

Custom System Integration and Commercial Off-The-Shelf Products

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Document Author: Christopher G. Relf – Document Release Date: 11th January 2005

The Challenge

It is easy to be attracted by off-the-shelf hardware and software that have a functional fit for your application requirements and promise easy integration. The challenge is when COTS products are not the perfect fit for your in-house development model, available resources or skills. The integration process for new players can be both frustrating and expensive, paying for a system that ends up sitting in a corner gathering dust, leaving you out of pocket and still faced with the challenge you were trying to solve before you purchased the products. Being able to build the system yourself may be an attractive prospect, but this needs to be balanced with an investigation of the risks and challenges involved with system development. This paper was written with the intent of dispelling some of the preconceptions and misconceptions involved with custom integrated and commercial off-the-shelf systems (COTS).

Commercial Off-The-Shelf (COTS)

Shrink wrapped products backed by a multi-national company can be difficult to resist – they promise tight integration, reduced research and development (R&D) cycle times, comprehensive feature sets, and (often most importantly) only a relatively small investment is required

A General rule-of-thumb is "If an off-the-shelf system has the functionality you need, then buy it!"

to get started. COTS products are usually well defined and polished products that have been through extensive product qualification testing and also passed rigorous trials in a number of diverse industries by power users. The features in COTS systems tend to be comprehensive, designed to satisfy the needs of the masses, often with more functionality than required by most users. One of the challenges with moving from project definition to implementation is ensuring that the COTS products you consider have all the functionality required to complete your task. COTS are produced by a range of companies, but most have well designed web-based support systems to answer user FAQs. If you can't find an answer to your question, email-based support is usually available. Before purchasing any COTS equipment, especially via a distributor, you should check out the level of technical support offered via web and phone as the quality varies widely across the industry. Quality technical support can be critical to succeeding with COTS products.

Custom Integrated Systems (CIS)

CIS tend to be narrowly targeted solutions, designed specifically for one client, or a small range of clients in a particular vertical industry. Your investment in a CIS represents a transferral of risk from your company to that of the CIS vendor. For a fixed price, you get a system that looks as professional as any COTS product, but includes specific documentation and functionality for your needs. By tapping into the development and industry expertise of the CIS vendor, your R&D cycles can be significantly shorter than taking the do-it-yourself approach of COTS systems where the success of the system is dependant



upon your skills. CIS are completely customised to suit customer requirements and may be integrated with existing hardware or software systems already in use within your organisation. CIS may include additional COTS hardware or software as part of the final solution. They can leverage your existing technology and tap into knowledge already present in your company.

CIS providers are experts in their industry and may suggest innovative approaches to solving your application. The success of any CIS is closely tied to the quality of the functional specification developed before the project begins – it is a good idea to consider collaborative development of the functional specification with the CIS provider. You should look for a CIS provider with a proven track record and ask for references from happy customers.

The investment for a CIS may be higher than for a COTS system but you get a guaranteed solution that exposes your company to minimal risk. Sticking to your core competencies allows you to spend more time and expertise defining your requirements without worrying about the challenges of the implementation.

Commercial Off-The-Shelf Systems

Custom Integrated Systems

Functionality and Feature Definition

- ✗ Features dictated by the needs of the masses
- ✗ May not include all the functions you require
- May include functions that you don't require
- ✗ Generally limited to one area functionality

- ✓ Only include features that you require
- ✓ Core functionality not compromised by erroneous unused features
- ✓ Functionality only limited by the users' requirements and physical constraints

Functionality Modification

- ✗ Only occurs if enough single users contact the vendor and request a modification

- ✓ Modifications are user dependant, so can be made to suit one-off systems

Bug Fixes

- ✓ Usually available in the next major release of the product without user request
- ✗ Requires payment for new or upgrade of existing system components

- ✓ Available as requested by the user
- ✓ Bugs are fixed for free during the system warranty period

Ease of Use

- Semi-intuitive (usually follows standard Microsoft User Interface rules)
- Often requires training to use effectively

- ✓ Completely customised to user's requirements
- ✓ Intuitive, as the user defines the operation and appearance of the final application

Cost

- ✓ Start-up investment usually lower, due to high volumes for COTS products

- ✗ May be higher as CIS are mostly one-offs, so all development costs borne by the end-user.
- ✓ May be lower for simple systems

System Documentation

- ✓ Often comprehensive for the software tools
- ✗ Available only as *Online Help* cannot be edited, formatted or copied by the user
- ✗ You must develop the end-user documentation for the project yourself

- ✓ As comprehensive as required by the user
- ✓ Available as Online Help (HTML), Adobe PDF and/or Microsoft Word compatible
- ✓ Editable, and able to be included in larger user-defined documentation sets

Resale Opportunity

- ✗ Need to investigate licensing and run-time fees before deploying extra systems

- ✓ Reselling opportunities - we can arrange for the technology IP to be transferred to you, so you can on sell the completed product

Source Code Availability

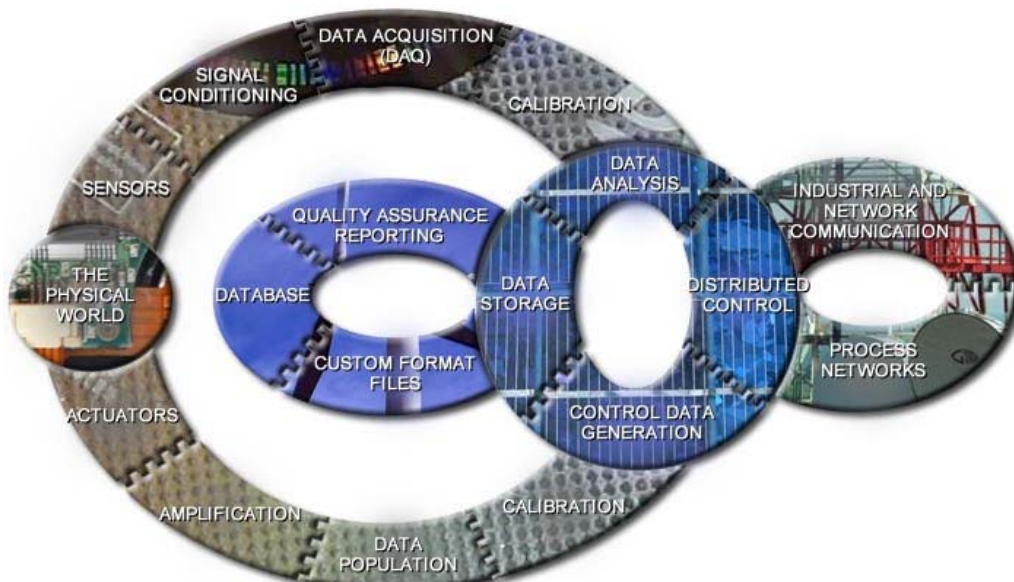
- ✗ Source code for turn-key software is owned and protected by the vendor

- ✓ Arrangements can be made to transfer the complete source code and project documentation to the user if required

Support Availability – Vendor Access

- Usually pre-packaged answers through a website or via email, not many vendors provide telephone support

- ✓ Free business-hours telephone support during warranty period
- ✓ In extreme cases, next day onsite support can be arranged



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