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An Assessment of the Likely Changes to Construction Businesses in Christchurch Post Recovery

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AN ASSESSMENT OF THE LIKELY CHANGES TO CONSTRUCTION BUSINESSES IN CHRISTCHURCH POST RECOVERY

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Executive Summary

This report provides an assessment of what is likely to happen to the construction workforce and construction businesses in Canterbury post-earthquake recovery.

The report looks at the changes to business structures, recruitment and resourcing over the period since the first earthquakes in 2010 and 2011. There have been significant changes to construction businesses in Christchurch since the earthquakes. These changes can be seen in the ways in which businesses have grown and adapted to cope with the changing demands that the rebuild posed.

More recently, the business focus has been on future markets and ways in which businesses could alter their current business models to sustain their businesses as Christchurch returns to a more normal construction business marketplace.

The report shows that construction businesses have a large degree of adaptive capacity, and are able to quickly move their business models to take advantage of growth and opportunities. This adaptive ability serves the industry well. As businesses are faced with fluctuating markets, they are now better prepared towards facing these changes through adapting their processes. These processes include a focus on maintaining business rather than growth, and attention to retaining current staff rather than recruiting new staff.

Many businesses, especially small to medium enterprises, will need support as they emerge from the Christchurch rebuild. This report provides some suggestions on possible scenarios and what could be done to support businesses as they emerge from the Christchurch rebuild.

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Introduction

This research is underpinned by the question, “What is likely to happen to the construction workforce and construction businesses in Canterbury post-earthquake recovery?”

In starting to answer this question, this research analysed the past (What has happened?), the current (What is happening?) and developed future scenarios (What is likely to happen?).

The work focused on the current status of construction contractors and sub-contracting businesses in Christchurch and the changes to their businesses since the 2010/2011 earthquakes.

The research shows how businesses have coped with market changes and allows predictions to be made of how these organisations might react when the Canterbury market slows.

The research includes national and international literature on how companies have coped with boom-bust cycles in the past. The research also includes analysis of current Government (MBIE) information on likely outcomes for construction businesses post Canterbury recovery.

Aims

Using existing data, collected by the research team over the last 4 years, supplemented with analysis of Government documentation and international literature, this research aims to:

- 1) Provide a review of current information available on how to manage construction boom-bust cycles and market changes, with a focus on international literature, Government (particularly MBIE) data and documents, and a re-analysis of data from the “Resourcing the Rebuild” study undertaken by the research team.
- 2) Provide an assessment of the ways in which contracting and sub-contracting businesses in Christchurch have changed as a result of the earthquakes.
- 3) Identify the ways in which construction organisations have managed market volatility since 2010/2011.
- 4) Provide an assessment of what is currently happening to construction contractors and sub-contracting organisations in Christchurch in terms of: business development; skills, training; salaries, conditions, retention and recruitment.
- 5) Provide recommendations on possible ways of retaining industry skills within the Christchurch region post-earthquake recovery.
- 6) Describe potential scenarios on what might happen to Christchurch construction businesses post-recovery.
- 7) Provide recommendations on suitable research directions which would assist in providing further evidence on what might happen to construction businesses in Canterbury when there is a market slow-down.
- 8) Produce a report which should enable further testing of post-recovery scenarios on the impact of a market slow-down on construction businesses with MBIE, Treasury and other stakeholders.

Research methods

Research methods involved for this research include:

1. A literature review of current national and international reports and data.
2. A re-assessment, interrogation and analysis of the data collected with contractors and sub-contracting organisations in Christchurch, over the previous 4 years.
3. Developing recommendations based on the previous research data and current knowledge of the marketplace.
4. Scenario development on the future of the Christchurch construction industry

Scope of work

This report largely relies on longitudinal research from 2011 to 2015 undertaken by the authors following the 2010/11 earthquake events in Christchurch. During this period, interviews were conducted with representatives from recovery agencies (e.g. CERA and MBIE), building associations and construction companies who have been involved in post-earthquake reconstruction. The case studies of construction organisations in Christchurch provide information on the complexity of businesses in coping with uncertainties and increased demand during recovery. Since 2010, many businesses have undergone transformations in business processes, workforce management, training and recruitment. These transformations are covered in this report. Although there are significant consequential effects of the expanded workforce in the Canterbury construction sector on other non-building sectors such as the service sector, rental housing markets and wider Canterbury economy, these are not covered in this report. Instead, the report serves as an example of what might happen in the coming years within the construction sector, and the ways in which businesses are likely to react to any market changes and volatility.

Construction boom-bust cycles

International literature shows the impact of construction boom-bust cycles and how this affects construction businesses. The literature shows that when there is a market slowdown, business and employment changes are common including:

- a more competitive environment;
- different business development practices;
- reduction in pricing to win work;
- reducing resourcing needs and
- decreased training investment.

External shocks, such as the 2008/09 global financial crisis, provide an indication of how construction businesses will fare in any subsequent downturn. Indications show that there could be:

- downsizing of companies
- cost cutting to obtain work
- reducing training

Internationally, scholars have emphasised the importance of the procurement system, improving labour productivity, improving skills and processes in contributing to good responses of the construction sector to market volatility. In Christchurch a combination of factors will need to be addressed to ensure businesses survive and thrive after the rebuild construction approaches completion.

The internationally suggested key measures, for an improved response to construction boom and bust cycles are summarised below as:

- Smoothing out boom-bust cycles by providing long-term investment and spending plans for construction across both public and private sectors which would provide certainty for the construction sector.
- Changing procurement practices to be based on a whole-of-life best value approaches rather than lowest price tendering.
- Improving forecasting of labour demand and supply by establishing clear capital spending programmes and visibility of building and construction pipelines.
- Using existing knowledge of the workforce and construction organisations' forward planning to improve the sector's response to the boom and bust and using the likely future project information to inform procurement decisions which could then be used in setting policies and goals for investment.
- Focusing on improving capacity and capability of individual construction businesses and assisting with the development of sustainable business goals.
- Improving training and making employment conditions more attractive.

The construction industry outlook 2015-2017

Five years since the first major earthquake striking the Canterbury region, the reconstruction is well advanced. In its August 2012 Canterbury Economic Outlook, Westpac estimated that earthquake building activity will begin to decline from early 2015¹ while NZIER forecasted that total construction activity would peak in 2015². The latest estimate from Westpac is that the Canterbury rebuild has peaked and the demand for construction workers in Canterbury is expected to fall from late 2016³. The perception of construction businesses working in the Canterbury market is reasonably aligned with this thinking - that the maximum output levels of the rebuild will be in between 2016 and 2017, and output is expected to be sustainable over a number of years⁴. There were quite a wide range of forecast views cited from August 2012 to August 2015 with no overall consensus. Improvements in forecasting have been made and so the more recent forecasts are likely to be the more accurate. The most up to date and accurate forecasts are from the Ministry of Business, Innovation and Employment Quarterly Job Matching Report, Dec 2015, which forecasts Business as Usual starting to climb between now and 2019, with the rebuild construction remaining high until mid-2018⁵.

Christchurch remains a city in transition. SCIRT's programme of works is nearing completion with activity expected to continue at current levels until the end of 2016. The longitudinal study by the authors of this report suggests that the speed of recovery has so far been gradual, with growth picking up in 2012, a year after the February 2011 earthquake. Physical recovery accelerated between 2012 and 2013, with spending on infrastructure repairs and damaged property.

Over the 3 years (2011-2014) following the February 2011 earthquake, Westpac suggested that a total of 22,000 additional workers were employed in Canterbury. Of this number, around 14,000 workers (63%) were employed in the construction industry. The size of the Canterbury construction industry almost doubled, reaching around 30,000 workers. These figures are in line with the results of our case studies in 2013 that up to 60% workforce expansion was observed across the studied construction organisations.

The continued need for accurate information has caused uncertainty in the marketplace. For instance, the lack of a clear pipeline of work has meant that some businesses have operated without clear future forecasting. Likewise, the nature of change has been uncertain and this has caused businesses to change modes of practice. Since 2014, employment growth across the studied construction organisations has changed. The concern of companies is around the uncertainty faced, in whether or not to invest in new staff. As the residential reconstruction and infrastructure repairs are complete, there will be a shift to alternative construction projects, including to commercial projects. As construction businesses have prepared themselves for business changes, different employment practices have been observed, changing from recruitment to subcontracting and workforce retention.

Construction companies in the study are generally positive, although they are aware of the risks and uncertainties to their businesses. Christchurch City Council is now seeking public-private partnership

¹ Westpac, Rebuilding a city: An update on developments in Canterbury, 16 August 2012

² NZIER, New Zealand Trends in Property and Construction, Fourth quarter 2012

³ Westpac, Forewarned is forearmed: What will happen to Canterbury's labour force as the rebuild winds down?, 3 August 2015

⁴ AECOM, Sentiment: Infrastructure and Buildings Construction Survey New Zealand 1st half 2015

⁵ MBI, The Canterbury Quarterly Job Matching Report, (Dec 2015)

funding for major CBD projects⁶, and this next stage of the rebuild will see a greater focus on commercial rebuild, which will have some impact on how the companies manage their businesses.

In future, the annual value of all building and construction nationally is projected to increase by 19% from 2013 to 2020 (residential building by 22% and non-residential building by 17% over the same period)⁷. The forward construction pipeline will help improve industry and business planning in the building and construction sector.

There is still a large amount of rebuild work to be completed in Christchurch. As any residential construction activity shifts to non-residential reconstruction spending is set to increase. This includes:

- Around \$2.5b of spending on horizontal infrastructure by SCIRT. In mid-2015 around 75% of this work was complete, with the program expected to be largely complete by the end of 2016⁸.
- Around \$8b of spending on public and social assets, such as education and health care facilities⁹.
- Privately funded spending on commercial construction, including replacement of damaged assets, and the construction of new assets¹⁰.

In addition to the expected demand in non-residential rebuild activities in Christchurch, it is expected that extra pressure will be placed on the workforce requirement from other markets over the next two or three years. The extra pressure for resources will come from other areas outside Canterbury including, increase in housing development in Auckland, improved economic prospects in Europe (which could mean that those who migrated from Europe, in particular the UK and Ireland, could return to Europe and infrastructure investments in other cities in New Zealand.

Against this backdrop, this report considers trends in employment practice of Canterbury construction organisations in response to market changes described above. The report largely relies on the materials sourced from interviews and from talking to construction firms directly involved in the reconstruction. A summary of evidence about what steps construction businesses have been taking and how they have prepared for likely changes in the reconstruction sector.

⁶ In April 2015, Christchurch City Council established Development Christchurch Limited with a priority to appeal to the private sector as a source of funding for some major projects in the CBD.

⁷ The National Construction Pipeline Report, produced by the Ministry of Business, Innovation and Employment (MBIE), jointly prepared by BRANZ and Pacifecon NZ Ltd. October 2014, <http://www.building.govt.nz/UserFiles/File/Publications/Building/Technical-reports/national-construction-pipeline-no-2.pdf>

⁸ SCIRT- <http://strongerchristchurch.govt.nz/more-progress>

⁹ Public Sector Rebuild Programme Of Work - <http://cera.govt.nz/recovery-strategy/leadership-and-integration/public-sector-rebuild>

¹⁰ Westpac, Peak or plateau? Update on the Canterbury rebuild, 17 July 2015

How have contracting and sub-contracting businesses changed post-quake Christchurch?

“This year (2014), we are seeing a significant resource pinch on our external subcontractors. For instance, we sent 100 invitations for tender, only a third got back to us as those subcontractors are busy and their resources tied up. It will be difficult for us to find compliant tenders and keep competitive.” (Interviewed large contracting business in Christchurch, April 2014)

When the Darfield earthquake struck Christchurch in 2010, the New Zealand construction industry was going through a period of low activity caused by the 2008 global financial crisis. The earthquakes provided a period of significant growth for construction businesses. Now, in 2015, construction businesses are looking at post-earthquake construction opportunities. The main changes seen in business operations post-earthquakes are:

- Between 2010 and 2011, following the two major earthquake events, capacity building, innovation and upskilling for growing businesses become a focus for construction businesses. Most businesses went through a period of significant growth and there were new entrants to the market. For companies, this meant a period training, recruitment, resource shortages and developing ways of maintaining their staff in the face of external competition. Some businesses focused on developing better working environments, others had to develop new business systems to cope with growth.
- Between 2012 and 2013, with the continued demand for labour and associated cost inflation in the construction market (in the earthquake and the non-earthquake related construction markets), businesses focused on improving their efficiency, productivity and capability in undertaking earthquake-related work. Imported workers from outside Christchurch impacted businesses including businesses having to pay higher wages and facing increased pressure on housing their workforce.
- Between 2014 and 2015, work load fluctuations meant contracting businesses moved to diversify into new business markets such as new subdivisions in Canterbury and housing and infrastructure markets elsewhere. There were concerns about the risks of overcapacity in Christchurch. The trend in 2015 is now moving away from growth to maintaining and in particular from recruitment of staff (to grow businesses) towards retaining and replacement of staff (to maintain businesses).

Business strategies for managing market volatility post-earthquake

“It’s a big learning curve from the depression to such a boom. Coming out fresh from perhaps the most depressing time we have ever had in 2009; we had a better understanding of the internal and external factors that influence the survival of our business. We are conscious of the fact that a good, well-organised company attracts people and also attracts clients. Only by maintaining good relations with our clients and providing security for our people, can we gain the competitive advantage over others. This advantage can endure the test of time.” (Interviewed medium-sized subcontractor in Christchurch, June 2014)

The business responses to market changes in the construction sector are not static. Being through the boom/bust cycle following the 2008 financial crisis and the 2010/11 Canterbury earthquakes, businesses are aware of a likely downturn and are preparing for the changes in the market. The key learnings for developing sustainable businesses are:

- Businesses are now more people-focused including focusing on clients and employees in order to sustain future business. There is a consensus that for businesses to withstand any other future shocks, a solid client base is the first priority.
- Creating a stable workforce is a key goal. Most contracting businesses, particularly the subcontractors, realise that having a productive and competent workforce is the key to producing quality work and sustaining a client base. Businesses have therefore been investing in training and improving working conditions.
- Flexibility in the businesses is being created by recruiting younger workers (under 25 years old) with lower skill sets, but higher mobility, which enables businesses to respond to uncertainties.
- There were many different strategies adopted by businesses in managing market volatility post-earthquake which have included:
 - recruitment on a more permanent basis;
 - a focus on improving the built quality of the work;
 - focusing on improving reputation and brand of the business;
 - balancing between business as usual projects and earthquake-related work;
 - establish long-term, effective, partnerships;
 - diversification of business services and skills;
 - improving businesses processes, skills and knowledge;
 - a focus on the client;
 - developing relationships with local communities;

- retaining aging workers;
- improving financial cashflow and financial systems, especially critical for sustainable small businesses;
- recruiting on a permanent basis, providing job security;
- investing in skills and capacity development.

In assessing what is currently happening to construction contractors and sub-contracting organisations in Christchurch in terms of: business development; skills, training; salaries, conditions, retention and recruitment the following has been observed.

“Disaster recovery projects are often executed more quickly than most professionals are used to. The time needed to recruit externally can be problematic especially when local staff are hard to find, or cost above-average rates, or have to be transported from further afield. This is where internal development scores much higher than external recruitment. By providing a clear career path, along with an action plan for our existing staff, they see a clearer picture of where they can go in the future.” (Interviewed large contracting business in Christchurch, April 2014)

- The on-going issues related to the construction industry’s structure, such as an aging workforce, long lead times for training, high turnover, and a lack of integrated workforce planning across the sector are current challenges.
- Workforce planning continues to be difficult, especially predicting workflows.
- Uncertain workflows increase business costs, including of recruitment and training.
- In terms of skills, the scale of reconstruction tasks and increased workloads from new subdivisions continues to create skill shortages, even whilst companies are focusing on what happens to their businesses post-rebuild.
- Training continues to cause some difficulty for businesses (especially subcontracting businesses) including lead times needed to train people in the required skills and the undersupply of some skills largely due to the high turnover of new recruits, particularly among the younger workforce.
- Businesses are currently focused on what will happen post-rebuild, including identifying where employee changes could be made. This includes encouraging the aging workforce to retire; issuing more temporary contracts; focusing on the client and exploring new markets.

Latest strategies of construction businesses in anticipation of a potential slowdown in Canterbury (October 2015)

“What we have learned from those few years (since the earthquakes) is that apart from having good competent workers, we also need efficiency to achieve better work flows and reduce the cost of business operation.” (Interviews with one building supplies company, October 2015)

There is a consensus among interviewed construction businesses that the Canterbury rebuild work, particularly the residential rebuild work and SCIRT’s horizontal infrastructure repair work, plateaued in 2014, started falling in 2015 and is expected to wrap up by end of 2016.

As of October 2015, construction businesses reported that the impact of this downturn is already being felt in the Canterbury construction labour market. The observed trend is that:

- Some tier one contractors¹¹ new to the Canterbury construction market started re-evaluating their presence in Christchurch in 2015 and/or diversifying into other industries to make alternative employment arrangements.
- Since the beginning of 2015, some tier two contractors (the subcontractors to tier one contractor) relocated back to where they came from. In most cases, the owner/manager of those tier two contractors may have shifted back while the Cantabrian workers they employed since the earthquakes are at risk of unemployment.
- Tier three contractors (sub-contractors to sub-contractors of the main/head contractor, often very small/specialist sub-contractors) who were new to the Canterbury market are less able to cope with the downturn pressure on Canterbury rebuild. Since the third quarter of 2014, a number of new to Canterbury tier-three contractors with initial bases from outside the Canterbury region have started leaving the region.

With a large amount of residential repair work complete, there are currently signs that residential reconstruction is starting to ease back. This is accompanied by a waning demand for new housing development in subdivisions. There is a general concern among interviewed builders that some post-quake start-up building businesses will downsize or re-structure their business. Small builders need to plan for the ‘slowdown’ to reduce the likely employment impact. In anticipating the potential downward pressure on some of their member organisations, the Master Builders has been taking a proactive approach by offering business reshaping and restructuring advice to their members.

In contrast with residential and horizontal infrastructure repair works, the workloads in earthquake-related commercial rebuild are entering a period of growth driven by good visibility of public spending on anchor projects in the Christchurch CBD. Companies interviewed were optimistic about such growth and expected

¹¹ The term ‘tier one contractor’ was commonly cited by interviewed construction organisations in Canterbury. It could also refer to the Head Contractor. It refers to a main/general contractor who is responsible for providing management, material, labour, equipment and services necessary for the construction of the project. The main/general contractor hires specialist subcontractors to perform all or portions of the construction work.

that commercial rebuild activities will continue to increase for a sustained period of time. Interviewees in October 2015 suggested that even though the Canterbury rebuild pipeline is clear over the next three to five years, the levelling out in the residential sector as a whole (both reconstruction and business as usual new housing developments) will have significant implications for the construction industry.

Reflecting on the year of 2015 and looking into 2016, the way construction businesses are coping and adjusting in response to the market changes can be summarised as follows.

- The upwards pressure on costs in the housing and construction sector, in particular, the pressure on wages seemed to be eased off due to reduced activities in residential reconstruction and in new subdivisions. There are still reported shortages in certain types of specialist trades, such as drive way contractors, scaffolders and tilers. Builders had typically factored a margin for risks, including uncertain material and labour costs and availability.
- There is a concern among a number of companies that the new health and safety law (the Health and Safety at Work Act) and associated regulations being developed will increase compliance costs, especially for small businesses.
- Nearly all the interviewed companies reported that they have now (October 2015) reached a steady business state, but with differing outcomes, for instance, some downsizing to the pre-earthquake levels and some maintaining the same labour capacity as in 2014 but not expanding.
- Improving efficiency seems to be a key focus for most interviewed construction organisations, such as improving staff performance; reviewing business structures, improving supply chains and focusing on increasing their customer base.

Recommendations on retaining skills

“Both the company and our people have learned from the past volatile situations that as individuals, you’ve got to help yourself, build up your skills, and diversify your expertise. It can open up more opportunities for you and the company when times become bad.” (Interviewed subcontractor, May 2015)

Developing resilient sustainable businesses is a function of planning and adaptability. Retaining industry skills is of benefit to the individual organisations in the construction sector, should also be a matter of national and/or industry concern. Our recommendations include:

- A standardised employment process for the construction sector: A Multi-Employer Collective Agreement (MECA) proposed in the Construction Sector Workforce Plan would, for instance, improve conditions and could reduce turnover rate and improve quality and training.
- Promoting Best Practice: an organisation dedicated to providing leadership and promoting best practices through advocacy, standards and professional qualifications for the industry.
- An efficient, transparent, workflow pipeline for public and private work: The pipeline creates certainty for organisations and allows businesses to plan longer cycles.
- Construction SME support and advisory service: SME’s are likely to fare worse in any downturn. A SME advisory and business support service could assist with improving training and business practices.
- Succession plans in place: Creating business plans which allow for business changes over time, including personnel, projects and workloads.
- An industry-supported welfare initiative: Aimed at providing support for companies including increasing wellbeing; funding for social good projects; relocation and retraining advice and providing a mentoring service for businesses.
- Developing exit strategies: Advice to companies wanting transition and support for employees undergoing changing workplaces. Including career advice, retraining, exploring job options and opportunities.
- To be successful will require a collaborative process between industry, government and other agencies with a focus on strengthening businesses: Including: Developing closer link with the local communities; Developing a strong financial resource base; Developing a better internal knowledge base; Developing quality brand; Developing a solid client base; Looking for diversification of services - expanding business as usual market; Developing transferable skills; Partnerships with other companies; Developing a loyal workforce - recruitment on a permanent basis; Retaining Aging workforce; Commitment to providing job security for employees

Potential scenarios in Christchurch post-recovery

Likely scenarios which could affect Christchurch construction businesses post-recovery include:

For larger contracting businesses, the likely scenario is that they will redistribute their workforce around New Zealand in search of alternative work and different markets. Larger companies usually have sufficient ability to manage their national, and increasingly international, operations.

For smaller, locally based companies, there is likely to be a mixture of the following:

- Some will be unlikely to sustain the current level of construction activity and will have to use strategies for downsizing their workforce including: reducing working hours; redundancies; reducing training and retirements.
- Some will sustain their level of activity through a combination of factors such as: developing a strong client base; diversification; a focus on quality; developing partnerships.

For individual employees, there is likely to be uncertainty in employment. When the earthquake-related works are near completion, some workers may relocate to other countries or other parts of New Zealand in pursuit of better career prospects while others may stay in the construction sector in the Canterbury region. Therefore, individuals should take an interest in the companies they work for in terms of forward workload and business planning. Individual employees should prepare to: upskill, diversify their skills/ retraining; look at possibilities of relocating.

Government and business agencies can help by: offering advisory services (training, business support etc.), providing certainty of work (delivering programme forecasts/ developing the future pipeline to smooth boom-bust); developing best practice guidance.

The clear messages from the studies are

- That companies require certainty, transparency and good information in order to plan effectively.
- That if there is a vacuum of information, businesses will fill this vacuum with their own assessments
- That as forecasting and certainty improve, businesses will make better long-term decisions for their workforce and business operations.

Potential future risks

The rebuild has been a key driver of growth in construction workforce, however, this has caused some potential risks for the economy and construction market. If the level of building activity significantly declines then the following are likely risks that may affect different stakeholders:

- SME risks - reduced size of business, bankruptcy of some construction businesses due to cash flow problems, redundancies, SMEs merging with other companies
- Customer risks: With companies ceasing to trade, consumers lose out on warranties. Consumers who raise building quality concerns, require rework or unfinished work will not have their needs met.
- Employee risks: Employees may face increased subcontracting and reduced wages. High cost of using permanent workers (remuneration, Health and Safety, other social and economic benefits for employees), coupled with a decrease in construction activities would mean that it may be uneconomic to hire permanent workers. In particular there would be increased reluctance of construction businesses to recruit young workforce (graduates, trainees or apprentices) which need additional resources for in-house training and upskilling.
- Industry supply risks: There are economic and social consequences of the industry labour market in delivering the supply of workforce at a rate that exceeds the required demand by construction employers. There might be a heightened unemployment in the construction sector.
- Industry skills losses: Losing experienced people to other sectors or other parts of NZ, including overseas, will limit Christchurch' ability to sustain a healthy construction sector.
- Competition among construction businesses might grow due to reduced construction activities. Lowest-price tendering with increased competition may lead to lower wages, and lower quality. This might also lead to a return to adversarial relationships.

Improvements in information flows have meant that some of these risks can be mitigated. In particular, the following changes will create better options for businesses:

- Transparent and clear information on forecasting, including a well thought out pipeline of future work. MBIE are providing forecast information and their information appears to align with the findings from the study.
- Business support for training and development, especially for transitioning from one sector (residential) to another (commercial) – or from one location to another.
- Consistent and clear messaging on rebuild activities, completions and future builds.

Future research

Potential future research questions include:

- To what extent, and how, can construction businesses be best supported during any downturn?
- What guidance do companies need, or want, and where should this come from?
- How can we encourage businesses to develop long term resilient and sustainable business strategies?
- How can SME's be best provided with training, support and guidance?
- How will the aging workforce skills be maintained in the industry?
- How can newer and younger entrants to the industry be encouraged to develop long-term industry careers?
- How can the Government and construction organisations best support individuals in developing transferable skills?
- How can we best make use of the valuable experience from Christchurch in terms of improving business processes and capability for New Zealand?
- What will happen to the housing market? – including post-earthquake housing affordability in Christchurch, housing conditions and impact of housing pressure on the industry. What will happen to homeowners/tenants including cashed out homes and the people continuing to live in them?
- What has happened to the cashed out commercial property owners, will they return, and when?
- How much repair work completed will require re-work, and what are the industry implications?
- What is the forecast of the Christchurch population over time and how will this affect demand for new residential/commercial construction once the rebuild is complete?
- What is the best use of red zoned land?
- What is the best way to smooth boom- bust cycles?
- What impact will smoother pipelines of work have on industry supply and demand?
- What happens to the migrant workers who came to Canterbury to assist with rebuild? and how can we best retain them and their skills?

List of research reports from the research team

This report has been prepared primarily using data from the following research reports and research papers.

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Appendices: Supplementary information

This section presents more detailed information under each objective. The material sourced from interviews of the case study construction organisations about their responses to market changes is summarised under thematic headings. As this report covers findings from an extended period from 2011 to 2015, hyper-links to the all the full reports and publications are used. In this way, any further detailed information can be easily accessed.

Managing construction boom-bust cycles: A review of literature

The nature of demand on the construction industry is often fraught with uncertainties, leading to fluctuations in its trend (Hua, 2012). There are a host of economic factors that affect the performance of the construction sector. In particular, cyclical changes in demand can produce many difficult problems for the industry at all levels, particularly construction firms and their workforce (Bennett, 2005; Fan, Ng, & Wong, 2011). Boom cycles often cause inflated prices and reduced competition, whilst recessionary trends lead to competitive cost cutting with reduced quality (Allan et al., 2008). The development and retention of suitably skilled and experienced personnel in the construction sector is highly vulnerable to cyclical demand (PWC, 2011).

During the bust period, significant numbers of partially trained and fully trained personnel are often lost to other industries and rarely return (McGrath-Champ, Rosewarne, & Rittau, 2011). It is common for large numbers of construction workers being laid off when there are insufficient workloads to satisfy the employment need. Employees face redundancy and uncertain futures as construction demand fluctuates, which in turn has a detrimental effect on the wider labour market and individual social wellbeing (Allan et al., 2008). Additionally, the cyclical nature of the industry also deters young people from considering the industry as a future employer (Briscoe, 1988; Hillebrandt, 2000).

For construction businesses, there is added instability and uncertainty in planning, particularly human resources which causes waste and increased costs (Allan et al., 2008). According to Hua (2012), firms are more likely to invest in physical assets if they expect demand to remain high and long-term economic conditions to be good. If the economic prospects are unfavourable, they tend to be conservative about their investment due to potential fiscal risks. Ng et al. (2011) emphasised that private construction investment is more sensitive to general economic conditions, as represented by GDP and unemployment rate, creating uncertainty in the future levels of construction workloads.

In New Zealand, labour planning, especially retention of trained personnel is difficult with near full employment and net migration effects (Allan & Yin, 2010). It was found that in boom conditions, skilled workers were attracted to other industries or overseas to countries like Australia and UK, who had closely coupled economic cycles. In recession period, construction skills were also attracted overseas to pursue better opportunities (Bollard & Hunt, 2008; PWC, 2011). The New Zealand construction industry has a labour turnover rate of over 20 per cent on average (CIPD, 2007). This in turn increases recruitment and training costs.

During the 2008/09 global economic crisis, the New Zealand construction industry was amongst the hardest hit, with employment down by 5 per cent from 190,000 to 181,000 by June 2009 (Department of Labour, 2009). The downturn had an impact on numbers of construction apprentices vital to the future productivity of the sector. According to the New Zealand Building and Construction Industry Training Organisation

(BCITO, 2008), construction employment peaked in June 2007 and experienced a significant fall in the number of new apprentices as a result of financial recession in 2008. The sector experienced a rapid recovery from global recession due to the large demand presented by 2010 and 2011 earthquakes (MBIE, 2013). Despite this revival, however, such growth has further challenged the industry's already-strained labour market (PWC, 2011).

From the economic perspective, the cyclical nature of the construction industry often causes waste in the system due to poor use of resources at a national level, while businesses experience added instability and certainty in planning, particularly human resources, which causes waste and increased costs. Allan et al. (2008) shows that the average labour turnover rate in NZ construction over the past 20 years is about 20% and this in turn can have a significant impact on the wider economy and social well-being. Loss of productivity can also be observed due to poor resource utilisation. This is because purchasers of construction work tend to seek best value for money and budget certainty in the industry. However, during the boom phase, prices are often inflated and competitions are reduced due to full-order book while during the bust cycle, the trends lead to competitive cost-cutting with reduced quality. This contradiction has long appeared to be widely accepted across the construction industry and has also created a negative perception about the industry.

Allan et al. (2008) made recommendations to smooth out the short-term peaks and troughs of the cycles:

- Government and large organisations should minimise delays in their procurement process and make forward planning for construction projects transparent to the rest of supply chain;
- Reductions should be made in government approved and funded projects: procuring faster and smaller projects rather than rolling projects together;
- Setting up construction industry alliance to share information across the entire supply chain;
- Retaining and training skilled and semi-skilled workers is critical to controlling the worst effect of fluctuations. Employment conditions need to become more attractive and internationally competitive; and
- The industry should adopt and apply good cost estimating and cost control, with particular attention given to inflationary rises and methods for accounting for this.

Similarly, PWC (2011) considered that government has a key role in ensuring forward certainty for the sector, allowing it to develop skills and boost labour productivity. It says government spending can only do so much and that while counter-cyclical Government-funded construction is a good way to assist the sector to smooth out boom-bust cycles, it is not a silver bullet. Recommendations from PWC included that:

- Establishment of clear capital spending programmes beyond two or three years and counter-cyclical planning to bring major projects to market at periods of trough in the industry. The latter would enable central and local government to obtain lower prices and provide a steadier growth path needed by the sector so that training and career paths can be better assured and planned.
- A whole-of-life best value approach rather than a focus on lowest price tendering for enhanced procurement, opening up opportunities for private investment and improved allocation and management of risks.
- A consolidation of procurement and procurement expertise as well as an integration of central and local government project letting: Clearer protocols for how central and local government work together should be developed so that larger scale projects are handled less on a one-off basis and integration improved between layers of government where responsibilities overlap.

It needs to be noted that while external shocks will always impact the construction industry, much of the volatility is caused by internal system factors (Allan et al., 2008; Bennett, 2005; Jiang & Liu, 2011). Better

communication within the supply chain, visibility of future orders, long-range planning around resources (particularly skilled workers) and reducing delays in approval and the procurement system can produce considerable improvements in performance and productivity. Championing improved work practices and greater collaboration as well as infrastructure investment can contribute to maximise responses of the construction sector to the volatility of economic climate (Fan et al., 2011).

In the past decade, to counteract the effects of economic cycles on construction workforce development, considerable effort has been put into developing various methods, tools and techniques to improve forecasting of labour demand and supply (e.g. (Sweeney, 2004); (Wong, Chan, & Chiang, 2007); (Ho, 2010); (Sing, Love, & Tam, 2014)). The basic rationale underlying many of these tools is the use of a limited amount of data at the project or firm level to achieve a similar degree of accuracy to that of other statistical forecasting models. Wong (2006) emphasised the fact that workforce forecasting is a key strategic managerial practice for construction organisations. Such a viewpoint sees human resource management as a critical factor in enhancing the performance of construction businesses.

Other solutions to address vulnerability to economic cycles in regard to construction skills have also been used, primarily in such areas as the training of transferable skills (Clarke, 2006; Clarke & Wall, 1998), multi-skilling (Burlison, Haas, Tucker, & Stanley, 1998), promoting the construction industry as an attractive workplace (Agapiou, Price, & McCaffer, 1995; Chan & Dainty, 2007), employing temporary workers or outsourcing, (McGrath-Champ et al., 2011) and developing new technologies and construction techniques that substitute manpower (MacKenzie, Kilpatrick, & Akintoye, 2000). Despite the achievements in construction skills research, Dainty et al. (2005) suggested that workforce planning needs to take account of a wide range of factors determining both labour supply and demand. There remains a paucity of empirical research into the nature of a highly complex and dynamic labour market (Pearce, 2003).

How have contracting and sub-contracting businesses changed post-quake Christchurch

The impact of the earthquakes on the construction sector

The surge in construction activity following the earthquakes offered the sector the chance to develop skills and capital base for improving its economic prospects. However, increasing rebuild requirements in the region raise concerns about the capability of the local, regional and national construction industry to deliver a timely rebuild.

The construction sector in Christchurch was also affected by the 2010/11 earthquakes. In MBIE's Canterbury Employers Survey (DoL, 2011), the construction sector was the only industry that had more workplaces increasing both staff numbers and revenue as a result of the earthquakes. The results also suggested that contracting and subcontracting businesses were responding to the increased demand for their services to clean up and begin to repair and rebuild Canterbury by proactive resourcing both domestically and internationally.

Prior to the earthquakes, however, many construction businesses had their offices or 'yards' outside the Christchurch CBD; this included sole trader businesses such as plumbers and electricians. A few architectural and engineering consultancies were located near to the CBD. In the months following the

February earthquake, displaced companies identified the most destructive impact of the event to be the disruption to IT infrastructure and supply chain relationships ([Chang-Richards, 2012a](#)).

The ongoing aftershocks following the 4th of September Darfield earthquake had complicated the response of the Canterbury-based contracting businesses. While most of their market objectives were targeted for EQC's housing repair programme and infrastructure repairs managed by SCIRT, the damage caused by the February 22 earthquake and the following winter season had added to the need for a workforce shift for emergency repairs including weather tightness, making house safe and preparation works for the winter heating programme ([Boiser et al., 2011](#)).

As the demand of repairs and rebuilds in Christchurch escalated towards end of 2011, contracting organisations reported that their business operational structure was fundamentally changed due to the restructuring of construction activities as a consequence of the earthquake sequence itself and of the reconstruction. The impact, however, was felt most by large contracting businesses. The impact suffered by organisations of varied size are summarised below ([Chang and Wilkinson, 2012](#)):

- For micro-sized subcontracting businesses, the impact was primarily associated with time and cost overruns due to the stretched capacity across both earthquake-related jobs and business as usual projects;
- For medium-sized subcontractors, their aspiration of growing business was limited by the shortages of experienced personnel who can form their core competency;
- The large-sized contracting businesses were commonly faced with challenges posed by the disproportionately increased workloads against their normal level before the earthquakes. Consequently, staff burnout, increased cost in bring in out-of-town workers, and having to say 'no' to other work offers were the reported common impacts.

Construction businesses' immediate response to post-earthquake recovery (2010/11)

Capacity building

Following the September 2010 earthquake, the New Zealand Government and Christchurch City Council have taken initiatives on many fronts to link the sector's development with immigration, education and training. For example, the Budget 2011 includes a \$42 million package for trades training in the Canterbury region. Many construction organisations have put solutions in place to build their capacity, including sharing, borrowing, recruiting, retaining and optimising existing skills ([Chang et al., 2012](#)). Others, by reflecting on lessons learned during the period following the earthquake, have continuously improved productivity enhancing management techniques to better position themselves for future.

- Large-sized contracting businesses: use self-recruitment from their own branch companies both in New Zealand and overseas, recruitment through job advertising and external recruitment agencies from both national and international market (Australia, Southeast Asia) and/or sub-contracting work to other companies. Through a more robust human resource (HR) system, they were also able to liaise with recruitment agencies, schools and other training bodies; also with Immigration NZ.
- Small-sized contracting businesses: tend to use regular recruiting procedures, but tend to focus on providing good working conditions and incentives for their staff, such as increasing salary levels, providing extra holidays, and providing a family-friendly working office environment. Reciprocal cooperation with other businesses was common.

- Micro-sized contracting businesses: tend to rely on existing industry relationships to main the supply of labour, products and materials. Work-share arrangements with other organisations were in place to address the capacity limitation issues. There was recognition of the importance of applying project management knowledge to enhancing work efficiencies within the business ([Chang and Wilkinson, 2012](#)).

Innovation and partnership

The earthquakes have led to a shift of organisational focus from running business operations to building resilience through innovation and partnership. Small construction organisations tend to form partnering and alliance-like clusters for mutual promotion and to attract skilled expertise. Large construction companies faced a more competitive market following the disaster. Several organisations of large size have formed joint ventures, and thus being better able to secure contracts ([Chang and Wilkinson, 2012](#)). There are indications that many businesses, following the earthquakes, reinvented themselves in innovative technology and techniques, such as social media, new IT software, satellite phones, web-based seminars, video conference facilities and GPS.

Changes in construction businesses' response to long-term reconstruction (2012/13)

Enhancing efficiency as part of resourcing plans

The second quarter of 2012 has seen a clearer plan for the recovery of Christchurch over the next few years. The targeted Government's agenda involves a \$5.5 billion 2012 Government Budget and the creation of a new Christchurch Central Development Unit to lead the rebuild of Christchurch Central. Many construction businesses were working to align their resourcing decisions and priorities with the Government's 2012 Budget agenda. They hoped to gain a competitive edge from bringing in good skills. This in turn enabled the organisations involved in the rebuilding of Christchurch to start finding efficiencies as part of their resourcing plans.

In the national context, the Canterbury rebuild and other significant projects across New Zealand are forecast to drive up construction-related employment by about 6% in the 2013 March year and by about 11% in the 2014 March year (DoL, 2012). Within these economic parameters, construction organisations have been gearing up with a wide range of resourcing initiatives to link the organisations' development with immigration, education, innovation and employment.

Since 2012, there have been signs of construction businesses actively working alongside the government and industry agencies, such as the Industry Training Organisations (ITOs), Canterbury Earthquake Recovery Authority (CERA), Canterbury Employment and Skills Board (CESB), Canterbury Employers' Chamber of Commerce (CECC) and Canterbury Development Corporation (CDC), in skills training and development. Various joint actions were established to find innovative solutions to one of the most fundamental issues New Zealand construction industry faces – low productivity and low efficiency ([Chang-Richards et al., 2012b](#)).

Changed resource needs and corresponding resourcing strategies

The year of 2012 had witnessed the dramatic increased demand for specialised engineering and construction professions, including structural and geotechnical engineers with seismic experience, quantity surveyors and building control professionals (project managers, site engineers and building inspectors). The demand for trades in the housing repair sector remained its momentum. Accompanying such growth

in the engineering and construction industries was the increased demand for service workers who support the functions and services of the industries, including people filling the administrative and service roles in construction businesses.

Under enormous time and workload pressures, many companies have invested heavily in overseas recruitment of highly skilled and experienced professionals. Expansion of workforces across case study organisations has been significant, with a range of 10% to 60% of new employees sourced from overseas. Salary rises were reported in the range from 5% to 20%, varied from sector to sector and also from job to job ([Chang-Richards et al., 2013](#)).

Work experience is a major consideration in the recruitment plan of most contracting businesses. Contracting businesses were facing a dilemma of intending to employ local Cantabrian workers but having difficulty in finding people with matching experience. In-house training and upskilling were therefore being used to fast track the career path of the existing workforce, with bigger firms more likely to use external training providers.

In the meantime, contracting businesses outside Christchurch were actively seeking discussions with the Canterbury Earthquake Recovery Authority (CERA) and Project Management Offices (PMOs) (e.g. SCIRT, Fletcher EQR, Hawkins, etc.) to find the appropriate avenues to enter the rebuild market. Some of them were planning to enter into new joint ventures (JV) or multiple alliances with Canterbury-based firms ([Chang-Richards et al., 2012b](#)).

Between 2012 and 2013, many construction organisations had changed their business operation model with regard to sourcing skilled people and have integrated resourcing into their longer-term business development. Some smaller companies expect to diversify business to incorporate a broader geographic spread in a wider range of complementary disciplines. Recruitment and training were on the priority list of most contracting businesses.

Bigger contracting firms were more likely to use external training providers, such as the Building and Construction Industry Training Organisation (BCITO), Industry Training Organisations (ITOs) and Christchurch Polytechnic Institute of Technology (CPIT), than smaller companies. In comparison, SMEs tended to be more 'selective' of people to whom they were going to offer employment. The case was made that people with both technical and management skills make a positive contribution to the value of the company over the longer term. Therefore, SMEs' recruiting and training approach tended to be more personalised by top management ([Chang-Richards et al., 2013](#)).

Changes in construction businesses' response to market changes (2014/15)

As the recovery post-earthquake in Christchurch continued into 2014, ongoing setbacks to the rebuild process, including such as delays caused by insurance and land decisions, in the procurement and approval process, and uncertainty around the full impact of the earthquakes, had reduced the amount of activity and growth in construction employment in Canterbury. There was a general trend for the workforce that were involved in the Canterbury earthquake reconstruction to move away from disaster recovery projects, and there was a renewed interest of contracting businesses in moving back to their business-as-usual market, driven by the development of new subdivisions in Canterbury and New Zealand Government's housing and transport commitments ([Chang-Richards et al., 2014](#)), as shown in Figure 1.

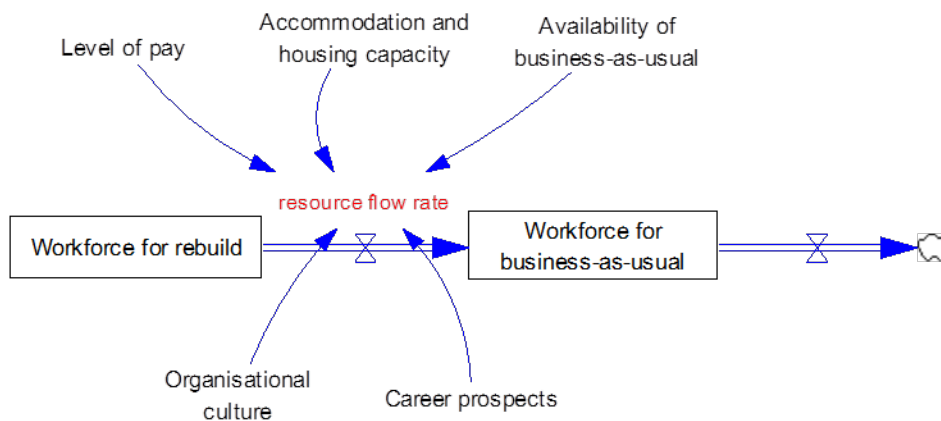


Figure 1: Contracting businesses moving away from rebuild towards non-quake related projects

The continued growth in new subdivisions in Canterbury and strong housing and infrastructure investments elsewhere, particularly Auckland, were drawing away skilled employees and subcontractors from the Canterbury rebuild. Workflow fluctuations in the rebuild sector had particularly put pressure on subcontractors and SMEs in terms of maintaining their ability to staff projects where project timelines are uncertain.

Putting a ‘hand brake’ on workforce expansion

Construction businesses were now concerned about the risks of overcapacity in Christchurch. The trend of resourcing strategies was moving from long-term/permanent recruitment towards more temporary contracts in the short-to-medium term; and moving from recruitment towards replacement ([Chang-Richards et al., 2014](#)). Skills retention and in-house training were becoming a main focus for large construction organisations in 2014. The risk of employing less experienced labour and questions over the training requirements of this labour, and the costs of training, however, were of concern.

Significant changes in subcontracting resourcing practices

There have been significant changes in subcontractor resourcing practices that had emerged between 2014 and 2015 following the Canterbury earthquakes. These included:

- newly stated visions and/or commitments to providing job security for employees;
- a shift from casual employment to more permanent employment;
- established mechanisms for staff retention;
- improved human resource management systems; and
- investment in workers’ skills and capacity development ([Chang-Richards et al., 2014a](#)).

On-going issues related to the construction industry’s structure, such as an aging workforce, long lead times for training, high turnover (30% on average), and a lack of integrated workforce planning across the sector are all particular challenges that make workforce planning for subcontractors more difficult and increase their costs of recruitment and training ([Chang-Richards et al., 2014b](#)).

Some subcontractors were still fully involved in infrastructure-rebuild related works, while others had reduced their rebuild commitments to focus on more business as usual projects. Overall there had been a shift in focus from 2013 to 2014 away from the horizontal rebuild towards work on new subdivisions in the Canterbury region. Table 1 shows details of the subcontracting businesses' responses to changed market in Christchurch, which fall into the five strategies described above.

Table 1: Subcontracting businesses' responses to changed market in 2014/15

Response strategies	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	S13
Commitment to providing job security for employees	√				√								
Casual employment is replaced by more permanent employment													
Reduced number of casual and/or temporary employment	√					√	√			√			
Increased permanent employment	√	√			√	√	√			√	√		√
Investment in recruiting	√	√			√	√	√	√	√	√		√	
More structured and organised contracting process for new employees	√	√			√	√	√	√	√	√	√		√
Buy-out recruits from recruitment agencies							√						
Established mechanisms for staff retention													
Increased communication in order to be tuned to workers needs and concerns			√					√			√		
Increased internal promotion	√		√										
Offering market rates of pay			√	√	√								
Offering other welfare/wellbeing related benefits		√	√	√	√								
Good conditions/environment of work	√			√									
Delegating and empowering staff		√		√				√		√			
Established human resource management system													
More regular and standardised performance					√						√		
Designing clear career path for employees					√								
One-on-one mentoring schemes								√					
Multi-skilling and skill diversification schemes				√		√							
Regular team building											√		
Investment in workers' skills and capacity development, particularly investment in:													
In-house skills training of existing staff and new recruits	√	√		√			√	√	√			√	√
IT facilities and expanded premises										√			√
Knowledge transfer between senior staff and younger or less-experienced staff			√			√		√					
Providing internship or apprenticeship for secondary school students or school					√								
Providing access to ITOs/BCITOs training				√					√				

Business strategies for managing market volatility post-earthquake

Most of subcontractors pursued a sustainable goal that can help them cope with future 'bust' periods. Therefore, their resourcing approaches were largely guided by policy that can be more consistently tied to business objectives.

There was a consensus across case companies that for business to withstand any other future shocks, a solid client base is the first priority. Figure 2 below describes a common pattern across most subcontracting businesses in working towards establishing a sustainable business that can cope with future potential bust following the peak of reconstruction in Christchurch.

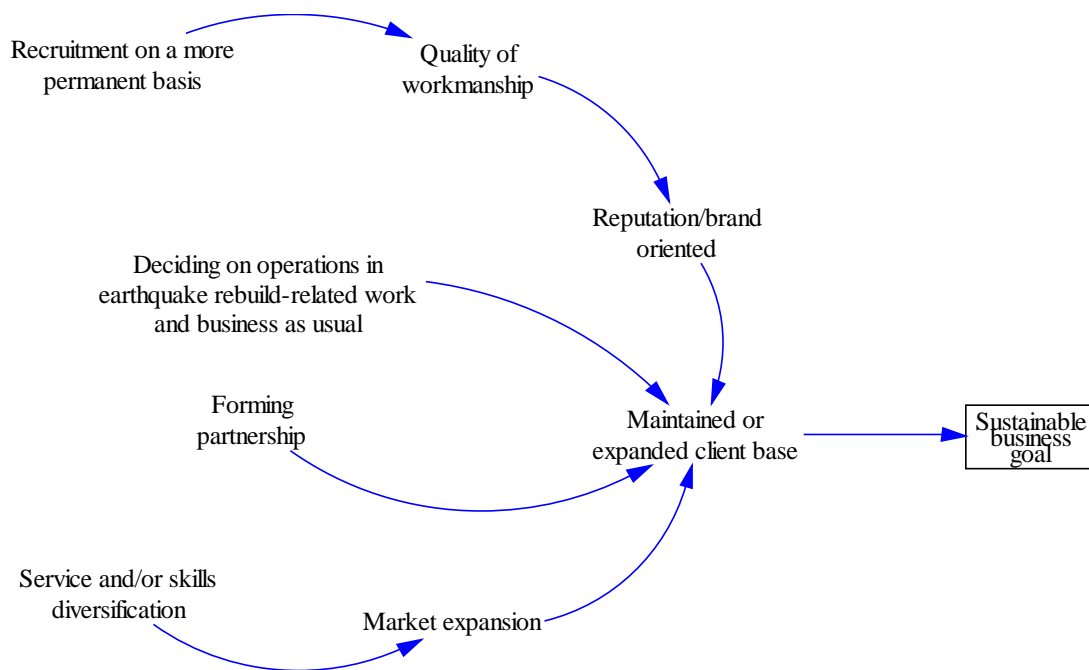


Figure 2: Business goal influencing resourcing strategies of subcontractors

Establishing and maintaining a solid client base

Contracting businesses were aware of an impending downturn and are preparing for the changes in the market. Many of them had seen the future opportunities coming from the new subdivision areas in Christchurch and/or other building activities likely in Canterbury region. A conscious move from the infrastructure rebuild to new market areas was to avoid the bust that may take place in the reconstruction sector. However, as of May 2015, it was yet unknown if these subcontractors who gradually moved out of the horizontal rebuild zone will likely target for vertical rebuild once the building momentum is gained in the CBD.

Recruitment on a more permanent basis

Subcontracting businesses suggested that the majority of those undergoing the change from non-permanent labour forms of employment towards direct employment had put in place a more structured and organised contracting process for new employees. The most commonly cited reason for increased permanent recruitment was maintaining control over the quality of work.

Balancing between business as usual projects and earthquake-related work

Subcontractors perceived that to either maintain the existing client base (e.g. Christchurch City Council, New Zealand Transport Agency) or expanding, focus on business as usual markets to build up their client base will benefit the company in a longer term as rebuild-related work was only perceived to be short-term nature.

Diversification of business services and skillsets

Subcontracting businesses tended to form a continuum with some having relatively independent operational system with no intention for partnership with other companies, and others having developed sound contractual and management structures for partnership of some kind. Recruitment of skills in other specialist areas, in some cases, combined with resource sharing through partnership, has become a channel to diversity business types. The subcontractors which emphasised the role of workers in its mission statement all aim to produce the best quality of business services in the local market through its competent staff. Those companies had thus invested heavily in skills development.

Retaining flexibility in workforce composition

Studied subcontractors generally opted for contingent workers by recruiting younger workers (under 25 years old) in an attempt to ensure flexibility in the use of labour due to the lower skill sets these workers have and to enable them to respond to uncertainties in the economic environment. However, this form of flexibility comes at the price of increased turnover rate among younger workers and hence lower performance of the company. The quote from one interviewed subcontractor is as follows:

“The problem of youth employment in the industry needs to be addressed in a systematic way. Young people whom we brought in as a casual basis often do not see themselves as part of the ‘family’ because they have no sense of attachment to us. In small firms like ours, no extra money can be spent on training them up or offering equal conditions as regular workers. This in turn ‘dilutes’ their interests in the job and they may have no real commitment to the career they choose – they became ‘jumping ship’ later on in the industry.” (Interviewed contractor in May 2014)

Overall, business strategy and a vision to achieve a sustainable business appeared to be a driving force to invest in employment and skills development. There is no golden rule or formula to addressing the skills problem during a boom and bust cycle, as the optimum system depends on the industry structure, procurement environment, characteristics of workforces and the nature of the business.

Being through the bust and boom cycle following the 2008 financial crisis and the 2010/11 Canterbury earthquakes, most subcontractors realised that having productive and competent workforce is the key to creating a virtuous circle between quality of work and sustained client base in a small company. It remains critical that some of the issues identified in the case studies of subcontracting businesses, such as high turnover, youth employment, lack of knowledge transfer within the subcontractor and at the sector level,

and lack of investment in training and skills development, need to be addressed in a systematic way. Better engagement of subcontractors by relevant stakeholders, however, should be the first step towards any of the solutions.

Strategies for managing businesses

The ways the studied construction organisations responded to particular resource challenges and the associated business strategies are summarised in Table 2 below.

Table 2: Resourcing strategies and business strategies

Pinch resources	Resourcing strategies	Business strategies
<ul style="list-style-type: none"> • Excavator operator • Kerb & channel machine operator 	<ul style="list-style-type: none"> • Ensuring job security • Recruitment on a permanent basis • Investment in training and offering promotion to identified 'loyal' staff • Good conditions of work 	<ul style="list-style-type: none"> • Strong client orientation • Expanding client network • Quality improvement of workmanship
<ul style="list-style-type: none"> • Drain layer 	<ul style="list-style-type: none"> • Investment in recruiting and training local young people • Empowering workers to take initiatives • Good benefits 	<ul style="list-style-type: none"> • Strong brand/reputation • Improving company-wide communications
<ul style="list-style-type: none"> • Excavator operator • Truck drivers • Civil pipe-layer/drain layer 	<ul style="list-style-type: none"> • Retaining mature staff aged between 30 and 50 • Encouraging knowledge transfers among staff 	<ul style="list-style-type: none"> • Service diversity • Market expansion
<ul style="list-style-type: none"> • Excavator operator • Drain layer • Project manager 	<ul style="list-style-type: none"> • Reduced recruitment and increased retention and skills development • Improved career path • Good conditions of work 	<ul style="list-style-type: none"> • Forming long-term relationship with other subcontractors • Product and service diversification • Regular review of business plan

<ul style="list-style-type: none"> • Drain layer • Excavator operator 	<ul style="list-style-type: none"> • Retaining family-committed staff aged between 25 and 40 • Strong preference for recruiting local people in Christchurch • Fast track of career path • Good pay at the market rate and other benefits 	<ul style="list-style-type: none"> • Maintain the current size of the company • Maximise business stability • Build good reputation • Employee multi-tasking
<ul style="list-style-type: none"> • Truck driver • Excavator operator • Drain layer 	<ul style="list-style-type: none"> • Recruit staff in other newly established services (e.g. electrical services, dairy effluent disposal design and resource consenting application) • Investment in recruiting by using Big Splash and Hayes & Stellar recruitment agency • 2 weeks probationary period • An information sharing policy for knowledge transfer 	<ul style="list-style-type: none"> • Reduce rebuild-related work from 85% to 15% by end of 2015 • Expand client base • Diversity services • Instil corporate structure with family values • A possible partnership by joint venture
<ul style="list-style-type: none"> • Drain layer 	<ul style="list-style-type: none"> • Recruiting through recruitment agencies and 'buy out' good recruits from them • Direct in-house training provided by directors • Prefer to recruit workers aged between 30 and 50 	<ul style="list-style-type: none"> • Joint venture with a local main contractor and be in charge of the drainlaying jobs • Adding Health and Safety into training schemes
<ul style="list-style-type: none"> • Plant/machine operator 	<ul style="list-style-type: none"> • Having a mentoring and knowledge transfer scheme for new staff • 250 hours of on-job-training before employees are permitted to undertake unsupervised work • Using recruitment agencies for recruiting temporary staff 	<ul style="list-style-type: none"> • Gradually reducing the rebuild-related work and increase the BAU road contracts from NZTA • Having access to all benefits provided by Fletcher

<ul style="list-style-type: none"> • Truck driver • Plant operator • Civil engineer 	<ul style="list-style-type: none"> • Using recruitment agencies to find skilled engineers and machine/plant operators • Recruitment from Ireland • Encouraging workers to achieve higher qualifications and participate in Health and Safety training 	<ul style="list-style-type: none"> • Improving relationships and form partnership with other companies • Exploring the potential of recruiting secondary school students
<ul style="list-style-type: none"> • Truck driver • Plant operator 	<ul style="list-style-type: none"> • Relocating staff from Whanganui office • Recruiting people from other cities of NZ and from overseas • Strong preference for employees aged between 25 and 40 	<ul style="list-style-type: none"> • Building presence and reputation in Canterbury • Diversifying client base
<ul style="list-style-type: none"> • Machine operator • Labourer 	<ul style="list-style-type: none"> • Strong preference for recruiting locally through 'Word of Mouth' • 'Equal productivity' policy to increase staff morale and reduce animosity • Rapid growth of staff • Relationship building activities between managers and staff 	<ul style="list-style-type: none"> • Expanding client base by including major construction companies • Strong brand/reputation • Quality improvement of workmanship
<ul style="list-style-type: none"> • Excavator operator • Site worker • Truck driver 	<ul style="list-style-type: none"> • Intensive in-house training other workers to become skilled excavator operators • Strong preference for local recruits • Using recruitment agencies for recruiting temporary staff 	<ul style="list-style-type: none"> • Christchurch office established after the earthquakes • Relationships formed with large contractors in the SCIRT Alliance team • Increase the workloads from new subdivisions in Christchurch

Challenges faced by the building supply companies – not due to materials, but labour

Our longitudinal case studies in Christchurch show that the building supplies industry is not concerned about the availability of building materials and plant. The interviews with two case studied companies, namely Firth Industries and Allied Concrete, show that they were more concerned about the availability of technical staff and truck drivers than that of materials ([Chang-Richards, 2012](#); [Chang-Richards, 2013](#)).

Following the Canterbury earthquakes, Firth's Christchurch base developed a capacity forecasting model to predict likely market scale in Canterbury within 5 years. As at the end of 2012, the company doubled its pre-event capacity. With a new Christchurch plant started operating in early 2013, Firth planned for a 40% increase of 2012-level capacity to cater for increased demand.

Similarly, Allied Concrete's South Island plants doubled their supply capacity within a year following the February 2011 earthquake. The Plant increased its supply capacity in 2013 to meet the demands for foundation construction of houses and commercial rebuild in the Christchurch CBD.

There is cost escalation for some concrete products due to more onerous specifications being used in Christchurch. This cost change, however, was mainly due to increased product standards, which are required for repairing critical infrastructure facilities in the city. The common challenges faced by the two companies included:

- A high turnover of truck drivers – A major challenge is to secure longer-term employment contracts with truck drivers. For instance, Firth has changed its driver hiring model. Rather than purchasing more trucks and hunting for more drivers, Firth used an 'owner-operator' model which hires drivers who own and operate a truck business and can bring their own trucks. The result has been cost effective. The model enables the company to free up capital to other investments such as resourcing for the new plant.
- To increase work efficiency due to the expanded production capacity.
- The problem with transportation - The construction on roads and consequent traffic jams caused a reduction in work efficiency of building supplies companies. Having more access to the CBD once the commercial rebuild starts is essential to reduce transportation costs and increase productivity.
- Staff fatigue, particularly in 'core' roles in order to maintain the momentum of its growth,

Several comments were made about striking a balance between meeting the increased demand in rebuild and responding to future slow-down. Certainly a robust understanding of "what the state is now, where we want to be, and what is achievable" is the basis from which their capacity expansion decisions were being made.