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## Chapter 7 - The Future

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### 7.1 The Future

What will the future hold for maintenance in the aviation industry? If this question can be answered companies can identify technologies that can help them in the future to streamline their operations. Unfortunately no one can answer this question, but certain trends in the industry can be identified. If these trends are expected to continue one can identify technologies that may be used to further support these trends. These technologies may provide a competitive edge. The aim of this chapter is therefore to identify trends that are believed to continue in the industry and if the trends are identified, companies can identify technologies that may support these trends in the future. Companies can then decide whether or not to invest in such technologies.

A major trend is for established maintenance functions of larger airlines to move outside the airline and function as a separate independent business. This trend is expected to continue in future, due to the fact that airlines want to focus on their core business function of providing a service of transporting passengers and cargo between destinations. Airlines feel that major maintenance is not part of their core business and therefore they are moving this business function outside the airline. These newly formed maintenance companies compete for maintenance work and even compete for work from their old allies. These companies will not only compete on the quality of work, but will also compete on turn around time. To my mind this will become the most important aspect in the competition between independent maintenance houses. Time is a very important aspect to the airlines, because an aircraft standing on the ground is not earning revenue and it is therefore very important to minimise the time aircraft spend on the ground. It is so important that even acceleration clauses in the maintenance contracts may be an important economical consideration. This boils down to a situation where an airline is prepared to pay more for the maintenance of their aircraft if the

maintenance can be done in a shorter period of time. In future we will see that most of the maintenance work in the aviation industry will be done by independent maintenance houses. We will also see the trend that these houses will specialise in a certain aspect of maintenance due to the competition in the industry. The industry will also see a growing trend in outsourcing because, in certain specialised maintenance tasks, the market is not big enough to warrant the training and employment of resources for such specialised tasks. Therefore larger maintenance companies will outsource maintenance work of this kind. This is especially true for the South African aviation industry.

Another trend that is thought to continue is the repair of components. Airlines have achieved big saving by repairing components and not replacing them with new components. There are very significant developments in technology in repairing components. The South African industry should seriously consider this market, for it is geared to repair most components. This is because of the fact that they were forced in the past to be self-sufficient and they did not have access to new parts and were therefore forced to repair parts.

Maintenance, especially that of components, will therefore move outside the airlines and will be performed by separate companies. We will see a fragmented industry with many small companies, each specialising in an aspect of maintenance. These companies will each stick to their core business and will be very competitive. These companies will compete on time and cost. Their performance will be scrutinised by governing bodies like the FAA, and the feeling is that the quality of work will be of a uniform high standard.

Line maintenance is expected to stay within the airlines. Line maintenance includes the monitoring and co-ordinating of all technical aspects concerning the operations of a fleet of aircraft. It also include functions like visual inspections, replacement of consumables like oil, the monitoring of the



condition of components and the replacement of faulty components. It does not include the repair of components. Airlines will therefore assume the responsibility of co-ordinating the maintenance function and perform routine tasks without getting involved in the physical repair of the components.

This function is expected to be performed from a central location, which will be called the brain of the operation or, as one airline described it, as the 'bridge of command'. Employing some innovative technology it will be possible for the brain to perform its duties over the globe, where-ever aircraft belonging to the airline might be. The brain will have access to all relevant information necessary to perform its duties, from spare part listings to relevant information on each individual aircraft. In the brain, highly qualified, competent people will monitor the progress of their fleet all over the world. All technical problems will be communicated to the brain, where decision-makers will recommend corrective action after considering all relevant information. The information the brain receives will either be directly from the onboard computer of the aircraft, or it will be from a technician on the ground servicing the aircraft. Not only will the technicians of the future be equipped with the traditional toolbox, but he will also be equipped with technology that will directly connect him visually with the brain. A small camera will allow co-ordinators in the brain to exactly see what the technician is doing. Tasks like visual inspections will 'physically' be performed by the technician but 'mentally' by the co-ordinator. The skills will therefore reside with the technician and the knowledge with the co-ordinator. In the case where a component must be replaced, the co-ordinator will guide the technician through the process on how to perform the task. The procedure will be monitored by the co-ordinator, because he is in visual contact and the co-ordinator can at any time consult the procedure manual, because he has instant access to it. The technician will therefore act as remote robot, 'controlled' by the co-ordinator. The co-ordinator will act as the brain and the technician as the hand. The brain will possess all the knowledge, know-how and decision-making capabilities, while the technician will possess the skills of performing the required actions.

The line maintenance system is shown in Figure 7.1, which approximates the physiological system of the human body. The whole system is considered to be a technology and this might be the way line-maintenance technologies are headed in the future.

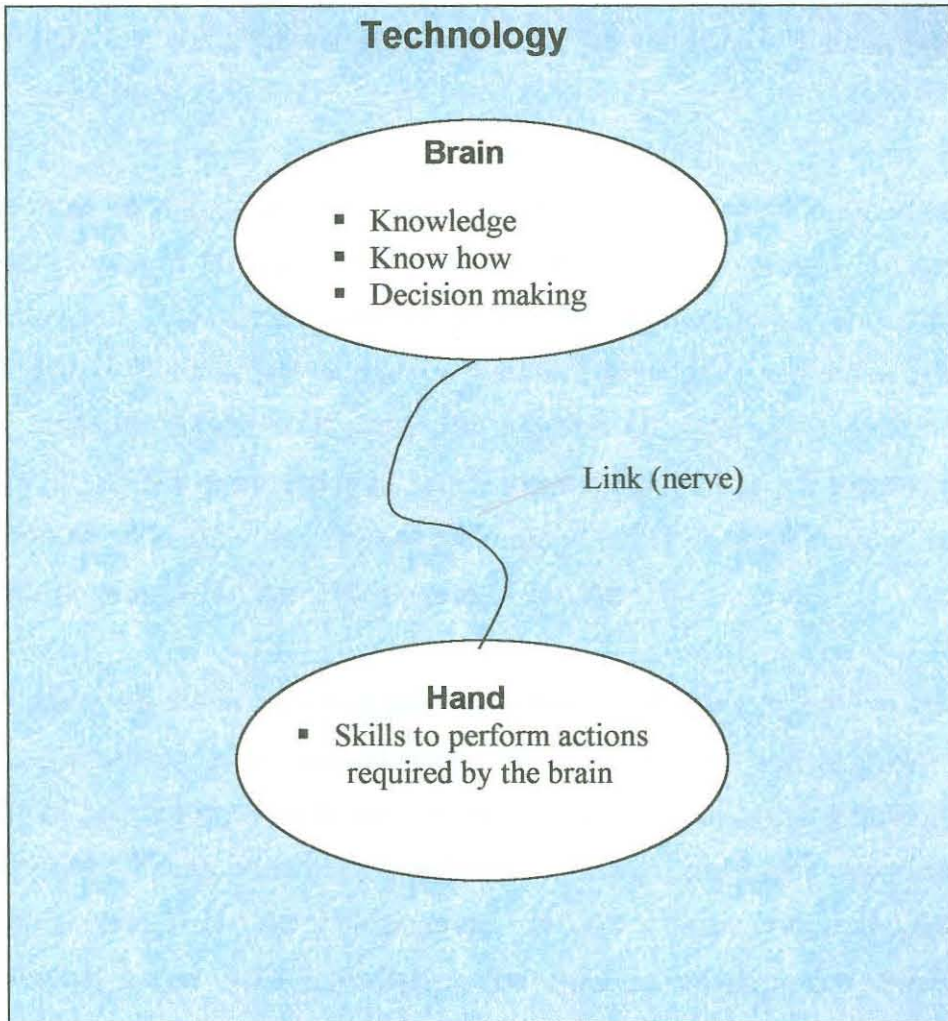


Figure 7.1: Line maintenance system