



## INNOVATION IN WORK AND INDUSTRIAL RELATIONS: THE EXPERIENCE OF FORTEX.

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### Abstract

*The paper will trace the innovations in doing business achieved by the Fortex Group, which were reliant on a reworking of the forms of work and industrial relations typical to the meat industry. The innovations used by Fortex included: 1) the integration of niche marketing and new forms of processing; 2) the use of shift work and the move to the year round employment of meatworkers; 3) the adoption of TQM and teamwork involving the meatworkers' union; and 4) the attempt at new contracts with its farmer-suppliers, in which the union played an important part. The paper will go on to account for why these significant developments failed to secure the firm. In this regard it will be argued that the study of work and industrial relations requires an appreciation of not just the sites where deals between management and labour are produced but of the embeddedness of these deals within the networks of the industry. The causes of the failure of Fortex are identified as: 1) the erosion of its competitive edge; 2) the inability to subordinate its farmer-suppliers; and 3) the vulnerability of the firm in competition for stock. Fortex can be said to have fronted an effort to rework the networks of the meat industry and although the firm obtained the close support of the meatworkers' union in its plants it was nevertheless undone by an alignment of interests outside the firm.*

At the Labour Employment and Work Conference in 1992 I argued that the meat industry constituted a peculiar 'world of production' (Salais and Storper, 1992) in which farmers enjoyed structural advantages at the expense of processing firms (Curtis, 1992). This paper will extend some aspects of my earlier report. In it I will trace how one processing firm, the Fortex Group, used innovation in work and industrial relations and did so as part of an effort to refashion the networks of the industry (Grabner, 1993).

This effort by Fortex proved a failure. Fortex was liquidated 1994. As far as this failure is concerned I will argue that farmers played a central role in the demise of Fortex. In short, the innovation at Fortex was stymied by interests outside the firm, of which farmers (acting as suppliers of stock) were the most important.

I suggest that the failure of Fortex is illuminating for two sorts of reasons. The first reason is that as an account of business failure attention is focused on the limits to innovation. The bulk of this paper will explore some of the forms of innovation at Fortex. This was called 'the Fortex Way' by the managers and unionists at the firm. It should be reiterated that for a number of years the Fortex Way looked like a way forward for the meat industry (Perry, Davidson and Hill, 1995). Consequently the question posed by this paper becomes: Why did Fortex fail? Unquestionably its failure was not for a lack of audacity and experimentation.

This brings me to the second reason why an account of

Fortex might be useful. That is, it makes an explanation in terms of the networks of the industry (Portz, 1991). In this sense the firm is made both central and problematic to the account. I will try and trace some of the connections involved between the 'inside' and the 'outside' of the firm (Edwards, 1986). In this regard I will suggest that 'outside' factors dominated and that the very successes secured 'inside' Fortex, in the areas of work and industrial relations made it extremely vulnerable to the supply decisions of farmers (Font, 1990).

Because of the high profile character of the firm and its eventual bankruptcy it would be all too easy to emphasise the rhetoric, hype and irony associated with the innovation at Fortex. However the main thrust of this paper is to situate and treat seriously, firstly, an effort to refashion work and industrial relations and, secondly, an effort to refashion the networks of the meat industry.

### **The integration of further processing and niche marketing**

In 1990 Graeme Thompson, founder and managing director, boasted that Fortex had achieved what sociologists would identify as a form of 'bespoke manufacture' (Piore and Sabel, 1984). He claimed:

The objective is that by the time the animal is slaughtered, it has already been sold and its contribution to the



company is known. The goal of achieving higher margins from added-value further processing has enhanced profitability. (Thompson, 1990).<sup>1</sup>

This version of Piore and Sabel's ideal of flexible specialisation was based on the fusion of further processing (in the form of hot boning) and of niche marketing. Together they were supposed to result in added-value and enhanced profits. These technical terms require some clarification.

Further processing is the commonly used terminology for the cutting of carcasses to produce portions of meat suitable for retail markets. Hot boning is the most sophisticated and newest form of further processing. It entails the cutting of carcasses that are chilled rather than frozen. Such cutting may result in the transformation of a lamb carcass into a variety of consumer ready and even meal-sized portions. In this production scenario, that is the extended 'dis-assembly' of stock, niche marketing constitutes the sale of a multitude of precisely customised cuts of meat. In the case of Fortex this meant trying to make contracts with supermarkets, hotels and restaurants to supply them with exactly specified portions of meat.

Thompson's boast leads us to the organisation of work and industrial relations at Fortex. The stand-out feature of which were the implementation of shift work and a guarantee of year-round employment.

### **Shift work and a guarantee of year-round employment**

It is important to note that while Fortex was celebrated for forms of innovation technological advancement was not one of them. While the Fortex plants at Seafield (built in 1985) and at Silverstream (built in 1990) used the best of available technology, their layout were not much different to those used in other modern plants. Indeed one senior manager at Fortex described the Seafield plant as being 'built on the cheap.' Rather than rely on new forms of technology the most interesting features of the Fortex Way were the result of experiments in arranging, rewarding and supervising work.

Furthermore, the Fortex Way did not emerge fully formed. Like all other organisations, Fortex was unable to escape its past. In this sense the decision made by Thompson and company to initially build only a small-scale plant at Seafield created a material legacy (or constraint) which shaped all subsequent innovation at Fortex.

Also it must be acknowledged (with the benefit of hindsight) that Fortex had fantastic PR. Hence, a number of managerial initiatives which might otherwise have received a sceptical response were heralded by commentators as foreshadowing a transformation of the meat industry. This clamour was most apparent with the introduction of shift work and year-round employment at Seafield and Silverstream.

The slaughterboard at Seafield was constructed, in 1985, around a single killing chain. Thirty-five meatworkers and

half a dozen meat inspectors were engaged at sequential work stations along the killing chain. Originally they worked five (and occasionally six) days of the week for eight hours a day. The killing chain was paced to process around 7.6 carcasses per minute or at about 3200 lamb for each working day. This daily 'tally' of 3200 lamb was the norm for a killing chain in the industry. It determined the maximum level of throughput at Seafield for the killing seasons of 1985, 1986, and 1987. This level of processing used no more than a few percent of all available stock in the South Island.

In 1988 the processing capacity at Seafield were increased by the move to shift work and to year-round employment. To do so Fortex secured an enterprise agreement with the Canterbury-Westland branch of the meatworkers' union. This agreement was subsequently extended to the Southland-Otago branch of the meatworkers' union and applied to the firm's second plant (built at Silverstream along the same lines as Seafield).

The plants at Seafield and Silverstream operated across four shifts. Each shift worked three days a week for eleven hours a day. Rostering on the shifts was determined by the union principle of seniority. Workers with the longest seniority were rostered to the first shift. Those with the least seniority were rostered to the fourth shift.

The first shift worked on Monday, Tuesday and Wednesday from 6.00 am until 5.00 pm. The second shift worked the same days but from 6.00 pm until 5.00 am. The third shift worked on Thursday, Friday and Saturday from 6.00 am until 5.00 pm. The fourth shift also worked the second half of the week but from 6.00 pm until 5.00 am.

In addition the employees at Seafield and Silverstream were also guaranteed a minimum number of weeks of continuous year-round employment. The first and second shifts were guaranteed all year employment. The third shift was guaranteed 33 weeks of work a year. The fourth shift was guaranteed 20 weeks.

The agreement reached over shift work and year-round employment allowed Fortex to greatly expand its capacity to process and further process lamb. Seafield, and subsequently Silverstream, became capable of processing and further processing over 60,000 lamb a week. As a result, Fortex became a major buyer and processor of stock in the South Island and it did so at a fraction of the fixed capital outlays of its competitors.

The agreement was significant to the meat industry. The adoption of shift work and year-round employment at Seafield and Silverstream broke with the norms of the industry and, in particular, with the traditional emphasis on day work and seasonal patterns of employment.

The agreement at Fortex, secured in terms of enterprise bargaining as laid out in the Labour Relations Act (1987), was heralded by Mike Moore, then Prime Minister and Minister for Trade, as a new beginning for the meat industry



and for industrial relations in New Zealand. Further, the combination of increased employment (through shifts) with year-round employment at Seaford and Silverstream did much (especially in the context of otherwise worsening labour markets) to convince unionists at Fortex of the desirability of a new accommodation with management.

### **Bringing in the union: TQM and team leaders**

The problems of running the lamb cutting rooms became pivotal to management and to the meatworkers' union at Fortex. Work in the cutting rooms was arranged around three parallel conveyor belts. Normally, but by no means always, carcasses were cut into three large portions (called hinds, loins and forequarters). These portions were placed on one of the three conveyors. Usually, one conveyor would carry the hinds, another the loins, and the other the forequarters.

Around 40 workers were engaged in the cutting of hinds, loins and forequarters along these conveyors. The conveyors moved through the cutting room at about waist height and each was flanked by stainless steel tables. Each worker was assigned to a table where they did a particular set of cuts. Portions of meat were removed and returned to and from the conveyors as required.

Work in the cutting room was extremely variable. For example, a forequarter could be left intact, or have neck chops removed, or have the shank removed, or both, or be completely de-boned and rolled. There were a variety of ways of removing neck chops and shank and even more ways of further cutting these portions. On the tables flanking the other conveyor belts the processing of hinds and loins offered an even greater complexity.

Work in the cutting room required considerable dexterity and attention to detail. For example, one customer might require that a rack of lamb be frenched to the depth of 15 millimetres, while another might demand an exposure of 25 millimetres.

It is important to note that Fortex had instituted a form of Total Quality Management (or TQM) in the late 1980s. It did so mainly as a response to the high rates of rejected output (called re-work) in the lamb cutting rooms. This TQM initiative relied on worker-based data collection and self-reporting. Like most variants of TQM it was supposed to engender team work. But it met with little success. It was not until the later re-jigging of the payment system that genuine practices of team working began to impact the cutting room.

In general there were three interrelated problems in the cutting room: high rates of re-work, inadequacies of the payment system, and dilemmas in supervision.

Firstly re-work: Because Fortex entered into contracts with its customers which specified the exact configuration of portions of meat any error in executing the requisite cuts always jeopardised sales. At best orders that were found to

have been 'cut out of spec' required re-work. In 1989 and 1990 re-work cost Fortex several hundred thousand dollars.

Re-work was a cost borne both by the firm and by workers (in the form of lost wages). Thus re-work bore directly on the payment system and vice versa. Initially workers in the cutting rooms were paid on the basis of hourly and piece rates. This payment system rewarded the total number of carcasses further processed by each shift. Like most piece rates used in the industry the rewards for doing the work were calculated on a pool basis. The pool included the entire shift. That is, the shift was paid an amount which was divided equally among the workers.

The initial payment system created the incentive for workers to force through as much work as possible. But, while the use of piece rates in the cutting room facilitated the desired quantities of work it became apparent that it did so at the expense of the quality of work. Insofar as deficiencies in the latter required re-work which then reduced the subsequent earnings of workers this was a problem shared by management and the union at Fortex.

The most senior union official at one of the Fortex plants put it this way:

We can't screw the boss for more money if he is not making more money. Its no good screwing the boss and putting him under. In order for us to get more money out of the boss he has got to be making more money. And the way he will make more money is if we are productive and fully employ our work skills to produce a quality product. (interview with union official).

The response to the problem of re-work was to modify the payment system by the inclusion of a 'degree of difficulty' (called the D of D) into the piece rates. The degree of difficulty reflected how troublesome it was estimated to be for the workforce in the cutting room to fill customers' orders. Different types of cuts were bracketed together in terms of the degree of difficulty. In effect each degree of difficulty generated its own piece rate.

The introduction of the degree of difficulty was an outstanding success. It facilitated a slowing and greater precision in the execution of work. Following its introduction the levels of re-work dropped and by 1993 were almost nonexistent at Seaford and Silverstream.

The overall effect was something like a fusion of interests between the production workers in the cutting room and management. This reconciliation of interests became the basis of further innovation by which management and the union attempted to eliminate all non-productive elements of the cutting room. In particular, the existing TQM initiative was rejuvenated. It subsequently highlighted inefficiencies and down times in the cutting rooms which management and the union then moved to eliminate.

This initiative eventually resulted in the adoption of team work in which union sponsored team leaders effectively



marginalised supervisors and took over the running of the cutting room.

The dilemma in supervision stemmed from the variability, detail and the need for dexterity in work in the cutting room. As a number of commentators have noticed it is difficult to 'supervise in' quality in such circumstances. Instead, what can be observed is a re-flowering of some craft forms of control. In the lamb cutting rooms at Fortex this dynamic entailed team leaders taking a central role in the allocation of particular workers to particular jobs.

The allocation and re-allocation of workers to jobs was a constant feature of further cutting. As a fatigued supervisor noted:

We have changed specification ten times in two hours and gone from one cut to something else completely different in 49 carcasses. Stopped, cut another 40 here, cut another 30 there. Which means it is a mass of organisational change ... You might go from a very labour intensive cut, from a heavy grade carcass, where you need every one on line. All doing short loins, rumps and frenched racks. Then going to a YL carcass [a light carcass] which might be a split fore loin and a leg. Which means [instead of] the 30 people you need there, suddenly you need only a dozen. So [laughs] it can change quite dramatically from needing a lot of people to needing very few. (interview with supervisor).

A transfer in responsibility for running the lamb cutting rooms was achieved through the introduction of three or four team leaders into each shift. A senior unionist at Fortex described the rationale for the team leaders.

We go into the room this morning, the team leader and myself, and we audit that room. We audit everything everyone does. You get reasonably astute at being able to see what is wrong, what is not going right, what is costing money. Because it costs us [workers] money, as well as costing the company profits... You have got to realise that in the cutting room, if production is down, it stops or there are blow-outs, it costs about \$7,000 a minute.

Q: In lost wages?

No. In lost revenue to the company. (interview with union official).

In summing up this section I wish to reiterate that Fortex pursued an integration of further processing and niche marketing which heavily emphasised meeting the exact specifications of customers. I have already noted that this orientation was bolstered by the integration of the union with Fortex's marketing strategy.

As one of the unionists noted this new realism on the part of the union at Fortex was driven by self interest:

... if you don't perform there is someone else out there

who will. Fortex led the way in quality. They led the way in niche marketing. The others are catching up a little. We have got to sprint again now and get back out in front. (interview with union official).

Unfortunately for Fortex, farmers were much less accommodating. Their assessment of self-interest ran counter to efforts aimed at integrating them with Fortex's marketing strategy (Yerex, 1992).

### Attempts to extend contracts and TQM to farmers

The demands of further processing and niche marketing at Fortex also shaped the stock procurement activities of the firm. In this regard it could be said that Fortex wished to impose the sorts of disciplines on farmers that are commonplace through-out the rest of the world (Sanderson, 1986), however it must be remembered that these sorts of disciplines are not really found in the meat industry in New Zealand (Curtis, 1996).

It could be argued (while borrowing from Piore and Sabel) that the more successful Fortex was in approximating an ideal of 'bespoke manufacture' the more precise it needed to be in buying the type of stock that was best suited for further processing (Rainnie, 1991).

The new conception of supply reflected the imperatives for precision and quality in further processing. It reflected the existence of constraints on further cutting which resulted in specific orders needing the dis-assembly of specific types of stock. Fortex (and its customers) favoured lamb and, in particular, lamb with a heavy and lean confirmation.

As a long serving production manager at Fortex put it:

Fortex processes only lambs... We favour heavy lamb, up to four grades of weight over the Meat Board's schedule. This is because heavy lambs are the most cost effective for further processing. The Meat Board and companies have traditionally favoured light weight lambs. (interview with manager).

This was the rub: Heavy lamb may be the most cost effective for further processing, but they are probably the least cost effective for farmers (Sheppard, 1982; Yerex, 1992).

Farming for heavy lamb requires longer and more intensive grazing, reduced carrying capacity for farmland, smaller flocks, significantly greater labour inputs and greater exposure by farmers to risks. Consequently, heavy lamb are relatively scarce throughout the killing season and inevitably command premium prices. Furthermore, the decision by Fortex to expand and operate Seaford and Silverstream on a year-round basis put it at odds with the seasonal norms of farming and processing in the industry.

The majority of plants that process sheep and lamb in New Zealand are very seasonal operations (Evans, 1985). This is more so the greater is the focus on processing lamb. Nor-



mally plants close down their operations during the winter months when farmers do not offer stock for slaughter.

It could be argued that by expanding its operation into the winter months Fortex signalled that it wished to break with the rhythm of seasonality in favour of a rhythm of bespoke manufacture (Austrin and Curtis, 1992, 1993). However an unintended consequence was that Fortex was hard pressed to supply its plants with heavy lamb. Indeed, other classes of lamb, and hoggets and ewes were bought at times.

Fortex tried to resolve its problems in securing supply by the use of contracts and by extending its TQM initiative to farmers. With regards to the latter, the union at Fortex played a very important practical and symbolic role. On the one hand, the workforce in the stockyards, slaughterboard and cutting rooms collected a mass of data on the quality of stock and meat which, because of the use of itemised barcoding, was traceable back to individual farmers. On the other hand, the most senior union officials at Fortex accompanied senior management on various 'Road Shows' to exhort farmers and others to support the attempts in adding-value at Fortex.

Thus, the integration of the union with the Fortex Way meant it stood alongside the firm in ground breaking efforts to discipline farmer-suppliers. This was in stark contrast to the traditional calls by farmers for the managers to discipline their unruly meatworkers. What is most important is that Fortex wished to abandon any reliance on the transitory deals for stock made at the farm-gate. Instead the preferred sourcing strategy at Fortex was through individual contracting for supply. The main consequence of the failure of such contracting was that Fortex faced recurring difficulties in obtaining sufficient numbers of the right stock at the right time for the right price.

### **The vulnerability of Fortex**

Throughout the 1990s there was a gradual increase in the numbers of heavy lamb produced in the South Island and spread in the months in which stock was obtainable, these developments actually benefited Fortex very little. In particular, Fortex was unable to develop any deals with farmers that gave it exclusive, or even preferential, access to their stock. In other words, the firm's share of the total numbers of stock made available for slaughter remained largely a function of the price it was willing to pay at the farm-gate, and this price was made in competition with two very large farmers' co-operatives (Alliance and PPCS).

Furthermore, Fortex had formalised (by its agreement with the union) a year round commitment to processing and buying stock. Its larger competitors remained more seasonal operators. This gave the farmers' co-operatives an edge in the price war for stock. The strategy adopted by Alliance and PPCS was to drive up the price of stock in the spring and autumn months, when they were respectively up-scaling and down-scaling their buying of stock. High prices for stock at these times had only a marginal impact on Alliance and PPCS, but was very significant to the operation at Fortex.

In addition the workforce at Fortex enjoyed comparatively good wages and conditions. This premium was an important component of the enterprise agreement first secured at Fortex in 1988. However Alliance and PPCS pursued a very different IR strategy which, in the wake of the Employment Contracts Act, saw cuts in wages and conditions.

The combination of intense pressure in markets for stock as well as the erosion of any advantage in processing costs was to be ruinous for Fortex. On the one hand, the firm became less able to sell its finished product. On the other hand, it was unable to secure sufficient raw materials.

### **Conclusion**

This paper has tried to show how the integration of hot boning and niche marketing at Fortex was a highly complex and problematic undertaking that required the successful mediation of relationships with meatworkers and with farmers.

In this regard and in conclusion, I will let two of the main actors at Fortex, Peter Binnie the secretary of the union at Seafield and Graeme Thompson explain the demise of the firm. Both identify the subordination of what went on inside the plants to the negative response of actors (mainly farmers) outside them.

First the unionist:

There is a flip side to every coin and for us the bright side would have to be the fairly advanced stage we had got to with the TQM and ISO 9002 philosophy. It would be quite wrong to say that every single person had totally accepted these principles, yes there were some rough edges that needed to be fine-tuned. It is remarkable how many people who have found employment in other meat processing plants, and indeed in other walks of life have discovered that the lessons learned at Seafield have become so much a part of them. It is only now that many realise the significance of the 'culture' of doing it right and being responsible for your own patch... I am fully confident that if we had a chance the Fortex workforce would have shown the meat industry what a totally integrated team-work environment could achieve... The workforce was the richest asset Fortex had, all of us whether process worker or salaried person should be proud of their achievement- no one can take that away from us. (Binnie, 1994).<sup>2</sup>

Graeme Thompson, the managing director, echoed the statements of the head of the union at Seafield. Likewise for him the demise of the firm, was undoubtedly the result of the short-sighted actions of external players and, most centrally, of farmers.

The Meat Industry is a hard unforgiving business and is highly competitive as companies have endeavoured to out manoeuvre each other in a scramble for an increasingly scarce raw material resource [that is, stock]. More than 20 companies have met financial demise in the last



15 years as a direct result of pressures inherent in the Industry.

Fortex Group set out to make changes to the way sheepmeat is processed and marketed from New Zealand. We were successful in introducing many new methods which included work practices, and processing and marketing techniques. Our meat products were recognised as being the benchmark for all others to aspire to. There has been no argument put forward at any stage suggesting that Fortex was not on the right track.

We were simply not given the time for Fortex to reach commercial maturity in order that full benefit could be gained from the many initiatives taken." (Thompson, 1994).<sup>3</sup>

## Future research

Work and industrial relations are typically studied in isolation from the institutional environment (Fine, 1996) in which they are embedded. Thus, in the case of the meat industry the factory and the farm are constituted as separate fields. However there is much to be gained from collapsing these arbitrary distinctions and forms of network analysis offer a useful way of undertaking research.

## Notes

1. Thompson was cited in O'Brien, P, Fortex report makes impressive reading *National Business Review*, 4/12/90
2. Binnie expressed this opinion in 'Good Morning', Hampstead Resource Centre Newsletter, 7/6/94.
3. *Statement of Graeme Thompson, Managing Director of Fortex Group (In Receivership and in Liquidation)*, 4/19/94.

## References

- Austrin, T. and Curtis, B. M.** 1992 *The Politics of Just-In-Time Systems: The Case of Meat Processing in New Zealand* Tenth International Labour Process Conference, 1-3 April, Birmingham.
- Austrin, T. and Curtis, B. M.** 1993 *The Fortex Way: Accountability and Co-operation* Institute for Science, Research and Development, Christchurch.
- Curtis, B. M.** 1992 *Product Markets and Labour Markets: The Paradox of Flexibility in the Export Meat Industry* Morrison, P (ed) Labour Employment and Work in New Zealand: Proceedings of the Fifth Conference, November 12 & 13, Department of Geography, Victoria University of Wellington, Wellington.
- Curtis, B. M.** 1996 *Producers, Processors and Markets: A Study of the Export Meat Industry in New Zealand* A Thesis Submitted for the Degree of Doctor of Philosophy in Sociology, University of Canterbury.
- Edwards, P. K.** 1986 *Conflict at Work* Basil Blackwood, Oxford.
- Evans, R.** 1985 *Cost Competitiveness in Export Meat Processing* Meat Industry Council, Wellington.
- Fine, G. A.** 1996 *Kitchens: the culture of restaurant work* Berkeley, University of California Press.
- Font, M. A.** 1990 Export Agriculture and Development Path: Independent Farming in Comparative Perspective *Journal of Historical Sociology* 3, 4: 329-361.
- Grabner, G.** 1993, *The Embedded Firm: On the Socioeconomics of Industrial Networks* Routledge, New York.
- Perry, M, Davidson, C and Hill, R.** 1995 *Reform at Work: Workplace Change and the New Industrial Order* Longman Paul, Auckland.
- Piore, M and Sabel, C.** 1984 *The Second Industrial Divide* New York, Basic Books.
- Portz, J.** 1991 Economic Governance and the American Meatpacking Industry, Campbell, J, Hollingsworth, J and Lindberg, L (eds) *Governance of the American Economy* Cambridge University Press, Cambridge.
- Rainnie, A.** 1991 J-I-T, Sub-contracting and the Small Firm *Work Employment and Society* 5, 3: 353-375.
- Salais, R. and Storper, M.** 1992 The Four Worlds of Contemporary Industry *Cambridge Journal of Economics* 16: 169-193.
- Sanderson, S. E.** 1986 The Emergence of the 'World Steer': Internationalization and Foreign Domination in Latin American Cattle Production, Twillis, F and Hollist, W (eds) *Food, the State, and International Political Economy* University of Nebraska Press, London.
- Sheppard, R. L.** 1982 *Seasonality in the New Zealand Meat Processing Industry* Agricultural Economics Research Unit, Lincoln College.
- Yerex, D.** 1992 *The Farming Fiasco* GP Publications, Wellington.

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