

**A survey assessing the skills needs of companies in engineering and metal manufacturing and food manufacturing.**

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# Contents

The big picture – the economic growth agenda .....	3
Key findings from the survey .....	4
Key comments .....	5
We need to invest in skills .....	6
A word about workplace training .....	7
A snapshot of food and engineering manufacturing .....	8
Results for engineering and metal manufacturing .....	11
Results for food manufacturing .....	20
Our comments .....	29
A final word .....	31
Sources of statistics and information .....	31
Appendices .....	32

## About Competenz

Competenz is owned by our industry partners – New Zealand’s companies in the Engineering, Manufacturing, Baking, Food and Beverage Manufacturing industries.

Our main focus is to help companies achieve greater efficiencies and productivity through the on-going development of industry skills through workplace learning.

Each year we help approximately 10,000 people in 3,500 companies to gain the knowledge and skills they need to make a valuable and positive contribution to their company’s performance.

We are committed to providing the best possible training solutions to our customers and the future workforce of New Zealand.

# The big picture — the economic growth agenda

The government's principal economic goal is to deliver greater prosperity, security and opportunities to all New Zealanders. And in particular, for our GDP per capita to reach that of Australia. It aims to do this through its economic growth agenda by creating an environment that allows businesses to grow, export and create high-value jobs. One key area of its six-point economic strategy is to enable better science, innovation and trade. It will do this by focusing on four critical areas:

- Grow and diversify exports of high-value manufacturing and services industries
- Export more high-value food and beverages
- Attract more high value tourists
- Create wealth from minerals and petroleum

The government believes that a range of actions, including better business innovation, stronger international connections, smarter capital, competitive cities, and leveraging the clean green brand, has the potential to lift export earnings from these sectors by \$57b to \$140b in the next 15 years.

High value manufacturing and services are estimated to contribute \$29b of this and the high value food and beverage sector another \$58b.

Nearly trebling the value of our exports over the next 15 years is not going to be easy. It's an admirable ambition but do we have the people with the right education and right skills to make it happen? Unless something changes, the answer is no.

For New Zealand companies to be competitive, and to reach productivity levels of, say, Australia, our level of skills needs to be raised or better deployed. But, in order to do so, we have to have the number of people with the right skills to start with.

## Do we have the skills?

Competenz commissioned a survey to look at on-the-job training and skills needs now and in the future which was undertaken in June 2011. A random selection of companies was contacted by phone and the decision-makers for staff training were asked to participate. In total, 270 companies did the 10 minute survey. Respondents were spread over four manufacturing industries and were scattered throughout New Zealand with the majority located outside the city centres. **Table 1** & **Table 2**

Table 1: Location of food manufacturing firms sampled

Location	Frequency
Auckland	17
Wellington	1
Christchurch	12
Other	46
<b>Total</b>	<b>76</b>

Table 2: Location of engineering and metal manufacturing firms sampled

Location	Frequency
Auckland	50
Wellington	13
Christchurch	26
Other	105
<b>Total</b>	<b>194</b>

# Key findings from the survey

- ▶ Nearly all companies train their staff – 99% of food manufacturers and 97% of engineering and metal manufacturers.
- ▶ Almost all companies (94%) train on-the-job as well as in meetings, seminars and the classroom.

## Engineering and metal manufacturing

- 60% of all staff employed in the sector are trained each year.
- 63% of non-management staff are trained on-the-job each year.
- The biggest challenge for companies is the time taken for training (21%) while maintaining production.
- Companies prefer to hire skilled staff (49%) rather than train staff (18%).
- 40% of companies strongly believe they have a skills shortage.
- 64% of companies believe they will need more skilled staff in 2012 and 2013.
- Of these, 53% will look to hire ready trained staff. However, staff turnover for 92% of all companies is less than 10%.
- The biggest current shortages are in fabrication (18%) and engineers (5%), tradespeople (6%) and welding (6%).
- Future shortages will be in fabrication (20%), engineering (6%) and welding (6%).
- Companies know if they cannot find skilled staff, they will lose customers and have declining profits.

## Food manufacturing

- 75% of all staff employed in the sector are trained each year.
- 83% of non-management staff are trained on-the-job each year.
- The biggest challenge for companies is the time taken for training (24%) and issues relating to language and learning (25%).
- Companies are divided when it comes to their preference to hire (41%) or train (29%).
- 27% of companies strongly believe they have a skills shortage.
- 53% of companies believe they will need more skilled staff in 2012 and 2013.
- The majority of companies (66%) will fill their need for skilled staff by training on-the-job.
- The biggest current shortages are bakers (8%), and management, leadership and supervision (11%).
- Future shortages will be in manufacturing/production (24%) and supervision (5%).
- Companies know if they cannot find skilled staff, they will face higher costs and lower profits.

# Key comments

- ▶ Skills shortages are looming – the best way to address this is for companies to train.
- ▶ For our GDP per capita to reach that of Australia we need to be more productive. The way to be more productive is for companies to train.
- ▶ Investing in people is a better productivity driver than investing in processes<sup>1</sup>. It is therefore attractive for companies to train.
- ▶ Temporary workers from overseas are not a long term solution for NZ Inc. The solution is for companies to train.

## Engineering and metal manufacturing

- Companies should realise that they need to train to meet the skills shortage.
- Employers need to invest now to build capability for the future.
- Government needs to recognise the commitment by companies to training, in particular for apprentices.
- It is difficult to attract high calibre candidates to trade training.
- There is competition amongst the trades to get good calibre candidates into apprenticeships.
- Government needs to look at how it invests in apprenticeships and sufficiently fund training requirements.
- The government needs to make the system from school to qualified tradesperson clear and simple for employers and apprentices.

## Food manufacturing

- Large companies in the sector are committed to, and have a history of, training because they employ large numbers of unskilled workers.
- Training is essential – to keep customers safe, to meet international food safety requirements, and to protect the value of companies in the sector.
- Skills acquired by employees are often not recognised by national qualifications.
- The industry needs just-enough and just-in-time qualifications – qualifications which the system does not recognise.
- Because employees have unrecognised skills, time and money is wasted retraining new hires. Nationally recognised competencies prevent this.
- The system needs to adapt to meet the needs of business.

<sup>1</sup> *Perceptions of Productivity, Competenz 2011*

# We need to invest in skills

The manufacturing sector requires two very different sets of skills – trade skills usually gained through apprenticeships, and manufacturing and production skills usually gained by upskilling workers once they are employed. The needs of the two groups are very different – as are the investments required for the future of NZ Inc.

Apprentices and their employers embark on a four year journey: a journey that requires classroom or theory training, and supervised on-the-job practical training. It's a journey that requires the apprentice to be self-motivated and determined, and the employer to provide the expertise to ensure the practical skills are learnt to ensure "competency."

As a nation we invest in the skills we need at degree level but the investment in trades or apprenticeship training is small in comparison. Apprenticeships attract only \$1,700 pa of government support but the contribution in terms of supervision and HR time (let alone the cost of training courses, manuals, materials and assessors) by the company goes unrecognised. Companies are just like universities: they provide the majority of the training which sets people up for a career.

It's no wonder our research shows that companies prefer to hire ready trained skilled workers. The investment from a NZ Inc point of view is not sufficient to make apprenticeship training a must-do for companies and it is an issue that needs to be addressed to ensure the economic growth agenda can be met.

It is a different scenario for manufacturing and production workers where the biggest gains from investing in training will come from increased productivity as our research *Perceptions of Productivity* shows.

## **A word about workplace training**

Every employee, regardless of his or her qualifications, benefits from workplace training. It extends an employee's skill base, improves morale and increases productivity. It can be as broad as learning in a seminar, classroom or meeting, or it can involve one-on-one learning, on-the-job supervision or working to standard operating procedures. Workplace training happens on-the-job or off-the-job.

On-the-job training is in the normal work environment, using the tools, equipment and documents the employee uses in their everyday work. Training happens while literally on-the-job, often under the guidance of a supervisor or in paired learning, where an experienced employee passes on knowledge and skills to another. Both general skills that can transfer from one job to another and specific skills that are unique to a particular job are learnt on-the-job and because it is hands-on, it is the most effective way of vocational training.

Off-the-job happens away from the normal workplace and the employee is not productive while in training. It is a more structured way of learning, often in groups, and is more an instructional one-way process led by a teacher or facilitator. Because it is in a controlled environment, off-the-job training can be dedicated to specific learning outcomes without being compromised by the day to day demands of the business.



# A snapshot of food and engineering manufacturing

The manufacturing sector is of significant importance to the New Zealand economy. And, as Sir Paul Callaghan has pointed out (*StrategyNZ: Mapping our future*, March 2011) our future is in elaborate transformation manufacturing, particularly in “weird stuff.” He believes we will dominate little niches of the world economy that are small enough that the big players will ignore them. “We will be good at what we are good at.”

The manufacturing sector employs around 230,000 people – 12% of all employed New Zealanders. The sector produces 12% of our GDP and 28% of our exports. However, the statistics for the sector have been largely static for the past 10 years.

This is despite manufacturing experiencing a GDP growth of 40% from 1991 to 2008. During the same time, employment growth was small showing that the sector had strong productivity gains possibly due to manufacturing processes becoming more automated.

Interestingly, despite the government’s economic growth agenda, the Department of Labour in its *Skills Challenge Report* for the next 10 years predicts “manufacturing growth is expected to be muted” and its forecasted shape of the economy has manufacturing at 13.3% of GDP with an employment share of 11.3%.

We prefer the government’s economic growth agenda which provides a more ambitious future for the manufacturing sector.

So, do we have the right people to deliver on the government’s agenda and Sir Paul’s predictions?

For the manufacturing industry as a whole there is a near even split of high skilled occupations (31%), medium-skilled (32%) and low-skilled jobs (36%).

However, two statistics stand out: the high number of trade workers (23% compared with 12% across all sectors), and the relatively low level of skills (27% with no qualification compared to 18% of all workers.)

Despite low growth and a low staff turnover, the number of new low skilled people needed to enter the sector each year is large just to replace those leaving due to such factors as retirement, migration or career changes.

The picture for trade workers is somewhat different with the Department of Labour predicting the share of total employment of these workers to be static at around 37% due to emigration and an older profile with workers retiring at higher rates. With a predicted demand for vocational qualifications of Level 4 and above growing at 6% per year, it will be a skills shortage that constrains growth.



As will be shown from our research, the areas of skills shortage differ between the engineering and metal manufacturing sector and the food manufacturing sector. The engineering and metal manufacturing sector currently needs skilled tradespeople in large numbers and according to the industry, in large numbers that will only grow larger. The food manufacturing sector, on the other hand, has a greater reliance on unqualified staff, staff which they believe can be replaced and trained to the needs of the company as required. It's again the shortage of qualified staff – the supervisors, bakers and engineers – that will prove a hindrance to growth. Growth will, on the scale the government wants, be a step change and one the sector will have to gear up for years in advance.

We have been concerned that the number of qualified tradespeople and qualified skilled workers in the engineering and food manufacturing sectors has been fluctuating over the past 10 years. It takes around four years for an apprentice sign-up to complete a qualification so there is a time lag for any skills shortage to be remedied. Training or taking on an apprentice is the last thing on management's mind during a downturn but when growth returns, this lack of investment can have implications across the board.

In June 2011, Competenz commissioned a survey to find out if companies in the engineering and food manufacturing sectors were able to meet current skills needs and future skills needs.

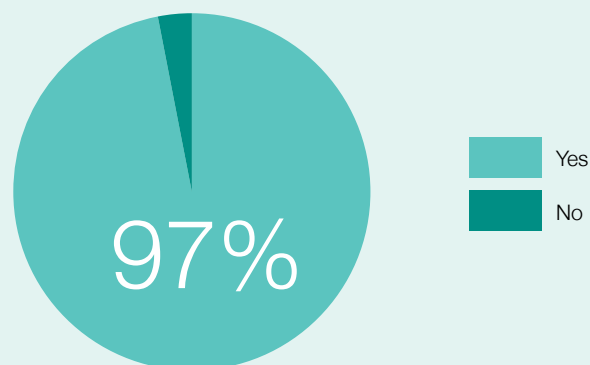
The results are reported as two separate sectors – engineering and metal manufacturing and food manufacturing – in line with the government's economic growth agenda.

**We prefer the government's economic growth agenda which provides a more ambitious future for the manufacturing sector.**

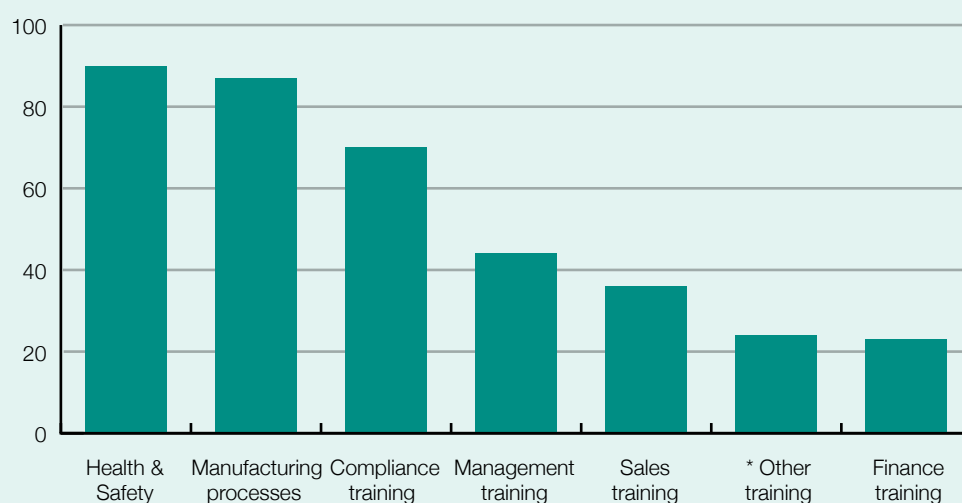
Table 3: Location of engineering and metal manufacturing firms surveyed

Location	Frequency	Percentage
Auckland	50	25.8%
Wellington	13	6.7%
Christchurch	26	13.4%
Other	105	54.1%
<b>Total</b>	<b>194</b>	<b>100%</b>

Graph 1: Engineering and metal manufacturing firms that train staff

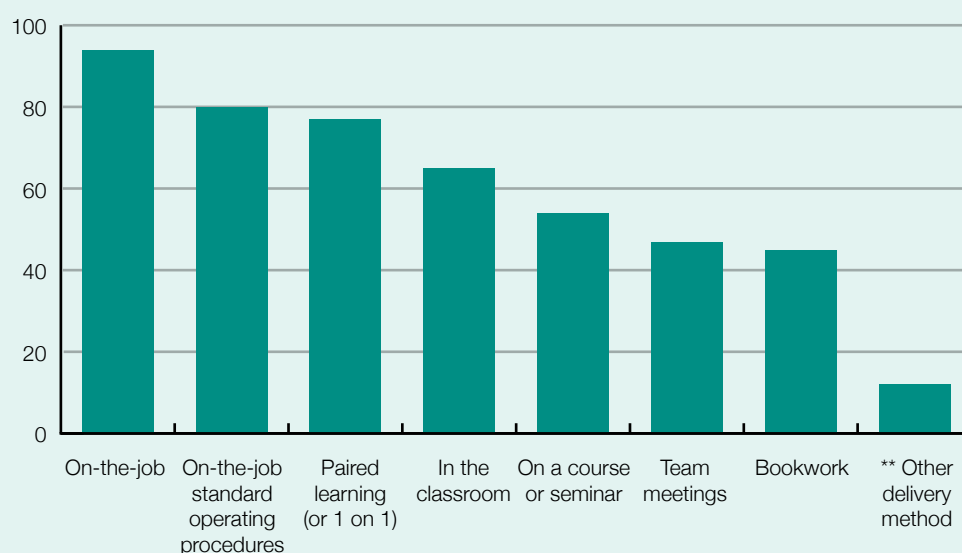


Graph 2: Types of training undertaken by engineering and metal manufacturing firms (%)



\* Apprenticeships, biosecurity, communications, competitive manufacturing, computer design, driving training, engineering, equipment safety, fabrication, fluid power training, gantry training, heavy fabrication, installation, leadership, lean manufacturing, literacy, welding, lathing, maintenance and manufacturing and quality systems, marketing, matrix system for training, national certificate, numeracy, advanced trade, office, owner operator, people skills, quality training, R&D, service, supports Post Grad study, systems training, technical, warehousing, workshop machines

Graph 3: Training methods used in engineering and metal manufacturing firms (%)



\*\* Allocated training times, projects by team meetings, apprenticeships, criteria to meet for re-certification, e-Learning (4%), external assessment, external training providers, forklift license, independent trainers, IZO, night school, online, video conference course, Polytech, positive reinforcement, PTE's, specialised consultancy work, videos, Weltec National Certificate

Table 4: Reasons & benefits for doing on-the-job training for engineering and metal manufacturing firms

Reason & benefit	Percentage (%)
Specialist nature of the business / equipment / job	26
Can do exact job	15
Upskill employees / better paying jobs	14
Ensure health & safety	10
Cheaper / cost / efficient	10
Build product to consistent specification / quality	9
Ensuring compliance	7
Practical	6
Standardised training	6
Utilise knowledge / resources of business	5
Hands on, pick it up better (kinetic learners)	5
No classroom training available for industry	5
Productivity	4
Does not interrupt production	3
Better outcomes for customers	3
Train apprentices	3
Easier to monitor / control	3
Increase staff performance	2
Convenience	2
Good investment in company future	2
Keep staff motivated	1
More accountable	1
Attract new employees	1
Communication	1
Team building	1
Part of National Certificate	1

## Results for engineering and metal manufacturing

Engineering and metal manufacturing are the cornerstones of specialised or niche manufacturing. Without qualified tradespeople in these fields, innovation cannot be turned into products for sale. And, as our research shows, there is already a shortage of people with skills in these areas and the shortage is growing.

From late May to mid-June, 194 engineering and metal manufacturing companies were asked about their on-the-job training and skills needs now and in the future. Companies across New Zealand were randomly selected and respondents were those making decisions on staff training.

### Table 3

The good news from a NZ Inc point of view is that nearly all companies already train their staff **Graph 1**. The most common areas for training are health and safety, manufacturing processes and compliance training with more than 70% of respondents citing these functional areas – management training was a more distant fourth. As can be seen, there is a wide range of other training from the very specific to the generic. **Graph 2**

Almost all companies train on-the-job but 65% also train through courses and seminars and 44% train in the classroom. It is also interesting to note a small number of companies use e-Learning or online learning – one would hope an emerging trend.

### Graph 3

On average, 60% of all staff employed in the engineering and metal manufacturing sectors are trained on-the-job each year – and for very good reasons. It is specific to the nature of their business and can be done on the exact job, it is low cost, and it ensures compliance and health and safety. It also builds product quality, and produces better outcomes for customers. **Table 4**

Graph 4: Response to statement, “I would prefer to hire skilled staff over hiring unskilled staff and training them” by engineering and metal manufacturing firms

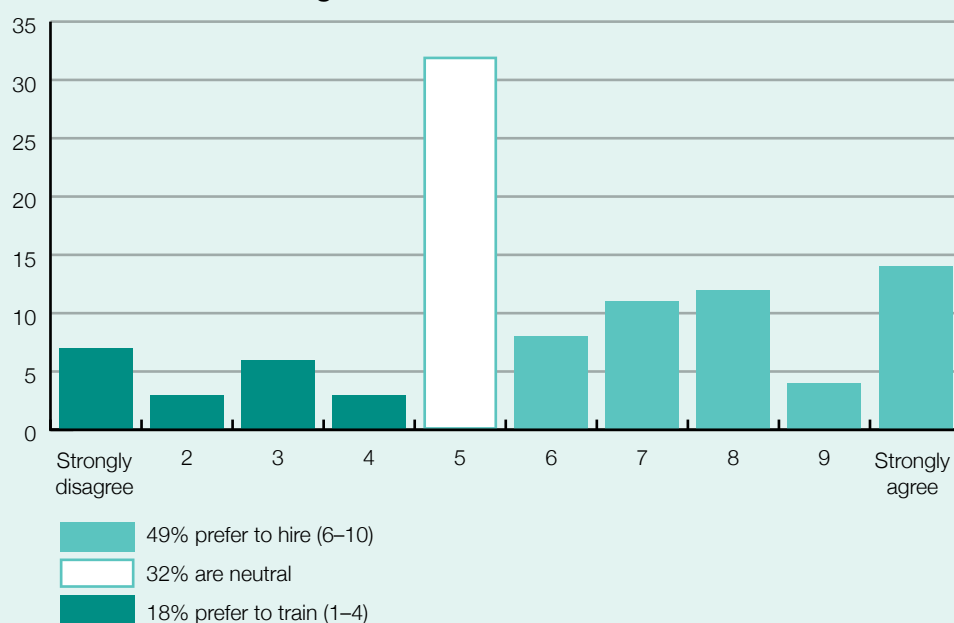


Table 5: Specific types of training undertaken for manufacturing and operations (excluding management) in engineering and metal manufacturing firms

Type of training	Percentage (%)
Health & Safety	63
Machinery / plant / equipment	37
Forklift	23
Fabrication	23
First aid	14
Welding	14
Apprentice	11
Manufacturing	10
Process / systems	9
Supervision / management	8
Product specifications	7
Crane / gantry	7
Quality / ISO	6
Heights	6
Engineering	6
Induction / orientation / HR	5

Continued in Appendix I

**Table 6: Means of delivering specific types of training in engineering and metal manufacturing firms**

Type	Percentage (%)							
	On-the-job	In the classroom	Paired learning	Course or seminar	Team meetings	Book work	Standard operating	Other
Health & Safety	57	46	19	49	38	25	25	17
Machinery / plant / equipment	86	14	61	16	11	7	59	0
Forklift	30	33	28	73	3	25	25	25
Fabrication	86	27	73	32	5	36	73	18
First aid	9	18	0	64	0	9	5	50
Welding	72	20	60	32	0	12	44	16

**Table 7: Challenges associated with training in engineering and metal manufacturing firms**

Challenge	Percentage (%)
Time taken	21
None	19
Good trainers / communicators	7
Maintain production	7
Skill / knowledge retention	6
Staff not listening / paying attention	6
Available staff to train	6
Comprehension / learning speed	5
Language barriers	5
Costs	5
Staff interest	5
Effective / quality training	4
Finding right staff to train	3
Ensuring continuity of training	3
Illiteracy / numeracy	2
Don't know	2
Staff compliance e.g. turn up on time	2
Keeping up to date records	2
Staff turnover	1
Finding the right course	1
Consistency of delivery	1
Noise	1
Complexity of products / operations	1
Space	1

When looking specifically at operations and manufacturing, the specific types of training companies do fall into two distinct categories – general training that other companies do as well, and the more idiosyncratic or specific training. The majority of companies do health and safety training (with a further 14% citing first aid) and 37% train employees for machinery or plant and equipment, and forklift operation (23%). The list of more specific training is long and varied, reflecting the needs of companies but the most common are fabrication (23%), welding (14%) and apprentices (11%). **Table 5** and **Appendix I**. As you would expect, the delivery of training depends on what is being taught, with health and safety, forklift training and first aid all having a considerable course or seminar component and machinery, plant and equipment, fabrication and welding all requiring on-the-job or paired learning.

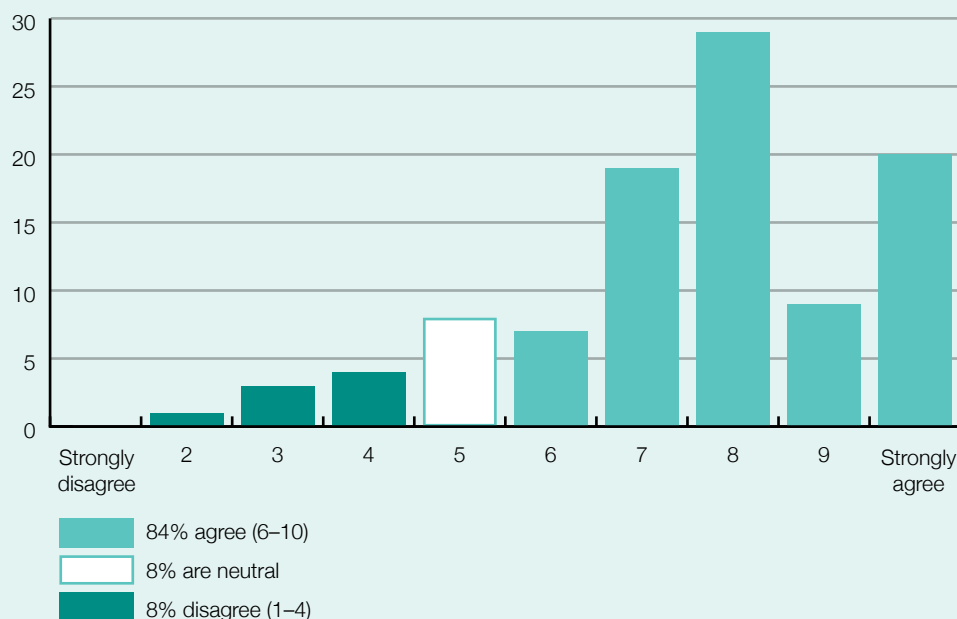
**Table 6**

And it's a considerable amount of training that companies commit to with the research finding 63% of all non-management staff being trained on-the-job each year.

However, there are challenges for the majority of businesses training on-the-job with only 19% saying they have no challenges at all. It takes time to train and this often means time away from productive work for the supervisor, the learner, or both – keeping up production adds to the challenges. Finding good trainers and engaging learners also add complexity along with some very basic issues: language barriers and numeracy and literacy skills. **Table 7**

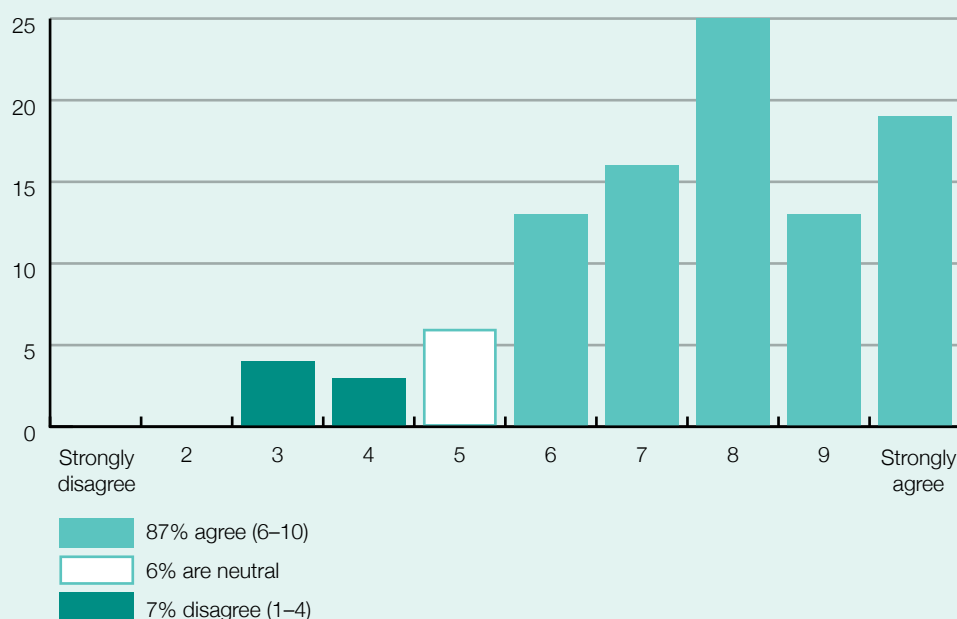
When it comes to hiring, companies prefer to hire ready trained staff with only 18% preferring to train people **Graph 4** and, because the training is often so specific, 58% believe that the skills of their employees match their business needs. **Graph 5**

Graph 5: Response to statement, “The skills of our employees match our business needs” by engineering and metal manufacturing firms



To give you an idea of the scale of the issue, currently there are 7,062 companies in the engineering and metal manufacturing sector. Our research indicates 64% need at least one more skilled staff member in 2012 and 2013. That is 4,519 more skilled people.

Graph 6: Response to statement, “Our people are highly skilled” by engineering and metal manufacturing firms



Companies know too that their people are highly skilled **Graph 6** and 60% of companies strongly agree that these skills form part of their competitive advantage.

#### Graph 7

But, the trouble is, despite all the training, companies still believe there is a skills shortage **Graph 8**. And, unfortunately for the government’s economic growth

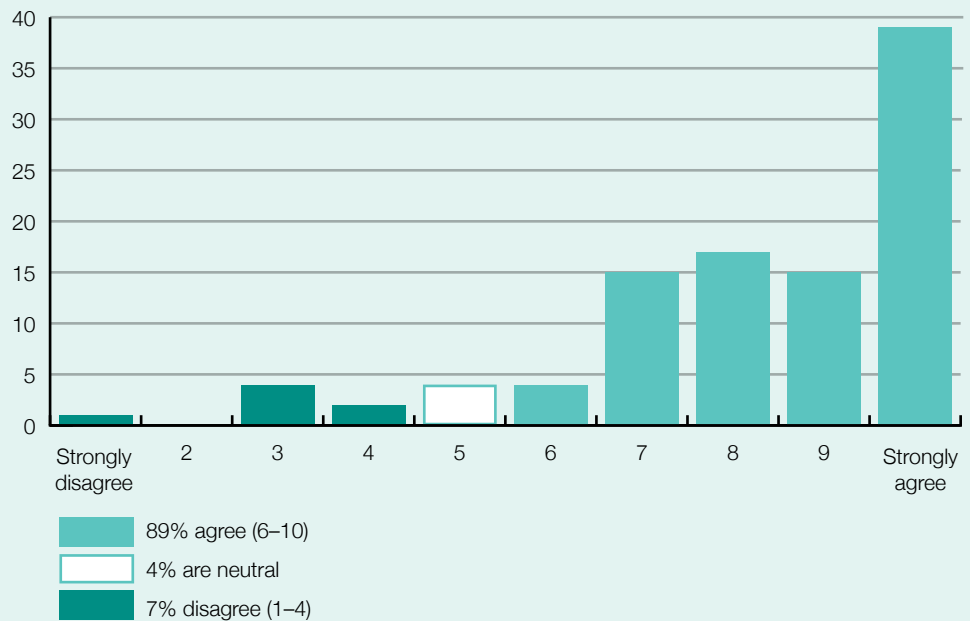
agenda, the current skills shortages fall in critical areas: engineering and fabrication, tradespeople and welders. **Table 8**

To make matters worse, 64% of companies believe they will need more skilled staff in 2012 and 2013 with 32% of those needing more engineers (6%), welders (6%) and fabricators (20%)

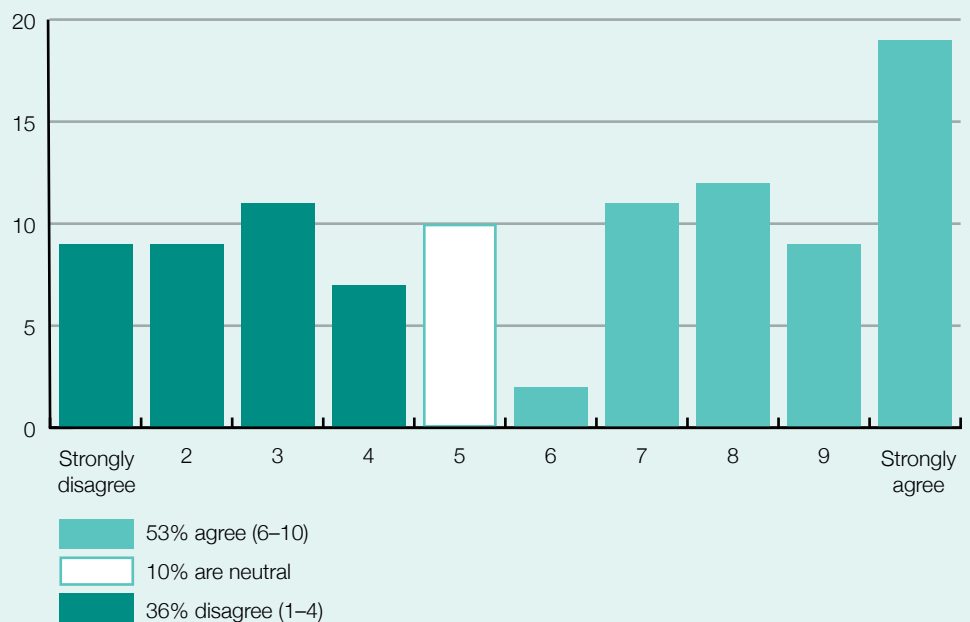
**Graph 9** and **Table 9**. To give you an

idea of the scale of the issue, currently there are 7,062 companies in the engineering and metal manufacturing sector. Our research indicates 64% need at least one more skilled staff member in 2012 and 2013. That is 4,519 more skilled people. If they need two more skilled staff each, that is 9,039. There are currently 444 fabrication apprentices in training but industry says it needs 1,412 more in the

Graph 7: Response to statement, “The skills of our staff form part of our competitive advantage” by engineering and metal manufacturing firms



Graph 8: Response to the statement, “We have skill shortages” by engineering and metal manufacturing firms



next two years (remember a fabricator takes four years to train.)

Those looking to fill this need by training are taking a pragmatic approach (37%)

**Graph 10.** The 53% believing they can hire ready trained staff may be in for a hard time as the majority of businesses have a staff turnover of less than 5%, and 92% of

all companies have a staff turnover of 10% or less **Graph 11.** Unless recruitment comes from overseas, and in a hurry, companies will be competing for the few skilled workers in the job market. Although the Department of Labour believes temporary workers to be an important source of labour, interim solutions, such as hiring 18–30-year-olds on a working

holiday for up to 12 months or employing skilled workers on a temporary work visa, do not address the long term issues of skills development for NZ Inc.

Despite the temporary worker option, 37% of companies believe that they will possibly or definitely not be able to fill the need for more skilled labour.

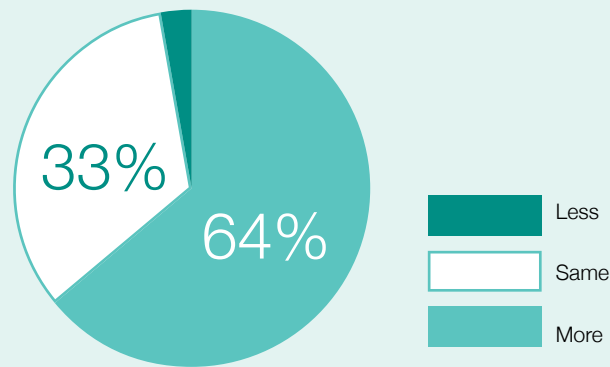


Area with current skill shortage	Percentage (%)
Fabrication	18
Tradesmen	6
Welding	6
Engineers	5
Machine operators	5
All areas	3
Draughting / CAD	3
Management / leadership	3
Installation	2
Mechanics	2
Programmers / software	2
Supervision	2
All production	1
Apprentice	1
Assembly	1
Electrical	1
Fitters	1
Manufacturing	1
Painting	1
Project management	1
Sales (with product knowledge)	1
Technical	1
Administration	1
Aircraft engineers	1
Anodising	1
Auto electricians	1
Casting	1
Coach building	1
Commercial divers	1
Communications skills	1
Computing	1
Estimation	1
Foundry	1
Green sand	1
Hard set moulding	1
Loom operators	1
Maintenance	1
Measuring	1
Metal working	1
Metallurgy	1
Mill operators	1
Pricing	1
Quality control	1
Research & development	1
Storeman	1
Surface mount	1
Survey technicians	1
Tool making	1

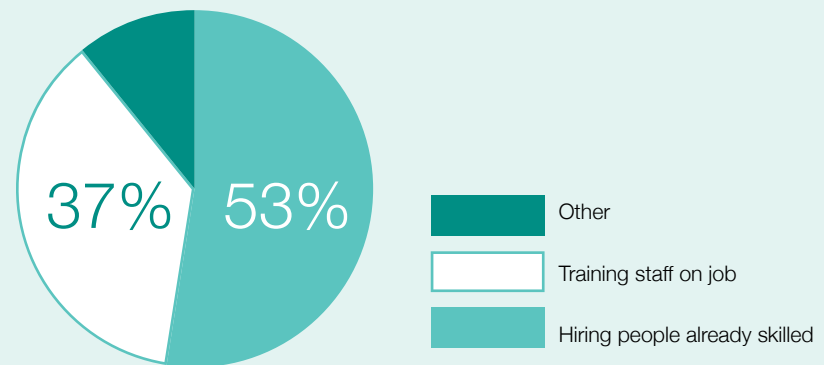
Table 8: Specific areas with current skill shortages for engineering and metal manufacturing firms

**64% of engineering and metal manufacturers will need more skilled staff by 2013 and 53% of these will look to hire already trained staff. Of this 53%, 37% believe it will be difficult or unlikely to actually hire skilled staff and they are aware that the biggest impacts of this will be lost customers and lower revenue.**

Graph 9: Response to question, “Looking ahead to 2012 & 2013, will you need the same, more or less skilled staff?” by engineering and metal manufacturing firms



Graph 10: Main ways to fill the need for skilled workers by engineering and metal manufacturing firms



Graph 11: Percentage staff turnover for engineering and metal manufacturing firms

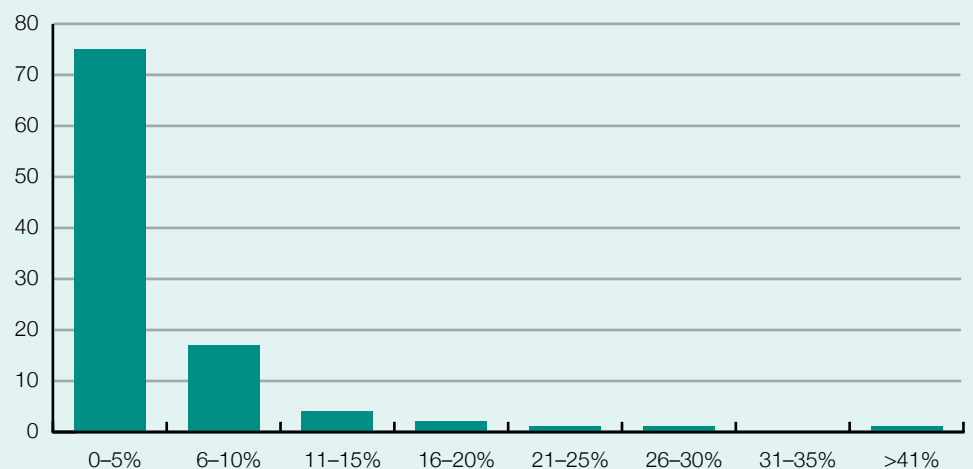
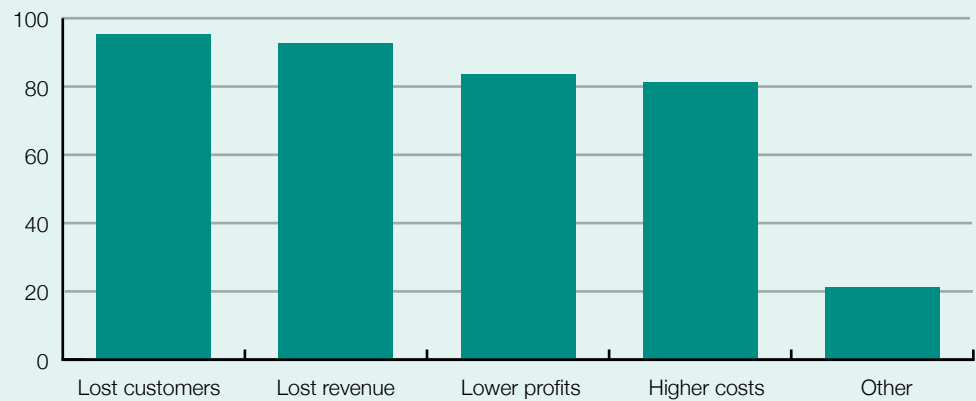


Table 9: Specific areas where more skills will be needed in the future for engineering and metal manufacturing firms

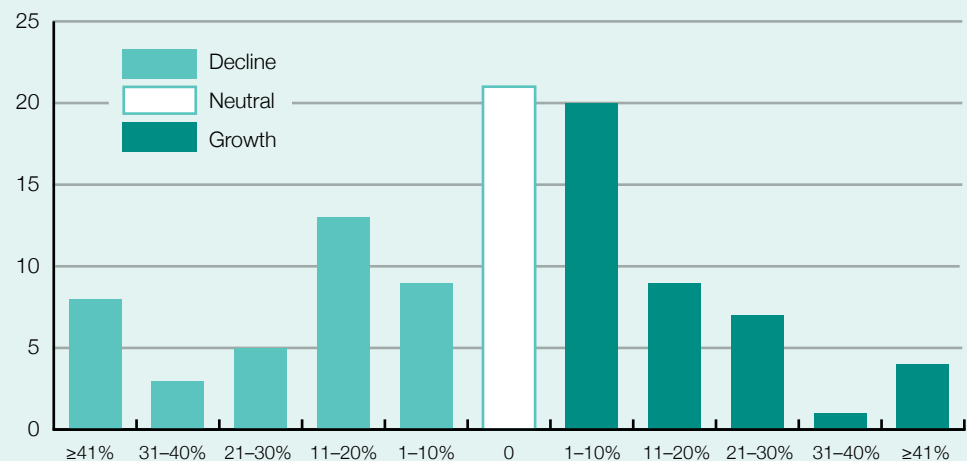
Areas where more skills will be needed	Percentage (%)
Fabrication	20
Machine operators / machining	7
Engineering	6
Manufacturing	6
Welding	6
Management / supervisors	5
Fitters	4
Trades staff	4
Assembly	4
Draughting / CAD / design	4
Production	4
Maintenance	3
All areas	2
Installing	2
Sales	2
Electrical	2
Mechanics / mechanical	2
Technical	2
Tool making	2
Apprentices	1
Finishing	1
Aircraft engineers	1
Anodising	1
Coach Building	1
Diagnostic	1
Estimation	1
Framing	1
Hard set moulding	1
Laboratory	1
Loom operators	1
Metallurgy	1
Painting	1
Powder coating	1
Project management	1
Purchasing	1
Refrigeration	1
Roll forming operators	1
Service staff	1
Software	1
Workshop	1

**Companies need to take the lead and take on new apprentices, upskill their existing staff and promote the value skilled trade workers provide to our country.**

**Graph 12: Implications of not being able to acquire skilled staff for engineering and metal manufacturing firms**



**Graph 13: Estimation of rate of profit growth/decline (%) per annum over the last two years for engineering and metal manufacturing firms**



It comes as no surprise that companies that see their employees' skills as less matched to their business needs or who rate their staff as not highly skilled have a higher turnover. Companies taking more care to make sure that employees have the skills matched to their needs and that train their staff so they are highly skilled have a lower turnover.

Companies are overly optimistic in their ability to hire skilled staff but they also realise that if they cannot fill the need for skilled workers, their businesses will suffer – through lost customers, lower revenue, lower profits and higher costs. Not a happy scenario. **Graph 12**

In summary, 64% of engineering and metal manufacturers will need more skilled staff by 2013 and 53% of these will look to hire already trained staff. Of this 53%, 37% believe it will be difficult or unlikely to actually hire skilled staff and they are aware that the biggest impact of this will be lost customers and lower revenue.

The performance profile of the industry shows that 38% of companies had a declining profit over the last two years, 21% had no growth or decline, and 41% had increased profits – a reflection of the difficult environment post the economic downturn. **Graph 13** However, looking ahead, the sector is bouncing back as companies rate their businesses needing

more skilled people in the next two years. If New Zealand wants to treble its exports of high value manufactured goods, this need for skilled workers in the engineering and metal manufacturing sector must be addressed. Companies need to take the lead and take on new apprentices, upskill their existing staff and promote the value skilled trade workers provide to our country. Government must re-examine the funding model and recognise the current costs to companies. And Competenz must ensure it attracts high potential trainees into the industry and that they complete their training to a high standard on time.

# Results for food manufacturing

As the New Zealand Trade and Enterprise says, the food and beverage industry is the lynchpin of New Zealand's prosperity.

Food and beverage exports have trebled in the last 17 years, from NZ\$6.96 billion in 1990 to \$21.43 billion in 2008. Food and beverage exports contribute over 10% to expenditure on GDP and represent half of all New Zealand's merchandise exports by value. The industry therefore has a crucial influence on our nation's economy.

Of the 227,000 people employed in manufacturing, nearly 30,000 are employed in the food and related products processing industry. Employees in this area tend to have low educational achievement

and may struggle to cope with increased technical requirements of computer controlled processing. If the dream of growing our prosperity on the back of our primary produce is to be made reality, a more skilled workforce will be necessary.

And it's just as well our companies in this sector recognise this.

From late May to mid-June, 76 food manufacturing companies employing more than 20 people were asked about their on-the-job training and skills needs now and in the future. Companies across New Zealand were randomly selected and respondents were those making decisions on staff training.

As with the engineering and metal manufacturing sector, almost all (99%)

companies train their staff **Graph 14**. Generic skills as well as specific skills are taught with manufacturing processes, health and safety, compliance training and management training again topping the list **Graph 15**. Training is again delivered mainly on-the-job or in paired learning, or in classrooms and seminars, with some e-Learning emerging as a delivery method.

## Graph 16

The main reasons for training are specificity, efficiency, so workers can do the exact job, and to ensure health and safety or compliance. However, businesses also take an interest in the development of their staff with 12% citing upskilling to better paid jobs as a reason to train **Table 10**.

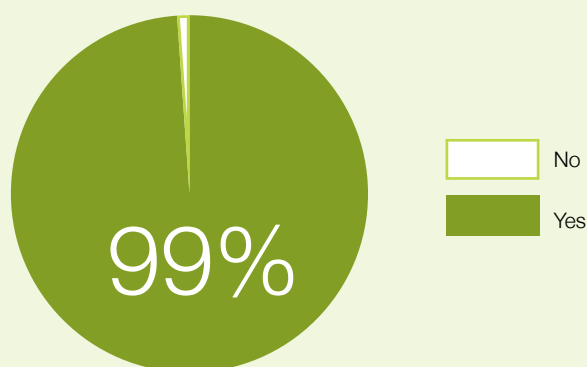
Table 10: Reasons & benefits for doing on-the-job training for food manufacturing firms

Reason & benefit	Percentage (%)
Specialist nature of the business / equipment / job	29
Cheaper / cost / efficient	17
Can do exact job	16
Ensure health & safety	13
Upskill employees / better paying jobs	12
Ensuring compliance	11
Build product to consistent specification / quality	9
Productivity	8
Practical	7
Hands on, pick it up better (kinetic learners)	5
Doesn't interrupt production	5
Better outcomes for customers	4
Ensure food safety	4
Utilise knowledge / resources of business	4
Don't know	3
Standardised training	3
Good investment in company future	3
Ensure relevance	1
No classroom training available for industry	1
Part of NZQA system (onsite assessor)	1
Take responsibility for what they're doing	1
Easier to monitor / control	1

**It would appear these companies know that skilled employees are more productive as they work more quickly and accurately, require less supervision, accept more responsibility and are better communicators.**

**It is also worth noting the value e-Learning can bring to employees challenged by traditional methods of learning, or learning in a second language.**

Graph 14: Food manufacturing firms that train staff



Graph 15: Types of training undertaken by food manufacturing firms (%)

*\* Auditing training: Unit Standards NZITO, chemical training, customer service, engineering / IT, environmental / food safety, forklift, function specific training / drug & alcohol, risk management & leadership (non-management), quality / computer / food safety, performance management, career development, computer training, technical product development, technical training*



Graph 16: Training methods used in food manufacturing firms (%)

*\*\* Certificates, correspondence / literacy training, e-Learning (3%), external training providers / Polytech, induction process*

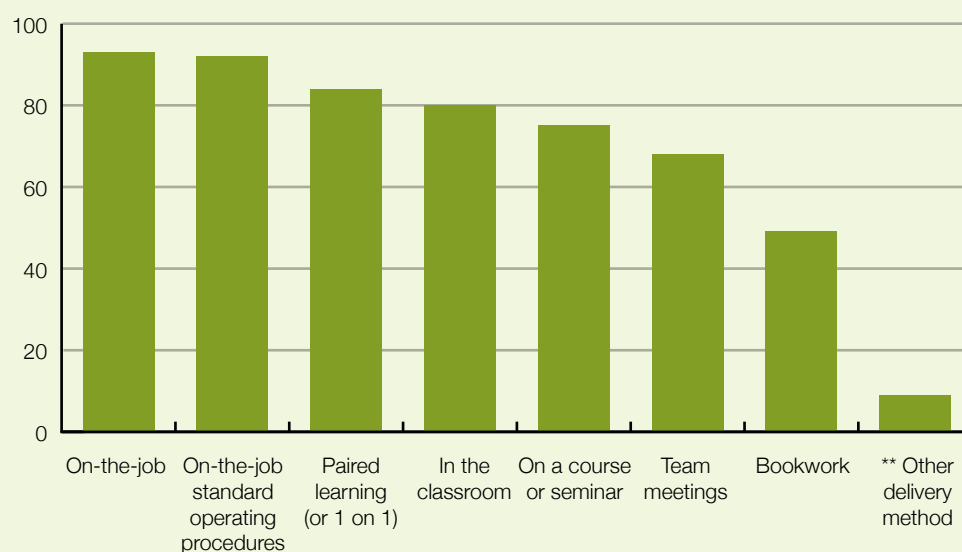


Table 11: Specific types of training undertaken for manufacturing and operations (excluding management) in food manufacturing firms

Type of training	Percentage (%)
Food safety / hygiene	78
Health & Safety	63
Machinery / plant / equipment	34
Forklift	32
First aid	16
Manufacturing	14
Standard operating procedures	13
Process / systems	12
Production / operations	12
Chemicals	9
Induction / orientation	9
NZQA / unit standards	9
Compliance	8
Product specifications	8
Baking / Baking apprenticeship	7
Environmental / sustainability	5
Numeracy / literacy	5
Quality	5
Supervision / management	5

**If the dream of growing our prosperity on the back of our primary produce is to be made reality, a more skilled workforce will be necessary.**

**And it's just as well our companies in this sector recognise this.**

Table 12: Means of delivering specific types of training in food manufacturing firms

Type	Percentage (%)							
	On-the-job	In the classroom	Paired learning	Course or seminar	Team meetings	Book work	Standard operating	Other
Food Safety / hygiene	71	52	26	32	29	23	42	13
Health & Safety	77	59	33	56	28	23	49	26
Machinery / plant / equipment	86	23	50	5	5	9	73	5
Forklift	29	33	5	48	0	19	33	43



**Table 13: Challenges associated with training in food manufacturing firms**

Challenge	Percentage (%)
Time taken	24
None	13
Language barriers	9
Available staff to train	8
Good trainers / communicators	8
Maintain production	7
Comprehension / learning speed	7
Effective / quality training	7
Finding the right course / develop modules	5
Costs	5
Keeping up to date records	4
Staff interest	4
Noise	4
Finding right staff to train	3
Ensuring continuity of training	3
Illiteracy / numeracy	3
Consistency of delivery	3
Skill / knowledge retention	3
Staff not listening / paying attention	3
Space	3
Logistics of locations shift times	3
Staff turnover	3
Don't know	1
Staff compliance e.g. turn up on time	1
Absentee staff	1
Training all staff	1
Complexity of products / operations	0

**Challenges with language barriers, numeracy and literacy, comprehension, learning speed and listening skills all reflect the high proportion of workers with no qualifications working in the industry (25%).**

It would appear these companies know that skilled employees are more productive as they work more quickly and accurately, require less supervision, accept more responsibility and are better communicators.

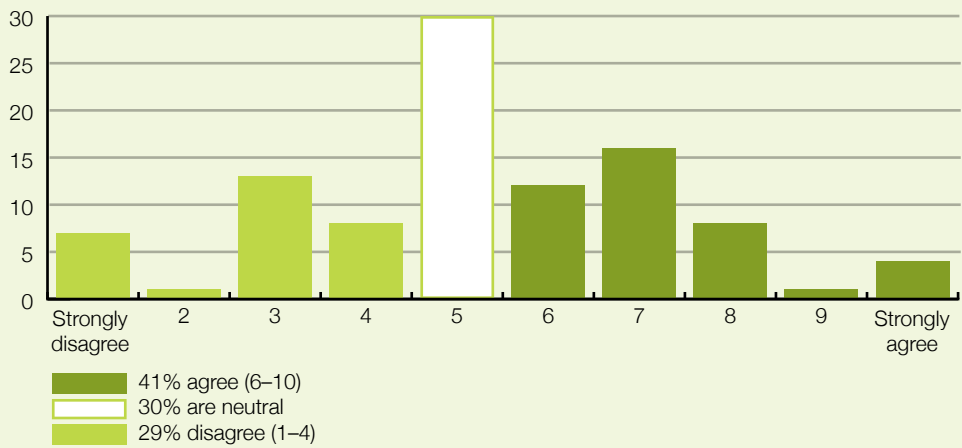
Excluding management training, the most commonly cited training for operations or manufacturing staff are food safety and hygiene (78%) and health and safety (63%) but with a large range of specific training, from heat treatment and working at heights to continuous improvement and creativity, also being undertaken. **Table 11** and **Appendix II**

The way training is delivered depends on the subject being taught. Food safety and hygiene is taught on-the-job, in the classroom and through standard operating procedures whereas machinery, plant and equipment training is mostly taught on-the-job, through standard operating procedures and paired learning. **Table 12**

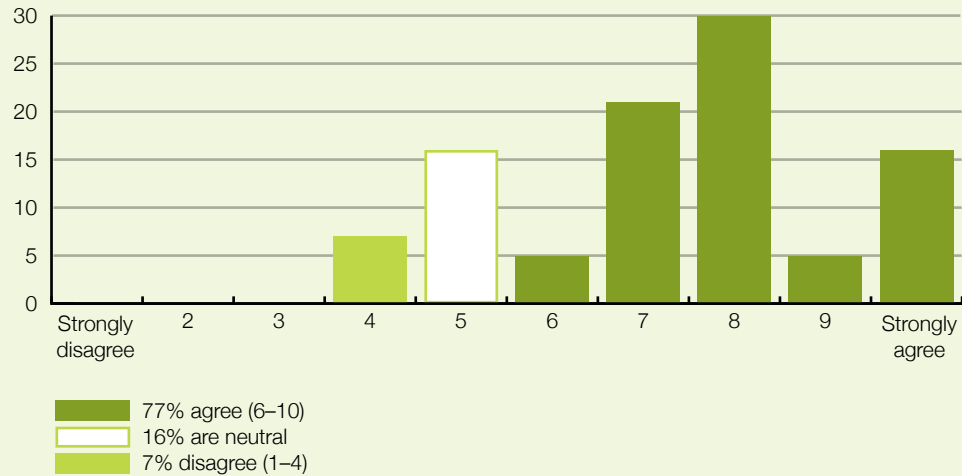
Food manufacturers train on average 83% of their staff on-the-job each year and that is not without its challenges. It takes time, particularly away from production, and finding good trainers and effective communicators are problem areas. Challenges with language barriers, numeracy and literacy, comprehension, learning speed and listening skills all reflect the high proportion of workers with no qualifications working in the industry (25%) **Table 13**. On-the-job learning to gain a nationally recognised qualification would be a first for these learners and an achievement which should not be underestimated.

It is also worth noting the value e-Learning can bring to employees challenged by traditional methods of learning, or learning in a second language. Although e-Learning has been around for some time, it is not yet a wide-spread method of vocational training. However, with the advent of the very portable and handy tablets, e-Learning becomes a real option for replacing paper-based learning.

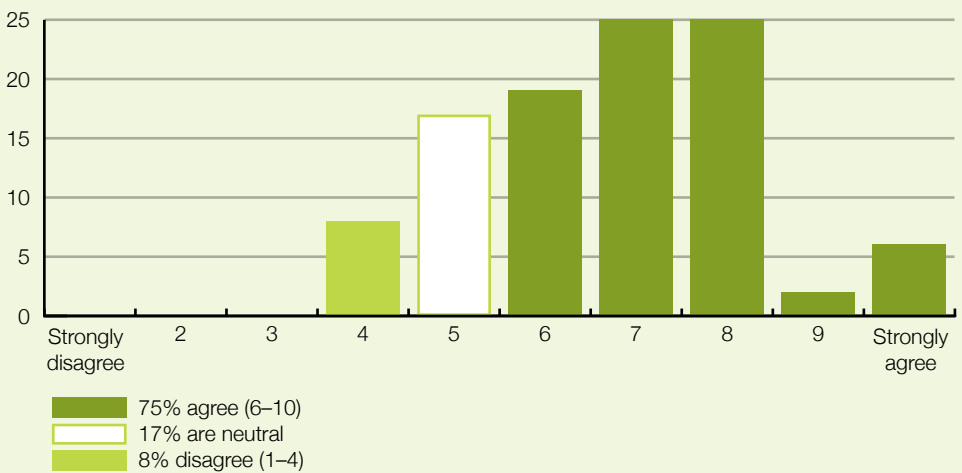
Graph 17: Response to statement, “I would prefer to hire skilled staff over hiring unskilled staff and training them” by food manufacturing firms



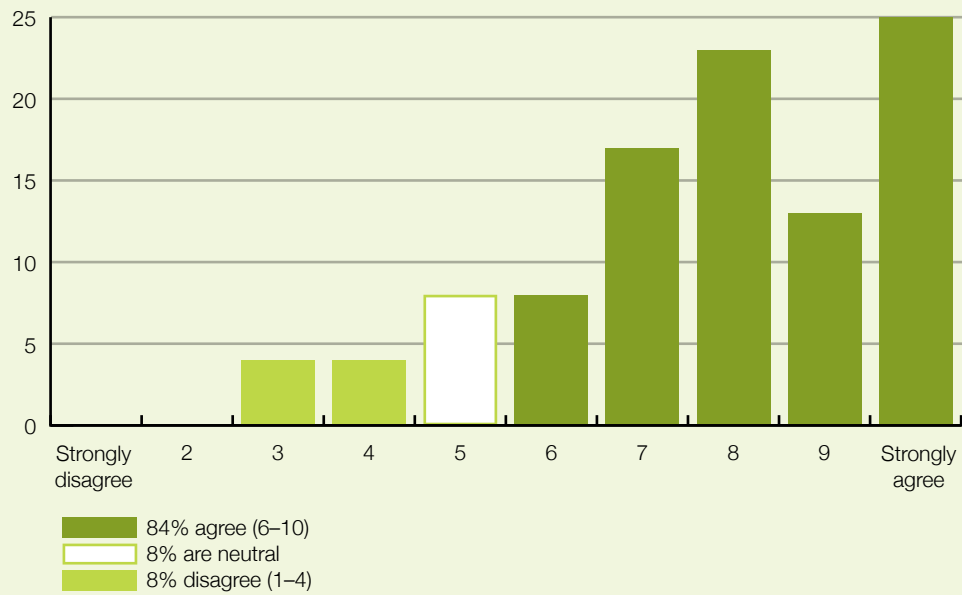
Graph 18: Response to statement, “The skills of our employees match our business needs” by food manufacturing firms



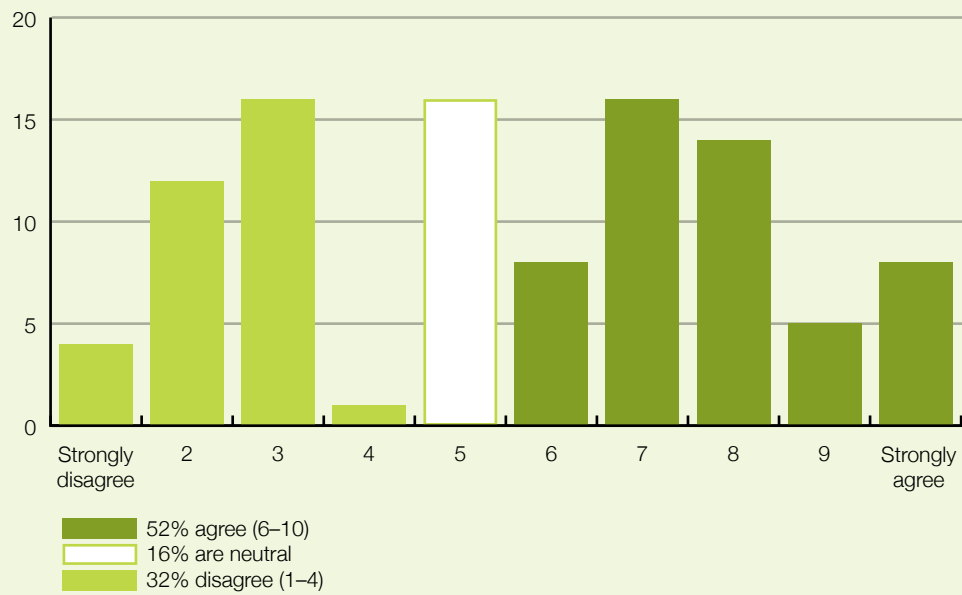
Graph 19: Response to statement, “Our people are highly skilled” by food manufacturing firms



Graph 20: Response to statement, “The skills of our staff form part of our competitive advantage” by food manufacturing firms



Graph 21: Response to the statement, “We have skill shortages” by food manufacturing firms



Employers in the food manufacturing sector are divided when it comes to hiring skilled workers or training workers on-the-job **Graph 17**. Either way, employers believe their employees match the needs of their business **Graph 18** and that their people are highly skilled **Graph 19**. Companies are well aware that the skills of their staff form part of their competitive advantage **Graph 20** which helps explain

the considerable commitment to upskilling on-the-job.

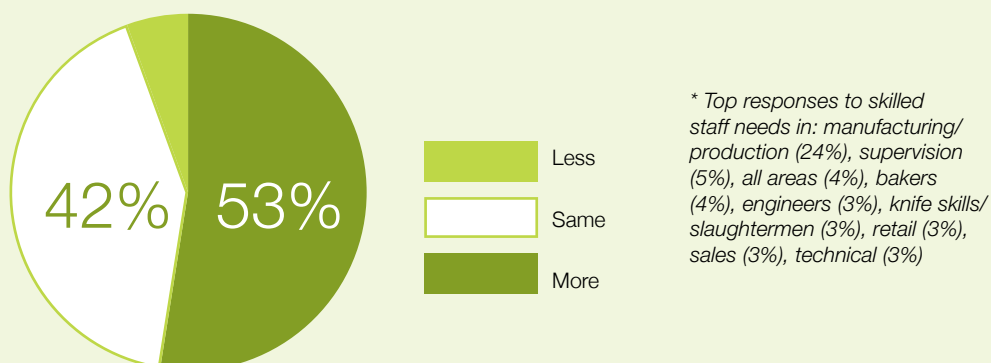
But companies also believe there is a skills shortage with 51% either agreeing or strongly agreeing with the statement *We have skills shortages* **Graph 21**. The current areas of shortage are bakers (8%), and management, leadership and supervision (11%) but the range of skills

shortages varies from the very specific to the generic **Table 14**. Looking ahead to 2012 and 2013, 53% of companies believe they will need more skilled staff **Graph 22** particularly in the areas of manufacturing and production but again with a list of specific and generic skills.

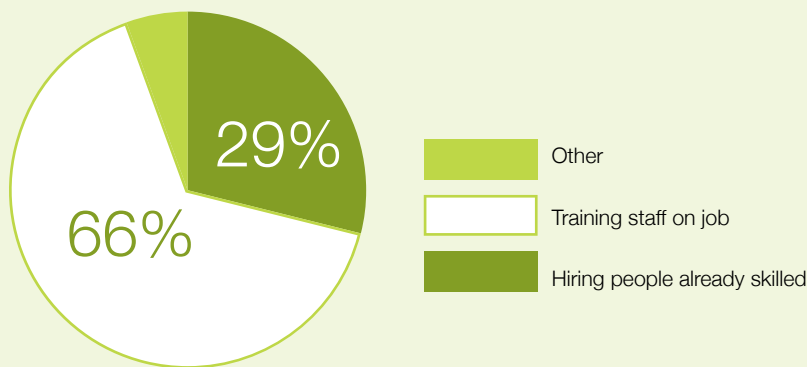
Table 14: Specific areas with current skill shortages for food manufacturing firms

Area with current skill shortage	Percentage (%)
Bakers	8
Management / leadership	8
Packaging / packing	5
Manufacturing	4
Technical	4
Machine operators	4
Beekeeping	3
Supervision	3
All areas	3
Product development	3
Trades / qualified people	3
Knife skills / filleters	3
Engineers	3
Literacy	3
All production	1
Butchery staff	1
Forklift	1
Retail / customer service	1
Food presentation	1
Starch moulded confectioners	1
Storeman	1
Documentation	1
Machine operators	1
Laboratory	1
Automation engineers	1
Scientists	1
Health & Safety	1
Recruitment	1
Maintenance	1

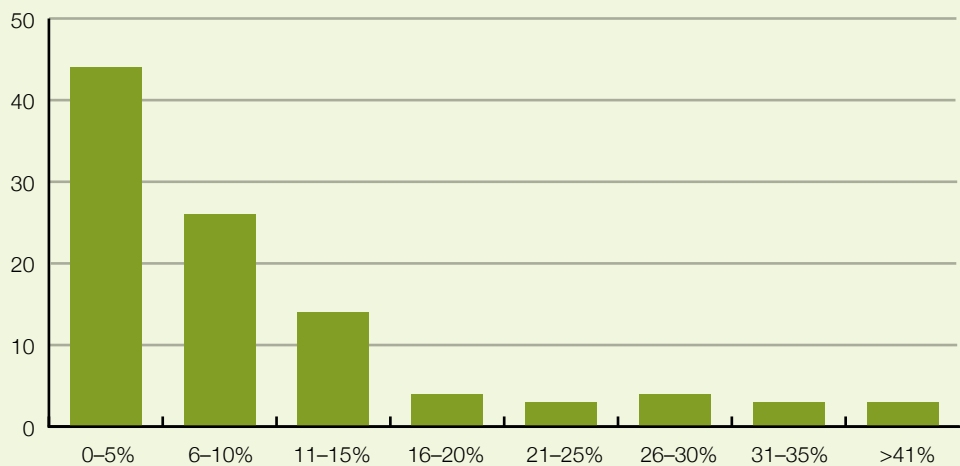
Graph 22: Response to question, “Looking ahead to 2012 & 2013, will you need the same, more or less skilled staff\*?” by food manufacturing firms



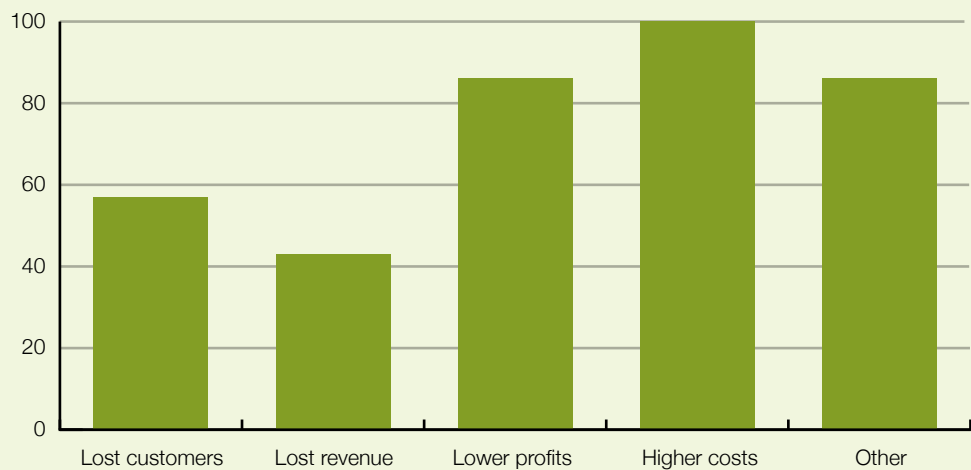
Graph 23: Main ways to fill the need for skilled workers by food manufacturing firms



Graph 24: Percentage of staff turnover for food manufacturing firms



Graph 25: Implications of not being able to acquire skilled staff for food manufacturing firms

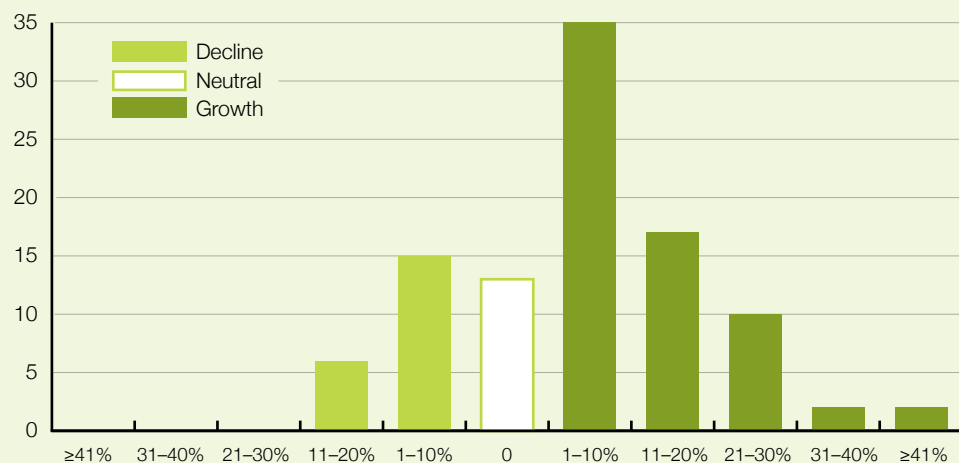


Unlike the engineering and metal manufacturing sector, food manufacturers will fill their needs by training their staff on-the-job (66%) **Graph 23**. They know they are more likely to be able to hire

skilled staff as 56% of companies have a staff turnover of greater than 5% and 30% have a staff turnover of more than 10% **Graph 24**. However, companies are also aware that if they cannot meet the need,

they will face higher costs and lower profits – but believe they are less likely to lose customers. **Graph 25**

Graph 26: Estimation of rate of profit growth/decline (%) per annum over the last two years for food manufacturing firms



This sector has a lower demand for skilled workers. Companies expect to train their staff on-the-job and have considerable confidence in being able to find the skilled workers they need on the market. With the high staff turnover and lower skills requirements, this is realistic even if it might cost more to fill the gaps.

Food manufacturing companies have escaped the worst effects of the recession with only 21% of firms experiencing a decline in profits over the last two years and a healthy 66% experiencing a profit growth, of which 4% have had growth of over 30% **Graph 26**. It would seem the sector is well placed to deliver on the government’s economic growth agenda.

The trend to train on-the-job reflects the reality of the situation. A considerable number of people with no qualifications work in the sector but the requirements of the job mean companies have to train. The emphasis on health and safety, hygiene, and machinery, plant and equipment training are testimony to this and if it results in formal – and transferable – qualifications, companies are building the skills base of New Zealand and consequently, productivity.

## Our comments

As our research shows, the skills needs of companies in the engineering and metal manufacturing sector differs from those of the food manufacturing sector. However, the commonality is in the demand. Both sectors will require more skilled workers – the question for companies is to train or not to train. To do the best for NZ Inc and our young people or take a fill-the-gaps approach.

**This is not a problem that can be solved by government or an Industry Training Organisation – a qualified tradesperson is trained on-the-job and needs to put in the hours to prove competency. It's time for companies to realise that their future rests in their own hands.**

## Engineering and metal manufacturing

There is already a skills shortage in the engineering and metal manufacturing sector and the shortage is growing. Unless this is addressed, and quickly, companies will lose customers and lose revenue. This is not a problem that can be solved by government or an Industry Training Organisation – a qualified tradesperson is trained on-the-job and needs to put in the hours to prove competency. It's time for companies to realise that their future rests in their own hands.

Companies taking on apprentices take on a 4-year commitment. It is a commitment in time – for supervision, for the transfer of skills, for non-productive time during courses – and money – for assessment fees, block courses, wages and of course, time. We find though, that companies that have apprentices are passionate about passing on the knowledge and skills of their trade: the problem is that, especially during a downturn, passion has to be tempered by economic reality. As the economy bounces back, this lack of investment during the downturn foreshadows another cap on business potential. If government better recognised the commitment by companies to NZ Inc and invested more in trades training, the skills shortage situation might be very different. Good government policy and clear and equitable funding would also boost the uptake of training amongst employers.

The public perception about trades training has also been devalued by successive governments' obsession with university education. We do not doubt the value of advanced learning but the country needs machine makers as well as machine designers; builders as well as architects. The path from school to a trade has become overgrown. It is difficult to attract high calibre candidates and these candidates are competed for amongst the various trades.

The sector pathways to be introduced in schools in 2012 will go some way to addressing this issue but Competenz, in conjunction with its industries, must also continue to work to raise the profile of trades training as an attractive career option.

Our research shows a significant skills shortage in engineering and fabrication, tradespeople and welders and that the shortages are only going to get worse over the next couple of years. The Department of Labour suggests that temporary workers are an important source of labour. This may be true but is it a long term solution for NZ Inc and our young people? We believe not.

Government needs to look at how it supports industry training and whether the requirements for off-the-job as well as on-the-job training are being sufficiently funded. A rethink of the whole funding model, from school to qualified tradesperson, is needed. And it may well mean more money has to be invested in the system but this increased investment will, over time, be repaid with increased economic growth.



# Food manufacturing

The food manufacturing sector is rightly described as the lynchpin of New Zealand's prosperity. But, the prosperity will be based not only on the transformation of our primary products into more valuable commodities but also on the skills levels of the workforce. NZ Inc needs a highly skilled workforce that will make the difference in terms of productivity, innovation and quality of product.

Companies in the sector believe there is already a skills shortage and that the shortage will continue in the next few years. But they are optimistic that they can fill the skills gap – companies in the sector are committed to training.

Training is essential for very obvious reasons. Health and safety training is essential to keep employees safe and food handling and safety is essential to keep customers safe. And, to protect the brand of any company in this sector, training needs to be to an internationally accepted standard.

To keep a competitive advantage, to increase productivity, companies also need to train: in manufacturing processes, machinery and equipment, and lean manufacturing.

Food manufacturing companies, particularly large ones, have long had a culture of training. They employ a disproportionate number of unqualified workers and train them through well-developed systems, reinforced with standard operating procedures. Our survey shows 99% of companies train their staff but are the skills acquired by employees recognised?

The staff turnover in the industry is relatively high and employees moving between companies often have to undergo the same training each time they move. An employer cannot risk gaps in the fundamentals of their business, food handling and safety or health and safety for example, as the results can be devastating. There is no way for an employer to recognise if a new employee's previous training has reached an adequate level of competency.

Nationally recognised qualifications with proven levels of competency are the solution. However, the just-enough and just-in-time training that industry needs is not recognised or funded by government. Industry needs bite-sized training programmes to not only upskill the workforce but to also provide a means for skills learnt on-the-job to be recognised and made transferable.

Productivity gains for New Zealand will only come through investing in staff to ensure they are skilled and motivated. Taking employees off the production line for blocks of time is not an option for food manufacturing companies – but short bursts of learning, leading to larger qualifications are. Government, the New Zealand Qualifications Authority, and Industry Training Organisations all need to adapt to make this a reality for companies.

Food manufacturers know they need more skilled people, but unlike the engineering and metals manufacturing sector, they know they can train employees to an appropriate level. The culture of training stands them in good stead for the future: workers need the benefits too by having their training recognised as a transferable and nationally valuable qualification.

**Productivity gains for New Zealand will only come through investing in staff to ensure they are skilled and motivated.**

## A final word...

**Training, we believe, is essential not only for the government's growth agenda but for NZ Inc.**

Companies already know this, as shown by the amount of training already undertaken, but it's not enough to meet demand. There needs to be another look at how the investment by a company, an apprentice, a learner, an Industry Training Organisation – and hence government – works and what can be done to ensure training to meet a skills need is supported and recognised. International research shows CEOs increasingly call for a shared agenda with government in areas deemed critical for business growth. Outcomes like improving the skills of the workforce are best achieved through sustained collaboration between public and private sectors.

Training people is not easy and companies face a range of challenges; be it time, finding good trainers or dealing with basic learning problems. However, companies cannot ignore a key driver of productivity – a driver that is related to higher business growth than just changing processes. In the end, it's workplace training that will provide the platform for growth – and the GDP parity with Australia the government and the country so longs for.

**Both sectors will require more skilled workers – the question for companies is to train or not to train. To do the best for NZ Inc and our young people or take a fill-the-gaps approach.**

## Sources of statistics and information

*Perceptions of Productivity*, Competenz 2011

Competenz strategic training plans years 2010–2015 for the manufacturing sector

Department of Labour

*Skills Challenge Report*, Department of Labour

New Zealand Trade and Enterprise

Statistics NZ

*Global CEO survey 2011*, PricewaterhouseCoopers

# Appendices

Type of training	Percentage (%)
Assembly	4
Computer	4
Confined space	4
Electrical	4
Hazardous / dangerous goods	4
Technical	4
Compliance	4
Fire	3
Manual handling	3
NZQA / diploma	3
Standard operating procedures	3
Draughting / CAD	3
Glass / glazing	3
Sales	3
Driving / heavy traffic	2
Installation	2
Chemicals	2
Lean Manufacturing	2
Maintenance	2
Measurements	2
Brazing	1
Casting	2
Design	1
Environmental	1
Fitting	1
Gas	1
Inspection / dismantling / fault finding	1
Numeracy / literacy	1
Office / admin	1
Production / operations	1
Rail operations	1
Accident investigation	1
Air cargo security	1
Boat building	1
Bolting	1
Build hearing instruments	1
Building water tanks	1
Cabinet making	1
Chamber of commerce	1
Colour coding	1
Competitive manufacturing	1
Credit	1
Customer services	1
Deburring	1
Export	1
Ezcal	1
Frame making	1
Furnace	1
Guillotine	1
Huets (Helicopter Underwater Evacuation)	1
Laminating	1
Lathe	1
Lockout tagout	1
Painting	1
Picking orders	1
Plan reading	1
Powder coating	1
Productivity	1
Rigging	1
Rolling theory	1
Teamwork	1
Understanding water	1
Upholstery	1
Warehousing	1
Work permits	1

Appendix I: Other specific types of training undertaken for manufacturing and operations (excluding management) in engineering and metal manufacturing firms (less than 5% response)

Type of training	Percentage (%)
Cleaning	4
Engineering	4
Fire	4
Hazard	4
Heights	4
Bee keeping	3
Computer	3
Confined spaces	3
Customer service	3
Documentation	3
Packing	3
Risk management	3
Auditing	1
Continuous improvement	1
Creativity	1
Efficiency	1
EMA	1
Emergency	1
Export	1
HACCP	1
Heat treatment	1
Heavy traffic	1
Imports	1
Laboratory	1
Lean manufacturing	1
Manual handling	1
Milling	1
Outward bound	1
Product development	1
Pruning	1
Quad bike	1
RMP	1
Sales	1
Setting up shops	1
Spray dry	1
Stockyard	1
Technical for factory	1
Time management	1
Tools use	1
Tractors	1
Truck driving	1
Union Rep	1
Warehousing	1
Winemaking	1

Appendix II: Other specific types of training undertaken for manufacturing and operations (excluding management) in food manufacturing firms (less than 5% response)





If you want more information on  
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