Collaboration and Rationale Capture
Lessons Learned

Frank Belz
TRW
Collaboration and Rationale Capture

Lessons Learned

Personal Point of View

- My point of view
- Context Issues
- Industrial win conditions for "ROTS"
- Collaboration Technology
- Rationale Capture
- Summary

Order of Presentation

- Personal, not based on any formal/systematic evaluation method
- Based on:
  - Experience on TRW specific collaboration technology efforts
  - Many DARPA programs with Rationale Capture ingredients
  - Use of WinWin technologies
  - Recent work making Architecture-based technologies with Win-
**Stakeholder Distribution**
- Stakeholders are "always" distributed
- Often on-the-move
- Need simultaneous access to collaboration capabilities, but
  - May not be able to share file systems
  - May not be able to use heavyweight clients
  - May not require uniform capabilities
  - Active vs. Passive
  - Lightweight PC to NOA
- May introduce security concerns
  - Firewalls, encryption...

**Rationale Verities**
- Rationale not all equally valuable
- Rationale pertaining to risk often most important
  - Early decisions driven by risk
  - And drive subsequent decisions, risk profiles
  - Determine solution opportunities
- Much rationale is irrelevant to product O&M, product line evolution
- Problem: How to focus on valuable rationale?

**Rationale Management**
- Rationale requires well-defined context:
  - Conditions that may vary
    - Both exogenous and endogenous to project
  - Common Ontology (Terminology)
  - As Project evolves, so does rationale
  - Maintenance of rationale history is essential
    - To permit and facilitate decision reversal/revision as win conditions change, and options change
    - Implies effective version control, configuration management
  - Finding supportive rationale is also essential

**Volatile Technology Base**
- Platforms: Wintel, MAC, Unix WS
- Architecture capture/analysis/generation:
  - COTS: ObjectTime, UNAS, STP, ...
  - ROTS: Rapide, Wright, Unicon, ACME, ...
  - Commercial collaboration technology
    - Converging on WebWare: Netscape, Microsoft, IBM/Lotus
  - Based on standards:
    - TCP/IP, HTTP, FTP, telnet, ..., T120, ...
  - Java

**Process Compatibility**
- Collaboration and Rationale Capture technology both must support
  - Product-line, evolutionary processes
    - Architecture-based
    - Iterative, prototype-based, spiral
    - Collaborative virtual organization processes
      - Highly dynamic
      - Team-based (even when distributed)
      - Hierarchial (team of teams)
      - With innovative control mechanisms
Path to Commercial Status

- Essential for industrial use "In Practice"
  - External Support
    - With some semblance of configuration mgmt
  - Eventually:
    - Quality based on competition
    - Payoff in common training
- Not required for early evaluation
  - And feedback-based improvement
- May be accomplished by tailoring existing COTS Technology

Summary

No Surprises:
- Employ emerging collaboration standards
  - HTML, HTTP, TCP/IP, CGI, ...
  - Relative insensitivity to volatility
- Move to Java-based applications
  - Light-weight clients
  - Platform independence
- Provide rationale linkage to architecture representations