

## CHALLENGING TECHNOLOGY FOR SPORT AND LEISURE

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In the Chair: **The Rt Hon The Lord Jenkin of Roding**, Chairman, Foundation for Science and Technology

Speakers: **Mr Pete Goss MBE**, Chairman, Goss Challenges  
**Mr Barry Noble**, Chief Designer, Goss Innovations  
**Professor Jonathan Gershuny**, Director, Institute of Social and Economic Research, University of Essex

In talking about the Team Philips project Mr Goss and Mr Noble had described the gathering of information on the performance of the catamaran. Sensors had, for example, sampled the speed of the wind and the boat and other indicators every three seconds. In discussion the question was raised how the raw data delivered by the technology could be turned into information. In the project it had proved necessary to draw a line so as not to record too much. Science came after experience, in the sense that after the practical trials the team had to settle down to make sense of the data gathered.

IT was used to store the knowledge of the project, but during the construction phase a great deal of relevant information had been kept in the heads of the design team. They were working too fast to record everything. Initially the information supplied to the public through the website was kept simple, but it became progressively more sophisticated.

The task had been very demanding, combining the design and construction of a novel boat with a major public communication exercise and an education project. Good management had been vital, with clear responsibilities, good communications and an ethos of personal responsibility.

It was observed that the project had driven a magnificent sailing machine to destruction. Athletics, by contrast, was about driving the human

body ever harder. Technology played a part in athletics: engineering, for instance, had been used to improve performance in the high jump by giving a better understanding of the techniques. Technology also, however, raised ethical issues, notably over the use of anabolic steroids and other drugs. The Team Philips project used innovation and technology to the full to achieve results but had refused sponsorship from a tobacco company. There was a thin but easily discernible red line which should not be crossed: people knew when they were cheating.

It was asked at what point technology began to take over from sport. One answer was that sport had always existed at the interface with technology and could not be detached from it. Soccer depended on the ability to make a spherical ball. Another response, from someone with experience of designing racing bicycles, was that the aim had to be to make the equipment disappear into background. 80% of the resistance on a bicycle moving at 20 mph was from the rider's body, but the designer still had to minimise drag from the machine. The designer of equipment for sport had to make it as unobtrusive as possible and entrust performance to the performer.

Mr Goss and Mr Noble had described a setback when part of one of the catamaran's hulls broke off in a moderate sea. This was the result of a construction failure when carbon fibre sandwiched together with a honeycomb material did not bond. But the particular section of hull was in any case

not strong enough and would have broken off in heavier weather. Two reasons were identified for this. One was excessive faith in computer modelling. When a model predicted the performance of an unfamiliar material it was easy to forget that the software could be wrong. The other reason was a failure to review advice received. The design in question had been contracted out and there had been no time to look critically at it before proceeding with construction. In the event the design had proved grossly inadequate. Management review of bought-in design work was essential. The materials had been tested using specimen panels, which worked fine, but the only way to test the hull design was to make it.

The boat was eventually abandoned during trials, but not because of problems with the main structure. It took the crew through a hurricane at 32 knots. It could not sink or rot and was presumably still somewhere in the north Atlantic. The reason for the decision was that the accommodation pod had been damaged, there was a risk of losing steering, a deep depression was approaching and they were getting a long way from the shipping lanes. There came a time when one had to stop gambling with lives.

If the team were to build a new boat it would probably not be very different. They did not want to emulate Evel Knievel by driving off the top of a mountain. Their approach was rather to go part way up and test the brakes before going further, using knowledge to dispel fear and relying on a trusted team of people.

Professor Gershuny's lecture noted that fewer than a quarter of people of less than average income owned personal computers at home, compared with two thirds of those who had higher than average incomes. It was suggested that this was surprising in view of the fall in the costs of entry to home computing and Internet access in recent years. A possible explanation was that personal computers might not yet offer sufficient benefits to people on low incomes. People bought computers for various reasons: as fashion items, for the children, or to do specific jobs. There was perhaps a lack of "killer" applications for people who did not work at home.

It was argued that computing was not synonymous with the use of a personal computer. Eventually people would buy digital televisions with Internet access built in. Mobile telephones were another means of access to computing. Against this it was argued that the mobile telephone was constrained by limited bandwidth and small screens. The personal computer was admittedly

not a very happy device, but it had a lot of potential to improve over the next ten or twenty years. The current state of personal computing was like the early days of motoring when the driver spent most of the time under the car, and was not necessarily a good guide to the future.

Jeff Gill

The discussion was held under the Foundation's Rule that the speakers may be named but those who contribute in the discussion are not. None of the opinions stated are those of the Foundation, since by its nature and constitution, the Foundation is unable to have an opinion.
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