

# Why Johnny <sup>STILL</sup> ^ Can't Write Requirements

Presented at SSTC 2010  
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# Objectives

- Provide a 20-year history of the evolution of requirements
- Help you to understand what has and what has not changed
- Address what is needed in 2010 to have defect-free requirements

1990



# Requirement State-of-the Art - 1990

- Publications
  - Mil-STDs for systems and software
  - Two text books for software
  - Why Johnny Paper
- Significant Events
  - National Council for Systems Engineering (NCOSE)
  - 2<sup>nd</sup> USAF sponsored Software Technology Conference held (STC)
- Tools and Training
  - RDD -100 and Document Director and a few others
  - Government and company in-house plus 2 commercial



# Requirement Thinking - 1990

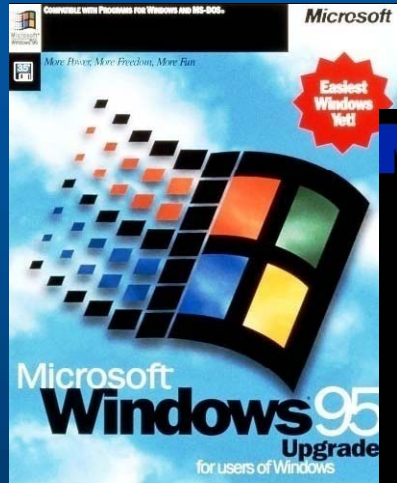
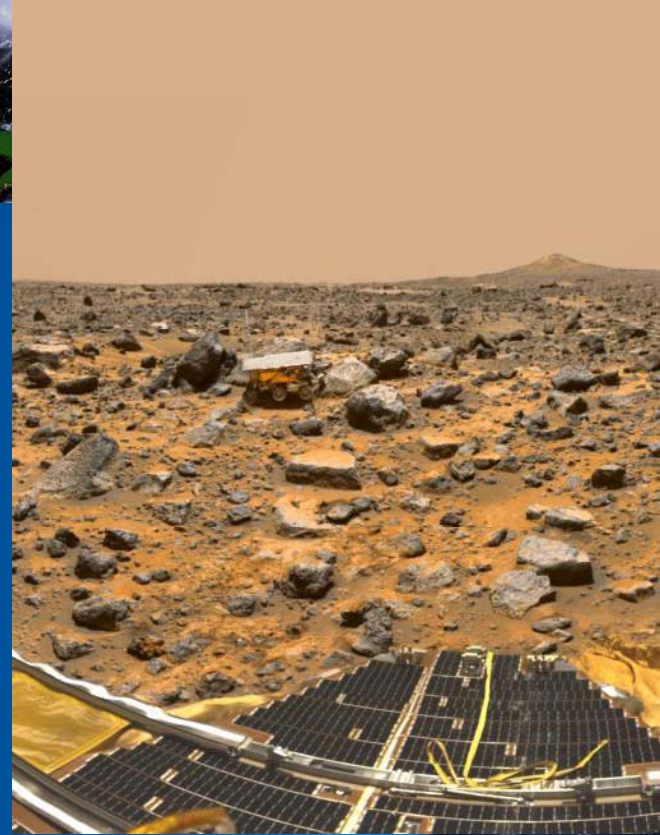
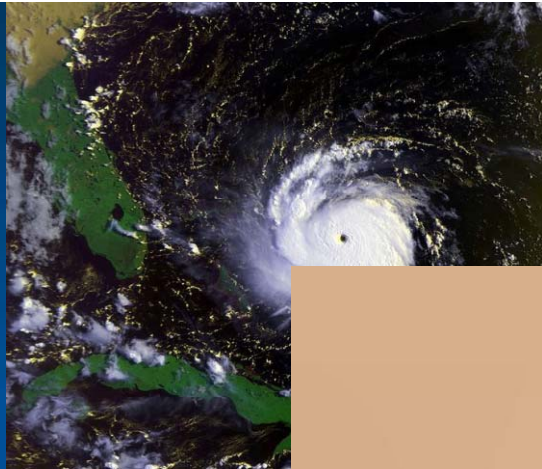
- GAO recognized poor requirements as contributing to failed products and cost and schedule overruns
- The right *Requirement Management Tool* (RMT) would fix everything
- *Quality* was the buzz word



# Why Johnny Can't Write Requirements

- Identified problems
- Identified causes of problems
- Made suggestions for fixing problems
- Identified why Johnny can't write requirements

1991-2000



NINTENDO 64



# Requirement State-of-the Art - 2000

- Publications
  - IEEE Stds for systems and software specifications
  - At least six significant books
- Significant Events
  - NCOSE becomes INCOSE
  - STC for all DOD
  - ISRE and ICRE formed
  - CMM and CMMI published
- Tools and Training
  - Ten or more tools on the market
  - A few companies adding requirements to list of courses





# Requirement Thinking 2000

- Requirements were a big issue in and out of the government
- Standish group reflecting software projects in particular
- GAO still pointing to requirement issues in government projects
- Requirements were divided into software and systems by those addressing them
- The software buzz words: *new method*
- The SE buzz words: *a tool that integrates everything*

# 2001-2010



# Requirement State-of-the Art - 2010

- Publications

- 6+ more good books on requirements
- Book of Knowledge for INCOSE and IIBA
- More CMMI deliveries

- Significant Events

- ICRE and ISRE merged into RE
- IIBA formed
- PMI acknowledged requirements in their BOK
- STC became SSTC
- System and software requirements processes are merging



# Requirement State-of-the Art – 2010 (cont)

- Tools

- Ian Alexander currently lists over 40 RMTs at his web site-  
<http://easyweb.easynet.co.uk/~iany/other/vendors.htm>
- INCOSE website lists 32 RMTs – [www.incose.org](http://www.incose.org)
- Volere lists even more requirement tools  
[www.volere.co.uk/tools.htm](http://www.volere.co.uk/tools.htm)

- Training

- More training companies adding requirement topic
- More corporations with in-house requirement classes
- More interest in advanced classes

# Requirement Thinking 2010

- GAO and others still point out problems
- Auditors and consultants still see some of the same old problems plus new ones
- *Agile* is wrongly interpreted as making requirements obsolete
- *Modeling* is the system and software buzz word
- *Certification* is a corporate cure-all



# Requirement Improvements 2010

- Some organizations have significantly improved their requirements
  - Committed to improvement
  - Followed proven practices
  - Practiced discipline with well-defined process
  - Made win-win for all
- Some organizations benefit from use of RMT
- More knowledgeable individuals who
  - Coach and mentor new hires and peers
  - Carry their knowledge to new environments



# Requirements 2010 – NETTDIR, AETTDIO

- Scope issues still exist
  - Don't understand problem and solution boundary
  - Understand but do not adequately document
  - Document but not provided to all who need it
- Lack of requirement validation
  - Lack of standards
  - Don't do inspections early
  - Rely on big ugly document reviews by untrained people
- Start design with defect-laden requirements
- Document requirements after the design
- Untrained personnel

# NEW bad requirement practices - 2010

- Abandon proven practice – too hard
- Put in place junk process – invented on the fly
- Put in place practices because “RMT supports”
- GIGO
- Assuming “Process” is all that is needed
- Fail to maintain requirements – operate on requirement deltas – impossible to manage changes





## Why Johnny Can't Write Requirements - 1990

1. He doesn't know what to do
2. He doesn't understand why he should do it
3. He would rather be doing something else
4. He sees no reward

**STILL**

## Why Johnny^Can't Write Requirements - 2010



Where do YOU go from here?



# As a customer organization

- Use skilled personnel to audit your requirements – before you put out an RFP
- Provide clear scope of your project/product with your requirements – do not make the providers guess at your intent
- Provide rationale for each requirement – why it exists and is what it is – no one can read your mind
- Encourage questions about any and all your requirements

## As a provider organization

- If you propose sans customer scope, document the proposal team vision of the customer's scope so you can provide it to the design team
- Do not make assumptions about anything
- Ask questions
- Give the customer your interpretation and request clarification and correction - for scope and for each requirement
- Don't make *customer mistakes* when producing requirements for subcontractors

## As an individual

- Become proficient at writing and reviewing requirements
- Insist on others providing you with scope and rationale - or provide your best guess to them
- If you must make assumptions, document and distribute them
- Help others on your team become better at writing defect-free requirements



# ACRONYMS

**AETTDIO – Always Enough Time to Do It Over**

**BOK – Book of Knowledge**

**CMM – Capability Maturity Model**

**CMMI – Capability Maturity Model Integration**

**DOD – Department of Defense**

**GAO – Government Accountability Office**

**GIGO – Garbage In Garbage Out**

**ICRE – International Conference on Requirements Engineering**

**IIBA – International Institute of Business Analysis**

**INCOSE – International Council on Systems Engineering**

**ISRE – International Symposium on Requirements Engineering**

**NCOSE – National Council on Systems Engineering**

**NETTDIR – Not Enough Time to Do It Right**

**PMI – Project Management Institute**

**RE – International Requirements Engineering Conference**

**RFP – Request For Proposal**

**RMT – Requirement Management Tool**

**STC – Software Technology Conference**