

3 Why do firms cooperate?

War has often given business its metaphors. Firms ‘battle it out’ in ‘market wars’; they move in ‘for the kill’ in takeovers; products ‘assault’ the market¹. This makes business enterprises look like Rambo in their penchant for individual aggression.

There is, however, another side to business. Successful businesses are still like Rambo in their single-minded pursuit of increased competitiveness, but unlike their macho movie counterpart they sometimes find it profitable to hold hands with each other. There can be a hard-headed *cooperative* vein to successful business.

While the majority of Australian firms do not cooperate in a substantive way with other firms, about one third of firms do. What are the reasons behind their decision to cooperate? What are the modes of cooperation?

There are three sections in the chapter. In Section 3.1, we examine why firms cooperate. In Section 3.2, we look at the tiers and intensities of business cooperation. Section 3.3 provides a synopsis of the findings of this chapter.

3.1 Reasons for business cooperation

3.1.1 The function of cooperation

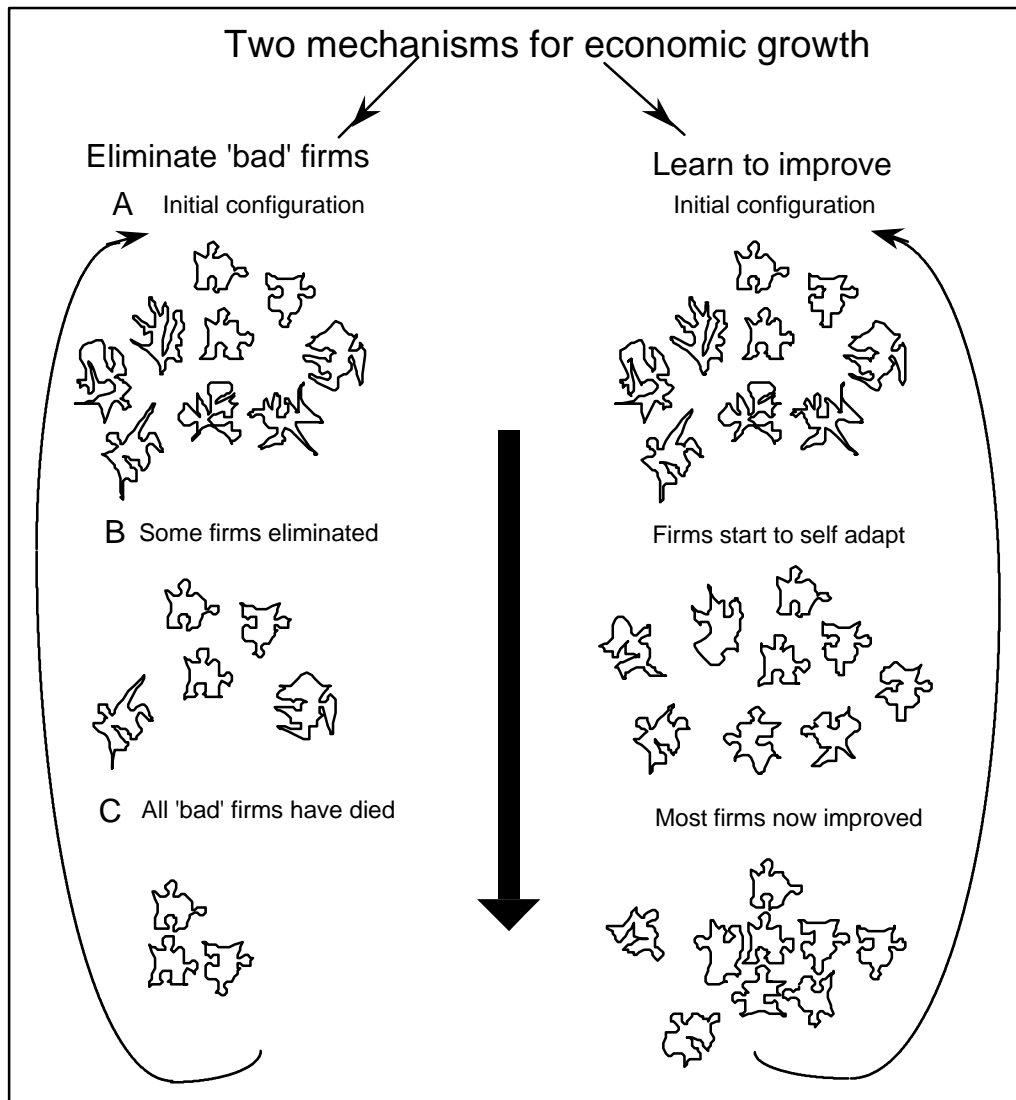
One way of looking at any economy is to see it as a vast and complex configuration of scarce resources; raw materials, people, machines, knowledge and infrastructure are brought together in a myriad of ways to produce the goods, services and other outcomes we want. In any dynamic economy, this configuration is essentially experimental. We are always looking for better ways of combining these resources to give better outcomes.

We can think of all sorts of methods for trying to find better ways of reconfiguring resources. For example, all the disparate bits of the economy could be juggled about in a giant randomising machine. It is (remotely) possible that the resulting configuration would be better, but far more likely that unproductive or impossible configurations would emerge, like trying to make steel from bananas or similarly absurd combinations.

Modern economies have found more efficient ways to encourage better configurations (Figure 3.1). One invention is the firm. Firms are groups of one or more individuals who try out a particular way of doing things. Then, by having competition, inefficient or unresponsive firms die in a process akin to ‘natural selection’, leaving high quality survivors and better ways of doing things. The survivors form a naturally interlocking system – with good firms not only being internally efficient but also having clear complementarities with other firms. Transactions between survivors are easier than those between members of the ill-adapted group. The whole is greater than the sum of the parts – hence the jigsaw analogy in the diagram.

¹ Any business newspaper or magazine affords ready examples. For example, ‘Brereton relaxed about air fight’, *Australian Financial Review* 24/4/95, ‘It’s war! Well..virtually’, *Australian Financial Review* 25/4/95.

Figure 3.1 How we do things better



Note: The 'good' firms are represented by jigsaw shaped pieces which interlock easily, while 'bad' firms are represented by other, non-interlocking, almost random shapes.

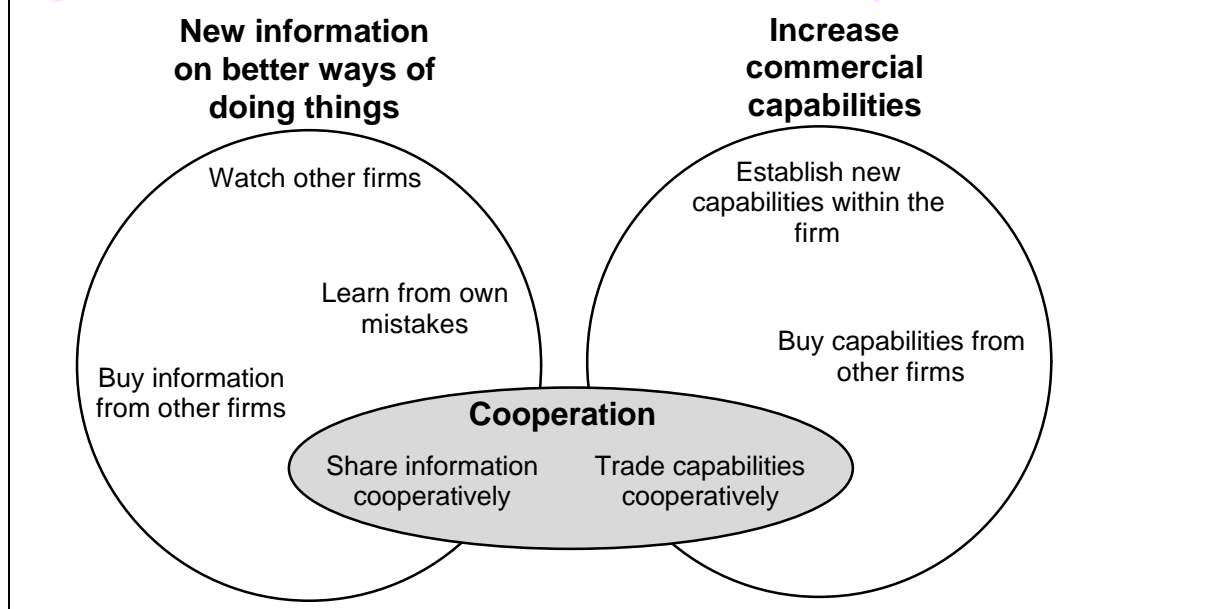
The better techniques for doing things are the equivalent to genes in the biological story of natural selection. The people who run good firms will eventually die, but their accumulated expertise is either passed on directly to other employees or survives in institutional arrangements or manuals (Nelson and Winter, 1982). However this Darwinian process of competition, if working alone, might be quite protracted, because it takes time to eliminate the 'bad' firms.

But there is a second mechanism at work. Individual firms can improve by changing their nature – unlike animals, a firm can change its own spots to better suit the environment. But how do firms change the way they do things? The answer is either by trading capabilities with other firms, or by gaining knowledge – either from their own experiences or from customers, governments or other firms.² Not all these transactions

² AMC and McKinsey (1994, p. 5) cites the diverse sources of new ideas for firms. Innovative firms cast their nets far more widely than other firms. They are particularly good free-riders, with 56 per cent of innovative

need be formal and at arm's length. Many are free; you learn simply by watching others. Moreover, some of the transactions are symbiotic in nature. For example, a customer might provide information about desirable changes in a product, which enables the producing firm to make higher quality products. The customer gets a better product, the firm obtains an increase in its competitiveness.

Figure 3.2 The role of cooperation in firm learning



The critical point about this second mechanism is that every firm learns to improve through self analysis and hard-edged³ trading in information. Of course, the world never ends up perfect – because new shocks always push firms away from perfection.

These two mechanisms, annihilation and learning, work side by side in improving the long run performance of firms. Economists have long understood the role of failure – but learning and cooperation have been less routinely acknowledged. By exchanging mutually beneficial information and capabilities, inter-firm cooperation can be a cheap and rapid way of discovering better ways of doing things (Figures 3.1 and 3.2). This still leaves unresolved the question of when, in particular, firms find it useful to cooperate rather than to use other strategies and where the boundary of a firm will fall when it is in close cooperative arrangements.

3.1.2 What determines a firm's boundaries?

Economists are still trying to understand what determines the boundaries of firms. Firms do some things, but not others. Where do they draw the line and why?

firms borrowing ideas from other companies (typically through reverse engineering) compared to only 20 per cent of non-innovative companies. The innovators also rely far more heavily on cooperative modes for securing new ideas. Thus 44 per cent of innovative companies gain new ideas from leading-edge customers while 22 per cent of the innovators source new ideas from suppliers. In contrast, the figures for non-innovators are 30 and 20 per cent respectively.

³ Hard-edged because there need be no altruism or good will in cooperation – but simply a recognition of the mutual value of cooperation between firms.

The major explanation⁴ centres on the transactions costs of configuring resources (See Coase, 1937; Alchian and Demsetz, 1972; and Williamson and Winter, 1993). Surprisingly, buying something can be very complicated. There are many dimensions to a transaction. Buyers are interested in:

- pricing
- when they can get the product
- quantity
- quality
- after sales service
- flexibility
- how the problem will be fixed if for some reason one of these requirements is not met.

When buying products or services, firms face costs of (a) establishing contracts to specify all these aspects of the exchange of goods or services, (b) monitoring whether the contracts have been breached and (c) dealing with breaches if they occur. If these transactions costs are low compared to in-house production, then the firm will contract out to other firms through a market. For example, many firms will contract out cleaning because it is easy to monitor quality and to specify the full range of duties. On the other hand, when these transactions costs are high firms will internally organise production using non-market and hierarchical forms of organisation.

But how does cooperation enter this rather black and white characterisation of the firm? Cooperation allows a firm to conduct transactions and/or receive information outside the firm in a way which is less costly than either internal production or complete arm's length relationships. These costs may be lower relative to arm's length relationships because cheap and flexible implicit contracts, based on mutual advantage and feedback, can replace inflexible and expensive formal contracts. The principles of reciprocity, feedback and reputation discipline cooperative arrangements: both parties have incentives to adhere to the implicit contract because both parties have something to gain.

The costs are lower than internal production because firms either trade capabilities or information in which they have a comparative advantage, or spread fixed costs of some activity over a number of firms (such as a joint marketing program, acquisition of a particular technology or even specialised staff and equipment). For example, one engineering firm may have a particular advantage in the rapid design of unique engineering solutions, and another a unique ability to manufacture the specialised equipment. They may well cooperate because their competencies are complementary. It would be costly for any one firm to try to perform the other's function.

We emphasise that cooperative behaviour need not spring from an altruistic concern for others, but typically represents self interest.

⁴ Another important explanation is *technological*. If, for example, you want to make petroleum products and compete with other petroleum producers, you had better use up-to-date technology. Since this technology does not come in infinitely indivisible units you can only make large amounts of most petroleum products or none at all. There may also be economies in jointly undertaking petroleum refining and chemical manufacturing, but there are unlikely to be similar complementarities with, say, selling fish and chips. Accordingly petroleum firms will be large and may diversify into similar sorts of technological activities. They will not run fish and chip shops as well.

3.1.3 A world without business cooperation

In trying to understand the ‘nitty gritty’ of why firms cooperate, it is revealing to ask what the world of business would look like if firms never cooperated.

Weaker information flows

If firms never cooperated, information flows between firms would be far more sluggish. Firms would not voluntarily disclose information of use to other firms. This would slow diffusion of good management practices, technologies, and marketing intelligence. Product improvement and innovation would be riskier and more expensive – wheels would be re-invented and innovators would face only a market test for their completed new products, rather than receiving continuous feedback from customers about a proposed innovation.

Even if there were information flows, a lack of cooperation reduces the value of the flow. In many exchanges, one party knows more than another. The classic example is the market for used cars, colourfully depicted by Akerlof (1970) as ‘the market for lemons’. A buyer of a used car does not know whether the car is a good one or a bad one (a lemon). The seller, who has recently driven it, knows. Because of this ‘information asymmetry’ – sustained by the fact that buyers cannot trust the seller’s information – the price for used cars is depressed. If, however, you can trust the seller then both parties are better off. The buyer is better off because she avoids the risk of a lemon and the seller is better off because she gets a higher price.

As well, quality control and production and inventory planning would be more costly. Cooperative arrangements with customers and suppliers typically provide forecasting information on future requirements for stocks of inputs or outputs. Without that information, firms might have to maintain larger inventories of inputs and/or finished goods to cope with unforeseen demand changes. More of the economy would sit unproductively on the factory floor.

Firms informally provide information on the quality of employees who are leaving – the refereeing process is essentially a cooperative behaviour. Without this information, hiring firms would face greater uncertainty and higher search costs for good quality employees. This in turn would increase the level of unemployment.

More do-it-yourself

Second, in a world without business cooperation firms would trade capabilities less and do more themselves, simply because the transactions costs of arm’s length relationships (which are not based on reciprocity and trust) would be too high. Firms would tend to be bigger and less specialised, and face higher costs.

This suggests that flows of information and capabilities between firms, underpinned by cooperative behaviour, increase economic efficiency and growth.

3.1.4 What sorts of firms will cooperate and when will they do it?

Cooperation is *not* a strategy that suits all firms. The transaction between a tourist and a souvenir supplier is an extreme but suggestive example of an almost purely arm’s length arrangement. What makes this at arm’s length?:

- It is a one off purchase conducted in a relatively information-poor environment. Customers rarely return, and have little opportunity to collect informal information from other consumers about the quality of rival sellers.
- Customers are undemanding. A customer faces few adverse consequences from buying a poor quality good. This is because the purchase cost is low in relative terms (so that the cost of a poor investment is small) and the performance of the good does not matter much to the consumer (for example, consider a commemorative spoon which tarnishes compared with the unfortunate consequences of a faulty pacemaker). Reputation, guarantees and brand names – all devices to signal high quality – are usually absent.
- The goods are simple in nature. Rates of technological innovation are low. The information needed to understand and use the products is slight. Accordingly, it is easy to monitor their quality. There is no after sales service, customer training or product training for sellers.
- Any individual product matters little to the seller. They diversify selling risks with large ranges of goods. If the white elephant doesn't sell, the pink koala will.
- There are many, approximately equivalent customers – so that the value to the supplier of any one customer is small.
- There are many, approximately equivalent sellers, so that customers are indifferent between them – the market is highly competitive.
- Firms can realise few economies of scale. A bigger souvenir seller has few advantages in unit costs than a smaller one, unlike steel production for example. As well, the requirement of physical proximity to the consumers means that the typical seller must be small.
- The market is highly turbulent with rapid entry and easy departure of firms. Long term, non-contractual, relationships between firms are risky and uncertain because the cooperating parties may vanish. The value of market information quickly becomes redundant.

This is an example of an acutely distant relationship between customers and suppliers, who fleetingly, almost accidentally, engage and then part. While a caricature of most business transactions, it is useful for teasing out some of the important elements determining the degree of cooperation (Figure 3.3). Five major elements emerge. We need to look at both parties to any transaction. We must consider the nature of the transaction itself and the good or service being exchanged. Finally, we have to think about the social and institutional milieu in which the exchanges take place. We explore each of these elements in turn, and establish some conjectures which we investigate in later chapters.

Nature of customers

Cooperation takes time. It follows that a firm cannot cooperate with everyone if it has a large number of suppliers and customers. The firm will cooperate with only the most important suppliers and most demanding and significant customers. If the customers and suppliers are all much the same, and there are many of them, the firm will tend to adopt arm's length transactions. This is why the relationships between ordinary consumers and retailers are typically at arm's length. Cooperative behaviour will usually be between firms only.

While money is the major lubricant of any transaction, there is usually another invisible transaction involving information flows. When customers use a product, they learn about how it works in the real world and how to improve it. The more information customers collect, the more valuable is their feedback – and

the more suppliers will elicit their cooperation. Demanding customers, by their nature, collect more information about how products work – which is why they can act as such valuable sources of product improvement (for example, AMC and McKinsey 1994).

Nature of sellers

If an industry is composed of a large number of almost identical firms, each competing with the other, then there are:

- disincentives to share information with other firms in the industry (because the sharing firm forgoes a competitive advantage); and
- not many unique capabilities or much information to share among industry members.

Figure 3.3 When will firms cooperate?

Arm's length

Cooperative

Nature of customers

Undemanding	How demanding are customers?	Demanding
All much the same	Homogeneity of customers	Different customers
Many	Number of customers	Few
Small	Information needs	High

Nature of sellers

All much the same	Homogeneity of suppliers	Different sellers
Many	Number of sellers in industry	Few
Low	Dependence on any one product	High
Low	Need for feedback from customers	High

Nature of products/services

Simple	Degree of complexity	Complex
Unimportant	Importance of fixed cost or economies of scale	High
Low	Rate of technological innovation	High
Low	Cost of product failure	High
Low	Importance of reputation	High
Off the shelf	Extent to which tailored to particular customers	Tailor made

Nature of transactions

Infrequent	Frequency of transactions by individual customers	Frequent
Low	Cost of transaction failure	High
Small	Size of transactions	Big
Simple	Complexity of transaction	Complex

Social norms

Low trust	Attitude to trust	High trust
Guile is OK, its just business	Breaches of trust	Social sanctions

This does not preclude cooperative relationships with customers or suppliers in such an industry. However, such relationships may be relatively unstable, since any customer or supplier has many alternative choices among the firms. Each firm is somewhat dispensable.

In contrast, firms which have carved out product niches learn new and useful information which they can share with others without compromising market share. As well, the more the firm derives their competitive advantage from a particular product niche, the more important it is to gain feedback from customers and to

ensure high quality and timely inputs from suppliers. Such firms cannot diversify product risk through many unrelated lines – but they can reduce product risk through cooperation.

Nature of goods/services and processes

There is often a deeper source of cooperation than the nature of suppliers and customers. In many cases, the nature of the product shapes the market structure and transactions. Product complexity and novelty are key factors – they create strong incentives for the information flows that dominate cooperation.

Complex products are goods or services which are difficult to make and may be difficult to use. Their quality is hard to monitor. Compare for example, a tomato with a machine tool. Tomatoes are simple products, whose texture or appearance betrays their quality. Machine tools are sophisticated products, whose quality will invariably only become apparent with use. Their manufacturer can find them hard to make well and the customer hard to master. Their production and their use generate valuable information.

Seemingly, customers and suppliers could buy and sell this information. However, the costs of organising such markets or of eliminating false and misleading information are often too high. In this case, information can only be exchanged cooperatively.⁵ Customers tell suppliers about product faults, new possible designs and even better manufacturing techniques. Suppliers help train customers to use their products, fit production schedules in with customer needs, and tailor product design to new customer requirements.

How will firms signal the quality of complex, hard-to-monitor products? If the firm needs to signal their product quality to many customers at arm's length, they typically resort to formal guarantees and brands since they cannot build up a relationship based on trust with every customer. While guarantees are principally a form of insurance for the buyer of a good, they also signal that a seller has strong incentives to maintain high quality. In arm's length transactions, the guarantee is a formal contract, with clear terms and conditions governing its scope. This formality is possible because producers know the likelihood of product failure.

Where this likelihood is unknown (as in novel products or tailored solutions) suppliers will be reluctant to provide unlimited insurance to the customer. However, they may still want to signal an incentive to maintain quality. They can do this through a 'fuzzy' guarantee in a cooperative transaction. The supplier invokes an implicit guarantee with its customer which allows the cooperating partners to flexibly determine the contingencies under which the guarantee applies. In effect, the customer and the supplier recognise that they are 'trapped in a lift' together, and that they will have to equitably share the losses and gains of novel product development. This flexibility, based on trusting relationships with a few customers, can be critical where products are complex and novel.

The greater the pace of innovation, the greater is the required flow of information between customers and suppliers. If a product is complex but virtually unchanging, then the need for continued flows of information between customers and suppliers wanes, as does a major impetus for cooperation.

Faster, cheaper and more accurate information flows are a major rationale for cooperation. But there can also be a technological basis to cooperation. There can sometimes be either substantial economies of scale (or scope) and, or large fixed costs in production. For example, a global marketing push requires a substantial

⁵ As well, when cooperative exchange takes place, it eliminates much of the incentive to provide false or misleading information. Thus, in a market in which costly information is gathered, some players may cheat and contrive cheap false information which they sell as if it were the real article. If there is no price for the information, there is no incentive to provide such false information (other than in certain rivalrous strategic games).

fixed investment to have any impact – and investment often beyond the resources of a single firm. By cooperating with firms producing complementary products, these large fixed costs can be spread over many firms (see Box 3.1 for how such a cooperative venture was organised).

Box 3.1 Southern Gold: Spreading global marketing costs over many firms

Early in the 1990s, the Confectionary Manufacturers of Australasia (CMA), an association representing sweets producers in New Zealand and Australia, identified strong export opportunities for their members in the growing Asian market and poorer prospects in a stagnating domestic market. Australian producers were proficient at short production runs and Asian familiarity with Australian products gave Australia an edge over European and US producers. The CMA knew the cost of entry into this market for many individual companies was high. Small firms in the Australian confectionary manufacturing industry faced a range of impediments to export success. Individually, they lacked the resources necessary to gain the export knowledge, access export markets and maintain the production capacity to service export markets.

In mid-1993, the CMA developed a novel solution – a distinctive brand of confectionaries targeted at the Asian market and owned jointly by industry members. The CMA (with the National Industry Extension Service and a facilitator) established a network of eight small confectionery manufacturers in Victoria and New South Wales called Southern Gold. The manufacturers shared similar competencies and were fierce competitors in the domestic market. The group established a comprehensive code of ethics, developed a structural mechanism for operation of the organisation and built up trust between members. They could then clearly delineate the areas where they could cooperate, while still competing with each other vigorously in the domestic market.

Southern Gold launched their jointly owned brand, Kazz, at the Singapore Food Trade Fair in April 1994.

Source: BIE interview

Nature of transactions

Small, rarely repeated transactions are inevitably at arm's length. Cooperation is too costly for an ephemeral relationship with a customer or supplier. As well, non-cooperation cannot be punished where only one transaction takes place (Figure 3.4).

Figure 3.4 To cooperate or not? A revealing game

The game is called the *prisoner's dilemma*. We only use it as an illustration of a principle. Two people, Thelma and Louise, are in separate cells in jail. The police know that the two jointly committed a crime, but don't have enough evidence to convict. The police offer each of them a separate deal. The police ask each prisoner to implicate their partner. If neither does, then both avoid custody altogether. If each implicates the other, then each goes to jail, but only for a short time. If one implicates the other but is not implicated then she gets off (and enjoys the hidden loot alone) while the other rots in jail for a prolonged period. Each prisoner ranks the four possible outcomes. The best would be to implicate the other party but not be implicated oneself (escape jail and get the loot to oneself!). The second best is to avoid implication of either party (thus avoiding jail and dividing the loot). The third

best is to both implicate each other (and endure a short spell in prison, before enjoying the loot together). Worst of all, is to be implicated, while not implicating your partner (long hellish life in jail and no loot).

We represent the game by a payoff matrix, showing how the players value the various outcomes of the game. If Thelma and Louise clear each other, we call this the *cooperative solution*. Other solutions are non-cooperative. What will be the predicted outcome of this game? Because they cannot communicate with each other, each player will implicate the other, and both players receive zero benefits. Why is this the dominant strategy? Put yourself in the shoes of any one player.

		Thelma	
		clear other	Implicate other
Louise	Implicate other	Louise: 10 Thelma: -5	Louise: 0 Thelma: 0
	clear other	Louise: 5 Thelma: 5	Louise: -5 Thelma: 10

Say I declare you are innocent. I know that if you implicate me, you will get the full loot and go free, while I remain incarcerated. It would be unwise to declare your innocence. This outcome is unfortunate because we could both be better off if we could somehow choose the cooperative solution. Now imagine a twist in the game that switches the results dramatically. Instead of playing it just once, say that we play it repeatedly (and the gains and losses are merely monetary rather than custodial).

This has been tested in experiments. Cooperation ensues so long as the players do not see the end of the game in sight. This occurs because I can feel safe about clearing you now, because if you cheat on me, I can punish you in future games by reversing my strategy⁶. What is the lesson of the game? *Repeated transactions often encourage cooperative behaviour.*

⁶ The full story is in Kreps (1990, pp 503ff) where he also elaborates a number of ‘wrinkles’ to the story.

But if the value of the transaction rises, and, or the customer returns repeatedly, then there is a basis for trust, reputation and information exchange. If a transaction is complex, because it involves many carefully sequenced stages or because it must be flexible to meet changing circumstances, then the costs of formal contracts rise. In contrast, flexible arrangements based on cooperation and guidelines (such as memoranda of understanding) can economise on these costs.

The greater is the cost of transaction failure (for example, firms deciding not to sell or buy at a critical time) the more the transacting parties will need to coordinate and cooperate.

Social norms

Trust underwrites many forms of cooperation. Trust has the advantage that it eliminates all sorts of costly monitoring and formal contracting that people would need if they weren't sure of the trustworthiness of their business partners. But how do you ensure that people behave in a trustworthy way in a cooperative business relationship? The view implicit in much of the modern theory of the firm is that people act in 'self interest with guile' (as coined by Williamson 1985). Korczynski (1994) gives a compelling example of how such guile afflicted the British engineering construction industry.

Guile leaves no room for trust. However, social norms and sanctions can encourage trust. People or organisations who need to be mutually trusting can penalise breaches of trust. For example, if two firms exchange vital strategic information, a discovered breach of trust by one can elicit a punishment from the other – effectively the two firms swap poison pills.

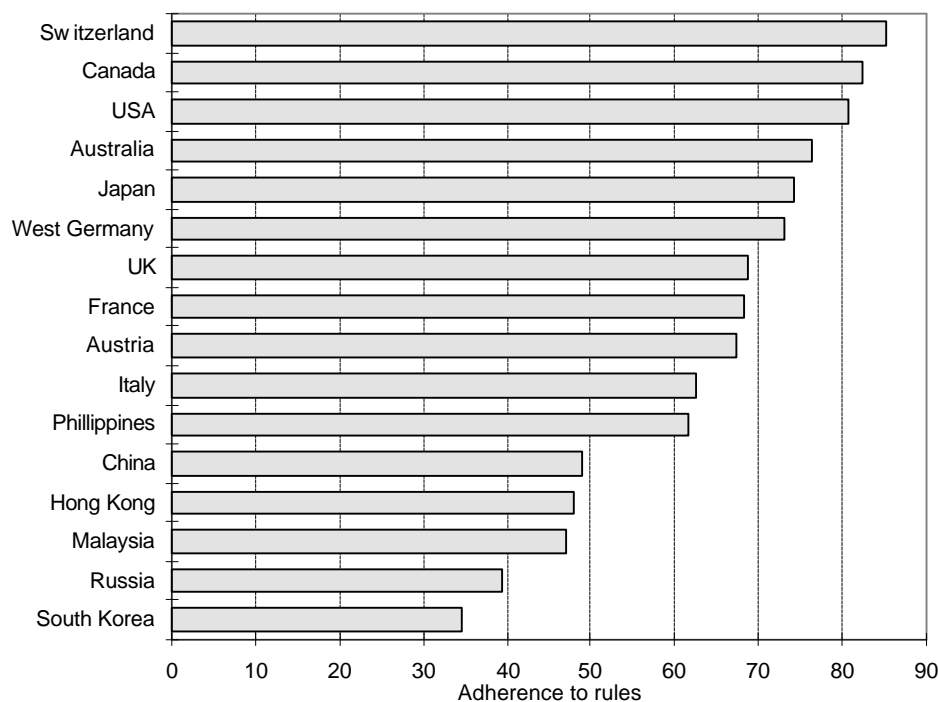
Different cultures tend to place different emphases on relationships based on trust and informality versus ones based on more formal rules (Trompenaars, 1993). Australian business people, like North Americans, tend to prefer rules to trust (Figure 3.5). Asian, Middle Eastern and Latin-American societies are the opposite. This may explain their greater reliance on business cooperation, as exemplified in the Italian machine tool industry.

Trompenaars provides a vivid example of how social norms tilt business relationships:

In a ten year contract between a Canadian ball-bearing producer and an Arabic machine manufacturer, a minimum annual quantity of ball-bearings was agreed upon. After about six years the orders from the Middle East stopped coming in. The Canadians' first reaction was: 'This is illegal'. A visit to the customer only increased their confusion. The contract had apparently been cancelled unilaterally by the Arabs because the Canadian contract signer had left the company. The so-called universally applicable law was not considered relevant any more in the eyes of the Arabs. What could the Canadians say against this logic, especially when they discovered that the ball-bearings were never even used? It turned out that the product was purchased solely out of the particular loyalty to the Canadian contract signer, not because of a felt legal obligation. (p. 41)

Institutions can also sustain cooperation. For example, Lane and Bachmann (1995) suggest that there are systematic institutional differences (the law, financial systems, trade associations and training) between the UK and Germany which explain why UK is a low trust economy and Germany a high trust one⁷.

⁷ Germany scores higher than the UK in Trompenaars' measures of rules versus trust based relationships. This is hard to reconcile with Lane and Bachman's characterisation of the two countries. However, sometimes cooperation and rules are not opposing forces. In Germany, the existence of uniform institutional standards (especially those relating to industry norms – *Deutsche Industrie Norm*) helps to develop cooperation and trust.

Figure 3.5 Rules versus trust-based relationships, by country

Note: The data are the average of the scores in Figures 4.1 to 4.3 in Trompenaars. The higher the score, the more a culture tends to use arm's length relationships mediated by formal institutions. The scores are based on questions given to people in each of the countries. The scores provide an imperfect guide to the role of rules versus trust in different societies.

Source: Trompenaars (1993).

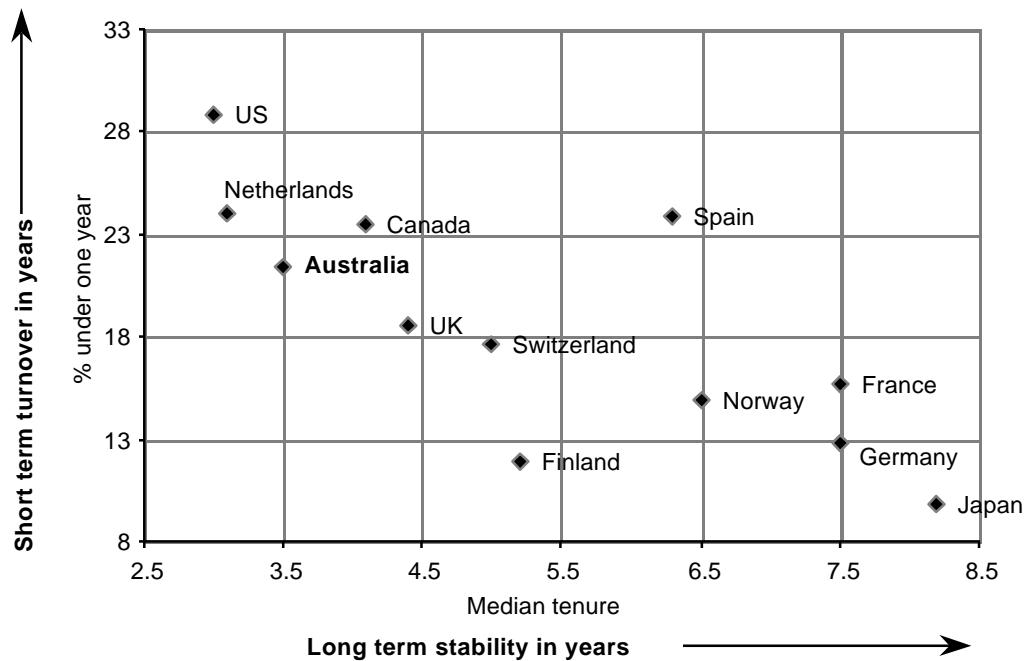
Since Australia has inherited many of these British institutions, Lane and Bachman's perceptions suggest that Australia too may face institutional and environmental impediments to cooperation. Certainly Australian industry associations and chambers of commerce lack the power of their German counterparts, while our legal system is inherited from the UK.

Some other indirect evidence supports the existence of impediments to cooperation. Short term job turnover is higher, and long run job stability is lower, in Australia relative to other OECD countries (Figure 3.6) – weakening the capacity for long-term personal-based trust.⁸ As in the UK, but unlike Germany, wage differentials are quite pronounced between small and large firms in the same industry.⁹ This may encourage more arm's length relationships between different-sized firms to reduce the risk of skill poaching.

⁸ However, the figures for job stability among Australian managers and administrators is much higher than for the average Australian employee – so that there may still be ample room for long term personal-based trust in many Australian firms. In 1994, about 33 per cent of Australian employees had been in their jobs for only two years or less compared to 20 per cent of Australian managers and administrators (ABS, *Labour Mobility, Australia*, Cat. No. 6209.0, AGPS). In contrast 42 per cent of managers and administrators had been in their jobs for ten or more years compared to 24 per cent of all employees. In any case, higher job mobility in Australia may serve as a substitute way of diffusing knowledge around the economy

⁹ For example, in manufacturing, average earnings of firms employing 20 or less persons were one-third less than firms employing 100 or more persons (1990-91 figures from ABS, *Small Business in Australia, 1993*, Cat.

Figure 3.6 Short term job turnover and long term job stability



Note: Median years spent in the one job is the measure of long term stability, while short term job turnover is measured as the percentage of employees who have been in their job for under one year.

Source: OECD (1993), *Employment Outlook*, Paris, July.

No. 1621.0, p.101). Loveman and Sengenberger (1990) provide comparative data for a number of other countries which implies that Australia's wage dispersion across different -sized firms is greater than most.

Summary

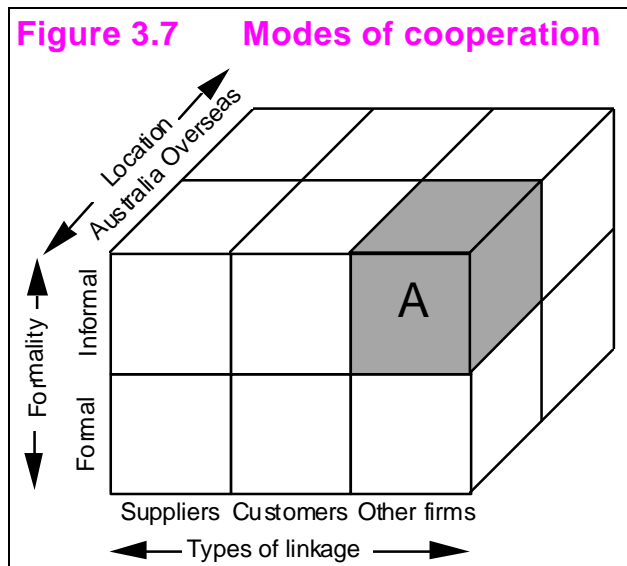
These five elements – suppliers, customers, the product, transactions and the social milieu – all affect the likelihood and the mode of cooperation. But they are not wholly independent. For example, a complex, novel and costly product, like ophthalmic lasers¹⁰, will typically be sold to only a few customers. These will have high information needs and face high costs of transaction failure – they therefore have strong incentives to provide feedback to the supplier. In this case, the product shapes the nature of customers, suppliers and transactions – which collectively determine the likelihood and type of cooperation.

3.2 Modes of cooperation

Cooperation is like a language – it has diverse forms and complex nuances of style. We have explored why firms cooperate but not why firms choose the particular forms and intensities of cooperation. In the remainder of the report (and especially in Chapter 5) we examine, *inter alia*, three dimensions of business links (Figure 3.7):

- the degree of formality of the linkage;
- who the linkage is with: suppliers, customers or other firms; and
- whether the linkage is with an Australian or overseas firm.

Any linkage can be located somewhere in an imaginary box describing these dimensions. For example, the pigeonhole labelled 'A' depicts an informal linkage between Australian firms from different industries.



Formal versus informal

The choice of which form of cooperation to adopt is not arbitrary. First, consider the degree of formality. Small firms can cooperate through personal relations. This allows maximum flexibility and great subtleties in the degree and type of information exchanged. But such cooperation suffers from limitations. In large firms there are many key decision makers – not simply the CEO. If these firms based their cooperation on informal personal relations alone then movement of key people could destroy linkages (as in the previous ball bearing example).

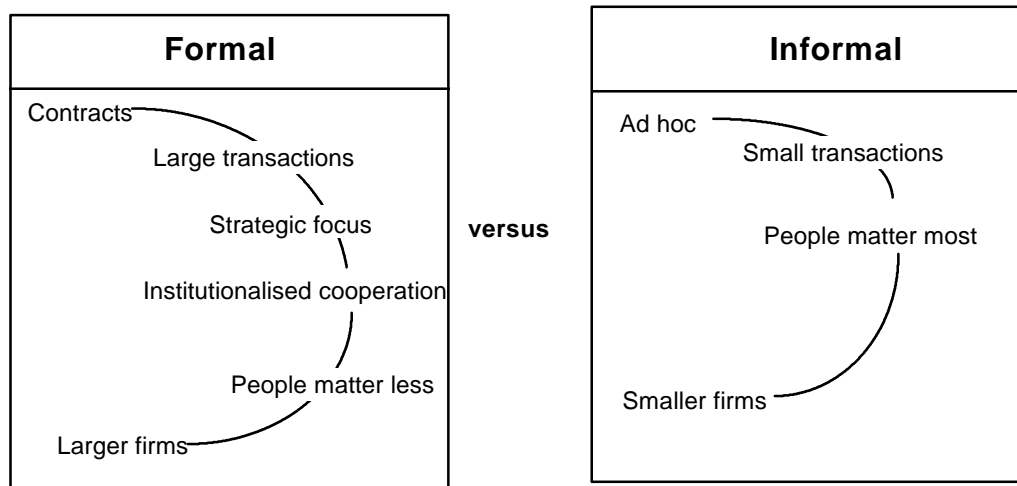
Larger firms cement their cooperation through codification (such as joint strategic objectives, MOUs and contracts) and structure. The memory of the linkage moves from a person to the institution (Figure 3.8). As well, in larger firms it becomes difficult to coordinate the various informal links of key people, unless there is some clear strategy and protocol for cooperation. Conversely, formal linkages often require a managerial infrastructure that small firms cannot or are reluctant to support. For example, an Olivetti-Toshiba joint venture in photocopy machines required one year of negotiation by a team of 10 part-time managers

¹⁰ AMC and McKinsey (1994, p.11) gives a lively example of how Laserex Systems, an Australian company making just such devices, secured gains from their linkages with overseas leading-edge customers.

(Camagni, 1993). This suggests that larger firms use more structured and formal cooperation, a hypothesis we examine in a later chapter.

As well, formality need not only be a function of a firm's size – but reflect the need to clarify expectations about a partner's role when large collaborative resources are at stake. Hence large collaborative R&D projects or joint production agreements between firms will usually involve formal contracts as well as informal cooperation.

Figure 3.8 Formal versus informal relationships



Domestic versus overseas

The role of international linkages in promoting business efficiency and growth is controversial. Michael Porter in his *Competitive Advantage of Nations* (1990), emphasises the role of domestic versus overseas linkages and provides a privileged position to demanding and sophisticated local customers. For example, Norway has a good winter sport manufacturing industry because its consumers of winter sport equipment are the most discerning in the world (they have to be!). Similarly, the advantage of Australia's marine industry might stem from sophisticated local customers.

AMC and McKinsey (1994) have questioned whether the Porter model is really applicable to a small open economy like Australia – and suggest instead the primacy of leading-edge customers abroad. AMC and McKinsey found some strong evidence in favour of this with their survey data, but their sample frame included only high value-added, high export companies – which might bias the results.¹¹ The BIE dataset

¹¹ If an exporter has its major customer abroad, then it would not be surprising that it believes that information from that customer is more important than minor customers at home. A better test would be to look at firms who had equally-sized contracts with individual customers at home and abroad. If they still rated overseas customers as more important, then that would be strong evidence in favour of the AMC/McKinsey hypothesis.

should enable a better, if still incomplete¹², resolution of the relative importance of domestic versus overseas links.

Clearly at a more facile level, one would expect that exporters will have much stronger links with overseas customers than non-exporters (which we test formally later in this report). On the other hand, unless the supplier produces a strategic input for an Australian customer, and/or the Australian customer is a key one for the foreign supplier, it is less likely that strong overseas links will be established with suppliers.

The international dimension of cooperation is interesting in another way too. Australia is a small economy: in 1991-92 there were around 340,000 private businesses in the non-agricultural sector and about 40,000 manufacturing businesses.¹³ Contrast this with the giant US economy. In the US, there were around 5.7 million non-agricultural businesses in 1990 and around 370,000 manufacturing enterprises in 1988.¹⁴ As indicated in Figure 3.1, each firm is an experimental configuration of resources, from which other firms can learn. In a small economy there are fewer examples of best practice to mimic – in the global economy the number of firms to learn from is extraordinarily magnified. Just as people are increasingly seeing bio diversity as an asset, so too can global firm diversity provide useful information. With decreasing costs of transferring information (faxes, modems, the infobahn), there also seems to be increasing scope for firms, including *non-exporters*, from different countries to exchange information. Surprisingly, non-exporters in particular can be natural partners because they do not compete with each other.

But while there may be good reasons for international flows of information through cooperation, is the necessary infrastructure in place to support those flows? The evidence, while indirect, supports the notion that Australia is one of the lead countries in the adoption of technologies which aid diffusion of knowledge and that the global accumulation of such technology is proceeding apace (Figure 3.9).

Linking with whom?

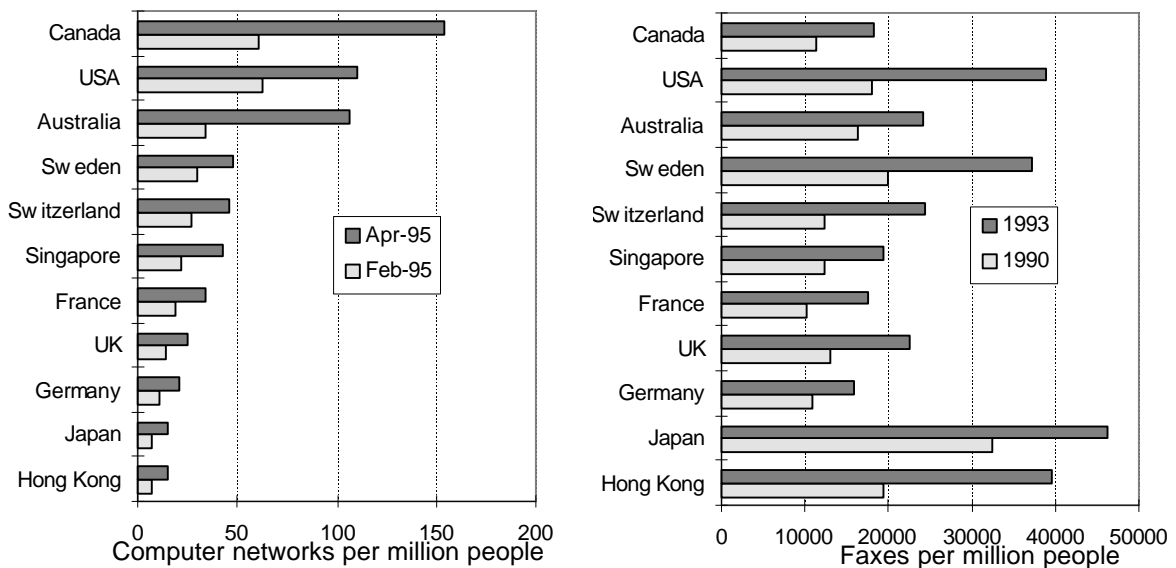
We have already established hypotheses about the major factors which determine whether a firm is likely to cooperate. Who they cooperate with is merely a variation on these themes. In particular, product and transaction complexity emerged as one of our key explanations for cooperation. Thus if a supplier provides complex, hard-to-monitor inputs to a firm, it is more likely that they will cooperate than if they supplied simple homogeneous inputs.

¹² Incomplete because we cannot undertake the best test, as described in the previous footnote. What we can do, is compare the incidence and benefits of prime linkages with overseas firms relative to prime linkages with domestic firms.

¹³ We restrict the number of firms to those employing one or more persons. The data is from ABS (1993), *Small Business in Australia, 1993* Cat. No. 1321.0.

¹⁴ These data also exclude non-employing businesses and are drawn from *The State of Small Business, A Report of the President*, 1991, US Government Printing Office, Washington. In the European economy it is estimated that there were about 14.6 million firms in the non-primary private sector (European Network for SME Research, 1993, *The European Observatory for SMEs* Netherlands).

Figure 3.9 Technological infrastructure for knowledge diffusion



Note: 1993 populations are used to estimate the nets per million persons for February and April 1995. Other data from the Internet Domain Survey run by the Internet Society also suggest Australia is a lead user. July 1994 data for example suggested that Australia had the second highest levels of hosts per GNP in the world.

Source: <http://nic.merit.edu/nsfnet/statistics/1995/nsf-9502.country>.

There are, however, a few accretions to this story which explain how firms choose the pigeonholes in Figure 3.7:

- Sequencing of relationships. Many firms learn how to produce before they learn how to sell. If you are setting up a business, you will probably not have orders from customers until you can demonstrate that you can produce the good. In order to produce the good, you must have forged some relationship with a supplier (whether it be at arm's length or not). In this context, it would not be surprising to find that smaller, younger firms tend to have proportionately more supplier arrangements than customer ones.
- Avoiding Goliaths. Small firms may well benefit from strategic relationships with large firms in the same industry – especially when they lack the resources to develop innovative products. However, many small firms are, with some reason, worried by the prospect that their ideas or their skilled personnel may be poached – they lack the deep pocket or managerial sophistication to defend their intellectual property. The BIE (1994a) found that 13 per cent of small innovative companies engaged in collaborative research compared to 23 per cent of larger innovative firms.
- Anti-competitive behaviour by firms within an industry. Sometimes firms cooperate to fix higher prices or to discourage new entry.

3.3 Summary

This chapter has outlined how cooperation works *in theory*. The rest of the report aims to describe how cooperation works *in practice* and what can be done to improve the effectiveness of cooperation – both by the firms themselves and also by outside bodies, including industry associations and government.

Cooperation has become an integral part of business. Indeed, a world without business cooperation would be one with weaker information flows and greater reliance on firms doing things for themselves. However, cooperation is not a strategy that suits all firms.

Additionally we point out that cooperation itself is not homogeneous. It can take many different forms. Firms have good reasons for favouring particular forms – the degree of formality of arrangements, with whom the linkage is formed (customers, suppliers and other firms), and whether the arrangement involves Australian or overseas-based firms.

The characteristics of individual firms and their products influence both the level and type of business cooperation they will undertake. In the following chapters, we test some of the hypotheses about these determinants of cooperation by looking at a range of variables (noted in Figure 3.3). However, not all of these variables are easy to measure. In our empirical work we use variables that are as (i) objective as possible and (ii) easy to measure. Accordingly, we examine how cooperation varies by transparent firm characteristics such as: location; size; age; growth rate; export orientation; product type; nature of technology; ownership and degree of competition. Some of these will be adequate proxies for some of the more subtle, less observable firm characteristics defined in Figure 3.3. Others are of interest for their own sake.

