7%
<b>45-49 Years</b>	10,976	12,012	11.2%	11.0%	11.8%	10.8%
<b>50-54 Years</b>	9,979	10,348	10.2%	9.5%	11.7%	10.2%
<b>55-59 Years</b>	8,093	9,186	8.3%	8.4%	9.6%	9.6%
<b>60-64 Years</b>	6,312	6,825	6.5%	6.3%	7.4%	7.2%
<b>65 years and over</b>	5,520	7,143	5.6%	6.6%	5.8%	6.6%

## What is the ethnic makeup of workers in the sector?

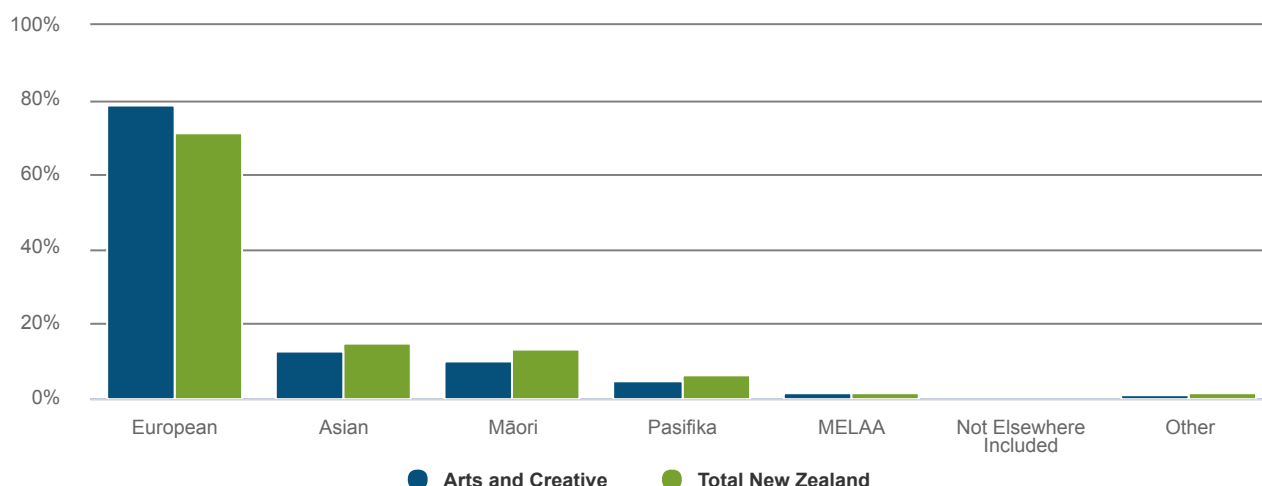
Understanding the ethnic composition of a workforce can be important in terms of improving innovation and productivity levels.

Different ethnic groups can bring diverse perspectives to employment, which when supported, can help support innovation. Similarly, workers from different ethnicities may require different types of in-work support to achieve their productive potential.

In 2018, workers in the Arts and Creative sector in New Zealand were:

- less likely to be Maori than workers overall
- less likely to be Pasifika than workers overall
- less likely to be Asian than workers overall

**Figure 19: Ethnicity of workers in New Zealand, 2018**



The share of European ethnicity in the Arts and Creative sector in New Zealand grew from 82.9% in 2013 to 78.5% in 2018. The following table shows the broad ethnicity of workers in the Arts and Creative sector in New Zealand in 2013 and 2018.

**Table 17: Employment by ethnicity in the Arts and Creative sector in New Zealand**

	Arts and Creative				Total New Zealand	
	Employment		Share Of Total		Share Of Total	
	2013	2018	2013	2018	2013	2018
<b>European</b>	81,118	85,536	82.9%	78.5%	77.2%	71.4%
<b>Asian</b>	8,669	13,859	8.9%	12.7%	11.0%	15.1%
<b>Māori</b>	8,696	11,283	8.9%	10.4%	11.1%	13.5%
<b>Pasifika</b>	3,643	5,161	3.7%	4.7%	4.9%	6.5%
<b>MELAA</b>	922	1,723	0.9%	1.6%	1.0%	1.4%
<b>Not Elsewhere Included</b>	353	0	0.4%	0%	0.4%	0%
<b>Other</b>	1,873	1,446	1.9%	1.3%	2.0%	1.4%

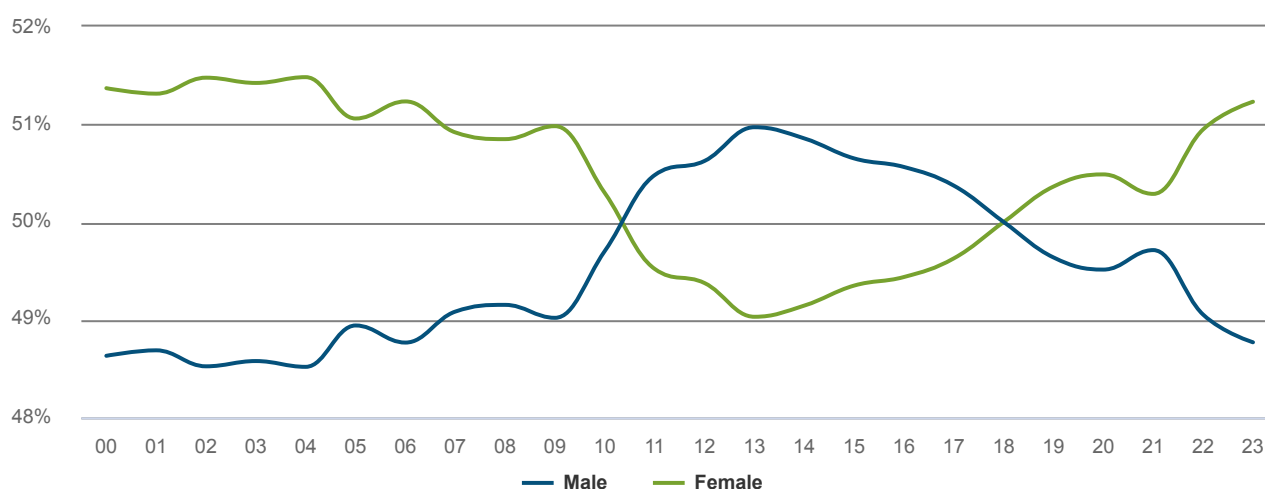
## What is the gender balance of the sector?

Males and females can bring different approaches and insights to the workforce.

### Share of employment by gender

This section looks at how the gender profile of the Arts and Creative sector in New Zealand has changed over time. The share of female employment in the Arts and Creative sector in New Zealand increased from 50.8% in 2008 to 51.2% in 2023.

**Figure 20: Employment by gender in the Arts and Creative sector in New Zealand**



The following table shows the gender makeup of workers in the Arts and Creative sector in New Zealand for selected years. A full timeseries of employment by gender in the Arts and Creative sector from 2000 is available in the Infometrics online Arts and Creative Sector Profile.

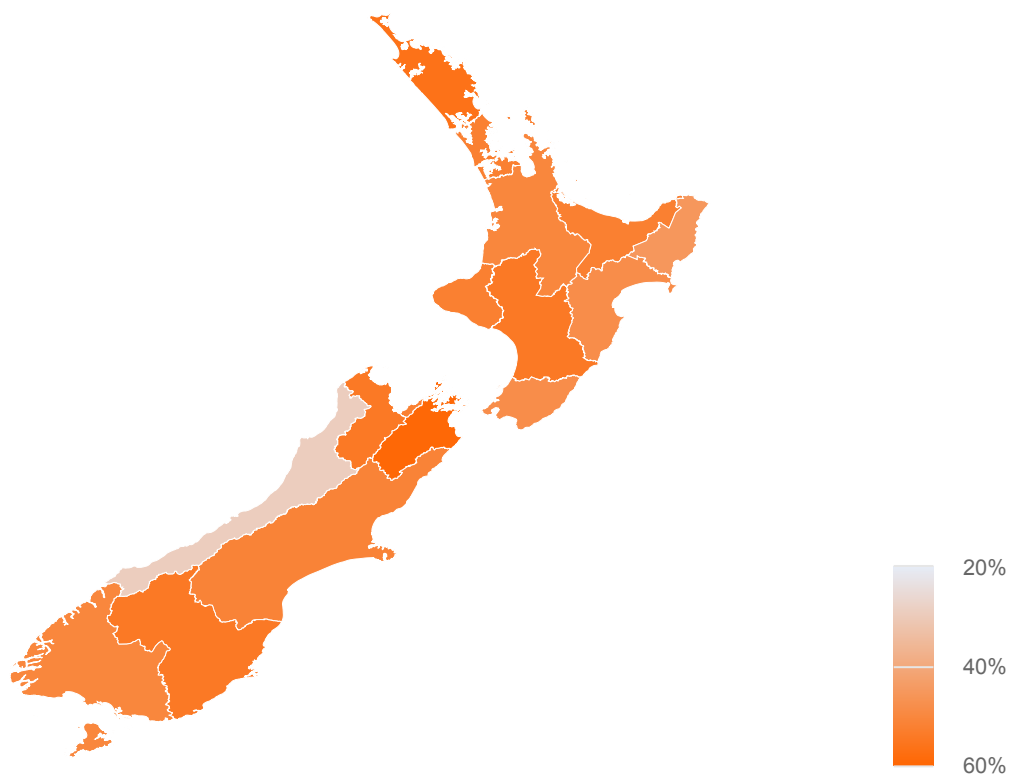
**Table 18: Change in employment by gender in the Arts and Creative sector in New Zealand**

	Arts and Creative				Total New Zealand	
	Employment		% share			
	Male	Female	Male	Female	Male	Female
<b>2003</b>	39,927	42,267	48.6%	51.4%	54.0%	46.0%
<b>2008</b>	47,901	49,554	49.2%	50.8%	53.2%	46.8%
<b>2013</b>	49,845	47,948	51.0%	49.0%	52.3%	47.7%
<b>2018</b>	54,458	54,458	50.0%	50.0%	53.0%	47.0%
<b>2019</b>	54,704	55,505	49.6%	50.4%	52.7%	47.3%
<b>2020</b>	55,422	56,512	49.5%	50.5%	52.7%	47.3%
<b>2021</b>	55,244	55,883	49.7%	50.3%	52.9%	47.1%
<b>2022</b>	56,069	58,236	49.1%	50.9%	52.4%	47.6%
<b>2023</b>	57,312	60,205	48.8%	51.2%	52.2%	47.8%

## Regional employment by gender

Female employment in the Arts and Creative sector is highest in Auckland. The following map shows how the percentage of female workers in the Arts and Creative sector varies by region.

**Figure 21: Female share of employment in the Arts and Creative sector, 2023**





The following table provides supporting information on the gender balance of workers in the Arts and Creative sector in 2023. Data showing the regional gender makeup of workers in the Arts and Creative sector from 2000 is available in the Infometrics online Arts and Creative Sector Profile.

**Table 19: Regional employment by gender in the Arts and Creative sector, 2023**

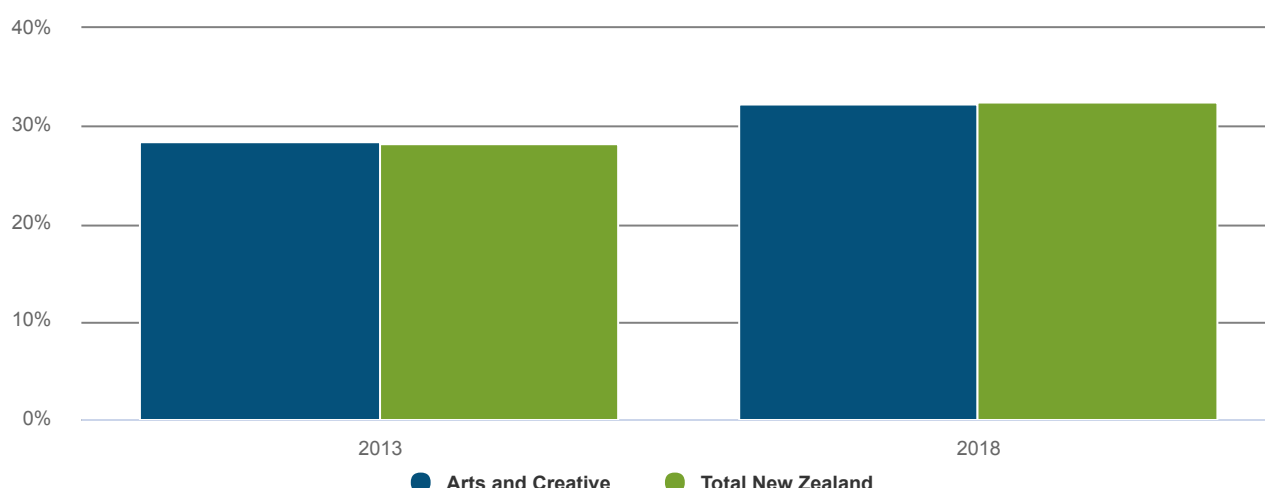
	Arts and Creative				Total economy	
	Employment		% share		% share	
	Male	Female	Male	Female	Male	Female
<b>Auckland</b>	25,167	26,800	48.0%	52.0%	52.0%	48.0%
<b>Bay of Plenty Region</b>	2,586	2,820	48.0%	52.0%	52.0%	48.0%
<b>Canterbury Region</b>	6,355	6,639	49.0%	51.0%	53.0%	47.0%
<b>Gisborne Region</b>	395	324	55.0%	45.0%	53.0%	47.0%
<b>Hawke's Bay Region</b>	1,336	1,220	52.0%	48.0%	52.0%	48.0%
<b>Manawatu-Whanganui Region</b>	1,683	1,967	46.0%	54.0%	53.0%	47.0%
<b>Marlborough Region</b>	330	479	41.0%	59.0%	54.0%	46.0%
<b>Nelson Region</b>	596	639	48.0%	52.0%	51.0%	49.0%
<b>Northland Region</b>	1,223	1,539	44.0%	56.0%	52.0%	48.0%
<b>Otago Region</b>	2,685	3,216	46.0%	54.0%	52.0%	48.0%
<b>Southland Region</b>	631	621	50.0%	50.0%	53.0%	47.0%
<b>Taranaki Region</b>	873	927	48.0%	52.0%	54.0%	46.0%
<b>Tasman Region</b>	412	475	46.0%	54.0%	54.0%	46.0%
<b>Waikato Region</b>	3,527	3,582	50.0%	50.0%	54.0%	46.0%
<b>Wellington Region</b>	9,325	8,624	52.0%	48.0%	51.0%	49.0%
<b>West Coast Region</b>	371	151	71.0%	29.0%	57.0%	43.0%

## Where were workers in the sector born?

Migrant workers can bring valuable skills and experience to a sector. Additionally, migrant workers may also require additional levels of support in the workplace including literacy training and cultural integration. Improved support can help advance migrants' feelings of self-worth and belonging as well improve productivity. This can also have an impact on the likelihood of migrants remaining in the sector.

Census data shows that the migrant Arts and Creative sector workforce in New Zealand comprises 32.2% of workers. This compares to 32.5% of all workers in New Zealand. The share of Arts and Creative sector workers born overseas increased from 28.4% to 32.2% between 2013 and 2018. The share of all workers born overseas in New Zealand increased 4.2% over the period.

Figure 22: Share of workers in New Zealand born abroad



The most common origin for workers in the Arts and Creative sector outside New Zealand is Europe. The following table shows the country of birth of workers in the Arts and Creative sector in New Zealand from recent censuses.

Table 20: Employment by country of birth in the Arts and Creative sector in New Zealand

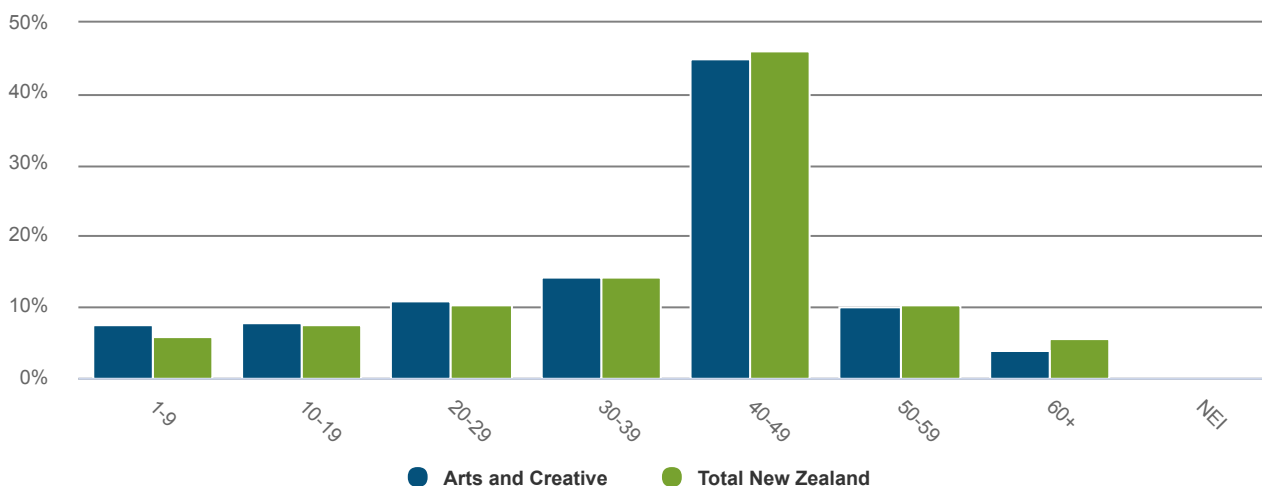
	Arts and Creative				Total New Zealand	
	Employment		Share Of Total		Share Of Total	
	2013	2018	2013	2018	2013	2018
<b>New Zealand</b>	69,972	73,819	71.6%	67.8%	71.7%	67.5%
<b>Europe</b>	11,590	12,380	11.9%	11.4%	9.5%	8.8%
<b>Asia</b>	6,409	10,522	6.6%	9.7%	8.5%	12.0%
<b>Sub-Saharan Africa</b>	2,417	2,903	2.5%	2.7%	2.4%	2.5%
<b>Rest of Oceania</b>	2,180	2,614	2.2%	2.4%	3.8%	4.2%
<b>Australia</b>	2,020	2,165	2.1%	2.0%	1.6%	1.6%
<b>Northern America</b>	1,698	1,920	1.7%	1.8%	0.9%	1.0%
<b>Not Elsewhere Included</b>	717	1,060	0.7%	1.0%	0.9%	1.2%
<b>North Africa and the Middle East</b>	366	476	0.4%	0.4%	0.4%	0.4%
<b>Other</b>	421	855	0.4%	0.8%	0.4%	0.7%

## How many hours do people work in the sector?

The number of hours worked in a sector can be an indicator of worker attachment to the sector. Hours worked in a sector can provide an indication of how much employers could meet growth by utilising their existing workforce without taking on additional labour, and can also highlight how likely people in employment are likely to undertake training.

People may have more than one job, though in New Zealand most people have only one. Here we look at people whose main job is in the Arts and Creative sector.

Figure 23: Hours worked (main job) in New Zealand, 2018

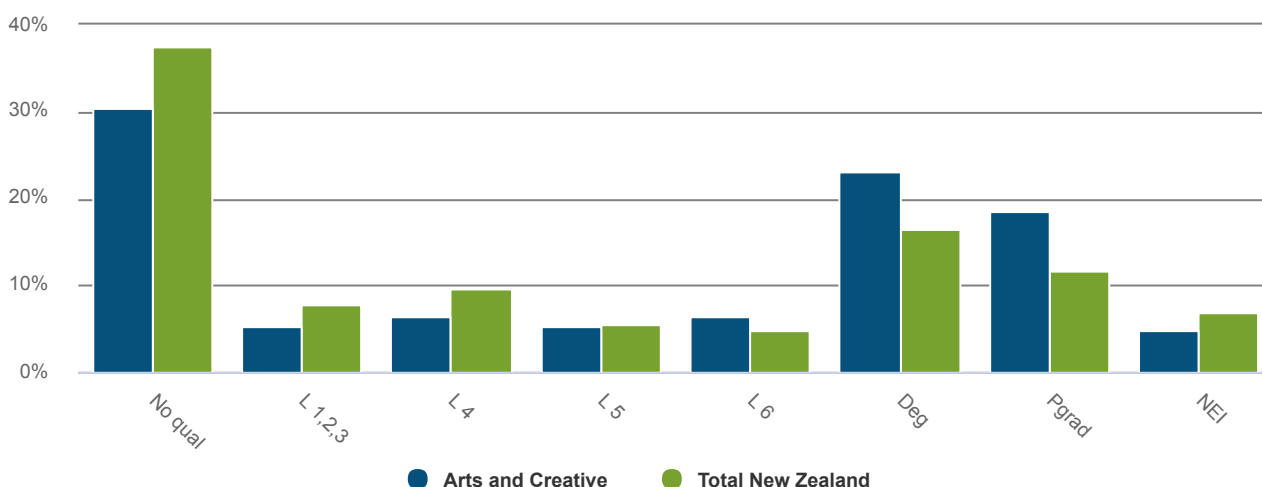


The Infometrics online Arts and Creative Sector Profile provides more information on hours worked in the sector for both main jobs and all jobs.

## How qualified are workers in the sector?

Higher educational attainment, in terms of recognised qualifications, is associated with a range of positive outcomes, including better income and workplace productivity.

Figure 24: Highest qualification (post school) of workers in New Zealand, 2018



The Infometrics online Arts and Creative Sector Profile provides more information on school and post-school qualifications of workers in the sector.

# DATA NOTES

## Broad skill level

**Highly-skilled** occupations typically require a bachelor degree or higher qualification and include professionals such as accountants, teachers, and engineers, as well as most managers such as chief executives. This category is consistent with skill level one of the Australia New Zealand Standard Classification of Occupations (ANZSCO).

**Skilled** occupations typically require a level 5-6 Certificate or Diploma on the New Zealand Qualifications Framework (NZQF). The category includes some managers (such as retail managers) and technicians (such as architectural draftspersons, ICT support technicians and dental hygienists). This category is consistent with skill level two of the ANZSCO classification.

**Semi-skilled** occupations typically require an Level 4 qualification on the NZQF. The category includes tradespersons (such as motor mechanics), skilled service workers (such as firefighters), as well as skilled clerical and sales workers (such as legal secretaries and estate agents). This category is consistent with skill level three of the ANZSCO classification.

**Low-skilled** occupations typically require a Level 3 qualification or lower on the NZQF. The category includes a range of lower skilled occupations from general clerks, caregivers, and sales assistants, through to cleaners and labourers. This category is consistent with skill level three and four of the ANZSCO classification.

## Businesses

Data on the number of businesses is sourced from the Business Demography statistics from Statistics New Zealand. Businesses are measured by geographic units, which represent a business location engaged in one, or predominantly one, kind of economic activity at a single physical site or base (eg. a factory, a farm, a shop, an office, etc). All non-trading or dormant enterprises, as well as enterprises outside of New Zealand, are excluded from business demography statistics.

A significant number of enterprises are recorded as having zero employment. Enterprises in the zero employee count size category may have:

- working owners who don't draw a wage from their business
- labour provided by other businesses or contractors
- business activity that requires no labour (eg. holding company).

Only businesses that are economically significant enterprises are included. To be regarded as economically significant they must meet at least one of the following criteria:

- annual expenses or sales subject to GST of more than \$30,000
- 12-month rolling mean employee count of greater than three
- part of a group of enterprises
- registered for GST and involved in agriculture or forestry
- over \$40,000 of income recorded in the IR10 annual tax return (this includes some units in residential property leasing and rental).

## Demographic characteristics of people in employment

The demographic characteristics of workers in each sector are sourced from recent Stats NZ Population Censuses.

Employment in each sector is defined in terms of both industries and occupations using an industry-occupation employment matrix. After defining the sector on the matrix we sum employment across all occupations in each industry. We measure the demographic characteristics of employees in individual industries using data from recent Population Censuses and aggregate across industries to arrive at an estimate for the sector as a whole.

## Employment

Industry employment numbers are from Infometrics' Regional Industry Occupation Employment Model (RIOEM). The model draws heavily on quarterly and annual Linked Employer Employee Data (LEED) published by Stats NZ. RIEM differs from Stats NZ's Business Demography data in that it is a quarterly series (BD is annual), and LEED includes both employees and the self-employed (BD only includes employees).

Employment is measured as an average of the four quarters making up each year. The unit of measurement is filled jobs.

## Forecasts

The employment forecasts in this profile have been generated from the Infometrics Industry Model. This model produces forecasts of employment for 54 industries using a mix of principal component and regression techniques to link macroeconomic key indicators (eg inflation, interest rates, unemployment, the exchange rate, business profitability etc.) to prospects for each industry. A key aspect of this approach is that it produces an outlook for an industry that takes into account the recent performance of that industry, the impact of key influences on business performance in that industry, and is also constrained to ensure that the sum of production in all industries equals our forecasts of overall economic activity. That is, an industry can only grow faster than overall economic growth if past industrial performance and business conditions indicate that it will increase its share of national output.

Infometrics then decomposes these forecasts to a detailed industry level and uses industry-occupation employment matrices for New Zealand in order to measure total employment in a defined sector.

## Full-time equivalent

Full-time equivalent (FTE) employment is a way of looking at employment that takes into account the work-load of people into employment. FTE employment is the sum of all full-time jobs plus half the number of part-time jobs. Two people who are employed part-time are measured as one FTE.

## GDP

Gross domestic product (GDP) presented in this sector is estimated by Infometrics. GDP is measured in constant 2023 prices. GDP presented in constant prices is sometimes referred to as real GDP. By using constant prices we remove the distractionary effect of inflation, which enables us to meaningfully compare GDP from one year to the next.

GDP estimates are calculated by using earning and employment from Linked Employer Employee Data (LEED) to break down national production-based GDP published by Stats NZ.

A top down approach approach is used to break Statistics New Zealand National Production based GDP.

## Job openings

New job openings are created when businesses are expanding and are positive about their economic outlook. Conversely job destruction occurs when businesses contract and have a negative perspective of their economic outlook.

Replacement job openings provides an estimate of the net number of job openings in the sector that arise from individuals leaving an occupation (eg, retirement, or migration), net of jobs taken by individuals entering an occupation (eg, returning to the workforce from parental leave).

Total job openings estimate overall workers required in a sector as a result of job creation and replacement demand. They are the sum of new job openings and replacement job openings in a given year.

## Occupation definitions

Infometrics uses the Australian and New Zealand Standard Classification of Occupations (ANZSCO), which provides a basis for the standardised collection, analysis and dissemination of occupation data for Australia and New Zealand.

ANZSCO identifies a set of occupations covering all jobs in the labour market, defines these occupations according to their attributes and groups them based on their similarity into successively broader categories for statistical and other types of analysis. The individual objects classified in ANZSCO are jobs. In ANZSCO, occupations are organised into progressively larger groups based on their similarities in terms of both skill level and skill specialisation.

ANZSCO is structured into five hierarchical levels. These are around 1,000 occupations at "level 5" of the hierarchy, where occupations are defined in terms of sets of jobs which involve the performance of a common set of tasks. These occupations can be progressively grouped up through the classification hierarchy to come up with eight "level 1" occupations that are based on combinations of skill level and skill specialisation.

More information is available from ABS and Stats NZ: <https://www.abs.govt.nz/ANZSCO>.

## Occupational employment

Occupation employment numbers are from Infometrics' Regional Industry Occupation Employment Model (RIOEM). Employment in each industry is converted to occupational employment using the relationship between industry and occupational employment observed in various Population Censuses. Population Censuses measure the occupational composition of employment in each industry and how this changes over time. Occupations conform to the categories used in the Australian New Zealand Standard Classification of Occupations (ANZSCO).

## Self-employment

Self-employment rates are from Annual Linked Employer Employee Data (LEED).