


Configuration Management
&
Large Scale Prime Systems Integration (PSI) Projects

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Neil White
BCS CMSG Committee
-
Principle Consultant
Quintec Associates Ltd
Mobile: 07976123055



AGENDA

- The basis for the 'change of scope' of the BCS CMSG
- Commonality of CM practised in 'different' industry sectors
- A whistle stop view of a Prime Systems Integration (PSI) project from a CM system architects point of view
- A look at two requirements management and delivery paradigms
- The significance of the supplier role in a PSI project
- A look at how CM is implemented in an PSI enterprise
- A look at enterprise data management and tool selection
- A look a way that project management techniques are adapted to satisfy customer needs.



The scope change.....

The BCS CMSG has expanded its scope to embrace CM practitioners and practices from all industry sectors. Whilst no CM practitioners have ever been excluded from the CMSG, it is only now that CM is to be actively considered across all industry sectors.



Benefits

Intended benefits include:

- To attract CM practitioners to the CMSG from all industry sectors
- To share knowledge and understanding of CM and its interaction with Data and Information management functions
- To share tools and technology experiences and ideas
- To facilitate the emergence of more general and widely accepted best practice techniques and processes
- To enable the portability of CM practitioners between industry sectors



Large scale Systems Integration Projects

Key characteristics:

Value of projects measured in many millions if not billions of pounds

Amount of work to be undertaken too great or diverse for any one company

Many suppliers under subcontract to the programme

Cost and schedule competitively achieved – survival of the leanest!!!

International supply chain

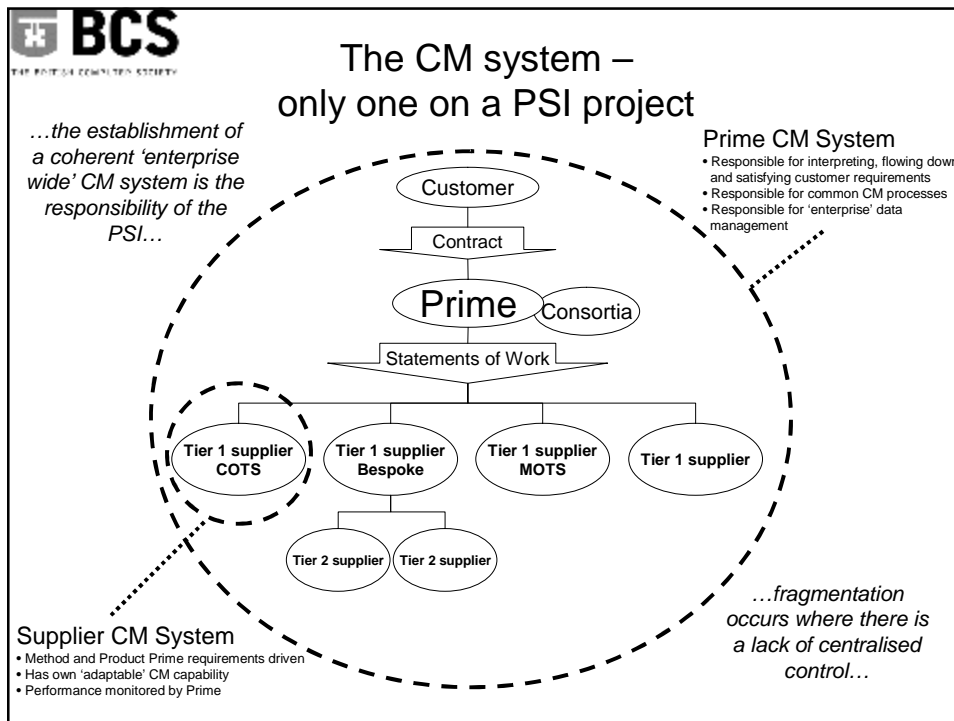
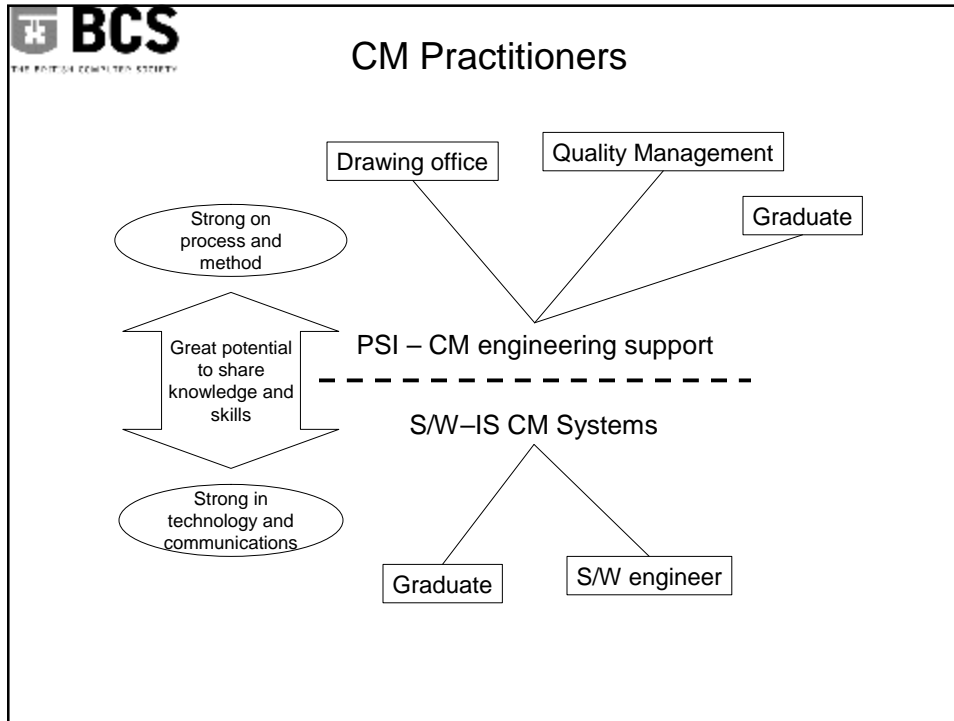
A large systems integration exercise



Common Principles behind CM activities

At two ends of the scale, a project 'enterprise' can consist of a solitary company on an office network housed in a single building **OR** many suppliers distributed over a wide geographical area communicating using a WAN or the internet;

- Work is allocated to team members or distributed suppliers. In the former a work order is required in the latter a Contract
- Quality control of developed products is undertaken in-house in the former but in the latter, for distributed suppliers, is achieved via audit and surveillance
- Change proposals and impact assessments are undertaken in very similar ways but in the latter suppliers have to contend with the need to work within the confines of a contract
- The principles behind moving data objects around an organisation are similar. However, where multiple suppliers are concerned much planning is needed to achieve an effective data transfer.



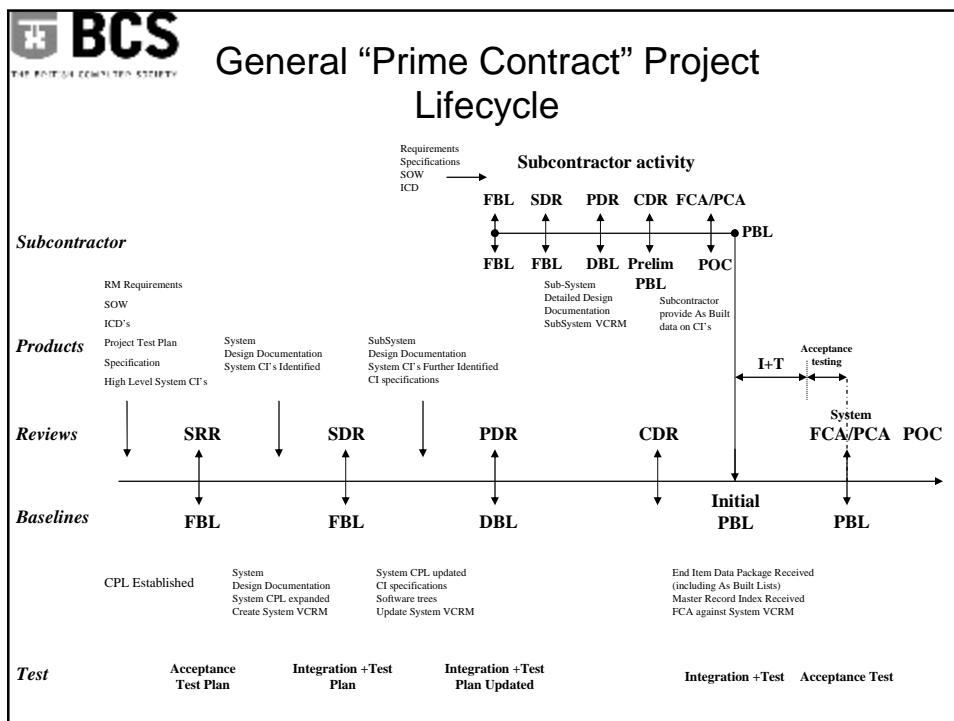
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A PSI CM system

A PSI CM System consists, as a minimum, all of the engineering functional processes and elements required to support an in-house product or service development.

A PSI CM system, is a product of its own, the supply chain and the customers CM capabilities – provides the necessary CM support across the enterprise.

Failure to provide the required level of coherent CM system support to a project will result in a fragmented solution which could lead to project failure. The potential for failure not only impacts the project but also puts at risk the business viability of its suppliers and customer.



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Requirements Management

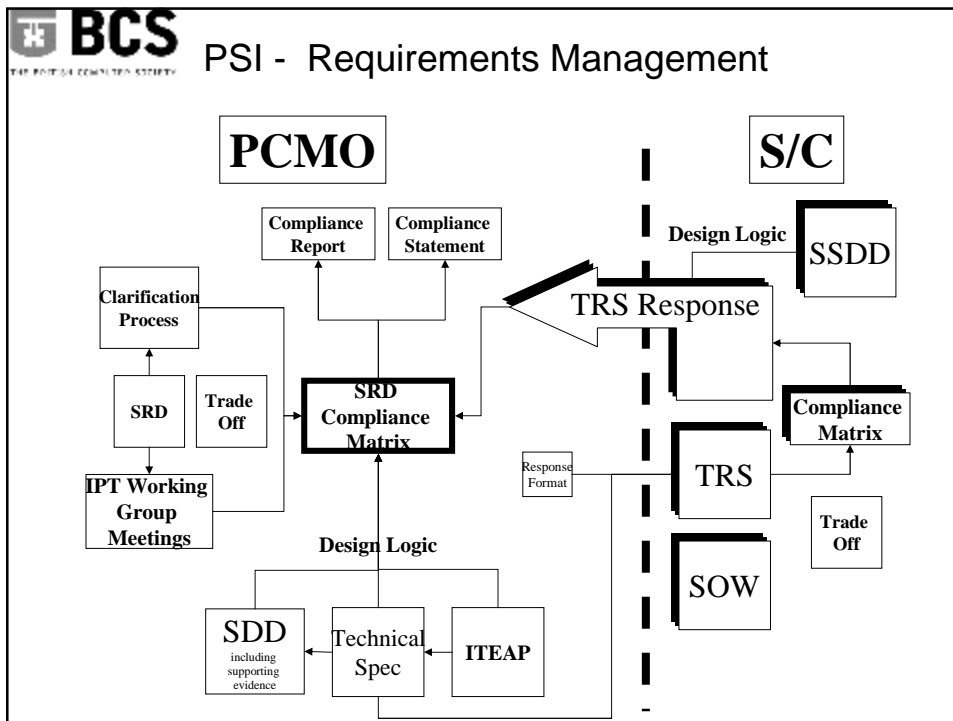
There are at least two distinct requirements management paradigms both of which have evolved through necessity:

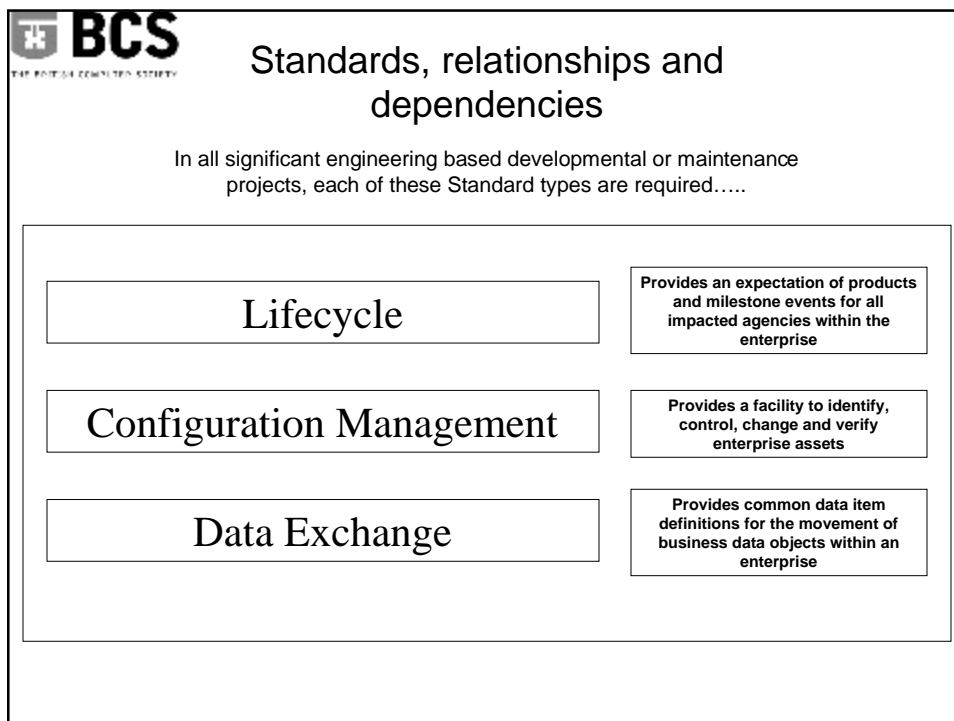
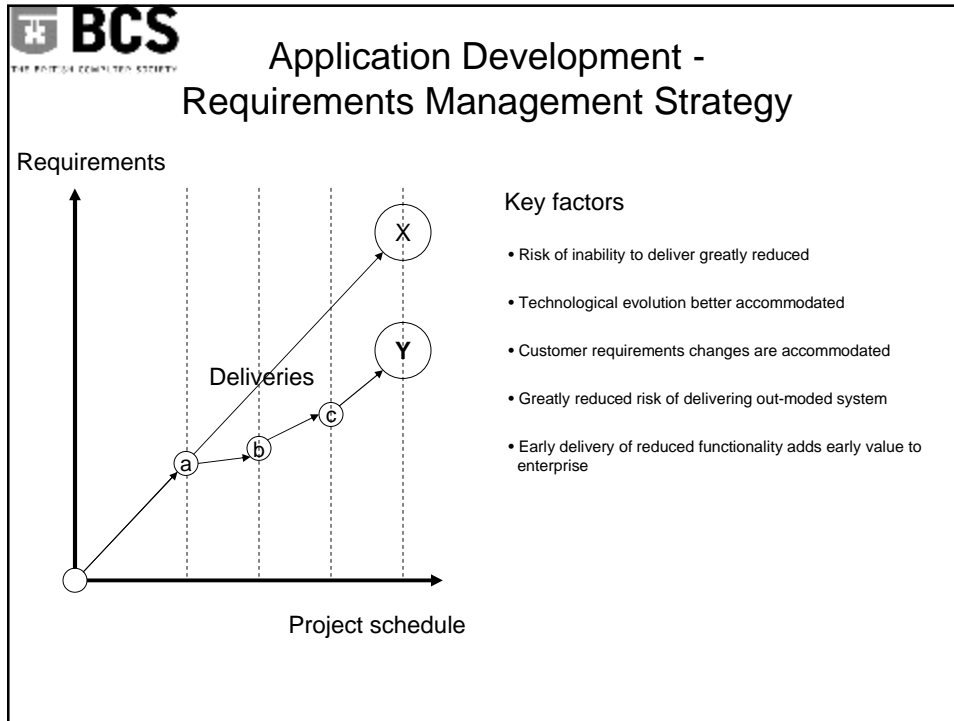
On a PSI project the management and decomposition of requirements is rigorous. Contracts are placed to ensure that the devolved requirements 'can' be developed, delivered and integrated

Where requirements are flowed down the supply chain, any change to those requirements can have a significant and de-stabilising affect on the project. Even on a PSI project, change is inevitable so the Prime has the responsibility to ensure that an enterprise-wide change management facility is enabled

Experience tells us that the standard waterfall model is not sufficient to support the development of a technologically intensive IS based program. This has often resulted in developed systems being out-moded before they are commissioned

Incremental development models are used to ensure that a subset of the total functionality can be delivered and put into service within an acceptable time frame.





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PSI Project Baselines

Starting out with a contract baseline, a PSI project goes into service with an as-built/as-maintained baseline. Generally, all requirements in the baseline structure are related to one or more of those on the preceding or succeeding baselines.

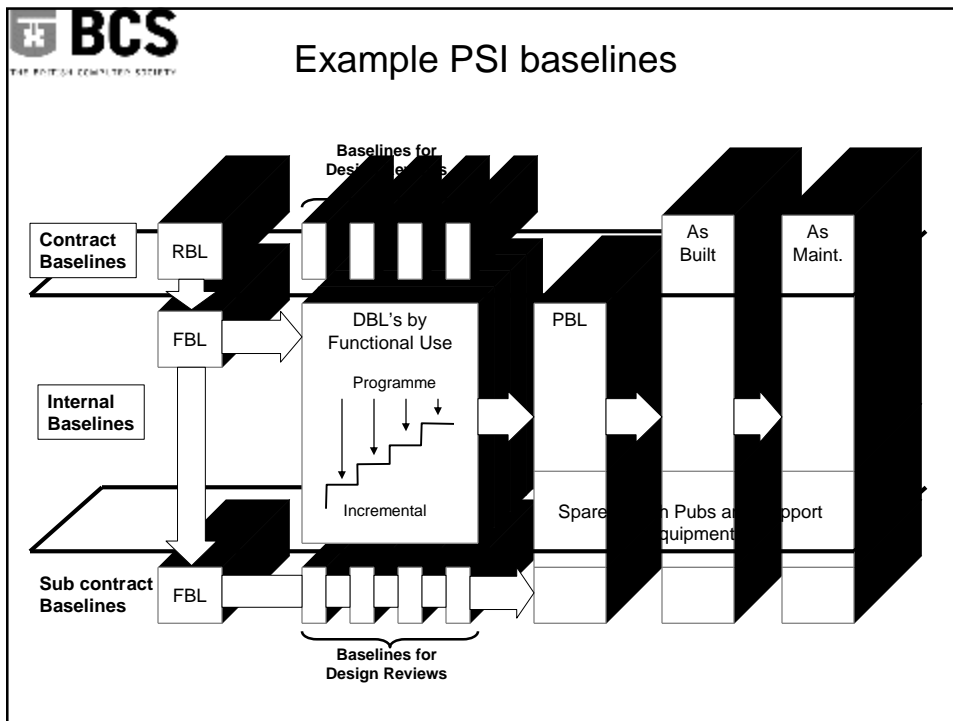
A typical requirements breakdown might be:


Supply managed baselines are critical to the PSI

Contract (inc FBL)
Allocated Baseline
Supplier Functional baseline
Development Baselines
Supplier Product Baselines
Integration (developmental) baselines
Product Baseline
As-Designed Baseline
As-Built Baseline
As-Maintained Baseline

Prime Baselines
Shown in Green

Considering that supplier functional baselines are constructed from the PSI allocated baseline, it can be seen that changes to Prime requirements late in the project lifecycle can mean considerable and costly change throughout the Supply chain.




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Supply Activities & CM Support

Component Suppliers – require virtually no CM support
COTS – require minimum CM support
Modified COTS – require medium CM support
Bespoke Supplier – may require considerable CM support

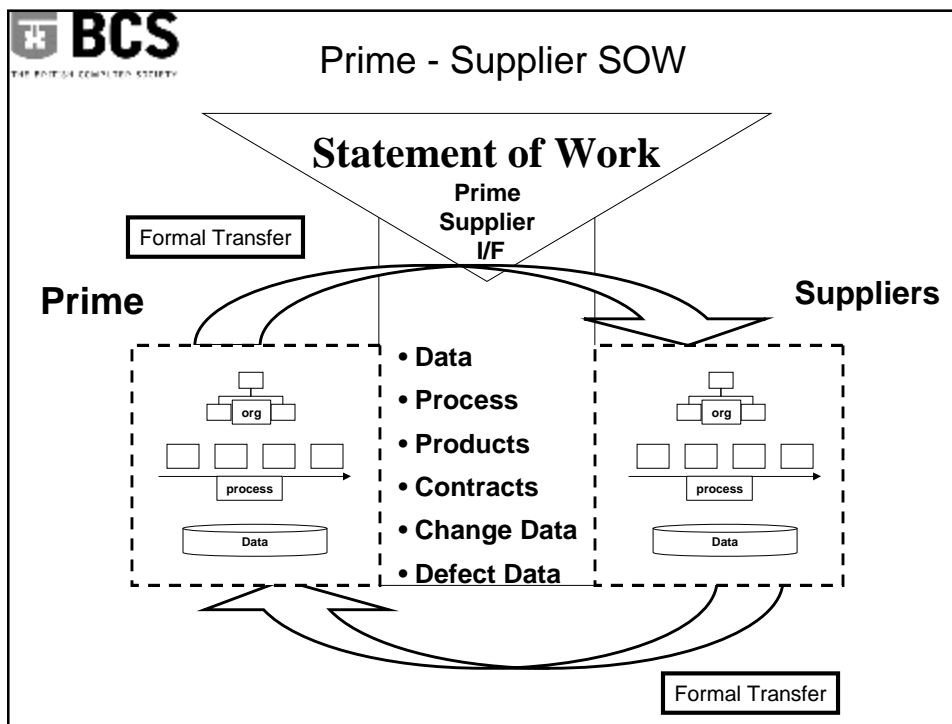
Some factors that effect the level of required level CM support

- Low technological readiness levels
- Complexity
- Size
- Distribution
- Schedule
- Project Criticality

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Prime responsibilities


Prime	I/F	Suppliers
Has expectations of Suppliers		Have expectations of Prime
That the suppliers endeavour to satisfy their contracts		To keep project on schedule
The responsibility for ensuring supplier can satisfy its contract rests with the Prime.		Can take delivery of products
		Provide assurance of data communications
		Ensure common processes are implemented where required
		Ensure that data is portable where required around the enterprise



BCS Supplier Statement of Work (SOW)


Key CM requirements to be included in Supplier SOWs:

- List of deliverables – e.g. CM Plan, Data management Plan
- Audit and review participation
- Mandated Standards
- Prime access for process audit and performance monitoring purposes
- Format and schedule of deliveries
- Method of delivery
- Configuration Status Record (CSR) (PBL)



**CM &
Supply Chain Management**

- Standards have been revised or replaced to 'enable' the supply chain
- Generally, prescriptive standards are being replaced by requirements or principle based guidance documents
- Use of requirements approach increases importance of supplier capability assessment
- Supplier 'project' performance measurement essential
- Prime System Integrator must flow down common process and data management requirements throughout supply chain



**CM &
Supply Chain Management**

Measures that can be taken to reduce supplier risks:

- All prospective suppliers are asked to complete a questionnaire that asks incisive questions with regard to their CM capability
- A PSI risk register is established and used to consider all known risks associated with project supply chain.
- Regular attendance at contracted supplier design reviews.
- Supplier CM capability assessment mandated in supplier SOW.
- Frequent supplier surveillance and monitoring

