Managing business operations: how New Zealand organisations can get better and better

by David Robb

Many New Zealand businesses can lift their game appreciably by pursuing improvements in their operations management. I make a passionate plea for business managers to dig deep into a goldmine of available opportunities, extending from suppliers to internal operations to customers.

Based on my experience in consultancy (primarily in the building products, consumer goods, pharmaceutical and postal communications sectors) and executive education, as well as scholarship on the function, I offer a framework that should guide operations improvement initiatives in New Zealand businesses.

The operations management "domain" for manufacturers, service providers or distributors spans the traditional decision areas of facility choice (location, size and focus), capacity (timing, size and type), process/technology selection and degree of vertical integration/outsourcing. It also includes the "infrastructural" policy areas encompassing supply chain management (procurement, inventory and internal operations planning/control), quality management and even aspects of human resources and new product/service development.

My framework for improving operations in any organisation involves four aspects.

1. Establishing direction: aligning operations with business objectives.
2. Eliminating bad practice: moving to the performance frontier.
3. "Horses for courses": positioning on the performance frontier.
4. Innovation and mitigating trade-offs: shifting the performance frontier.

These facets cover, at least conceptually, all the activity areas of managers seeking

improvement. I believe many New Zealand firms have room for improvement in most of these categories.

1. Establishing direction: aligning operations priorities with business objectives

Business strategists emphasise the importance of achieving coherence both within and between functional areas in a firm by insisting that objectives and policies in each area are aligned with the business strategy as a whole. This may seem straightforward in theory, but in reality practices inconsistent with the business strategy are legion.

Table 1 presents the results of an informal survey of executive students, giving examples of misaligned policies and practices, categorised into various operations decision areas.

What leads to such incongruence? Perhaps the biggest culprit is the dearth of firms with a clear vision of where their operations are headed, based on their business strategy and readily articulated by staff at all levels[1]. Some may express incredulity toward various aspects of strategy – e.g., St Dilbert's quip defining a mission statement as "a long, awkward sentence that demonstrates management's inability to think clearly" (Adams, 1996). However, there is little excuse when managers create policies and staff act in ways that pull in diverse directions.

Within a given industry (even a commodity industry), business objectives should differ

[1]The benefits of such communication are well-documented by a survey of 106 New Zealand manufacturing managers which found profitability to be positively related to the depth of communication (Corbett and Harrison, 1992).

TABLE 1

Examples of inconsistent operations policies in New Zealand organisations

(SOURCE: SURVEYS OF AUCKLAND BUSINESS SCHOOL EXECUTIVE PROGRAMME STUDENTS, 1997)

Facilities
- Operating a "seconds" shop when quality is a high priority
- Locating away from major clients when delivery is paramount

Process choice
- Choosing products that add considerable complexity to processes when cost is important

Vendor relations
- Sourcing low-quality products when quality is important
- Not certifying suppliers on quality and time when these were the organisation's objectives

Inventory/logistics
- Insufficient stock when delivery/customer service is important
- High inventory when low cost is a prime objective

Production/operations planning and control
- No operations planning (just financial planning)
- Opting for mass production when staff skills/competencies are in flexibility
- Putting everyone on a schedule when flexibility is desired
- Accepting all orders without exception
- Poor call management (lost calls)
- "Get stuff out the door" policy at end of financial year (when quality is important)
- Reducing appointment times to increase throughput when quality is the number one priority
- Making customers wait inordinately long periods to correct mistakes that are the fault of the organisation (e.g., voids at cashiers)

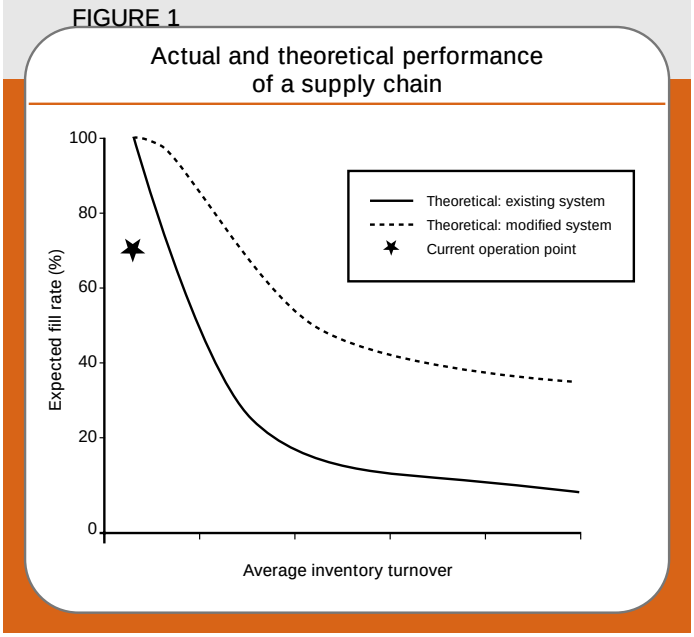
Quality, customer service and performance measurement
- Employing fear/intimidation to improve quality levels
- No quality [time/delivery] measurement at all (when quality [time/delivery] is important)
- No measurement of staff satisfaction or morale
- Performance measurement tied to each department rather than to the organisation as a whole (which encourages "local optimisation" and discourages flexibility)

Human resources/organisational design
- "Attract highest calibre staff" a goal, but recruitment practices mediocre
- Obsolete (or non-existent) staff training methods (in particular, for new staff and in quality)
- Staff continually asked to work late/overtime (when quality is important)
- Part-time untrained front-office staff (when quality is important)
- Staff not helping each other provide delivery (e.g., one busy, another idle)
- Rotation of technical staff in the middle of product introduction (inexperienced staff became responsible for key products)
- Downsizing across the board to cut costs (when service is important)
- Cross-training to too low a level (e.g., everyone trained in filing)
- Staffing to meet minimum rather than average (or maximum) demand

between firms[2]. And different priorities, such as emphasising variety over cost (e.g., Foodtown vs Countdown), necessitate a different set of policies and operations practices (location, staff training, etc).

Managers deliberating over whether and how to embark on a Just-in-Time (JIT) programme, seek ISO accreditation, or adopt an enterprise resource planning (ERP) package should be governed largely by the business objectives of their firm. These objectives will also dictate what a company *doesn't* pursue.

FIGURE 1



A classic example is Southwest Airlines whose refusal to provide baggage transfers is a key element in its ability to lead the industry in on-time arrivals and customer service, measured by least number of lost bags and customer complaints.

2. Eliminating bad practice: moving to the performance frontier

On, or possibly before, securing a contract, consultants worth their salt will develop at least a ballpark picture of where a firm is at in terms of its overall current performance (on multiple dimensions) and where it could be. In the supply chain area, for example, the two key dimensions are service level (e.g., measured as "fill rate" – proportion of customer demand met from stock or within a pre-determined delivery window) and inventory turnover (the reciprocal of inventory level).

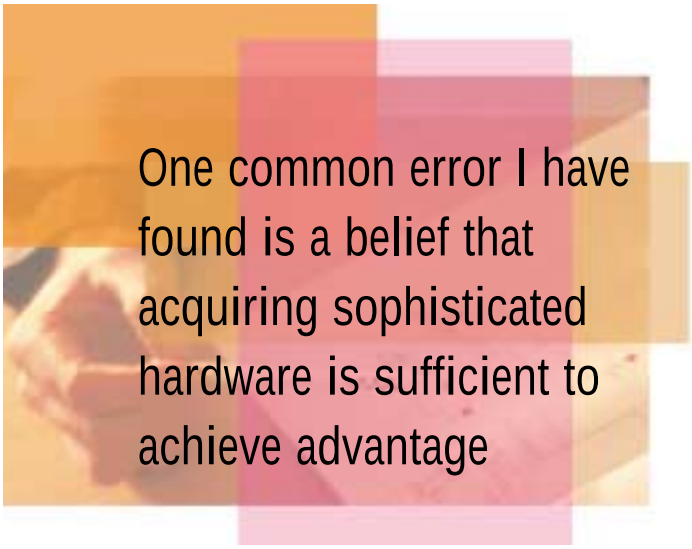
Figure 1 illustrates a gap between the current operating point and the "performance frontier" (or "trade-off curve"), reflecting what the system should be capable of under its particular demand-and-supply characteristics. A large gap reflects a lot of low-hanging fruit and/or a poor model of the business environment.

In my experience, many New Zealand firms are operating a long way from the frontier, particularly when considering that performance deviations occur on multiple, rather than just two dimensions. For example, take the competitive priority of delivery which beyond the obvious aspect of speed has other sub-dimensions such as availability, reliability and completeness.

The **caselette** provides a disguised and, unfortunately, all-too-common example of poor *availability*. In at least one industry, the *reliability* (expressed as the proportion of orders arriving on or before the supplier-stated due date) of local providers is routinely worse than that of international suppliers, despite the vast differences in market proximity. I know of one firm where for several years its largest supplier, which happens to be local, never delivered a *complete* order.

Some of these gaps are caused by genuine but avoidable mistakes (e.g., ordering the wrong items/quantities), but most are attributable to poor management (e.g., taking "punts" on special offers to procure without doing the

[2]For more information on there being "more than one way to skin a cat" (the technical term is "equifinality"), see Boyer and McDermott (1999). "The critical factor determining the success of a strategy is not necessarily which competitive priorities are stressed (i.e., cost or flexibility), but rather how these priorities are translated into a consistent set of decisions which support the particular priority that the organisation stresses most."



One common error I have found is a belief that acquiring sophisticated hardware is sufficient to achieve advantage

appropriate analysis, wasting effort in duplication, etc). For other examples one need look no further than one's own "customer service disaster" stories.

Perhaps more concerning than poor performance is the chilling reality that many firms don't know where they are in terms of performance on key dimensions. One firm insisted its customer service level was 95 per cent – that ubiquitous value! But when it recorded lost sales by asking customer service reps to record requests for products that were not available, it was shocked to discover how much revenue was being lost. And that was just the tip of the iceberg.

CASELETTE

Jodie was getting frustrated in her search for a lightbulb to replace one that had burned out in her kitchen. So far her early-morning trip to Patchcobblers and Brush Hardware had proven fruitless, so she headed up the road to Lighting Additions. They carried it, but it was out of stock. "We get a monthly shipment, so it should be in within a month," the clerk politely advised.

After some pressing, Jodie, not wanting to remain in the dark that long, asked if other stores carried the product and was told of a competing firm nearby. Jodie tried to wait patiently outside the premises of Lighting Non-Stop. When the doors finally opened at 9am, she found out that although they carried a different brand of the lightbulb, it too was out of stock and "would be ordered today – with our weekly order on our supplier". Resigned to being bulbless, Jodie left the store. Despite the threat of being late for work, she was tempted by another store on the way and, inquiring of the fellow behind the counter at Megalight, she was told: "Sure, we have them. We sell one of those every day." Not even asking the cost, Jodie responded: "Thanks, give me two!"

Fundamental to improving performance on more than one dimension simultaneously (moving toward the top right-hand corner of Figure 1) is establishing, recording and acting on critical performance metrics. The set and desired level of key performance indicators (KPIs) will and should differ from firm to firm. They should be considered from your customers' perspective, as well as your own perspective (e.g., delivery reliability) and traced back to specific processes to identify potential areas for process improvement that will bring strategic advantage.

One common management error I have found is a belief that acquiring sophisticated hardware (technology and equipment) is sufficient to achieve advantage. In the area of flexibility, for example, I've known firms to invest large sums of money in highly versatile equipment such as flexible manufacturing systems, only to end up running high-volume jobs on them, supposedly to get a faster return on investment.

Hardware won't enhance performance unless it is correctly deployed, e.g., through appropriate scheduling and work allocation. Furthermore, many firms are discovering that competitive advantage, including that related to flexibility, is attributable more to people than to technology.

3 "Horses for courses": positioning on the performance frontier

At least conceptually, the aggregate performance of a company can be demonstrated using graphics such as Figure 1. A company can easily move its overall performance on, or at least parallel to, the performance frontier ("trading off" one priority for another) by modifying policies and practice in operations and other areas. For example, a firm can change to a more expensive but more reliable supplier, or increase buffers to protect against uncertainty, e.g., by modifying staff levels, opening hours or safety stocks.

One would hope that these positioning decisions take their cue from the business strategy. Frequently, however, management myopia takes centre stage.

As an inventory consultant, I'm often asked to find the least damaging way to cut stock by a certain percentage, even before any analysis is undertaken. Whether or not these directives are attributable to a hidden agenda or possible cashflow problems, a consultant worth his/her salt should challenge such preconceptions.

Enormous gains are often to be had in terms of profits, both short- and long-term, from increasing inventories in at least some areas. Such a strategy, unlike mechanisms such as price competition, leads to increases in market share "by sleuth". It requires extensive time for competitors to respond to, particularly with the long lead times experienced by many New Zealand firms.

The devil remains in the details, however. Aggregate performance is a function of performance in multiple segments (e.g., product groups, regions and customers), each with a unique performance frontier.

Companies seeking excellence must jettison the notion that "one size fits all". They must exploit tailored policies, taking into account customer or product (group) importance/criticality and associated costs and benefits. In terms of Figure 1, they will have segmented their products and/or customer base into several manageable categories — each with targeted performance objectives, i.e., different points on the graph.

Over the years I've found companies insisting on:

- identical "service level" for all products (typically "95 per cent"!);
- identical "month's cover" or safety stock for all products;
- identical treatment of uncertainty for all activities in a project;
- identical process improvement effort (set-up time reduction, preventive maintenance) for all activities;
- identical fraction of every product or production run checked (quality control);
- products being designated totally make-to-order or totally make-to-stock (and not allowing for a mixed policy).

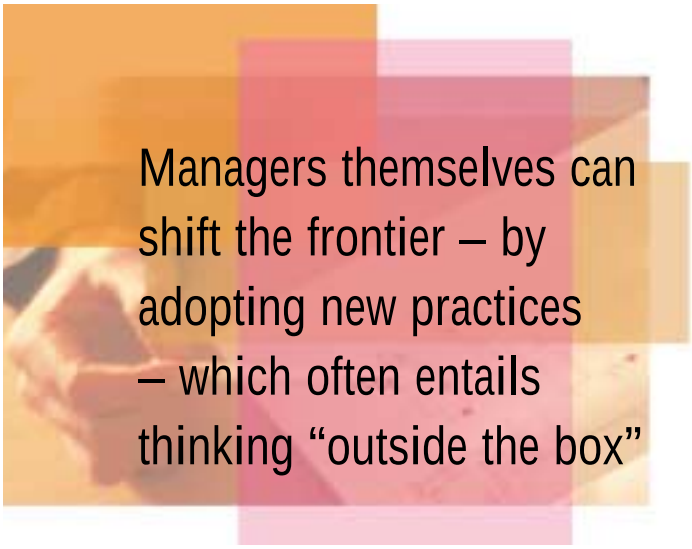
It may be parsimonious, but this naivety inevitably leads to sub-optimal performance, especially in New Zealand where we have wide product ranges relative to the market size and long (and often highly variable) lead times for many goods, coupled with very high demand uncertainty.

I'm convinced that an underlying reason for poor or non-existent segmentation is lack of analytical skills. Some managers scurry for cover when faced with anything more than an average.

It appears that neglecting risk when considering return is a problem not confined to naive players in financial markets. When managers segment, taking uncertainty into account (and that means considering measures including standard deviation or mean absolute deviation) is vital for improving performance.

As an illustration, consider a New Zealand-based distributor in the middle of the supply chain, struggling for survival as its customers are tempted to go directly to the manufacturers. As its advantages of "one-stop shopping" and product knowledge are threatened by encroaching e-commerce initiatives, the distributor can retain customers through a solid reputation of product delivery reliability/availability.

But how should it treat each product? It needs to determine what service level (perhaps measured as the fraction of customer demand delivered within x hours of the customer



Managers themselves can shift the frontier – by adopting new practices – which often entails thinking "outside the box"

order) should be maintained for various product groups. It then needs to translate this service level into its safety stock calculations. This will mean different safety stock (and hence expected inventory holding costs) for products depending on service level objective, lead times, supply uncertainty, demand uncertainty, minimum order quantities, etc.

While not all of these environmental parameters will have the same impact, neglecting them totally (e.g. with a policy like "one-month safety stock" for all products) will result in service levels "all over the map". It will send mixed messages to the marketplace regarding the priority it has placed on delivery.

Consider the manufacturing and sales of apparel or shoes. Size distributions typically follow a normal distribution with extreme sizes having lower expected demand and also higher demand variability (standard deviation divided by mean) than central sizes. Extreme sizes are implicitly more difficult and more expensive to stock.

If one were to draw the performance frontiers for individual sizes on Figure 1, extreme sizes would have curves closer to the intersection of the axes than would central sizes.

When manufacturers produce (and retailers order) clothing items, they typically do not take the variability of demand into account. Hence service levels from the customer perspective for extreme sizes are generally quite poor. Because of the relatively uncertain demand for extreme sizes, however, they are also the sizes more likely to result in the opposite problem – excess stock, which is particularly problematic for fashion items and seasonal goods.

Appropriate strategies for extreme size items are to stock and charge more (due to the intrinsically higher cost for stocking), to opt for more make-to-order (reducing the chance of "overages" and "underages") and/or to focus on marketing to this segment of the market (e.g., in specialist stores) rather than covering the entire range with inventory policies that neglect demand variability.

4 Innovation and mitigating trade-offs: shifting the performance frontier

If managers were confined to performance improvement through shedding poor practices and reducing mistakes, along with intelligently tailoring policies to the nature of the products, their jobs would not only be mundane, they would quickly run out of work.

The performance frontier is moving as a result of innovation. Managers themselves can shift the frontier (see Figure 1) – by adopting new practices – which often entails thinking "outside the box".

Moving the frontier is about the simultaneous achievement of improved performance on two or more dimensions. Holding a larger buffer of stock simply amounts to sliding up or down a performance frontier. While it might increase service levels, it will also cost more.

This final and most important section of the paper presents two major impediments to mitigating trade-offs, a practical illustration in the area of supply-chain management and three more general areas for New Zealand firms to consider as means for performance improvement.

Undoubtedly the greatest impediment to shifting frontiers is the view that trade-offs are always inevitable. This is only true for companies very close to a performance frontier that is static and immovable. This section demonstrates by example that programmes exist which can provide simultaneous improvement on multiple dimensions and, as such, compromises don't always have to be made.

The second impediment is companies believing that the best path is always via the most direct route. Some firms have a myopic and exclusive focus on cost reduction, forgetting that the best way to achieve enduring cost advantage is often via alternate pathways such as pursuing lower cost of quality. They forget that organisations may be analogous to individuals who can increase productivity by increasing time devoted to exercise (and rest!) as well as capability development.

These are companies that while espousing mutual gains of forming alliances with suppliers, fight to the bitter end to get the last cent out of contracts. Capital expenditure is typically allocated solely on the basis of documented direct short-term financial benefits and not on other arenas for securing advantage such as quality, delivery and flexibility.

I was once asked for assistance by a manager who was having difficulty justifying $50,000 for a piece of equipment he knew would dramatically improve his firm's variety of products and delivery speed – dimensions the firm promoted to its customers. He eventually got the funding because we demonstrated that inventory reductions alone would meet the payback criterion.

PRACTICAL ILLUSTRATION: MOVING PERFORMANCE FRONTIERS IN SUPPLY CHAINS

Illustration 1 presents three domains (with 18 areas) in which managers of manufacturing, distribution and retail firms can find means to move the entire service level/inventory turnover performance frontier for their organisation, or greater portions of the supply chain. While many of these areas represent new management ideas and technology, some prospects for improvement are in fairly traditional areas.

Take forecasting, for example. Due to a relatively low demand, the level of demand uncertainty in New Zealand businesses is very high. It is common to find firms whose highest volume products exhibit monthly fluctuations of 20-40 per cent on a national basis.

In such circumstances, it is simply not prudent to invest money in sophisticated

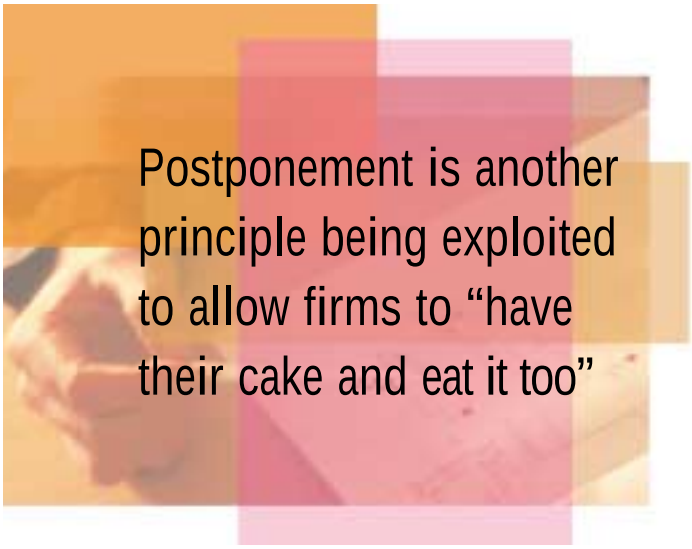
ILLUSTRATION 1

Shifting performance frontiers in a distribution system

Demand management
- Improved forecasting
- Levelling demand (everyday low prices [like Wal-Mart and Toys R Us] rather than "channel-stuffing" ["trade loading"]) (Ho et al, 1998)
- Mitigating the effects of self-induced spikes induced by policies such as 20th of the month credit terms, which is still the dominant form of credit policy in New Zealand industry (see Kalyanji, 1999)
- Demand management (e.g., raising/lowering prices when stock looks like running out or accumulating too much)
- Advanced customer purchase commitments (Gilbert and Ballou, 1999)

Logistics/supply chain
- Collaborative planning, forecasting and replenishment (CPFR). Now common in the United States FMCG sector (see Simchi-Levi et al, 2000)
- Long-term supply contracts (promoting more stable demand)
- Stock centralisation
- Improved allocation of stock (e.g., to higher-volume items)
- Cross-docking
- Improved communications in the supply chain (e.g., using electronic data interchange and web-based ordering)
- Use of expediting (with an impending stock-out)
- JIT "Quick Response" delivery between parts of the chain.
- Direct stocking of customers' shelves (from higher up the supply chain). Vendor managed inventory (VMI)
- Internet agent technology – www.dealtime.com, www.musicmaker.com, www.cheapflights.com

Product
- Product rationalisation (deleting difficult or expensive-to-stock products [often very low-demand items])
- Promoting bulk products (e.g., carrying products [liquids, consumables] as bulk items rather than stocking many sizes [for which demand is more sporadic, more difficult to forecast/stock])
- Postponement (differentiation of product closer to the point of final demand/consumption)



Postponement is another principle being exploited to allow firms to “have their cake and eat it too”

forecasting methods, which are more appropriate for only the most high-level aggregate time series such as GDP.

Low-hanging fruit can still be plundered here, however. One firm I’ve consulted to was using a six-month moving average to forecast sales of its fastest-moving “A” items – a category representing half its sales. I investigated a longer basis and established that switching to 12 months would generate savings of several hundred thousand dollars a year in improved service levels and/or lower inventories. The company chose the latter.

Adjustments for working days, days out of stock in sales history and predictions of aggregate demand (e.g., by region or product group) are often helpful.

Postponement is another principle being exploited to allow firms to “have their cake and eat it too”. By postponing the physical movement of stock until closer to demand being realised (stock centralisation) and taking advantage of vastly improved transportation, companies can simultaneously improve service levels and reduce inventories.

Postponement also arises in designing more generic products that can be tailored closer to the point of consumption. A classic case of this is the Hewlett Packard printer range which now features power-supply characteristics (input voltage and power socket plug type) and language of manuals specified closer to the point of consumption. Postponement can play a key role in mitigating the effects of uncertainty so widespread in our relatively small and relatively remote economy.

BUSINESS INTELLIGENCE

Few deny the pervasiveness and growth of uncertainty in business decision-making, but how many firms are investing in methods designed to cope in such circumstances?

I am convinced (and lament the fact) that most New Zealand businesses have not yet caught on to business “smarts” available in technologies such as decision analysis, and scenario planning, and simulation modelling. Why shouldn’t New Zealand businesses take a leaf out of the book of Team New Zealand which exacted so much from computer simulation of yacht performance?

Despite hundreds of simulation packages being available to assist managers (see www.promodel.com which even provides packages for given industries such as healthcare, manufacturing and distribution, or www.palisade.com for spreadsheet add-ins, or the survey by Swain (2001)), very few implementations exist in New Zealand. Perhaps the only published work of simulation of business operations in this country is Henderson and Mason (1999), which describes the development of a model to assist St John Ambulance managers to determine stationing and dispatch policies for ambulances in Auckland.

Few managers are even aware of the decision support tools for optimisation of spreadsheet packages available right at their desktops.

Our deficiencies in “doing strategy” extend to a paucity of “doing the numbers”, perhaps due to a lack of skills in mathematical and statistical modelling in New Zealand management. We neglect developing and nurturing these capabilities to our peril.

As argued earlier, New Zealand firms face decision making in environments with very high levels of demand-side uncertainty, but often respond in a simplistic way, e.g., treating all products in the same manner. To some extent, enterprise resource planning packages (such as provided by GEAC, Oracle, Peoplesoft and SAP) provide mechanisms to cope in these

circumstances (provided they're tuned to the New Zealand environment and appropriate performance metrics, such as fill rate, are used!). But taking into account supply-side uncertainty (delivery reliability) of vendors is relatively unknown territory for this kind of software.

Several years ago, Scott Panel and Hardware, which regarded itself as too small to warrant an ERP package, invested in a system to do just this. It now considers the reliability of supplier delivery in its decisions as to when and how much to order.

INTEGRITY IN BUSINESS

Marketing managers rightly speak of "making promises and keeping promises". Without appropriate operations management, a firm's integrity (in "making good") is at risk. A key element in this kind of performance is expecting as much from your suppliers as your customers do from you.

The hardware company mentioned above achieved much from including supply-side uncertainty in its purchasing decisions and using delivery performance to guide its supplier selection decisions. But where the real hit came was in announcing the results of its delivery performance surveys at its supplier breakfasts. It wasn't long before delivery reliability improved radically.

ENCOURAGING STELLAR SERVICE

The degree of variation in service quality in New Zealand appears to be relatively high. I suspect that proportionately more New Zealand service encounters are "disasters" than in North America where there seem to be greater attempts at standardisation of practice and service (e.g., consider canned and uniform responses which are anathema to many Kiwis).

On the other hand, New Zealanders are probably more likely to face "extra-mile" service that deserves to be celebrated – by commendations, public accolades and awards. The "Clipboards" in Hubbards Cereals are testimony to this practice.

Deploying service guarantees – e.g., promising payments for non-availability of product, service complaints or slow response times – can encourage outstanding service that create "golden handcuffs" for customers.

While it is entirely possible to design schemes that bring rapid bankruptcy, these schemes can generate far more than market share increases because they play a vital role in declaring competitive priorities to customers, staff and even competitors.

More importantly, the information gathered from service guarantee programmes can and should be exploited to improve service, e.g., changing staffing patterns/shifts in a bank, purchasing policies, and process improvement.

Enablers of superior service provision abound. They may be simple ideas such as involving customers in recruitment decisions, which is still very rare in New Zealand, or "opening up the back office" to public view (witness the recent moves in bakeries, as well as produce and delicatessen sections in department stores) or even plant tours.

It may simply be recognising that a commodity product can be differentiated – and not just loyalty programmes! Service stations, for example, could consider provision of intelligent advice on vehicle maintenance (perhaps generated based on fuel consumption and/or oil analysis) and service guarantees (e.g., on provision of and response time of service).

CONCLUSION

Generating successful performance improvement initiatives in business operations is often considered a difficult task and perhaps explains why some firms seem to have given up on this front. Considering exemplary ideas and implementations, as well as things to avoid, and in particular those from outside one's industry, is part of the answer. Brainstorming using the conceptual framework and illustrations provided here can also help.

Firms must avoid adopting generic concepts (even "international best practice") without adapting them to the particularities faced in the New Zealand environment including supply and demand characteristics, demographics, geography, etc. Even more importantly, there must be a concerted effort to design and translate ideas and initiatives that are tailored to a clearly defined set of company-specific competitive priorities. This demands a high level of knowledge of capabilities (in particular relating to human capital) in an organisation.

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FURTHER READING

Schmenner and Swink (1998) and Vastag (2000) provide more extensive theoretical treatment of trade-offs. Hayes and Upton (1998) present a marvellous account of defensive and offensive mechanisms to secure operations-based competitive advantage. An overview of postponement is given by van Hoek (2001). For an excellent overview of simulation, see Banks et al (2001). A plethora of simulation application papers from the Winter Simulation Conference is provided at http://www.informs-cs.org/wscpapers.html. For a managerial introduction to decision analysis, see Hammond et al (1999). A recent overview of errors in performance measurement systems is provided by Blossom and Bradley (1999). Fuller et al (1993) discusses differentiation of policies across customer groups in a supply chain context. Abernathy et al (2000) provide a good illustration of the importance of differentiated inventory policies.

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