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Ethics, Safety Culture and the London Ambulance Case Study

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- Ethics and the Market Place.
- Safety Culture.
- London Ambulance Case Study.

- Oxford Concise English Dictionary:
 - Science of morals in human conduct;
 - Moral principles and rules of conduct.
- Why Publish Professional Ethics?
 - A guide to ‘proper’ conduct.
- ACM Code of Ethics.
 - <http://www.acm.org/constitution/code.html>

- 1.2 Avoid harm to others.

‘Harm’ means injury or negative consequences, such as undesirable loss of information, loss of property, property damage, or unwanted environmental impacts. This principle prohibits use of computing technology in ways that result in harm to any of the following: users, the general public, employees, employers. Harmful actions include intentional destruction or modification of files and programs leading to serious loss of resources or unnecessary expenditure of human resources such as the time and effort required to purge systems of “computer viruses.”

Well-intended actions, including those that accomplish assigned duties, may lead to harm unexpectedly. The responsible person is obligated to undo or mitigate the negative consequences as much as possible. One way to avoid unintentional harm is to carefully consider potential impacts on all those affected by decisions made during design and implementation.

To minimize the possibility of indirectly harming others, computing professionals must minimize malfunctions by following generally accepted standards for system design and testing. Furthermore, it is often necessary to assess the social consequences of systems to project the likelihood of any serious harm to others.

The computing professional has the additional obligation to report any signs of system dangers that might result in serious personal or social damage.

If one's superiors do not act to curtail or mitigate such dangers, it may be necessary to *blow the whistle* to help correct the problem or reduce the risk.

Before reporting violations, all relevant aspects of the incident must be thoroughly assessed.

In particular, the assessment of risk and responsibility must be credible. It is suggested that advice be sought from other computing professionals.

Are Ethics Relevant?

- If you saw a bug in a friend's code.
- Would you tell the manager?
 - Even if it cost their job?
 - Even if it set project back 6 months?
- Depends on safety culture?

- Hard to define:
 - “The way we do safety round here”.
- Hard to measure:
 - EUROCONTROL safety culture surveys.
- What supports safety culture?
 - Considered procedures/processes;
 - Careful review of process outputs;
 - High priority for safety;
 - Documented resolution of conflict;
 - Budgetary control...

- What weakens safety culture?
 - poorly documented processes;
 - ad hoc reviews of output;
 - low priority for safety;
 - poor resolution of conflict;
 - (unpredictable) budgetary pressures.
- These typical of many projects;
 - Even though no accident occurs...
 - There may be additional latent problems.

What is clear from the Inquiry Team's investigations is that neither the Computer Aided Despatch (CAD) system itself, nor its users, were ready for full implementation on 26 October 1992. The CAD software was not complete, not properly tuned, and not fully tested. The resilience of the hardware under a full load had not been tested. The fall back option to the second file server had certainly not been tested. There were outstanding problems with data transmission to and from the mobile data terminals. There was some scepticism over the accuracy record of the Automatic Vehicle Location System (AVLS). Staff, both within Central Ambulance Control (CAC) and ambulance crews, had no confidence in the system and were not all fully trained.

Para. 1001, Southwest Thames Regional Health Authority report
(Thanks go to Anthony Finkelstein, UCL, London.)

- Safety culture not just jargon...

Under the NHS reforms, all parts of the National Health Service (NHS) have gone through major cultural changes in the past few years...

The result of the initiatives undertaken by management from 1990-92 did not revitalise management and staff, but actually worsened what was already a climate of mistrust and obstructiveness.

The size of the programme and the speed and depth of change were simply too aggressive for the circumstances.

Management clearly underestimated the difficulties involved in changing the deeply ingrained culture of LAS and misjudged the industrial relations climate so that staff were alienated to the changes.

- Considered procedures?

It is also important to note that LAS never sought any assistance.

Many concerns were expressed in writing and at meetings about the progress of CAD.

Many specific CAD related issues were discussed yet in each case evidence suggests that fairly bland assurances from the Chief Executive that everything will satisfactorily be resolved are accepted by RHA management.

Given the nature of these concerns and the regularity with which they arise the Inquiry Team, with hindsight, would have expected the RHA to commission an independent, in depth technical review of the project and its true status...

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- Careful review of outputs?

A critical system such as this, amongst other prerequisites must have totally reliable software. This implies that quality assurance procedures must be formalised and extensive. Although SO had a part-time QA resource it was clearly not fully effective and, more importantly, not independent...

During these months the system was never stable. Changes and enhancements were being made continually to the CAD software. The Datatrak system was being similarly amended and enhanced... Thus there was never a time when the project team could stand back and commission a full systems test. Ideally a phased implementation should have been planned for in the first place rather than added out of desperation.

- The priority for safety? Also role of sub-contractors...

Although there is little doubt that SO were late in delivery of software and, largely because of the time pressures under which they were working, the quality of their software was often suspect, it should be pointed out that other suppliers also had their problems. The design and positioning of the SOLO MDTs had to be changed following consultation with ambulance staff and SOLO were late in delivering the RIFS technology.

However, unlike SO, they kept LAS project management fully informed of the true state of their progress. There were also continuing problems with data transmission, many of which are still not totally resolved. Datatrak also had problems with their installations.

- Resolution of conflict?

In October 1991 a new Systems Manager was recruited by LAS. Although he would not become directly involved in the project, at the request of the Board, he carried out a review of the project progress in early November...

The report stresses the continuing need for quality, but it does not contain any real conclusions. It makes the point that the timetable allows no time for review and rework and that there is a general reliance on everything coming right first time. The report has a somewhat “cosy“ feel to it and although some problems are identified, the reader is left with the impression that, even with the identified problems, there is a probability that success will be achieved. However, reading between the lines it is clear that there is much doubt about meeting the planned implementation date, notwithstanding the recommendation that the published date should not be changed.

- Budgetary control...

Throughout this phase it was clear that LAS management and the project team had a proposed budget in mind, for the complete system, of around £1,500,000. There does not appear to be any rational process by which this figure was established...

It should also be noted that the SO quotation for the CAD development was only £35,000 - a clear indication that they had almost certainly underestimated the complexity of the requirement (although it is recognised that as is common in the industry SO would also be making a small margin on the contract price for the hardware). It is worth noting also that, at a meeting between LAS and SO prior to contract award, it is minuted that SO were told that one of the reasons for abandonment of the earlier IAL system was the alleged inability of the software house to understand fully the complexity of the requirement.

- Professional ethics.
- Safety Culture.
- London Ambulance Case Study.

Any Questions...

