



SOFTWARE KEYNOTE ADDRESS

SCAF

22nd APRIL 2008

Supplier Engagement Team



MINISTRY OF DEFENCE

Software



“Procedural programs to schedule instruction streams on computers”

Source

Wikipedia



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Requirements



I saw the woman on the hill with the telescope



Some US facts

- **Boeing 777 has 1,280 processors using over four million SLOC; Ada accounts for 99.5 percent**
- **F-22 has over two million SLOC; 80-85 percent is Ada**

Source
Lyle N. Long, D.Sc
Pennsylvania State University

- **JSF has 20M+ and rising**



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Some more US facts

- **Software sales (2006) accounted for \$180 Bn**
- **Software errors cost U.S. economy \$59.5 Bn per year**
- **Boeing spent roughly \$800M on software for the 777,**
- **Aerospace provides ~ \$900 Bn economic activity and is over 15% US GDP, with 15+ million high quality jobs**
- **Currently US has 10 accredited software undergraduate programs yet 67 aerospace engineering programs.**
- **Additionally there are 109 software engineering Master's & 40 software Doctorate programs.**

National Institute of Standards Technology (NIST) 2007



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& more US....

- **IEEE offer Certified Software Development Professional (CSDP) program yet by Dec 2007 – worldwide only 575 have CSDP certification.**
- **NASA have more engineers over 60 than under 30.**
- **In 2005, the average age of an aerospace engineer was 54 [13].**
- **more than 26 percent of the aerospace workers will be eligible for retirement in 2008**

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Now for the UK...

- **UK Software spend £20Bn (2003) - ONS.**
- **Public Sector invested £12.4 Billion on software in (2003/4) - BCS**
- **UK own software investment ~1.1% GDP (2004) - ONS**
- **UK Purchased software ~ 0.7% GDP (US ~1.1%) ONS**
 - **UK total software ~1.8% GDP - ONS**
 - **Software companies account for 22% of the companies invested in by venture capitalists, but only receive 5% of the total funding**

More UK...

- ~1million workers in the UK software industry - ONS
- UK needs 140,000+ new IT & Telecoms professionals per year over the next five years. *IT and Telecoms Insights 2008*
 - First generation IT workers approaching retirement age
- 200,000 'basic' jobs off-shored by 2010 - equivalent to Brighton
- Electronics skills shortage a focus for House of Commons
- First major inquiry by new Innovation, Universities & Skills Committee will be engineering - a sharp focus on electronics.

[Bill Jacobs](#) January 2008

More UK...

Last five years:

- **50% drop in applications to computer related degrees**
- **47% drop in systems engineering students**
- **60% drop in software engineering students**
 - **Now < 20,000 new IT graduates pa**



Message 1

- **Requirements quality must improve**
 - **This is something that can be achieved now**
- **better returns and reduced risks for longer time spent on the early phase**



Message 2

- **Recognition of software skills challenges, sell them!**
 - **Skills shortages are a national problem**
- **Long term (20+) years, need long term cultural, social & educational change**
 - **Knowledge transfer**
 - **Partly through developed best practice**
 - **Partly through “management” & “career planning for specialists”**
 - **SSEI top level input to Govt & Industry**



Thank you

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