**Enchantment Chapter**

**INCOSE**
International Council on Systems Engineering

# Engineering the Structure and Strategy of Agile Systems and Enterprises

## A One-Day Tutorial with Professor Rick Dove

### Wednesday, 12 March 2008,  8:00 a.m – 5:00 p.m.
*Location: Marriott Albuquerque Pyramid North, Albuquerque, NM*

## ABSTRACT

**Systems today must show agile capabilities for effective response in the face of continual change**. Enterprises thrive only *while* they mirror the environment they serve. Products lead only *while* they fit new demands better than others. Agile systems provide effective response in the face of uncertainty and unpredictability.

Agility in systems and enterprise is constrained or enabled by the structure and strategy of functional architecture. **This tutorial develops engineering design tools based on concepts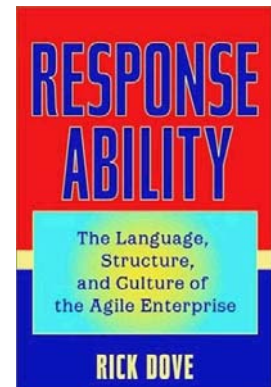 and principles revealed in case studies of highly adaptable systems.** These tools are then employed to identify response requirements and to structure functional architecture for reconfigurable-reusable-scalable response ability. **The tutorial builds a bridge between formal concepts and familiar understanding – revealing agile system concepts as both natural and intuitive.**

This tutorial is appropriate for systems engineers, program and project managers, proposal and acquisition teams, and those who design or analyze processes, strategies, and policies.
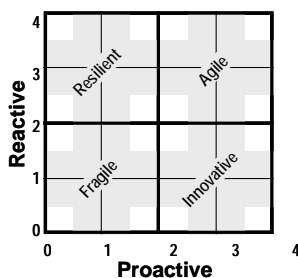
## TUTORIAL DETAILS

Professor Dove teaches agile systems concepts as a 5-day graduate-level course. This 1-day tutorial covers the core concepts, with fewer case studies, and with full-group mini-exercises rather than multi-group design projects. The tutorial is divided into 3 units. Each unit presents real case studies from which abstractions are drawn and ends with a short group exercise.

- *Fundamental Agile-System Concepts*: This unit illuminates several case studies of agile systems to identify and abstract agility-enabling design principles. Three fundamentally different functional architecture models are examined, and an exercise extracts factors that differentiate response-ability from these functional architecture models.

**RESPONSE ABILITY**

The Language, Structure, and Culture of the Agile Enterprise

**RICK DOVE**

**Response Proficiency**

- *Agility in the Large*: This unit differentiates Class 1 (reconfigurable) and Class 2 (reconfiguring) agile systems. The concepts of change proficiency in both reactive (resilient) and proactive (innovative) response domains are introduced. The soft and hard sides of enterprise agility are discussed. Confusion about agility in the literature and in software development practices is sorted out. The ten core principles of Reusable / Reconfigurable / Scalable (RRS) functional architecture are differentiated. An exercise employs Response Ability analysis to develop response requirements.

- ▪ *Agile Lifecycle Extension*: This unit shows underlying commonalities among various Agile Development processes, and their basis in RRS architectural concepts. Requirements development for uncertain and constantly changing system environments is shown as a common extensible theme from development through subsequent phases of the life cycle. A case study of substation design illuminates a seamless common process throughout an extended lifecycle. A final exercise relates agile systems theory to everyday agile systems that are familiar and comfortable.

> **Tutorial Objectives:**
> - Introduce domain independent core characteristics of agile systems.
> - Introduce methods and tools for developing requirements and synthesizing agile designs.
> - Show how common agile functional architecture extends system life cycle.
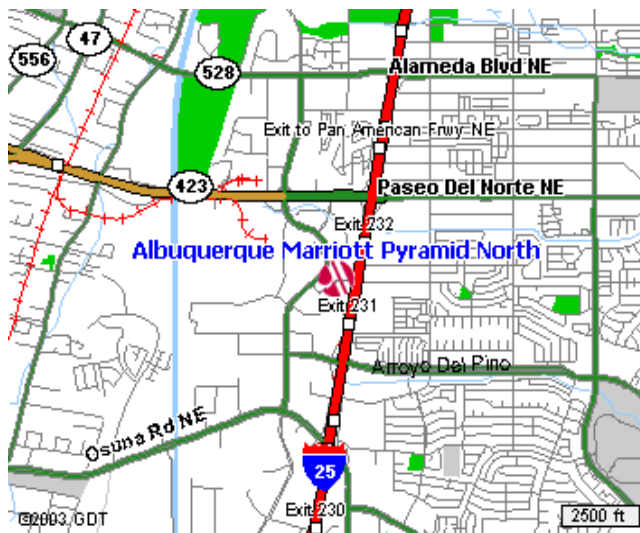> - Bridge formal concepts to familiar understandings.

*Tutorial cost includes printed slides, references, and links for downloading electronic versions.*

## THE PRESENTER

Rick Dove is Industry Professor at Stevens Institute of Technology, where he researches and teaches graduate courses in Agile Systems and Enterprises. He is Chairman of Paradigm Shift International, an agile systems consultancy, and a founding partner of Kennen Technologies, an IP company with a semantic analysis pattern-matching co-processor. He has run companies producing software, manufacturing machinery, fine wine, rapid manufacturing services, strategic planning services, and interim executive services. He has led engineering, R&D, IT, information security, sales, and marketing in a variety of companies. He was co-principle investigator of the 1991 project at Lehigh University that gave birth to the concept of Agile Enterprise, and led the subsequent Agility Forum's research and industry involvement activity. He is author of two books and over 175 publications. A full resume and publication list can be found at www.parshift.com/Files/PsiDocs/RkdBio.pdf

## MEETING DETAILS



**Location**: Marriott Albuquerque Pyramid North, 5151 San Francisco Rd NE, Albuquerque, NM 87109, (505)-821-3333, URL: "http://Marriott.com/ABQMC".

**Directions**: From Junction of I-40 and I-25 in Albuquerque take I-25 North to exit 232, Paseo Del Norte. Take a left and cross the freeway to the south-bound Frontage Road.

**Package**: The tutorial cost includes notes, catered lunch and snacks. Acknowledgement of payment receipt will be by e-mail.

**Payment**: Please submit the attached registration form and $150 (member) or $175 (non-member) as indicated on the form. See the website for opportunity to pay with PayPal. www.incose.org/enchantment

# TUTORIAL ENROLLMENT FORM (Submit with Payment)

### *"Engineering the Structure and Strategy of Agile Systems and Enterprises"*
Wednesday, March 12, 2008
**Albuquerque, NM**

→→→ *PLEASE COMPLETE AND RETURN BY WEDNESDAY, MARCH 5*

Name: _____ Position (optional): _____

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Circle the enclosed amount:

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| **$150** | **$175** | **$230** |

Payment by CHECK: submitted with this form (preferred) or at the door for those pre-registered.

Payment by CREDIT CARD: can *only* be accepted via the link at the INCOSE Enchantment web sight: www.incose.org/enchantment. Credit card payment will *not* be available at the door.

Mail completed form(s) and a check made out to "INCOSE Enchantment Chapter" to:

> **Spring 2008 Tutorial**
> **INCOSE Enchantment Chapter**
> **P.O. Box 51628**
> **Albuquerque, NM  87181-1628**

Questions? Please contact Rodger Oetzel at rpoetzel@aol.com or Murray Elowitz at melowitz@comcast.net.