How to use COTS / OSS in commercial settings

R. P. H. Leung, and H. K. N. Leung,
"On the Efficiency of Domain-Based COTS Product Selection Method", Information and Software Technology

Major legal aspects and risk in using OSS and how to mitigate them.

Legal Perspective
• Two roles: Licensor and licensee

Advantages of OSS
• Reduce cycle time (component updates)
• Long term support
• OSS improves security
Major Risk

• Integrate OSS as a source code directly into a product

• Infringement of third parties' intellectual property right

• Use of OSS in development activities when OSS is a tool
Choosing the right OSS

- Build on and follow industry standard - either de facto or component standard

- Have a strong OSS community

- Supported by ISVs

- Clear legal status
Product life cycle management

- Introduce explicit checks
- Identify OSS experts
- Analyse for legal clearance
- Maintaining an internal knowledge database on OSS
Mitigate Legal exposure

• Distribute proprietary code with GPL but package the code separately

• Distribute all copyrights from all contributors with the software

• Can't exclude liability for distributing OSS products
COTS - Commercial off-the-shelf shrinking budget, rapid advancement and increasing demands

- What is the most effective selection method for COTS component.
  - CBS (COTS based systems,)
    - faster delivery with lower resource costs.
Selection Methods

• Intuition Approach
  • Software developers select components according to their experience and intuition

• Direct assessment (DA)
  Select components directly from their source.
  • Consider all of the descriptions
  • More objective than intuition approach.

• Indirect Methods
  • Makes use of the specific domain model of the intended system.
  • Application specific domains
  • Technical classification
  • DBCS – Domain based COTS selection method.
Some DA methods:

**OTSO** - Off the shelf option.  
Consists of three phases - Searching  
Screening  
Evaluation

**CISD** - COTS base integrated system development.  
• Identification  
• Evaluation  
• Integration

**IIDA** – Infrastructure incremental development approach.  
• This approach combine the classical waterfall and spiral development models.  
• Two phases - Analysis of prototype  
• Design prototype
DBCS consists of two phases:

1. Set-up phase
Vendors roll out their COTS, and map them to those modules of the domain that they find applicable.

2. Selection phase
- The corresponding modules in a domain model are identified for each of the modules of the CBS in question.
- Identify the COTS modules that are applicable for mapping the domain model to the COTS modules.
- Non-functional properties of the identified COTS modules are assessed.
- The most appropriate COTS modules are selected.
COTS product selection strategies

- Best-fit strategies: identify the best COTS product among all the candidates
- First-Fit strategy: identify the first COTS product that satisfies all of the requirements
Case Study

● Applied DBCS method in development of margin trade system

● DBCS method reduces the complexity and improves efficiency of COTS product selection
  ● Relation between available COTS products and domain model are reused every time.

● Two selection strategies, best-fit and first-fit are choose for comparison

● DBCS is more efficient than other methods