

Business Resilience, Social Capital, & Urban Recovery: A Case Study from Christchurch, NZ

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On September 4, 2010, Christchurch, the second largest city in New Zealand, was seriously affected by an M 7.1 earthquake caused by the rupture of a previously unmapped fault beneath the Canterbury Region. During the early stages of the city's recovery, at 12.51pm on February 22, 2011, a smaller magnitude (M 6.3) but far more devastating earthquake occurred 10 km southeast the city centre. The February 22, 2011 earthquake resulted in 185 deaths, many injuries, and extensive destruction of the natural and built urban environment. In addition to these two major events, the region has experienced 54 earthquakes of magnitude 5.0 or higher between September 2010 and December 2012 (Statistics New Zealand, 2012).

These earthquakes were the most expensive and socially disruptive disasters New Zealand has ever experienced. Figures released by the Government in 2013 suggest that the estimated cost of recovery and reconstruction could reach NZ\$40 billion, though high levels of uncertainty remain. The cost of the damage is equivalent to around 19 percent of New Zealand's GDP (New Zealand Treasury, 2013). Despite this destruction and more than 12,000 aftershocks, four years on, the recovery and reconstruction process is progressing, aiming to build back a stronger, smarter, and more resilient Christchurch.

Resilient businesses and other organizations are a critical element of successful post-disaster recovery. The decisions and actions of organizations after a disaster influence overall community recovery and wider economic conditions including labour market demand, the cost of essential goods and services, and capital investment trends. Businesses that are resilient (i.e. able to survive a crisis and thrive in a world of uncertainty) can play an essential role in producing resilience in the places and communities they inhabit.

Why Business Resilience?

Since the 1990s, business systems management perspectives have moved from an exclusive focus on risk reduction and business continuity, toward resilience thinking, accepting "that adaptability will be the primary lifestyle for the future" (Horne & Orr, 1998, p. 29). Risk management traditionally focused on hedging or distributing potential losses (e.g. through insurance or portfolio diversification) and on 'point solutions' which attempted to moderate risk by strengthening potential vulnerable spots against disruption (McManus et al., 2008; Starr, Newfrock, & Delurey, 2003). Similarly, work in business continuity and crisis management focused on developing organizational preparedness through training and planning, and by establishing communication strategies, and management structures that better deal with crises.

Following the September 11, 2001 terrorist attacks in the U.S., business researchers and practitioners increasingly emphasised the inability to predict, plan for, and mitigate the effects of specific events. The concept of resilience emerged as a relevant way to merge practices that allow businesses to thrive during business-as-usual and maintain flexible systems that allow them to respond to unexpected events. In contrast to conventional risk and crisis management perspectives, resilience thinking seeks to avoid the compartmentalisation of risk. Resilience better accommodates what Dalziel and McManus (2004) refer to as ontological uncertainties or 'unknown unknowns.' Resilience thinking considers the importance of the inter-personal dynamics within businesses, the role of formal and informal business networks, and practices and behaviours that improve business learning and innovation.

There is considerable interest from researchers and practitioners in identifying the determinants of business resilience. Current literature conceptualises resilience as a set of capacities that emerge from the people, processes, resources, and technology that make up businesses. Researchers have also identified various organizational capacities that enhance

resilience, including, leadership (Horne & Orr, 1998), a culture of learning (Burnard & Bhamra, 2011; James, 2011), transparent communications (Rioli & Savicki, 2003), and agile and collaborative supply chains (Christopher & Peck, 2004; Sheffi & Rice, 2005). These and other factors help organizations adapt and continue operating in dynamic environments. This is especially important when disasters significantly (and often suddenly) reshape the environments in which they operate. Because organizations are “the building blocks of our societies” (Baum & Rowley, 2002, p.1) a clear and integrated understanding of organizational resilience needs to be a central component of resilience building and disaster risk reduction across all levels of society.

Business Resilience, Social Capital, and Place

Businesses participate in communities and places in ways that create the networks and social capital from which they can benefit following disruptive events. There are two dimensions of social capital, with different implications for the resilience of businesses and the places that those businesses inhabit.

- First, social capital is the resources embedded in a person or organization’s social network. These resources can be accessed by those that are directly engaged in the network.
- Second, social capital is the collectively shared norms that reinforce socially beneficial behaviour, such as keeping neighbourhoods clean or discouraging crime. These benefits are transferred to anyone that operates in that social system.

These two dimensions can be thought of as ‘private’ and ‘public’ social capital, respectively (as in Coleman, 1988). By extrapolating studies of private organizational social capital conducted during ‘business-as-usual’, we begin to the relevance of social capital for business resilience and post-crisis adaptation. Social capital created and shared by people within an businesses has been shown to improve product innovation (Tsai & Ghoshal, 1998), increase knowledge sharing (Chow & Chan, 2008), reduce turnover rates (Krackhardt & Hanson, 1993), and smooth resource exchange (Gabbay & Zuckerman, 1998). Social capital between businesses has been shown to produce high quality information exchange which helps firms manage uncertainty (Uzzi, 1996), ease the acquisition of strategic resources (De Wever et al., 2005), and help firms acquire new skills and knowledge (Inkpen & Tsang, 2005).

The influence of public social capital on businesses has not been considered much, but it has great potential significance for business and community or urban resilience. Businesses can become connected through economic and social ties to their local communities and urban environments. The nature and degree of an organization’s local connections can significantly influence organizational decisions, capacities, and outcomes. Research has shown that business decision makers can develop ‘place loyalties’ that incentivise businesses to stay or reinvest in places even if it is not immediately optimal for the business (see Pallares-Barbera et al., 2004). Additionally, businesses can benefit from being located in places that have norms that reinforce socially beneficial behaviour, such as shopping locally or discouraging theft or vandalism. Businesses can increase their connections to places, and therefore increase their access to local social capital, by doing things such as donating to local causes, participating in local events, and acting as spaces of engagement for local people. This has the effect of creating a reinforcing loop of mutual support between businesses and the places they inhabit (Stevenson, forthcoming).

Resilient Organizations’ Christchurch Earthquake Research Program

Research conducted in Canterbury following the 2010/2011 earthquake series has investigated what shapes a business’ ability to survive and adapt throughout a series of disruptive events. Researchers working with Resilient Organizations (ResOrgs), a public good research program based in New Zealand, have conducted a series of studies on businesses, public and other not-for-profit organizations operating in Canterbury before and after the earthquakes. This research

program was launched almost immediately following the September 4th, 2010 earthquakes and has continued through 2014.

Researchers have employed a series of surveys conducted between 2010 and 2013 with over 1000 organizations; nearly 70 in-depth case studies; dozens of qualitative interviews with affected businesses, decision makers, and local authorities; and ethnographies within organizations contributing to the rebuild (for access to reports and publications on the work conducted in Canterbury by ResOrgs, visit www.resorgs.org.nz). This work has been employed by planners and decision makers in Christchurch integrated into business practices, and incorporated into the development of a national economic model, the Measuring the Economics of Resilient Infrastructure Tool (MERIT).

Findings

The projects that make up Resilient Organizations' Christchurch Earthquake Research Program explore different aspects of business and organizational resilience from the psychological resilience of individual employees to the successful deployment of the infrastructure reconstruction program. However, the research has repeatedly underscored the critical role of relationships in successful business and urban recovery and adaptation.

This finding has helped developed the concept of *relational resilience*. Relational resilience blends the concepts of social capital and business capability. A business' capacity for efficient recovery and adaptation in complex environments are enabled and resourced through social relations. Yet, it also depends upon the capacity of the business to establish, maintain, and mobilize support from those social relations.

Relational resilience was evident at three different scales in these studies: within organizations, in inter-organizational networks, and within the towns and cities within which the organizations operated. First, networks and social relations within businesses were critical post-disaster. Following the earthquakes, Christchurch businesses consistently reported that managing staff wellbeing was one of the major challenges that they faced in their recovery. Due to the ongoing and cumulative nature of the events, stress, burnout, staff turnover, and difficulties finding qualified staff hindered recovery (Stevenson et al., 2014). However, in surveys throughout the recovery period, businesses also consistently rated positive relationships with staff as one of the major factors that helped them mitigate the effects of the earthquakes. Businesses consistently rated relationships (with staff, clients, or suppliers) as more important for mitigating the earthquake than insurance, emergency or business continuity plans, and backup supplies such as generators.

In case studies that focused on the second scale of interaction, inter-organizational networks following the earthquakes, found that businesses accessed post-disaster support most frequently from other businesses including suppliers. The most helpful relationships also tended to be those that the business had for the longest time before the earthquake, and those that were reinforced by norms of trust and reciprocity. Businesses accessed support from their networks that allowed them to increase their capacity to cope with disruptions. For example, many businesses informally redistributed labor between businesses to help each other in an environment of unpredictable demand and shared premises with competitors to overcome acute commercial accommodation shortages (see Stevenson et al., 2014 for more this research). Businesses were more likely to initiate collaborations and pursue acquisitions and mergers than they were before the earthquakes.

The results of these case studies also showed that the vast majority of the support that businesses received following the earthquakes came from other people and businesses *within* the affected region. Not only was this support helpful for businesses trying to access information and resources following the earthquakes, but it became evident that the process of accessing local support was important for maintaining pre-existing relationships and for reinforcing a sense of community as organizations and places recovered.

Finally, the research indicates that resilient businesses improved place-based resilience, and resilient places, in turn, increased business resilience. Businesses that had stronger ties to places, such as the Christchurch Central Business District, were more likely to reinvest in those places after

the earthquakes. In many cases, these businesses acted as economic and social anchors in heavily damaged areas giving people and other businesses a reason to return. On the other hand, businesses benefitted from being located in resilient towns or urban neighbourhoods, as locals desired to stay in the area and recognized the social good of supporting local businesses.

Another major finding of the research conducted in Canterbury following the earthquakes is the importance of continuous adaptation and organizational learning. The Canterbury earthquake series was not a one off event from which organizations ‘recovered.’ They faced repetitive setbacks and new challenges throughout the prolonged series of earthquakes, which were then followed by demographic changes and further exposure to hazards such as the flooding that occurred in March 2014. Preparations such as insurance and data backups were helpful for many organizations, but were not sufficient to predict whether a business would succeed or fail following the earthquakes. It was a business’ flexibility, innovation, and capacity to recognize the need for and ability to enact change that differentiated businesses that did well from those that did not.

Conclusions

This short discussion paper, offers some insight into the findings of a four year research program examining business and organizational resilience during and after complex disaster event. It is by no means comprehensive or entirely reflective of the depth and variety of findings of the many studies that compose this program of research. However, it does highlight two important and prominent themes. First, that resilience – the ability to survive a crisis and thrive in a world of uncertainty – is a capacity that is created, enhanced, and practiced through relationships. Second, successful recovery necessitates the ability to adapt systems to environmental changes and to be prepared to continue adapting. It is impossible to fully predict or anticipate risk, and therefore, adaptive capacity enables a system to respond successfully to the unknown unknowns.

Paper and Reports on this Research

Resilient Organizations has produced a number of papers and reports on the research they have conducted in Canterbury following the 2010/2011 earthquakes. The following list highlights a few sources that interested people may access for further detail:

- Brown, C., Seville, E., Vargo, J. (April 2013). *The role of insurance in organizational recovery following the 2010 and 2011 Canterbury earthquakes*. Resilient Organizations Research Report 2013/04. Available from http://resorgs.org.nz/images/stories/pdfs/Organizationsfacingcrisis/the_role_of_insurance.pdf
- Fischer-Smith, R. (2013). The Earthquake Support Subsidy for Christchurch's small and medium enterprises: Perspectives from business owners. Small Enterprise Research, Vol 20, Issue 1, 40-54. Available from <http://ser.e-contentmanagement.com/archives/vol/20/issue/1/article/5277/the-earthquake-support-subsidy-for-christchurchs>
- Kachali H., Stevenson J.R., Whitman Z., Seville E., Vargo J. & Wilson T. (2012). Organizational Resilience and Recovery for Canterbury Organizations after the 4 September 2010 Earthquake. *The Australasian Journal of Disaster and Trauma Studies*, Vol: 2012-1. Available from http://resorgs.org.nz/images/stories/pdfs/journal/organizational_resilience_and_recovery.pdf
- Näswall, K., Kuntz, J., Hodliffe, M., Malinen, S. (2013). *Employee Resilience Scale (EmpRes): Technical Report*. Resilient Organizations Research Report 2013/06. Available from http://resorgs.org.nz/images/stories/pdfs/OrganizationalResilience/employee_resilience_scale.pdf.
- Orchiston, C., Vargo, J., Seville E. (2012). Outcomes of the Canterbury Earthquake Sequence for Tourism Businesses. Resilient Organizations Research Report 2012/09.

Available from

http://resorgs.org.nz/images/stories/pdfs/Organizationsfacingcrisis/tourism_canterbury_earthquakes.pdf

- Stevenson, J.R., Vargo, J., Seville, E., Kachali, H., McNaughton, A., and Powell, F.(2012). The Recovery of Canterbury's Organizations: A comparative analysis of the 4 September 2010, 22 February and 13 June 2011 earthquakes. Resilient Organizations Research Report 2011/04. Available from <http://resorgs.org.nz/Publications/research-reports.html>
- Stevenson, J. R., Chang-Richards, Y., Conradson, D., Wilkinson, S., Vargo, J., Seville, E. and Brunsdon, 2014. Organizational Networks and Recovery Following the Canterbury Earthquakes Available from http://resorgs.org.nz/images/stories/pdfs/Organizationsfacingcrisis/organizational_networks.pdf

References

- Baum, J. A. C., & Rowley, T. J. (2002). Companion to Organizations: An Introduction. In J. A. C. Baum (Ed.), *The Blackwell Companion to Organizations* (pp. 1–34). Oxford: Blackwell.
- Burnard, K., & Bhamra, R. (2011). Organizational resilience: development of a conceptual framework for organizational responses. *International Journal of Production Research*, 49(18), 5581–5599. doi:10.1080/00207543.2011.563827
- Chow, W. S., & Chan, L. S. (2008). Information & Management Social network , social trust and shared goals in organizational knowledge sharing. *Information & Management*, 45(7), 458–465. doi:10.1016/j.im.2008.06.007
- Christopher, M., & Peck, H. (2004). Building the Resilient Supply Chain. *International Journal of Logistics Management*, 15(2), 1–13.
- Coleman, J. S. (1988). Social Capital in the Creation of Human Capital. *American Journal of Sociology*, 94(s1), S95. doi:10.1086/228943
- Dalziell, E. P., & Mcmanus, S. T. (2004). Resilience , Vulnerability , and Adaptive Capacity: Implications for System Performance. In *International Forum for Engineering Decision Making (IFED)*. Stoos, Switzerland.
- De Wever, S., Martens, R., & Vandenbempt, K. (2005). The impact of trust on strategic resource acquisition through interorganizational networks: Towards a conceptual model. *Human Relations*, 58(12), 1523–1543. doi:10.1177/0018726705061316
- Gabbay, S. M., & Zuckerman, E. W. (1998). Social capital and opportunity in corporate R&D: The contingent effect of contact density on mobility expectations. *Social Science Research*, 27, 189–217.
- Horne, J. F., & Orr, J. E. (1998). Assessing Behaviors that Create Resilient Organizations. *Employment Relations Today*, Winter, 29–40.
- Inkpen, A. C., & Tsang, E. W. K. (2005). Social Capital, Networks, and Knowledge Transfer. *Academy of Management Review*, 30(1), 146–165.
- James, K. (2011). The organizational science of disaster / terrorism prevention and response : Theory-building toward the future of the field y, 1032(August), 1013–1032. doi:10.1002/job
- Krackhardt, D., & Hanson, J. R. (1993). Informal networks: the company behind the chart. *Harvard Business Review*, 71(4), 104–111.
- McManus, S., Seville, E., Vargo, J., & Brunsdon, D. (2008). Facilitated Process for Improving Organizational Resilience. *Natural Hazards Review*, 2008(May), 81–90.
- New Zealand Treasury. 2013. *Budget Economic and Fiscal Update*, available from <http://www.treasury.govt.nz/budget/forecasts/befu2013/befu13-pt3of11.pdf>.
- Pallares-Barbera, M., Tulla, A. F., & Vera, A. (2004). Spatial loyalty and territorial embeddedness in the multi-sector clustering of the Berguedà region in Catalonia (Spain). *Geoforum*, 35(5), 635–649. doi:10.1016/j.geoforum.2004.03.004

- Rioli, L., & Savicki, V. (2003). Information system organizational resilience. *Omega: The International Journal of Management Science*, 31(3), 227–233. doi:10.1016/S0305-0483(03)00023-9
- Sheffi, Y., & Rice, J. B. J. (2005). Supply Chain View of the Resilient Enterprise. *MIT Sloan Management Review*, Fall, 41–48.
- Starr, R., Newfrock, J., & Delurey, M. (2003). Enterprise Resilience: Managing Risk in the Networked Economy. *Strategy+Business Magazine*, (30), 1–10.
- Statistics New Zealand. (2012). *Earthquake Information Portal*. available from http://www.Statistics.govt.nz/tools_and_services/services/earthquake-info-portal.aspx.
- Stevenson, J. R. (forthcoming). *Organizational Resilience after the Canterbury Earthquakes: A Contextual Approach* (Unpublished doctoral dissertation). University of Canterbury, Christchurch, NZ.
- Stevenson, J.R., Chang-Richards, Y., Conradson, D., Wilkinson, S., Vargo, J., Seville, E., Brunsdon, D. (2014). Organizational Networks and Recovery following the Canterbury Earthquakes. *Earthquake Spectra*. 30 (1): 555-575.
- Tsai, W., & Ghoshal, S. (1998). Social Capital and Value Creation: The Role of Intrafirm Networks. *The Academy of Management Journal*, 41(4), 464–476.
- Uzzi, B. D. (1996). The Sources and Consequences of Embeddedness for the Economic Performance of Organizations: The Network Effect. *American Sociological Review*, 61(4), 674–698.