

IN CONFIDENCE

SCIENCE AND ENGINEERING RESEARCH COUNCIL
RUTHERFORD APPLETON LABORATORY

INFORMATICS DIVISION

SOFTWARE ENGINEERING GROUP NOTE 24

issued by
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ACARD Working Group on Software Engineering

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(see next page)

1. THOSE ATTENDING

Those attending were David Robson of Nat West, Peter Ost of MoD, Colin Whitby-Strevens of INMOS, John Barnes of SDL (Deputising for Geoff Holmes), Tony Hoare of Oxford University, Mike Kelly of Cabinet Office, Sue Bond of RSRE, Jo Connell of F International, Alan Tolan of Cabinet Office, John Coplin of Rolls Royce, RWW and special guest Kay Crinean of NCC.

2. MINUTES

The minutes were basically accepted with RWW's amendments as in his letter to Tolan.

3. STARTS

Kay Crinean of NEDO and NCC came along to give a presentation on STARTS. She gave an excellent presentation. Kay said that UK competitiveness in the IT industry had three problems.

1. Development of new technology
2. Technology transfer
 - (a) Use of today's tools
 - (b) Able to use tomorrow's tools
3. Education and training

So far as developing the enabling technology was concerned we had a national strategy which was led by the Alvey Directorate. In terms of technology transfer and education and training we had no national strategy and here was the great weakness why the UK always failed to make money out of our research.

STARTS was aimed at transfer. The UK has 5% of the world market for real-time computing. The USA has 50%. The UK suppliers are extremely fragmented even in one company! STARTS had therefore tried to do two things. One, produced a STARTS guide which recommended and encouraged the use of today's tools. Two, form a public purchasers group to try to use the lever of public purchasing to encourage technology transfer and training amongst the suppliers. Kay concentrated on the public purchasing initiative.

The public purchasing initiative consists of a management group and an executive group. The executive group meets on 18 February to try to agree a work programme, thus the things that Kay spoke about were suggestions rather than things that had yet been approved by the executive group. The likely work programme to be adopted would be

- (1) a response to the STARTS guide which would encourage rather than recommend customers and suppliers to use the methods and tools in the STARTS guide.

- (2) get a common form of words in tender documents such as 'preference will be given to tenderers using recognised tools and methods' on the ground that something no matter how vague was better than nothing.

Somehow we have to find a way which will encourage the investment in tools and methods; this has two sides

- (1) encourage and demand better performance from the suppliers
- (2) purchasers must put their own house in order ie do better requirement specification.

It is likely that the executive will propose a joint purchasers/suppliers working group to develop a program of use (then evaluate) certain tools and methods. The crunch seems to be finding suitable guinea pig projects which would actually take on board new tools and methods, ie who will have the courage to try something new? The other crunch is the resources for such an exercise; who will actually fund it? Kay is actually looking for the tool vendors to sell tools cheaply to such guinea pig projects and that the public purchasers make an investment along with the DTI.

The purchasers must put their own house in order by doing

- (1) better requirement specification
- (2) better bid evaluation
- (3) better product acceptance criteria.

(RWW argued that this should be called quality certification and not product acceptance as product acceptance implied the lowest quality acceptable product which met the legal terms of the contract whereas quality certification encouraged something which might be rather better than this).

As a result of Kay's excellent presentation considerable discussion was generated. Some of the key points to come out were that a major problem was senior management not understanding software engineering and being incredibly unwilling to take any sort of risk with new tools and methods and failing to understand the need for education and training. People argued that a substantial cost benefit case for improved software engineering methods must be demonstrated. Some of the people with greater insight, in my opinion, argued that if British industry waits until the whole issue is cut and dried and economically obvious our competitors will be the people who demonstrate this by selling better products more cheaply rather than giving us the benefit of academic cost benefit exercises. We will not find out until it is too late if we wait for the case to be absolutely obvious.

Kay Crinean knows someone at York University who is funded by the Lever Home Trust who might be willing to put some effort in to travelling around to see if the cost benefit case can be built up. I hope ACARD pick up this suggestion. If not then I think Alvey should pick it up.

The discussion as to how to get British industry to train more threw up the suggestion that we should instigate a Queen's award for training or some other such high powered accolade which might actually move things forward.

Kay let out the interesting piece of information that DEC will not let the CEGB use DEC machines in Nuclear Power Station control because DEC fears the consequences if anything goes wrong! American companies are in fear of the liars.

4. QUESTIONNAIRES

There was a short discussion about the formulation of questionnaires to solicit more information from the industry generally. Some doubt about how successful this exercise would be was expressed.

A nice idea which came out of this discussion was the concept of the 'self assessment' questionnaire as is used in the CACM to enable people to assess their own technical level. It would seem like a super idea if ACARD, or if not ACARD then Alvey, could get someone to generate some self assessment questionnaires aimed particularly at Senior Managers who having filled it in would generate a score and the score would tell them whether they really understood software engineering or not and whether they were doing the right levels of training and technology transfer. I personally think this is a super idea. It could be spread around in the various mailing lists and perhaps even issued in Alvey News.

5. VISITS

The Chairman proposed the following five visits.

- (1) Real-time big systems, British Aerospace 11/3/85.
- (2) NCC for small producers and users already done.
- (3) Nuclear safety, Lloyds register
- (4) Data processing, big users, Nat West 10/5/85
- (5) Software House input.

6. POST SCRIPT

The meeting started at 10.30 in the morning and finished at three in the afternoon. There was no break for lunch!

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