By Chris Hartley & Helen Hepburn

TM Forum SID - Primer

GB922 Addendum 0 v1.0

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Presentation Objectives

- To introduce the SID using simple concepts
- To promote the use of the SID in an organization
- To Promote team discussion for SID implementers and adopters

This presentation is a companion to the GB922 Addendum 0 Document

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Presentation Target Audience

- Service Provider Subject Matter Experts
- Service Provider Process Experts
- Service Provider Executive & Senior Managers
- Service Provider Technical Managers
- Service Provider Business & System analysts

…….and anyone else who is interested !

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SID Scope

- The SID scope covers the information required by eTOM based use cases
- The SID is still work in progress
  - A substantial part of the scope is now available
  - Future releases will expand the coverage
- A SID design model is planned and is in the early stages of definition

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SID Objectives

- To provide a precise model of things important to a Service Provider's business
- To provide the TMF NGOSS information requirements
- To assist in the implementation of NGOSS software components
- To provide a design model to aid in NGOSS component implementation

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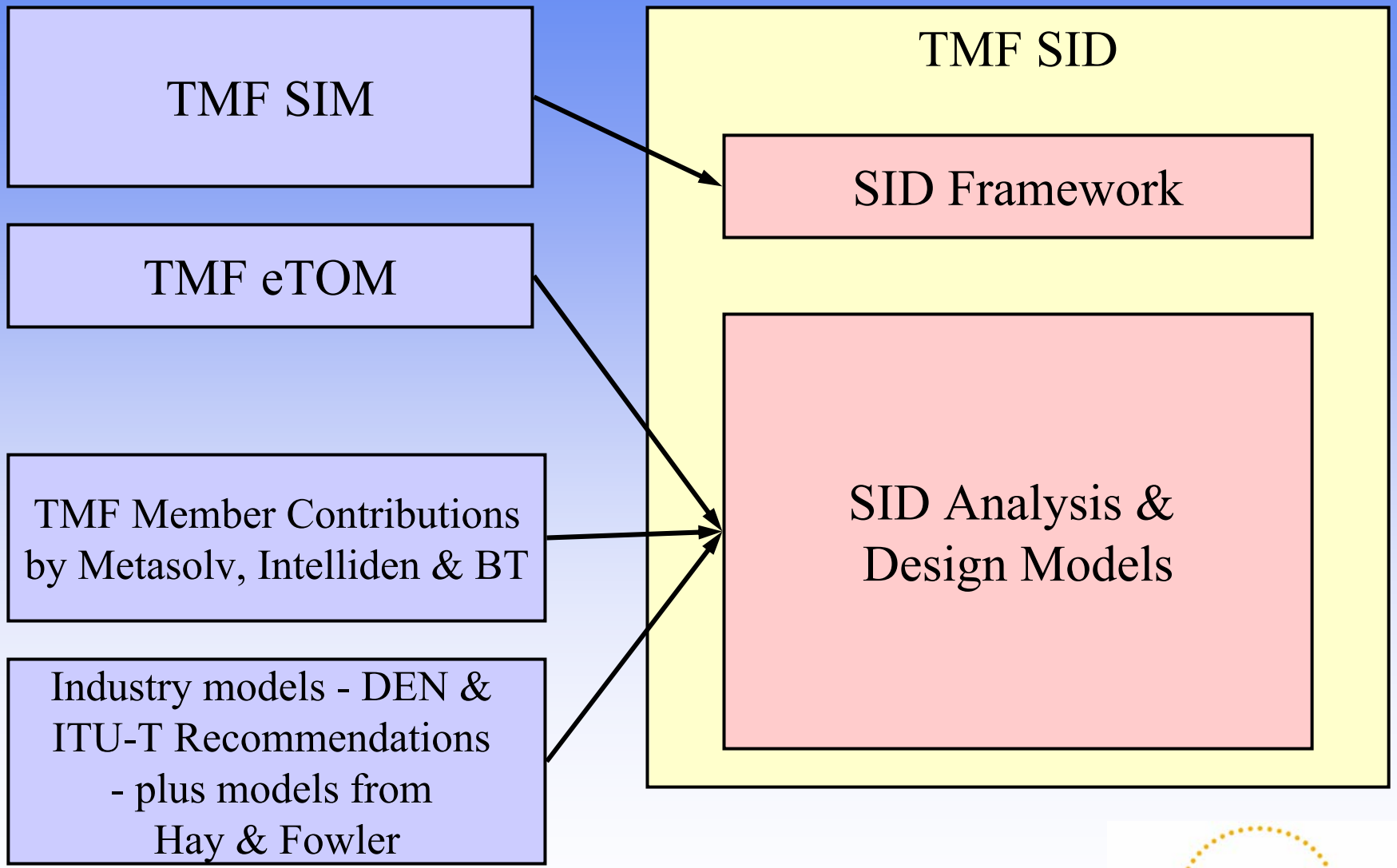
Origins of the SID



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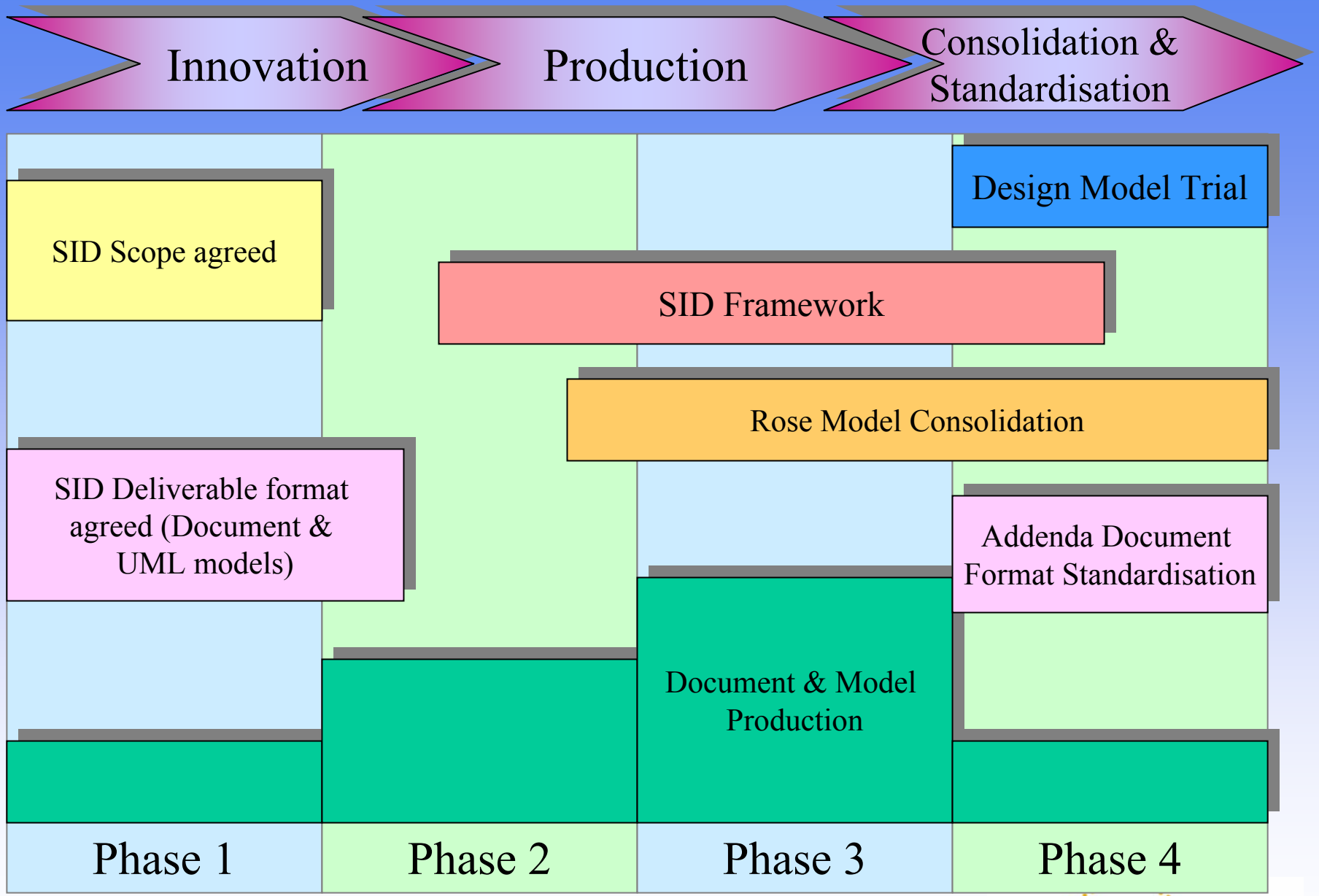

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High Level Concepts

We will now look at

- Information models in general
- Specific thoughts on the SID information model

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Why have an Information Model ?

- Provides a way of structuring information
- Provides standard definitions
- Provides a consistent, common terminology

... leading to business benefits of improved

- Cost
- Quality
- Timeliness
- Adaptability

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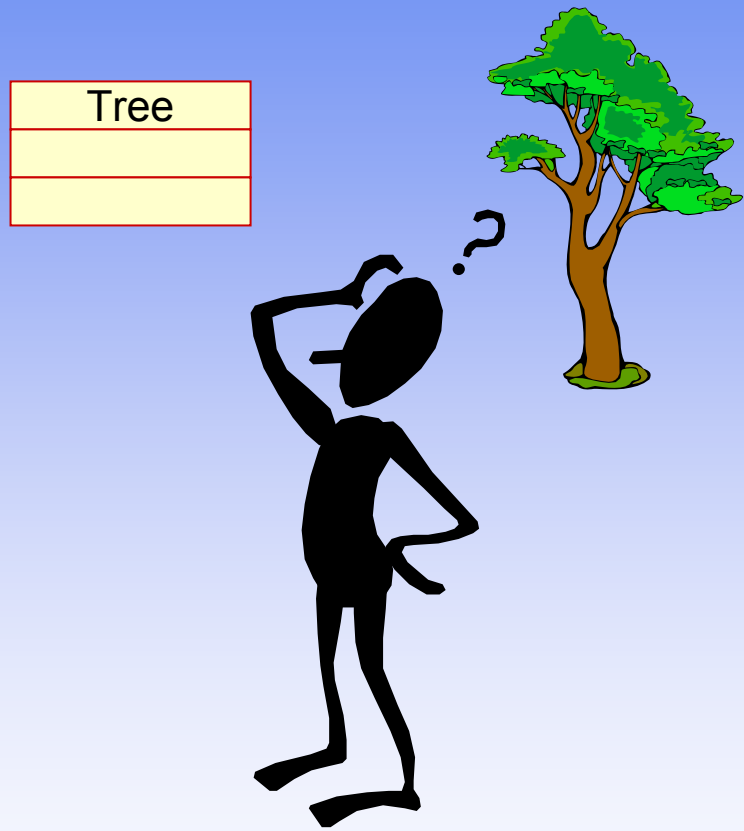
What is an Information Model ?

A conceptual / analysis / domain / semantic model represents real world objects (not computer software solutions).



The model includes:

- Things of interest (entities)
- Relationships between these things (associations)
- Details/characteristics of these things (attributes)

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What does an Information Model do for me ?

It provides more structure and deeper insight than:

- Large text documents
- Spreadsheets
- Glossaries
- Database models
- Source code

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When to apply an Information Model ?

- To help in the definition of internal IT development
- When defining a common business terminology
- To provide rigorous definitions and knowledge for business transformation
- As a source of inspiration for a new view on traditional practices

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Where does an Information Model apply ?

- It applies to any business that executes processes that are in the model definition scope
- Applies also to suppliers to these businesses

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Who applies an Information Model ?

- Process experts (for process redesign)
- Business & system analysts (for application design)
- System integrators (in defining messages between software components)

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What an Information Model Is Not

- A database model
- a definition of how software will be written
- an implementation of software classes
- a software API (Application Programming Interface)
- a set of component messaging definitions

The analysis model will, however, provide business definitions that should be a major input to the definition of the above items.

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Impacts / Implications

The SID needs to be part of an integrated information architecture

You also need:

- An information policy (information management)
- Communication and publishing standards
- Governance Processes to ensure compliance

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Constraints & Challenges

An information model should:

- Model fundamental concepts
- Enable change (new products, processes & business models)

Our challenges have included:

- Determining the correct level of detail in our documents & models
- Keeping all of our stakeholders happy
- Gaining understanding and acceptance of our deliverables

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Lessons Learned

- There were fewer existing conceptual models than we expected, forcing us to write many from scratch
- The problem is too big to do in one step, requiring an iterative approach
- The subject domains use many conflicting terminologies, requiring us to map them to a consistent set (e.g. Information Technology vs Telco terms).
- A lot of this is hard to explain in a non-technical manner

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Business Concepts

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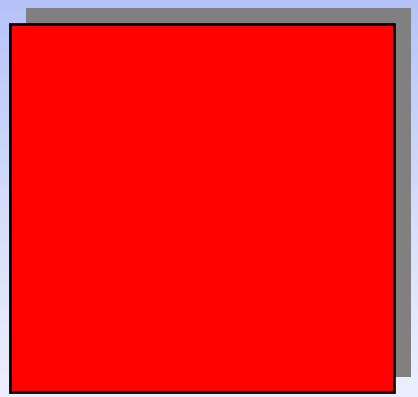
Things of interest to the Business

- Identifiable things
- Value entities (no identity – characteristics only)



Team Discussion:

What characteristics of a person can change during their life ?
What defines the identity of a person (doesn't change) ?
What part(s) of a personal computer defines its identity?

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Categorization with the six primitive questions

- What ?
- Where ?
- Why ?
- How ?
- When ?
- Who ?

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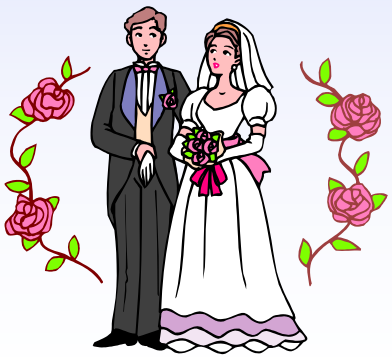
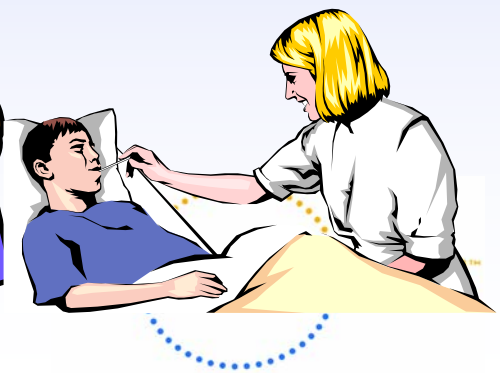
Contexts & Roles

- How do we model something where the characteristics of interest change depending on the situation ?
- We need to separate the *intrinsic* and *contextual* characteristics

Team Discussion:
List the roles that you think may apply in these pictures





States & Lifecycle

- How do we model the invariant and time varying characteristics of a concept or thing ?
- Separate out those characteristics that need to have their changes tracked over time
  (past / present / future)
- Business Processes can create, modify and destroy things
- Processes can modify characteristics and relationships

Team Discussion: List a number of characteristics (both intrinsic & contextual) of a rental car that would be of interest to a car rental firm. Now circle those characteristics that you think should have their values tracked over time

Relationships

- The real world is a connected place
- Concepts rarely exist in isolation,

So -

- We need to model how things relate
- The characteristics of those relationships

Team Discussion: What are the entities and relationships that we need to know to answer the question
"Which customers still owe money for their service this month ?"

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Conceptual Model

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High Level Concepts

- Identity / Party (who)
- Time & Time Period (when)
- Event (when)
- Places / Location (where)
- Motivation (why)
- Work (how)
- Policy (how)
- The Business (what)
- Finance (what)

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Identity / Party (Who)

- Individuals & Organizations
- Party Role
  - Customer (actual or potential)
  - Supplier
  - User

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Time (When)

- Calendar - dates
- Event - triggers pinpointing change

Places / Location (Where)

- Locations & Sites - absolute locations
- Addresses - identify locations

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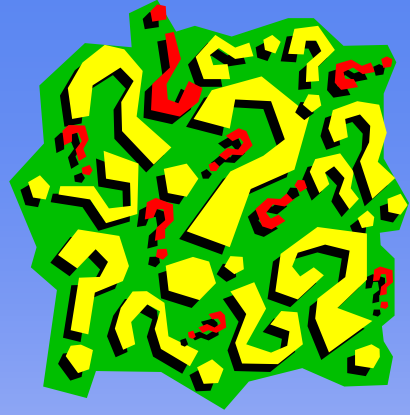
Motivation (Why)



- Business Plan - we need to:
  - Lead the Market in Customer Satisfaction
  - Meet the demand for existing & new Products and Services
  - Grow Profitable Revenues
  - Achieve best in class costs
  - Preserve our vital assets
  - Position the business strategically
  - Do what is required by Regulation
  - Develop Committed Quality People

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Work (How)

- Plan & Project - bringing about change
- Process - business as usual

Policy (How)

Is everywhere….

- Sets of business rules for business people
- Controls for Quality of Service (QoS) for networking people
- A means to scale the system for systems architects

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The Business (What)

- ‘What’ is your business?
  - Agreements - Customer *and* Supplier contracts. What are you committed to? Where is your revenue coming from?
  - Products - portfolio, branding, capabilities, delivery. What can you offer customers?
  - Services - delivering the product capabilities. How do you manage delivery to customers?
  - Resource - infrastructure supporting services. What do you need to provision or build?

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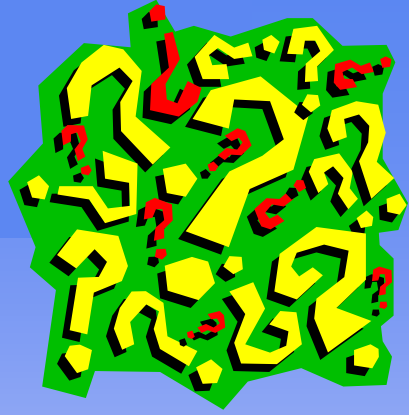
Financials (What)



- Accounting
- Invoice

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Linking the concepts together

MARKET/ SALES
consists of
may provide
SUPPLIER/ PARTNER
may provide
may provide
may be a
PARTY
contacted/located at
LOCATION
may be a
may participate in
may be a
CUSTOMER
PRODUCT
delivers
CUSTOMER FACING SERVICE
BUSINESS INTERACTION
placed for
may give access to
is used
may be associated with
CUSTOMER ORDER
USER
realises
uses
PROJECT
generates revenue
RESOURCE FACING SERVICE
develops, operates, maintains
funds
FINANCIALS & INVOICE
usage creates billing
SERVICE
RESOURCE CAPABILITY
implements
LOGICAL RESOURCE
PHYSICAL RESOURCE
located at

EVENT
POLICY
Both these entities appear throughout the model

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How the SID relates to the eTOM

- The SID and eTOM model the same business concepts with the eTOM focussing on processes and the SID analysis model focussing on things, their characteristics and relationships
- The eTOM and SID use a common terminology and high level definitions

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How the SID relates to other industry models

The SID team has mined :

- DEN models
- ITU-T recommendations
- General industry models
- General analysis patterns

The terminology has been standardised to prevent the SID from becoming a patchwork of different model terms

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Conclusion

- Both the SID and eTOM are complementary parts of the NGOSS initiative
- The SID provides competitive advantage by rigorously defining & documenting business fundamentals
- The SID is not “magic”, but applies best practice modelling methodology to sound, industry standards
- The SID is an open, industry standard
- The SID is available now, and ready for use

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Further Reading

- The GB922 SID Primer document covers these topics in more detail
- The GB922 SID Primer word document has a list of references used in producing this slide pack
- Those wishing to tackle the complete SID GB922 document set can download them from the TM Forum web site.

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Appendix 1

Introduction to UML Notation

(for those wishing to learn how to read the SID diagrams)

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Entities

Entity name (in italics if Abstract)

Attributes (format is name:type)

Simplified representation (attribute & method detail hidden)

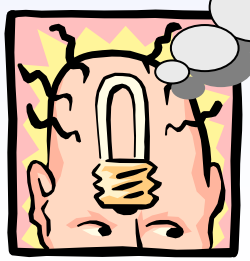
Thing

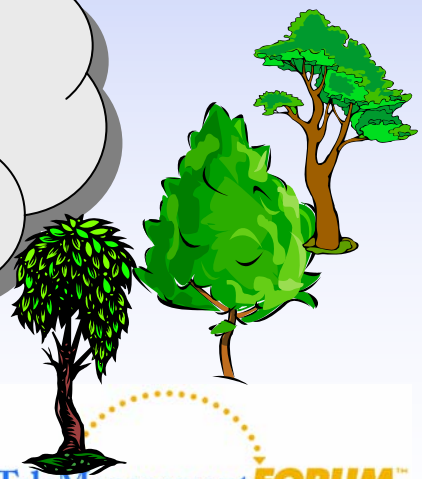
attribute 1
attribute 2 : TimePeriod

anotherThing

Methods (empty in the SID analysis model)

An Entity represents a collection of instances of the same type





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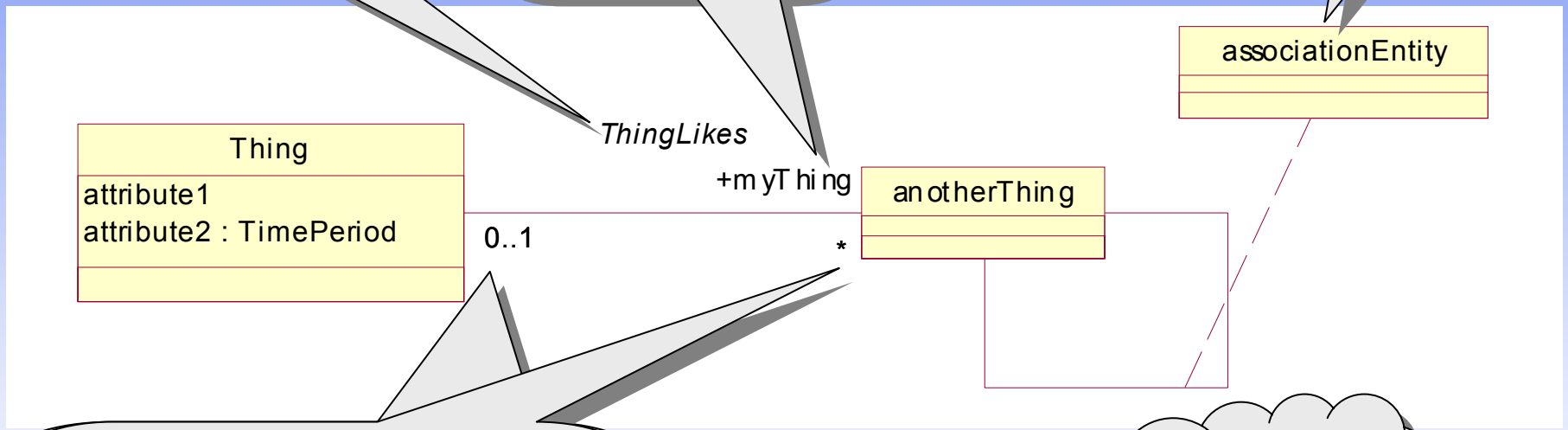
Associations

Association name

Association role

Association Entity allows attributes to be added to an association



Association cardinalities

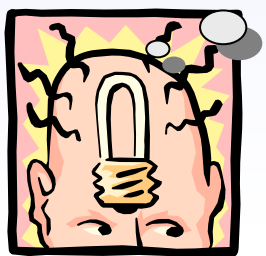
1 = only one

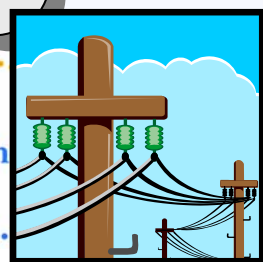
0..1 = zero or one

* = many (zero or more)

1..* = one or more

Associations allow us to relate entities



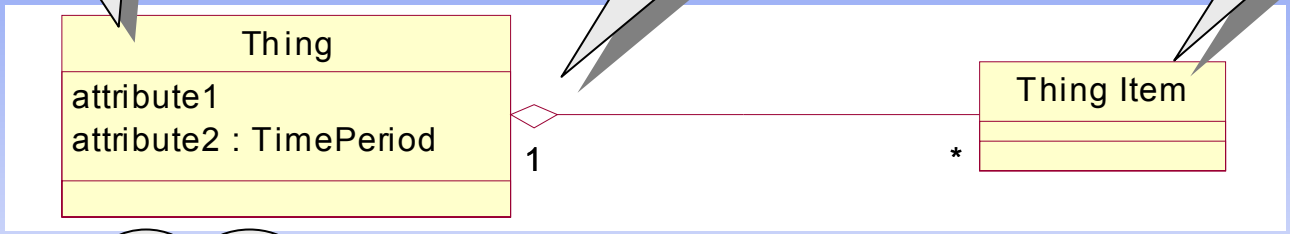


Aggregation Association

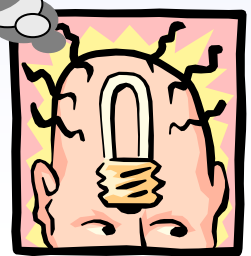
Whole

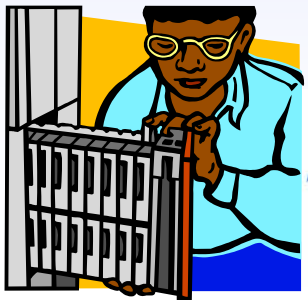
A hollow diamond indicates the “whole” end of association

part



Aggregation shows a close association, such as a whole-part relationship





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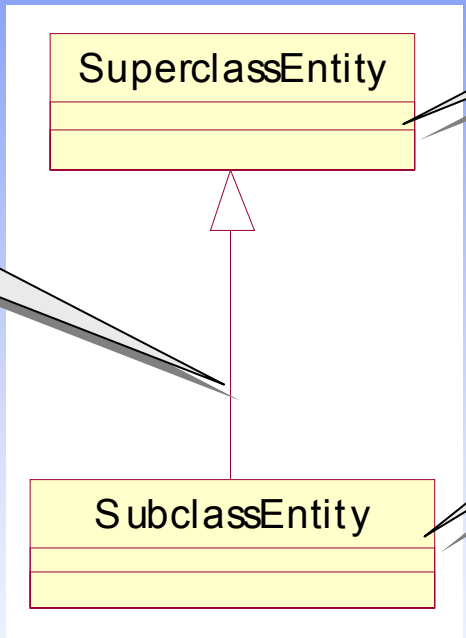
Inheritance / Specialization

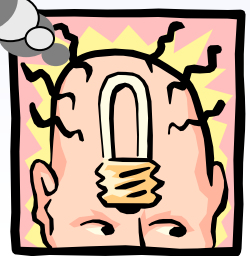
More general entity

Inheritance / specialization relationship



More specific entity

Inheritance relates general & specific types of things



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Appendix 1 Summary

The SID uses the UML notation to graphically represent business concepts

- Entities represent things (or concepts)
- Attributes represent characteristics
- Associations and specialisation represent relationships between things

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Appendix 2

Analysis Patterns used in SID

(For advanced audiences only)

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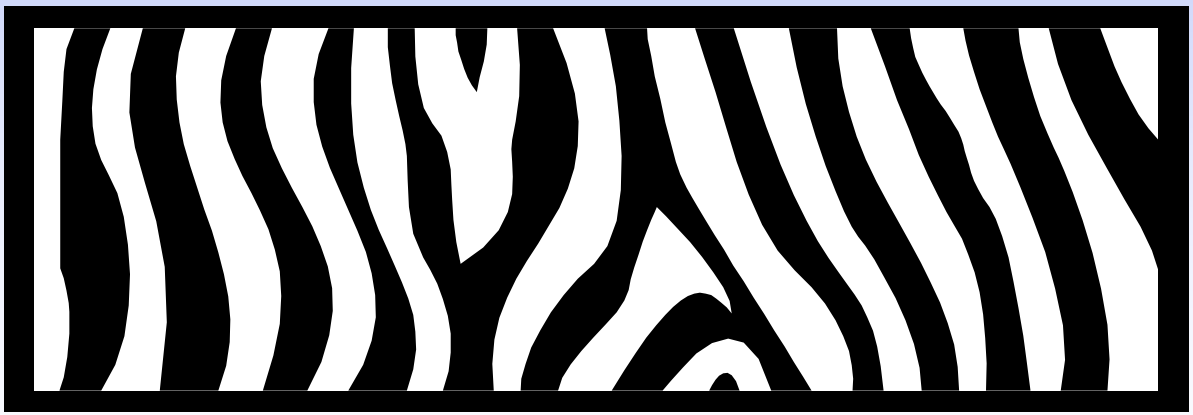
Information Model Patterns

- A pattern describes recurring problems and provides a solution applicable in many situations



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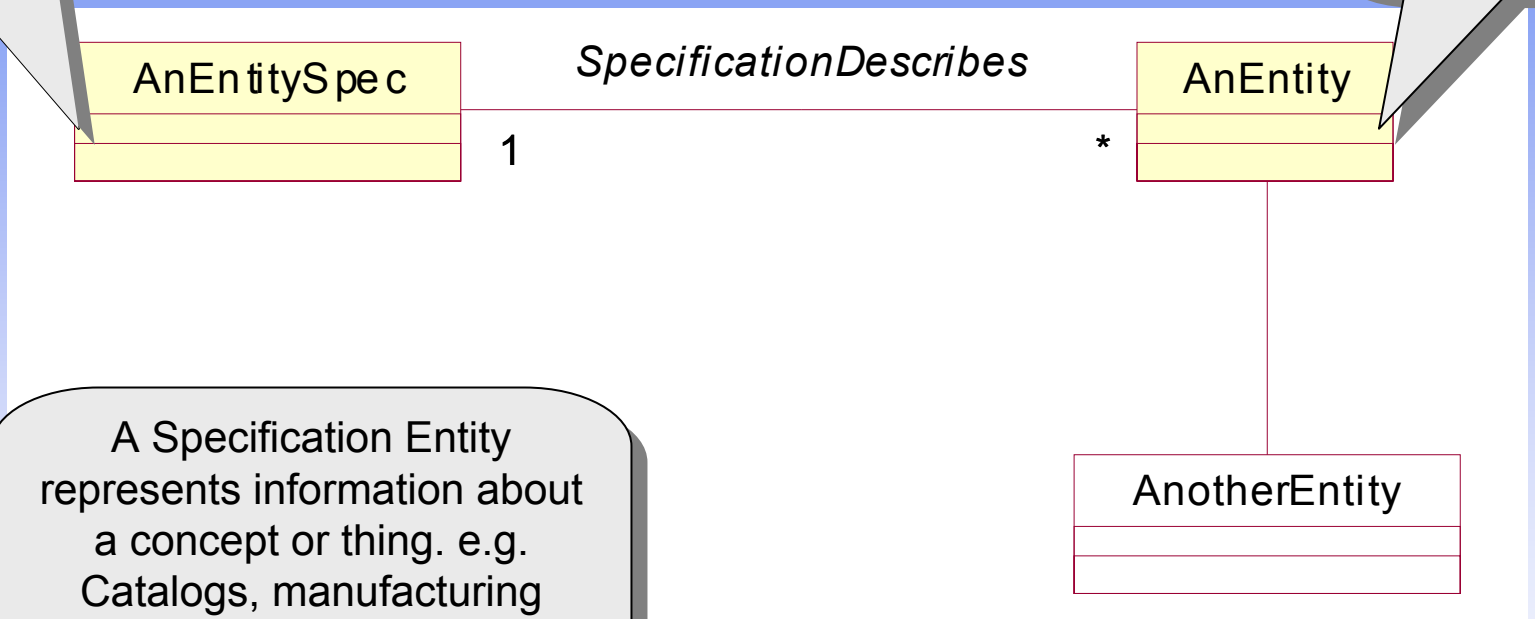
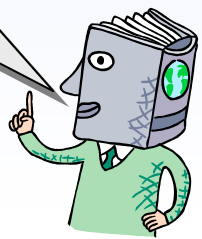
Specification

Attributes common to the type of entity

Attributes related to entity identity



A Specification Entity represents information about a concept or thing. e.g. Catalogs, manufacturing specifications & recipes



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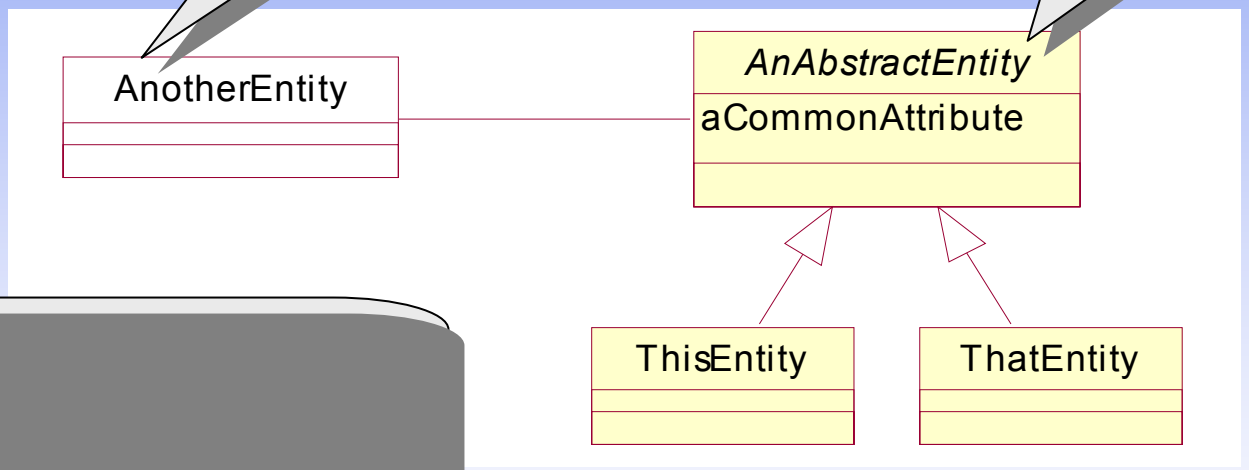
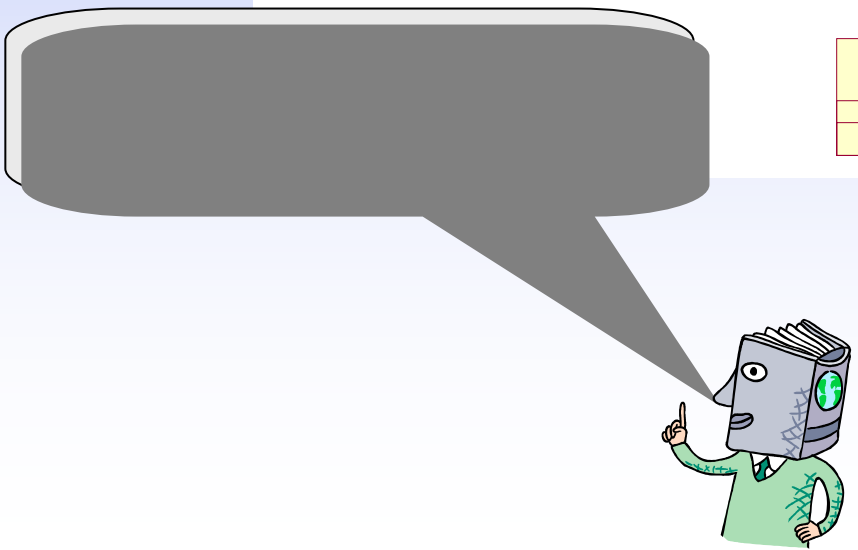
Abstract Superclass

Another entity can link to this or that

Note name is in italics





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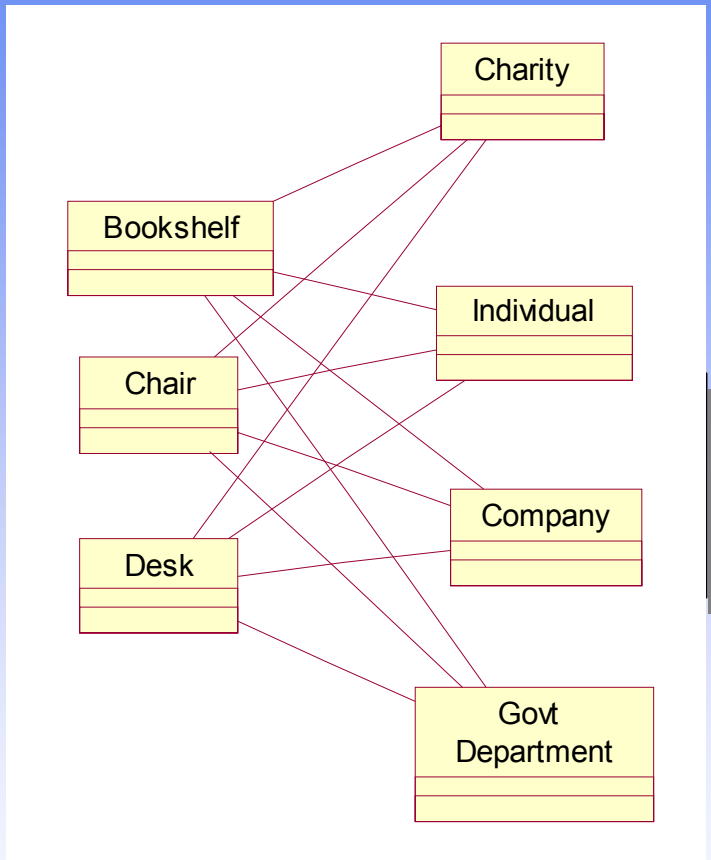
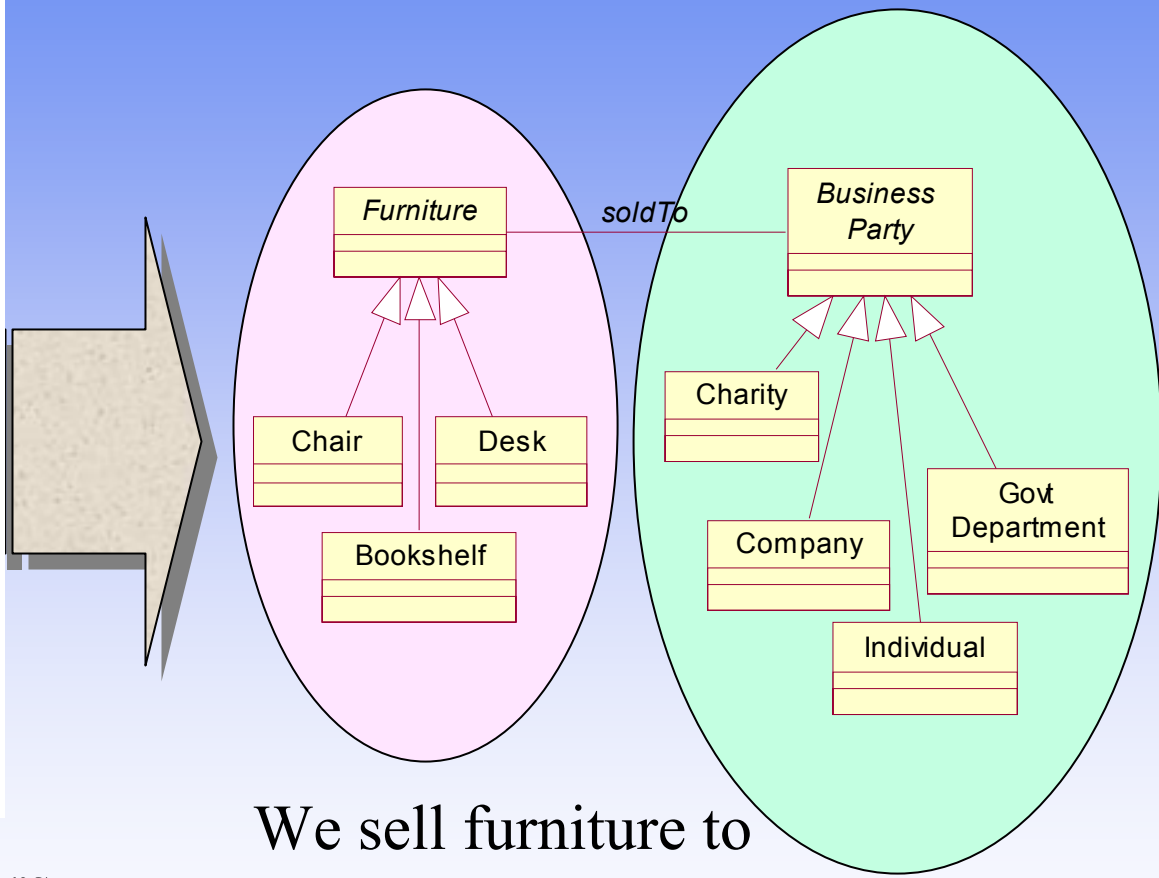
Using Abstract Entities





We sell bookshelves, chairs and desks to Charities, Individuals, Companies and Government departments

We sell furniture to Business Parties

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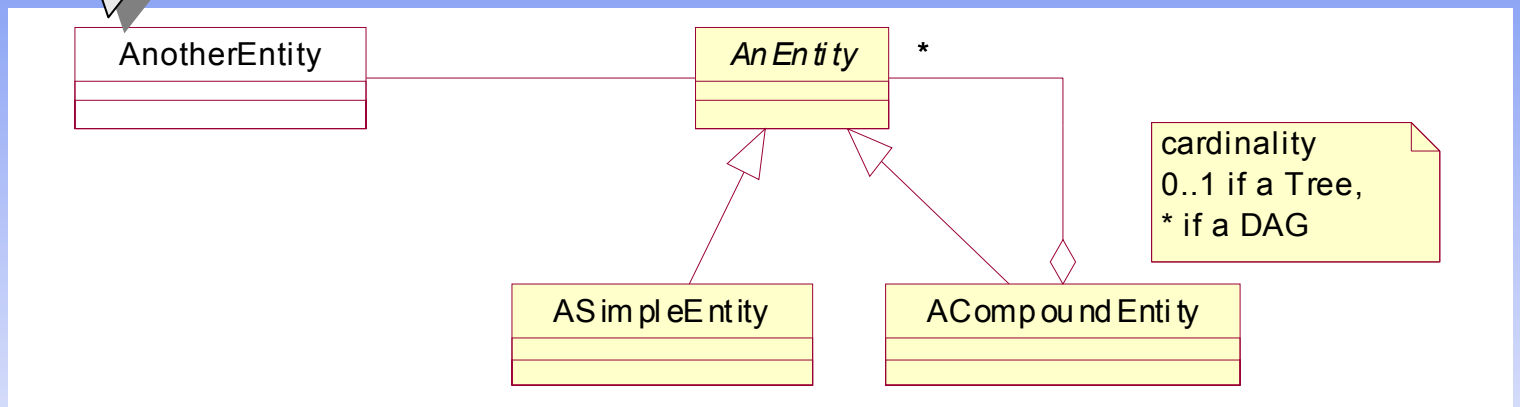
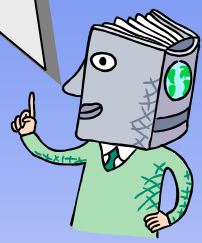
Composite

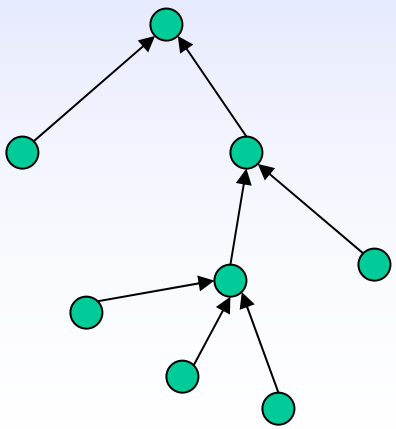
Another entity can link to a single node, a sub-network or the whole network

Composite abstracts assemblies, collections and individual things

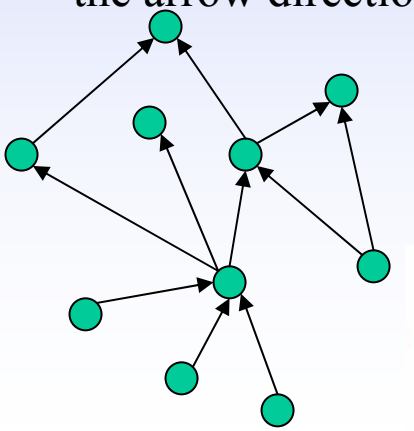




A Tree is a directed network with no loops (each node has only one parent)



A Directed Acyclic Graph (DAG) is a directed network with no loops (in the arrow direction)



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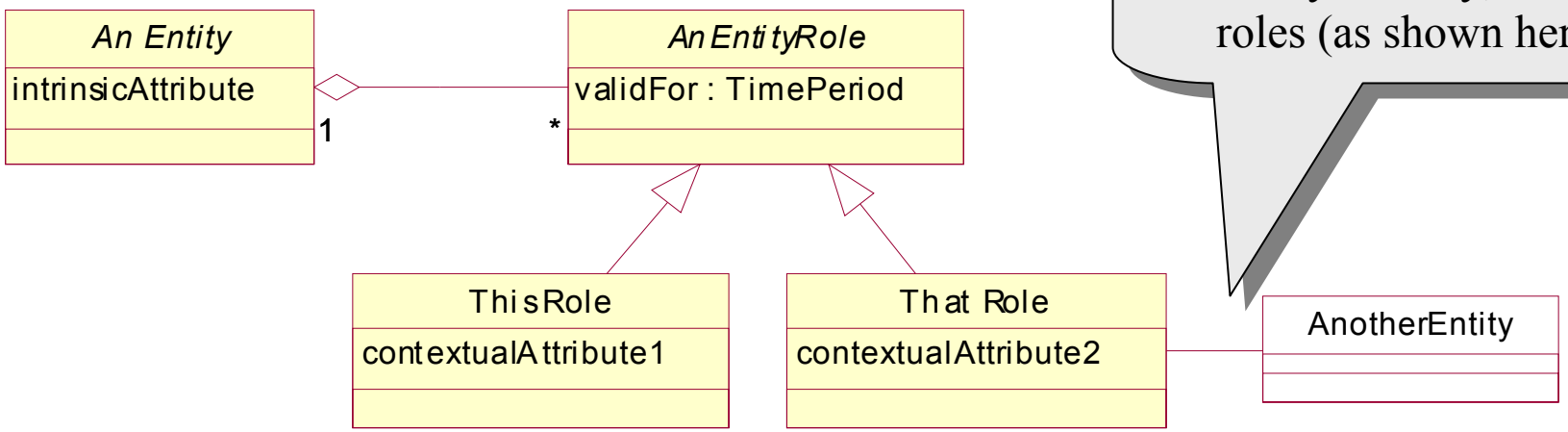
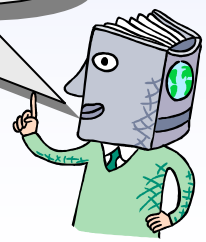
Role Entity



Another entity can link to the entity directly, or via its roles (as shown here)

Separate intrinsic and contextual attributes with Roles



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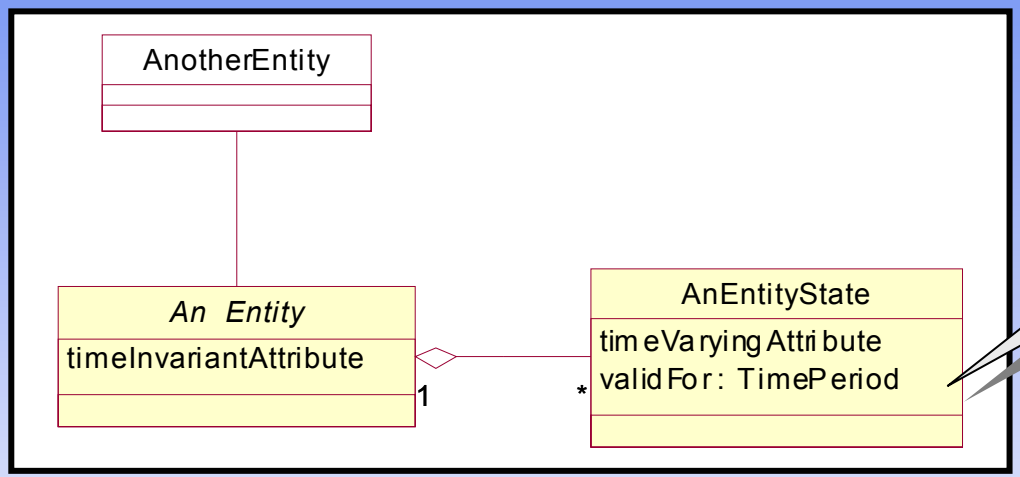
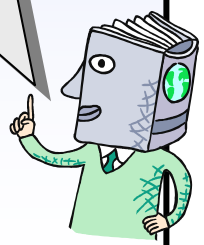
Temporal State Entity

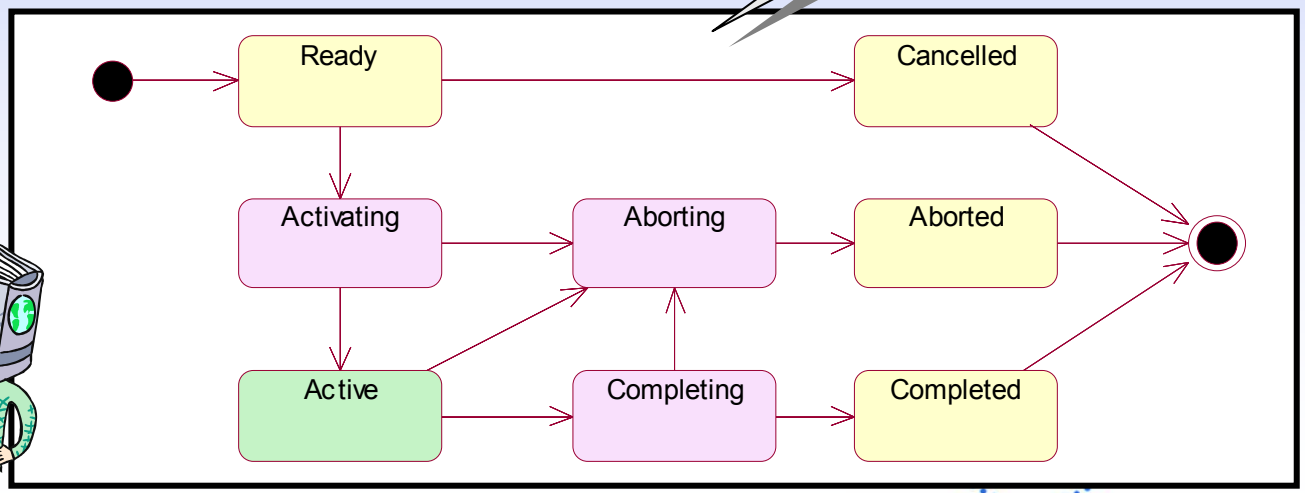


States can change over time. May limit to one state at any one time

A UML state chart diagram

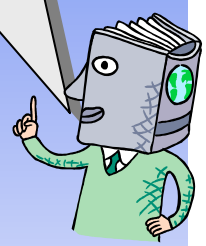
Separate time varying attributes into a separate entity

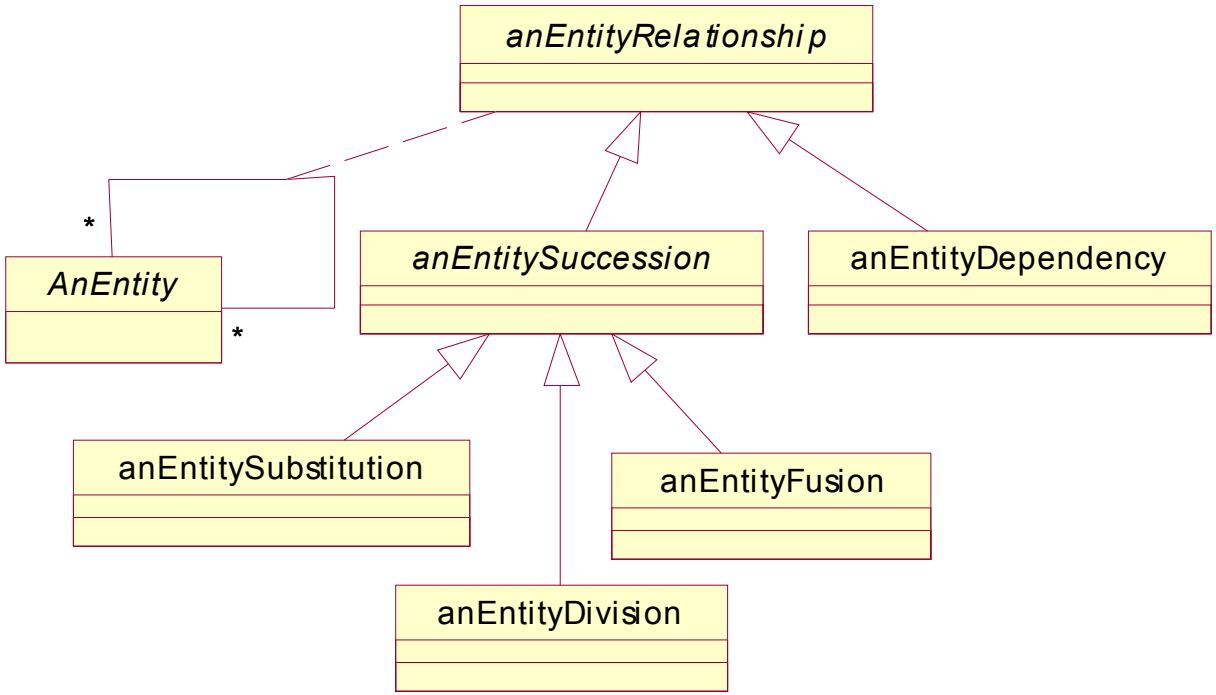




Self Relationship

Self Relationship models relationships between things of the same type





Team Exercise: list ten types of thing (logical & physical) on a board and tick which of the concrete self relationship types apply to each

Thing	Dependency	Substitution	Division	Fusion
<<thing 1>>				
…				
<<thing 10>>				

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Appendix 2 Summary

- Advanced modelling techniques look at providing insight into fundamental behaviour
- Rather than a model being a haphazard arrangement of entities, we have seen how higher level patterns emerge
- These simple patterns show how common situations can be represented and reused

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Appendix 3

eTOM

(only a few slides as this is not an eTOM Primer !)

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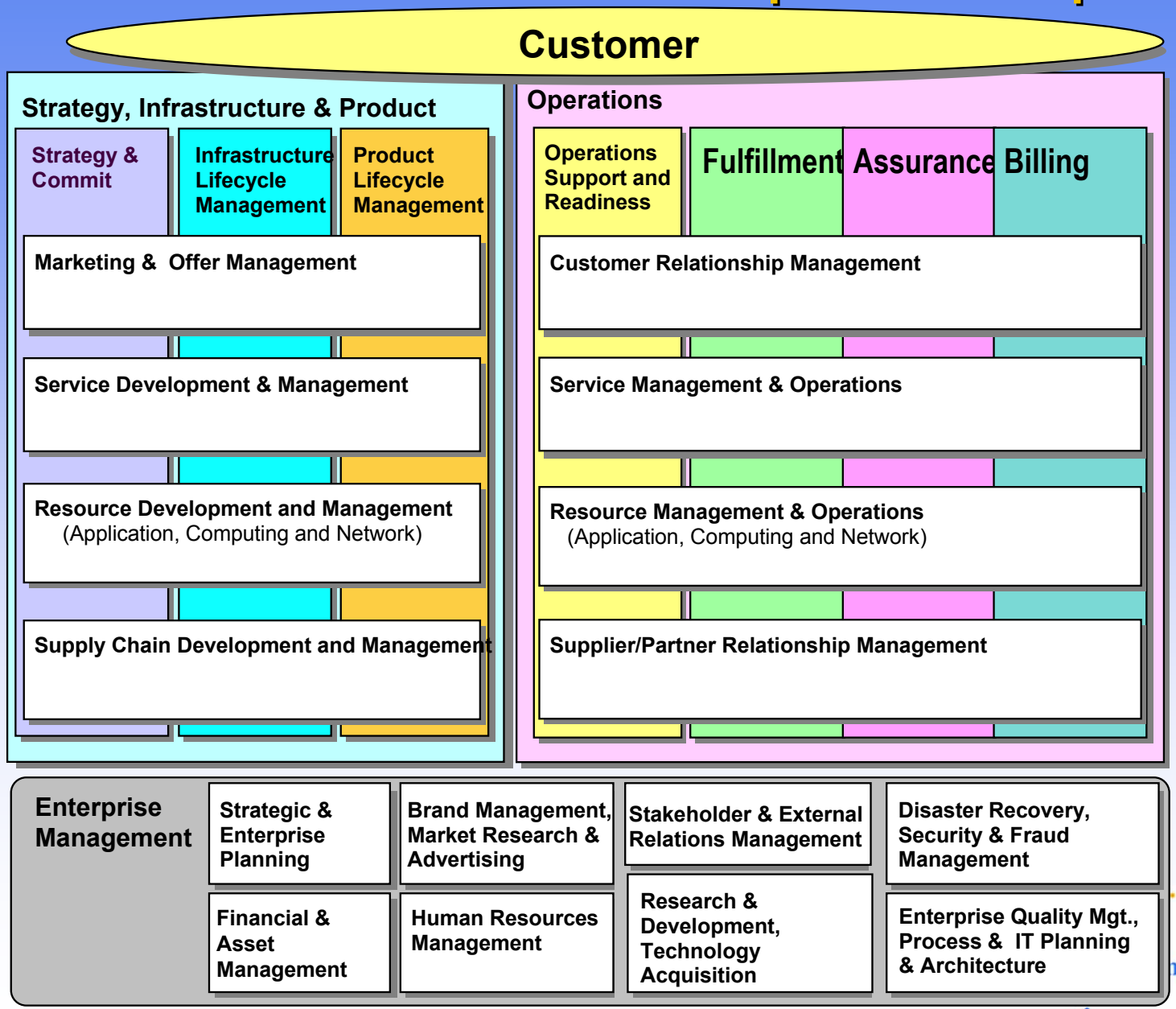
eTOM: Enhanced Telecom Operations Map

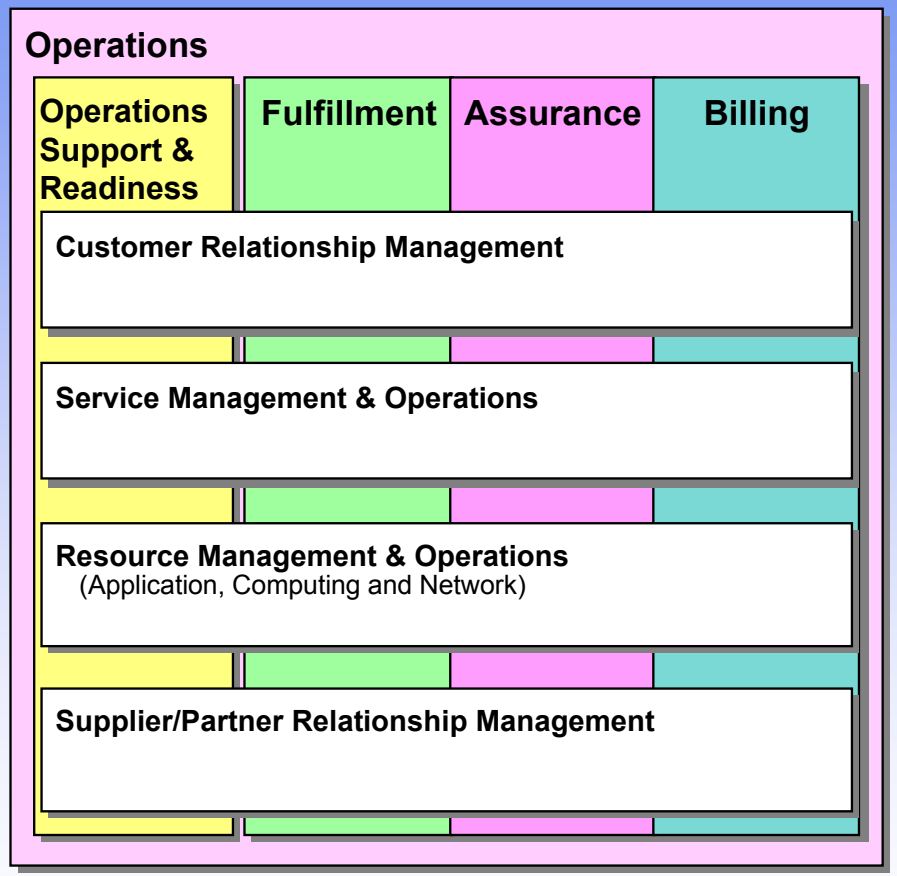


The Operations area

"FAB" remains the core of the Operations area

Operations Support & Readiness is separated from FAB

"OPS" also supports functional process groupings shown as horizontal layers



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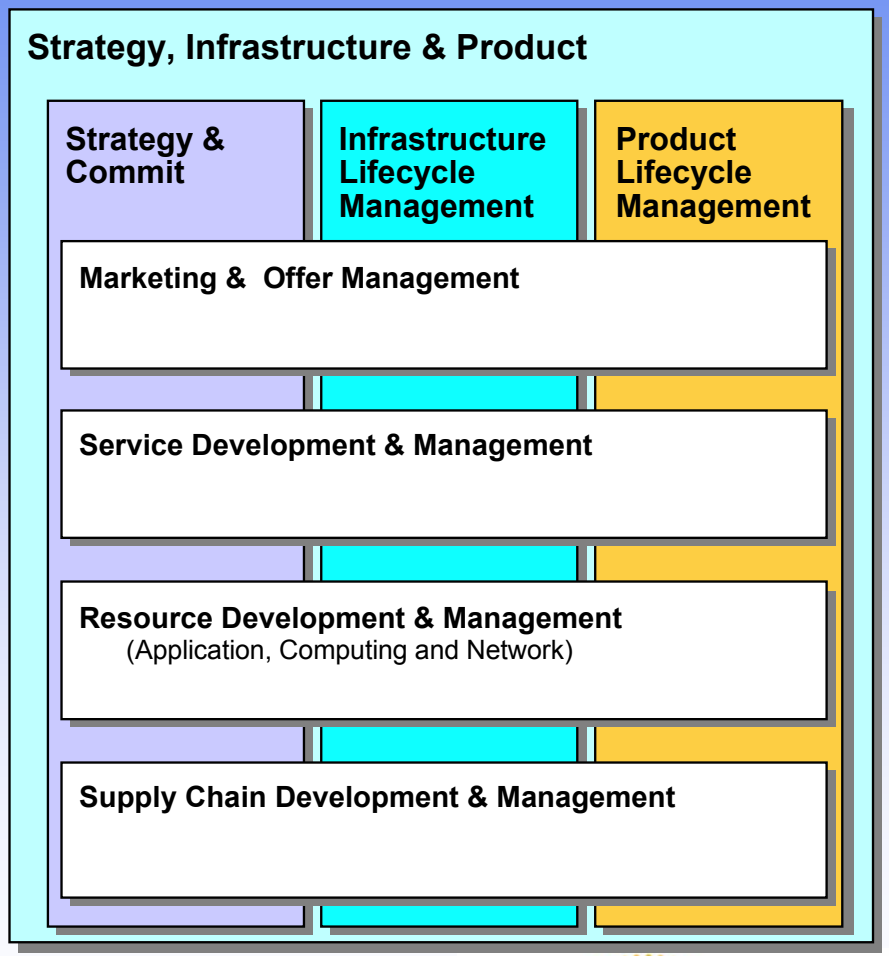
The Strategy, Infrastructure & Product area

- "SIP" encompasses strategy and lifecycle management processes in support of operations
  - Strategy & Commit
  - Infrastructure Lifecycle Management
  - Product Lifecycle Management
- "SIP" also has functional groupings, aligned with those in "OPS"



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Appendix 4

A Peek inside a SID Addendum

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Shared Information/Data (SID) Model

Addendum 1P - Common Business Entity Definitions - Party

The SID Addenda use the TMForum guidebook format

GB922 Addendum-1P

Member Evaluation Version 3.1

NGOSS Release 3.5 *July, 2003*

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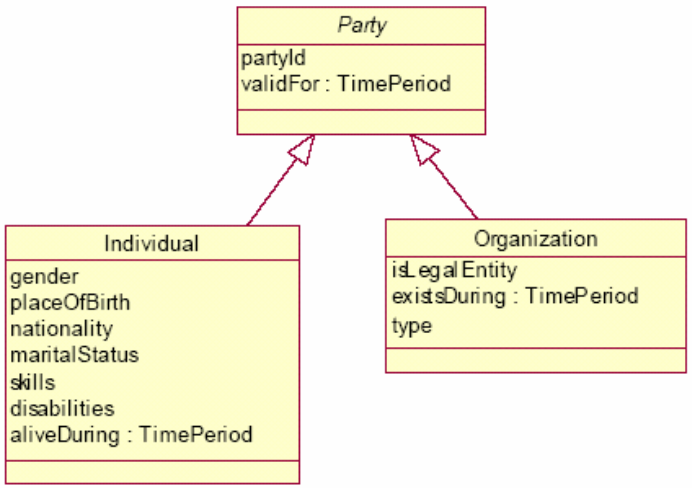
"The eTOM is a business process model or framework that provides the enterprise processes required for a service provider." [eTOM]

Organizations can be internal (department, subsidiary) or external to the Service Provider (suppliers, customers).

Individuals can be internal (employees, board members) or external to the Service Provider (customers, organization contacts, shareholders).

Party Fundamentals

Fig 1a shows our starting point for the model, based on [Fowler-AP] fig 2.2, and shows a Party representing an Individual or Organization.



The introductory section mixes descriptive text with model fragments

fig 1 – basic Party model

In this model, both organization and organization unit (e.g. consortium, parent company, subsidiary, division, department, branch or team) are represented by the Organization entity, which should be subclassed as required.

A references section shows background material used in the document

References

BaseTypes	GB922 Addendum 1BT , SID Base Types
Fowler-AP	Analysis Patterns – Reusable Object Models by Martin Fowler ISBN 0-201-89542-0 http://martinfowler.com/articles.html
Fowler-Role	Dealing with Roles, http://www.awl.com/cseng/titles/0-201-89542-0/apsupp/roles2-1.html
Fowler-Time	Patterns for things that change with time http://martinfowler.com/ap2/timeNarrative.html Effectivity http://martinfowler.com/ap2/effectivity.html
Fowler-Range	Range http://martinfowler.com/ap2/range.html
ACIA	Alliance Common Information Architecture (AT&T, BT & Concert) version 3.1, 15 Dec 2000
eTOM	GB921 version 3.0
HR-XML	HR-XML Person Name Schema/DTD V1.2 http://www.hr-xml.org/
Zachman	Zachman Framework http://www.zifa.com/frmwork2.htm
Coad-Roles	Coad Letter 76 – January 2001 http://www.togethercommunity.com/coad-letter/Coad-Letter-0076.html
Coad-Archetypes	Modeling with Color http://www.togethersoft.com/services/tutorials/jmcu/index.html
Bus-Patterns	Business Modeling with UML, Business Patterns at Work Hans-Erik Eriksson, Magnus Penker ISBN 0-471-29551-5
Metasolv	Sales & Marketing Business Objects Document
Larman	Applying UML and Patterns, Second Edition, ISBN 0-13-095004-1 http://www.craiglarman.com/book_applying_2nd/Applying_2nd.htm
Sesera	A Recurring Fulfilments Analysis Pattern, Lubor Sesera http://jerry.cs.uiuc.edu/~plop/plop2k/proceedings/Sesera/Sesera.pdf
Baumer	The Role Object (Design) Pattern. Download PDF from http://www.riehle.org/computer-science-research/1997/plop-1997-role-object.html
OMG	Party Management Facility Specification 1.0 Feb 2001 http://www.omg.org/
AP ADDR STDS	Australia Post – Presentation Standards Booklet. http://www.auspost.com.au/futurepost/index.asp?link_id=9.1575
ISO 4217	ISO 4217:2001 Codes for the representation of currencies and funds
Composite Pattern	Articles: Composite à la Java, Part I & II http://www.research.ibm.com/designpatterns/publications.htm
Coad Letter	The Coad Letter: Issue 103 - Party Time The Coad Letter: Issue 107 - Party Time, Part 2: Modeling Party Id's http://www.thecoadletter.com/
JOT- Mossé	Francis G. Mossé: *Modeling Roles – A Practical Series of Analysis Patterns* , in Journal of Object

The "data dictionary" section has a more formal definition of the entities and attributes

Organization

Business Entity Definition

Business Entity Name	**Organization**				
Description	A group of people identified by shared interests or purpose. Examples include business, department, enterprise. Because of the complex nature of many businesses, both organizations and organization units are represented by the same business entity in this model. An Organization is a type of Party.				
Sources	[Fowler-AP] [ACIA]	**Cross-References**		**Synonyms / Aliases**	Organization unit Business, Enterprise, Consortium, subsidiary, division, department, branch, section, government agency, club, charity, school, church, society
Related Business Entities	Party				
Business Rules					

Business Entity Attributes Definition

Business Entity Name	**Organization**				
Attribute Name	**Description**	**Data Type**	**Characteristics, Permitted Values & Units**	**Required/ Optional**	**Notes**
isLegalEntity		boolean	TRUE or FALSE	required	
existsDuring	incorporation date to disincorporation date	Time Period		required	
type	The type of organization	Text			Club, Society, …