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**SOME MANAGEMENT AND STATISTICAL
ISSUES AFFECTING QUALITY IMPROVEMENT
IN AUSTRALIA**

**Neil S. Barnett
(13 E.Q.R.M. 7)**

TECHNICAL REPORT

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NEIL S. BARNETT

ABSTRACT

This paper examines some aspects of the current dilemma facing much of Australia's manufacturing industry during the present recession. Despite the wave of quality awareness that is permeating education and industry, progress is still limited. The joint issues of solving fundamental human problems and a discerning approach to the use of statistical techniques are highlighted as important in helping Australian industry become more competitive.

INTRODUCTION

At the time of writing the threat of global conflict over issues focussed in the middle east hangs over the world like a 'sword of Damocles'. When this paper goes to print the threat to world order (its ramifications are indeed global) may have passed, at least temporarily. Alternatively, the world may be embroiled in coping with the aftermath, if in fact this threat does become reality. An undoubted consequence of this latter scenario would be uncertain oil supplies and sky-rocketing prices. The mere standoff that currently exists has caused oil prices in Australia to rise above 30% in a matter of weeks, adding dramatically to Australia's economic woes.

This may seem an overly dramatic or even an inappropriate introduction to an article on Quality Management in Australia but in-so-far as it relates to real and future economic problems, it is very much pertinent to the subject at hand. In a recent lecture on the 'Quality of Life in Australia', historian Geoffrey Blainey [1] made the following comment. 'Compared to other nations a surprising proportion of the accepted turning - points in Australian history are economic events that mark the gains, or sometimes the losses, in the welfare of the average person'. He further observed, ...' In essence, our economy is not competitive by world standards, has not been competitive for most of the last decade, and will not become competitive again without major changes in public as well as parliamentary attitudes'. Rather than being overly pessimistic, however, he adds, 'Our present ills are as much cultural as economic in origin. They also stem more from Australia than from the world outside. In that sense they can easily be tackled if we have the determination to tackle them'... He none-the-less warned that ,... 'Our risk is that unless we shake ourselves and our economic and social institutions we will sit close to the third world in the year 2010.' So whilst external pressures are compounding Australia's problems and seem like doing so for the foreseeable future, Professor Blainey feels that internal flaws are the major problem and that their solution remains within our grasp.

It is encouraging that such optimism prevails because there is much 'gloom and doom' in Australia in late 1990. Many manufacturing companies are failing or re-structuring and reducing operations. Unemployment is on the increase and financial institutions are reeling from the consequences of massive corporate and personal debt. Primary industry is labouring under dropping world prices and increasing costs. Following common definition, Australia is in the grip of a recession. In this climate of change and uncertainty, like never before, greater competitiveness is the major issue facing Australian manufacturers. Emphasis on quality has long been touted as the means to become more competitive. Just how well is Australia meeting this challenge - raising quality and productivity and meeting market demand?

AWARENESS AND TRAINING

Like much of the world, talk of quality - the importance of quality, the benefits of quality - is now common place in Australia. Factories display quality slogans and product packages make glowing reference to the quality of the contents. Once 'quality' was seized as a marketing tool there has been no turning back. Training in 'quality' has now permeated many medium and large companies from the M.D. to the shop floor. Quality consultants abound, offering their own unique blend of expertise. Numerous commercial organisations and professional societies offer regular training courses in quality oriented topics as well as providing in-house training. A new national body has been established - The Quality Society of Australasia - so there are many encouraging signs and developments. Educational establishments offer certificate, diploma and post-graduate course work programs in 'quality' and soon an M.Sc. coursework degree in Quality Management will be available. At various institutions around the country students are pursuing degrees by research in quality related topics. Some perceptive educationalists are integrating quality management training into undergraduate programs in a range of disciplines, arguing convincingly that young graduates entering the industrial workforce should be familiar with the principles, and know the importance of quality management at the outset of their careers.

HOMEGROWN OR FROM AFAR?

A recent edition of the Australian Financial Review [2] featured a series of articles on Total Quality Management. One refreshing aspect of this publication was that the articles were contributed by people teaching or working in business and industry in Australia. This might seem a very parochial statement but there has been (and to some extent still is) a pre-occupation with bringing out to Australia overseas 'quality' experts to teach us 'how its done'. It would obviously be foolish to ignore the experience of those who have either been demonstrably successful or demonstrably un-successful. This is as true in the 'quality' sphere as in any area of human endeavour. The point is not at issue. However, after the initial impact of contributions from overseas, appraisal and experience needs to become peculiarly Australian and Australians must-make the running for the country to develop. This is now beginning to occur. Frank Price [3] lamented, some what vehemently, over the same proclivity in Britain to favour the overseas expert above those from 'home'. He referred to a malaise affecting British managerial thinking and hampering British industrial performance. He called it, 'the doctrine of the second rate'. He further commented, rather savagely, "They are afraid of excellence if it happens to be homegrown, but sycophantic to it if it comes from overseas. They seek it in foreign parts, in order that they might import it. "It must be good', they say, 'it's from America or Germany or Japan or anywhere but from here, and in praising the foreign they damn the indigenous by their omission". Besides this attitude being extant in Australia it is also true for techniques. Although things are changing, there is still the strong proclivity for things 'quality' to have originated in Japan, to have been packaged in the U.S. and to have been sold to the Australians.

TECHNIQUES AND THEIR SHORTCOMINGS

Currently Q.F.D. (Quality Function Deployment) is gaining acceptance as a technique in Australia - it falls into this latter category. Conceptually it is sound in that it is a technique for building in customer requirements at the design and manufacturing stages. However, the number 'crunching' procedures that ostensibly turn a sound concept into a usable tool are highly dubious and very subjective. The Japanese have used the technique with some success so total acceptance of it is proceeding with little debate.

Taguchi techniques are currently being popularised in certain sectors of the manufacturing industry. Flashy presentations and snappy illustrations are winning many over to the benefits of a Taguchi approach. The core concept of a quadratic loss function, however, whilst plausible under certain circumstances, is totally unprovable. The concept of robust design is loudly acclaimed yet Taguchi's approach to experimental design is widely known to be inefficient and flawed [4]. (Notwithstanding, the achievement of popularising experimental design in the few short years that Taguchi exponents have, has been a considerable feat). The Japanese are using Taguchi techniques so highlighting technique deficiencies, whilst lauding their objectives is surely small mindedness and counter-productive to the 'quality' movement in Australia - almost unpatriotic, indulging in the favourite Australian past-time - 'knocking'. The point that needs to be made without cynicism, is that Australia badly needs to pick out the good from what comes from overseas and avoid the shortcomings, yet failure to do this is not merely confined to things 'quality'. Australia seems frightened, at times, to use its own good sense - intimidated because it comes from overseas.

With the growing emphasis on quality improvement, statistical techniques have indeed received a boost, even gained an air of respectability as techniques useful in the real world. Shewart and Deming's pioneering work and Taguchi's subsequent popularisation of experimental design has ensured pride of place. Statistical techniques, however, are in danger of falling into disrepute because of lack of understanding and misapplication. Overly simplistic and obsessive use of process capability indices, lack of appreciation of the distinction between discrete and continuous processes are areas of particular concern [5], [6]. Many companies embracing Taguchi techniques are simultaneously heavily dependent on capability index quality evaluation, not realising that they are often incompatible; the two approaches place different weightings on the relative importance of mean conformance to target [6].

There is a real need before corporations impose their quality criteria on their suppliers, particularly where statistical criteria are involved, for them to have a genuine understanding of what they are demanding. They need to know that their stipulations will ensure the quality standards they desire.

GETTING TO THE CORE

Whilst all of these are issues pertaining to 'quality' in Australia they are of course secondary because important as techniques are, 'quality' is much more than technique. As Roberts comments [7], 'One problem in Australia is a plethora of products and organisations offering quality solutions.....What is often misunderstood is that quality is not a technique to be adopted or a package to be purchased - it is a change in culture of an organisation'. It is actually much more than this, it is a change in general attitude in the way we deal with one another on a day to day basis - a change in the way we conduct our human affairs. Blainey's words echo back resoundly, 'we won't become competitive without major changes in public as well as parliamentary attitudes'. The reason we so often swoop on this or that technique, on this or that expert, is that we are subconsciously looking for the panacea - the proverbial 'quick fix'. Time is fast running out, we are told, so in our perceived need for haste we are often not appraising sufficiently the direction that we are going or the techniques that we are using. Australia is unwittingly looking for a change in result, a change in output, without a corresponding change in input. Too few companies are getting beyond the quality 'hype' and getting down to the long term hard work of changing management style, changing management's attitude and soliciting a corresponding change in workforce attitudes, some are, but many are not. Too few workers believe that this 'quality' drive is anything more than another management stunt. Suspicion and fear of exploitation still permeate industrial relations and make a cohesive approach to quality improvement illusive in many industries. Having workers, unions and management work together to help crack major industrial problems including problems of quality, efficiency and productivity is occurring but is not the norm.

SOME FURTHER DILEMMAS

Some workers are being required to make impossible choices. 'Treading the quality path' requires a company to focus on waste and inefficiency. Accompanying a move into 'quality' is often an associated need to reduce the work force. I have found myself in the invidious position of being expected to convince a group of workers of the merits of a quality approach knowing that their support for greater efficiency would cost them their jobs. This occurred in an area where there was little alternative employment. A large company may well be able to re-deploy those displaced in this manner but a small to medium company invariably can't. Such an inevitability is unlikely to cause people to enthuse about 'quality'. Many companies who have been held up as having made great gains in raising quality, efficiency and productivity have a record of radically reducing their workforce. This issue remains a major problem.

B.H.P., Australia's largest company, over the last eight years has reduced its workforce in its steel division by one third, mostly through transfers and early retirements. To achieve this has required re-negotiating terms, conditions and work practices with the unions. The result has been a virtual doubling of output per worker.

Labour and production costs in Australia are generally high, this makes being competitive on the home and export markets very difficult. Companies in the clothing industry, for example, are contracting large production items to companies in Asia where costs are considerably lower.

Ivan Deveson, managing director of Nissan Australia has a high profile as an industrialist who is constantly espousing the need to radically change the approach to manufacturing management. Speaking at the 1990 Manufacturing Outlook conference, he said, 'an export mentality was vital to the development of an internationally competitive manufacturing sector'. In an address to the Australian Organisation for Quality on World Quality Day, November 9, 1989 he said, 'A recent international study of the practices of internationally competitive vehicle producers highlighted the fact that the major issue of success was not the sophistication and capabilities of technology in its own right - but the capacity for the utilisation and involvement of people'. He added in closing, 'I would like you to join me in what I regard as the number one national issue for Australians in our endeavour to maintain a good quality of life through international competitiveness. I refer to our ability to get along together'.

CONCLUDING REMARKS

These comments virtually bring this article full circle. There are certainly serious external concerns but many of Australia's problems are self-induced. It is debt - laden, individually and corporately and there is a pre-occupation with short-term thinking. Australians have come to expect an ever increasing standard of living forgetting that this can only be sustained by application and productivity. 'The bird is coming home to roost' and we now have to face the facts of life square on. Things are beginning to change, our future well-being depends on this being successful. A global orientation is necessary and efforts to improve quality of our goods and services are essential to protect home markets and capture those overseas. In recent years there has tended to develop more of a 'service' than a 'manufacturing' mentality. The corporate 'wheelers and dealers' have now had their day and the future depends on rebuilding a strong manufacturing base.

The manufacturing industries must be made attractive to graduates as a career path, full of challenge and opportunity. With appropriate monetary policy, harnessing modern technology, shrewd marketing and commitment to all facets of T.Q.M., this can be achieved. Total Quality Management must be founded first and foremost on solving people problems and secondly on 'picking the eyes' out of appropriate proven techniques, and using them intelligently. Fadism must be avoided and 'quality hype' replaced by solid application and team work.

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