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 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.
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<th>Commercial Off-The-Shelf Systems</th>
<th>Custom Integrated Systems</th>
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| **Functionality and Feature Definition** | 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** | Modifications are user dependant, so can be made to suit one-off systems |
| **Bug Fixes** | Available as requested by the user  
- Bugs are fixed for free during the system warranty period |
| **Ease of Use** | Completely customised to user’s requirements  
- Intuitive, as the user defines the operation and appearance of the final application |
| **Cost** | 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** | 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** | 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** | Arrangements can be made to transfer the complete source code and project documentation to the user if required |
| **Support Availability – Vendor Access** | Free business-hours telephone support during warranty period  
- In extreme cases, next day onsite support can be arranged |

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