COTS Integration Issues

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Key for following charts:
- “Gn” indicates GSAW 2001 issue and ranking
- “A” indicates Aerospace study issue
Product Issues

• Requirements vs. COTS capabilities (G1)
• Integration of
  ❖ Multiple COTS products (G2)
    ✦ Incompatibilities among COTS products (A)
  ❖ COTS products with new/reuse software (G5)
• COTS independent architecture (G3)
  ❖ Designing architectures for COTS evolution (A)
  ❖ Designing in safety, security, supportability (A)
• Mission risk (G6)
• Cross platform portability (G11)
• Standards: good, bad, ugly? (G14)
• API breakage (“unplug and replay”) (G15)
• Dormant functionality or features (G18)
• Adverse effects of product upgrades on system (A)
Process Issues - Developer

- Robust initial and periodic COTS product evaluation (A)
- Prototyping in a system context (A)
- Testing in operational context (G12)
  - Regression testing of upgrades in system context (A)
- Adapting software and systems engineering processes for CBS development and maintenance (A)
- Still need systems and software engineering (A)
- Need enhanced CM processes (A)
- Planning for COTS upgrades and evolution during development and maintenance (A)
- Selection of hardware platforms with availability of COTS software as key criterion (A)
Process Issues - Customer and User

- Acquisition and support strategies (G16)
- Adapting customer/user processes to CBS acquisition, operations and maintenance (A)
- Processes for trading cost, schedule, requirements, and O&M concepts (A) against COTS capabilities
  - Need requirements prioritization (A)
- Need contracts compatible with CBS development and maintenance (A)
- Standardized processes for safety certification and security accreditation of CBS needed (A)
- Standardized license processes to ensure suitability of licenses and maintaining currency (A)
Resource Issues

- Cost vs. benefit of upgrading (G7)
- Acquiring and maintaining CBS skills (G9)
- Accurately costing all aspects of CBS development and maintenance (A)
- Optimal scheduling of upgrades (A)
- Increased computer resources for upgrades (A)
- Modifying COTS is a BAD idea! (A)
- Need cost and schedule management reserves (A)
- Reallocating time and effort across life cycle (A)
  - More time for evaluation, prototyping and analysis (A)
  - Less time for implementation; more time for integration (A)
Marketplace Issues

- **Product maturity (G4)**
  - Dropped or de-emphasized platforms and products (A)
  - Changes in fees and fee structure for licenses and services (A)
- **Marketplace maturity (G8)**
  - Vendor volatility (A)
- **Vendor responsiveness (G17)**
  - Changes in type and quality of vendor support (A)
- **Definition of COTS (=“for sale”) (G19)**
- **Suitability of licenses for user application (e.g., expiring keys, export restrictions) (A)**
- **Release schedule, content and quality unpredictable (A)**
- **Rapid technology turnover and limited support of past releases (A)**
Intergroup Interaction Issues

- Customer resistance to COTS--NIH (G10)
- Excessive customer bias toward COTS (A)
- Vendor relationships (G13)
- Establishing and maintaining active partnership between customer, developer and user (A)
- Need flexible and efficient responses to unexpected impacts by customer/user (A)
What are Your Experiences with CBS?

• **Successes**
  - What successes have you experienced (directly or indirectly)?
  - What factors contributed to the success?

• **Problems/Failures**
  - What problems have you experienced (directly or indirectly)?
  - What factors caused the problems?
  - What would you do differently to remove the problem or reduce its impact in the future?