

**“Running defence projects in a tough economy”**  
**Hosted by IBM Rational**  
**September 28<sup>th</sup> 2011, The Bristol Hotel, BS1 4QF,**  
**United Kingdom**

Times are tough. Budgets are being cut. Now there are many more variables to consider. Faced with a challenging economy, decisions that are best for long-term growth are at risk of being ignored for short-term profitability.

But are decisions to reduce scope, compromise quality and lower expectations affecting your competitive advantage?

When you make a good decision, it's usually because you are well-informed. When relevant data are available, even across departmental silos, **confidence and engineering excellence can be maintained under economic pressure.**

IBM Rational is pleased to announce a one-day seminar for the government, aerospace and defence community.

You will have the opportunity to hear the views of key thought-leaders and technology strategists, network with industry peers and discover practical ways to maintain and improve your competitiveness in a tough economic environment.

Time	
8:30-9:00	<i>Registration and Breakfast</i>
9:00-10:00	Welcome and Keynote - Richard Crisp (Director - Systems, Services and Assets, IBM)
10:00-10:30	Risk & Governance - Economics of (Systems) Software Development
10:30-10:45	<i>Break</i>
10:45-11:25	Customer presentation: How to plan technology strategy in a tough economy
11:25-12:10	Product Portfolio Management – Keeping Stakeholders Happy
12:10-1:00	<i>Lunch</i>
1:00-1:45	Capability Portfolio and Performance Management – Architecture and the “what-if”
1:45-2:30	UPDM, a UML/SysML Implementation of DoDAF/MoDAF for Military and Commercial Architectures
2:30-3:15	Customer presentation: TINA – Simply the best?
3:15-3:25	<i>Break</i>
3:25-4:15	Working Smarter Not Harder, Tips and Tricks for Strategic Asset Reuse
4:15-5:00	Aerospace & Defence Roadmap
<b>5:00-5:15</b>	<b>Closing Statements</b>

## *Abstracts*

### **Aerospace and Defence Roadmap**

**Brian Nolan PhD (IBM)**

A&D companies are facing an increasing business challenges such as global program execution, increased global competition, economic uncertainty an declining government budgets, increasing regulation, and increased risk in fixed price versus cost plus contracts. This session will describe the future roadmap of the IBM Rational solutions for the Aerospace and Defence Industry and our approach to helping our customers deal with:

- • Complexity
- • Managing Risk and Program Governance
- • Compliance
- • Security

We will include information about DO-178B and the upcoming DO-178C relative to the Modelling and other supplements, support for ARINC 653 and other topics specific to Aerospace and Defence. Through an integrated platform, IBM Rational solutions for Aerospace and Defence address the major disciplines in large scale systems development:

- Systems Engineering
- Embedded Software Development
- Collaboration between Engineering Disciplines
- Enterprise Architecture

These disciplines were previously managed only in silo-ed architectures using, at best, inter-product hand-offs, and made real collaboration and efficient development impossible. This roadmap session will chart a course to an integrated, non-proprietary approach to managing all aspects of complex systems development in Aerospace and Defence - an approach which offers a many-fold increase in systems development effectiveness.

### **Capability Portfolio and Performance Management**

IBM Software Group Rational Capability Portfolio and Performance Management solution allows agencies and organization to manage capabilities from inception (proposal ideation) to performance monitoring of the holistic portfolio dashboards. The web based solution implements configurable governance via role-based stage-gate workflow to support best practices and methodology frameworks such as defense acquisition, capital planning & investment control, agile and pragmatic life-cycles as examples. The process gives agencies and organizations an optimal value-add decision support for prioritization. As a result, stake-holders to leverage cost/benefit trade-off analysis with configurable weighted criteria with the likes of strategic (mission) alignment, time, cost, benefit, feasibility/significance, "what-if" investment analysis results and risk. The ability to effectively prioritize the capability portfolio optimizes the "rack and stack" justification (quantifies)

of our investment priorities. The solution also integrates with enterprise architecture, requirements management and product line engineering. This session will demonstrate these concepts.

## **How to plan technology strategy in a tough economy**

**Professor Paul Davies (Thales)**

Faced with shrinking research and technology budgets, it is ever more important to provide a focus for low-TRL investments. It is no longer viable to fund blue-skies research in 'interesting' areas and search for exploitation routes based on results. Technology and technique plans need to be explicitly linked to future market opportunities, capability offerings and product / service portfolios. This presentation will discuss roadmapping techniques mapping these diverse concepts, that provide the end-to-end chain required to understand why we are investing in specific low-TRL choices. The overall visualisation enables us to show the impact on the business strategy of changing market models.

At the very low TRL end, a number of candidate R&T investment opportunities exist, with less explicitly structured links to the final market opportunities. The presentation will also discuss techniques for decision-making between the alternatives, whilst maintaining candidate links into the structured roadmaps, with the aid of example tools.

## **Portfolio Management – keeping stakeholders happy**

**Andrew Wallace, PPM Market Manager (IBM)**

What happens when you are asked to do more with less? When budgets are cut, how do you remain competitive? By analyzing and collectively managing a group of current or proposed projects based on numerous key characteristics, it is possible to gain visibility into each project's total expected cost, consumption of resources, expected timeline, benefits to be realized, feasibility/significance and relationship or inter-dependencies with other projects in the portfolio. This gives agencies and organizations the ability to base project and product decisions on factual analysis rather than gut feeling or knee-jerk reactions. As a result, stakeholders gain confidence in their investments as risk reduction and "what-if" analyses become key components to success.

## **Economics of (systems) software development**

**Brian Nolan PhD (IBM)**

This session proposes that software development is more a discipline of economics and engineering. He summarizes that idea here, talks about why traditional development methodology has suffered such a high failure rate, and reflects on the improved atmosphere for developers that is found in an efficient, well-governed project.

## **UPDM, a UML/SysML implementation of DoDAF/MoDAF for military and commercial architectures**

**Graham Bleakley (IBM)**

Over the past few years, system architects have often used UML and SysML to capture DoDAF and MoDAF architectural views. But without guidance of a well-defined standard, many of these attempts have resulted in ad hoc and un-reusable solutions. The Unified Profile for DoDAF and MoDAF (UPDM) specifies a standard for using UML/SysML to capture DoDAF/MoDAF views. This presentation provides an overview of this profile, including its metamodel, the mapping of DoDAF/MoDAF artefacts to UML/SysML and a demonstration of the profile in Rational Rhapsody. Also, Rational Rhapsody's UPDM Profile and defence workflow interface between Rational System Architect and Rational Rhapsody is demonstrated.

## **TINA – Simply the Best?**

**Gordon Woods (BAE Systems Submarine Solutions, INCOSE)**

Is having decades of experience of developing a single product an advantage or disadvantage? Using similar examples from the biological and the art world we shall explore how both man and nature can overcome the inexorable pressure to 'reuse with only minor improvements' which can so often lead to stagnation. Sometimes the only real advance is when there is a jump across an evolutionary/technology gap. Perhaps the same principles should be applied to Requirements Engineering. Should we therefore reuse or always start with a fresh palette? This is so important in the submarine manufacturing world where technological advances outpace the design cycle and the need to learn from previous lessons is more acute than ever.

## **Working Smarter Not Harder, Tips and Tricks for Strategic Asset Reuse**

It's not easy to build a smarter product. Now try to build more than one at a time - while planning for the next release or client trend. The reality is no one builds just one. And while technology is a driver, it can also be a hindrance as more and more complexity is introduced into the development lifecycle. Now think of the role of software - and all the variants and combinations that can be introduced at the drop of a hat - and you've got a dichotomy between business and engineering - not to mention the cascading affects that on your mechanical and electrical engineering disciplines that can't be ignored. Ad the reality is - tools are no longer

enough. Companies must seek industry best practices to design deliver and manage these smarter product lines.

This presentation will showcase how the Rational Solution for Systems and Software Engineering can provide an integrated life cycle solution for variation management. And with our expertise in systems engineering and working across systems of systems, we will demonstrate how to bridge your engineering silos and align with development teams your value chains. Finally we will introduce an automated and transformational approach to product line engineering through our relationship with BigLever Software.