

5th Annual INCOSE SA Conference
Tutorials : 12 August 2008



Tutorial 1

Slash Project Time with Evolutionary Methods

Presented by Niels Malotaux

Tutorial 2

Engineering Service Science in a Rapidly Changing Economy

Presented by Dr Richard Weeks

Tutorial 3

System Design

Presented by Dr Gerrit Viljoen

More details available on registration form which can be downloaded from
www.incose.org.za.

Tutorial 1

Slash Project Time with Evolutionary Methods

Delivering the best possible results in shorter time than you ever imagined

Niels Malotaux

In today's competitive environment, it's not enough to run a project until it is ready. We must accomplish ever more in less time. This calls for constantly optimizing the way we run projects, beyond what we can learn from basic project management education and even beyond what we normally learn from actually running projects. Not all theory works as expected in practice and our intuition from time to time does fail to make us doing the right things. We cannot ignore that psychological factors play an important role both in individuals, in teams, between interdisciplinary teams and between cultures. Therefore we'll have to recognize and understand these factors, before we can do something with (not about!) them. In this tutorial we will present methods that have been proven in practice to make projects deliver more successfully in significantly shorter time. These methods are the result of ongoing study of issues we encounter in projects, how we can overcome these issues in the real practice of projects, *and* how we can most efficiently introduce these methods for quick and lasting results.

The basic method we use is the time-honoured Plan-Do-Check-Act (PDCA- or Deming-) cycle, which, if applied properly (that's the catch!) will help us very quickly to learn what the real requirements and solutions for the project-result are, what the best ways to execute the project are and even how we can continuously optimize the methods used. By introducing "mutations" in the Act-phase of PDCA frequently, keeping what works better and shelving what works less, we force rapid evolution. Therefore we call these methods Evolutionary Project Management Methods (Evo). These methods are taught and coached in actual development projects with remarkable results: Projects start to routinely deliver Quality On Time: What the customer needs, when he needs it, without overrunning the time and money budgets, creating customer success.

Elements of these methods are solving the discipline problem, exploiting our intuition mechanism, continuously balancing priorities, keeping focus, coping with differences in disciplines and cultures, adopting a Zero-Defect attitude and preventing any stakeholder's complaints. It integrates Planning, Requirements Management and Risk Management into *Result Management*.

At the end of this tutorial I will ask you "Can you afford not to use Evo?". You will know the answer.

What you will learn:

- You will be more aware of psychological factors that make us not always do the right things. Understanding these factors is a first step in doing something about it.
- You will learn how to effectively deal with the risks of being late in your daily work, by using methods you can start using immediately, with immediate results: next week already you will work more relaxed, while producing more. Unbelievable? That's what many people thought, until they did it.
- You will learn how to live up to your promises, both as an individual and as a project team.
- You will learn details crucial for success and pitfalls to avoid. Developers will learn how to organize their work, project managers how to get real control, and management how to quickly gauge the health of the project.
- You will have organized your own work of the coming week the Evo way and we will discuss how this compares with how you would have organized your work without Evo.

Presenter background

Niels Malotaux (niels@malotaux.nl) is an independent Project Coach specializing in optimizing project performance. He has over 30 years experience in designing hardware and software systems, at Delft University, in the Dutch Army, at Philips Electronics and 20 years leading his own systems design company. Since 1998 he devotes his expertise to helping projects to deliver Quality On Time: delivering what the customer needs, when he needs it, to enable customer success. To this effect, Niels developed an approach for effectively teaching Evolutionary Project Management (Evo) Methods, Requirements Engineering, and Review and Inspection techniques. Since 2001, he taught and coached some 80 projects in 20+ organizations in the Netherlands, Belgium, Ireland, India, Israel, Japan, Romania and the US, which led to a wealth of experience in which approaches work better and which work less well in practice. He is a frequent speaker at conferences, see www.malotaux.nl/nrm/Conf.



Contact

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Tutorial 2

Engineering Service Science in a Rapidly Changing Economy

Dr Richard Weeks

THEME

Sense and decision making in the winds of change and perfect storm of the South African dual economy.

OBJECTIVE

- To provide delegates with an awareness of the trends associated with the global services and South African dual manufacturing and services economy and the associated management implications thereof.
- To introduce delegates to the Cynefin sense making framework as a means for identifying appropriate management response in relation to context.
- To assist delegates to gain an insight into the dynamics associated with the nurturing of resilient institutions, able to with stand the winds of change and the perfect storms of the global economy.

CONTENTS

- Introductory session: Brief introduction and getting to know each other – arrange in groups of 5 at a table.
- Work Groups: Identify the 10 major challenges confronting South African institutions.
- Presentation: Global and South African economic trends and their impact on institutions from a management perspective.
- Presentation: An introduction to the Cynefin sense making framework developed by Prof Dave Snowden and its relevance from a services science management perspective.
- Work Groups: Make use of the Cynefin framework to make sense of the 10 challenges they identified.
- Presentations and interactive group discussions: Managing the unexpected: alternative strategic and operational perspectives – use of case studies for clarification.
- Questions: How are South African institutions positioned for dealing with a complex services economy? What are the organisational culture and skills implications?

EDUCATIONAL QUALIFICATIONS

National Diploma for Technicians (Electrical Engineering) 1973.
(Distinctions in Mathematics T2, & T3 and Applied Thermodynamics).

South African Institute of Electrical Engineers Examination for Graduate Membership
November 1973. Elected as a Graduate Member April 1974.

B.Com (University of South Africa) 1985.

Major Subjects: Business Economics & Transport Economics.

Subsidiary Subjects: Economics; Applied Economics; Industrial Psychology;
Accounting; Mathematics; Commercial Law; Management Information Systems; and
Farm Management.

B.Com Hons (University of South Africa) 1987.

Major Subjects: Public Relations Management; Business Strategy; Advanced Internal
Problems of Management; International Business; Advanced Advertising
Management. (Distinctions in: Public Relations and Advanced Internal Problems of
Management).

M.Com. (Cum Laude) (Rand Afrikaans University) 1989.

Thesis: The interactive role of organisational strategy and culture: a strategic
management approach. (University Colours awarded for academic achievement).

D.Com. (Rand Afrikaans University) 1991.

Thesis: The management of strategic and organisational change within a turbulent
context: a strategic management approach.

D.Phil (Rand Afrikaans University) 2002.

Thesis: Key determinants in strategic realignment within a digital global business
environment.

Tutorial 3

System Design

Dr Gerrit Viljoen

ABOUT THE AUTHOR

Dr Gerrit Viljoen has worked at Kentron (now Denel Dynamics) over the last 28 years where he has gained experience in the fields of modelling, control systems, guidance systems, operational research, system engineering and system design on anti-tank, anti-aircraft, air-to-air and air-to-ground missiles and unmanned combat air vehicles. He has also contributed to the Rooivalk attack helicopter's weapon system and operational research programme. He has presented papers at the small satellite and control conference in 1996, the 1998 SPIE Aerosense conference in Orlando and the 2000 South African Ballistics conference in Durban. He has obtained his PhD in 2000 from the University of Stellenbosch on remote controlled vision that can be used to control unmanned vehicles and missiles. He has been working as a System Design Specialist since 1996 on a number of new product development programmes, some in conjunction with overseas partners. His current research interests are in Systems Design as a speciality area under Systems Engineering.

TUTORIAL SUMMARY

Systems design is the about the synthesis of a systems architecture that can meet the requirements that has been identified for a system. System design refers to system level design, and not to detailed subsystem design. System design is that part of the system engineering process where some of the most important decisions are made that define the system's performance, limitations, growth capability and cost to a very large extent.

The system design tutorial will:

- a) Introduce the attendees to the field of systems theory and systems thinking,
- b) Describe the role of the system designer in the system engineering process,
- c) Review the current standards on the system design process and expand the system design process in more detail,
- d) Teach some methods and tools for requirement analysis, system synthesis and system evaluation, and
- e) Work through an example to illustrate the system design process and concepts. Please bring a calculator; we are going to engage in design and quantitative thinking!

The system design tutorial is a full day tutorial that is targeted at system engineers, designers of new product systems and academics in system engineering.