Practical Applications of the ODP Enterprise Language

by Sandy Tyndale-Biscoe

(Quintec Associates Limited)

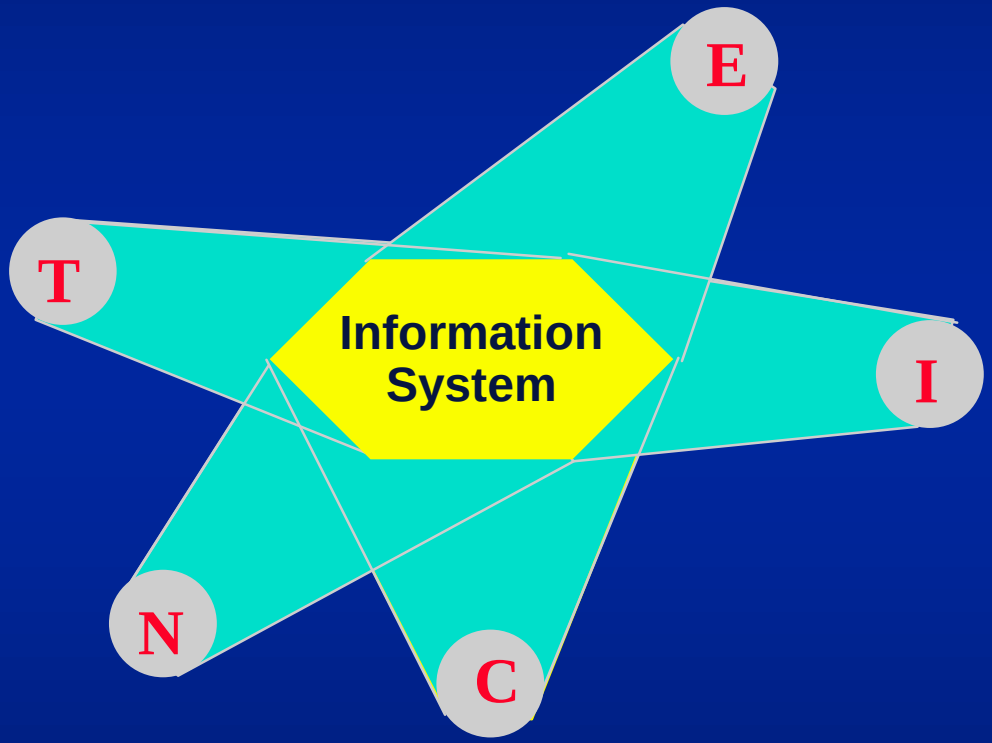
with a lot of help from his friends

Application of the ODP Enterprise Language

- What it is
- What one looks like
- What it does
- Who's doing it and why
- Where it's going

RM-ODP Concepts & Principles

Viewpoints



There is in principle a large single specification of an information system but it is too complex to be of use.

There is a need for a separation of concerns in order to structure the specification

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RM-ODP Concepts & Principles

Viewpoint concerns

Enterprise Viewpoint - the purpose, scope and policies for the organisation that will own the information system

Information Viewpoint - the information handled by the information system and constraints on the use and interpretation of that information

Computational Viewpoint - the functional decomposition of the information system into objects suitable for distribution

Engineering Viewpoint - the infrastructure required to support distribution

Technology Viewpoint - the constraints on system hardware and software

A system specification from each viewpoint expressed in the terms of the corresponding viewpoint language

Enterprise Viewpoint

An enterprise description is a specification for the behaviour of an organisation, in terms of the behaviour of the objects that make it up, and their relationships to one another.

Its purpose is primarily to identify the required behaviour of some system in the context of the overall objectives and policies of the organisation.

The specification is expressed using the concepts of the

Enterprise Language

The Enterprise Language

Fundamental Concepts

Objective - some desired state of affairs or required behaviour

Community - a composition of enterprise objects formed to meet an objective

Enterprise object - a component of a community - may be a person, an information system or a group of people and/or systems

Role - identifier for the behaviour of an object in a community (ie to meet an objective)

Interaction - an observable action normally involving two or more objects

An enterprise specification comprises a set of information about instances of the concepts above.

Enterprise Description - what it is ...

A specification of one or more communities, each formed to meet an objective, in terms of the way its component objects behave with regard to each other and to objects outside the community.

Behaviour is specified in terms of roles, each itself specified in terms of interactions and the relationships between them.

It takes the form of a set of diagrams with an associated database that provides the rigour and supporting information.

What one looks like

Enterprise Specification

Set of Community Diagrams - used to capture and present the interactions between enterprise objects.

An underlying database - stores details about

- the enterprise objects themselves, including their responsibilities;
- the interactions and the relationships between them.

Tools

Enterprise Specifications are:

- **complex**
- **non-hierarchical.**

It needs a powerful tool to capture them. Such tools need to be

- **graphical**
- **object oriented**
- **capable of enforcing underlying language rules**

Tools

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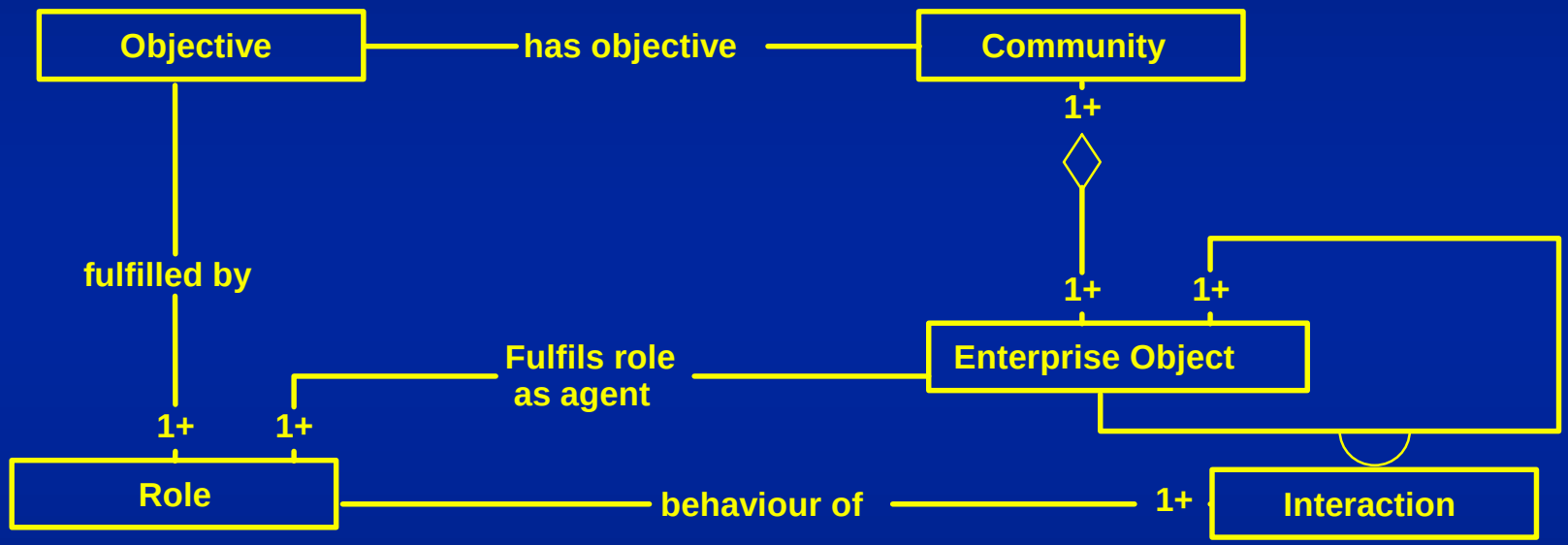
- **object oriented**
- **capable of enforcing underlying language rules**

No such tool exists!

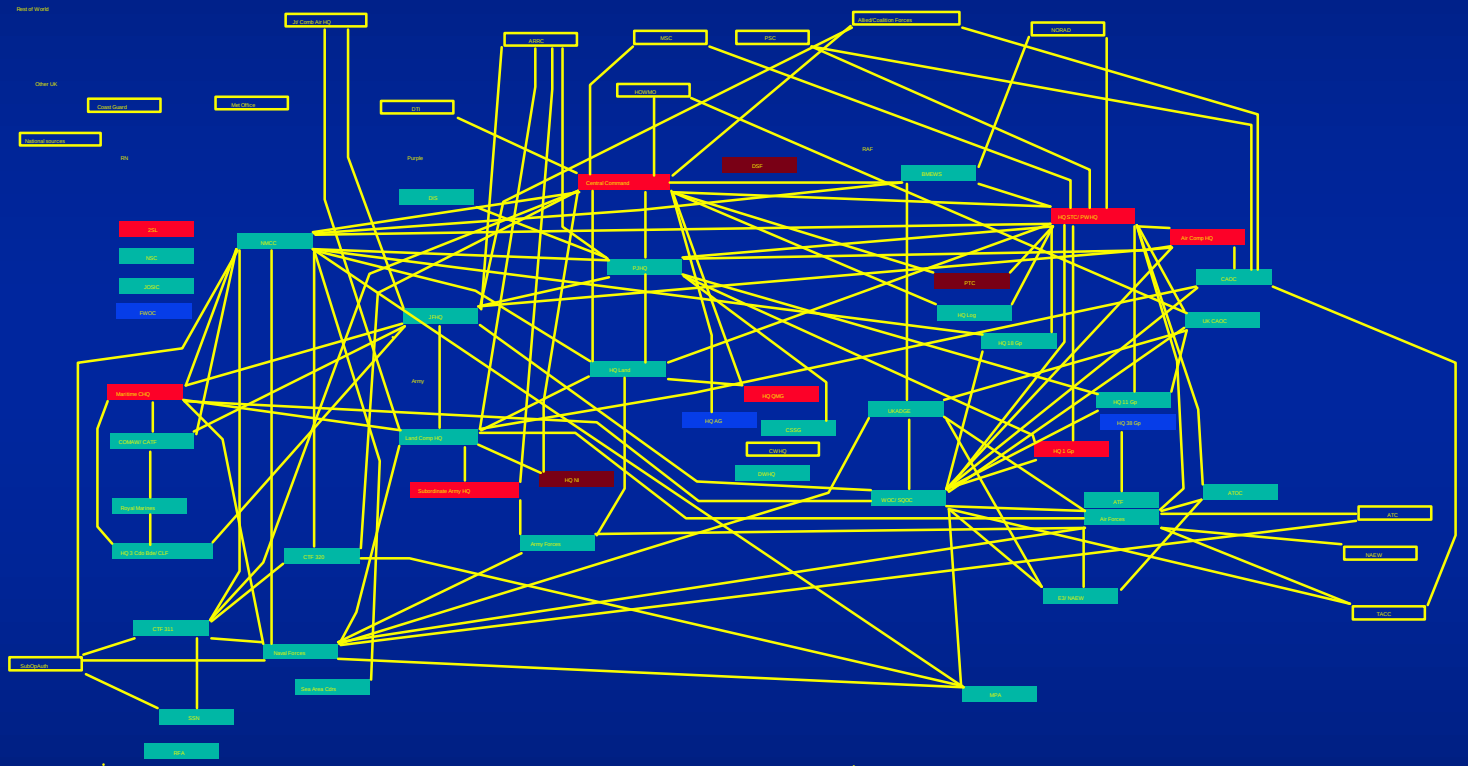
A compromise - Select-OMT

- Object Oriented
- Excellent Graphical Interface
- Acceptable (good) performance
- Scaleability
- Flexible (within limits)
- Links well to presentation tools
- Cheap!

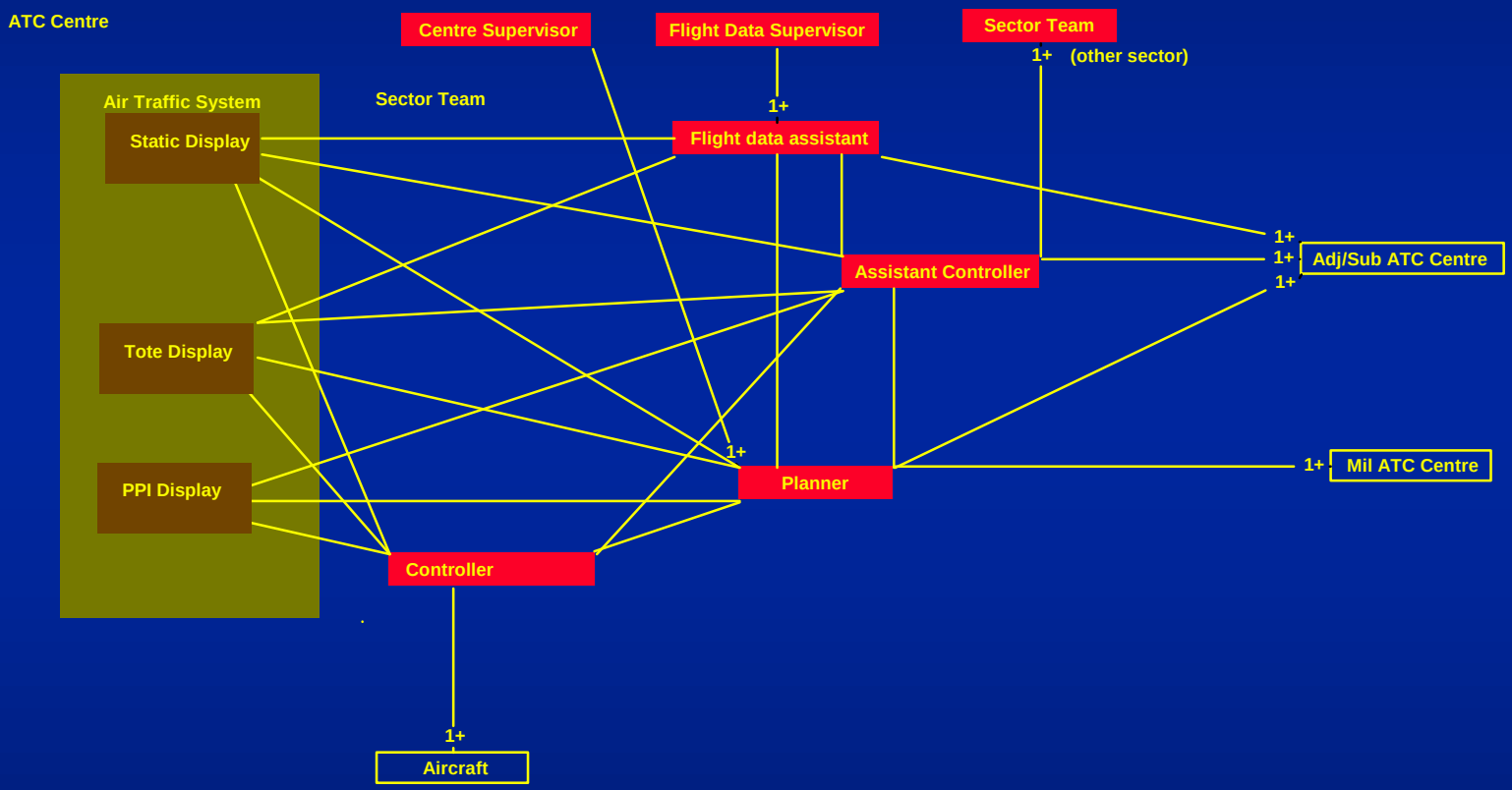
Enterprise Language - meta-model



Example Top Level Community Diagram



Lower Level Diagram



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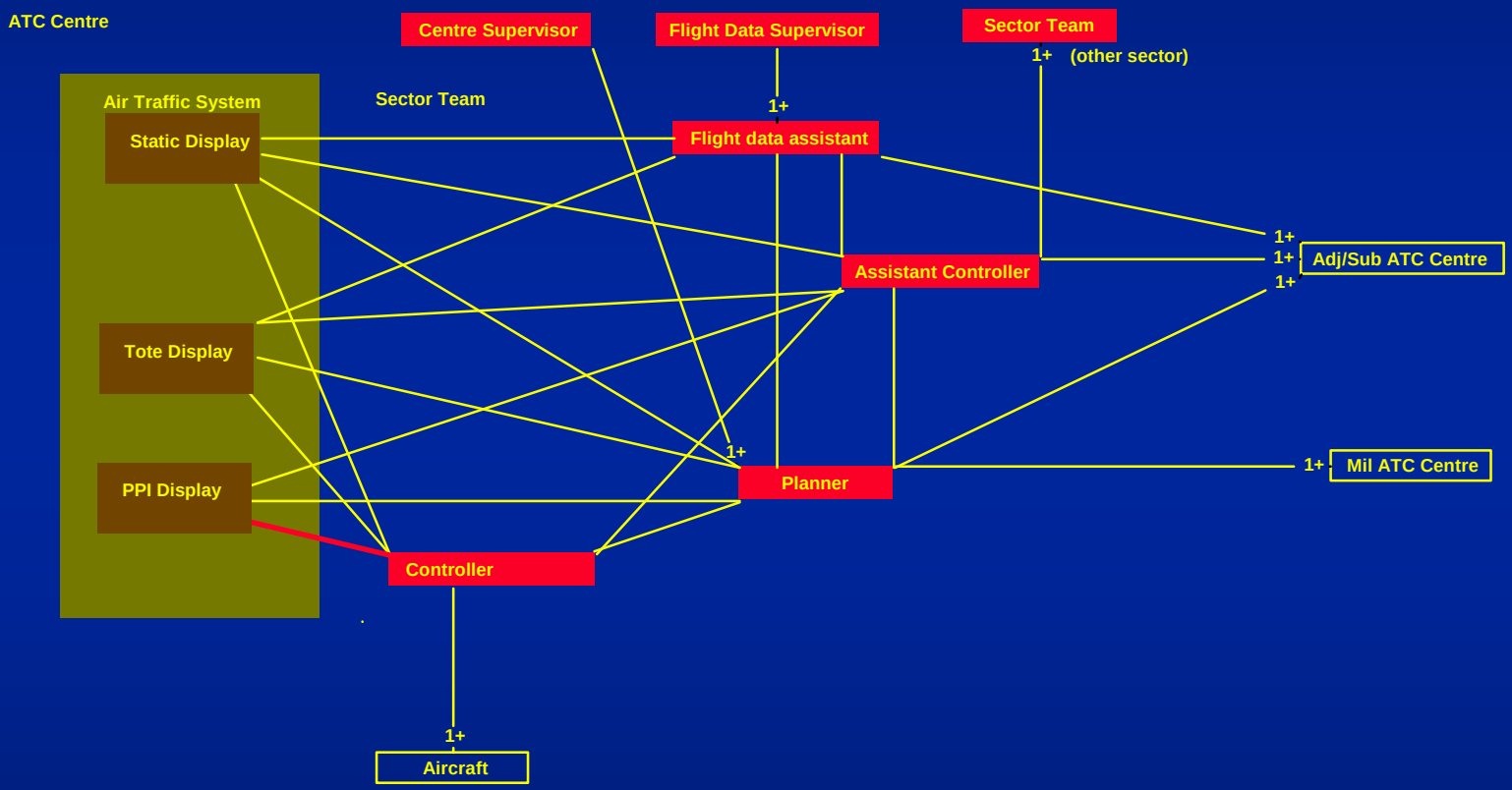
Lower Level Diagram



Controller : PPI Display

Description: Controllller monitors synthetic radar data for sector area (or as required) to establish mental picture of traffic, detect conflicts and to define and maintain short term plan

Objective: Ops Room Objective OM1 - Provide ATS

Role_Type_Start: User

Role_Name_Start: Exec Ctrlr providing ATC service

The interaction represented by this class is part of the interaction represented by the class: Sector Team:ATS

This item is used on the following diagrams:

TEAM.OM1 Sector Team

Enterprise Description - what it does ...

- Provides a means to agree the responsibilities and policies of the organisation which is supported by the required information system(s).
- Specifies the context within which the required information system(s) will operate to support the objectives of the organisation concerned.
- Allows the specification of systems in a manner that is consistent with the business requirements and internationally agreed commercial standards.

Results of Modelling

The ‘result’ is the model. It represents an agreed framework from which conclusions can be drawn and system design decisions made.

Benefits of an Enterprise Specification

An Enterprise Specification helps overcome the risks facing any organisation implementing new systems by:

- **ensuring that everyone knows which business objective is served at any time and understands the current organisation;**
- **specifying an agreed context for information system development;**
- **assessing the impact of changes to the organisation;**
- **allowing the adoption of new technology.**

Better understanding of the existing organisation

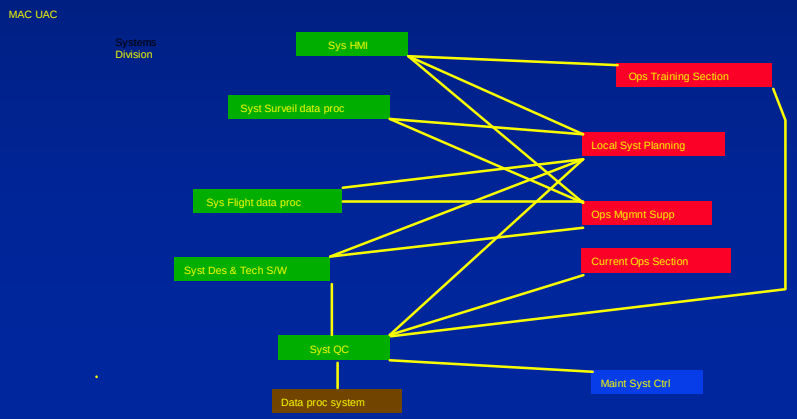
Example:

- **Community diagrams, taken with supporting database information, give a qualitative indication of the levels of effort devoted to different objectives.**

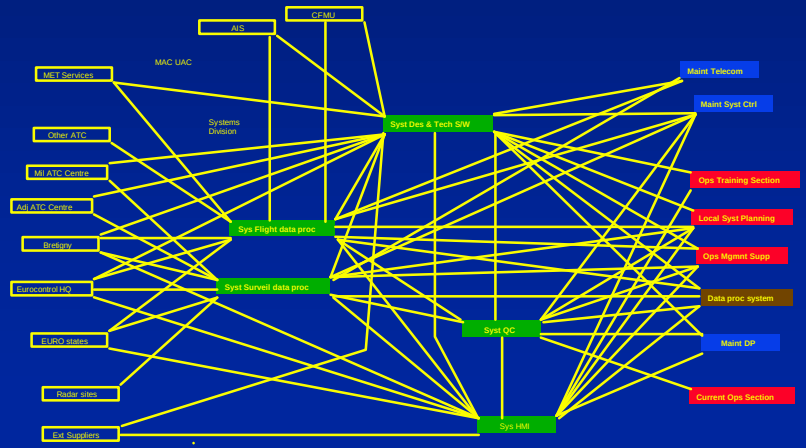
This can lead to cost benefit analysis.

XYZ Organisation

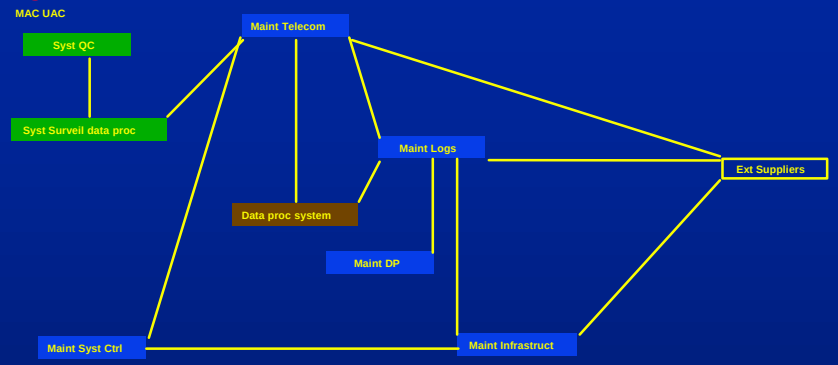
Objective 1



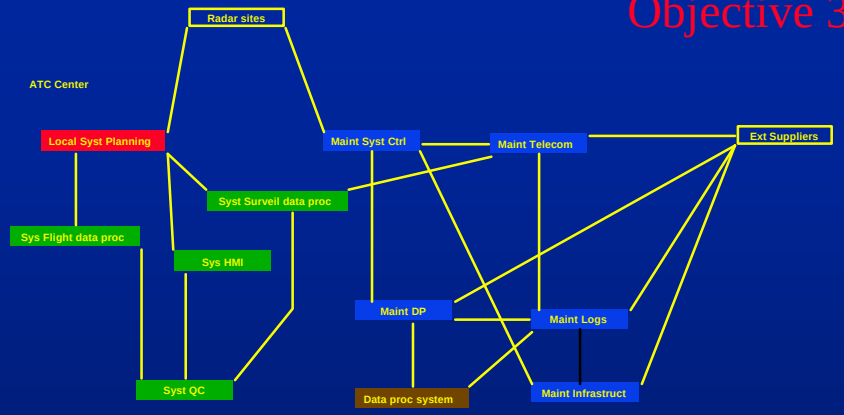
Objective 2



Objective 4



Objective 3



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An agreed context for IS development

The Sector Team community diagram shows how the overall required behaviour of the ATC system can be specified.

Using set of such diagrams the complete behaviour of the systems required can be specified. (=User Requirement).

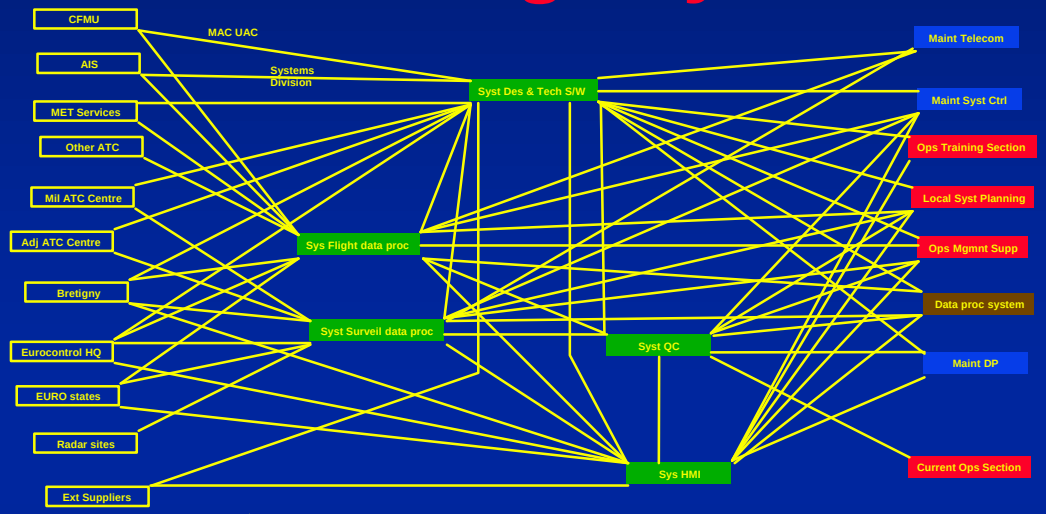
This is derived consistently and rigorously from the highest level organisational requirements.

Impact of changes to the organisation

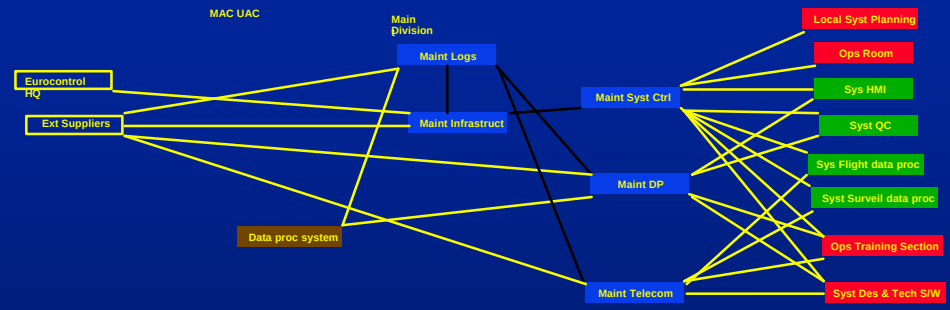
By comparing community diagrams for different organisational elements supporting the same objective we could make useful deductions about possible changes.

XX and YY Divs meeting Objective 1

XX Division



YY Division



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Adoption of new technology

This is an act of faith - new technology will be based on new object oriented ideas, eg CORBA, ODP Trader, OLE, OpenDoc and Java (and whatever's in fashion next year).

Specification of system requirements within a framework that is compatible with these concepts and technologies is the only way that

- **users' aspirations can be met cost/effectively;**
- **supplier 'lock-in' can be prevented;**
- **systems can evolve to meet new business challenges.**

Who's doing it (and why)

The UK Ministry of Defence in order to develop a Reference Model for Command, Control & Intelligence, Communications and Information Systems (C2I CIS)

Eurocontrol - as part of the European Air Traffic Control Harmonisation and Improvement Programme (EATCHIP)

Both organisations need to exercise some form of management over the implementation of information systems with diverse owners and diverse requirements, using diverse technology.

Where it's going

- Extension and Refinement to address policy and responsibility more clearly
- Relations with OMG Business Object Task Force work
- Relations with database work (CSMF)