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TRANSACTION COSTS AND THE GOVERNANCE OF SOCIAL  
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# TRANSACTION COSTS AND THE GOVERNANCE OF SOCIAL INNOVATION

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## Abstract

Transaction cost economics and the new institutional economics have produced a comparative static apparatus capable of predicting the equilibrium mode of governance for transactions depending on the frequency, uncertainty and asset specificity of the transaction. There is substantial empirical support for the predictions of transaction cost economics. Innovation is by nature dynamic, but I argue that each of the stages of innovation requires equilibrium to persist for long enough for the innovative process to reach the next stage. Transaction cost economics defines three generic forms of governance: market, hybrid and hierarchy. I argue that each of these forms of governance is appropriate for one of the specific stages through which a social innovation must pass. An implication of this argument is that applying the wrong governance to a stage in the innovation process leads to failure of the innovation to proceed. The paper applies this apparatus to some social innovations in South Australia.

The first sections of this paper are adapted from a previously published paper on transaction costs and competitive advantage (O'Malley 2007). This paper applies the transaction cost economics schema to the transactions that are necessary for social innovation.

## Introduction

### *Innovation and invention*

This paper is concerned with how best to govern the complex transactions necessary to a successful and sustained innovation process. Innovation is the process of implementing sustained and widespread change. Invention is the origination of an idea, thing or process. It is important but it is not sufficient for innovation. While invention requires only that the feasibility of the idea is demonstrated, innovation requires that the idea is adopted and implemented, bringing about widespread change in our lives. Invention can be a solo activity but innovation is always a social process because implementation of change always involves others.

In this paper I neither seek nor need to distinguish social innovation from other innovation. Innovation is always a social process involving social transactions with social effects. As a process, social innovation does not seem to have a meaning different from common-or-garden innovation. We can if we choose attempt to separate out the economic or political sectors engaged in the innovation process, such as business, women, labour or the public sector, or perhaps we may wish to classify the needs that the innovation is intended to address. However

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the classification of actors or needs does not change the innovation process or the requirements for governance of the transactions for successful innovation. Furthermore the widespread nature of innovation crosses economic and political boundaries, making the separation difficult to sustain in general.

The topic of governance is important because without effective and economic governance innovation will be slower and less effective and the economy and the society will not adapt as fast as their competitors. Successful innovation is vital to life because it enables adaptation to external threat and opportunity and is a fundamental source of economic growth.

History describes several successful societies that have been inventive without being innovative (Baumol 2002: ch 14). Innovation was not prominent in medieval Europe, ancient Rome or medieval China. The culture of those societies confined invented items primarily to the court. The serfs and most of their lords did not innovate because there was no market imperative sufficient to warrant the risk of opprobrium which might flow from putting inventions to substantial economic use. (Baumol 2002: 247–51) The Romans were inventive but preferred landholding, war, money lending and political intrigue to participation in industry as a means of gaining wealth and power (Baumol 2002: 252–4). Medieval China accumulated abundant technical knowledge but applied very little of it in industry and commerce (Baumol 2002: 254–7). Innovation emerged in the Cistercian monasteries of the twelfth and thirteenth centuries, particularly through application of the waterwheel to production and contributed to growth of the monasteries (Baumol 2002: 257–61).

#### *Innovation and risk*

Innovation is risky. It can produce significant benefits for the society and it can produce unanticipated crises. The process of innovation can create risks for participants including stranding of assets and disruption of valued networks.

The global credit crisis is an example of an unanticipated crisis. The financial innovation of collateralised debt obligations has produced widespread benefits for borrowers and lenders in capital markets. However this financial innovation revealed a problem in the rating of credit instruments and has had the unanticipated consequence of a global credit crisis and possibly a period of stagflation. The rating systems can be fixed but many have been injured.

Similarly, innovation has produced huge productivity gains in manufacturing industry as activity has shifted first from high-cost one-off craft production to low-cost, high-volume standardised mass production, and then to lower-cost, high-volume, high-variety lean production.

Lean production ... uses less of everything compared with mass production – half the human effort in the factory, half the manufacturing space, half the investment in tools, half the engineering hours to develop a new product in half the time ... half the need inventory on site, ... fewer defects, and a greater and ever growing variety of products. (Womack, Jones and Roos 1990: 13)

Japan developed and implemented lean production during reconstruction following the Second World War. Outside Japan, where mass production had become established, the numbers of employees likely to be displaced by the transition to lean production was very

high and the pace of change very slow, taking 50 years in some cases (Womack, Jones and Roos 1990).

These financial and management innovations responded to the needs of end users for credit, for lower cost transport than could be custom made, and for higher quality transport better adapted to individual need than could be provided by mass production. All three created welcome benefits, and unwelcome and largely unanticipated problems.

As innovation accelerates, the society needs to improve the way it cares for the injured and adapts to the change. Improved governance and risk management rests on an analysis of the social transactions involved in innovation.

Where innovation leads to a crisis the society may undertake more innovation and adapt to the change (eg improve credit rating tools or labour market adaptability) or it may impose regulations restricting further innovation. The unfortunate response to crisis is the creation of short-sighted regulation and constraints that limit innovation and reduce the capacity to respond to competitive threat. Sustained innovation requires risk management, and a capacity to identify the injured and to care for them.

It is not only the outcomes of innovation that are risky. The process of innovation is also risky. The processes of innovation involve complex transactions. To innovate it is necessary to engage diverse groups of people in reflecting on challenges and needs, in defining and measuring the present situation, in describing a better future, in conceiving and testing prototypes, in analysing the results, in selecting and implementing the preferred change, and in applying controls to sustain the implemented change. These are not one-off transactions but must continue for some time before innovation emerges. These transactions are difficult to sustain and have uncertain results.

#### *Governance and transaction cost economics*

Governance is the process of managing risk and adjusting to unanticipated change so that social and economic transactions can continue. The aim of governance is to adjust the relationship and to restore the balance of rewards when circumstances change.

Transaction cost economics has produced a set of instructive results about the relative efficiency of certain generic modes of governance for transactions that have particular characteristics.

The next section discusses the results of transaction cost economics and suggests forms of governance for the key stages of innovation. Subsequent sections of the paper will review some conclusions from the change management literature and the relationship between these conclusions and those suggested by transaction cost economics.

#### **Transaction cost economics and governance**

Transaction cost economics and the new institutional economics have produced a comparative static apparatus capable of predicting the equilibrium mode of governance for transactions depending on the frequency, uncertainty and asset specificity of the transaction. Transaction cost economics defines three generic forms of governance – market, hybrid and hierarchy – and demonstrates that these modes of governance economise the transaction costs associated with the properties of the transactions. The selection of modes of governance will be

influenced by the nature of the transaction and the institutional framework of custom and law. There is substantial empirical support for the predictions of transaction cost economics.

#### *Transaction costs*

In 1937 Ronald Coase introduced the idea of transaction costs as the costs of the (usually bureaucratic) efforts required to carry out a market transaction.

In order to carry out a market transaction it is necessary to discover who it is that one wishes to deal with, to inform people that one wishes to deal and on what terms, to conduct negotiations leading up to a bargain, to draw up a contract, to undertake the inspection needed to make sure that the terms of the contract are being observed, and so on. (Coase 1998: 114)

An economic definition of transaction costs is the costs of measuring what is being exchanged and enforcing agreements. (North 1997: 149, cited in Dollery and Leong 1998: 207)

Transaction costs are the costs of transacting that are not included in the price. These include:

- discovering who to deal with
- informing suppliers and negotiating terms
- drawing up a contract
- inspecting product and process
- adapting to changes affecting each party as they occur.

Transaction costs include the cost of dispute resolution, which adapts the transaction to changes that have shifted the flow of benefits and costs to the parties to the transaction. These costs may be very large.

Douglas North extended the idea from market transactions to social transactions: 'in the larger context of societal evolution [transaction costs] are all the costs involved in human interaction over time' (North 1997: 149, cited in Dollery and Leong 1998: 207).

Transaction costs act like friction in social development. In the economy 'transaction costs are a significant part of the cost of economic activity ... the costs of transacting may have been as much a limiting factor on economic growth as transformation costs' (Wallis and North 1987: 121). 'The growth of the transaction sector is a necessary part of realizing the gains from trade' (Wallis and North 1987: 122).

One way of assessing the importance of transaction costs is to examine the economic resources used to facilitate transactions. Services that facilitate transactions and help overcome the 'friction' of transaction costs accounted for 50 per cent of the Gross Domestic Product of the United States of America in 1970, having grown from 25 per cent in 1870 (Wallis and North 1987). Transaction services accounted for 60 per cent of the Gross Domestic Product of Australia in 1991, having grown from 32 per cent in 1911 (Dollery and Leong 1998).

Coase's innovation turned out to have wide implications for economic regulation. It provided the genesis of transaction cost economics which has provided an analysis that defines the best ways to govern particular types of continuing transactions.

#### *Transaction cost economics*

Transaction cost economics makes the transaction the unit of analysis and deals with how the parties to the transaction will act to maintain order in long-term contracts in which the parties expect to benefit if they continue to deal with the same party.

Transaction cost economics argues that there is an economic calculus that matches the particular properties of transactions to modes of governance that have particular capabilities. This exposition draws on that provided by Oliver E Williamson (2005).

#### **Bounded rationality**

It is assumed that people involved in transactions behave with bounded rationality. Bounded rationality means that people who intend to behave in the mutual interest tend to act out of self-interest when circumstances change. Responsible behaviour is bounded by the opportunism of individuals who become guileful and self-seeking when the opportunity arises. Parties do not behave responsibly in order to maximise joint benefits, rather, they renege on promises when it suits their purposes.

The parties do not know how circumstances may change in the future when they write their long-term contract, and they cannot include a set of rules to sustain the contract through any possible unforeseen change of circumstances that alters the distribution of rewards between the parties. Under these circumstances, as Williamson notes, 'the main lesson of bounded rationality is that *all complex contracts are unavoidably incomplete*' (2005: 8, italics in original).

In a world of long-term, incomplete contracts implemented in an uncertain environment, bounded rationality brings hazards in the form of one of the parties enforcing the contract when circumstances have changed the pattern of rewards to the disadvantage of the remaining party, or reneging when the pattern shifts against them. These hazards are particularly damaging where a party to the contract has invested in durable assets to perform the contract and these assets have less or no value in alternative uses. In this case loss of the contract also reduces the value of specific assets such as equipment, skills or relationships.

In hybrid contracts the hazards of bounded rationality are managed by inserting credible and enforceable commitments into the contractual relationship which will manage the risk of self-interested actions by the parties and sustain continuity of exchange and a spirit of cooperation. Credible and enforceable commitments can include a wide variety of options including the taking and holding of hostages, penalties for premature termination, information-disclosure and verification mechanisms, specialised dispute settlement and the like (Williamson 1983). Hostage taking allows agreements to be secured and adjusted using perfectly legal mechanisms that do not rely on the public legal system. Indeed many alliance contracts specifically exclude resort to liability in the public legal system (Ross 2003: 1).

### **Properties of transactions**

The logic of selecting an economical form of governance for a particular transaction takes account of key factors including:

- the properties of the transaction, namely their frequency, uncertainty and use of specific, specialised and not re-deployable assets (asset specificity);
- alternative governance modes of market, hybrids with credible commitments, private bureau, public bureau each with structural differences of cost, competence and a distinct contract law;
- the institutional environment (political and legal institutions, laws, customs, norms) which shifts the comparative costs of governance models (Williamson 1997).

The relevant properties of transactions are asset specificity, uncertainty and frequency.

#### *Asset specificity of transactions*

Transactions have the property of asset specificity when they rely on the support of durable investments that are specific to the transaction and that can be redeployed to alternative purposes only with a loss of productivity. The existence of these durable investments creates a risk of stranding the asset and this makes it important to the parties that such transactions are repeated (Williamson 2005: 8–9).

Specific assets include physical and human assets, locations, brands and learned practices, established networks, relationships and complementarities between the parties to the transaction. Established good relationships between buyer and seller, or between members of a network or cluster, are durable investments whose value will be destroyed if the contract does not continue.

Asset specificity gives rise to changes in the contractual relationship over time. The number of qualified bidders at the renewal of a contract falls as the level of asset specificity rises. The procedures for the transaction become more specialised and bureaucratic over time, increasing asset specificity further. Asset specificity leads the parties to prefer continuity of the transaction into the future in order to continue to gain the value generated by their specific assets. There emerges a bilateral dependency between the parties (Williamson 2005).

#### *Uncertainty of disturbances to transactions*

External disturbances can shift the distribution of rewards from a transaction between the parties to the transaction. This redistribution can threaten continuity of the transaction unless governance intervenes or provides rules to adapt to the disturbance and to restore mutual value to the parties. Each governance mode adapts differently: markets adapt autonomously while contracts and hierarchies adapt administratively.

If the disturbances are certain to occur then the contract or hierarchy will contain administrative rules governing adaptation acceptable to both parties. If disturbances are uncertain then the contract is incomplete because it lacks such rules.



*Frequency of transactions*

Frequent transactions allow a party to build a reputation on continuity. Frequent transactions warrant high set-up costs and extended production runs. Firms or bureaucracies can apply standards and procedures to economise on frequent transactions.

**Modes of governance**

The three generic modes of governance are: market, hybrid or long-term contract, and hierarchy or vertical integration. Williamson has shown that these modes of governance (market, hybrid, hierarchy, public bureau, etc) are differentiated by their incentive intensity, administrative control and access to a form of contract law (Williamson 1996: 105–9).

*Markets*

Markets adapt autonomously to disturbances. Markets adjust to unanticipated change rapidly and at low cost but transaction-specific assets may become stranded and lose their value.

[T]he market works out of high-powered incentives, little administrative control, and a legal rules contract-law regime, which is well suited to implement autonomous adaptations but poorly suited to effect cooperative adaptations. (Williamson 2005: 7)

Spot markets, such as the stock exchange and the farmers produce market, provide for transactions in which continuity of trade is not a source of value to the parties. Here the market rules provide all the governance required for trade to proceed and expand. The contract endures only for the duration of the exchange.

*Hybrids*

Hybrids are forms of long-term contracts that bind the parties for a period of time. They provide credible means to govern how the parties will adapt to disturbances without defecting from the contract.

Hybrids adapt to disturbances of the distribution of rewards by negotiated coordination. They offer weaker incentives than markets and when the distribution of rewards changes some parties may prefer to enforce the terms of the contract or to breach it. The contract may define some level of administrative control, as is observable in alliance contracts. They offer access to contract law unless specifically excluded. Adjustment to disturbances to the distribution of rewards may be slow and high cost but the parties can negotiate to avoid the stranding of specific assets.

The hybrid is a compromise mode that is located between market and hierarchy on all three attributes [incentive intensity, administrative control and contract law] and works well, but not surpassingly well, in both autonomous and coordinated adaptation respects. The viability of the hybrid turns crucially on the efficacy of credible commitments (penalties for premature termination, information-disclosure and verification mechanisms, specialized dispute settlement, and the like), the cost effectiveness of which varies with the attributes of transactions. (Williamson 2005: 7; see also Menard 2004; Williamson 1991a)

Credible commitments include the use of hostages to promote alliances and exchange, which will protect irreversible and specialised investments (Williamson 1983).

### *Hierarchies*

Hierarchies bring all parties and activities into a single entity and use administrative rules to decide the allocation of rights. Hierarchies include firms, public or private bureaux and other incorporated bodies and administrative associations. '[H]ierarchy uses low-powered incentives and considerable administrative control, and the courts are deferential' (Williamson 2005: 7).

Hierarchies adapt to unanticipated disturbance to the distribution of rewards by administrative coordination. As in all bureaucracies incentives are weak but administrative control is strong. Usually the courts will not intervene within an incorporated body: there are few effective legal rules except in the field of industrial relations. Adjustment to an unanticipated change in the distribution of rewards can be rapid with high bureaucratic costs but stranding of specific assets can be avoided.

Cultural and institutional conditions affect each form of governance. In a world of positive transaction costs, institutions, governance structures and individual behaviours all impact on the choice of organisation. Institutions such as law and customs interact with the behaviour of individual parties to transactions to determine an appropriate form of governance for a transaction (Williamson 1997).

Williamson suggests that the contract law is specialised to the mode of governance. The contract law applied in the courts addresses breaches and applies best to transactions in which continuity does not matter. In hybrid modes of governance the contract serves as a framework to promote cooperation. The courts do not usually intervene in disputes between branches of hierarchies (Williamson 2005: 9–10).

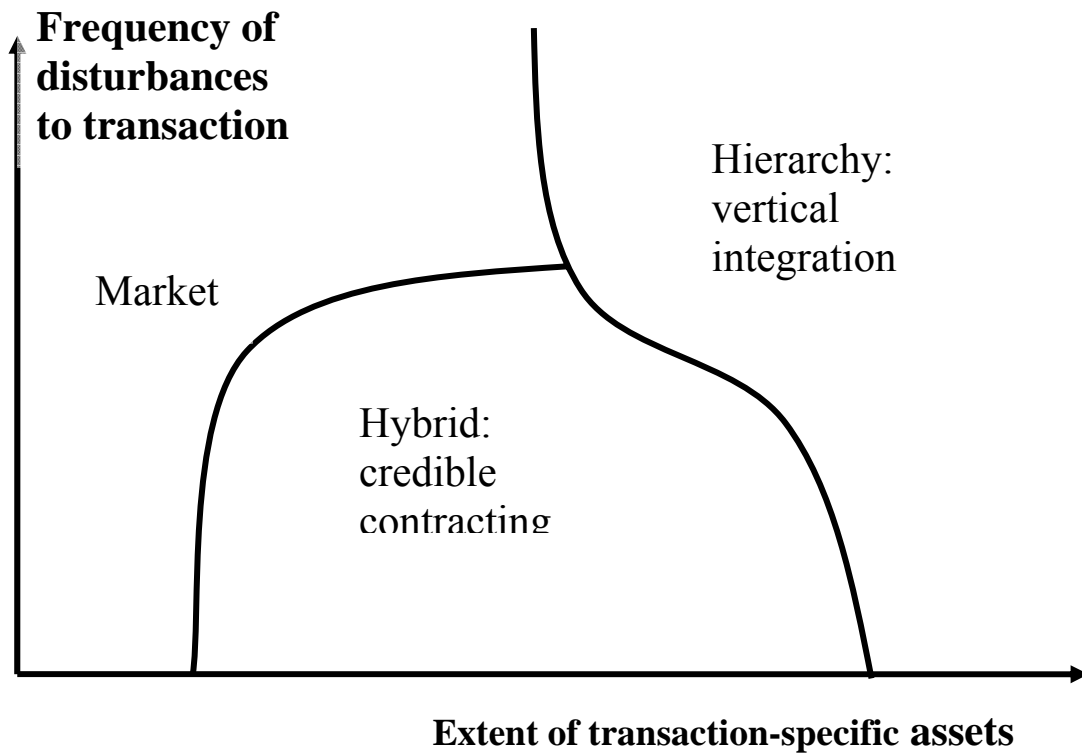
To summarise, transaction costs provide 'an efficiency (seeking) logic for managing transactions by alternative modes of governance' (Williamson 1997: 1).

The greater the extent of investment in specific but not re-deployable assets, the more the parties wish to have the transaction continue and the more they need a process to manage change and avoid the stranding of their specific assets. The parties can manage risk in hybrid contracts that include credible commitments or in hierarchy (vertical integration) where there is administrative control.

Uncertainty, or the expected frequency of disturbances to the transaction, increases the risk of a change that may alter the distribution of rewards between the parties, which may lead to early termination of the transaction.

Where there are few transaction-specific assets, economy of effort favours the use of the autonomous adjustment of markets and this low-cost adjustment may warrant accepting the possible stranding of assets up to a point. As the extent of specific assets increases the parties will seek to apply alternative governance modes to manage their risks.

These broad conclusions are summarised by Williamson (1996: 117) using the following graphic.



**Organisation form, frequency of disturbances and asset specificity** (after Williamson 1996: 117)

The transaction cost model of governance has proved itself to be robust. It has been shown that it is not possible to replicate in a large firm everything that a collection of small firms could do. Williamson (2005) refers to microanalytical, comparative contracting studies which refute several such proposals. It is not possible to replicate within a bureaucracy the incentive intensity of the market without added costs of compromise and politicisation. Promises to selectively intervene to overcome disturbances within a bureaucracy do fail.

The empirical evidence on transaction cost economics and comparative governance is very large. By 2002, over 600 empirical studies had been published and the work was being applied generally to policy analysis (Williamson, 2005, p. 13). Transaction Cost Economics is used to study transfer pricing, corporate finance, franchising, company towns and informal contracting. The empirical literature '...is remarkably consistent with the predictions of TCE' (Shelanski & Klein, 1995, p. 335). (O'Malley 2007: 163)

**Applying transaction cost economics to innovation**

Following North we may infer that transaction cost economics may be applied to social transactions and should therefore help define governance models for the social transactions of innovation (North 1997: 149, cited in Dollery and Leong 1998: 207).

Innovation seems *a priori* to be particularly vulnerable to the friction of transaction costs. Innovation requires significant social effort. There is a great deal of negotiation involved because innovation threatens incumbent social networks and practices. The implicit positions, doctrines and authority of existing leaders are threatened. There is a great deal of

- reflecting on what is needed
- discovering who to deal with
- informing participants and negotiating terms for their participation
- drawing up a contract that formalises the terms of alliance
- inspecting product
- facilitating process to ensure that needs of participants are met
- adapting to changes affecting the continued participation of each party.

While innovation is by nature dynamic, it proceeds in stages with some recycling. Each of the stages of the innovation process requires equilibrium to persist for long enough for the innovative process to reach the next stage. Successful innovation requires a series of complex social transactions to be completed in an uncertain environment in which people behave with bounded rationality.

Transaction cost economics argues that the transaction costs of each of the stages of innovation can be minimised by choosing the generic form of governance best adapted to the frequency, uncertainty and asset specificity of the transaction. These forms of governance help sustain the process over time by resolving disputes and adapting the process to changes affecting the distribution of rewards between the parties. An implication of this argument is that applying the wrong governance to a stage in the innovation process inhibits the process and increases the likelihood of failure to innovate.

If successful innovation is necessary for survival in a rapidly changing world, then it is necessary to apply economic and effective governance to the processes of innovation to provide order, resolve disputes and accelerate outcomes. If our innovation processes are to continue and to accelerate it will be important to choose efficient modes of governance.

### **Evidence from research on the practical governance of innovation**

The business literature on barriers to innovation illustrates the behaviours predicted by transaction cost economics, particularly how bounded rationality in the presence of asset specificity, in the form of networks built up around particular transactions, affects innovation in practice.

Social cohesion and allegiances are examples of specific assets that can be lost if a group participates in innovation and changes the way things are done.

Business authors note that innovation is favoured by low levels of social cohesion and allegiance, by encouragement to experiment and take risks, and by close monitoring and demonstration of the importance of the project. Team members may see their familiar routines and their networks as part of their specific asset set and resist sharing insights or proposing changes which may devalue these assets. Too much diversity on a team inhibits sharing of insights and too much social cohesiveness on a team suppresses sharing of ideas. These

authors advise managers to encourage teams to be venturesome, to experiment, and to take risks and to monitor closely the progress of their teams. This overcomes a preference to stick with familiar and routine problem-solving approaches rather than pursue untried ideas.

Merely including people from a large number of functional areas on a team doesn't improve its innovativeness ... While more ideas may come to the table as diversity increases, team problem solving gets harder ... team members often hold deep-rooted functional allegiances that can compromise their ability to identify with a new team ... Candid debate is critical to the process of innovation. Yet high social cohesion among team members can actually suppress the forthright exchange of opinions. Highly cohesive groups focus more on maintaining relationships and, thus, tend to seek concurrence ... as social ties among members of a cross-functional team intensify, the innovativeness of its new product diminishes. (Sethi, Smith and Park 2002: 16–17)

Florida, Cushing and Gates report that, while communities with high levels of social capital, strong social networks bound by shared norms, trust and reciprocity may enjoy enhanced cooperation and productivity, they do not enjoy high rates of innovation.

Studies of ... hundreds of metropolitan areas ... comparing levels of social capital and levels of innovation (as measured by technological intensity and number of patents filed) ... found that areas with low levels of innovation scored high on social capital [and that] ... areas that did well on innovation ... tended to have below-average levels of social capital ... Relationships can get so strong that the community becomes complacent and insulated from outside information and challenges. Strong ties can also promote the sort of conformity that undermines innovation. Weak ties, on the other hand, allow a basic level of information sharing and collaboration while permitting newcomers with different ideas to be accepted quickly into the social network. (2002: 20)

The networks limiting innovation may include interest groups from government and science who may prefer their existing way of innovating.

Any important innovation threatens existing interests and entitlements, and threatened interest groups might be able to forestall innovation politically. It is the degree to which the political process insulates itself from the pressures of entrenched interests that is the mark of an innovative society. A political environment in which innovation policy is merely a payoff to one more lobby group ('the science lobby') is unlikely to generate much in the way of either innovation or productivity growth. (McFetridge 2008: 3)

Meyer and Ruggles (2002) from the Cap Gemini Ernst & Young Center for Business Innovation in Cambridge, Massachusetts, USA suggest three stages of innovation: reconnaissance, evaluation and investment. They report that reconnaissance is being outsourced to specialists with the talent and experience to do it well. Outsourcing is one way of providing a mode of governance for reconnaissance that avoids the asset specificity of the internal networks of the corporation.

[Reconnaissance is] the scouting out of new market opportunities and technological possibilities ... Like many activities that involve talent and tacit learning, reconnaissance requires an inherent feel for the work and lots of practice. (Meyer and Ruggles 2002: 14–15)

Ed Catmull, cofounder and president of Pixar Animation Studios, in an interview with Gardiner Morse, points out another way to reduce the constraining effect of social networks. At Pixar Animation Studios every new recruit attends ten weeks of classroom teaching and cross training. In the workplace everybody shows their work in an incomplete form to the directors, who are world-class animators, on a daily basis. Everybody is free to comment and to learn. 'When you get over the embarrassment, you actually become more creative, you learn faster, and you succeed more' (Morse 2002: 18–19).

John T Landry in his review of the work of William Baumol illustrates how large companies use hierarchy to govern low-risk innovation, hybrid contracts to manage breakthroughs and the market to deliver early gains from intellectual property.

Large companies are focusing on low-risk, incremental innovations in fairly routine ways while outsourcing the big, yet hard to market, breakthroughs to entrepreneurs ... To minimize risk further, businesses are selling or sharing their new intellectual property with other companies, even direct rivals. The result of this division of labor is a far more collaborative process, one that reduces the profits to anyone in the chain but spreads the wealth more broadly. (Landry 2002: 23)

Kotter and Cohen provide vital advice on overcoming the social barriers to change: 'People change what they do less because they are given *analysis* that shifts their *thinking* than because they are shown a *truth* that influences their *feelings*' (Kotter and Cohen 2002: 1, italics original).

The change management literature reports that existing social networks are barriers to innovation and act as if they are a form of specific asset. Networks that become established around a preferred transaction can threaten or impose exclusion on members who participate in or suggest innovations that may challenge their customary practices. Established social networks become a barrier to innovation because the network may lose value when the practices change. Members of these networks tend to hold each other back from supporting innovation. People choose to work on specific topics in which they have invested their efforts and have built established networks that respect their expertise.

### **Innovation and change management processes**

The stages of the innovation process have been set out in varying terms by many authors of change management systems.

#### *Statistical process control*

If we are serious about innovation then the statistical process control insights of Walter A Shewhart (1931) and W Edwards Deming (1988) are an essential, if rather opaque, starting point.

Deming attributes to a number of Japanese engineers the observation that improving quality produces a chain reaction that ends in lower cost, business growth and sustainability. Improving quality reduces costs of rework, mistakes, delays and snags, and makes better use of machine time and materials. In turn this improves productivity, allowing the capture of markets with better quality and lower prices. Businesses survive and grow (Deming 1988: 2–3)

Deming defines fourteen points for the transformation of American industry:

1. Create constancy of purpose toward improvement of product and service, with the aim to become competitive and to stay in business, and to provide jobs.
2. Adopt the new philosophy ... management must awaken to the challenge, must learn their responsibilities, and take on leadership for change.
3. Cease dependence on inspection to achieve quality. Eliminate the need for inspection on a mass basis by building quality into the product in the first place.
4. End the practice of awarding business on the basis of price tag. Instead minimize total cost. Move toward a single supplier for any one item, on a long-term relationship of loyalty and trust.
5. Improve constantly and forever the system of production and service, to improve quality and productivity, and thus constantly reduce costs.
6. Institute training on the job.
7. Institute leadership. The aim of supervision should be [to remove the causes of failure and] to help people and machines do a better job [with less effort].
8. Drive out fear, so that everyone may work effectively ...
9. Break down barriers between departments. People ... must work as a team, to foresee problems of production and in use that may be encountered with the product or service.
10. Eliminate slogans, exhortations, and targets for the work force asking for zero defects and new levels of productivity. Such exhortations only create adversarial relationships, as the bulk of the causes of low quality and low productivity belong to the system and thus lie beyond the power of the workforce.
11. a Eliminate work standards (quotas) on the factory floor. Substitute leadership.  
b Eliminate management by objective. Eliminate management by numbers, numerical goals. Substitute leadership.

12. a Remove barriers that rob the hourly worker of his right to pride of workmanship. The responsibility of supervisors must be changed from sheer numbers to quality.
- b Remove the barriers that rob people in management and in engineering to their right to pride of workmanship. This means, *inter alia*, abolishment of the annual or merit rating and of management by objective.
13. Institute a vigorous program of education and self-improvement.
14. Put everybody ... to work to accomplish the transformation. The transformation is everybody's job. (Deming 1988: 23–4)

While the language seems awkward, the fourteen points are humane, far sighted, and revealing about the transactions involved. The fourteen steps contain elements that appear again and again in subsequent change management models.

#### *Six Sigma*

The Six Sigma improvement process is also an application of statistical process control. The Six Sigma process steps are Define, Measure, Analyse, Implement and Control (DMAIC) (Pande, Neuman and Cavanagh 2000: 37). This process can be adapted to process improvement or redesign. In its process redesign form this model is described as follows:

- *Define*. Identify problems, define the goal and vision, and clarify the scope and requirements of the customer.
- *Measure*. Measure performance against the requirements and gather process efficiency data.
- *Analyse*. Identify best practices and assess process design by identifying the value-adding and non-value-adding steps, bottlenecks and disconnected flows, and alternate paths the process contains. On this basis refine the requirements in process terms.
- *Improve*. Design the new process, challenging assumptions and applying creativity and workflow principles. Implement the new process and the structures and systems required to sustain it.
- *Control*. Establish measures and reviews to maintain performance and correct problems as needed (based on Pande, Neuman and Cavanagh 2000: 39).

#### *Plan, do, check, act*

What today is widely known as the Plan, Do, Check, Act and repeat (PDCA) cycle, Deming describes as the Shewhart cycle. This subsequently became known as the Deming cycle and then the PDCA cycle model widely used today in the automotive industry (Deming 1988: 88; Pande, Neuman and Cavanagh 2000: 37).

Pande, Neuman and Cavanagh describe the PDCA cycle as follows:

*Plan*. Review current performance for issues and gaps. Gather data on key problems. Identify and target root causes for problems. Devise possible solutions, and plan a test implementation of the highest potential solution.



*Do.* Pilot the planned solution.

*Check (or study).* Measure the results of the test to see if the intended results are being achieved. If problems arise, look into the barriers that are obstructing your improvement efforts.

*Act.* Based on the test solution and evaluation, refine and expand the solution to make it permanent, and incorporate the new approach wherever applicable. *Start over.* (Pande, Neuman and Cavanagh 2000: 37)

### *Lean thinking*

Lean thinking is a response to accelerating change and the inevitability that forecasts will be wrong. 'Which is why lean thinkers strive to reduce order-to-delivery times to such an extent that most products can be made to order and always try to add or subtract capacity in small increments' (Womack and Jones 2003: preface). It is a response to the waste in mass production noted previously (Womack, Jones and Roos 1990: 13).

The central principles of lean thinking are:

- Specify value as defined by the ultimate customer for a specific product or service that meets their needs at a specific price and time (Womack and Jones 2003: 16);
- Identify the entire value stream, the set of all the specific actions required to place a finished product in the hands of the customer, and remove avoidable steps that create no value. The value stream includes problem solving (design and engineering), information management (order taking, scheduling and delivery) and physical transformation of raw materials into a finished product (Womack and Jones 2003: 19–20).
- Flow; make the remaining steps for each specific product flow. This counter-intuitive step removes batches and grouping of work by types rather than by product, and uses quick changeovers and right sized machines (Womack and Jones 2003: 21–2).
- Pull: 'let the customer *pull* the product as needed ... make exactly what the customer wants just when the customer wants it' (Womack and Jones 2003: 24–5).
- Perfection: continue 'the process of reducing effort, time, space, cost, and mistakes while offering a product which is ever more nearly what the customer actually wants' (Womack and Jones 2003: 25–6).

The principles do not describe the steps involved in introducing lean. These are more typical of change management, but describe particularly difficult transactions.

Find a change agent

Get the knowledge

Find a lever by seizing the crisis, or by creating one

Map your value streams

Reorganize your firm by product family and value stream

Create a lean promotion function

When you've fixed something, fix it again

Develop a lean global strategy. (Womack and Jones 2003: section headings in Chapter 15)

All the key stages of innovation are embedded in this series of steps, albeit with a bit of command and control language.

#### *Industry cluster development*

The key steps in the process of establishing an industry cluster are directed at bringing about innovation within a community. They focus clearly on social transactions (Joint Venture Silicon Valley 1995; Eastick and O'Malley 2005). They are:

- Target sectors under pressure of growth or decline.
- Engage trusted local leaders.
- Raise funds.
- Seek suspension of criticism.
- Provide real assessment of situation.
- Regional Forum: Create dialogue about vision and collaborative planning.
- Engage customers and research markets.
- Regional Forum: Review planning and commission collaborative action.
- Maintain engagement and develop structure plans.
- Regional Forum: Review progress and strengthen customer links.
- Review.

The process of innovation is evident.

#### *Change management*

John P Kotter (1996) provides eight steps for change leaders, providing some indications of the transactions involved.

1. Establish a sense of urgency.
2. Create the guiding coalition.
3. Develop a vision and strategy.
4. Communicate the change vision.
5. Empower [people] for action.
6. Generate short-term wins.
7. Consolidate gains and produce more change.
8. Anchor new approaches in the culture.

#### *Making innovative places*

The United Kingdom National Endowment for Science, Technology and the Arts in their December 2007 briefing paper 'Making Innovative Places' (NESTA 2007) set out the following five stages of innovation:

A. Gathering a cadre of enthusiasts: building a community of change makers, focused on innovation, and with sufficient authority to deliver collective activities demonstrating its importance.

B. Arriving at an agreed vision and strategy: the partners jointly decide their regional and strategic priorities and identify realistic activities that promise future change, fire people's imagination, and meet the interests of the main partners.

C. Piloting novel activities: the coalition test drives a small number of eye-catching projects that generate wider interest and provide the partners with a vehicle to drive shared interests.

D. Mainstreaming: the results of pilots are sufficient to generate enough interest to attract more resources and recruit a larger set of partners to the innovation journey.

E. Renewal: mainstreaming is not the end of the game. The continuous recognition of new challenges re-ignites a new cycle of coalitions, plans and actions and prevents stagnation. (NESTA 2007: 3)

These stages are reflected in all of the change management literature just reviewed. This form more clearly specifies the transactions to be completed at every stage and best suits the next sections of this paper which describe the properties of these transactions in the terms of transaction cost economics, determine the likely form of governance for each stage and provide an example from South Australia.

### **Transactions and modes of governance in innovation processes**

The hypothesis of this paper is that each stage of the social innovation process requires a complex and different social transaction to persist over time. This section of the paper defines the properties of the transactions required at key stages of the innovation process and selects the form of governance that transaction cost economics suggests would be most economic for that stage.

The principal differences between transactions at each stage are the extent of transaction-specific assets at risk and the frequency of changes in the external environment that shift the distribution of rewards flowing to the participants. It follows that there will be a different form of governance that is most economical for each stage. We follow the stages given above in NESTA (2007).

#### *Stage A. Gathering a cadre*

A: Gathering a cadre of enthusiasts: building a community of change makers, focused on innovation, and with sufficient authority to deliver collective activities demonstrating its importance. (NESTA 2007: 3)

This step involves two transactions: engaging change makers and securing the authority to demonstrate innovation.

Engaging change makers requires an agent to map the processes and supply chain relationships in the field, to identify potential leaders and their interest in and need for change, and to assist those leaders to convene a plenary meeting. The meeting gathers the 'cadre' of enthusiasts and engages them in the next stage of developing vision, identifying areas of opportunity for innovation and strategies for implementation. The group provides the authority to define a plan to demonstrate innovation.

The transactions involved in engaging change makers are commonly undertaken by an internal or external change agent or facilitator.

- Transaction-specific assets: The change agent builds knowledge and networks among those people within the field who recognise a need for change. The meeting begins to create network assets that are specific to change. The industry leader can use these assets within the industry for other purposes, but for the change leader they are transaction-specific assets which have value only if innovation proceeds.
- Uncertainty of events that would threaten the distribution of rewards may have prompted the effort. Early signs of threat may not continue. Engagement often occurs during times of perceived threat and uncertainty about the future.
- Continuity of the transaction: Engagement and authority building are, sadly, infrequent activities but those who become involved value continuation to the next stage.

The cadre of would-be innovators needs a change leader to engage them, to form a leadership group, to map the processes and supply chains involved, to provide a time and place to meet and a process of governance to moderate discussions. The change leader builds transaction-specific assets and will be able to work more effectively under a hybrid form of governance.

In discussion the participants share ideas, debate the state of the society and share views on what needs to change and how it might be changed. This transaction takes time and requires a form of governance. However, at the outset there are few fixed ideas and therefore few transaction-specific assets whose value might be lost if the situation changes or the chosen path differs from that preferred by one or another party. Transaction cost economics suggests that a market is likely to be the most economical means of governing discussion during this stage.

A free market of ideas fosters a maximum range of ideas and imposes a few simple restrictions on thought. Brainstorming is an example in which the rules are that the parties abstain from critical comment and accept for later appraisal each idea put forward.

The appropriate form of governance for this stage of innovation is a hybrid which itself must manage a marketplace of ideas. The institution managing the market could be a change agent with a hybrid contract or a hierarchy that would engage a change agent.

#### *Stage B: Vision and strategy*

B: Arriving at an agreed vision and strategy: the partners jointly decide their regional and strategic priorities and identify realistic activities that promise

future change, fire people's imagination, and meet the interests of the main partners. (NESTA 2007: 3)

There are two transactions – visioning and pilot planning – which proceed together. In the visioning stage of the process people meet in plenary to share their hopes for the future and form groups who share an interest a particular direction of change and who undertake the task of developing and defining initiatives and pilot projects that could provide early tangible results.

The development of business plans for pilot testing may take some months. Drafting an agreed pilot plan involves groups sharing ideas, discarding some and committing effort to the clarification and development of others. The groups need some leadership, facilitation and process, such as a defined topic, a schedule of meetings, an agreed mode of discussion and a process for selecting among alternatives.

Draft pilot plans are presented to a reconvened plenary meeting of participants and supporters from the initial event. The meeting applies simple criteria to the pilot plans in order to select those that will proceed and the selection process refines the vision.

The vision is seldom fully formed before the second plenary. Vision and strategy develop in parallel.

- Transaction-specific assets: There are few transaction-specific assets in brainstorming, selection and development of ideas. The groups that conceive the initiatives build some specific assets in the form of networks and in turn these networks sustain the continuity of the pilot planning. It becomes critical that the groups engaged in pilot planning contain members who have conceived the initiative in discussion at the plenary, and maintain their involvement through business planning.<sup>2</sup> Participants in each group form relationships, build trust and learn skills that may continue to be useable outside the group. Where facilitation is voluntary, the leaders may expect to benefit from the success and recognition earned by the group and from continuation of these networks during and after the development of strategies. Where external facilitation is provided, some form of external contract is required to support continued facilitation.
- Uncertainty of events that would threaten the distribution of rewards: Unanticipated external demands on the time of participants or a shift in priorities often results in people withdrawing from participation. Sometimes an external event will catalyse a change of priorities.
- Continuity of the transaction: The participants in the group have an interest in continuation of the group until it presents to the forum of their colleagues. While working parties have no expectation of long-term continuity, some members develop an interest in continuing to implementation.

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<sup>2</sup> This is commonly neglected in public processes such as the Australia 2020 Summit and the South Australia Strategic Plan where business planning is taken in-house.

The task forces of willing individuals who are charged with developing vision, strategy and a pilot implementation plan have a hybrid form of governance. This is the implicit contract formed at the commencement of the process. Some of the processes they use, such as brainstorming, have a market mode of governance. But the hybrid form of governance best suits the development of vision, pilot plans and the management of group processes.

*C: Pilot testing*

C: Piloting novel activities: the coalition test-drives a small number of eye-catching projects that generate wider interest and provide the partners with a vehicle to drive shared interests. (NESTA 2007: 3)

Implementation of pilot plans occurs once there is agreement and resources are available. There is an implied or formal agreement between the sponsoring group, the team undertaking implementation and perhaps incumbent practitioners. This agreement will describe what is to be implemented, what outcomes are to be assessed, what standard is required for implementation and the anticipated timing for results. Testing confronts the networks of practitioners, and puts authors and test sponsors at risk of exclusion. It requires a form of governance that can accommodate changing attitudes and complete the tests.

- Transaction-specific assets: The team implementing a pilot project will have developed a network and commitment to the project. Conducting a pilot plan will require resources and expose networks to risk. The network of the team may not have an alternative value to the participants should the pilot test fail.
- Uncertainty of events that would threaten the distribution of rewards: Participation in pilot operations depends upon the continued support of the participants and their sponsors. External events can change the willingness of sponsors to continue their support. The results of pilot activity can also lead to sponsors withdrawing their support for further work.
- Continuity of the transaction: Pilot activities usually do not have an expectation of continuity.

Piloting novel activities will most likely require some form of hybrid governance to provide sufficient incentive intensity to drive performance, administrative control to protect property rights and a contract law to resolve disputes. Pilot projects can also be tested within hierarchies.

*D: Mainstreaming*

D: Mainstreaming: the results of pilots are sufficient to generate enough interest to attract more resources and recruit a larger set of partners to the innovation journey. (NESTA 2007: 3)

The transaction of adapting a successful prototype to mainstream practice is complex and risky. It may involve the removal of existing practices and substitution of the prototype

practices. The prototype must be replicated in new situations and must perform as expected. The resistance of established practices already in use in the new situations must be overcome.

- Transaction-specific assets: Successful prototypes must overcome the specific assets of the incumbent process or product, namely the strong networks built up around previous practices. Members of the incumbent networks will defend previous practices, and identify any difficulties with the new, in order to retain the support of their networks. The change may require persistent effort over long periods of time. Governance of mainstreaming requires very strong incentives. Markets are most effective at putting innovations into widespread practice using the power of competition to eliminate laggards. Establishing a market drives adoption of innovative processes and practices.
- Uncertainty of events that would threaten the distribution of rewards: As prototypes join the mainstream they begin to be vulnerable to change in their environment. Costs may rise and reduce the viability of the prototype design and the rewards for implementation. Without the appropriate mode of governance the parties will not be able to respond to these shifts and may draw away resources causing the innovation to collapse.
- Continuity of the transaction: Advocates of mainstreamed activities expect them to be superior to the incumbent and therefore to win the competition to continue. They will opt for a market form of governance. For other parties, once the lessons of pilot activities have been learned they may be motivated to apply the new knowledge within their own organisation. They will opt for hierarchy where incentives are relatively weak but administrative control is strong and investment is protected by forbearance within the hierarchy.

Market governance will most often be best for mainstreaming of innovation.

A common practice within firms is to standardise the key components of the prototype and then market the prototype directly or transfer (or sell) the design and the operating knowledge to new sponsors and teams. An alternative practice, quite common in government contracting for community services, is to specify the new process or product in new contracts for service. In all these cases the market form of governance is in use.

#### *E: Renewal*

E. Renewal: mainstreaming is not the end of the game. The continuous recognition of new challenges re-ignites a new cycle of coalitions, plans and actions and prevents stagnation.

New knowledge and new challenges create new opportunities and innovation again becomes necessary to survival. The transactions of engaging change makers and securing the authority to demonstrate innovation re-emerge and demand a shift to an appropriate mode of governance.

There are few institutions devoted to the task of recognising the early signs of a need for renewal and acting by commencing the process of innovation with an appropriate mode of

governance. The defenders of the established order, itself the product of previous innovation, will not voluntarily establish the conditions for renewal unless they face a credible threat. New leaders willing to drive change often arise from among those most threatened by emerging challenges.

- Transaction-specific assets: Renewal requires change agents to articulate the need for change and to engage with potential leaders within the incumbent system who have an interest in engaging in change. If incumbents do not perceive a threat then renewal threatens their network assets and, as Kotter and Cohen (2002: 1) explain, renewal will require engaging their feelings.
- Uncertainty of events that would threaten the distribution of rewards: The early signs of a need for change may disappear over time, removing motive and support.
- Continuity of the transaction: In a rapidly changing environment change is continuous. However renewal of particular processes and products is often episodic.

Renewal addresses new challenges. It can arise in response to perceptions of threat. The process will operate best with hybrid governance in which a change agent contracts with a group of change makers to group formation process, a shift to market governance of brainstorming and a return to hybrid governance of the development of initiatives.

The rate of renewal probably determines the speed of innovation. Increasing the pace of innovation may require the support of an institution that recognises the need for change and seeks to facilitate consideration of ideas for innovation. These institutions help by acknowledging the problem, managing conflict between community partners, assisting with moving from planning to action, sustaining momentum and renewing leadership.

Renewal restores the conditions for continuation of hybrid governance through the process of generating ideas and recreating vision.

### **Application to the governance of SA Business Vision 2010**

The origins and history of South Australia Business Vision 2010 Inc provides a case in point. The authoritative history of SA Business Vision 2010 has yet to be written. For its understanding of the governance of SA Business Vision 2010 this paper relies upon the author's impressions gained at first hand but none-the-less untested.<sup>3</sup> However, the record of the innovative initiatives launched by SA Business Vision and vivasa is documented in successive issues of *Indicators of the State of South Australia*.

#### *Stage A. Gathering a cadre*

The idea for developing a vision for South Australia, which was shared across over 1000 people in South Australia, including business, government, education and the community (SA Business Vision 2010 1999: 8) arose in a policy group of four members of the former

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<sup>3</sup> The author was a member of the group whose work led to the formation in 1996 of SA Business Vision 2010. He remained engaged until the present government withdrew support in 2005, leading to the collapse of vivasa.



Business Council of the South Australian Employers' Chamber of Commerce and Industry Inc who had met weekly for over a year to develop a policy framework for the chamber. The policy group developed a proposal for a community engagement and visioning process to develop a shared vision which the then Economic Development Authority agreed to support.

As expected, the cadre of enthusiasts was gathered within a hybrid governance structure including the chamber, the Economic Development Board and a consultant facilitator.

*Stage B: Vision and strategy*

The visioning process that led to the formation of SA Business Vision 2010 engaged 1000 people from across South Australia's schools, communities, businesses and governments in answering questions about the future of the state and in meetings to review survey results, to develop the vision and to suggest initiatives for change (SA Business Vision 2010 1999: 8). A large number of proposals for initiatives were produced. A leadership team arranged all the initiatives into 43 groups and these groups were reviewed by trustees who chose a subset for initial development. Individual teams then proceeded to develop pilot business plans for these initiatives. These pilot plans were presented by their teams to a forum of trustees and assessed against criteria such as the likelihood that the initiative business plan demonstrated adequate capability and resources to make a tangible and beneficial difference to South Australia within a short period of time.

Following this process, initiative pilot plans commissioned by SA Business Vision 2010 included industry cluster development, South Australian youth entrepreneur scheme, business for youth, building better business, the family business network, business ambassadors network, confidence campaign, enterprise education, information technology and telecommunications skills shortage initiative, governor's leadership foundation and indicators of the state of South Australia (SA Business Vision 2010 1999: 9).

This process was governed by a steering committee made up of members of the Business Council and the Economic Development Board using a contract with a consultant. The structure of governance was clearly a hybrid with credible commitments to ensure good faith between the parties.

This process of bringing groups together to consider proposals for pilot testing continued after the first batch of initiatives commenced testing and implementation, particularly in workshops reviewing the indicators project. These workshops contributed to the strategic directions of SA Business Vision 2010 (SA Business Vision 2010 2003: 5). They generated several new initiatives including the environment industry cluster, enterprise education, community leadership group, venture capital project, healthy ageing initiative, entrepreneurial and emerging leaders, innovation support alliance and innovation initiative group (SA Business Vision 2010 2004: 5).

In addition, another set of initiatives began to flow from within the board and structure of SA Business Vision 2010. These other initiatives included family-friendly business, CEO communications, a review of the structure of tertiary education, commercialising intellectual property, collaborative marketing, women into IT&T and the Blueprint project (SA Business Vision 2010 2000: 34; 2001: 33).

SA Business Vision 2010 used both hybrid governance of innovations sourced through consultations and hierarchy governance to drive innovations sourced internally.

*C: Pilot testing*

By 1999, when *Indicators of the State of South Australia* was first published, SA Business Vision 2010 Inc had eleven prototype initiatives in development or commissioned.

1. The Industry Cluster Development initiative had launched clusters in defence, water, spatial information, international tourism, and commercial sport and recreation.
2. The South Australian Youth Entrepreneur Scheme had been launched in the western suburbs of Adelaide.
3. The Governor's Leadership Foundation was in planning.
4. Business for Youth was encouraging business to create apprenticeships and traineeships for young people.
5. The Building Better Business team had published a booklet describing the values and principles for businesses in 2010.
6. The Family Business Network had begun advising family businesses.
7. The Business Ambassadors Network had recruited 150 people who were advocating for South Australia around the world.
8. The Confidence Campaign team was working with SA Great to build confidence across the community.
9. Enterprise Education had embarked on its mission of developing an enterprising culture to assist school leavers to find and create opportunity.
10. The Information Technology and Telecommunications Skills Shortage initiative was in development (SA Business Vision 2010 1999: 9).

As predicted, the forms of governance used by these groups were all hybrids governed by formal or informal contracts with SA Business Vision 2010. While SA Business Vision 2010 operated as a hierarchy, the projects operated as hybrids.

For example, *Indicators of the State of South Australia* continued for several years as an open network of voluntary contributors (advisory committee) responding to and contributing to a generally accepted editorial policy and supported by a management committee that dealt with sponsorship and administrative matters. This might be described as a hybrid governance structure supporting a free market of ideas. The project had sponsors whose interests were managed by a management committee and SA Business Vision 2010 Inc. In effect this provided an annual contract with credible commitments from the team and the sponsors; this was a hybrid form of governance for the tasks of final editing and publishing.

*D: Mainstreaming*

The conclusion on the governance of mainstreaming was that market governance would be most economical and capable of adapting to changing circumstances.

In SA Business Vision 2010 by 2003 several initiatives had formed hierarchies or merged with existing hierarchies.

Industry cluster development, South Australian Youth Entrepreneur Scheme, Building Better Business and the SA Business Ambassadors Network transferred to Business SA. Several clusters continue in incorporated form although the process of developing clusters eventually ceased. The Business Ambassadors Network continues in modified form. Save the Murray joined with the Murray-Darling Association (SA Business Vision 2010 2003: 34).

At least one prototype established its own independent operation in the market for training and so introduced market governance. The Governors Leadership Foundation became an independent incorporated association and eventually formed the Leadership Institute of South Australia. The Family Business Network also became an independent incorporated body and continues. Indicators and some others continued as hybrids within SA Business Vision 2010. Enterprise Education completed its transformation of education for school leavers and its work is reflected in current practice.

At the same time SA Business Vision 2010 was becoming unstable. The initial endowment of private funds had run down and several initiatives were being funded by the state. Seeing this, others began to lobby to have those activities transferred to them. The state government had commenced the South Australia Strategic Plan. Most trustees no longer had day-to-day involvement in initiatives and were unable to renew funding despite many sustaining their interest and support for the work.

Where initiatives of SA Business Vision 2010 had not made a transition to market governance they were very likely to have failed. A similar point may well apply to SA Business Vision 2010 itself.

#### *E: Renewal*

Renewal for SA Business Vision 2010 came following a review commissioned by the board to address responses to the decreased private funding and the emergence of the South Australia Strategic Plan (Government of South Australia 2004). The review led to the state government endorsing the formation of vivasa in 2004. Vivasa had the vision: 'South Australia is a vibrant, prosperous, sustainable and viable economy' and vivasa described itself as 'an independent organisation dedicated to achieving a shared vision for South Australia through collaborative action between government, business and the community' (vivasa 2005: 4). Following the formation of vivasa,

In August 2004, in line with vivasa's vision, workshops were held to focus attention on issues raised in the 2004 Indicators Report. These workshops generated projects under the flagship initiatives: Population, Education, Social, Sustainability, Regional, Infrastructure, Leadership, and Innovation and Creativity. (vivasa 2005: 7)<sup>4</sup>

By the publication of *Indicators of the State of South Australia 2005* vivasa had:

260 volunteers from government, business and community ... working collaboratively on the following projects:

Angel Mentors and Investors

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<sup>4</sup> The 2004 Indicators Report is SABV 2010 (2004).

Angel mentors will coach developing firms in the business planning process, identify markets and understand investors' requirements. Groups of Angel Investors will be developed in ICT, agriculture/aquaculture and regional sectors.

#### BoardDirect

Fast-track suitable people aged 25–40 for inclusion onto South Australian Boards. (Direct appointment, shadow board, apprentice or think-tank).

#### Broadband

Raise awareness and educate business about the value of high-speed access and using the internet to transact business. Pilot with growers & farmers. Partnering with Broadband SA (DFEEST STi).

#### Come to South Australia

Adds value to the Department of Trade and Economic Development's (DTED) 'Make the Move' campaign by providing a case management service to encourage interstate respondents on DTED's database to visit SA, and maintain this service until six months after they move to South Australia.

#### Diversity (In My Shoes)

A program that trains businesses (employers and employees) to accept and celebrate diversity, which will assist in improving retention and attraction rates.

#### Mentor and Work Guidance

Industry/businesses to educate teachers and mentor and educate students, using a two-way communication process, in current and future workplace requirements (Schools, RTOs and universities).

#### Regional Indicators

Develop a set of regional indicators in pilot regions: Murraylands incorporating the Riverland, Upper Spencer Gulf incorporating the Outback and Eyre Peninsula. Partnering with Office of Regional Affairs and Outback Areas Community Development Trust.

#### Step Up (Leadership 4 Youth)

Develop a leadership program to expose young people to leaders and issues and prepare them for the workforce. (Making the transition from education to the workplace).

#### Sustainability

Create awareness and educate South Australian businesses (SMEs) and householders to transform community behaviour to achieve sustainable practice. Add value to SA's Solar City Bid.

#### Sustainable Energy State

Market and promote South Australia as a Sustainable Energy State (solar, wind, hot rocks geothermal, clean fuels). Add value to SA's Solar City Bid.

#### Workplace Practices

Improve workplace participation rates in SA by educating businesses on employment policies and practices and encourage them to adopt flexible workplace employment practices. (vivasa 2005: 7)

Vivasa was established with hybrid governance. It had a contract with government for funding for a number of initiatives. Clearly vivasa had generated a new set of innovation initiatives and had established itself as an incorporated body. At the same time it was supporting several initiatives each with a form of hybrid governance.

Unfortunately, renewal was short lived. The state government withdrew funding for vivasa just prior to releasing the 2006 progress report of the SA Strategic Plan (Strategic Plan Audit Committee 2006). The renewal of SA Business Vision 2010 was at an end. Having failed to establish market governance the entity lacked independent funds or markets in which it could trade. The hybrid contract with the government did not provide vivasa with a means of governance that would restore mutual benefits, and vivasa was unable to continue when the interest of government shifted towards the South Australia Strategic Plan.

A remarkably productive source of innovation initiatives for South Australia disappeared. The model of driving the production of innovation initiatives by presenting independently produced indicators to a diverse group of change leaders was productive. The available record shows that SA Business Vision 2010 and vivasa generated a remarkable number of innovations which survived and continue to change South Australia.

Transaction cost economics suggests that the failure arose from continuation of the hybrid governance of the model in circumstances in which there was no credible commitment to hold government to finding ways to restore mutual benefit.

The governance of vivasa was a hybrid contract with the state government. This hybrid contained no credible mechanism to sustain the continuity of vivasa when external changes shifted the interests of government. Private funds had provided this mechanism for most of the life of SA Business Vision 2010, but there was no credible mechanism to sustain private or independent funding. A market governance model, such as that used by some independent initiatives, could have generated independent funding for indicators or for vivasa or both.

Applying the schema of transaction cost economics to impressions of the governance of SA Business Vision 2010 suggests that these initiatives may have survived had they more quickly moved to market governance of the mainstreaming stage.

### **Findings and conclusions**

This paper is concerned with how best to govern the complex social transactions necessary to successful and sustained innovation.

This paper uses a definition of 'innovation' as the widespread application of a novel idea, product or process, and reserves for 'invention' the origination of a novel idea, product or process. Invention contributes to innovation but is not sufficient for innovation.

So defined, innovation is inescapably social. Rapid and effective innovation is vital to social, economic and environmental survival and is a fundamental source of modern economic growth and sustainability. Innovation is difficult, prone to failure and to unanticipated consequences. As innovation accelerates, the society needs to find modes of governance for innovation that are economical, care for the injured and sustain the pattern of rewards that allow innovation to proceed.

Governance is the process of managing risk and adjusting to unanticipated change so that social and economic transactions can continue. The aim of governance is to adjust the relationship to restore the balance of rewards when circumstances change. Effective and economic governance of the social processes of innovation should enable the economy and the society to adapt more rapidly to the challenges we face.

Transaction cost economics provides an economic calculus that matches the particular properties of transactions (transaction-specific assets, uncertainty and frequency) to modes of governance (market, hybrid with credible commitments or hierarchy) which have particular capabilities (incentive intensity, administrative control and access to law). It uses bounded rationality as its behavioural assumption.

The greater the extent of investment in specific but not re-deployable assets, the more the parties wish to have the transaction continue and the more they need a process to manage change and avoid the stranding of their specific assets. Uncertainty, or the expected frequency of disturbances to the transaction, increases the risk of an external change that alters the distribution of rewards between the parties and requires an adjustment in the terms of the transaction.

Where there are few transaction-specific assets, economy of effort favours the use of the autonomous adjustment of markets. As the extent of specific assets increases the parties will seek to apply alternative governance modes, hybrids or hierarchy, to manage their risks. There is strong empirical support for these results.

In this paper I have used the findings of transaction cost economics to analyse the social transactions involved in innovation to define economic modes of governance for the social processes of innovation. Innovation seems *a priori* to be particularly vulnerable to the friction of transaction costs. Innovation requires significant social effort. There is a great deal of negotiation involved because innovation threatens the transaction-specific social assets of incumbent social networks and practices. The implicit positions, doctrines and authority of existing leaders are threatened and they may seek to use politics to stall innovation. Transaction-specific networks and social capital are barriers to innovation. If social capital is high in South Australia then innovation may be constrained.

Some innovative businesses outsource some stages of innovation, such as reconnaissance or hard-to-market breakthroughs, to entrepreneurs in order to avoid this barrier. Other innovative businesses constrain the effects of social networks by making a daily practice of reporting progress and sharing critical insights across boundaries. Others make incremental innovations routine and trade in intellectual property.

Almost all change management processes deal with the same key steps as innovation. Gathering a group of enthusiastic change makers may require some administrative control to

overcome the barriers of existing social networks but does not require hierarchy. A hybrid form of governance most economically manages this process.

Arriving at an agreed vision and strategy requires organisation and facilitation. Search and brainstorming processes in mixed groups operate best under market governance but overall organisation and facilitation is best provided by hybrid governance. The hybrid form of governance best suits the development of vision and strategy and the building of networks around specific potential initiatives and strategies.

Pilot testing of novel initiatives will usually involve sponsors to support testing the perspectives of the authors of the initiative in practice. Hybrid or hierarchical forms of governance engaging practitioners, authors and sponsors are likely to be most economic for pilot testing. Testing confronts the networks of practitioners, and puts authors and test sponsors at risk of exclusion. It requires a form of governance that can accommodate changing attitudes and complete the tests. The hybrid form of governance, with credible commitments from sponsors, will most economically govern this stage.

Mainstreaming of results confronts the resistance of the networks built up around incumbent processes. The market offers the most powerful incentive to change, survival, and provides a most efficient means of mainstreaming an innovation.

Renewal of innovation addresses new challenges. It can arise in response to perceptions of threat. Otherwise it requires strong incentives. The process may begin with a hybrid group formation process, a shift to market governance of brainstorming and a return to hybrid governance of the development of initiatives. If an acceleration of innovation is desired then there may be value in an institution devoted to the task of recognising the early signs of a need for renewal.

The rate of renewal probably determines the speed of innovation. Increasing the pace of innovation may require the support of an institution that recognises the need for change and seeks to facilitate consideration of ideas for innovation. These institutions help by acknowledging the problem, managing conflict between community partners, assisting with moving from planning to action, sustaining momentum and renewing leadership.

The history of SA Business Vision 2010 has yet to be written. This paper relies for its understanding of the governance of SA Business Vision 2010 upon the author's first-hand impressions. The available record shows that SA Business Vision 2010 generated a remarkable number of innovations which continue to change South Australia. This initiative offers a valuable model for an institution devoted to the renewal and initiation of innovation.

Applying the schema of transaction cost economics to the governance of SA Business Vision 2010 suggests that more initiatives, and perhaps SA Business Vision 2010 itself, may have survived had they been more quickly moved to market governance in the mainstreaming stage.

In this paper I have demonstrated that transaction cost economics has a practical contribution to make to the governance of innovation and that it could provide a valuable diagnostic tool for innovation processes.

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