

CREATE GREAT JOBS AND A PROSPEROUS BRITAIN

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Paper to:

Naomi Weir, Chair CaSE project

Jo Johnson M. P. , Minister of State for Universities and Science

I note that CaSE provides select committees with any evidence during a policy's formation, to inform and improve scrutiny.

The attached report shows huge opportunities but also historic limitations of vision which have their cause in engineering and management education.

To solve those problems through basic education will take decades. Today's need is to offset them, from now onwards, in individual initiatives for all manufacturing industry.

In 1938 Britain decided NOT to save BILLIONS of pounds and thousands of jobs by not applying design for economic manufacture, which was capable of reducing product costs by some 30%.

The underlying causes were management (and National) ignorance causing failure to fund the initial action required.

The Australian Government is now deciding action on available Open Learning packages which make even wider methods available to all relevant industry, for use in a team way which deals with that ignorance.

I retain the copyright and am prepared to make the material available to the British Government provided that it has a proper plan for its execution.

I enclose a report now being considered at the highest level by the Australian Government and at this stage invite your comments on the generation of similar action in U.K.

David Farrar
August 2015

AN IMPORTANT NEW OPPORTUNITY FOR MANUFACTURING INDUSTRY

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Summary

Since 1983 much of British and Australian manufacturing industry has vanished because of foreign cost competition, particularly from China, and further losses are forecast.

Opportunities for defeating such cost competition have now become available and proven.

The methods are being made available to Australian industry through Open Learning.

1963 to 1983

A professional survey in the 1960s pointed out that as defence costs were increasing at twice the rate of inflation, by the early 21st century defence aircraft would be unaffordable.

At the same time engineering consultants (principally Sumner, Farrar and Dangerfield) found that large cost reductions of up to 50% or more were possible through methods of design which were then taught through four engineering institutions in short courses.

Ken Dangerfield in particular was familiar with the many ways in which managers and civil servants deceive themselves on the real origin of product cost. During his career in Rolls Royce, through design he saved some hundreds of million pounds on cost of aero engines for relatively little work.

In another company use of the methods avoided bankruptcy.

Despite some successes, all institutions noted that mostly industry failed to act on those methods, and the short courses were abandoned. However they continued in postgraduate teaching at Cranfield University for a few years, during which another company was saved from bankruptcy by use of the methods.

1983 to 2000

In his book "Mistakes: How they happened, and how some may be avoided", N.K. Gardner identified COGNITION ERRORS as the reason for many cases of failure to take correct action.

One example is the failure by the Institution of Cost Engineers internationally to recognize engineering design as the prime driver of product cost.

Gardner also identified methods of countering this, and with Farrar's assistance introduced them into short course teaching on design for economic manufacture. They were tested and proven in U.K.

2000 to 2014

Many known methods of cost engineering were applied in the Joint Strike Fighter, but failure to follow the two most basic ones resulted in great cost escalation.

Greater cost escalation in the fields of unmanned aircraft and guided weapons was also forecast in a paper by the authors of the original 1960s survey, but no Professional Institution was willing to publish it.

In 2012 the strong Australian dollar was causing concern about loss of manufacturing to China, and a study was authorized of the potential of cost reduction through design. It reported that an overall cost reduction of some 40% could be attained though those methods combined with attention to production learning, as long as management Tunnel Vision was recognized and dealt with.

The outcome was an introductory lecture leading to a one - day course and six open learning modules which can be freely made available throughout Australia. (Launch was delayed by the discovery that the initially - nominated organization (Cost Engineers Australia) was inactive and had little expertise in the fields concerned.)

All that important material can now be made available over the Internet. It records more than two hundred proven methods enable Manufacturing Industry to:

- *resist foreign low price competition,
- *expand its market,
- *and be more profitable.

No industrial manager or civil servant can say he has looked at all ways of cost reduction unless he has studied all these methods.

The national progress made can be monitored and reviewed if a suitable funded organization is set up.

D.J.Farrar
April 2014

David Farrar received the OBE for his work on Bloodhound I, and the teams which he led received four Queens Awards for exports and technology. He was the first Chairman of the Society of British Aircraft Constructors Guided Weapons Committee, a member of Royal Aeronautical Society Council, created Britain's postgraduate degree course on Engineering Design, served on many professional committees, and in retirement lectured for the Institution of Engineering Designers from whom he received an Honorary Fellowship.