

Computer Modelling – Flying Blind By Dead Reckoning

*Miscarriages of justice. Aircraft unnecessarily grounded for days. Needless slaughter of millions of animals. Our reverence for the evidential authority of the computer is leading to numerous disasters – and providing a convenient smokescreen for politicians and officials to rid themselves of personal responsibility for serious errors, writes **CIB chairman Edward Spalton**.*

The ability of electronic computers to carry out massive calculations far more quickly than any human brain is indeed awesome. Yet the computer, however advanced, cannot produce an answer which is any better than the accuracy of the information fed to it by human hand and brain during its programming and processing.

Yet there is a sort of reverence for the computer which I first came across in 1969 after watching the film 'O What a Lovely War!'. Leaving aside its historical inaccuracies and Marxist class war view, the film was a deeply moving account of the horrors of the First World War, particularly the Western Front, told through the popular songs of the time. The scale of the conflict was indeed brought home very memorably.

At the end when the credits rolled, there was a statement that the events of the First World War had been fed into a computer which had come up with the answer that it could never have happened! That was supposed to have some significance for the modern audience. It was as if the Great Progressive God Computer knew better than the crude history of stupid politicians, chinless wonders and bone-headed, port-soaked generals – for the war obviously had happened! I knew people

who had fought in it – great uncles, teachers, relatives and so on – who were nothing like the Marxist stock characters of the film, but for whom I felt more respect, having grasped at a deeper emotional level something of what they had to endure.

At that time computers were huge, remote machines which belonged to large companies, government departments and shadowy intelligence organisations – different from the much more powerful, familiar desktops and laptops we have today. Yet still the reverence for and deference to computers exists. Combined with spokespersons of sufficient prestige, they give cover to politicians and officials who can claim with impersonal infallibility that they are “following the science” – and so are free of personal responsibility for serious errors they make which can affect us all.

A Cloud of Unknowing

Computers, we are told, can model the whole climate of the earth and tell us how it is going to develop over a century or more. Ten years ago a significant event occurred in a relatively small part of the earth’s atmosphere over a relatively short timespan, when the authorities had to rely on computer modelling because physical measurements were temporarily unavailable. This was the eruption of the Eyjajallajokul volcano in Iceland on 14 April 2010, which pushed a huge cloud of ash into European airspace. Planes were grounded while the authorities tried to ascertain if the ash posed a safety risk.

The Met Office’s London Volcano Ash Advisory Unit only had one suitable aircraft to measure the level of ash, a BAE 146 – and it was out of action for a paint job. The Volcano Ash Advisory Unit therefore relied solely on computer programs to estimate the danger to aircraft.

The airlines themselves, both British and European, had put up their own test flights to sample ash levels – and found only 100 micrograms of ash per cubic meter of air. The safe level is estimated at 2000 micrograms. By the time the BAE 146 was airborne again on 22 April, more than twenty airliners were already headed to British airspace, such was the confidence of the airlines that the results would be found to be low and British airspace reopened. And sure enough, that is exactly what happened. The airlines had sorted the problem which the official computer had created. By 26 April Jim McKenna, head of airworthiness at the Civil Aviation Authority, admitted that the plume of ash had mostly been “close to undetectable.”

No doubt those responsible were deeply mindful of their responsibilities for safety. Nonetheless, a computer program called NAME and an obscure group of civil servants had cost the airlines an estimated £1.3 billion. This ‘quangocracy’ was led by the Great and the Good of the Met Office (like Robert Napier, whose qualification was being a campaigner for the World Wildlife Fund), Dame Deirdre Hutton of the Civil Aviation Authority (a dietary expert formerly of the Food Standards Agency), and Andrew Haines also of the CAA (formerly a railway manager). Perhaps it was the best that could be done; but the incident showed a great gap between the real world and the computer model. With all its calculating capacity and available information, the computer had held up flights for days – quite unnecessarily as it turned out. How much greater are the gaps likely to be in programs which purport to define and forecast the whole global climate for decades and centuries ahead?

“Beyond All Reasonable Doubt”: the Evidential Authority of the Computer

“On 11 November 2010 Seema Misra, a sub postmistress was

convicted of stealing £70,000 from the branch she ran in West Byfleet and was sentenced to 15 months imprisonment... In his summing up the trial judge said 'There is no direct evidence of her taking any money... She adamantly denies stealing. There is no CCTV evidence. There are no fingerprints or marked bank notes or anything of that kind. There is no evidence of her accumulating cash anywhere else or spending large sums of money or paying off debts, no evidence about her bank accounts at all. Nothing incriminating was found when her home was searched.

"The only evidence was a shortfall of cash compared to what the Post Office's Horizon computer said should have been in the branch. The judge asked the jury "Do you accept the prosecution case that there is ample evidence before you to establish that Horizon is a tried and tested system in use at thousands of post offices for several years, fundamentally robust and reliable? The jury did and pronounced a verdict of guilty.

"In fact the Horizon system was full of bugs and glitches . Worse still,the Post Office knew it. A decade later, legal action by 555 sub postmasters who were prosecuted, sacked or financially ruined has exposed one of the most widespread miscarriages of justice on record, appalling treatment of hundreds of working people and a web of deceit that stretched to the top of an historic British institution..."

*– from 'Justice Lost In The Post'
by Richard Brooks and Nick Wallace,
Private Eye No. 1519, 3 April 2020*

So a British jury accepted the evidence of a computer program above the evidence of the defence, as outlined by the judge. They accepted it as being "beyond all reasonable doubt". Now, of course, the Post Office is a much-respected institution. Combine that prestige with the authority of the computer and

it's quite sufficient to condemn the innocent.

More worryingly, the National Federation of Subpostmasters declined to take on the defence of its members. No doubt the potential effort and expense of hundreds of cases was daunting.

The really horrific thing is that officials high in the Post Office must have known for years that they had been ruining the lives of the innocent to cover up for the unwise purchase of a dodgy computer program. The Criminal Cases Review Commission has referred 39 convictions of sub-postmasters to the Appeal Courts. The largest bulk referral ever. A further 22 cases are being considered. The sub-postmasters were prosecuted for shortfalls in their branch accounts, based entirely on evidence from the Post Office's faulty IT system. The Commission considers the convictions to be a result of an "abuse of process". Of course, many other sub-postmasters lost their livelihoods without being taken to court. The computer said so.

Even in a case of murder, the Post Office computer was used in 2011 as circumstantial evidence to help convict Robin Garbutt, of setting up a fake robbery and killing his postmistress wife Diana as a cover for fraud against the Post Office. The jury convicted by a majority of 10 to 2.

Believing that a serious miscarriage of justice has occurred, Jim Sturman QC and solicitor Martin Rackstraw are acting *pro bono* (i.e. without fee) on behalf of Robin Garbutt to refer the case to the Criminal Cases Review Commission. Despite the blood spattered brutality of the attack on Mrs Garbutt, there was no forensic evidence linking Robin Garbutt to the crime. Apparently the computer was authoritative enough for ten of the jury.

Lambs to the Slaughter on the Altar of the Computer

In another notable case, a computer program cost millions of lives – animal lives, it is true. This was in the Foot & Mouth Disease outbreak of 2001, when the government slaughtered millions of healthy livestock in an attempt to stop the disease spreading.

This had never been done before. Slaughtering had previously been confined to animals in infected flocks and herds. But an academic with a computer program persuaded Tony Blair it was the thing to do – even though the government did not at the time have legal power to slaughter healthy flocks and herds.

Farmers were put under extreme pressure to agree because it was claimed to be the way to halt the disease. It wasn't true and it didn't work. The civil service had to tell Tony Blair to stop this pointless veterinary Holocaust with its hideous public expense. In Cumbria, half a million healthy sheep were buried in one mass grave alone. The destruction of farmers' livelihoods and the loss of valuable pedigree blood lines was an enormous blow to the farming community, as well as £10 billion to the taxpayer.

Some farmers too were driven to despair and suicide by the policy.

Now, I doubt that the government would have taken this advice from even the most highly qualified academic had it not been backed up with the seemingly impartial authority of a computer model. The computer was the authority and the scientist its prophet – a false prophet, as it turned out on this occasion. He was Professor Neil Ferguson of Imperial College. Until he was detected breaking the lockdown rules, he was on the government's SAGE panel of advisers for the present COVID-19 pandemic. We can only hope that this august and rather secretive body of advisers has not been similarly misdirected.

The electronic computer is a wonderful machine. It has, for example, made possible such detailed stock control that massive firms can provide the sort of prompt delivery service for a huge range of goods from all over the world which even the most expensive, attentive, specialist suppliers could not have matched a few years ago. Supplied with reliable data, the properly programmed computer produces reliable results within its designed parameters. When its program is less than perfect or has to cope with what Donald Rumsfeld called "known unknowns", it is less reliable and when faced with "unknown unknowns", it is no more reliable than a complicated guess or range of guesses. It should not be an acceptable excuse for politicians who claim to be "following the science".