

Enterprise Architecture Implementation
Information Strategy Planning – Part 2



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What Is A Business Area / Systems Architecture?

- **Groups functions into conceptual business area/systems using the business information model**
- **Helps determine which conceptual business area/systems should become business area/projects**
- **Establishes system data dependencies**
- **Provides a basis for systems development planning**
- **Also known as Enterprise Application Architecture**

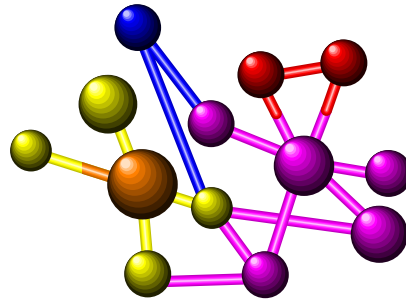
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Grouping Functions Into Conceptual Business Areas / Systems

Clustering of functions based on:

- **information creation**
- **Information usage**



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Conceptualizing Business Systems

Using the 'North West Rule'

Objective

Identify conceptual business areas/systems based on the data driven technique.

Steps

1. Arrange information classes in the Business Information Model columns in a logical order so that related IC's are together in a natural sequence
E.G. Guest
Reservation
Table
2. Select an information class and start moving functions which comprise rows so that all "C"s are together for the selected information class.
3. Does the group of functions look like a logical system from the functionality point of view?
4. If not, break apart, or add some related functions.
5. Repeat the same process for the next information class (or a group of information classes).

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“North West Rule”

Extended

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

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

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Conceptualizing Business Area Systems

Identify utility functions such as maintenance of guest, facilities, or human resource information.

Investigate functions using common information classes.

Define systems by grouping functions based on information classes created by them.

Some experts advocate “one system creates only one information class”

- This is not always true
- Some functions may create more than one IC

Bring in other functions which did not create any information classes but are related.

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Candidate Conceptual Business Areas / Systems

Logically
Grouped Functions

Process Reservation
 Present Bill
 Adopt Changes
 Inspect Facilities
 Plan Maintenance
 Perform Maintenance
 Procure Facilities & Equipment
 Acquire And Maintain IS
 Plan Staff
 Acquire Staff
 Train Staff
 Evaluate Staff Performance
 Enter Order
 Receive Order
 Schedule Order
 Prepare Course
 Present Cuisine
 Plan Menu
 Analyze Usage
 Analyze Trends
 Review Local Markets
 Forecast Requirements
 Acquire Ingredients
 Maintain Ingredient Inventory
 Receive Monies
 Pay Monies
 Update General Ledger
 Perform Cash Management
 Monitor Financial Performance
 Schedule Staff

...Become...

Conceptual
Business Area/System

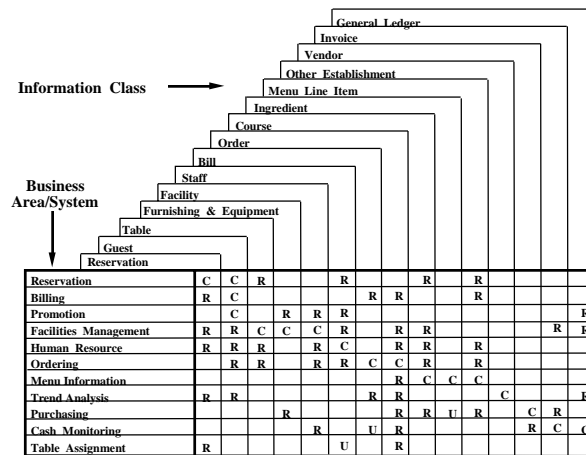
Reservation
 Billing
 Promotion
 Facilities Management
 Human Resource
 Ordering
 Menu Information
 Trend Analysis
 Purchasing
 Cash Monitoring
 Table Assignment

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Conceptual Systems Model

(Information Classes And Business Area/Systems Logically Ordered)



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

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Possible Candidates For Consolidation

Guest Information
Trend Analysis

Reservation
Table Assignment

Ordering
Billing



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Possible Candidates For Consolidation

Guest Information
Trend Analysis



No

Reservation
Table Assignment



Yes

Ordering
Billing



No

Reasons:

1. Guest information will be interfaced with many business areas so keep it simple and separate.
2. Ordering -- may use an expert system.

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Sizing the Business Systems

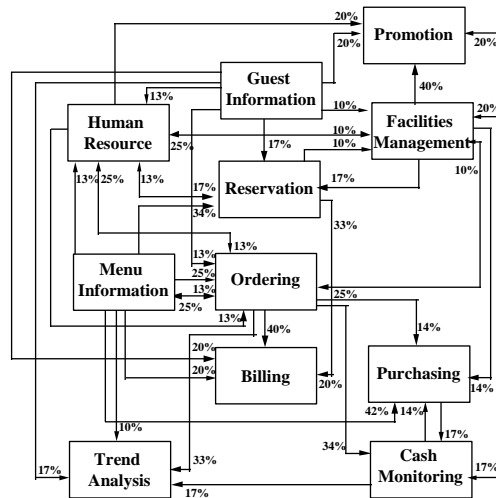
The system size is determined by following factors:

- In-house development
- RFP based development
- Outsourcing
- Buying a package

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Business Areas / Systems Dependency Chart



NOTE: Percentages refer to the percentage of information classes created by another system.

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Classify Business Areas / Systems Classification



Operational (Transaction) --Reservation
--Billing
--Purchasing

Foundation Database --Guest Information
--Menu Information

Decision Support --Promotion
--Facilities Management

Executive Information Support --Cash Monitoring
--Trend Analysis

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Business Area / System Profile

Name: --Promotion

Classification: --Decision support

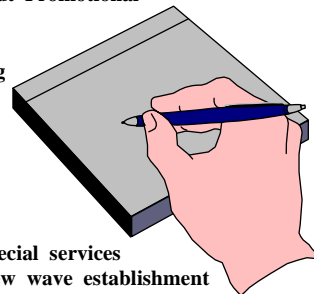
Description: --Select guests and prospects based on analysis and carry out Promotional campaign
--Prepare mailing
--Support telephone calling

Functions Addressed (from Business Function Model): --Adopt changes

Problems Solved: --Promotion effectiveness

Business Goals: --Offer frequent guests special services

Addressed: --Build reputation as a new wave establishment



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Business Area / System Profile

(continued)

Information Classes (From Information Model):

--Guest	R
--Staff	R
--General Ledger	R
--Facility	R
--Furnishings & Equipment	R

Anticipated Obstacles:

- Guest cannot be uniquely identified
- Not set up for mass mailing
- User does not know how to measure effectiveness of promotion programs

Complexity Of System: --Medium

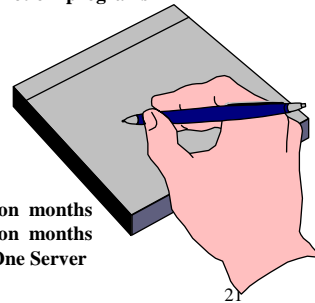
Percentage Of Automatability: --90%

Users:

- Planning
- Operations

Estimated Resources Required:

--User	-	12 Person months
--IS	-	16 Person months
--Hardware	-	6 PCs, One Server



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Business Area / System Profile

(continued)

Implementation Dependencies:

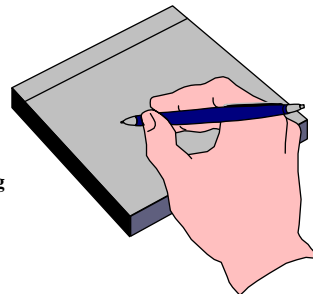
- Guest Information (A)
- Trend Analysis (H)

Relationship To Current Projects: --None

Current Systems / Files Impacted: --None

Potential technology to be used:

- Internet and wireless mailing



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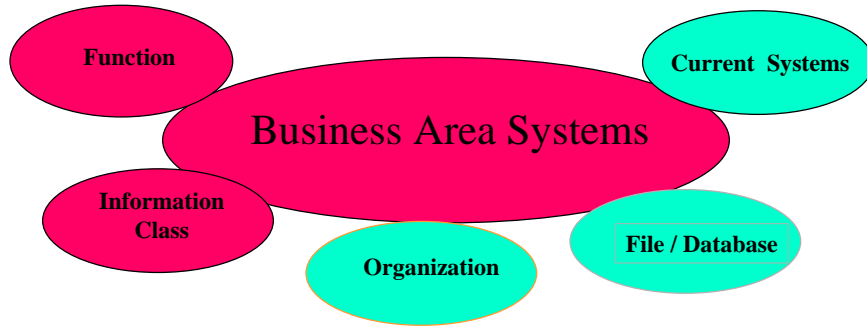
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Inventory of Current Business Systems

- Existing business systems, automated and manual
- Processes and information
- Current files/databases and records
- System under development
- Technology platform and communications networks
- Measures of satisfaction/effectiveness

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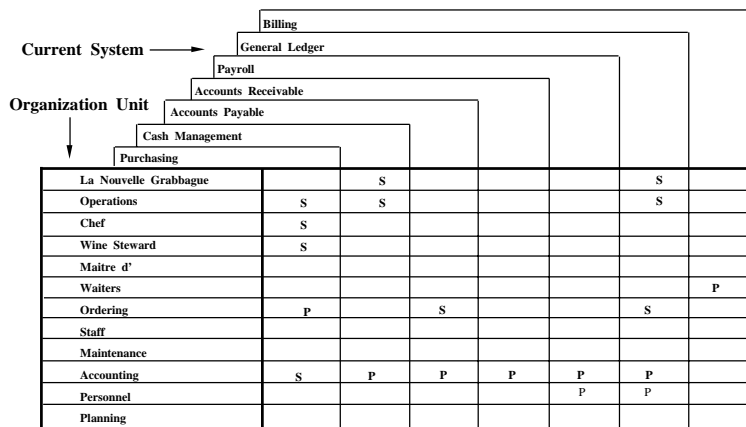
Current System Analysis



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Current System Analysis *La Nouvelle Grabbague*



P = Primary
S = Secondary

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GAP Analysis

La Nouvelle Grabbague

Current System →

Function ↓

Function	Current System	General Ledger	Payroll	Accounts Receivable	Accounts Payable	Cash Management	Purchasing	Sales
Process Reservation								L
Present Bill			M					L
Adopt Changes								
Inspect Facilities								
Plan Maintenance								
Perform Maintenance								
Procure Facilities & Equipment		M	M					
Acquire & Maintain Info Systems		M	M					
Plan Staff								
Acquire Staff								H
Train Staff								
Schedule Staff								H
Evaluate Staff Performance								
Enter Order								
Schedule Order			L					L
Prepare Courses								L
Present Cuisine								L
Plan Menu								
Analyze Usage								
Analyze Trends								
Review Local Markets								
Forecast Requirements								
Acquire Ingredients								
Maintain Ingredient Inventory		M	M					
Receive Monies		M		M				
Pay Monies			L					
Update General Ledger			L					
Perform Cash Management			L		M			
Monitor Financial Performance			L					

Degree of Support
 H = High
 M = Medium
 L = Low

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Data conversion Analysis

La Nouvelle Grabbague

Current File/Data Base →

Information Class ↓

Information Class	Current File/Data Base	Sales Journal	Employee	Credit Organization	Cash Journal	Ingredient	Vendor
Guest							
Reservation							
Table							
Facility							
Furnishings & Equipment							
Staff							L
Bill							
Order							
Course							
Ingredient						L	
Menu Line Item							
Other Establishment							
Vendor							M
Invoice						L	
General Ledger						L	M

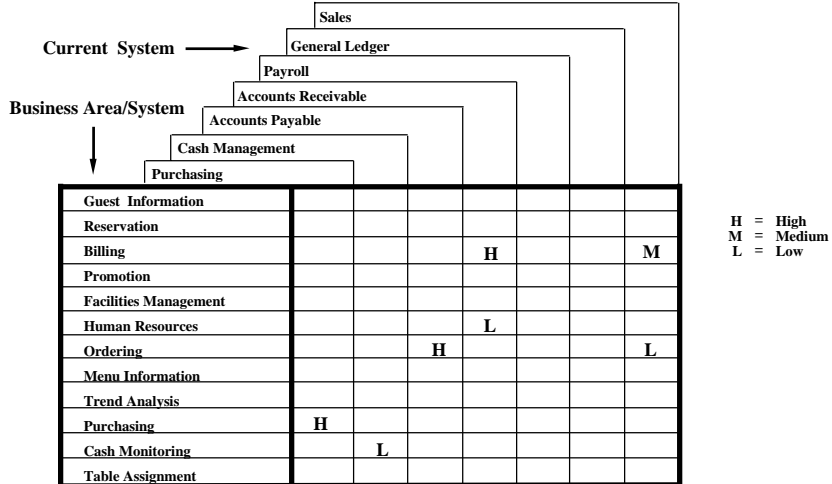
H = High
 M = Medium
 L = Low

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System Migration Analysis

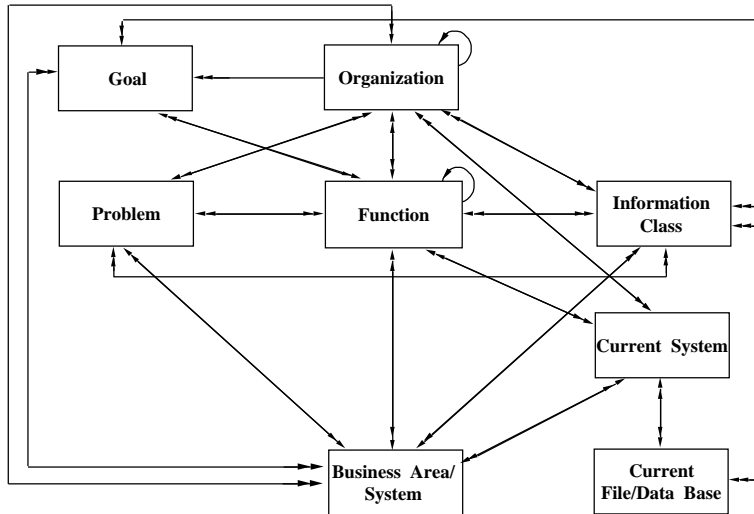
La Nouvelle Grabbage



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Enterprise Architecture Repository



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Technology Strategy

- Document and assess effectiveness of current technology in use
- Align with corporate technology strategy.
- Determine optimum location of functions to be performed.
- Survey industry to discover innovative uses of technology.
- Identify opportunities for the use of new technology.
- Involve technical groups..
- Develop technology recommendations.

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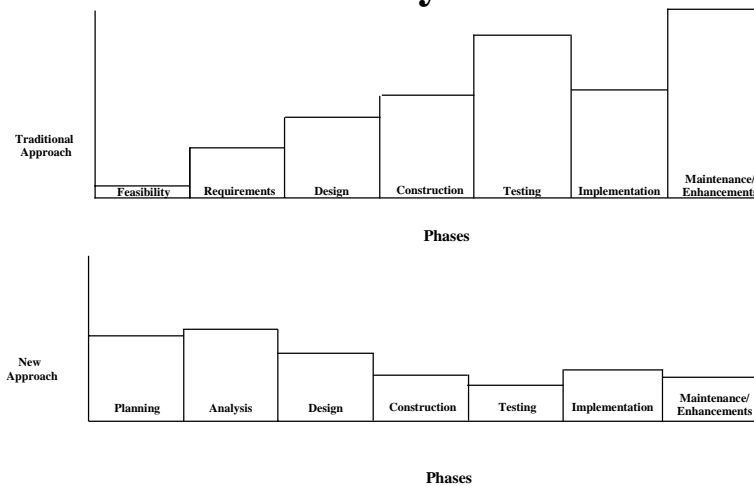
Technological Opportunities

- **Multimedia Web**
 - Applicability in your industry
 - Potential at your organization
- **SMART card**
 - Applicability in your industry
 - Potential at your organization
- **Artificial intelligence**
 - Voice recognition systems
 - Expert systems
- **Image processing**
 - Paperless work flows
 - Support of real-time customer service
- **Service Oriented Architecture SOA)**

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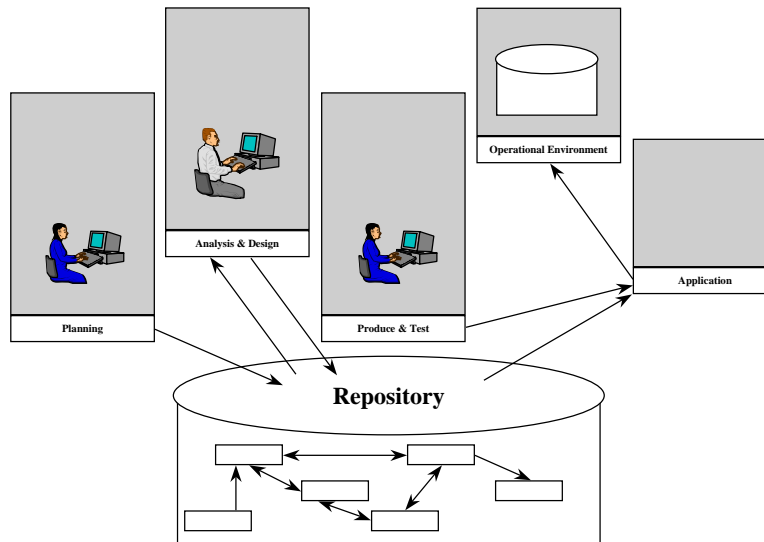
Impact of Technology on the System Life Cycle



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Development Using Best Practices



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Packaged Systems

If your policy is to buy application packages rather than develop inhouse;

- Reconfigure your business areas/systems with commercially available application modules. This requires understanding functionality of packages and relating to them with functions from the Function Model.
- Evaluate vendor's data architecture offering. This should be evaluated against your Information Model.
- Match vendor's functionality with your reengineering ideas.

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Packaged System Analysis

La Nouvelle Grabbague

Business Area/System	Guest Information	Reservation	Billing	Promotion	Facilities Management	Human Resources	Ordering	Menu Information	Trend Analysis	Purchasing	Cash Monitoring	Table Assignment
Sales												
General Ledger												
Payroll												
Accounts Receivable												
Accounts Payable												
Cash Management												
Purchasing												
Guest Information												
Reservation												
Billing							H					M
Promotion												
Facilities Management												
Human Resources									L			
Ordering							H					L
Menu Information												
Trend Analysis												
Purchasing										H		
Cash Monitoring											L	
Table Assignment												

Degree of Support
H = High
M = Medium
L = Low

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Business Area / Project Evaluation

- **Formulate feasible business area / projects**
- **Refine so that at least one project within a business area can be implemented within one year**
- **Evaluate for:**
 - **Management priority**
 - **End user benefits**
 - **Implementation risk**
 - **Information resource potential**
 - **Reengineering potential**
- **Overlay cost / benefit analysis**
- **Refine final evaluation**

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Business Area / Project Selection

Reduce list of all conceptual business areas / systems to a smaller number of implementable business areas / projects.

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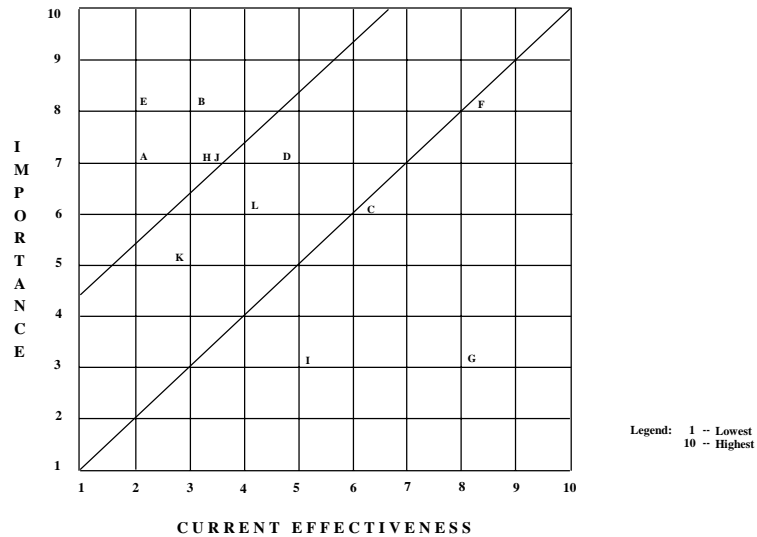
Importance vs Effectiveness Grid

- A simple and powerful tool to narrow down a candidate list based on executive management input
- The “*Importance*” criterion reflects a degree of importance of the functions served by the business area / project in the eyes of management
- The “*Effectiveness*” criterion reflects a degree of satisfaction with the way functions are currently satisfied in the eyes of management
- The business areas / projects that fall in the North West corner usually have higher payoffs

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Importance / Effectiveness Grid



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Business Areas / Systems Refinements

- **Conceptual business areas / systems selected are:**
 - Guest Information (A)
 - Reservation (B)
 - Promotion (E)
 - Trend Analysis (H)
 - Table Assignment (J)
- **Combine (or decompose) systems into business area / projects:**
 - Guest Information is a newly formulated project
 - Reservation combined with Table Assignment
 - Promotion combined with Trend Analysis
- **The resulting three candidate business areas / projects are:**
 - A. Guest Information
 - B. Reservation
 - E. Promotion

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Business Area / Project Evaluation Criteria

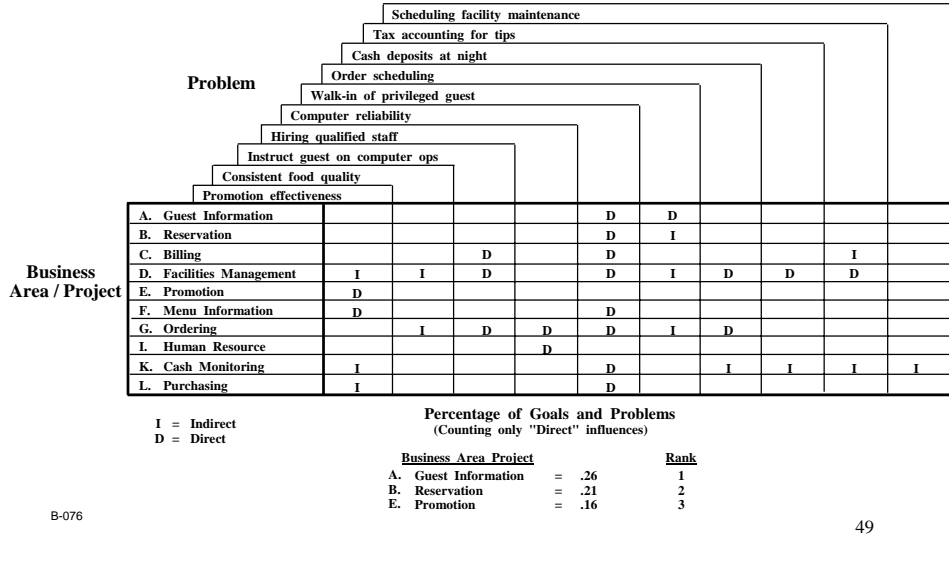
- **Management Priority**
 - How does each project compare to others in meeting corporate goals and solving problem information bases?
- **End-User Benefit**
 - What is the value of a project to the end-users?
- **Implementation Risk**
 - What are the relative risks that a project will be successful?
- **Information Resource Potential**
 - Can a project's information base be readily combined with other project's information bases?
- **Reengineering Potential**
 - What business Reengineering contribution project will make?

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Management Priority Evaluation

Problems Addressed



End-User Benefit Criteria

- Adds new functionality
- Increases revenue
- Cuts cost
- Reduces error
- Improves:
 - Accuracy
 - Availability
 - Reliability
 - Timeliness
 - Flexibility



End User Benefits Evaluation

<u>Business Area / Project</u>	<u>Dept A</u>	<u>Dept B</u>	<u>Dept C</u>	<u>Dept D</u>	<u>Dept E</u>	<u>Overall Average Score</u>	<u>Rank</u>
A. Guest Information	2	2	1	3	2	2.0	2
B. Reservation	1	3	2	2	1	1.8	1
E. Promotion	3	1	3	1	3	2.2	3

Rankings From 1 To 3
(Dependent Upon Number Of Projects)

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Implementation Risk Criteria

- **Magnitude and complexity of application function**
- **Resources needed**
- **Data availability**
- **Conversion effort and complexity**
- **Integration required with other databases**
- **Interface with current systems**
- **User orientation**
- **Replacement of poorly documented current system**
- **Replacement of obsolete technology**

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Implementation Risk Evaluation

<u>Business Area/Project</u>	<u>Data Availability</u>	<u>User Orientation</u>	<u>System Complexity</u>	<u>Phasing</u>	<u>Overall Average Score</u>	<u>Rank</u>
A. Guest Information	4.1	5.2	4.3	2.3	4.0	1
B. Reservation	4.9	4.3	6.9	5.2	5.3	2
E. Promotion	3.3	6.9	8.1	5.0	5.8	3

Scoring

1 = Best Risk
10 = Worst Risk

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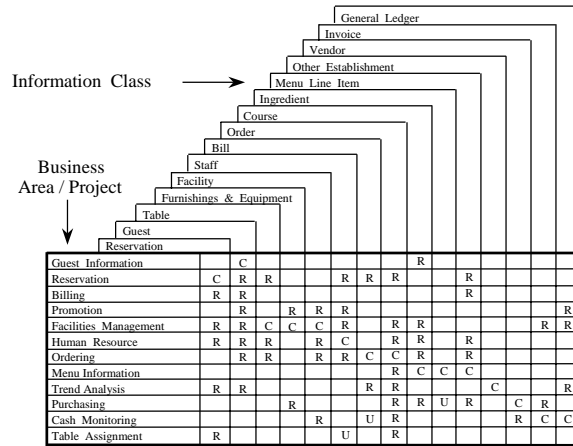
Information Resource Potential

- Each business / area project under consideration should contribute to building an enterprise-wide integrated information resource.
- Start with business areas / projects that create information.
- Select those first which have high sharability of information.

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Information Resource Potential Evaluation



C = Create A. Project Information Classes Created Projects Using The Created Information Classes Rank
 R = Retrieve B. Guest Information 1 7 1
 U = Update E. Reservation 1 5 2
 D = Delete E. Promotion 0 0 3

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Business Process Reengineering

- Fixing broken processes
- Improving good processes by changing drastically

- Taking advantage of technology
 - E.g. Manufacturing, information processing, communications, transportation, etc.
- Changing relationships between stakeholders
 - E.g. Employees, vendors, customers, etc.
- Challenging business rules or assumptions
 - E.g. Methods, timing, location, etc.

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Reengineering Potential

- How badly process is broken
- Multiple handoffs between functional areas
- Possible partnership with stakeholders
- Leveraging current/new technologies
- Capitalizing on data sharing



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Reengineering Potential

<u>Business Area / Project</u>	<u>Horizontal Expansion</u>	<u>Organizing Around Outcomes</u>	<u>Systems Integration</u>	<u>Technology Innovation</u>	<u>Overall Average Score</u>	<u>Rank</u>
A. Guest Information	3	3	3	1	2.5	3
B. Reservation	2	1	1	2	1.5	1
E. Promotion	1	2	2	3	2.0	2

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Business Area / Project Combined Evaluation

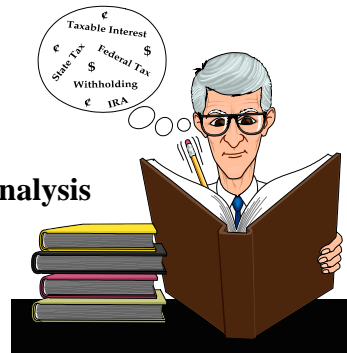
Business Area / Project	Management Priority			End User Benefits			Implementation Risk			Information Resource Potential			Reengineering Potential			Average Adjusted Rank					
	Score	Rank	Wt	Adj Rank	Score	Rank	Wt	Adj Rank	Score	Rank	Wt	Adj Rank	Score	Rank	Wt		Adj Rank				
A. Guest Information	.26	1	1	1	2.0	2	1	2	4.0	1	.5	.5	1/7	1	.5	.5	2.5	3	1	3	1.4
B. Reservation	.21	2	1	2	1.8	1	1	1	5.3	2	.5	1.0	1/5	2	.5	1.0	1.5	1	1	1	1.2
E. Promotion	.16	3	1	3	2.2	3	1	3	5.8	3	.5	1.5	0/0	3	.5	1.5	2.0	2	1	2	2.2

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High Level Cost Benefit Analysis

- Apply to best candidates from assessment
- Consider financial impact of implemented system
 - Increased revenue
 - Decreased cost, or timing
- Use only order-of-magnitude analysis
 - To establish economic priority
 - To obtain approval for next step



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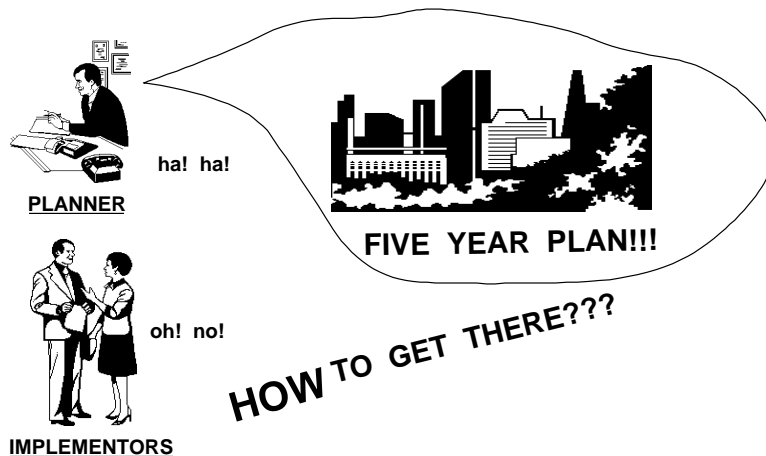
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Big Problem



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Developing An Information Strategy Plan

Steps



1. Investigate interfaces with current systems
2. Analyze data conversion requirements
3. Break business areas/projects into phases so that they are more easily implementable
4. Review phases against management priorities, implementation risk, end user benefits, and cost/benefit criteria
5. Develop detailed action plan
6. Assure availability of resources

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Information Strategy Plan

Components

- * **Business area/project Implementation plan**
- * **Technology resources plan**
- * **Human resources plan**
- * **Master Plan**

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Implementation Plan

For each business area/project phase, review & refine:

- **Functions Satisfied**
- **Users Served**
- **Functions and IC's addressed**
- **Goals/problems Addressed**
- **Current Systems and databases Impacted**
- **Estimated Services To Be Delivered**
- **Estimated System Size**
- **Estimated Development Resource Required**
- **Estimated Information Sources Impacted**
- **Business Policies And Procedures Impacted**

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Phasing Business Areas/Projects

Guest Maintenance

PHASE 1

Guest Basic Information

PHASE 2

Guest Demographic

PHASE 3

Guest Habit

- **Break into manageable phases**
- **Investigate inter/intra relationships**
- **Assess deliverables and their values**
- **Take into account resource constraints**

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Business Area/Project Schedule

		Months																	
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Guest Information	Phase 1																		
	Phase 2																		
	Phase 3																		
Reservation	Phase 1																		
	Phase 2																		
Promotion	Phase 1																		
	Phase 2																		
	Phase 3																		

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Short-term Plan

The action plan must include:

- **Equipment ordering and installation**
- **Software tools evaluation and installation**
- **Methodology review and refinement**
- **Training - IT as well as user**
- **Staffing - IT as well as user**
- **Standards and procedures**

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Long-term Plan

Arrange the remaining business systems in the order of data dependencies and management priorities and map in the long-term plan

Publish the long-term and short-term plans

Any changes made in the Plan or Architecture must be documented

Periodically – at least once a year the Plan must be reviewed and updated

All planning and funding of projects must be driven by the Enterprise Architectue

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12. **Keys to Success**

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Organizational Changes

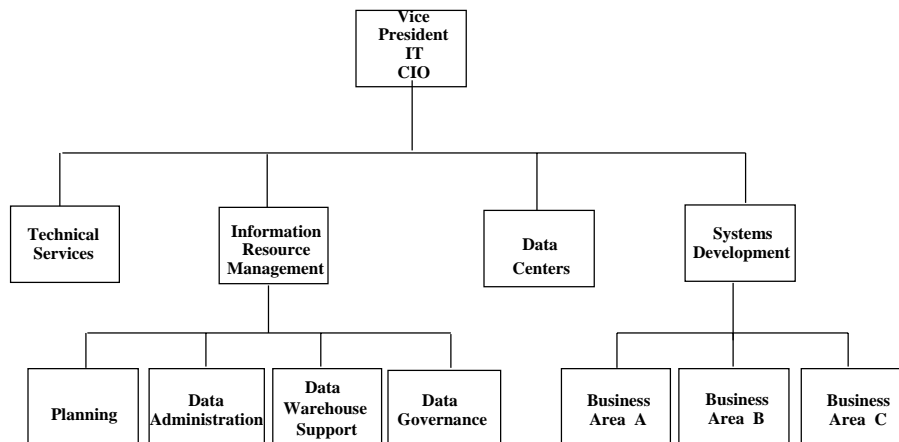
Requisite Changes for Success:

- Manage information as a corporate resource
- Implement behavioral change management
- EA must drive all project planning and funding
- SDLC must use and update the Architecture
- Make BPR and change management a part of SDLC

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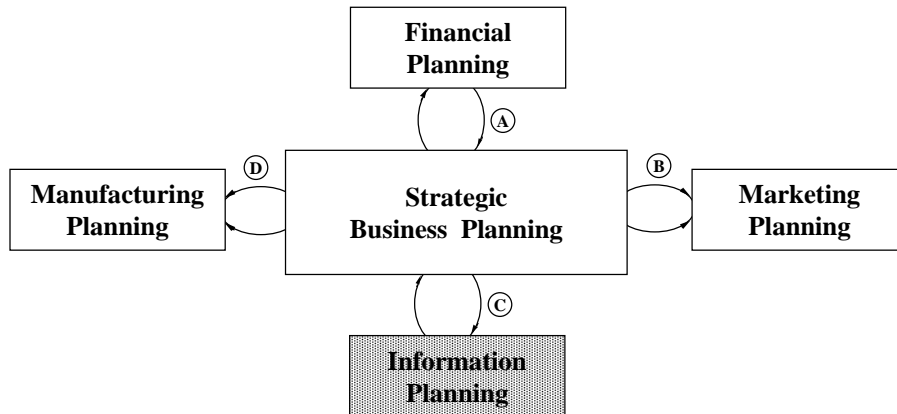
Information Systems Organization



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Strategic Business Planning



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Lessons Learned

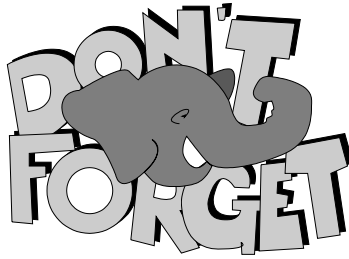
1. Project team should be comprised of:
 - Senior user managers and analysts who can communicate with senior management
 - Core team members must be full-time for the duration of the project
 - Number 5 (minimum 3, maximum 6)
2. Scope the project so that:
 - It takes no more than six months
 - Ideal three months
 - Average four months
3. Select an entrprise:
 - Which has a committed executive or a powerful steering committee in charge
 - Organizations which share processes and data
 - Which is receptive to new ideas and methods
4. Dry run all tools
 - Use only tools with which you have experience in
 - Do not waste time with a new tool
5. Do not collect too much detail – remember this is Planning not Detail Design
6. The output must include an implementable action plan
 - which management can understand
7. Use an experienced arbitrator and adviser – if you don't have experience

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Management Commitment

*The most important ingredient
for successful systems planning and
Business process reengineering*



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