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The “Barbed Wire Barrier” in Business Excellence in New Zealand

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Abstract

This paper explores factors influencing continuous improvement in business excellence award scores and attempt to explain whether or why “barbed wire barriers” exist, and how firms overcome them. A “barbed wire barrier” is a scoring band that organisations appear to have difficulty breaking through, despite continued commitment to improvement. We review the extant literatures on quality management, and business excellence. Using interviews with repeat applicants to the NZBEF, we find most firms make steady progress in scoring and do not see themselves as prevented from continuing in this manner subject to available resources.

Introduction

Since its inception in 1988, the Malcolm Baldrige National Quality Award (MBNQA) has identified and rewarded best-practice U.S. firms for their innovations in, and contributions to, successful world-class management approaches. Worldwide, countries have developed business excellence award programs, while organizations have turned to Baldrige-type self-assessments in an effort to benchmark and improve their global market, financial, human resources, and operational performance. New Zealand adopted a Baldrige-based business excellence award program in 1993 in order to promote organizational self-assessments, recognition, and benchmarking at both the regional and national levels. In this paper we shall be drawing on the experience of New Zealand’s award program.

Background on Quality Awards in New Zealand

New Zealand currently has two national quality award programs in place: the New Zealand Business Excellence Foundation (NZBEF) Performance Excellence Awards that is based in Auckland, and the Performance Excellence Study Awards (PESA) that is based in Wellington. Both awards have adopted the US criteria (NIST, 2004a) without modification so

they use the same categories, items, questions to address and scoring system. The NZBEF award typically attracts larger businesses and has a more rigorous approach with a team of evaluators and a site visit element. The PESA awards tend to focus on public sector organizations and small business and do not have a site visit component as part of the scoring. Both of these national awards encourage organizations to start out with self-assessments using the published performance criteria, and then eventually to submit applications for the award, which guarantees extensive feedback about the organization's quality program from a wide array of New Zealand-based quality experts.

For the purposes of this paper, we focus on the national award program operated by the New Zealand Business Excellence Foundation (NZBEF). In order to encourage participation and improvement, the NZBEF has a tiered system of awards that are known as Gold, Silver, Bronze, and Progress. The Gold Award is the equivalent of the Baldrige Award in the USA, and to win an applicant would need to score over about 650 points in New Zealand. It had been awarded only twice since 1993. NZBEF's Silver Business Excellence Awards recognizes New Zealand organizations scoring at least 450 points; only seven applicants in the past eleven years have achieved this scoring level. Twelve New Zealand organisations have been recognized with a Bronze award up to 2002 for scoring between 350 and 450 points, and ten applicants have received a Progress award for showing significant performance improvement below 350-points. Between two and eight New Zealand organizations have applied to the NZBEF award program every year since 1993, and eight organizations have reapplied after their initial applications (NZBEF, 2003).

Both authors have had several years' experience as evaluators for the New Zealand Business Excellence Awards, and the second author has been an examiner at state level in the USA. The first author is also part of the NZ government-funded research project "The evolution of competitive capability in New Zealand" that has been considering how NZ organisations become internationally successful competitors. Our interest in this research has arisen from comments made by the former NZBEF CEO, the improvement benefits of the award process claimed by NZBEF and the US Baldrige organisation, NIST, and by apparently

unsubstantiated claims made by Business Excellence consultants and examiners from NZ and the US (US Baldrige examiners train New Zealand evaluators).

Here are some of the claims and anecdotal statements that drove our interest in the research:

“But even the organisations that make the effort to take part in the awards programme have trouble making the move from ‘good to very good’. They seem to strike what [former CEO] calls a ‘barbed wire barrier’ to further progress. New Zealand organisations simply do not ‘hunger to identify the very best way of doing things’ and in particular they ‘hesitate to look outside their own sector’ for the answers. Being the best in a particular sector is frequently a long way short of world class.”(Birchfield, 2001).

“Generally, an organization will start out on the business excellence journey by scoring in the 125- to 250-point range.”

“if management takes the evaluators’ feedback seriously and develops their continual improvement program, an organization can typically increase their score within five years to the 375- to 500-point range”

“75% of organisations using a Baldrige-based business excellence framework do not improve past about 400 points without radical change in the way they do things.”

“the average New Zealand organization (in the general population) would perform at the 126- to 200-point range in the business excellence criteria”.

“Firms cannot increase their score by more than 75 points per year”.

Our experiences outlined above led us to consider a number of research questions around the issue of “What works in improving Business Excellence?” Are there areas of emphasis that will improve a firm’s score more or more quickly than others through some linkages? Are there time lag effects that impact on the rate of progress of improvement, especially in the Results section? We believe an improved score is a proxy for firms’ continuous improvement efforts and this is part of the NIST encouragement of applicants.

“The application process accelerates your improvement efforts by going beyond the internal self-assessment process, and introducing a rigorous, objective, external view of your organisation’s improvement efforts” (NIST, 2004b)

This paper continues with a review of relevant literature, the development of hypotheses and a discussion of how we carried out the research, and our results.

Literature Review

The Baldrige criteria and Quality Management

The Baldrige criteria have changed a number of times since 1988 in terms of weightings associated with the different categories, the names of categories and the response items. Flynn et al describe the details of the 1988, 1992 and 1997 frameworks (Flynn and Saladin, 2001).

The changes since then are shown in the following table.

TABLE 1
Changes in categories and points (NIST, 2004a)

Category titles	1988	1997	Current category titles	2004
Leadership	150	90	Leadership	120
Strategic quality planning	75	60	Strategic planning	85
Information and analysis	75	80	Measurement, analysis and knowledge management (2003 change)	90
Customer satisfaction	300	300	Customer and market focus	85
Human resource utilization	150	150	Human resource focus	85
Quality assurance of products and services	150	140	Process management	85
Quality and operations results	100	180	Business results	450

There is now less explicit use of the word “quality” and more attention directed to the idea of “business excellence” and the criteria are known now as the Criteria for Performance Excellence (CPE). There has been a steady shift in the criteria from focus on separate processes to focus on overall business practices and a systems view (Ettorre, 1996). This paper quotes Mr. Reimann, then Director of the MBNQA as saying:

“The Baldrige hasn’t moved far from its original mandate [of fostering self-assessment] but the criteria have moved” [Ettorre (1996) p.30]

In their recent reflective review of quality management (QM) research, Sousa and Voss note that the CPE and the criteria for other awards based on the Baldrige framework include the same constructs as QM, but they argue that such quality awards are not strictly quality models because the criteria have been enlarged to cover additional items that are not in their view QM constructs (Sousa and Voss, 2002).

The validity of Baldrige model

The popularity of the Baldrige model has encouraged researchers to develop ways to examine the validity of the framework, its linkages and any causalities. Flynn and Saladin (2001) assessed the validity of the Baldrige framework by examining it at the level of its theoretical constructs using data from the World Class Manufacturing project. They use structural equation modelling (SEM) techniques and were able to examine whether model has improved as it evolved. Their focus was on the 1988 framework, and the two subsequent frameworks involving major changes, 1992 and 1997. They found that all three frameworks included robust relationships between the categories. They note that while their paper did not empirically validate the Baldrige framework, it did provide important steps in that direction. In their discussion of each framework, they defined some implications for practitioners based on their findings. For the 1997 framework, they suggested managers should focus on what they call the three critical drivers of quality performance: leadership, which is the most important, process management, and information and analysis (Flynn and Saladin, 2001).

Wilson and Collier worked with the 1995 framework and also used SEM. Their dataset was 226 companies that were mainly in the automotive industries, but which nevertheless covered a variety of SIC codes (Wilson and Collier, 2000). They concluded that a modified set of five Baldrige causal relationships, compared with the 1995 Baldrige model and their hypothesized model, was a good predictor of organizational performance. Leadership was the most important driver of the system and, although leadership did not have a direct effect on financial results it did have an indirect effect, driving the system that caused results. Their modified MBNQA model highlighted the relative importance of management leadership, process management, and information and analysis in achieving superior financial and

customer satisfaction performance. Another important finding is that “management must work through the “system as defined by the MBNQA” to impact results because they cannot do so directly” (p.380). They suggest that the direct linkage between Leadership and Customer Satisfaction or Financial results requires more research. For example, like Sousa and Voss (2002), they believe there may be other intervening variables such as the size of the firm, cultural differences, or characteristics of the external operating environment that influence this direct performance linkage. They also call for more research on the specific directions of causation among the seven Baldrige categories.

Evans and Jack used canonical correlation on a dataset containing 279 cases (Evans and Jack, 2003). They claim their results “support long-standing beliefs and anecdotal evidence by practitioners about the relationships among endogenous and exogenous results for business performance and lend credibility to causal hypotheses that improving internal management practices leads to improvements in external results.” (p.18). They suggest improving the performance of endogenous variables will positively impact the most important external business performance measures.

Pannirselvam et al tested the validity of Baldrige award criteria using Arizona state data. They had access to the scores for all items for all applicants for the award in 1993 Arizona Governor’s Quality Award – an award based closely on the MBNQA (Pannirselvam and Ferguson, 2001). The authors found that the criteria form a valid and reliable measure for organizational quality, and go on to suggest that the MBNQA criteria can be used with more confidence by researchers studying organizational quality.

In terms of implications for managers, Pannirselvam et al suggest all the items in each category contribute to the results score. They indicate that while managers who follow the TQM approaches as suggested by MBNQA model criteria are likely to produce good operational results and customer satisfaction, these managers need to plan and execute a concerted effort on several fronts in order to achieve world class quality (p.548). Hoisington and Huang describe an empirical study conducted at an IBM division that won the 1990 Baldrige award. They used 10 years of data and 50 key measurements, and demonstrated

strong correlations and causal effects between market share, customer satisfaction, productivity, warranty cost, and employee satisfaction (Naumann and Hoisington, 2001).

Contingency issues related to implementation

There is evidence in the practitioner literature that the adoption of QM practices has not always produced the desired results and often QM programs have been abandoned. There are a number of researchers who have considered this issue and question whether QM practices, and by extension, the CPE, are universally applicable or context dependent.

According to Reed et al, firms with different strategic orientations, which they labelled customer and operations, achieve financial performance through different routes with which different QM practices are associated (Reed et al., 1996). The authors develop a contingency model of QM according to which QM effectiveness depends on the degree of fit between firm orientation (with associated QM practices) and environmental uncertainty.

Sousa and Voss reported four studies that addressed the universal validity of QM practices within an explicit contingency framework (Sousa and Voss, 2002). They concluded that all the studies suggest, “the effectiveness of individual QM practices is contingent on the organizational context” (p.104). The contextual variables that were studied included managerial knowledge, corporate support for quality, external quality requirements and product complexity (Benson et al., 1991), organizational uncertainty (Reed et al., 1996, Sitkin et al., 1994), and manufacturing strategy context(Sousa and Voss, 2001).

Sousa and Voss (2001) note “it has been found that not all QM practices may need to be in place in order to produce superior quality outcomes (Dow et al., 1999). In fact several large scale empirical studies examining the impact of QM on firm performance have found that some QM practices did not have a significant impact on performance (e.g. (Dow et al., 1999, Powell, 1995, Samson and Terziovski, 1999). It has been suggested that this may be due to these practices being context dependent (Dow et al., 1999, Powell, 1995) p.384).

In their study of a number of case studies in the electronics industry, Sousa and Voss (2001) claim their results strongly suggest that process QM practices are contingent on a plant’s manufacturing strategy, and that this finding is in agreement with contingency view of the

strategic choice paradigm, and in contrast with the universalistic approach of the best practice paradigm.

They note that a number of studies attribute failure of QM programs to implementation problems rather than flaws in the broad QM practices model (Barclay, 1993, Hackman and Wageman, 1995, Samson and Terziovski, 1999). They also indicate that “several authors share the view that successful implementation of QM requires radical change resulting not only in redistribution of resources and power, but also in a paradigm shift that may bring onto question members’ most basic assumptions about the nature of the organisation” (p.385). They continue by noting that “although proponents of the universal view of QM would argue that implementation difficulties are part of moving the organization towards quality, and alternative explanation is that those difficulties result from too great a mismatch between the proposed form of QM and the particular organisational context” (p.385).

In similar vein, Beer suggests implementation of top-down total quality management (TQM) programs often fail to create deep and sustained change in organizations (Beer, 2003). “They become a fad soon replaced by another fad. Failure to institutionalize TQM can be attributed to a gap between top management's rhetoric about their intentions for TQM and the reality of implementation in various subunits of the organization” (p. 623). These findings are also supported by research about organizational change, which finds that any program introduced in a top-down manner, including TQM, does not lead to fundamental and persistent corporate transformations (Beer et al., 1990a, Beer et al., 1990b, Schaffer, 1988).

Theoretical framework and research hypotheses

The studies reviewed in the previous section lead us to accept that the CPE are valid and the model can be used to guide organizational performance improvements. There is some debate on the causalities in the Baldrige model. Some studies have found that leadership drives the system though may not have a direct effect on business performance. In addition some authors have made managerial implications or suggestions as to which categories seem to have a greater or lesser impact on business results.

Hypothesis H1a

Over time, increases in leadership score will have the biggest impact on overall score increases.

Hypothesis H1b

Over time, increases in scores for leadership, human resource focus and customer focus will have the biggest impact on results score.

Hypothesis H1c

Over time, increases in scores for process management, information and analysis, and strategic planning will have a lesser impact on results score.

Hypothesis H1d

Over time, increases in scores for leadership, human resource focus and customer focus will have the biggest impact on results score.

Hypothesis H1e

Over time, increases in scores for process management, information and analysis, and strategic planning will have a lesser impact on results score.

A number of studies have concluded that the implementation of QM practices and the resulting benefits are context dependent. This contrasts with the implied universal nature of the CPE for businesses (there are separate criteria for education and health organisations).

Hypothesis H2

Increases in category scores are not dependent on contextual factors.

Research Methods

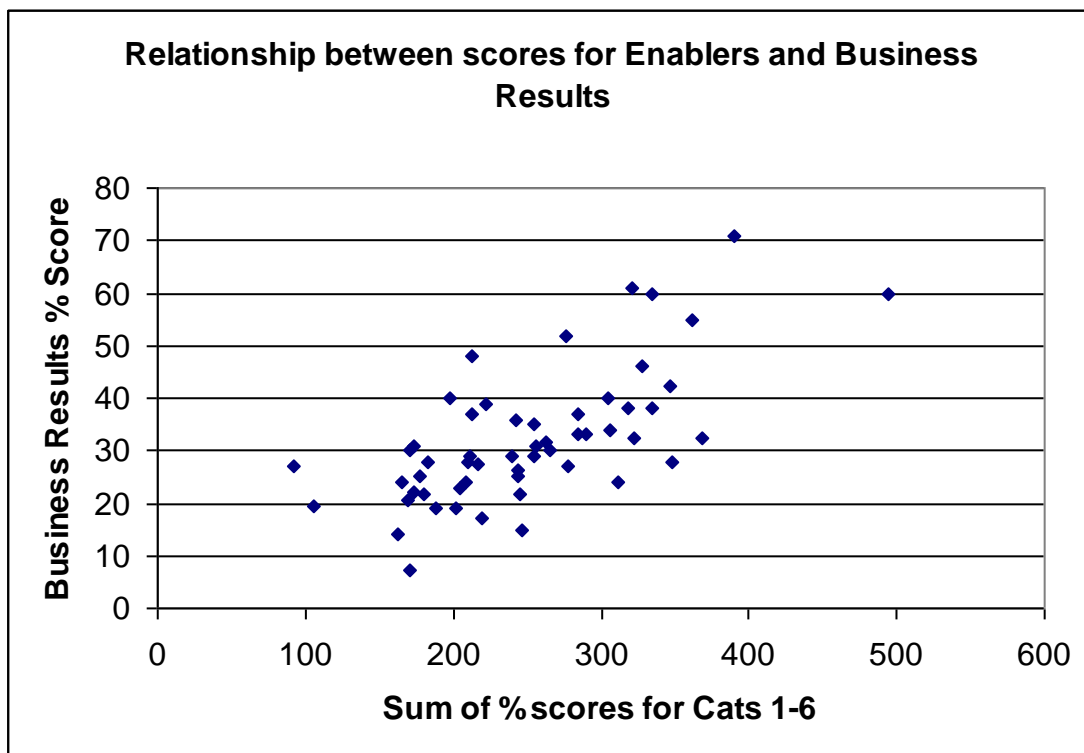
The research uses the actual category scores from applicants for the NZBEF award. These have been made available with permission of the NZBEF with names of organisations disguised. We particularly focused on the repeat applicants so that improvement in scores can be related to improvement activities within the firms. We used a series of interviews with the quality or business excellence manager and/or CEO in these companies to write a case study on each company and how it has approached implementing the criteria and used the feedback report to improve. Cross-case analysis followed using suggestions from the literature

(Eisenhardt, 1989, Miles and Huberman, 1994, Yin, 1989), and this was combined with textual analysis using Nvivo.

Results and Discussion

The first six categories are known as enablers as they are supposed to deliver the business results (Category 7). In Figure 1, we show the scatterplot for the relation between scores for enablers and business results for all applicants to NZBEF since 1993.

Figure 1

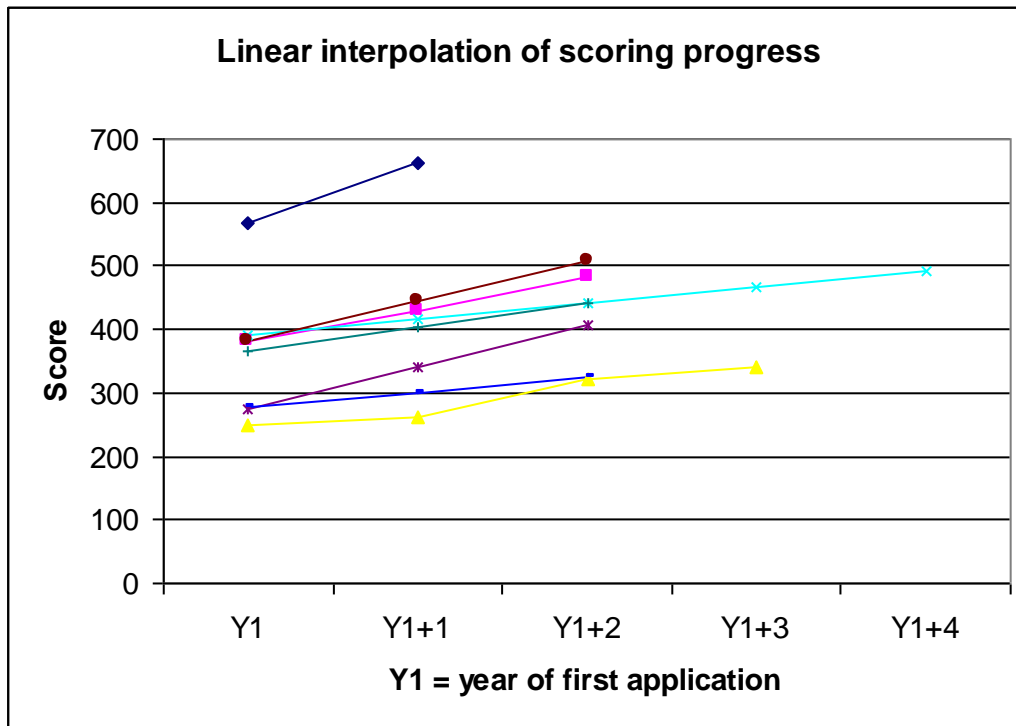


The correlation coefficient is $r = 0.6603$, and significance level $p=0.000$. This is as we would expect if the Baldrige model is a system where categories are linked.

In this paper as indicated above we are interested in how firms progress after their initial application and so in the following discussion we focus only on the eight organisations that have made more than one application to the NZBEF.

Figure 2 shows a linear interpolation of scoring progress for these eight organisations, not all have applied in successive years so we have drawn the linear interpolation to make it easier to read the chart and, for further justification, because for those organisations that have made applications in successive years the increase in score is approximately linear.

Figure 2



We now turn to the results for each hypothesis.

Hypothesis H1a

Over time, increases in leadership score will have the biggest impact on overall score increases.

The table below shows the correlation matrix between the categories and with the increase in total score for the eight organisations, a total of 11 applications.

Table 2

Correlation matrix

Correlations								
Variable	Cat1	Cat2	Cat3	Cat4	Cat5	Cat6	Cat7	Change in total
Cat1	1.0000	0.5782	0.6211	0.3871	0.7650	0.0623	-0.4621	0.4550
Cat2	0.5782	1.0000	0.4704	0.3202	0.4791	0.4050	-0.2386	0.7126
Cat3	0.6211☆	0.4704	1.0000	0.1672	0.6113	0.1697	-0.3211	0.4999
Cat4	0.3871	0.3202	0.1672	1.0000	0.4466	-0.0318	0.1079	0.4210
Cat5	0.7650☆☆	0.4791	0.6113☆	0.4466	1.0000	0.3374	-0.4607	0.3795
Cat6	0.0623	0.4050	0.1697	-0.0318	0.3374	1.0000	0.1471	0.4669
Cat7	-0.4621	-0.2386	-0.3211	0.1079	-0.4607	0.1471	1.0000	0.3700
Change in total	0.4550	0.7126☆	0.4999	0.4210	0.3795	0.4669	0.3700	1.0000

☆ p<0.05, ☆☆☆ p<0.01

The above table shows that, for these organisations, change in percentage score for Category 2 (Strategic Planning) is most strongly correlated with change in total score between repeat applications. Increases in Leadership score is moderately correlated with increase in Customer and Market Focus score (Category 3) and strongly correlated with increases in Human Resource Focus score (Category 5)

Hypothesis H1b

Over time, increases in scores for leadership, human resource focus and customer focus will have the biggest impact on results score.

Results showed no significant correlations.

Hypothesis H1c

Over time, increases in scores for process management, information and analysis, and strategic planning will have a lesser impact on results score.

Results showed no significant correlations.

Hypothesis H1d

Over time, increases in scores for leadership, human resource focus and customer focus will have the biggest impact on total score.

Results showed no significant correlations.

Hypothesis H1e

Over time, increases in scores for process management, information and analysis, and strategic planning will have a lesser impact on total score.

Results showed a strong correlation, $r = 0.7634$, $p = 0.0063$.

Hypothesis H2

Increases in category scores are not dependent on contextual factors.

Using the number of employees (n) as a measure of organisational size, we created three groups, small $n < 50$, medium $50 < n < 300$, large, $n > 301$. There was no significant correlation between size and rate of increase in total score (points per year).

Whether the organisation was an exporter or not was moderately and strongly positively correlated with increases in scores in Categories 2 ($r = 0.6026$, $p < 0.05$) and 3 ($r = 0.7215$,

$p < 0.05$) respectively. Type of industry (manufacturing or service) was moderately positively correlated with increases in category 7 scores ($r = 0.6146$, $p < 0.05$). This accords with analysis of interview material where many service organisations acknowledged that their score for this category was, initially at least, poor.

Conclusions

This paper examined the scoring progress of repeat applicants to the NZBEF Business Excellence Award program between 1993 and 2003. The results show that these organisations have made steady progress up the scoring bands so the evidence for “barbed wire barriers” is weak though only one organisation in this group has reached the Gold award level so far. It seems fairly clear that others will do so provided they are willing to commit the necessary resources. All companies interviewed had a systematic process for dealing with the feedback report they received from the evaluators and that involved a category champion, business excellence team and prioritising action plans from the feedback report. Strong involvement from the CEO was important in all cases. Some of our findings did not accord with the literature, in particular these organisations benefited from attention to strategic planning (especially) as well as process management (Category 6) and measurement and information (Category 4).

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