MAINTENANCE TECHNOLOGY TRANSFER IN THE SOUTH AFRICAN AVIATION INDUSTRY

by

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Summary

Title: Technology Transfer in the South African Aviation Industry

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The importance of technology and the management thereof is increasingly being recognised as an important strategic consideration by organisations. Technology underlies every aspect of modern organisations. Specialised personnel should therefore be responsible for the management of technology. The technology used by organisations should be competitive in order for the organisation to be competitive in an increasingly educated market. Organisations should therefore endeavour to manage technology and the aspects surrounding it effectively.

One of the important aspects to be considered in the management of technology, is the transfer of the most appropriate technology to the organisation. Technology is most often developed outside an organisation or as a separate function of the organisation. This necessitates the transfer of the technology from a developer environment to a user environment. The knowledge of technologies used by an organisation, the technologies available to organisations and the technologies used by competitors, may assist decision-makers in selecting the most appropriate technology.

Technology resides in three key areas namely that of skill, equipment and knowledge. Technology residing in these respective areas may enter an organisation via different mechanisms, and some are more effective than others. This study was launched because of the suspicion that aspects surrounding technology are being neglected in the South African aviation

industry. In view of the fact that technology is widely applicable in any organisation, this study will be limited to the maintenance function in the aviation industry.

The study is divided into three main sections namely, an extended literature study, research in industry and a discussion on the findings of the research with reference to the literature study.

The literature study introduces the reader to the aspects surrounding technology, and especially the transfer of technology. Aspects surrounding the transfer of knowledge, which is becoming an increasingly important part of technology, is also addressed. The reader is then further introduced to the aviation industry and to the aspects involved in the maintenance function in the industry. The literature study is concluded with a look at technological developments in the industry.

The research involved the gathering of information through the completion of a questionnaire, by individuals working in the industry. The questionnaire was concerned with aspects surrounding the transfer of technology.

This investigation found that technology transfer occurs internally and also externally to local companies. The perceived effectiveness of the transfer efforts was higher than anticipated. The investigation identified a gap between the technologies utilised and the technologies available to the companies. The investigation also indicated that there was uncertainty to whether formal transfer strategies existed in the companies and whether dedicated people were overseeing such programs. Finally barriers to the effective transfer of technology were identified.

The findings of the research are presented graphically and are then discussed with reference to the literature study. The most important main aspects involved in the transfer of technology are then summarised in a generic model. The purpose of the model is to serve as a reference in the early

planning stages of a technology transfer project, and also to serve as guide against which the progress of the project can be measured.

Aspects considered in this study are felt to assist organisations in the proper management of technology with special reference to the transfer of appropriate technology. By identifying aspects to be considered in the transfer of technology process, this study provides useful inputs to the strategic decision-making and planning process.

Key words: technology transfer; technology management; technology transfer mechanisms; appropriate technology; technology transfer process.

Opsomming

Titel: Tegnologie Oordrag in die Suid- Afrikaanse Lugvaart Bedryf.

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Die belangrikheid van tegnologie en die bestuur daarvan, word toenemend erken as 'n belangrike strategiese oorweging deur organisasies. Tegnologie onderskryf alle aspekte van die moderne organisasie. Gespesialiseerde personeel moet daarom verantwoordelikheid aanvaar vir die bestuur van tegnologie. Die tegnologie in organisasies moet mededingend wees sodat die organisasie mededingend kan wees in 'n toenemend ontwikkelende mark. Organisasies moet, om hierdie rede, tegnologie en aspekte rondom tegnologie behoorlik bestuur.

Een van die belangrike aspekte wat oorweeg moet word in die bestuur van tegnologie, is die oordrag van toepaslike tegnologie na die organisasie. Tegnologie word dikwels buite die organisasie ontwikkel, of in 'n aparte afdeling van die organisasie. Dit noodsaak die oordrag van tegnologie vanaf 'n ontwikkelaar omgewing na die gebruiker-omgewing. Die kennis van die tegnologie wat deur 'n organisasie gebruik word, die tegnologie wat beskikbaar is aan die organisasie en die tegnologie wat mededingers gebruik, kan besluitnemers help met die uitsoek van die mees toepaslike tegnologie.

Tegnologie word aangetref in die drie sleutel areas, naamlik bekwaamheid, toerusting en kennis. Die tegnologie wat in die drie areas aangetref word, kan 'n organisasie binnekom via verskillende meganismes, waarvan sommige meer effektief is as ander. Hierdie studie is geloods omdat die vermoede bestaan dat aspekte rondom tegnologie verwaarloos word in die Suid Afrikaanse Lugvaart bedryf. Omdat tegnologie 'n baie wye toepassing het in

enige onderneming is hierdie studie beperk tot die instandhoudingsfunksie in die lugvaart bedryf.

Die studie is in drie hoofdele verdeel naamlik: 'n uitgebreide literatuurstudie, navorsing in die industrie en 'n bespreking van die bevindinge uit die navorsing, met verwysing na die literatuurstudie.

Die literatuurstudie stel die leser bekend aan aspekte rondom tegnologie en veral die oordrag van tegnologie. Die oordrag van kennis wat 'n al meer belangrike deel van tegnologie word, word ook aangespreek. Die leser word verder bekendgestel aan die lugvaartbedryf, asook die aspekte betrokke in die instandhoudingsfunksie in die bedryf. Die literatuurstudie word afgesluit deur te kyk na nuwe tegnologiese ontwikkelings in die bedryf.

Die navorsing het behels die insameling van inligting deur die voltooing van 'n vraelys deur individue wat in die bedryf werk. Die vraelys het gehandel oor aspekte rondom die die oordrag van tegnologie. Hierdie navorsing het gevind dat daar wel interne asook eksterne tegnologie oordrag plaasvind in die onderskeie maatskappye. Die gevoel is dat die effektiwiteit van die tegnologie oordrag projekte hoër is as wat aanvanklik vermoed is. Die navorsing het 'n gaping geidentiviseer tussen die tegnologie wat tans deur die maatskappye gebruik word en die tegnologie wat beskikbaar is aan die maatskappye. Die navorsing het ook aangedui dat daar onsekerheid is of daar enige formele tegnologie oordrag strategië in die onderskei maatskappye bestaan en of daar toegewyde mense is wat omsien na die tegnologie oordrag funksie. Laastens is daar verskeie hindernisse geidentifiseer wat in die pad van gladde tegnologie oordrag staan.

Die bevindinge van die navorsing word dan grafies voorgestel en bespreek met verwysing na die literatuurstudie. Die belangrikste oorhoofse aspekte wat betrokke is by die oordrag van tegnologie, word dan saamgevat in 'n generiese model. Die doel van die model is om as verwysing te dien tydens die beplanningsfase van 'n tegnologie oordrag projek, asook 'n maatstaf waarteen die vordering van so 'n projek gemeet kan word.

Die gevoel is dat aspekte wat oorweeg word in hierdie studie, organisasies kan help in die behoorlike bestuur van tegnologie, veral in die oordrag van toepaslike tegnologie. Met die identifisering van aspekte wat oorweeg moet word in die tegnologie oordrag proses, voorsien hierdie studie bruikbare insette tot die strategiese besluitneming- en beplanningsproses.

Sleutel woorde: tegnologie oordrag; tegnologie bestuur; tegnologie oordrag meganismes; toepaslike tegnologie; tegnologie oordrag proses.

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"Winners do what losers don't want to do."

- Dr. Phillip C. McGraw –

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