

Belfast

A parable of standardisation.

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(2009) A parody of programming language standardization

In the spring of 1914, the twenty seven major powers of Europe considered that the time was ripe for the standardisation of the means of international transportation; and an international standardisation committee was set up to formulate a draft international standard. Deliberations started with an acrimonious discussion of the width of railway tracks, and whether vehicles should be driven on the left or right side of the road. But fortunately, the recent development of the aeroplane indicated the way ahead, and the committee unanimously resolved to avoid the costly problems of surface transport, which had resulted from failure to standardise sufficiently early.

Unfortunately, aeroplanes were such horribly complicated devices that the committee could not find any particular aspects of them (such as width, in the case of railway track) which were readily susceptible of standardisation; so to be on the safe side, the committee undertook to standardise the design of a complete aeroplane. They therefore initiated a wideranging survey of all existing aeroplane designs, to find out which of them was most suited for standardisation.

Naturally each delegate on the committee passionately advocated the design of an aeroplane which was currently manufactured or designed in his own country; and attached all the other designs as grotesquely inadequate for the purpose. Since each attacking argument was supported by twenty six delegates and denied by only one, it was perhaps inevitable that eventual agreement was reached that none of the existing designs was wholly suitable for standardisation.

This was perhaps the stage at which less far-sighted delegates should have reported back to their governments that the time was not yet ripe for standardisation of aeroplane design; and that the combination of political

complexity and technical unfamiliarity of the subject indicated a postponement of their work. But instead of this, they had the vision to embark on the design of a completely new aeroplane, and submit it for standardisation within the year.

The first task was to make a list of all the desirable features the new aeroplane should have. Great attention was paid to the comfort of the passengers - reclining seats, separate toilets for ladies and gentlemen, a built-in kitchen, and dining cars, for first, second and third class passengers, stewards and porters, were obvious requirements. A long and heated discussion took place on the shape of the ashtrays; and unfortunately no decision could be reached.

The layout of the pilot's controls was also considered significant. After investigation of the use of reins and whips, it was decided that the number of coachdrivers thrown out of work by the advent of the aeroplane would be less than the number of unemployed railway enginedrivers, and they adopted a layout of controls similar, (but not identical) to that of the most widely sold railway engine.

A certain amount of discussion arose on the sort of fuel that should be used. The delegate from Poland supported charcoal, Ireland suggested peat, Britain proposed coal, and Italy (strongly opposed by Switzerland) proposed seasand, on the grounds of its plentiful supply. Fortunately the committee had sufficient technical expertise to reject Italy's proposal. However they could not agree on a choice between the other fuels, until one of them came up with the brilliant technical idea of interchangeable engines, which could be changed on crossing the border of a country which supported a different fuel. Strongly encouraged by their success in finding a purely technical solution to a basically political problem, they proceeded with their work.

The next problem they tackled was one of size; they recognised the need to cater for very large passenger loads; but they also knew the need to preserve flexibility in the light of wide variation in demand. Fortunately a good technical solution to this problem was well known and widely practiced with great success on the railways; the maintenance of the same flexibility in aircraft was taken as a primary design criterion.

Even in those early days, the importance of safety and reliability was given due regard - indeed the accident rate for aircraft at the time was distressingly high. They therefore took it as a primary requirement that all safety devices, checks on the correct functioning of the equipment and controls, which would certainly be needed for flight-testing of an aircraft, must be removable before the aircraft went into commercial operation. Similarly the passengers were to be supplied with safety belts; but of course their use must be entirely optional.

There was some discussion of the need to evaluate the aircraft design proposals both during the design process and after the design was complete. Various criteria were mentioned, for evaluation, for example

(1) overall weight: this was felt to be fairly irrelevant, in view of the rapidly increasing efficiency of aero engines.

(2) passenger capacity; this was recognised as important, but it was simply too difficult to measure - for example did a woman or child count as a passenger? What about dogs, cattle, and bicycles? Some preliminary research was made on the passenger capacity of trains, and ships, but it was very difficult to recruit representative passengers on which to conduct the well-controlled experiments, and they came to no firm conclusion.

(3) range: this point was rapidly dismissed; it was obvious that the new plane would be able to fly right round the world, and back again if required.

(4) cost. No method of counting the cost was known. However, it was obvious that the advantage of travelling by aeroplane was so great in comparison to a train or boat that detailed cost evaluation was not really necessary; and the even greater advantages of standardisation would make doubly sure of this.

Having constructed a long list of features and objectives, the committee pondered how they might best achieve them. They thought very seriously of employing a professional aircraft designer, who had actually built several flying aircraft; but the problem was which one should they employ? They all seemed to disagree about fundamental aspects of the design such as the right number of wings,

a matter on which any standardisation committee could readily reach a compromise solution. Besides, the examination of existing designs had already shown that the designers were seriously out of touch with the real needs of pilots and passengers. And finally, several experts refused the design commission, saying that the design objectives were irreconcilable, that the proposed techniques were inappropriate to powered flight, and that they would be very surprised if an aeroplane designed to contain all the specified features and facilities would ever get off the ground. Since the whole purpose of the committee was to standardise the design before the rival manufacturers would invest the large sums of money required to design and build it, such forebodings were ridiculous. However, they recognised the superior technical expertise of the expert's suggestion for the shape of the ash trays, and accepted it without further discussion.

In the end they decided to set up a small technical subcommittee to go ahead with completing the details of the design. The committee consisted of a fair proportion of experienced railway engine drivers and passengers; but they were very fortunate in securing the participation also of a few experienced pilots who provided the necessary technical expertise. Within a year, this group would produce a design and submit it for international standardisation.

Unfortunately, the further work of the committee was interrupted by the tragic events of the next four years, and was never resumed. The resulting chaotic state of international air transport we are still suffering from today. Let us hope that the progress of other new technologies is not similarly hampered by failure of early standardisation efforts. The idea that progress might actually be hindered by premature standardisation must be sternly suppressed.