Generic Statistical Business Process Model (GSBPM) and its contribution to modelling business processes

Experiences from the Australian Bureau of Statistics (ABS)
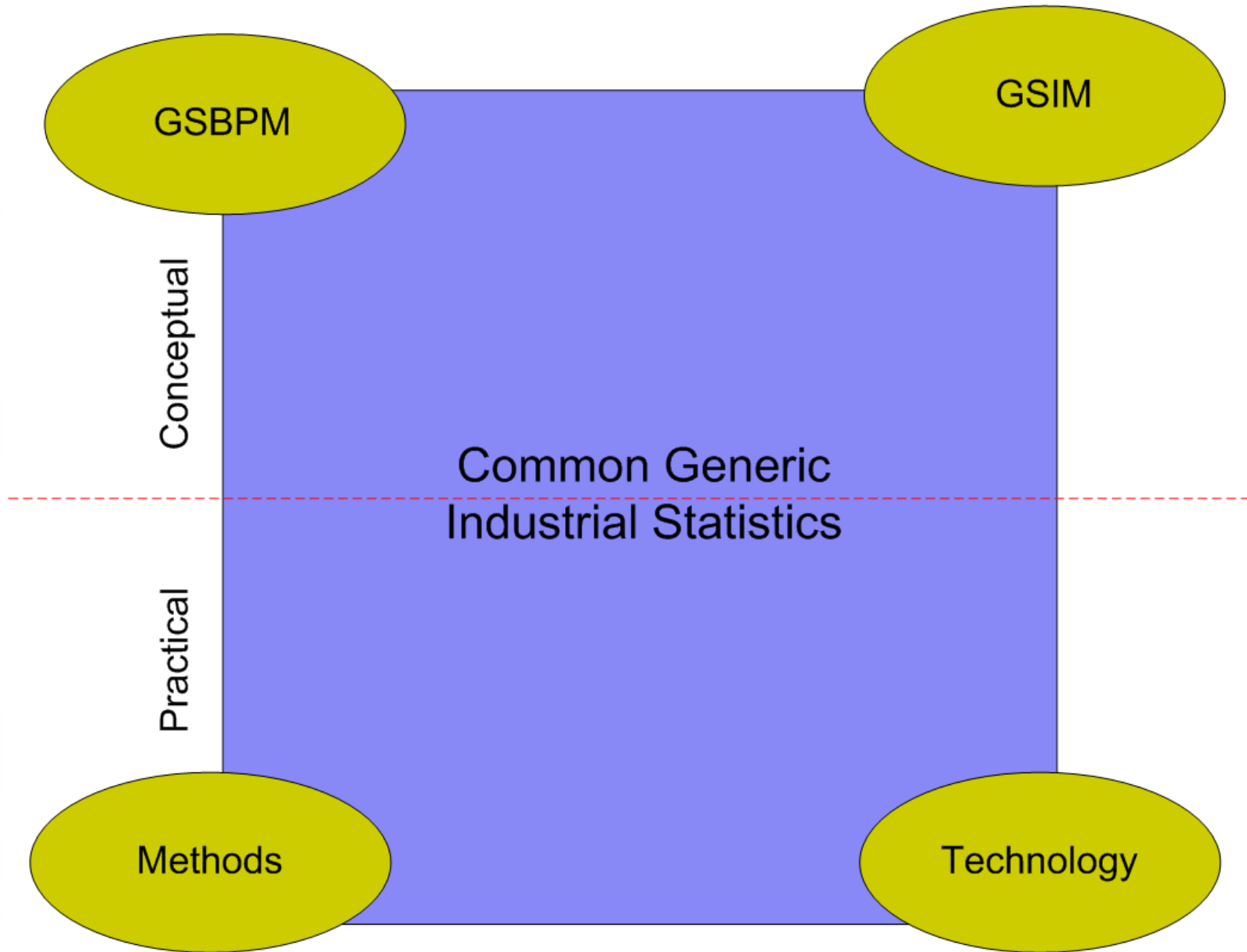
Trevor Sutton

Outline

- "Industrialisation" and the need for a strategic focus on statistical business processes

- Introduction to GSBPM as a reference model

- Recent developments related to the GSBPM

- Practical ABS experiences in applying the GSBPM

- Some other high level considerations when modelling business processes
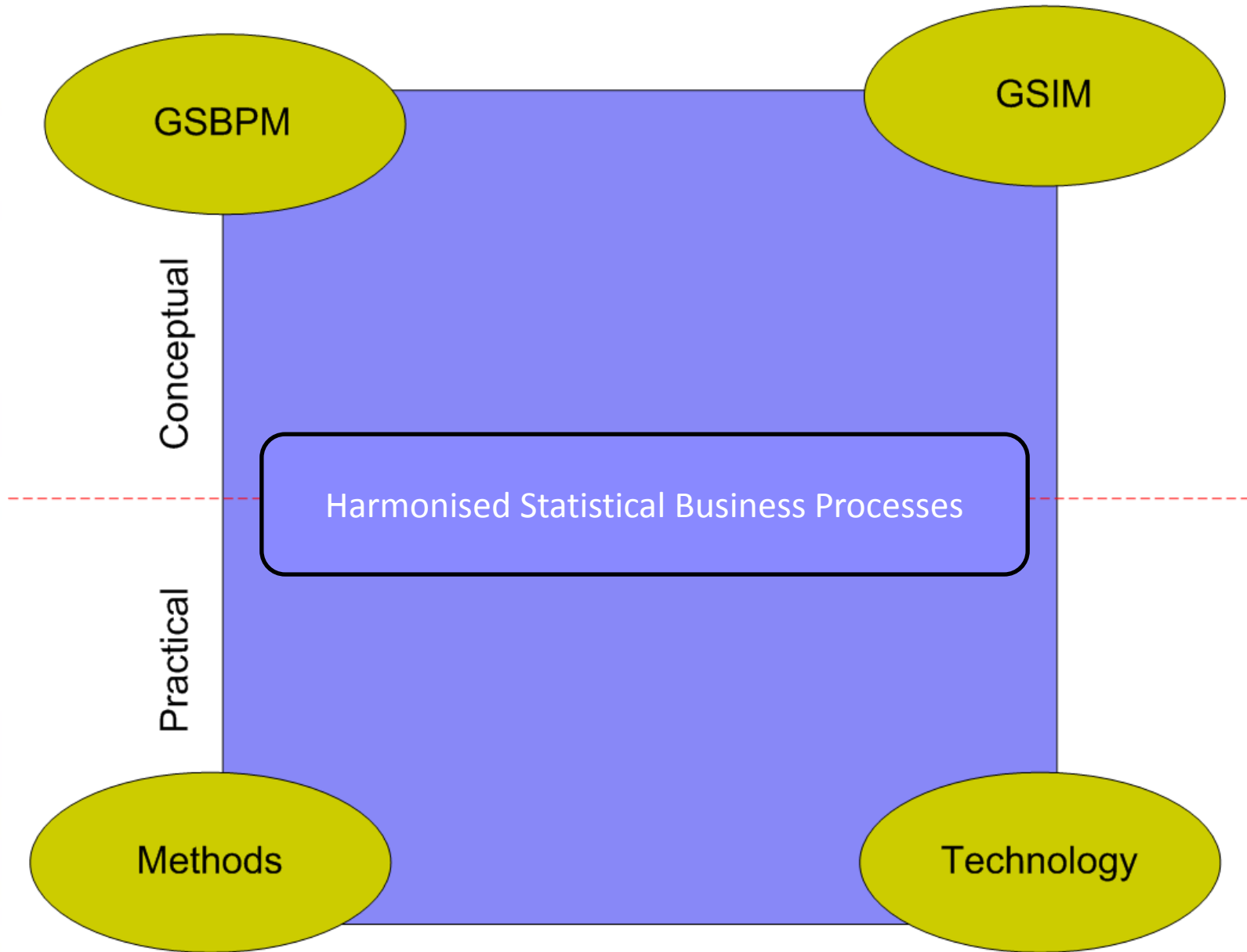
- Questions
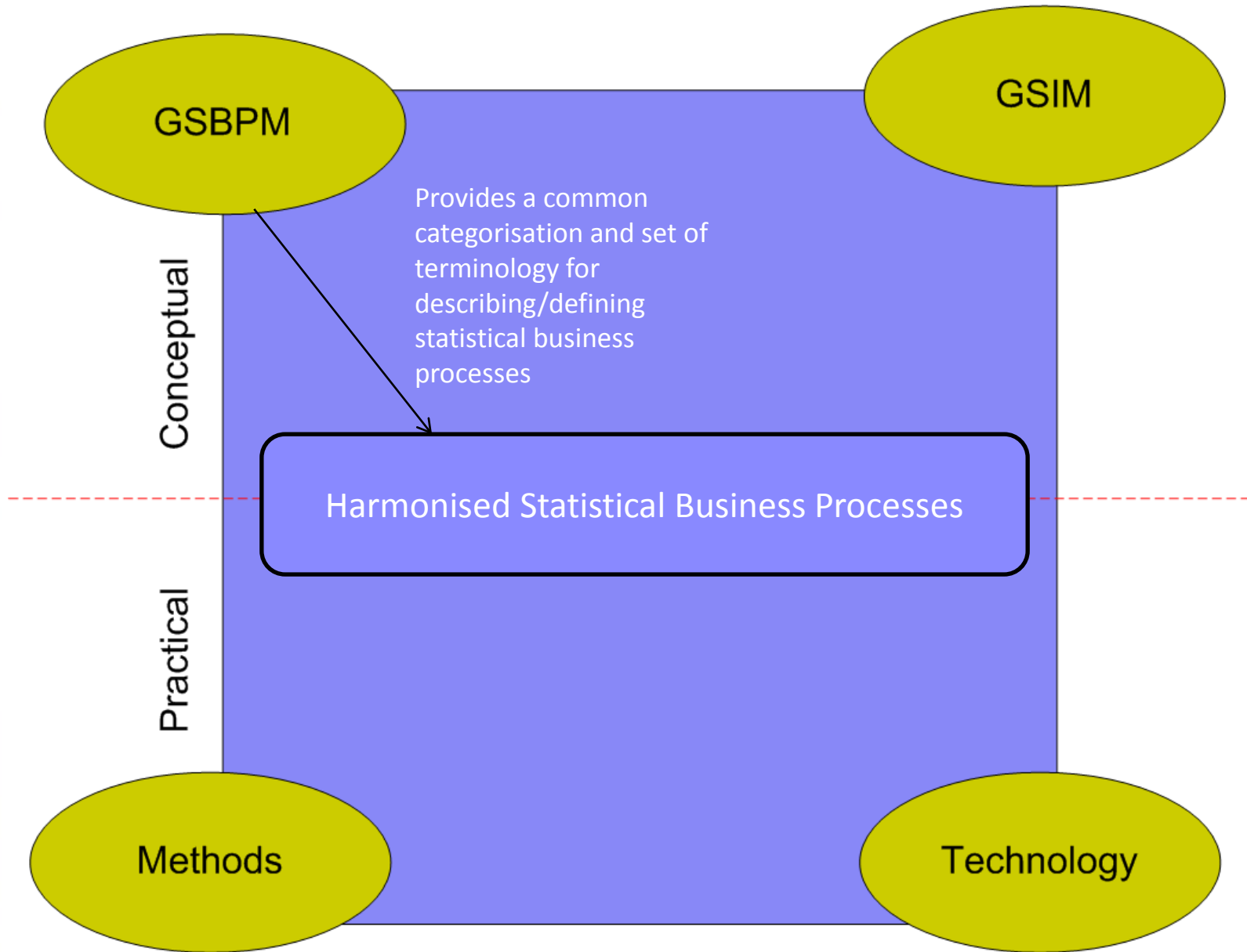
Strategic Context

- HLG-BAS Strategic Vision
  - We have to re-invent our products and <u>processes</u> and adapt to a changed world
- Industrialisation includes:
  - Common <u>processes</u>
  - Common methodologies
  - Common tools
  - Facilitating commonality through agreeing and applying "industry" frameworks and standards
  - Recognizing all statistics are produced in similar ways

Implications in regard to process

- We must be able to review our **statistical business processes** (SBPs) at a strategic level in order to
  - determine their fitness for purpose & value add
  - improve, integrate, reuse, transform, industrialise, standardise, harmonise
- Each SBP must be described (including modelled) in a manner which facilitates comparison with other SBPs (locally and internationally)
- In order to facilitate standardisation and reuse, SBPs should be described independently of the statistical methods and IT tools currently used to perform them

GSBPM

GSIM

Conceptual

Practical

Common Generic
Industrial Statistics

Methods

Technology

GSBPM

GSIM

Conceptual

Harmonised Statistical Business Processes

Practical

Methods

Technology

GSBPM

GSIM

Conceptual

Provides a common categorisation and set of terminology for describing/defining statistical business processes

Harmonised Statistical Business Processes

Practical

Methods

Technology

GSBPM

GSIM

Conceptual

Provides a common categorisation and set of terminology for describing/defining statistical business processes

Harmonised Statistical Business Processes

Practical

Drive consistent business requirements for industrialised methods and technologies

Methods

Technology

Introducing GSBPM

- Originally based on the business process model developed by Statistics New Zealand
- Three rounds of international consultation led by CES Steering Group on Statistical Metadata (also known at the METIS Steering Group)
  - Added Archive and Evaluate phases
  - Terminology and descriptions made more generic
- Currently Version 4.0
- The one page diagram is most often used but complete documentation (in three languages) and other resources are available on the web.

Why do we need GSBPM?

- To define, describe and map statistical processes in a coherent way
- To standardize process terminology
- To compare / benchmark processes within and between organisations
  - This facilitates collaboration.
- To identify synergies between processes
- To inform decisions on systems architectures and organisation of resources
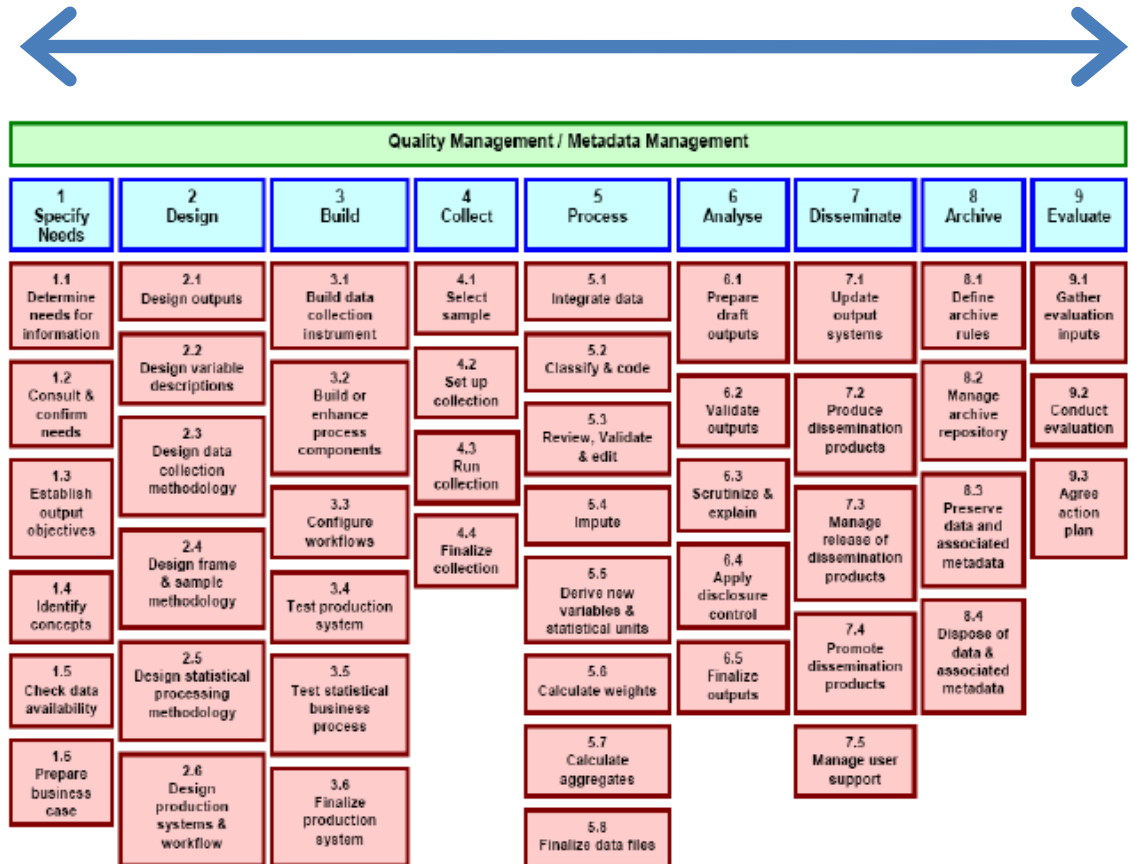
Structure of the Model

Process
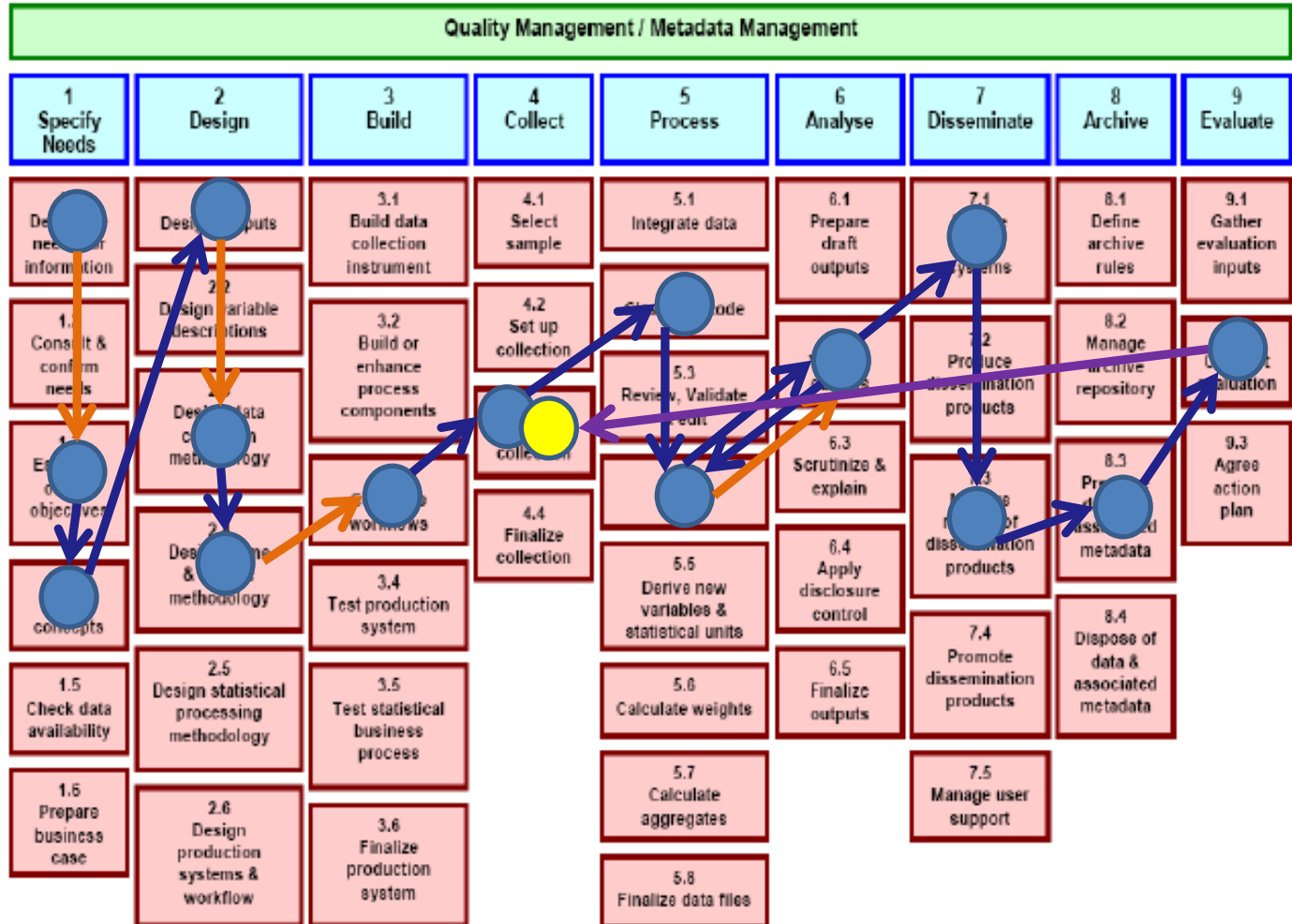(**statistical business process**)

Phases

Sub-
processes

(Descriptions)

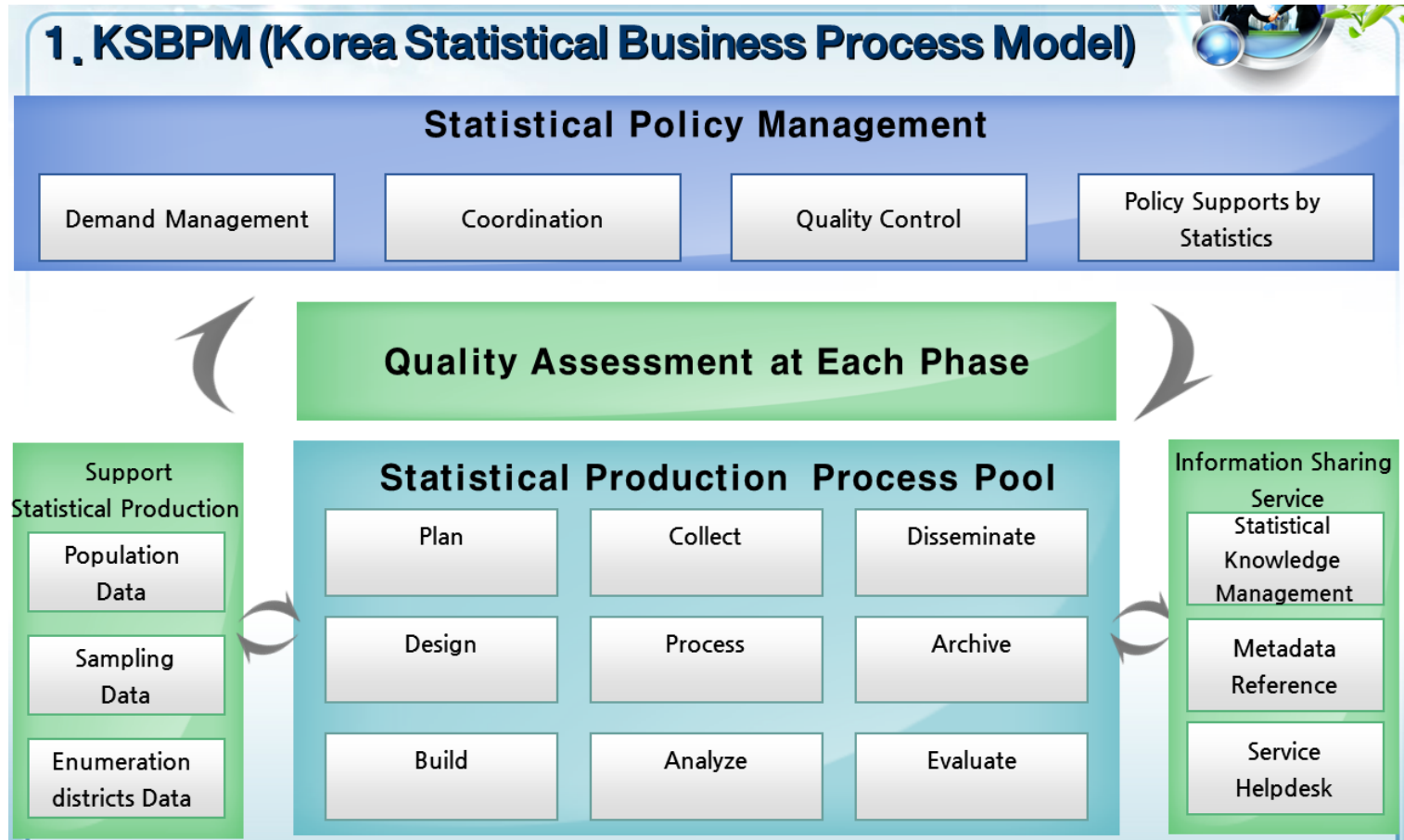| Quality Management / Metadata Management								
1 Specify Needs	2 Design	3 Build	4 Collect	5 Process	6 Analyse	7 Disseminate	8 Archive	9 Evaluate
1.1 Determine needs for information	2.1 Design outputs	3.1 Build data collection instrument	4.1 Select sample	5.1 Integrate data	6.1 Prepare draft outputs	7.1 Update output systems	8.1 Define archive rules	9.1 Gather evaluation inputs
1.2 Consult & confirm needs	2.2 Design variable descriptions	3.2 Build or enhance process components	4.2 Set up collection	5.2 Classify & code	6.2 Validate outputs	7.2 Produce dissemination products	8.2 Manage archive repository	9.2 Conduct evaluation
1.3 Establish output objectives	2.3 Design data collection methodology	3.3 Configure workflows	4.3 Run collection	5.3 Review, Validate & edit	6.3 Scrutinize & explain	7.3 Manage release of dissemination products	8.3 Preserve data and associated metadata	9.3 Agree action plan
1.4 Identify concepts	2.4 Design frame & sample methodology	3.4 Test production system	4.4 Finalize collection	5.4 Impute	6.4 Apply disclosure control	7.4 Promote dissemination products	8.4 Dispose of data & associated metadata	
1.5 Check data availability	2.5 Design statistical processing methodology	3.5 Test statistical business process		5.5 Derive new variables & statistical units	6.5 Finalize outputs	7.5 Manage user support		
1.6 Prepare business case	2.6 Design production systems & workflow	3.6 Finalize production system		5.6 Calculate weights				
				5.7 Calculate aggregates				
				5.8 Finalize data files				

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Applicability

- All activities undertaken by producers of official statistics which result in data outputs
  - Producing statistics from raw data (micro or macro-data)
  - Revision of existing data / re-calculation of time-series
  - Development and maintenance of statistical registers
- A set of activities that fulfills these conditions is termed a **statistical business process**

Not a linear model

Recent Developments : Modelling business processes beyond the scope of GSBPM

1. KSBPM (Korea Statistical Business Process Model)

Statistical Policy Management

| Demand Management | Coordination | Quality Control | Policy Supports by Statistics |

Quality Assessment at Each Phase

Support Statistical Production
- Population Data
- Sampling Data
- Enumeration districts Data

Statistical Production Process Pool

Plan	Collect	Disseminate
Design	Process	Archive
Build	Analyze	Evaluate

Information Sharing Service
- Statistical Knowledge Management
- Metadata Reference
- Service Helpdesk

Outcomes from METIS Workshop

- Held 5 – 7 October 2011
- The GSBPM will not be revised in the short term
- Future work will focus on work on data and metadata flows in GSBPM

Applying GSBPM to an NSI

- GSBPM is a reference model, which has been be used in a number of ways:
    - Agency adopts it "as is"
    - Agency adopts a version of it
    - Agency maps existing process model to it

- For more information see [National Implementations of GSBPM](#)

Applying GSBPM in ABS

- ABS sees the GSBPM as a cornerstone for a more generic reference architecture.

- It can be utilised to facilitate and enhance communication and understanding, and ultimately, sharing and collaboration across agencies

Mapping of Needs to the GSBPM
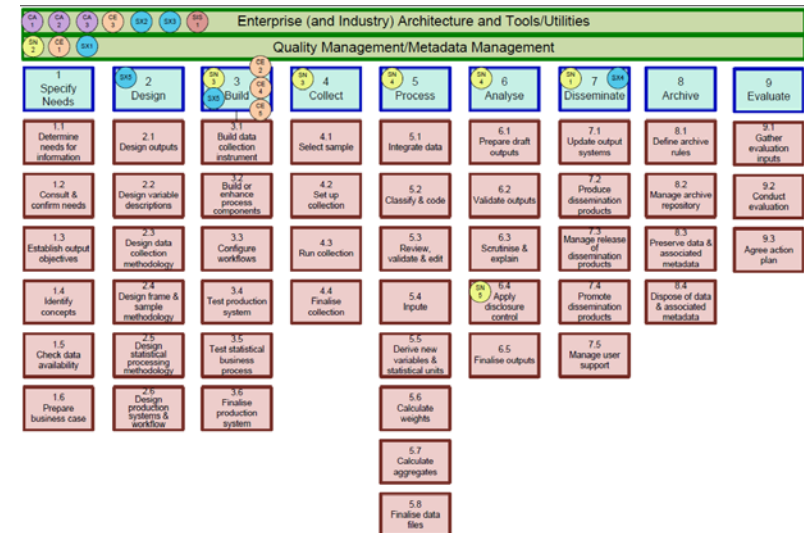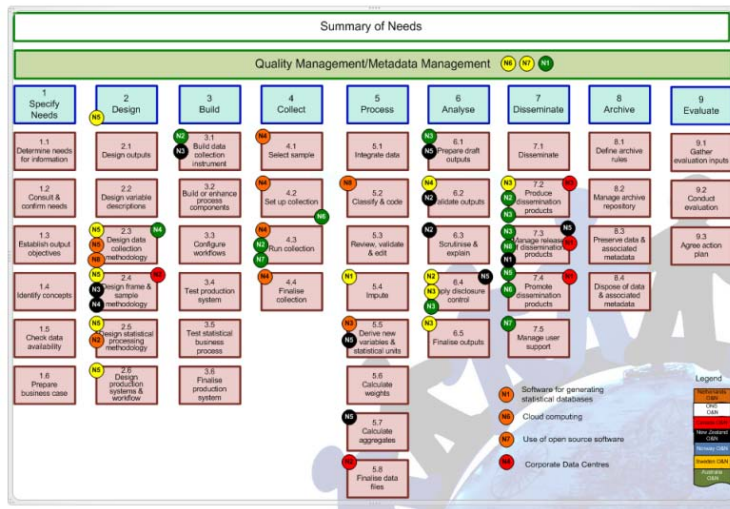
Applying GSBPM in ABS (2)

- GSBPM was formally adopted by the ABS in 2010.

- It is our primary reference model for statistical business processes.

- It is used in corporate planning and as a cornerstone of ABS Enterprise Architecture.

Applying GSBPM in ABS (3)

- Early adopter of GSBPM in ABS was the Prices System Improvement Project.

- Project aims to design an end-to-end system for 5 Price Indexes.

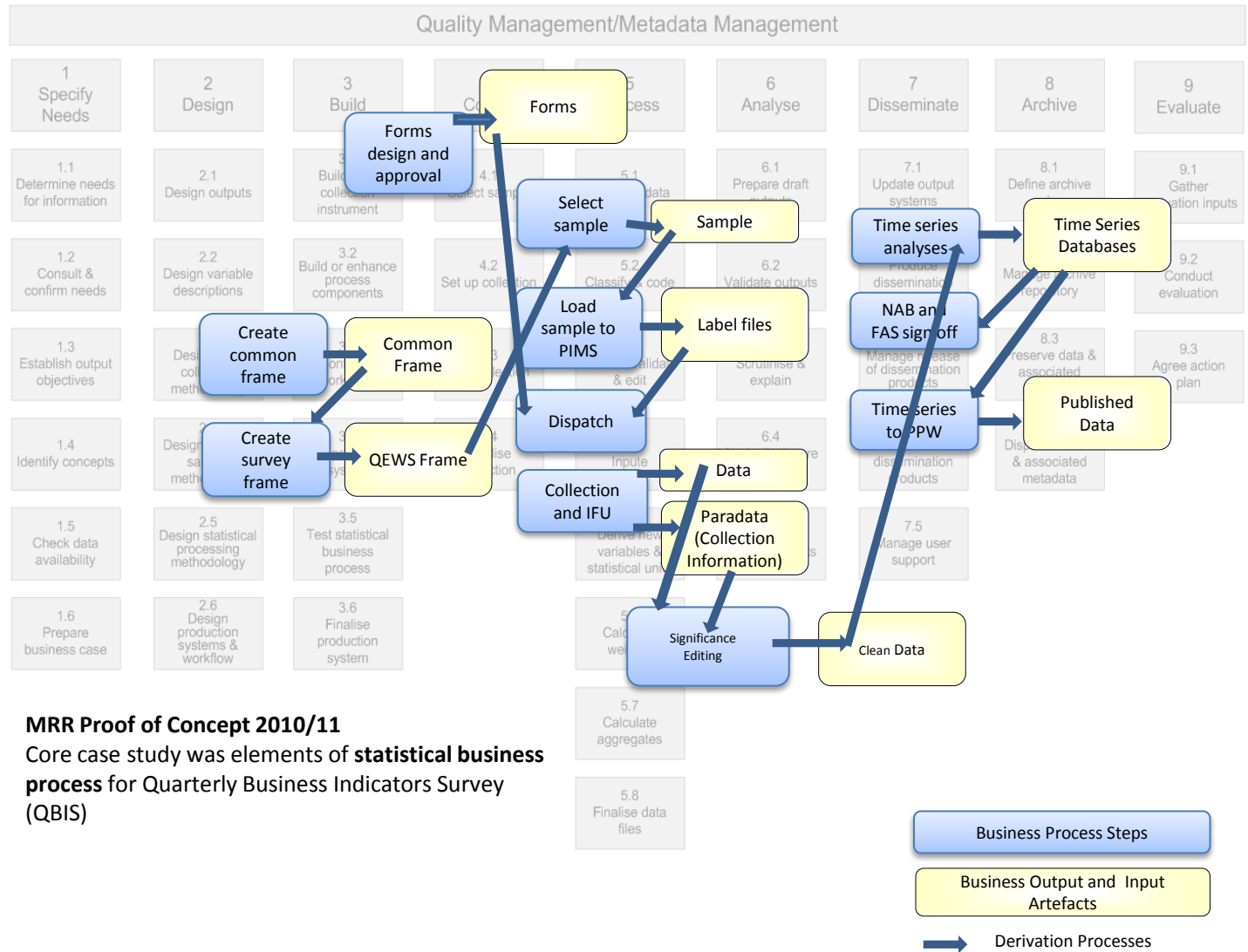- GSBPM was used as a guide to harmonise processes across the 5 Price Indexes
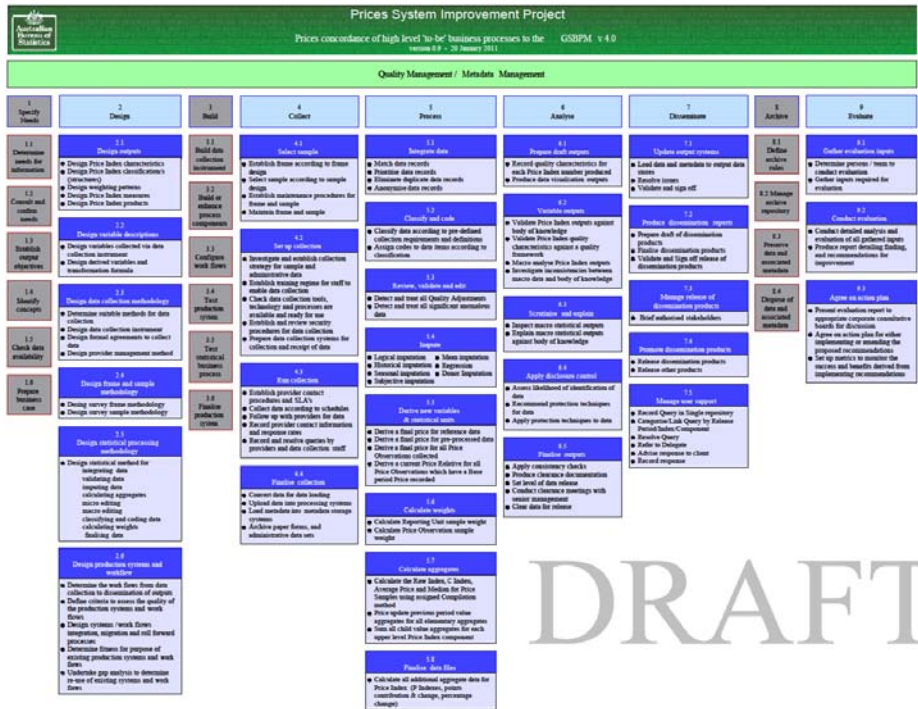
Applying GSBPM in ABS (4)

- In February 2010, the ABS announced the Information Management Transformation Program.

- A key element of this Program is business process transformation. The approach is to have workshops:
  - to analyse and map a range of current collection processes
  - to develop aspects of the "to be" environment from a functional, end to end perspective

- These activities will utilise GSBPM as a reference model.

Applying GSBPM in ABS (5)

Quality Management/Metadata Management

| 1 Specify Needs | 2 Design | 3 Build | 4 Collect | 5 Process | 6 Analyse | 7 Disseminate | 8 Archive | 9 Evaluate |

MRR Proof of Concept 2010/11
Core case study was elements of **statistical business process** for Quarterly Business Indicators Survey (QBIS)

Business Process Steps

Business Output and Input Artefacts

→ Derivation Processes

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Summary of experiences

- Very valuable as a common reference model facilitating comparability within & across NSIs
  - Use as a consistent high level reference model for **statistical business process,** eg
    - framework & context when presenting training about statistical production processes
    - tracking resources (eg staff effort and other costs) directly related to statistical production
    - useful when designing quality management for the statistical production process (eg positioning quality gates)
    - useful point of reference when cataloguing, assessing and managing various methods and IT systems available to support statistical production

Summary of experiences (2)

- Staff can be unsure about intent
  - Not a template for designing statistical business processes
    - Details of processes and workflows as implemented in practice are less generic
  - Not a blueprint for the "ideal" statistical business process
- It provides some value as a reference model for all statistical business processes, but value tends to be greater for some types than others
  - eg a better (and more obvious) fit for "traditional" business and household surveys vs compilations (eg National Accounts) and processes using administrative sources
- Need to keep its scope in mind
  - Don't try to use it as a reference for business processes that don't fit the criteria
    - Eg when modelling the process an NSI uses to determine human resource needs and recruit/train staff accordingly

Other high level considerations when modelling business processes

- Ensure the roles of GSBPM as a reference model are understood.
  - Actual business processes often do not map simply to the GSBPM.
    - In these cases, document relationships between the process as modelled and the GSBPM
    - Do not simplify modelling of business processes simply to better align them with the GSBPM

- The best approach is a partnership between business staff and staff expert at analysing and modelling business processes (a centre of excellence).
  - Don't expect statistical business staff to produce consistent, high quality models on their own (but must include them)
  - Don't rely only on IT modelling skills

- Must clearly separate "As Is" and "To Be" modelling of business processes
  - both are usually important
  - there may be changes to process (eg to move to a process that current methods and/or IT cannot support)
  - there are very likely to be changes to methods and/or technology used to implement processes

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Other considerations (2)

- Ensure practical benefits of investing in modelling is apparent to business areas
  - Start with well defined plans for using and maintaining the information, not just for gathering it
  - The case is strong where modelling inputs directly to business process re-engineering which delivers greater levels of automation and reliability and simplifies change

- Carefully select methods and tools used for modelling.
  - Consider factors such as
    - ease of use
    - integration with software used for related purposes
    - the simplest solution which is fit for purpose
  - "powerful" & "advanced" is not always best!

Questions?