Problems identified in the las cad system

First and foremost, from the investigations carried out, it is clearly shown that the CAD system was not fully mature or on time to be executed. Its users either were not ready or fully prepared to absorb it. The software itself was not comprehensive, it was not appropriately adjusted and finally it was not effusively tested. The flexibility of the hardware was also not tested when in operation and while fully loaded. Problems were also identified with the transmission of data from the mobile data terminals and back.

There was also some cynicism about the accurateness of records of the automatic vehicle location system (AVLS). The people who worked in the Central Ambulance Control and the ambulance crew itself, did not trust the system and were neither fully trained about the system. The layout of the control room was changed with the introduction of the CAD system. The staffs working in the control were in a mix up because they were working in a very unfamiliarenvironmentwhere there was not even any paper backup.

Due to this, simple problems that they used to solve with their colleagues became monster problems. The CAD system was over ambitiously put in place. It was developed and put into operation in opposition to an impracticable timetable. The project itself was poorly managed and ambiguous from the development phase through the implementation process. Full time professional and qualified project management was lacking. A decision that had been made earlier to implement the full CAD system was erroneous.

Putting into place a system such as CAD requires a step by step kind of approach, while establishing the efficiency of each step before moving on to the next. Each step should be justified by analyzing each aspect of it like

costs and benefits. It’s true to say that the management, the supplier and all the concerned parties really put all their efforts into the implementation, but due to the fact that they implemented it as a single phase then they had no time to do the analysis and hence the couldn’t recognize the connotation of the numerous problems that were in due course to make it fail.

Another cause offailureto the system was the fact that most of its users did not own up completely to accept the system. Some of the components of the system were recognized with certain problems over the previous months such that they created an atmosphere of distrust with the staff. Instead of wishing for its success, the staff rather expected a system failure. For the system to work efficiently, it required a number of adjustments to the existing working practices. The senior staff making the implementation had the idea that the system itself would bring about these adjustments.

Btu instead most of the staff found it to be an outfitted line of restrictions within which they tried to operate and seem to be flexible with. This brought further perplexity rather than orderliness. The LAS management always attributed the problems of CAD to the misuse of the system by some ambulance crews. But the management did not coincide with the inquiry team which indicated that this would only have been one of the contributing factors, together with many others, that brought to the system failure. In some of the days of month of October (26th and 27th), there was an increase in the number of calls.

This was not because of the increase in the number of patients but rather as a result of anonymous replica calls and recalls from the public as they reacted to ambulance delays. On this day the system did not fail from a

technical sense but it did what it had been designed to do, though the response times were unacceptable. A substantial amount of the design had terminal defects that cumulatively lead to all of the systems failure. On this day several changes were made to CAC that made it very difficult for the staff to intervene and make corrections to the system.

Therefore the system could only identify the location and status of fewer and fewer vehicles. This in effect led to poor, duplicated and delayed allocations; the awaiting list and the exceptional messages piled up in the computers; this pile up caused the system to slow up; this further led to an increase in the number of call backs and finally delays in telephone answering. Each effect reinforced the other. In the morning when the system was fully implemented it was lightly loaded therefore the staff could cope with the various problems and hence the imperfect information in the system about the fleet and its status.

As the incidents increased, the incorrect information about the fleet, received by the system increased. Due to the new room configuration and method of operation the allocators were limited in solving the errors. The amount of incorrect information increased with the effects that the system made incorrect allocations thus many vehicles were sent to the same incident or either the closest vehicle was not sent; the system had less resources to allocate thus increasing the first effect; the system then placed covered call that had not gone through the amber, red, green status cycle, back on the attention list.

a) The system made incorrect allocations: multiple vehicles sent to same incident, or not the closest vehicle sent; b) The system had fewer resources

to allocate, increasing the problems of effect a); c) As previously allocated incidents fed through the system, placed covered calls that had not gone through the amber, red, green status cycle, back on the attention waiting list. The last two effects contributed to incorrect allocations, a slowing of the system and uncovered incidents all this leading to delays to patients.

Incorrect allocations led directly to patient delays and crew frustration. Crew frustration was further heightened by the prolonged delays before arriving at the scene and more so the reaction of the public. Crew frustration the could be held responsible for those instances when the crew did not press status buttons correctly or in an incorrect sequence and also, the crew taking different vehicles than those that the logged onto or a different crew or vehicle reporting to the incident.

In the month of November, this frustration led to the increase of radio traffic which having been brought about by the radio blockages increased the number of failed data mobilizations and voicecommunicationdelays. The increase in the volume of calls together with a slow system and too few call takers caused significant delays in telephone answering and thus an increase in delays to patients. After CAD had developed problems, the staff reverted to using a semi manual mode of operation. They were comfortable with operating this system because they found the computer based call talking more reliable.

The vehicle crews were also comfortable owing to the fact that the stations still had limited flexibility in deciding which resource would be allocated to what incident. The radio voice channels were available to assist in clearing up any enlistment understandings. An additional call taking staff had been

allocated to certain shifts thus the average call waiting time was considerably reduced. But on another occasion the system failed due to minor programming errors that caused the system to crash.

The protocol to be used when changing from the crashed system to the back up system had not been sufficiently tested and therefore at such a point the whole system had to be brought down. Quintessential Glitches As I have put it across here above, there were numerous rudimentary defects in the CAD system and its secondary organization. These problems can be classified simply into three, to bring the whole issue to a summary: i) The need to have a near perfect input information in an imperfect world

ii) The meager crossing point between crews, MDTs and the system iii) Unpredictability, sluggishness and operator interface. The system had put so much faith into the near perfect information it received from the vehicle location and the status of the vehicle or its crew. The system did not have accurate information of the vehicle location and the status of that vehicle or its crew. Therefore it became very hard for it to allocate the ideal resources to a certain occurrence. Some poor allocation was attributed to the allocation routines.

But though this may be true, it is believed that the majority of allocation errors were caused by the fact that the system did not actually know where the vehicles were located, nether did they know the status of the crew in the vehicles or the vehicles themselves The second point pin points on the poor interface between the teams, the Mobile Data Terminals and the system. The system required perfect or almost perfect information on vehicle location and the status of each of the player parts of the chain. This ran from the

crews to the dispatch systems, all of which were expected to operate and cooperate perfectly.

But this was not the case because investigations a few reasons were evident for the system not really knowing vehicle locations or vehicle status. These included a failure by the system to collect or receive all the data, accompanied by a genuine failure by the teams to press the appropriate status button due to the state and the pressure brought by certain incidents. In some black spots there was also poor coverage of the radio system which went hand in hand with the crew failing to press the status button due to frustrations from the re-transmission problems.

There was also a radio communications blockage for instance when staff reported for duty and tried to confirm arrival via their vehicle units or Mobile Data Terminals, more so, on very busy periods. Also identified were the missing or swapped call signs. There were defects in the grip routines between the MDTs and the dispatch system. For instance sometimes the MDT would indicate Green and Ok but back in the systems screen the status would be shown as something very different. Also some crews would intentionally press the wrong buttons or even press them in an incorrect order.

Some of the crews would even take different vehicles rather than the ones they logged onto or different crews would respond to different vehicles allocated to them by the system. Some of the vehicle locations were also missing or incorrect. Another fault is where there was very few staff to take calls. All of these faults and defects used to flow in a very connected manner such that the errors were sometimes running concurrently. The third point

came about after the system collapsed a number of times just before the end of October in 1992.

The most common was the incarceration of computers. The staff had been instructed to reboot their computers incase they locked up. This happened mostly when the computers were doing their back ups or when they were fully loaded. The most common inadequacies included the failure to identify duplicated calls; the lack to prioritize exceptional messages; these exceptional messages and attentions on queue scrolling off the top of allocators' or attention rectifiers' computers.

The software resources had also been allocated incorrectly; there was general heftiness of the system and finally there were also slow responses to certain computer based activities. THE WAY FORWARD FOR CAD; A SOLUTION TO CAD After going through and analyzing the problems of CAD, the enquiry team had to make certain recommendations so that the implementation of the future CAD would not have any errors. By following these recommendations, then LAS will have a solution to all its problems with CAD. The future CAD system must have the following objectives;

i) It must be fully dependable and flexible with completely tested levels of backup. ii) It must be fully owned up by the staff and management within CAC and the ambulance crews. iii) It must be developed and introduced within a time scale which will allow for adequate consultation, quality assurance, testing and training while still considering the fact that they want to introduce it earliest possible. iv) The management and staff must have entire, verifiable, poise, in the steadfastness of the system.

v) The new CAD must be geared towards improving the level and quality of the provision of ambulance services in the capital. vi) The new system should be introduced step by step while introducing first the steps that give maximum benefits. vii) Finally, any venture in the new system should be safe guarded and put forth into the new system if and only if it does not compromise the above objectives. REFERENCE Anthony Finkelstein (February 1993): Report of the Inquiry Into The London Ambulance Service. International Workshop on Software Specification and DesignCase Study