

## MANAGEMENT OF TECHNOLOGY SEMINARS and COURSE – OVERVIEW AND INTRODUCTION

### 1. WHY MANAGE TECHNOLOGY?

Very few people in the world do not have some general personal understanding of what technology is and yet very few do have a formal, academic understanding of what the concept of technology entails. So why would one bother to formalize the notion of technology and then develop the body of knowledge to manage this “phenomenon”?

The first part of the answer is found in the role technology is playing in the modern world society – it is ubiquitous and critical to the well-being of individuals, societies and the nations of the world. There is no longer any debate about that statement, so what is technology and why do we need to manage technology?

The answer to the first question is provided by a rather elegant definition proposed by Rias van Wyk:

**“Technology is created capability** – it is manifested in artifacts .... it is not a free gift of nature, it does not come about by itself. It is the result of deliberate action.....”

The more complete version of this definition is provided and discussed in the MoT course material, along with several other definitions, selected from the large number of such definitions. For the moment, this definition tells us that technology is, by its very nature, artificial. It is capability created by human beings to

- Improve the performance of our present artifacts; and/or
- Discover and develop new artifacts.

Because it is “the result of deliberate action”, the notion of the responsibility to manage these deliberate actions is an inherent part of the creation and utilization of technology.

### 2 MANAGEMENT AND LANGUAGE

A formalized language is essential to facilitate thinking and communication – this is clearly understood in all branches of science and other professions.

Only through an appropriate language do we become able to manipulate concepts and develop new insights and constructs beyond the “intuitive”. Observing nature can just provide “empirical” knowledge – only by

extending empirical insights into theories and verifying such theories do we arrive at the science and technology base of modern society. No wonder then that, for an important subject such as technology, there is a “body of knowledge” to allow its proper creation and management.

***It is the purpose of these courses on MoT to provide prospective practitioners (users and managers) of technology with a formalized set of concepts and constructs to do their work in a practical and efficient way.***

One example of this language is shown in the diagram, depicting one definition of MoT. Stated in words it says: *Management of technology consists of the management of the acquisition and utilization of technology to achieve the strategic goals of the enterprise in its environment.*

### 3 COURSE TOPICS

One essential aspect of the transfer of knowledge on a given subject is the structure within which the content matter is arranged – often referred to as the “subject taxonomy”. For so-called “mature subjects” like physics, mathematics, and engineering, there is an almost world-wide agreement on subject taxonomies. For more recently developed subjects, such as MoT, taxonomies tend to be more the result of personal preference. However, some agreement has developed over the years, and therefore, in addition to the general introduction, the following range of topics is discussed in the MoT courses:

- Technology Strategy
- Technology Dynamics
- Capability
- Innovation
- The Corporate Environment.

The learning objectives of the ***Technology Strategy*** topic are to understand the process of linking technology to the business concept and the value creation process - to understand the relationship between business strategy, technology and product life cycles.

Learning objectives of the ***Technology Dynamics*** topic are to understand the evolutionary forces and patterns that lead to the development of technology over time and in societies, and MoT as human responsibility. To understand the basic definitions of technology, the dynamic nature of technology and its reflection in management decision making, as well as the lateral thinking stimulated by the functional perspective; to become aware of the particular context created by observing technology in a specific country.

Learning objectives of the **Capability** topic are to understand the concept of technology as capability and to develop the language and graphical means to record and communicate practical information regarding capability to non-technical senior management. To apply the same framework to quantify technology gaps that need to be addressed and the ways and means to bridge these gaps. To develop some skill in the application of the concepts.

The objective for the **Innovation** topic is to trace the nature and content of technology-based innovation, to understand the difference between invention and innovation and to confirm the key role of the human resource and the working environment on innovation.

The objective for the topic on the **Corporate Environment** is to identify and understand the external factors that influence the enterprise, and more specifically the management of technology in the enterprise. Technology could provide competitive advantage through new products or product attributes or could serve to counter threats posed by competitors, government policies or even changes in nature. The role of government and government policies to support or hinder enterprise success should become “visible”.

#### 4 COURSE OPTIONS

We offer 3 options to study this subject:

- **Option 1: Compact course**, consisting of 8 hours of voice and power point presentations, with notes on selected topics, not available in open literature, and copies of the Power Point slides. The course is presented on our website and could be completed at the desired rate determined by each client.
- **Option 2: Full course**, consisting of 16 hours of voice and power point presentations, with notes on selected topics, not available in open literature. Several assignments are included. These need to be completed and submitted for comments by the course presenter. There is also the facility to communicate with the presenter via the VanThinking website. It is suggested that the material be accessed and studied over a period of about 6 weeks, to allow submission and commenting on assignments.
- **Option 3: Tailored, in-person course**, presented at an appropriate site of your choice, where the course presenter will present the material in 16 hours, over a period of 4 days, roughly

4 hours per day, plus some time to comment on assignments, and coach learners in the application of the concepts presented in the course lectures. Students should therefore budget for 4 full working days to attend the course. The number of persons in the class will be limited to 10 for the standard fee. The cost for additional learners could be negotiated in advance.

These courses are based on practical experience over more than two decades and have been presented at many locations, from academic programs at University Engineering Schools to tailored interaction with private enterprise teams.

We look forward to hearing from you!

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