

Enterprise Architecture Development *Information Strategy Planning*



Presented by:
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History of Accomplishments

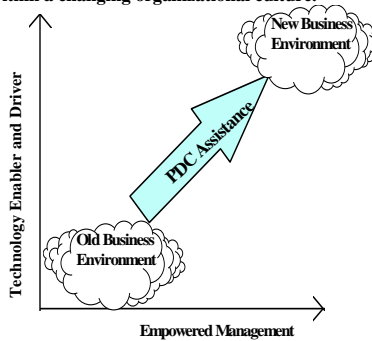
Performance Development Corporation (PDC) is recognized internationally for assisting hundreds of clients in achieving business benefits from advanced technologies. PDC has made significant contributions through a series of notable accomplishments including:

- ◆ Model Driven Enterprise Information Integration (2005)
- ◆ CRM article published in the Journal of International Institute of CRM (UK) (2003)
- ◆ *Business Process Redesign Handbook* (1997)
- ◆ Introduced comprehensive Change Management seminar and methodology(1994)
- ◆ Integrated Business Reengineering, Total Quality Management, and Information Engineering methodologies (1991)
- ◆ *Information Strategy Planning Handbook* (1990)
- ◆ *The Management Handbook for Information and End User Computing* (1988)
- ◆ *Relational Development Environment Guide* (1987)
- ◆ Started the industry-leading *Data Base Newsletter* (1979)
- ◆ Developed *Data Administration* concept (1976)
- ◆ Developed *Service AnalysisTM* - a methodology for defining end user requirements (1975)
- ◆ Published *Comparative Analysis of Data Base Management Systems* (1973)

Mission

Enable our customers to clarify and/or achieve their business goals through the gainful use of knowledge, technology and change methods and techniques.

PDC helps its clients accelerate their move to new business environments through knowledge and technology enabled management. We assist clients as they seek to clarify and implement business strategy in advanced technology environments. We help management ensure that the business drives the process and that technology provides practical value within a changing organizational culture.



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Partial Client List

Manufacturing

Abitibi-Price(Canada)
ALCOA
Ciba-Geigy
EBSCO
Eli Lilly and Company
FMC Corporation
General Motors
Hallmark Cards
IBM
Iron Ore Company(Canada)
Lockheed
Merck and Company
Nycomed(Norway)
Philip Morris
Toshiba(Japan)
United Biscuits (UK)
Weyerhaeuser

Utilities

AT&T
Boston Edison
Carolina Power and Light
GTE
National Fuel Gas
Nebraska Public Power District
NYNEX
Oglethorpe Power
Southern California Gas
Southwestern Bell Telephone
United Telephone

Financial /Insurance

Abbey National Bank(UK)
American Express
Bank of America
Bank of Delaware
Blue Cross/Blue Shield
Dow Jones
Fireman's Fund Insurance
JCPenny Life
Johnson and Higgins
Kemper Insurance
Providian Insurance
Transamerica Insurance
UNUM Insurance
USF&G

Petroleum

Exxon
Getty - Texaco
Indian Oil (India)
Mobil Oil
Norsk-Hydro (Norway)
Shell Oil
Sun Oil

Retail

Compucenter(Brazil)
Giant Foods
Sainsbury(UK)
Thorn-EMI(UK)
Venture Stores

Federal, State, Local Government

Atomic Energy (UK)
Belmont County, OH
Calgary(Canada) City
Canada Post (Canada)
Delaware Department of Finance
Montgomery County, MD
New Hampshire Dept. HHS
New Jersey Motor Vehicle Services
New Jersey OTIS
South Dakota Dept. of Transportation
Wisconsin Dept. of Transportation
US Agency International Development
US Central Intelligence Agency
US Department of Energy
US Naval Facilities Engineering

Transportation

Leaseway
Mayflower

Education

Cornell University
Duke University
University of Michigan
National Education Association

Service

American Bible Society
CH2M Hill
Young & Rubicam (UK)

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Consulting Services

Our scope of consulting and education services is in a constant state of evolution due to the introduction of new management techniques and advanced technologies and their proven viability in the marketplace. PDC currently provides consulting, education and placement expertise in the following areas:

Management

- Business Process Reengineering
- Customer Relations Management
- Information Strategy Planning
- Enterprise Architecture Planning
- Visioning and Managing Change
- Disaster Contingency Planning

Technology

- IT Restructuring
- Technology Architectures and Selection
- Business Area Analysis
- Process/Data Modeling
- IRM for Emerging Technologies
- Data Warehousing
- Internet/Intranet/Extranet

Implementation

- Turnkey Systems
- Project Management
- E-Commerce Development
- Offshore Development
- Quality Assurance

Professional Services

- Executive Search
- Permanent Recruiting
- Contract Services

Education Services

Effective on-site education course offerings have always been a top priority at PDC. Thousands of individuals have attended our seminars, normally offered in one, two and three day formats. These may be condensed to short management presentations. Our current course titles include:

Business Reengineering (2 days)

Provides an intensive, management-oriented overview based on extensive experience and the dramatic results achieved.

Business Process Redesign (3 days)

Shows how to redesign business processes to increase profits, productivity, competitiveness and customer service.

Information Strategy Planning (3 days)

Describes managing business success through defining organization information needs and priorities in a structured manner.

Business Area Analysis (3 days)

Shows how to analyze business requirements using data modeling, process modeling, and information engineering techniques.

Managing the Data Warehouse Commitment (2 days)

Illustrates business driven approaches to utilizing information assets.

Change Management (3 days)

Shows how to integrate change in people, systems and structures.

Information Resource Management (2 days)

Illustrates how to use Data Sharing and Data Availability to accomplish the business improvement objectives.

Data Modeling (2 days)

Explains different levels of Data Modeling that play an important role during the Planning (ISP), Analysis (BAA) and Design (BSD) phases.

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Information Strategy Planning (ISP)

An Architecture Based Approach to IT Planning

Performance Development Corporation (PDC) has developed and effectively used the ISP methodology for more than 100 projects in the past 20 years. It is a stream-lined enterprise architecture approach. In order to plan the information strategy, we create an Information Architecture which mainly focuses on Function (same as Process) and Information (same as Data). The details such as by whom, when and where processes are performed, keep on changing as a result of either organization restructuring or business process reengineering or outsourcing. So these details are better addressed during the Requirement Definition stage when work-flow analysis and use case analysis are performed.

The ISP starts with a business strategy and translates it into an IT strategy delivering the Information Architecture and long-term as well as short-term IT project plans. The types of projects defined could involve business process reengineering, process improvement, system development, and IT technology implementation. The ISP methodology also creates a documentation which is easy to maintain and evolves into the enterprise architecture as more inputs are created during the project execution stages.

The ISP project would take any where from 12 to 24 weeks depending on the nature, size and complexity of the selected enterprise.

Presentation Details

- **A restaurant case study is used in most of the examples to maintain consistency and continuity**
- **Function and process are used interchangeably - a process at a higher level is a logical function**
- **Business systems and application systems are used interchangeably**
- **Since data entities imply a third normal form, at high level A term Information Class is used**

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9. Technology Assessment
10. Evaluation Business/Project Alternatives
11. Putting the Information Strategy Plan Together
12. Keys to Success

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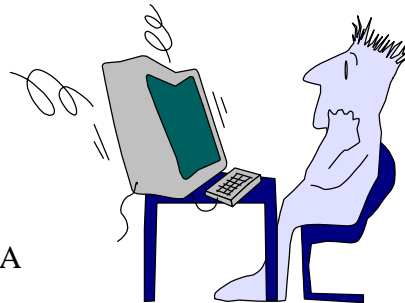
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Questions To Be Answered

- How to sell Enterprise Architecture?
- Where do you get started?
- How do you keep management involved?
- Who are EA stakeholders
- What are the deliverables?
- Who develops the Architecture
- How do you address conflicting interests?
- How do you make sure that the EA will be used?
- What are keys to success?



Corporate Resources

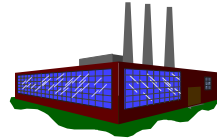
Money



Personnel



Plant And Equipment



Information



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Information As An Asset

- Has future service potential
- characteristics of an asset
 - Stored and Shared
 - Lasting value
 - Useful life
 - Cost to acquire or keep
 - Costly if damaged or lost
- May be intangible like
 - Market share
 - Corporate/product image
 - Good will



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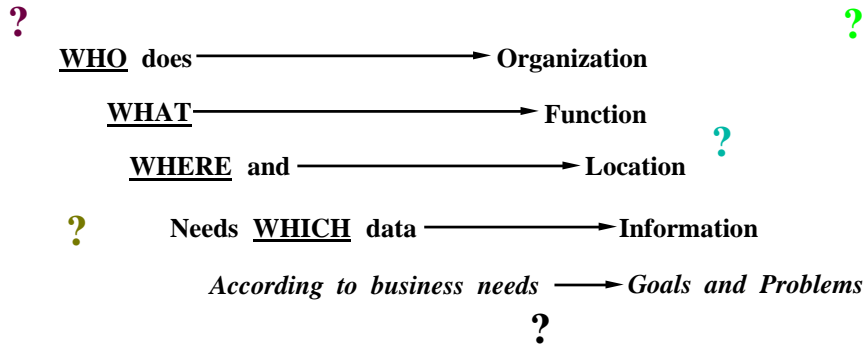
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? **Enterprisen Architecture** ?

Definition: It is a meaningful collection of characteristics that describes the enterprise.

It answers the following questions: ?

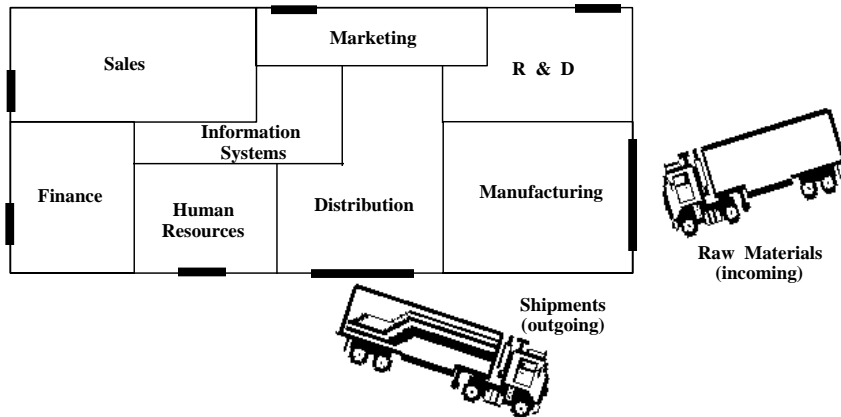


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Understanding the Enterprise

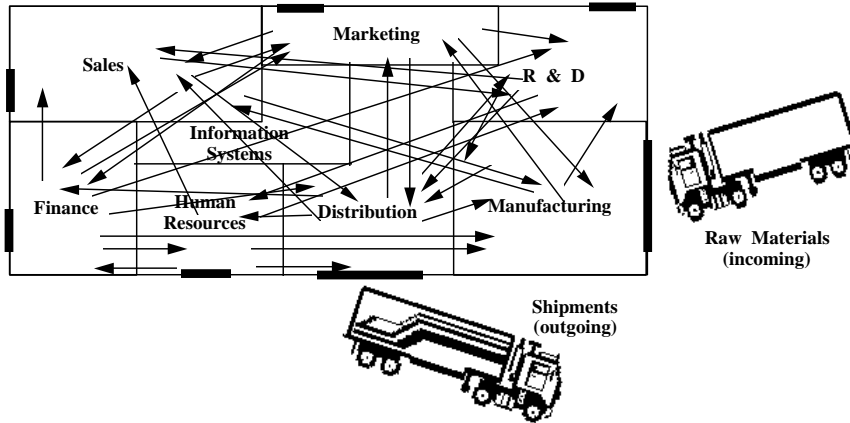


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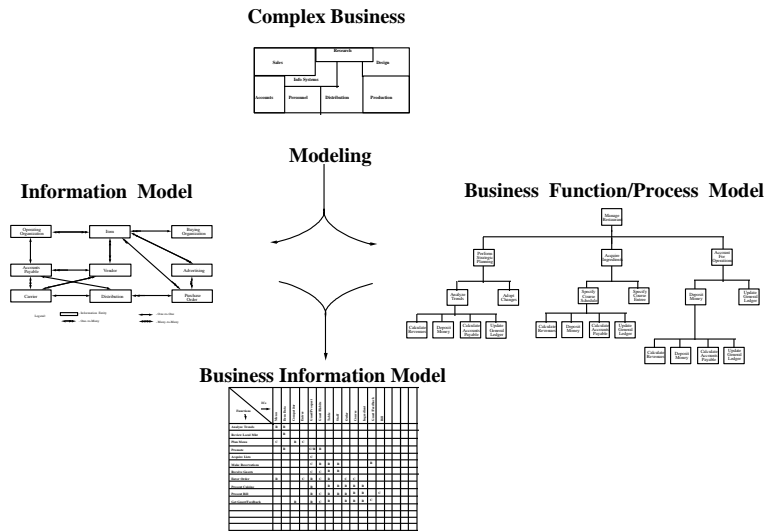
Understanding Enterprise Information Need



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Components of Enterprise Architecture



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Why Develop An Enterprise Architecture?



- Provide foundation IT System Planning & Implementation
 - Simplify an understanding of a complex enterprise
 - Gain an over-all perspective of enterprise operations
- Improve communications among all parties concerned
 - Provide framework for standardization and sharing of information
 - Guide all project funding
 - Gain management understanding and concurrence
 - Facilitate Service Oriented architecture (SOA)



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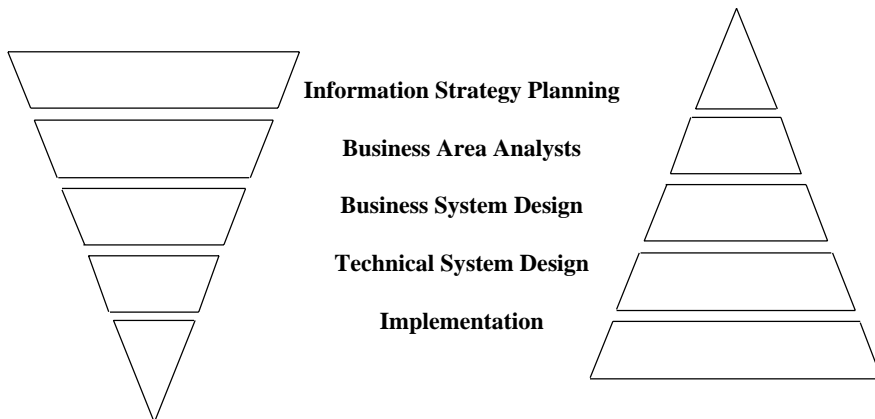
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System Life Cycle (Developing the EA)

Scope

Detail

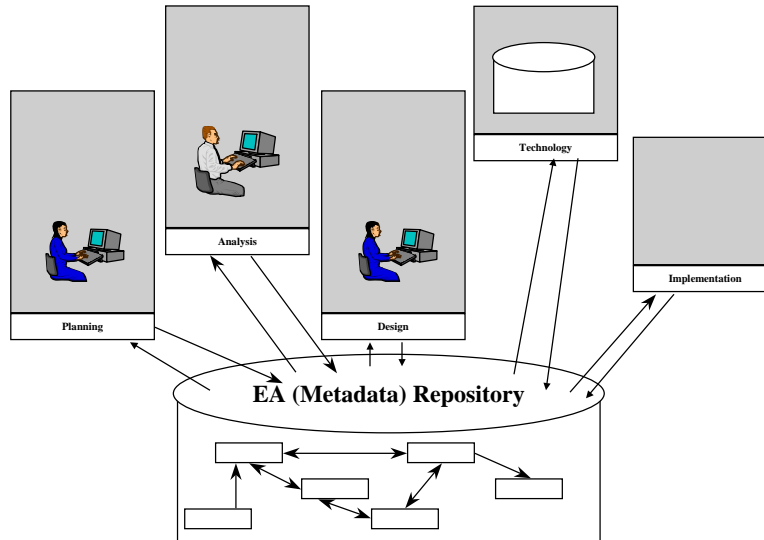


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Evolving an Enterprise Achitecture



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The Most Important Questions

While developing *any EA component*, you must ask following questions:

- Why am I developing this?
- Who will use it? Is this esay to use?
- When and where will this be used?
- What is the risk of not doing this?

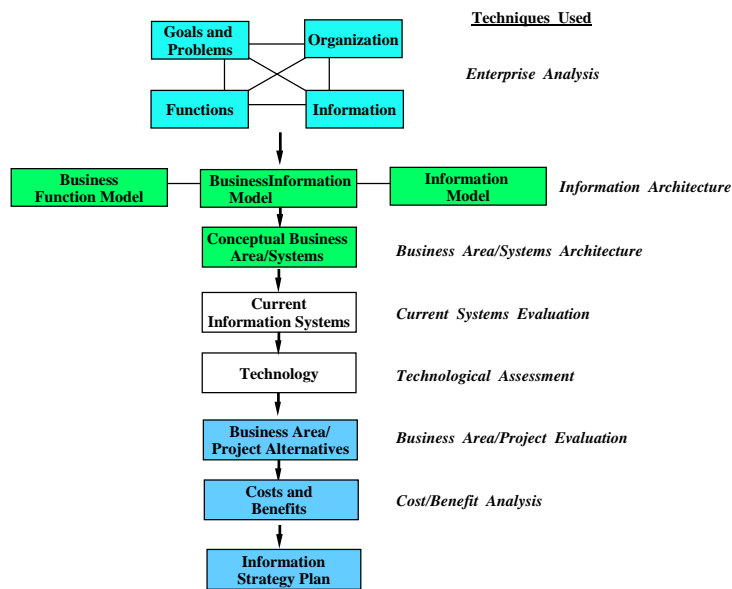
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EA Stakeholders

- | | |
|--|--|
| <ul style="list-style-type: none"> • Planning
 • Requirement Analysis
 • Design
 • Implementation | <ul style="list-style-type: none"> • Executive Spondoer • Steering Committee • User Management. IT Maangeemnt • Planners
 • Users, Business Analysts, system Analysts, Data Modelers
 • System Designers, DBA, Programmers, Change Agents
 • System Testers, Users |
|--|--|

Information Strategy Planning



Benefits Of Information Strategy Planning

- Logical starting point for Enterprise Architecture
- `Align information strategy planning with business strategy planning
- Better allocation of resources.
- Assessment of change impact.
- Proactive response to users' changing needs.
- Basis for development of shared enterprise databases.

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Planning the ISP Project Sub--Tasks

- Scope project
- Select Team
- Define project deliverables
- Tailor Methodology
- Schedule tasks
- Prepare documentation system
- Acquire facilities
- Educate and train participants
- Gain management approval



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Scoping Alternatives

	Division A	Division B	Division C
Marketing			
Manufacturing			
Purchasing			
Research			
Human Resources			

Divisional Focus

	Division A	Division B	Division C
Marketing			
Manufacturing			
Purchasing			
Research			
Human Resources			

Functional Focus

	Division A	Division B	Division C
Marketing			
Manufacturing			
Purchasing			
Research			
Human Resources			

Synergy Areas Focus

	Division A	Division B	Division C
Marketing			
Manufacturing			
Purchasing			
Research			
Human Resources			

Mini-ISPs Focuses

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Scoping Consideration



- Enterprise strategy
- Executive sponsor Commitment
- User management participation
- Available resources
- Common funding for selected units
- Organizational sensitivity (politics)

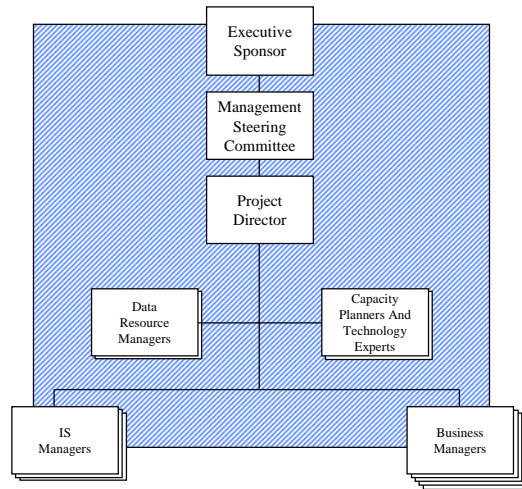
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Project Organization

(Desired)

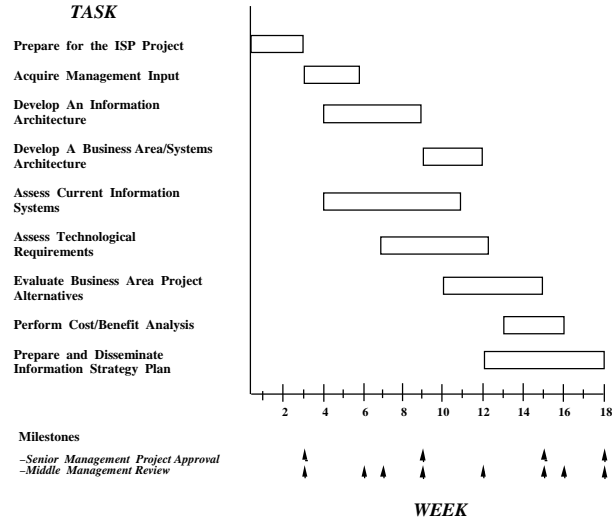


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Scheduled Tasks

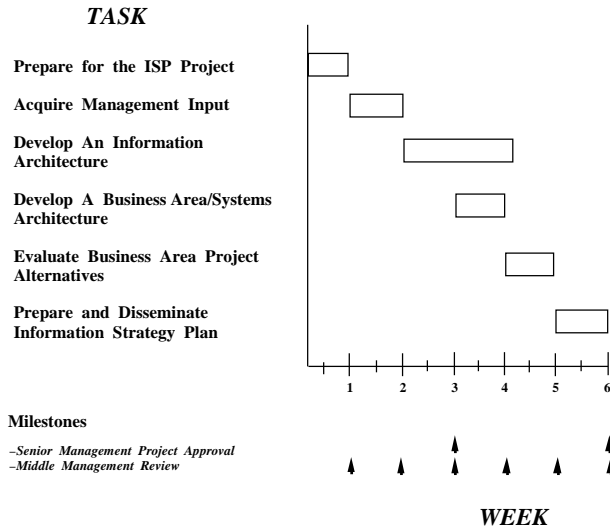


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Accelerated Information Plan

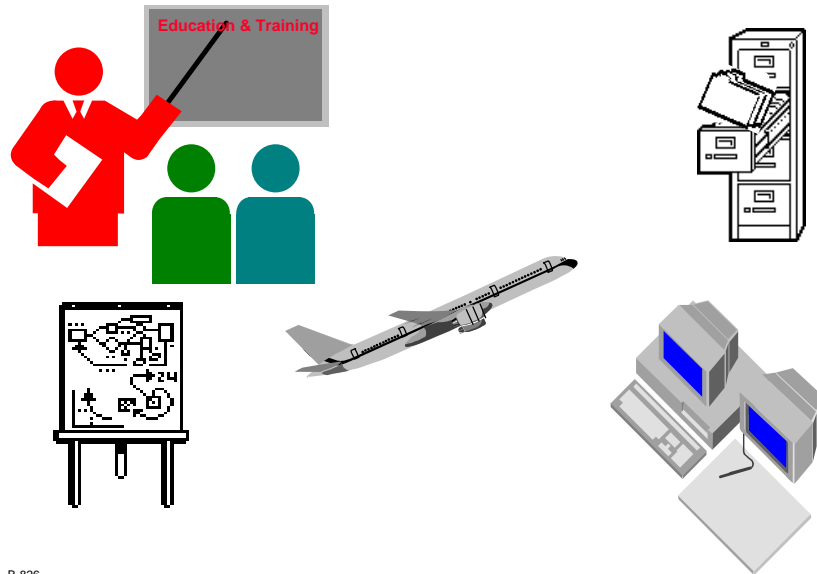


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Acquire Facilities









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Documentation System

Must decide upon several requirements:

-  Purpose of documentation
-  Methodology to use
-  Terminology
-  Standards
-  Software tool
-  Manual forms
-  Communication requirements
-  Support staff



A fool with a tool is still a fool

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Who Gets What Kind of Education and Training?

- Management and Client
 - One-two hour overviews
 - Brief education at milestone meetings
- Project Team
 - Team-building training in the beginning
 - Three day workshop training
 - Periodic reinforcement training at beginning of each major task
- Client Representatives
 - Four hour overview
 - Brief training when needed
- Documentor(s)
 - One day documentation training and methodology review

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What Is An Enterprise Strategy?

- Enterprise Mission
- Goals and objectives
- Problems/issues.
- Opportunities
- Critical Success Factors
- New paradigms and Initiatives

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Key Definitions

- Mission** – *An objective statement for the enterprise existence.*
- Goal** – *An end or target that all or part of enterprise is committed to meeting and which may be measured.*
- Problem** – *A situation or issue of utmost significance which, needs to be addressed at a strategic level.*
- Opportunity** – *A benefit, productivity improvement or competitive edge to be gained as a result of problem solving or new technology or new initiative.*

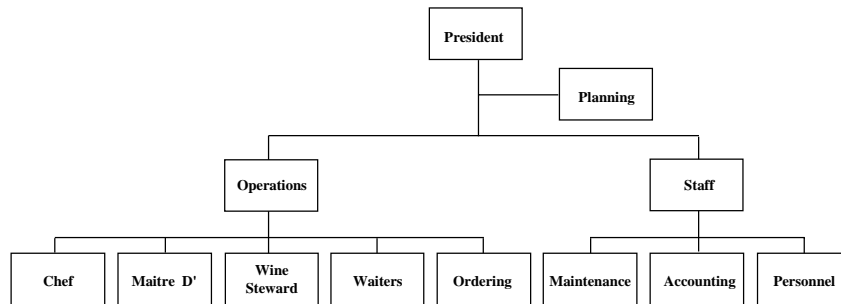
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Organization Chart

La Nouvelle Grabbague



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2.39

Mission

Provide quality cuisine and guest satisfaction at an affordable price in an elegant manner using innovative technology.



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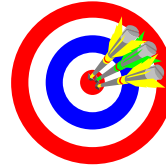
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Identification of Goals and Problems

Goals

- Imply critical success factors
- Support enterprise objectives
- Contain long range action plan items
- Need not be more than 5-10 items



Problems

- Present obstacles to achieving goals
- Affect operations adversely
- Hinder progress
- May be turned into critical success factors

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2.41

Goal Analysis

La Nouvelle Grabbage

Goal	1	2	3	4	5	6	7	8	9	10
Create efficient grandeur look										
Profits less than 20% of revenue										
Create enjoyable work climate										
Ingredients <42% of entree price										
Maintain employee satisfaction										
Provide service within 3 minutes										
Build reputation as new wave est.										
Offer frequent guests spec. service										
Operate at 90% capacity										
LA NOUVELLE GRABBAGUE										
Operations										
Chef	✓	✓	✓	✓						
Wine Steward									✓	
Maitre d'		✓	✓	✓	✓					
Walters	✓	✓	✓	✓				✓	✓	✓
Ordering	✓							✓		✓
Staff										
Maintenance										✓
Accounting								✓		✓
Personnel							✓			✓
Planning	✓	✓								✓

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Problem Analysis

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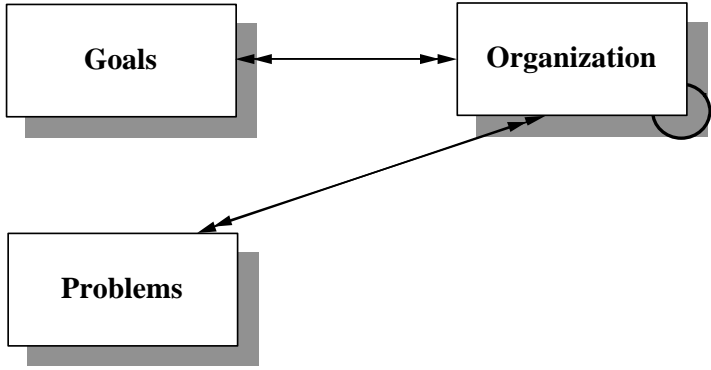
Problem										
	1	2	3	4	5	6	7	8	9	10
Scheduling facility maintenance										
Tax accounting for tips										
Hiring qualified staff										
Cash deposits at night										
Computer reliability										
Instruct guest on computer ops										
Order scheduling										
Consistent food quality										
Walk-in of privileged guest										
Promotion Effectiveness										
LA NOUVELLE GRABBAGUE										
Operations										
Chef			✓	✓					✓	
Wine Steward									✓	
Maitre d'		✓				✓	✓	✓	✓	✓
Waiters			✓	✓	✓	✓	✓	✓	✓	✓
Ordering			✓							
Staff										
Maintenance							✓			✓
Accounting								✓	✓	
Personnel									✓	
Planning	✓									

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Planning Repository



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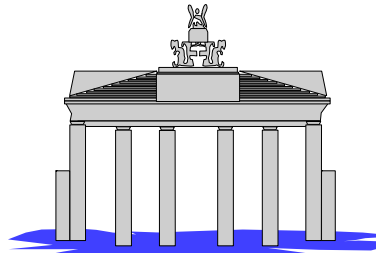
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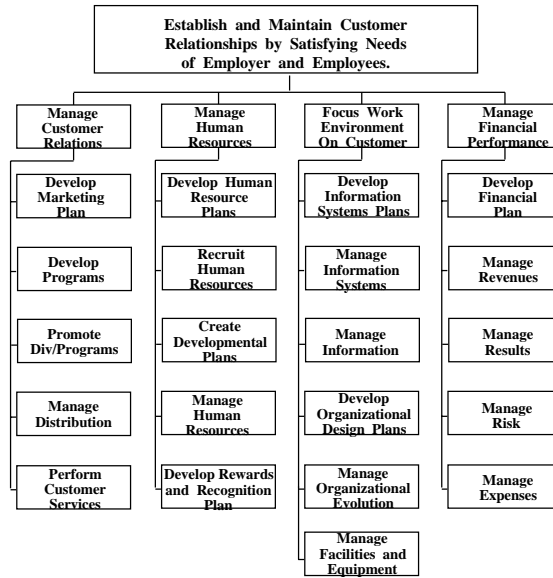
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What Is A Business Function Model?

- **Reflects enterprise's mission, goals, and objectives**
- **Structured approach to high level requirements**
- *Futuristic view of organization's logical operations*
- **Hierarchical relationships**
- **Organizationally independent - cuts across organization boundaries**
- **All functions, automated as well as manual, necessary to support an organization's objectives**



Business Function Model ABC Insurance Company

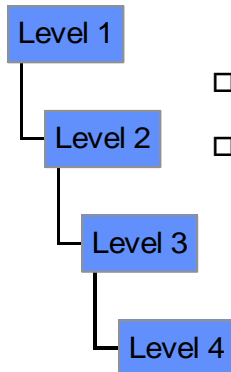


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The Business Function Model during the Planning stage should not go beyond four levels



- Level 1 is a root usually a mission statement
- A Business Function Model at the fourth levels would have about 60 to 100 sub-functions/processes

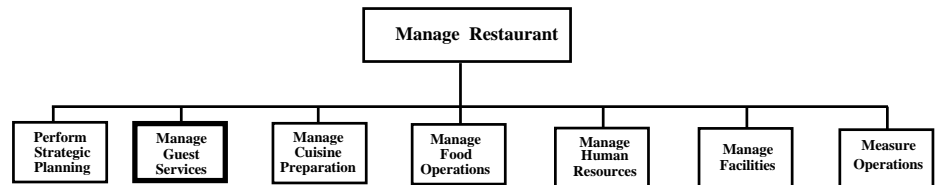
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Business Process Model

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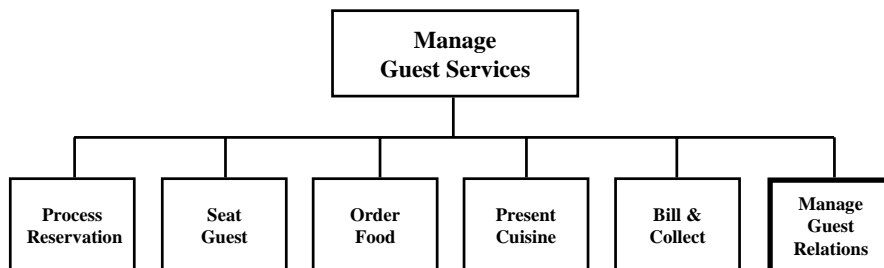
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Business Process Model (Continued)

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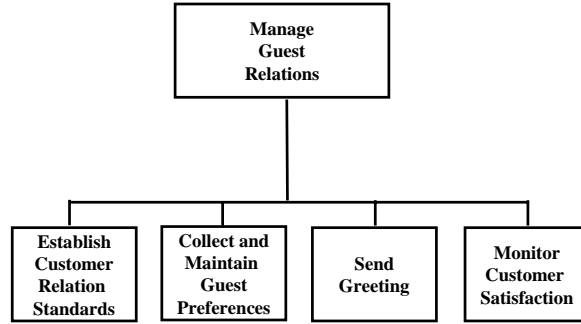
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Business Process Model (Continued)

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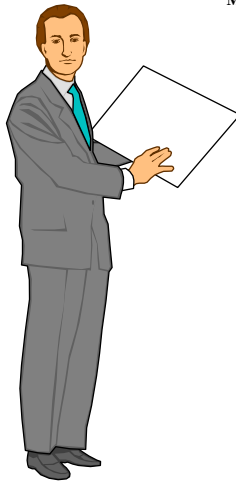
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Business Function Model

(Indented Listing)

Hierarchy Report



Manage Restaurant

- Perform Strategic Planning -- Analyze Trends
- Review Local Market
- Adopt Changes

Manage Guest Services

- Process Reservation
- Enter Order
- Present Cuisine
- Present Bill

Manage Cuisine Preparation

- Receive Order
- Schedule Order
- Prepare Courses

Manage Food Operations

- Analyze Usage
- Forecast Requirements
- Plan Menu
- Acquire Ingredients
- Maintain Ingredient Inventory

Manage Human Resources

- Plan Staff
- Acquire Staff
- Train Staff
- Schedule Staff
- Evaluate Staff Performance

Manage Facilities & Equipment

- Inspect Facilities
- Plan Maintenance
- Perform Maintenance
- Procure New Facilities/Equipment
- Acquire and Maintain

Measure Operations

- Receive Monies
- Pay Monies
- Update General Ledger
- Perform Cash Management
- Monitor Financial Results

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Function Definition

Outline

Objective:

Description:

Includes:

Excludes:

} “bullet” lists for clarity
not all - inclusive

Quality/Performance Metrics:

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Sub-Function Descriptions

- Acquire & Maintain Info Systems – *Determine then purchasing or developing the hardware and software needed to operate the restaurant and to support decision making.*
- Acquire Ingredients – *Determining and ordering what is needed to create the food in the kitchen.*
- Acquire Staff – *Hiring staff members.*
- Adopt Changes – *Reviewing all changes to procedures with the staff members concerned, approving, and implementing the change.*
- Analyze Trends – *Reviewing what has been ordered by this restaurant’s customers and reviewing what is happening or projected to happen in the local and national restaurant industry.*
- Analyze Usage – *Reviewing the amount of ingredients needed for the menu line items as requested by the customers.*
- Enter Order – *Selecting from the menu, then completing the order and sending it to the chef. Allows the guest to scroll through the menu on the terminal selecting courses and dishes.*
- Evaluate Staff Performance – *Setting goals for the staff, determining how well each member met those goals, and setting rewards for outstanding performance.*
- Forecast Requirements – *Using the analysis of the customers’ preferences and the trend analysis to predict the quantities of ingredients to be ordered.*
- Inspect Facilities – *Inspecting the building and furnishings to meet our standards as well as to meet legal requirements.*

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Business Function Analysis

- Relate lowest level business functions to organizations.
- Relate functions to goals.
- Relate functions to problems.

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Business Function Analysis

La Nouvelle Grabbague

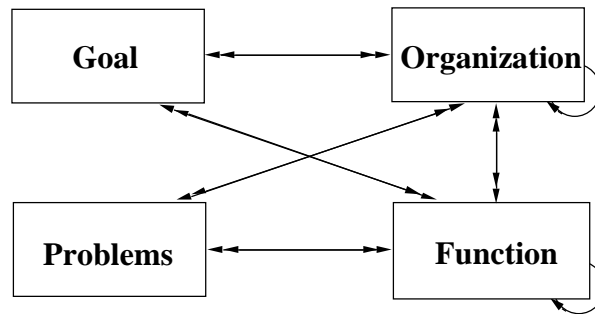
Function	Planning	Personnel	Accounting	Maintenance	Staff	Waiters	Ordering	Wine Steward	Chef	Operations	
Analyze Trends											BO
Review Local Market											BO
Adopt Changes											BO
Process Reservation											PO
Enter Order											PO
Present Cuisine											PO, SU
Present Bill											PO
Receive Order											BO
Schedule Order											BO
Request Cuisine											BO, SU
Analyze Usage											BO
Forecast Requirements											BO
Plan Menu											PO, SU
Acquire Ingredients											BO
Maintain Ingredient Inventory											BO
Train Staff											PO
Acquire Staff											PO
Train Staff											PO
Schedule Staff											PO
Evaluate Staff Performance											BO
Inspect Facilities											BO, SU
Plan Maintenance											BO, SU
Perform Maintenance											PO
Procure New Facilities/Equipment											BO
Acquire and Maintain Info Systems											PO, PE
Receive Monies											PO
Pay Monies											PO
Update General Ledger											PO
Perform Cash Management											PO
Monitor Financial Performance											PO, PE

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Planning Repository



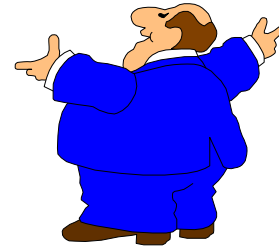
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Benefits Of Business Function Modeling

- High level planning tool
- Business model representation of total business
- Common communication vehicle for management as well as all team members
- Definition and standardization of function under examination
- Business Process Reengineering
- Organization Restructuring



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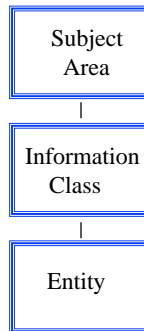
1. Introduction to Information Strategy Planning
2. Planning for the ISP Project
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4. The Business Function Model
5. **The Information Model**
6. The Business Information Model
7. The Business Area/Systems Architecture
8. Evaluation of Current Environment
9. Technology Assessment
10. Evaluation Business/Project Alternatives
11. Putting the Information Strategy Plan Together
12. Keys to Success

What Is An Information Model?

- Representation of groups of data called information classes.**
- Shows relationships of information classes.**
- Supports all business functions through the application of standard rules.**
- Logical view of an enterprise's information.**
- Functionally and organizationally independent**
-- cuts across organization and functional boundaries.

Definition

- An **Information Class** is a group of related entities that exist and have describable characteristics which are called attributes and relationships.
- An Information class *must be meaningful in the context of a business function*. That is, there is a reason for it to exist in order for the enterprise to operate.
- Information Classes are also mapped into higher level groups called subject areas.



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Categories of Entities

1. Person: A human or organization that carries out some function

Organization Unit		Employee
Customer		Vendor

2. Place: An area or location set aside for someone or something

Office	Warehouse	Route
City	Station	Territory
Region	Location	Production Stage

3. Thing: A physical object, or group of objects

Equipment	Item	Part
Building	Raw Material	Vehicle
Product	Account	Planet

4. Event: A transaction occurring at a given date and time

Sale	Order	Movement
Shipment	Inventory	Request
Project	Agreement	Purchase

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An Information Class



- ❑ Is a group of data or entities
- ❑ May have multiple identifiers
- ❑ Has many attributes
- ❑ May have relationships (called cardinalities) with other information classes
- ❑ Often participates in a many-to-many relationship with other information classes
- ❑ Should not exceed 40 in number for an ISP

NOTE: A subject area is a group of information classes.

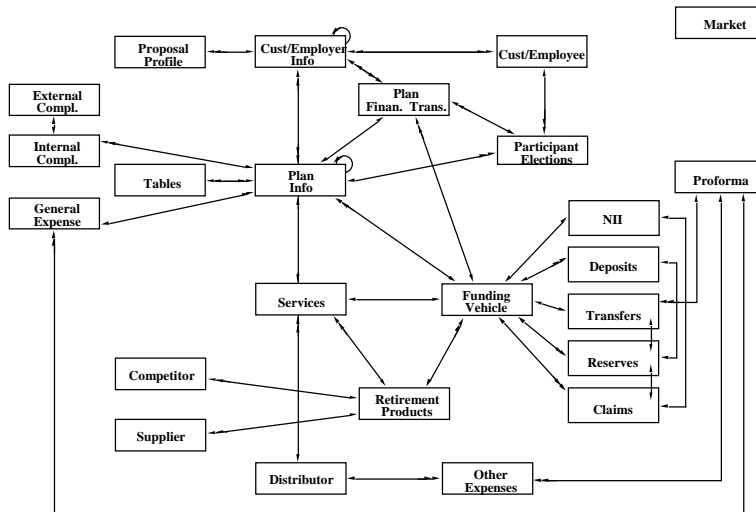
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Information Model

ABC Insurance Co.

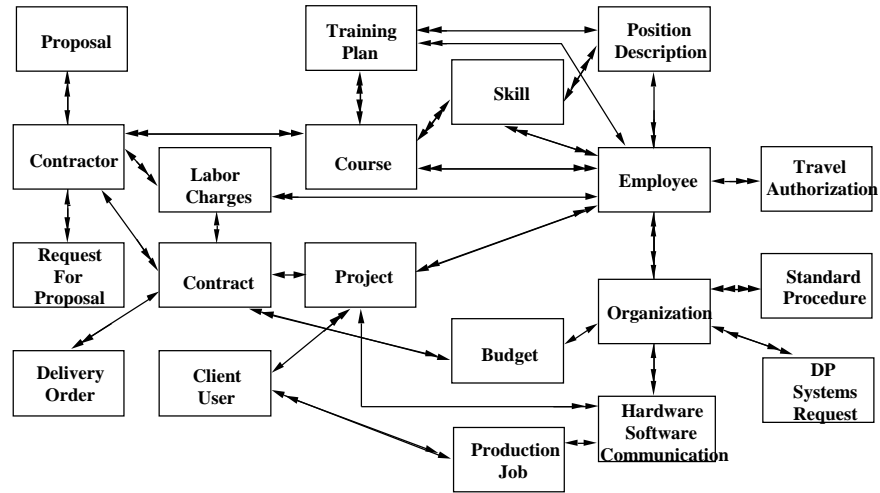


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Information Model Information Resource Management



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Information Modeling Steps

Step 1. Define the candidate entities or data items

- Brain storming
- Interview notes
- Information sources/documents

Step 2. List principal attributes

Step 3. Validate entities

Step 4. Group them into information classes if more than 50

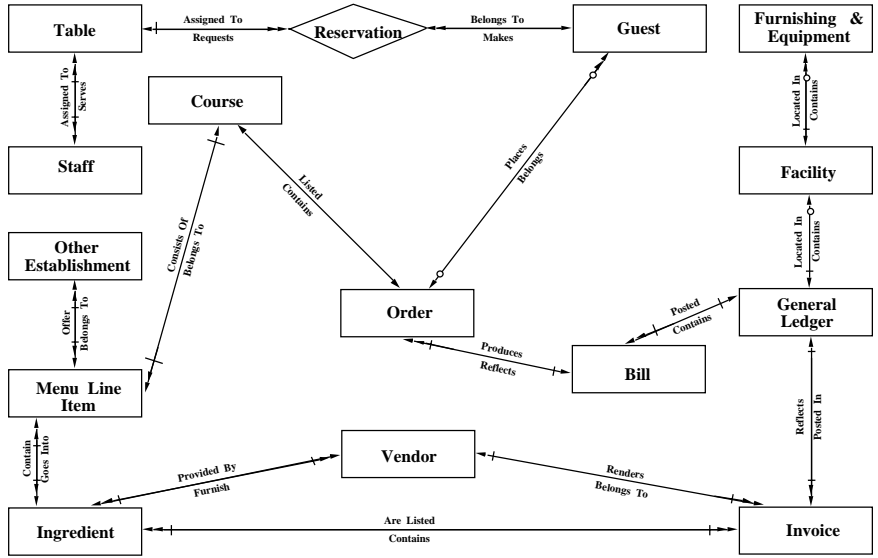
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Information Model

La Nouvelle Grabbague



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Information Class Definition Outline

Description:

Includes:

Excludes:

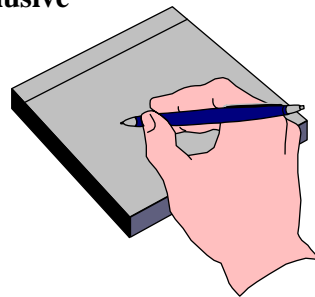


“bullet” lists for clarity
not all - inclusive

Entities

**Estimated Number
of Occurrences:**

Basic Attributes:



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Information Class Description

La Nouvelle Grabbague

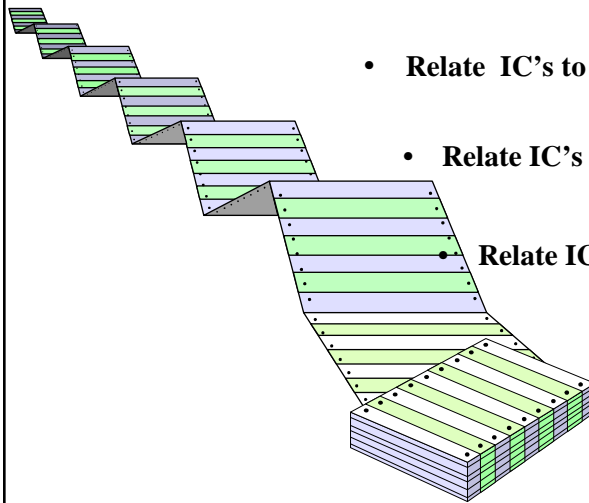
- Bill** - itemized amount owed by the guest for a particular order.
- Course** - category of food offered; appetizers, soups, salads, pasta, fish, meats, etc.
- Facility** - restaurant location and description.
- Furnishings & Equipment** - usable contents of the restaurant building.
- General Ledger** - chart of account values required to manage the restaurant financially.
- Guest** - person who makes a reservation and person who pays bill.
- Ingredient** - substance used to create a menu line item.
- Invoice** - document presented by a vendor for payment.
- Menu Line Item** - particular item within a course.
- Order** - list of menu line items requested by the guest.
- Other Establishment** - restaurant's competitors.
- Reservation** - request for a table for a particular date and time.
- Staff** - people who work for the restaurant.
- Table** - dining location, seating configuration, and special features.
- Vendor** - firm that sells ingredients, supplies, and equipment to the restaurant.

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Information Analysis



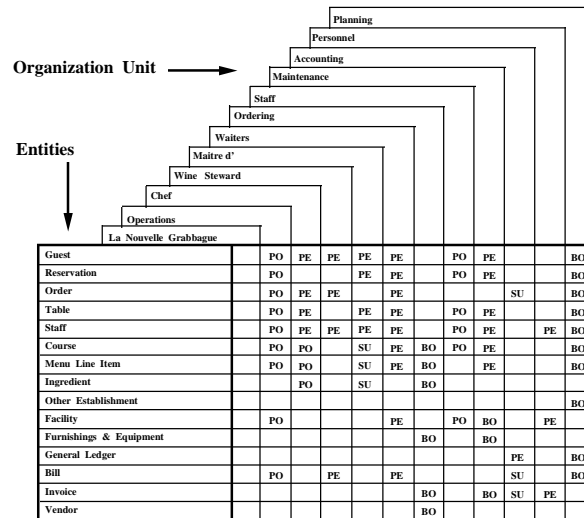
- Relate IC's to organization units.
- Relate IC's to goals and problems.
- Relate IC's s to functions.

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Information Analysis



PO = Policy
PE = Performance
BO = Both Policy and Performance
SU = Support

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Benefits of Information Modeling

- Helps understanding of information requirements of an enterprise.
- Identifies primary and secondary users
- **Forms a basis for Data Stewardship program**
- Helps assesses the feasibility of information structures
- Facilitates communication between end users and IT
- Provides a starting point for detailed data model(s).
- Offers a vital input to the business systems architecture.

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What Is A Business Information Model?

- A matrix showing the relationship between the business functions and the information classes.
- Illustrates which functions create (C) and update (U) information and what information is retrieved (R) to perform the functions. The deletion (D) operation is usually not shown. Hence, the acronyms CUR, CURD, or CRUD (least desirable) may be used for the Business Information Model.

		Information Classes (Entities)					
		IC1	IC2	IC3	.	.	.
Business Functions	F1	C	C	R			
	F2	R	R	C			
	F3	R	C	U			
	.						
	.						
	.						

Information Strategy Planning

Business Information Model

1. Relate functions/processes to Information Classes Showing the activity in the cell as follows:
2. Use "C" when the information class is created.
Use "U" when the information class is updated.
Use "R" when the information class is retrieved.
Use "D" when the information class is deleted.

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Business Information Model *La Nouvelle Grabbague*

Function	Guest	Reservation	Table	Facility	Furnishings & Equipment	Staff	Bill	Order	Course	Ingredients	Menu Line Item	Other Establishment	Vendor	Invoice	General Ledger										
Analyze Trends		R	R												R	R									
Review Local Market															R										
Adopt Changes																C	R								
Process Reservation																	R								
Enter Order															C	C	R	R							
Present Cuisine																	R	R							
Present Bill																	R	R							
Receive Order																	U	R							
Schedule Order																	R	R							
Prepare Courses																	R	R							
Analyze Usage																	R	R							
Forecast Requirements																	R	R							
Plan Menu																	R	C	C	C					
Acquire Ingredients																		R			C	R			
Maintain Ingredient Inventory																			U				R		
Plan Staff																		R	R						
Acquire Staff																			C						
Train Staff																			U						
Schedule Staff																			R						
Evaluate Staff Performance																			U						
Inspect Facilities																			U						
Plan Maintenance																									
Perform Maintenance																								R	
Procure New Facilities/Equipment																								R	
Acquire and Maintain Info Systems																								R	
Receive Monies																								R	
Pay Monies																								R	C
Update General Ledger																								R	U
Perform Cash Management																								R	R
Monitor Financial Performance																								R	C

C = Create
U = Update
R = Retrieve
D = Delete

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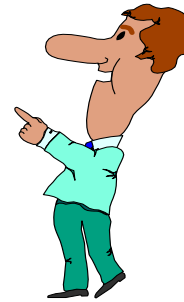
Business Information Model Analysis

Validate the life cycle of an information class.

Every information class must be created, updated, or retrieved by at least one function.

Each function must create, retrieve, or update at least one information class related to it.

If necessary, define additional functions or information classes.

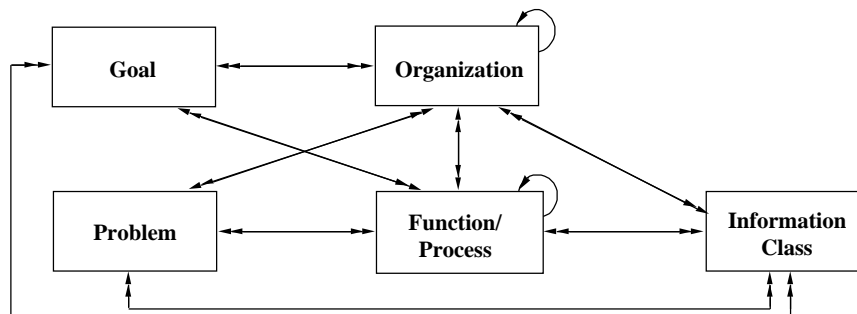


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