

The Learning Region Restructured: Structuration Theory as an extension to Historical Methods

Working Paper

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1. Introduction

This paper takes the material from a recently completed PhD thesis (Toland, 2010a) which analysed historical data in a regional setting, and explores how structuration theory can be used as a theoretical lens to extend historical methods thereby developing deeper and richer insights.

The research investigated the contribution that ICTs make to the development of “Learning Regions” in New Zealand. The term learning region was first coined by academic authors (Florida, 1995; Morgan, 1997; Storper, 1995) working in the fields of innovation studies and economic geography. The concept of the learning region is ambiguous and found in a variety of different contexts. There is no single definition of a learning region, however a common strand in the literature is that such regions have an explicit commitment to placing innovation and learning at the core of development (Larsen, 1999). A learning region will generally consist of a network of inter-firm relationships, supported by social capital and trust, and kept dynamic by a continuous process of interactive learning. A learning region will remain economically successful over a significant period of time, and will be able to successfully adapt to changed circumstances. ICTs have the potential to make an important contribution in each of these areas.

This research set out to establish the role that information and communication technologies play in the development of learning regions. The location for this research is regional New Zealand; as a remotely located country with a low population density New Zealand stands to gain great benefits from the effective utilisation of ICTs. In order to obtain a broad understanding of the contribution that ICTs make across the country two contrasting regions were selected the rural region of Southland and the urban region of Wellington. Southland is located at the bottom of the South Island, and Wellington at the bottom of the North Island as shown in Figure 1.

A historical approach was used to compare the development of the two contrasting regions. Data was collected over a twenty year period from 1985 to 2005. Twelve interviews were carried out with significant figures within each of the two regions, and a database of over 2,500 articles from regional newspapers was built up. The data was organised and analysed using a framework, which consisted of six key features that should be present in a learning region: interconnections; information; innovations; interactions; infrastructure and income. This “6-I” framework was developed by studying the literature on learning regions and identifying the most commonly used terms,



Figure 1: Regions of New Zealand as of 1989 (source Statistics New Zealand www.stats.govt.nz)

The main findings of the research were that ICT was making a positive contribution to regional development in terms of increasing interconnections, improving learning, and helping to build social capital. Both regions were successful in setting up high quality ICT networks. However though ICT contributed to positive developments in these areas it could not operate in a vacuum. The existence of good social networks and strong local champions were critical to regional development. ICTs could complement these social networks but was no replacement for them.

The use of historical methods provided more than enough material to both answer the research question and fulfil the requirement of a PhD thesis. However, it was felt that the use of an overarching theoretical lens such as structuration theory would add value to the research, and provide deeper insights. The relationship between the people-based social networks and the ICT-based networks is recursive and difficult to quantify. According to the literature regions with good social capital are also likely to be economically successful. The two regions investigated did have strong social capital and were fast adopters of ICT, yet they didn't demonstrate the economic success that might be expected. Structuration theory may be able to give more insights into the interplay between these relationships over time.

What follows is a brief overview of the different strands of thought in business history. One school of thought is concerned with understanding the interplay between economics and individuals, organisations and wider society. Another school is more concerned with

the history of the technological artefact itself. The use of historical methods in information systems was introduced by Richard Mason, James McKenney and Duncan Copeland and is best known from two papers published in MIS Quarterly (1997a, 1997b). The strengths and limitations of their approach are discussed, together with a consideration of where their work sits within the wider field of business history. The final part of this section looks at what structuration theory can add to the study of business history and gives practical examples of how it could be used add value to this research.

2. Business History

Business history is generally agreed to have begun as a discipline in the 1920s at Harvard Business School (Hunter & Morrow, 2006) where it grew in tandem with the use of the Harvard Case Method as a teaching tool. Each case would present issues faced by a particular organisation and ask readers to put themselves in the shoes of key decision makers. However business history has grown beyond focussing on a single organisation and the key individuals within it to encompass the broader perspectives of the industry sector, national and global perspectives. Many researchers regard Alfred Chandler's "Strategy and Structure" an account of emergence of the multi-divisional firm in American corporate history as the founding stone of the discipline (Chandler, 1962).

The early days of business history focussed on individual entrepreneurs and the organisations they founded (Yates, 1997). Since the 1990s' the emphasis has shifted from significant individuals to institutions and organisations. Though this approach opened up new areas of research there was a concern that it could lead to institutional determinism if taken to extremes, meaning that individuals are portrayed as mere pawns at the mercy of the organisations they belong to (Yates, 1997). Structuration theory provides one method of addressing this unease.

In both New Zealand and Australia small firms have played a significant role in building the economy. There were some large scale organisations in the areas of shipping, mining, finance, stock and station agency and timber but the American style multi-divisional firm documented by Chandler was not significant (Hunter & Morrow, 2006). In New Zealand business history generally falls into one of four categories: company and industrial histories; regional histories; biographies and economic history. Typical examples are the publication produced to mark the 150th anniversary of the Wellington Chamber of Commerce (Gentry, 2006), and the books published by the New Zealand Computer Society to mark their 25th and 50th anniversaries (Toland, 2010b; Williams, 1985). The Auckland Business History Group based at Auckland University has produced a comprehensive review of Auckland's Business History (Hunter & Morrow, 2006) and research on the role of the entrepreneur in New Zealand's business history (Hunter, 2007; Hunter & Wilson, 2007).

3. History of Technology

Much of business history is driven by economics, an approach which has worked well for some but has been criticised by others for having a narrow focus on the market (Yates,

1997), an alternative but related field is that of the history of technology which focuses on the technological artefact. This field of study is characterised by the annual Society for the History of Technology (SHOT) conference whereas Business History has its own annual Business History Conference. As far as information technology goes the majority of material published in this area tends to concentrate on hardware and software development. Misa (2007) identifies three thematic traditions that have emerged in the history of computing in the last 25 years. The first phase was machine centred and concentrated on hardware and software, in the second phase looked at the “information age” characterised by Manuel Castells Information Age trilogy (1996). The third theme was taken up by historians who began to ask the question “How did certain institutions shape computing?” organisations which received particular attention were the US military services, the National Science Foundation and IBM.

Both business history and the history of technology have been criticised for having a technologically deterministic approach, where technology is seen as an independent variable that changes structures such as society, firms and the organisation of work (Yates, 1997). In reaction to this many researchers in the history of technology field have adopted the social construction of technology approach (Bijker, Hughes, & Pinch, 1989; Hughes, 1994). The use of the social construction approach reflected three different trends, the first was a move away from a concentration on the individual entrepreneur, the second represented a move away from technological determinism, and the third trend was to study technological development as a whole, rather than making distinctions between technical, social, economic and political aspects. Thomas Parke Hughes used a systems approach to integrate technical, social, economic and political aspects in his studies of the different ways in which electric power networks spread across Western countries (Hughes, 1983).

4. Historical Methods in Information Systems

The use of historical methods in information systems was pioneered by Mason, McKenney and Copeland in their studies of Bank of America, Lyons Electronic Office (LEO) and American Airlines (Mason, 2004; Mason, et al., 1997a, 1997b; McKenney, Copeland, & Mason, 1995; McKenney, Mason, & Copeland, 1997). Their approach was also used in a forty year study of the use of IT in Texaco (Hirschheim, Porra, & Parks, 2003; Hirschheim, Porra, & Parks, 2004; Porra, Hirschheim, & Park, 2005). Their approach is based on Schumpeter’s ideas of radical innovation; successful entrepreneurs develop a “dominant design” which will change the market place. Central to this approach is the concept of three characters who must be present in an organisation for successful technological change to occur, the “Maestro”, the “Executive” and the “Supertech”. The approach includes the use of a seven step approach to carry out, analyse and present the research. When introducing their approach they explain how it differs from histories of technologies, and though they acknowledge the contribution of business historians such as Alfred Chandler and JoAnne Yates (Chandler, 1962; Yates, 1989) they do not situate themselves clearly within the field of business history or acknowledge that there might be alternative approaches to the one they have developed. Their interpretation of historical methods is very dependent on the idea that IT can

produce a radical change whereas the work of JoAnne Yates and James Cortada has shown that many successful organisations have taken an incremental approach to the adoption of IT (Chandler & Cortada, 2000; Cortada, 2007; Yates, 1989, 2005). Their insistence on the presence of the three roles of Maestro, Executive and Supertech also seems excessively rigid and unlikely to transfer well to smaller organisations in countries such as New Zealand.

5. Structuration Theory

JoAnne Yates has explored how the use of structuration theory can add value to business history (Yates, 1997) her approach is based on the work of Wanda Orlikowski (1992; 2000; 1991) and was developed through her study of the use of technology in the Life Insurance industry during the twentieth century (Yates, 2005). Structuration theory developed by Anthony Giddens starts from the premise that social science differs fundamentally from natural science (Giddens, 1984). Giddens argues that humans are not just pawns at the mercy of economic and social forces, but “knowledgeable agents” who interact with and influence the organisational structures around them. Giddens does not view power as necessarily being linked with conflict, rather he sees power as the “transformative capacity” of individuals to act to either reinforce or undercut existing structures. Though Giddens ideas are not explicitly acknowledged by Mason, McKenney and Copeland they are implicit in their descriptions of the three key roles of Maestro, Executive and Supertech who possess the power to use IT to radically transform organisational structures.

Giddens sees human agents and structures as representing a duality; structures both enable and constrain but do not determine human action. The relationship between structure and agency is recursive and ongoing. Human actors always have the ability to act at odds with structures, whether intentionally or unintentionally, thereby undercutting or even changing those structures (Yates, 1997). This provides a way of understanding and incorporating the roles of both individuals and institutions into historical accounts. In carrying out actions individuals may intentionally or unintentionally make changes by drawing on institutional structures from another realm of their life, for example Quaker business owners who drew on their religious structures in their treatment of employees as well as on the labour-management structures common in business at the time (Yates, 1997).

Structuration theory also helps to bridge the divide between technological determinism and the social construction of technology. It provides a way of incorporating technology into historical accounts that acknowledges both social influences on technology and technology’s influences on social institutions (Yates, 1997). It also helps to avoid a simplistic interpretation of technology as either good or bad, like any other structure technology can both constrain and enable.

Reflecting on her earlier research on the history of management communication (1989) JoAnne Yates explains what the use of structuration theory would add to her previous interpretation of historical events. Her former work focussed on the actions of key

individuals in introducing new methods, but tended to be functionalist as it interpreted their actions as being rational reactions to similar circumstances. A user of structuration theory would look for any evidence that in introducing these new methods the managers drew on institutional structures from other aspects of their lives. In returning to her research Yates found that this in fact was the case, the managers who introduced the changes had been influenced by their education and their contacts with other organisations who had made similar changes (Yates, 1997). Structuration theory would also take into account the fact that the new structures would come not into being unless others in the organisation were prepared to enact the new structures and routines, so a researcher would be interested in any resistance to the planned changes, and any resulting adaptation or rejection of planned changes. Therefore a business historian would not only look at planned changes, but how those changes were actually enacted by organisational member as they exist only in that enactment. Structuration theory adds value by providing a framework to help the business historian examine stories of institutional (or in the case of this research regional) change (Yates, 1997).

Structuration theory can also help the researcher to take into account the internal firm perspective and the broader social history. A manager will be operating within their own organisation, but can also draw on the structures of other organisations they belong to such as professional or voluntary societies, or national culture. Recognising that individuals are influenced by multiple social structures inside and outside the firm is a useful way for business historians to integrate social concerns into their studies (Yates, 1997). In her studies of the adoption of IT by insurance companies Yates (2005) found that professional societies such as the Society of Actuaries and the Life Office Management Association played a significant role in encouraging the use of computers.

Overall structuration theory provides an analytical framework for incorporating the influence of multiple institutional structures without losing sight of the individual actors (Yates, 1997).

6. Use of Structuration Theory as a Theoretical Lens

As my research is looking at the regional perspective multiple organisations and individuals are involved, structuration theory will provide a framework which will be valuable in understanding the influence of these different perspectives. I was concerned that in that moving one step beyond the organisational approach to look at the regional level I may have amplified the effect of institutional determinism and failed to capture the actions of individual actors, especially as many of my primary sources are third person accounts from newspapers rather than first person accounts from interviews or personal oral histories. However in reviewing my work, I find that the voices of the individual actors still come through strongly in quotes and in the initiatives played out by key regional actors. In the analysis completed so far Ian McFarlane and the Hutt Valley Chamber of Commerce, Colin Boswell and the New Zealand Computer Society, and Herbert Dordick at Victoria University all stand out as significant individual actors.

For each of the two regions structuration theory will help to identify significant structural changes and the actors who initiated, enacted, adapted and resisted those changes.

Structuration theory will add value into providing insights as to:

- 1) How the use of information technology is shaped in practice;
- 2) How past practices influence the adoption and use of information technology.

The first step is to try to identify the relevant human agents, structures, and technologies. Significant human agents are the local government bodies in both regions. In Southland the most active local government body is the economic development agency, Venture Southland. In Wellington it is Wellington City Council, national government is also has a strong influence in both regions particularly in the later part of the period when it made grants available for the development of telecommunications. There would need to be some thinking about whether local and national government represent human agents or structures. It could be that local government bodies represent structures but the people who work for them are the human agents. This could also bring in some ethical issues about naming some individuals who work for Venture Southland, for example, who are not public figures, and may not welcome being identified.

The Mayor's of each region can also have a strong effect on local developments. In 1993 the people of Invercargill, the main city in Southland elected a charismatic outsider as Mayor in the person of ex-student activist, Tim Shadbolt. As Mayor, Tim Shadbolt has taken a major responsibility for "rebranding" the region. To take one example in 1965, Rolling Stones guitarist Keith Richards described Invercargill as: "the arsehole of the world", and in 1995 Tim Shadbolt tried to set up a meeting with him to get him to take his comments back. Unfortunately the invitation was not taken up by Mr Richards. In Wellington, Fran Wilde who was Mayor from 1992 to 1995 stands out; in 1995 she was one of the key players in establishing a groundbreaking broadband network in Wellington's central business district. In 1985 as Member of Parliament for Wellington Central she also reinforced the city's liberal image by putting up a Homosexual Law Reform Bill, in contrast the Member of Parliament for Southland at that time was the main opponent of the bill.

Other human agents who form a significant part of the story are Ian McFarlane, President of the Hutt Valley Chamber of Commerce in the Wellington Region, and Herbert Dordick at Victoria University in Wellington. Though again the relationship between the actual human agents, and the organisations they represent would need to be untangled.

The structures which are important include New Zealand Computer Society (NZCS) and Telecommunications Users Association of New Zealand (TUANZ) which were significant as lobby groups at certain times. Telecommunications companies, in particular, the incumbent provider Telecom are also central to the story, as is Victoria University in the Wellington region.

The technologies that were relevant between 1985 and 2005 include Videotex, the Internet, and mobile technologies. In the school sector personal computers, video conferencing and electronic whiteboards are of interest.

In starting to consider the relationship between human agents, structures and technologies in the two regions one key insight is gained. The Wellington region had always seen itself as an innovative, liberal and cultured; the city is even branded as the “cultural capital”. Organisations such as NZCS, TUANZ and Victoria University have always been active in the region. Therefore the interplay between human agents, structures and technologies has always been positive and continuous. In 1985 Hebert Dordick, at Victoria University was already running a seminar on the economic benefits that IT could bring to the region. The region was already one of the best connected areas of the country as far as telecommunications and transport were concerned. With all this positive reinforcement human actors in the region, such as Fran Wilde, the Mayor and Richard Naylor at Wellington City Council believed that the region was capable of innovation and taking a lead with new technology, therefore it was a natural step for them to set up a broadband network in central business district in 1995. It was also expected that Wellington’s secondary schools should take the lead in pioneering new educational technologies.

In contrast human actors in Southland faced a lot of adversity; farmers were often opposed to the work of the local economic development body, Venture Southland. The region had a poor image in the eyes of the rest of the country and struggled to maintain its population. It also had a history of very poor telecommunications service, and dissatisfaction with New Zealand’s major provider, Telecom. Apart from the farmers there were no professional bodies or university that was active in the region, though there were a number of rural women’s groups that were influential. Unlike Wellington, Southland had to make radical rather than incremental changes in order to progress. One of these changes was the election of an outsider, Tim Shadbolt, as the Mayor, and his work to promote the image of the region. Another was the introduction of a no fees policy at the local tertiary college, Southland Institute of Technology in order to attract more students into the region. Added to this was the self image, Southlanders had of themselves as hardy and individualistic, this meant they were not afraid to make controversial decisions. These factors all affected their decisions about technology, so when the national government offered the regions money to develop local broadband networks; Southland was the only region not to offer the contract to Telecom. They opted for a radical wireless broadband network from a small telecommunications provider, Woosh. Similarly they took another individualistic decision to purchase electronic whiteboards for every school in the region.

Although much more detailed work needs to be done to analyse the data further, the initial consideration of structuration theory does seem to offer new insights. By identifying human agents, structures and technologies and teasing out the interactions between them a new understanding can be gained of the way two regions used different technologies over time, and how this influenced their economic development.

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