Guidelines for the Incorporation of COTS Items Into Designs

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BACKGROUND

COTS had been around since the mid 20th century, it was a key strategy used in the 1970s and 1980s for reducing software cost. The Japanese developed an approach called the "software factory", injecting enormous amount of COTS software into the commercial market. This has proven to be the silver bullet at that time as design that incorporates COTS items drastically saved development cost and time. Another prominent industry that uses commercially available items is the military.

In addtion, air superiority had been proven as an essential necessity to an effective defense, and at that time aerospace and computing technology growth was at an accelerating speed. The military could not keep up with that speed if they were to develop their own technologies. Electronic components such as integrated circuit at the time was developed privately, therefore the US government "pulled" especially the aerospace new technologies to be produced in quantity, allowing it to be available commercially. Later, personal computers joined in the commercial market after the costs were pushed down at a reasonable amount.

Pros

- No development risk (COTS items are already established)
- A fixed cost (No expensive development costs)
- Save time (No long development time and failures)
- Access to leading edge technologies

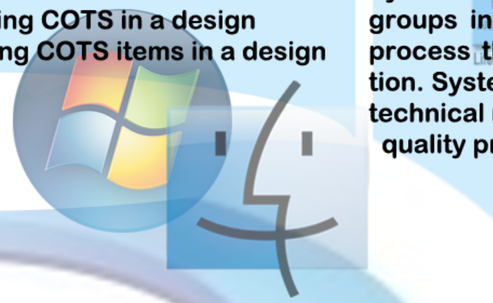
Cons

- Unfamilliar system architecture (Black box approach)
- Integration difficulties (incompatibilies & perfor mance downgrade)
- Uncontrollable (Dependent on COTS vendors such as obselence, upgrades and maintenance)

AIMS

Handbook goals :

1. COTS Fundementals
2. Managing COTS in a design
3. Selecting COTS items in a design



Special thanks to :

BAE SYSTEMS

SAAB TECHNOLOGIES

CODAN

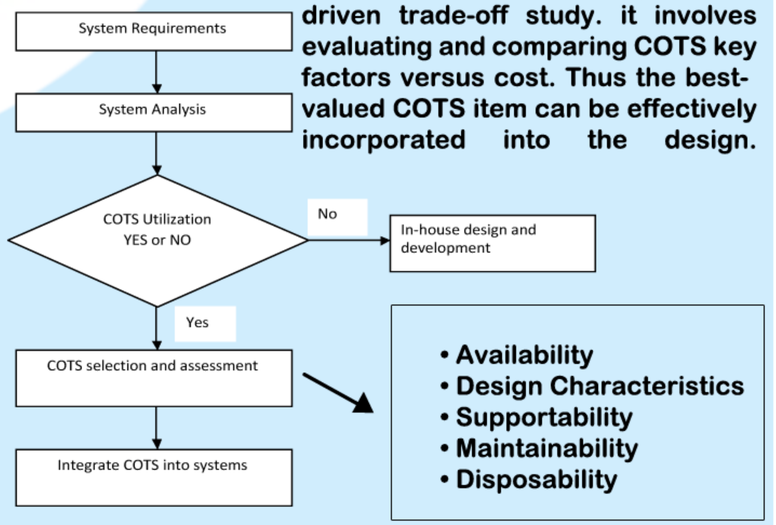
Managing COTS

Systems engineering integrates all the disciplines and specialty groups into a team effort forming a structured development process that proceeds from concept to production to operation. Systems engineering considers both the business and the technical needs of all customers with the goal of providing a quality product that meets the user needs.

The "V" diagram process model has been chosen as the standard method in representing systems engineering. It is a top-down and bottom-up approach to system development. The left wing represents the progress of user requirements into primary and detail design; the right wing denotes the integration and verification of system components through subsystem and system testing.

COTS Selection

COTS selection is a requirement driven trade-off study. it involves evaluating and comparing COTS key factors versus cost. Thus the best-valued COTS item can be effectively incorporated into the design.



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