The US/UK Bilateral on improving software acquisition - a UK view

Dave Thombs BSc PhD
All views expressed in this presentation are the personal views of the author and do not necessarily represent the views or policy of the Ministry of Defence.

‘Professional Services That Count’
Contents

- Personal.
- Background to the current problem.
- The task.
- Activities to date.
- Potential future joint activities.
- Expected benefits.

‘Professional Services That Count’
Personal

- Involved with software for 38 years.
- Developed my first assembler program for Elliot 803 in 1965

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Personal

- Involved with software for 38 years.
- Developed first program for Elliot 803 in 1965 in assembler.
- Joined MOD in 1973 - software development for internal ballistics.
- Since then, programming, analysis, test, research, QA, requirements, management of development and support teams, standards, safety, mission and security critical systems and costing.
- Left MOD in 2002 and set up a consultancy.

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Background

Problems with software dependent projects:

- “Achieving sufficient reliability in systems which are becoming increasingly integrated into the central activities of modern society.”
- “The difficulties of meeting schedules and specifications on large software projects,”
- “The education of software engineers.”
- “It is of the utmost importance that all those responsible for large projects involving computers should take care to avoid making demands on software that go far beyond the present state of technology unless the very considerable risks involved can be tolerated.”
- “Define a subset of the system which is small enough to bring to an operational state within 12 months, then build on that subsystem.”

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- “Define a subset of the system which is small enough to bring to an operational state within 12 months, then build on that subsystem.”
- “To a surprising degree, the conclusions of these studies agree with each other and remain valid; the recommendations continue to be wise. The chairman of several study groups briefed us. All had one message: very little action has been taken to implement the recommendations. If the military software problem is real, it is not perceived as urgent by most high military officers and DoD civilian officials. Our Task Force does not undertake to prove that is urgent; we do tell how to attack it if one wants to.” Our current Task Force could not state this any better.”

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Problems with software dependent projects

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More Background

- Sir Robert Walmsley and Mike Wynne agreed a number of actions, including,
  - ‘How to measure the progress of software development’
    - Identifying approaches
    - Identifying exemplars
    - Sharing best practice
    - Challenging existing models
    - “Self teaching” software field
    - Using external experts
    - Industry and government performance

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The Task

- Refine the question:
  - Identify UK and US ‘Hot Topics’
  - Exchange information
  - Define key problem areas and POC
  - Define quick wins
  - Plan for future joint activities

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Activities to date

- Meetings.
- Personnel involved.
- Hot topics identified.
- Information Interchange.
- Key Problem areas and POC identified.
- Potential Quick Wins.

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Meetings held:

- 10 June 2002 (UK)
- 27 September 2002 (US)
- 21 November 2002 (UK)
- 27 January 2003 / 31 January 2003 (US)

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**Personnel**

**UK**
Dr. David Thombs, SSS Ltd (UK lead)
Mr. Nick Pearse, PFG Group Leader
Mr. Terry Proffitt, PFG CF Team Leader
Mr. Chris Whittaker, PFG CF Software
*Mr David Ellis, DCP22, Commercial Policy*
*Ms Shonnag Allison, PFG CF Software*
*Mr Simon Dakin, PDG PM Head Project Management*

**US**
Dr. Jim Linnehan, OASA(ALT) (US Lead)
Ms. Kristen Baldwin, OUSD(AT&L)/SIS
Mr. Rob Gold, OUSD(AT&L)/SIS
Dr. Rich Turner, OUSD(AT&L)/SIS
Mr. Joe Jarzombek, OUSD(AT&L)/SIS
Mr. Tom Coonce, OSD/PA&E
Dr. John Bailey, IDA
Ms. Amanda Harrigan, OUSD(AT&L)/SIS
*Mr Russ Vogel, Executive Secretary, CAIG, OSD*

**Australia**
Mr. Matt Ashford, Liaison to USD(AT&L)/SIS

**Germany**
Mr. Manfred Muehlen, Liaison to USD(AT&L)/SIS

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Define UK Hot Topics

- AMS (Acquisition Management System) Guidance Material
- Software acquisition core competencies
- Software acquisition management training
- Software measurement
- Visibility of software supply chain
- Safety critical software
- DPA/MOD software acquisition and support policy forum
- Joint MOD/Industry acquisition and support forum
- Shortage of software engineers in defence industry, MOD and DoD
- SOUP (Software of Unknown Pedigree) in Mission Critical Systems
- Software Dependability
- Review of Applied Research Programme
- Review results of 1997 SIPIP (Software Intensive Projects Improvement Programme) study
- Key requirements for software

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Define US Hot Topics

- Policy
- Requirement determination and documentation
- Evolutionary Acquisition and Spiral Development
- Testing and Integration leading to successful IOT&E
- Software performance measures – metrics for management/oversight
- Process Maturity and Improvement (SW CMM/CMMI)
- Contracts – Intellectual property rights, incentives, past performance criteria
- Information Assurance (IA)
- Software Cost Estimating
- Collecting, disseminating and using Best Practices
- Software skills of acquisition workforce; shortage of SW engineers
- Strengthening and stabilizing the technology base

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Information exchange

- Information exchanged on most ‘Hot Topics’
- 22 MOD documents supplied
- 85 DoD documents supplied
- All reviewed!

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Common areas of interest

- Policy
- Requirement determination and documentation
- Evolutionary Acquisition and Spiral Development
- Testing and Integration leading to successful IOT&E
- Software performance measures – metrics for management/oversight
- Process Maturity and Improvement (SW CMM/CMMI)
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Common areas of interest -2

- Software Cost Estimating
- Collecting, disseminating and using Best Practices
- Software skills of acquisition workforce; shortage of SW engineers
- Strengthening and stabilizing the technology base
- IEP B88 (MOU between UK & US)
- Document Management System (Index of Materials)
- Software TRLs/software product maturity and software risk assessment
- Lack of a Joint MOD/Industry software acquisition (and support) forum

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Quick Wins

Still to be agreed, but the following look interesting:

- Joint development of a list of Key Questions for decision reviews.
- UK to get CPARS database design
- UK to get SRDR database design
- UK to get US DOD IT Acquisition Core Competencies and related courses
- US gets evolutionary acquisition
- UK to join PM Community of Practice (PM COP)
- Establish workspace for team documentation
- UK SAFSEC/US Integrity Assurance Collaboration
- Identified areas of international commonality

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Possible Joint Activities

- Acquisition milestones/gates/documentation
- Requirements
- Common process maturity model
  - Registered appraisal acceptance, potentially internationally
- Software TRLs
- Create a common set of competencies (common training, common guidance, common resources, etc.)

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Possible Management

- US/UK/Aus Management Group
- UK POC Advisory Group
- Joint MOD / Industry Advisory Group

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Plan for future joint activities

- To be defined at 31 January meeting
- Next meeting May 2003 UK

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Expected benefits

- Recognition at high level that we have a problem.
- Pooling of resources.
- Not re-inventing the wheel twice over.
- Different skills and experience brought in.
- Common view of the problems.
- Reduce cost over runs, schedule slip and meet requirements.
- No silver bullet - need to move forward in all areas.
- These issues won’t go away and can only get worse - must be tackled now.

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Any Questions

Dave Thombs
Slimbridge Software Services Ltd
Beresford House
Churchend
Slimbridge
Gloucester GL2 7BL
United Kingdom
Tel. 44 (0) 1453 890353
e-mail: dathombs@ntlworld.com
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