Business Analysis

Project Management Institute
(Western India Chapter)
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Dean IT/Business Design

Welingkar Institute of Management

Book on BA

- Title : Business Analysis
- Author : Pradeep Pendse
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Agenda

- Setting the Context
- What's New
- Managing Requirements – Gathering
- Modelling and Analysis
- Innovation
- Visualising IT Solutions
- Human Centered Approach / Useability
- Enterprise Analysis
  - Information Architecture & Strategy
  - Aligning IT Strategy
  - Technology Forecasting and Selection
- Quality and Security Requirements
- Developing a Solutions Mindset

Evolution of the IT Industry

- Craft – Novelty - Development
- Mass Production – Commodity-Linking
- Process Enhancement – Quality-Modularisation
- Mass Customisation-Precision-Networking
- Co-Configuration-Customer Intelligence

Emerging role of a BA
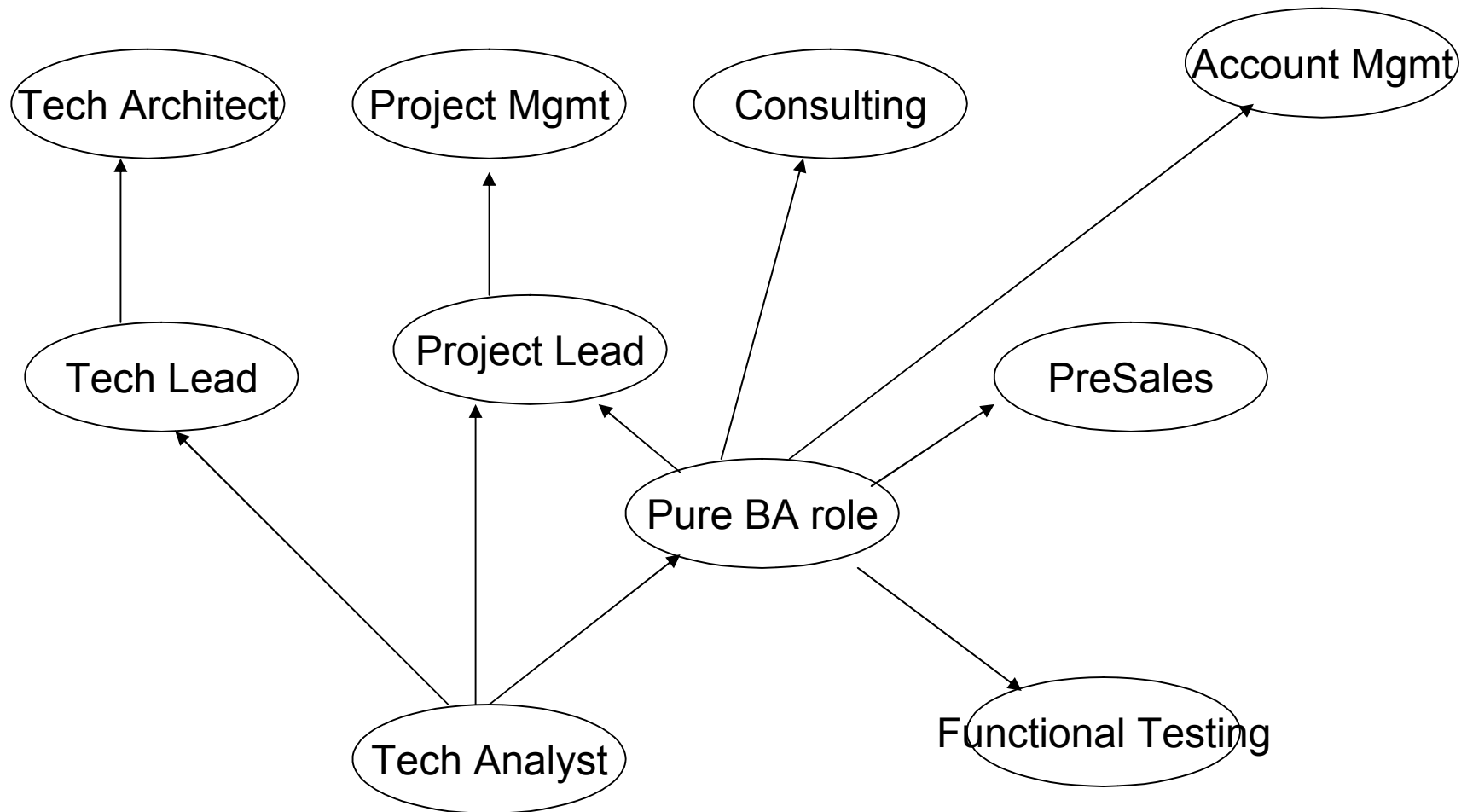
What's new ?

- Requirements → Expectations
- Gathering → Multisensing
- Gathering → Analysis
- Every Increasing Number of Perspectives
- Analysis → Solutions Approach
- Systems/Technology → Human Centred Approach
- Security and Quality
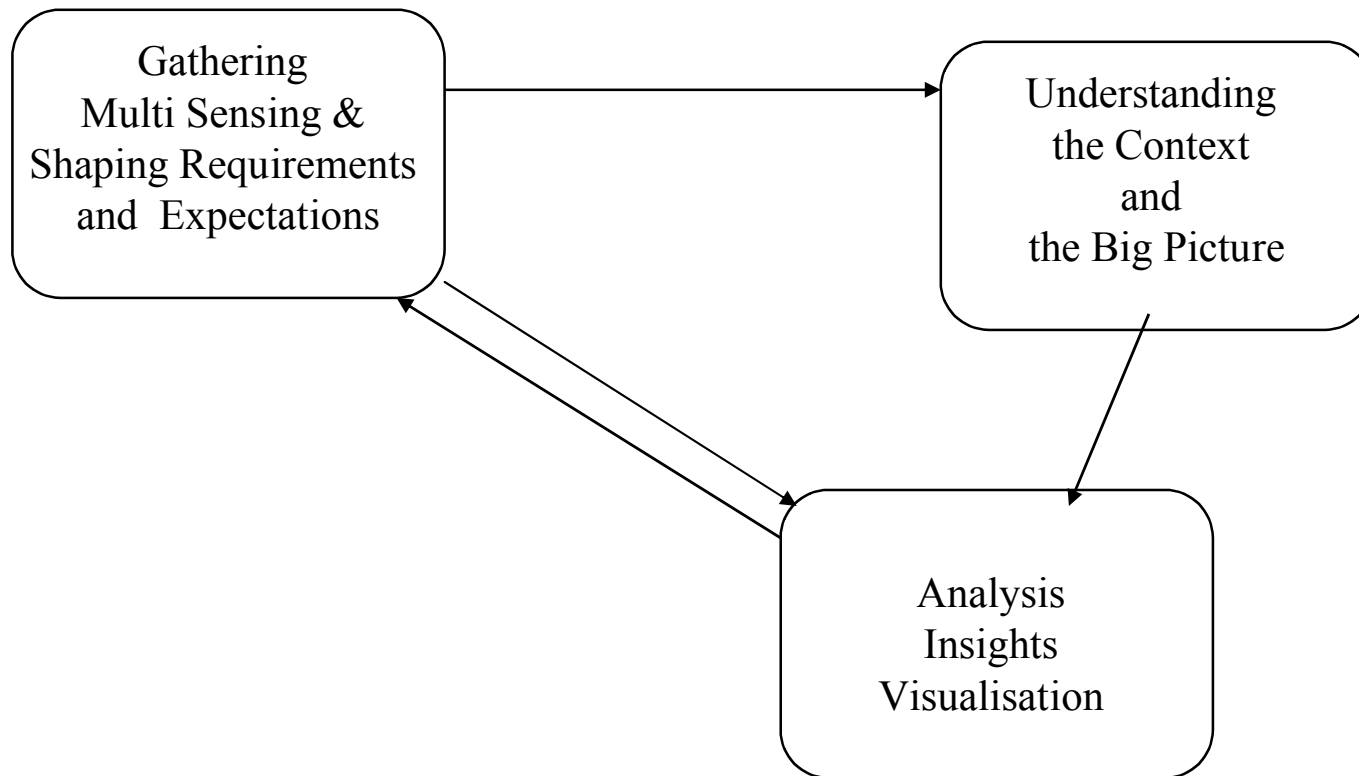- Focus on Enterprise, Strategy & Transformation

Clues

1. Is equipped with an internal combustion engine
2. Is available in yellow, black, and yellow and black combination
3. Has three wheels
4. Has a parking brake and a foot brake
5. Has a 3-speed forward and a 3-Speed reverse gear box
6. Levels uneven surfaces nicely and quickly
7. Blast weights can be added to level different types of surfaces

Answer

Requirements Management

Gathering
Multi Sensing &
Shaping Requirements
and Expectations

Understanding
the Context
and
the Big Picture

Analysis
Insights
Visualisation

Observation – what to observe

Colin Robson (2202)

- Space

- Actors

- Activities – what r they doing and why ?

- Objects – what physical objects are present and why?

- Acts – What r the specific individual actions ?

- Events – Is it a part of a special event ?

- Time – what is the sequence of events ?

- Goals – what r the actors trying to accomplish

- Feelings – mood of the group and of individuals ?

- ***Ethnography***

Studying a Business Process

- Organisation and its Context
- Strategic Directions
- Purpose of Process
- Context within which Process works
- Process flow
- Detailed Workflows
- Transaction Documents
- Volume of work
- Resources deployed
- Constraints
- Decision Points in the process

- Business Rules, Policies, Norms
- Object Relationships
- People – Roles and Tasks
- Personas
- Tracing the Life of a User
- Extreme Conditions
- Extreme Values for Data
- Users Vision for Solution
- ….

Modelling and Analysing

Ever Increasing number of Perspectives

- **Process/ Workflows –**
  - Data flows, BPMN, Activity Diagrams, Flowcharts
- **Information Needs –**
  - CSF/KPIs,
  - Info Required for Decisions
- **Process Structure**
  - Object/ Class Diagrams
  - Decision Tables
  - Business Rules Diagrams
- **Dynamic Process Behaviour**
  - Ethnography/ Observation
  - Objects and Events
  - States and Transitions

- **User View**
  - Life of a Hero
  - Use Case View
  - Personas
  - Interaction/HCI Views
- **Enterprise View**
  - Business/ Orgn Metaphors
  - Enterprise Architectural Views
    - Zachmann etc
- **Security and Quality View**
  - SQuaRE

Info Needs Perspective
CEO of Censor Board – CSF Method

Critical Success Factor

- Volume of work done
- Productivity
- Cost
- Compliance to the Cinematography Act
- Safeguarding Public Sensibilities, Values etc
- Fairness
- Transperancy

Key Performance Indicator

- No of Films
- No of employees as a Denominator
- No of Cuts levied – w.r.t Clause
- No Certificates Issued – U/A/ UA etc
- Avg Processing time for an application
- Cost per film certified
- No of Public Complaints received
- No of Cases referred to Tribunal
- Time reqd for complainant v/s avg time
- Analysis of cuts for similar situations
- Availability of above information to all stakeholders (RTI)
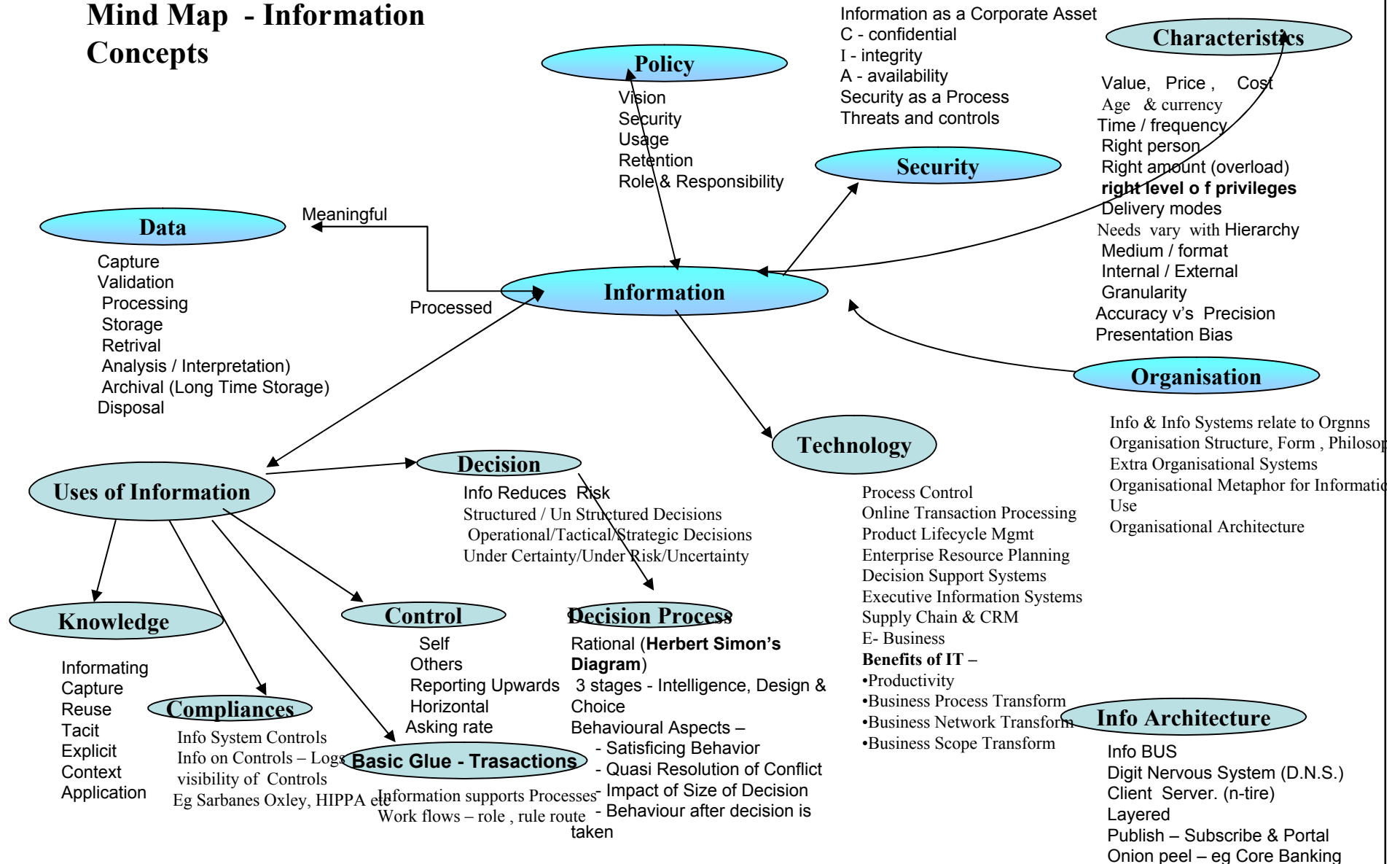
Why is Information Required ?

- As a glue - Transactions
- As a means of control & Coord
- Self Control – Am I doing Well ?
- Decision Processes
- Reporting Upward
- Strategic Cost Management
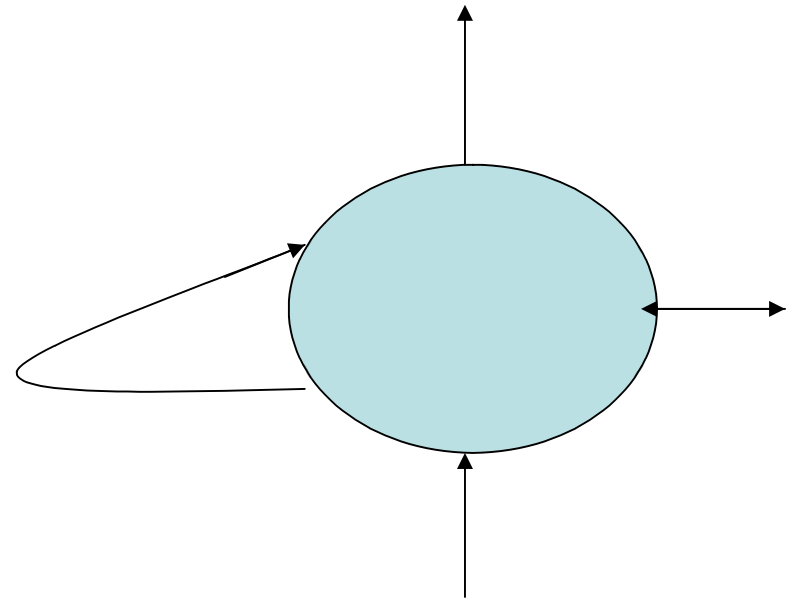
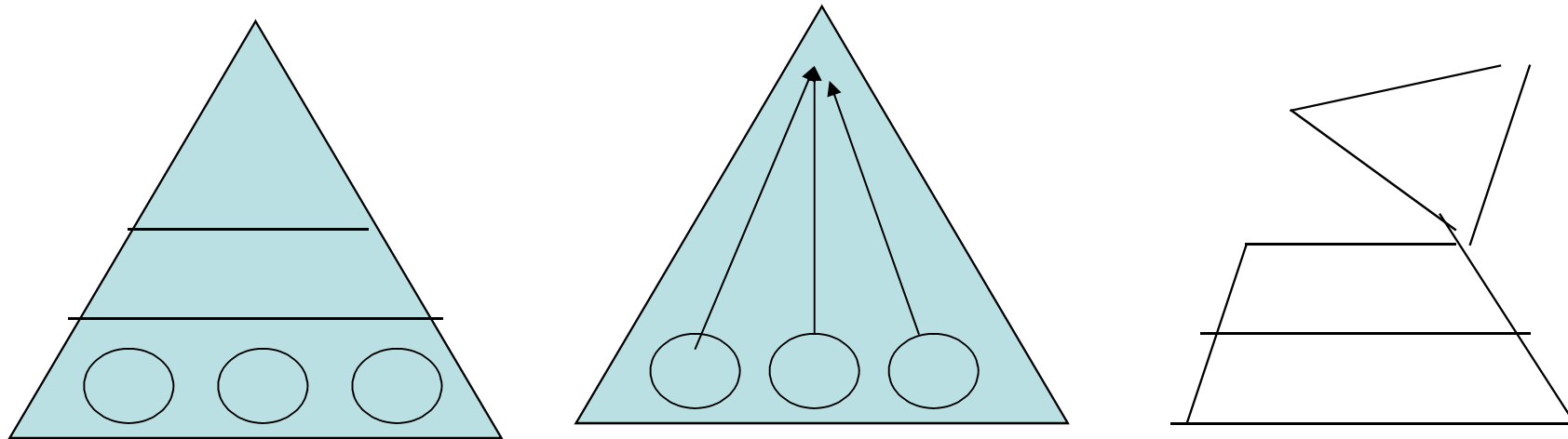# Newer Dimensions of Information Needs

- Type of Data and Information – Text to video, audio etc
- Informating & Learning
- Knowledge Discovery
- Innovation
- Customer Bonding
- Governance, Risk and Compliance
- Information Economics
- www, web2.0 and User Generated content
- Newer Organisational architectures
- Life Cycle View of Data and Information
- Security and Privacy
- Pervasive Technologies – mobile etc

Mind Map - Information Concepts

Policy
Vision
Security
Usage
Retention
Role & Responsibility

Information as a Corporate Asset
C - confidential
I - integrity
A - availability
Security as a Process
Threats and controls

Security

Characteristics
Value, Price, Cost
Age & currency
Time / frequency
Right person
Right amount (overload)
right level o f privileges
Delivery modes
Needs vary with Hierarchy
Medium / format
Internal / External
Granularity
Accuracy v's Precision
Presentation Bias

Data
Capture
Validation
Processing
Storage
Retrival
Analysis / Interpretation)
Archival (Long Time Storage)
Disposal

Meaningful

Processed

Information

Organisation
Info & Info Systems relate to Orgnns
Organisation Structure, Form , Philosop
Extra Organisational Systems
Organisational Metaphor for Informatio
Use
Organisational Architecture

Technology

Decision
Info Reduces Risk
Structured / Un Structured Decisions
Operational/Tactical/Strategic Decisions
Under Certainty/Under Risk/Uncertainty

Uses of Information

Knowledge
Informating
Capture
Reuse
Tacit
Explicit
Context
Application

Control
Self
Others
Reporting Upwards
Horizontal
Asking rate

Decision Process
Rational (**Herbert Simon's Diagram**)
3 stages - Intelligence, Design & Choice
Behavioural Aspects –
 - Satisficing Behavior
 - Quasi Resolution of Conflict
 - Impact of Size of Decision
 - Behaviour after decision is taken

Process Control
Online Transaction Processing
Product Lifecycle Mgmt
Enterprise Resource Planning
Decision Support Systems
Executive Information Systems
Supply Chain & CRM
E- Business
Benefits of IT –
•Productivity
•Business Process Transform
•Business Network Transform
•Business Scope Transform

Compliances
Info System Controls
Info on Controls – Logs
visibility of Controls
Eg Sarbanes Oxley, HIPPA etc

Basic Glue - Trasactions
Information supports Processes
Work flows – role , rule route

Info Architecture
Info BUS
Digit Nervous System (D.N.S.)
Client Server. (n-tire)
Layered
Publish – Subscribe & Portal
Onion peel – eg Core Banking

Information Strategy

Are Info Systems Aligned to Business Needs ?

Dynamic Process Behaviour
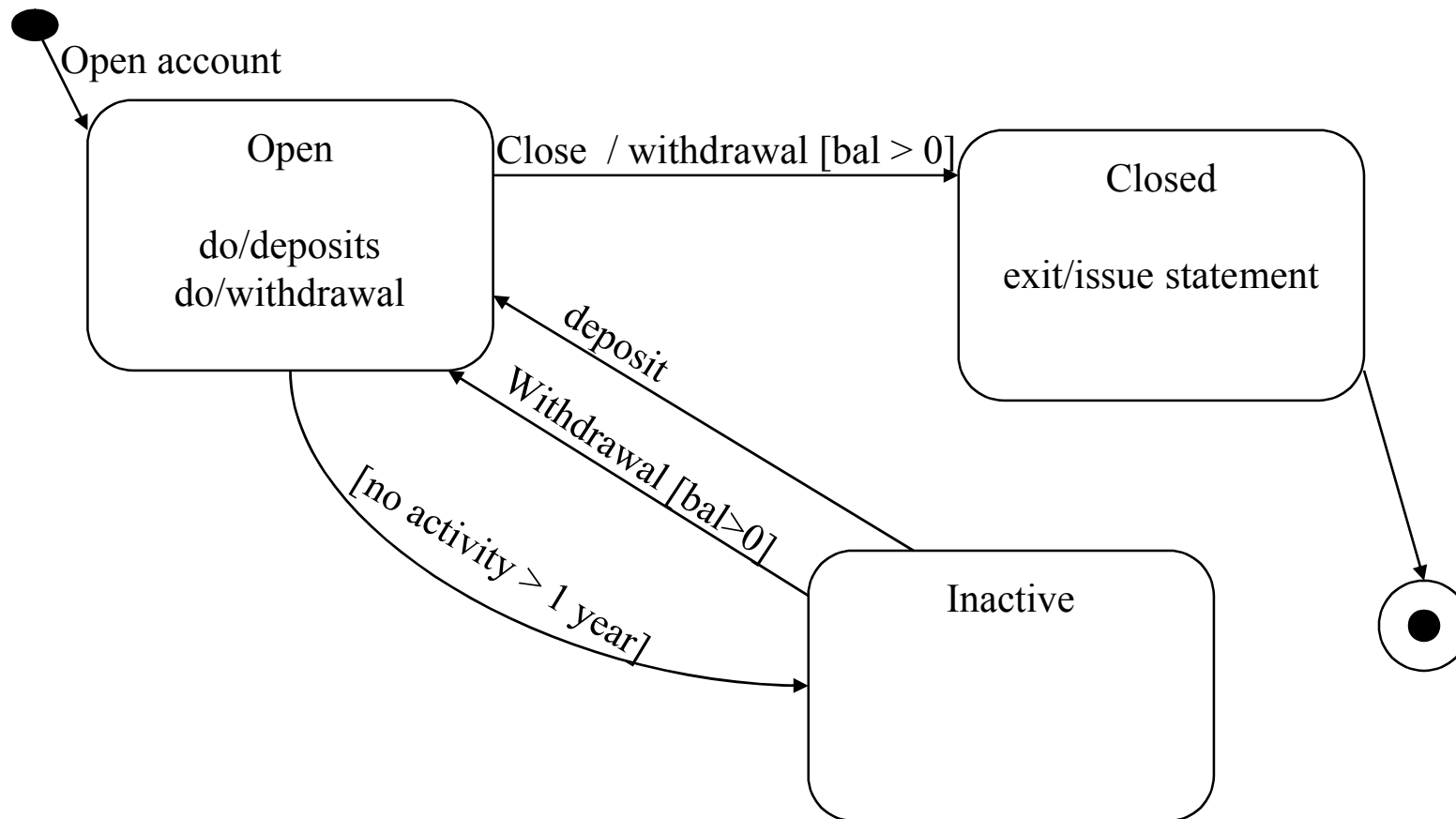# Object & Event Analysis

**Example of Lecture Process
Events for Student Object**

- Comes late

- Goes early

- Asks questions

- Replies to answers

- Takes an Notes

- Makes a presentation

- Sleeps in class

- Feels hungry

Object Analysis can be used for

- Preparing checklists
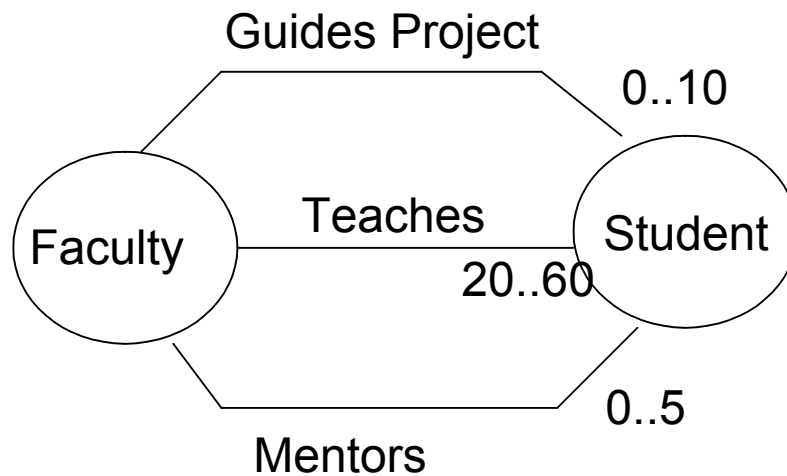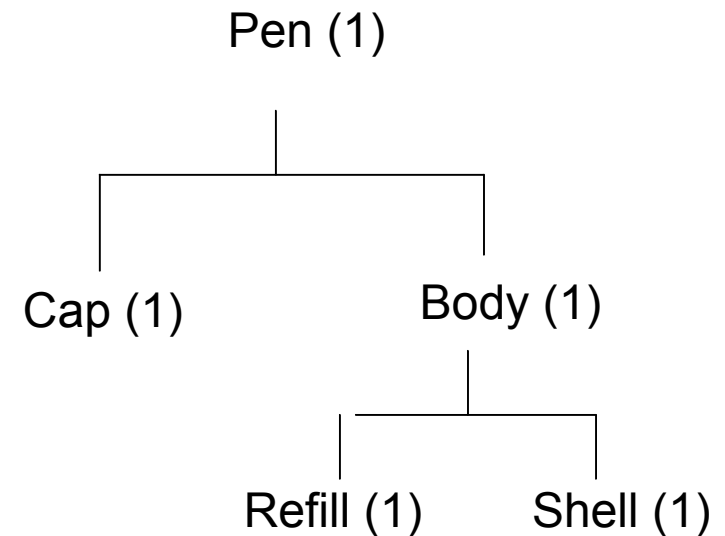- Quick Estimation

State Diagrams

Open account

Open

do/deposits
do/withdrawal

Close / withdrawal [bal > 0]

Closed

exit/issue statement

deposit

Withdrawal [bal>0]

[no activity > 1 year]

Inactive

States – Customer Experience Design

States of a Shopper

- At the Window   - Confused   – Is this shop for Me ?
- Walking in   – Un Comfortable – Am I looking Ok ?
- Inside the shop   – Confused   – Where do I go now ?
- At the Shelf   - Unsure   - Is this the right product ?
- At the Billing Queue – Idle   - ?

Object Relationships & Process Innovation

Guides Project

0..10

Faculty — Teaches — Student

20..60

0..5

Mentors

Pen (1)

Cap (1)   Body (1)

Refill (1)   Shell (1)

Why Should Faculty Mentor only 5 ?   Why Should a Pen have 1 Refill ?

Business Rules & Process Innovation

Bill Passed for Payment

Bill Not Duplicate

Material Accepted By Stores

Purchase Order Exist

Bill Received

Qty is as per PO

Material Okayed by Quality Dept
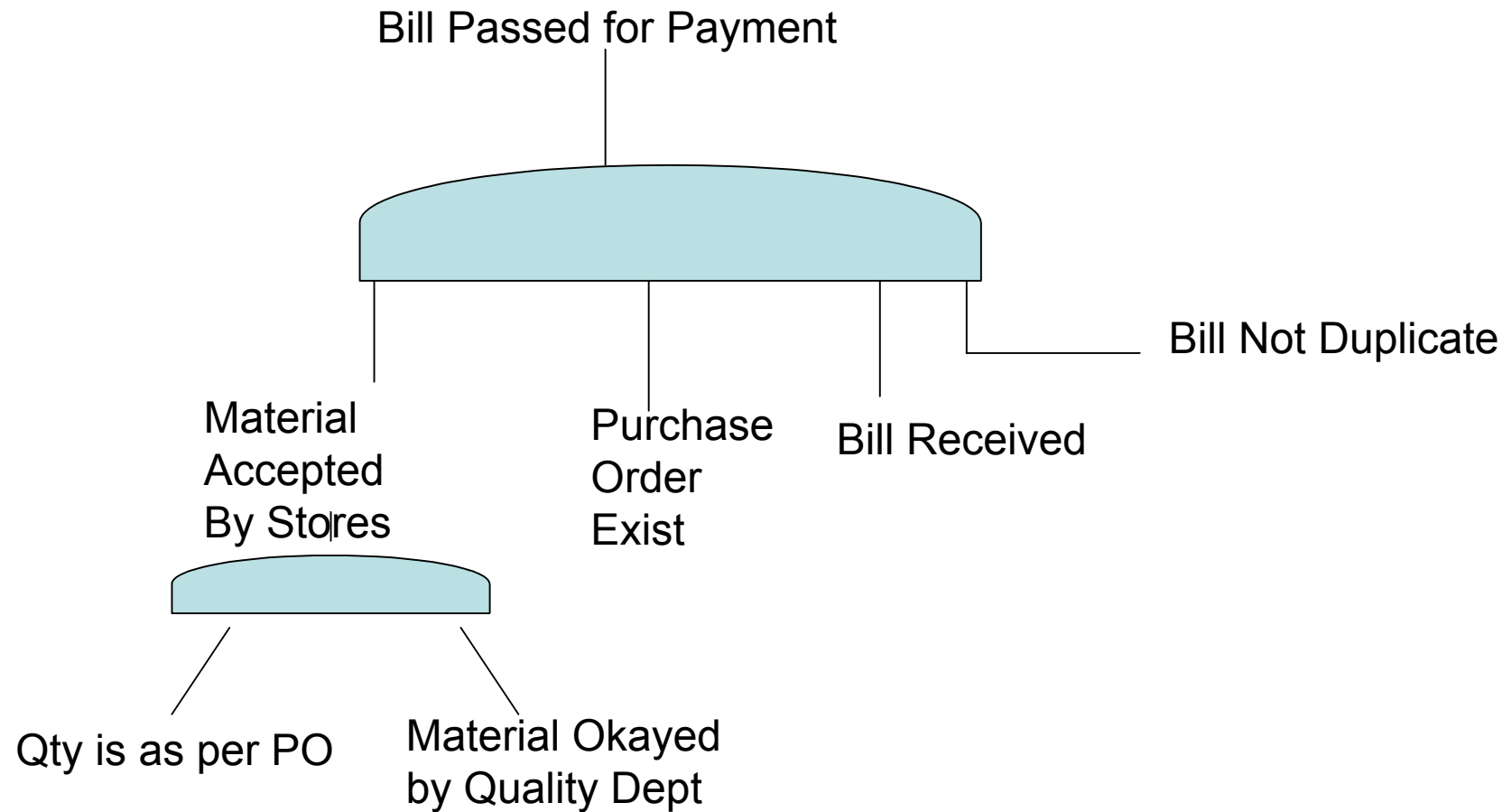
Business Rules and Process Innovation

Faculty approved for teaching Course

Dean has recommended

Educational Qualification is OK

Work Experience > 10 Yrs

PhD   Masters
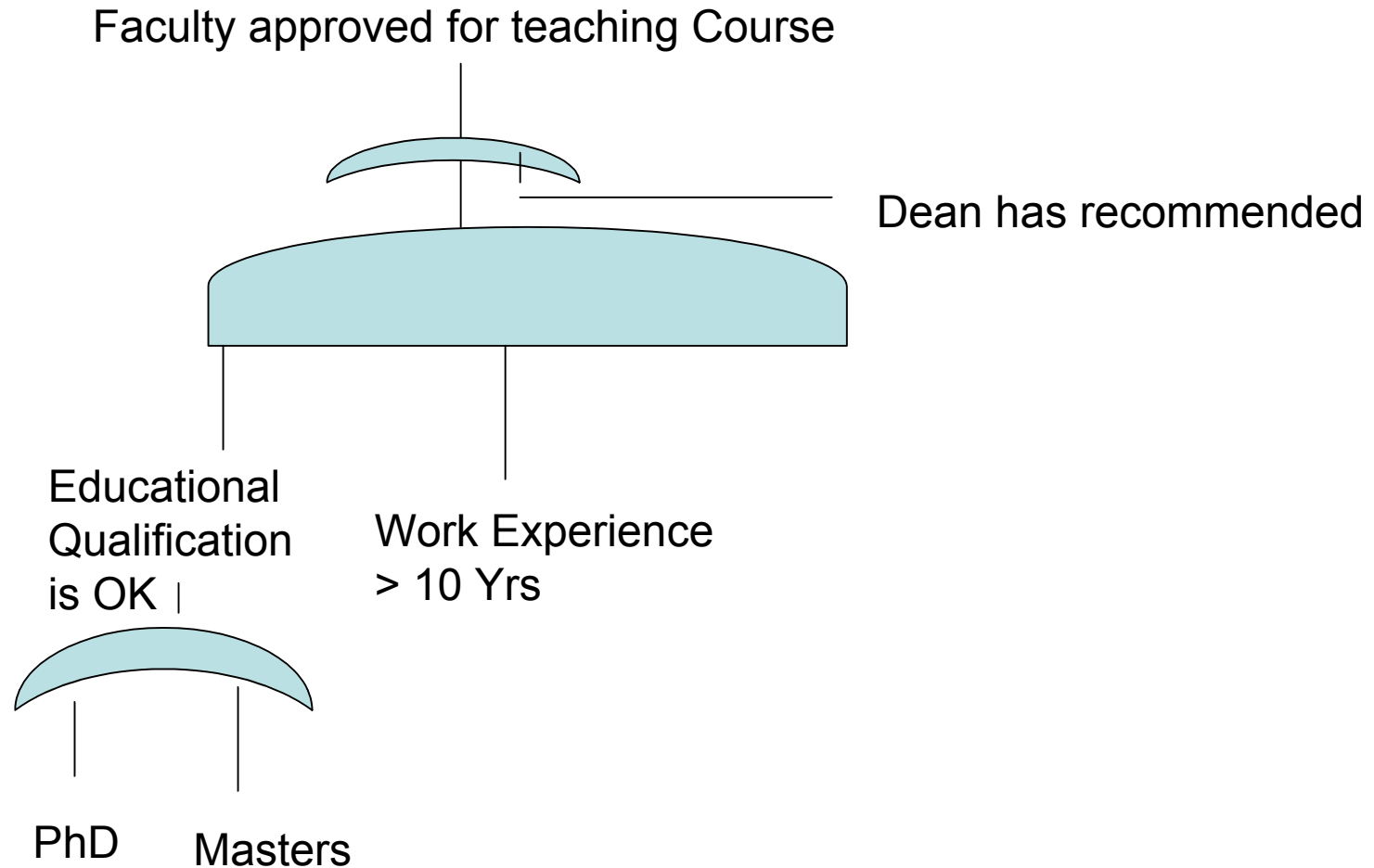
Visualising Use Cases

Consumer

Purchase

Stores

Stores Clerk

Accounts/Auditor
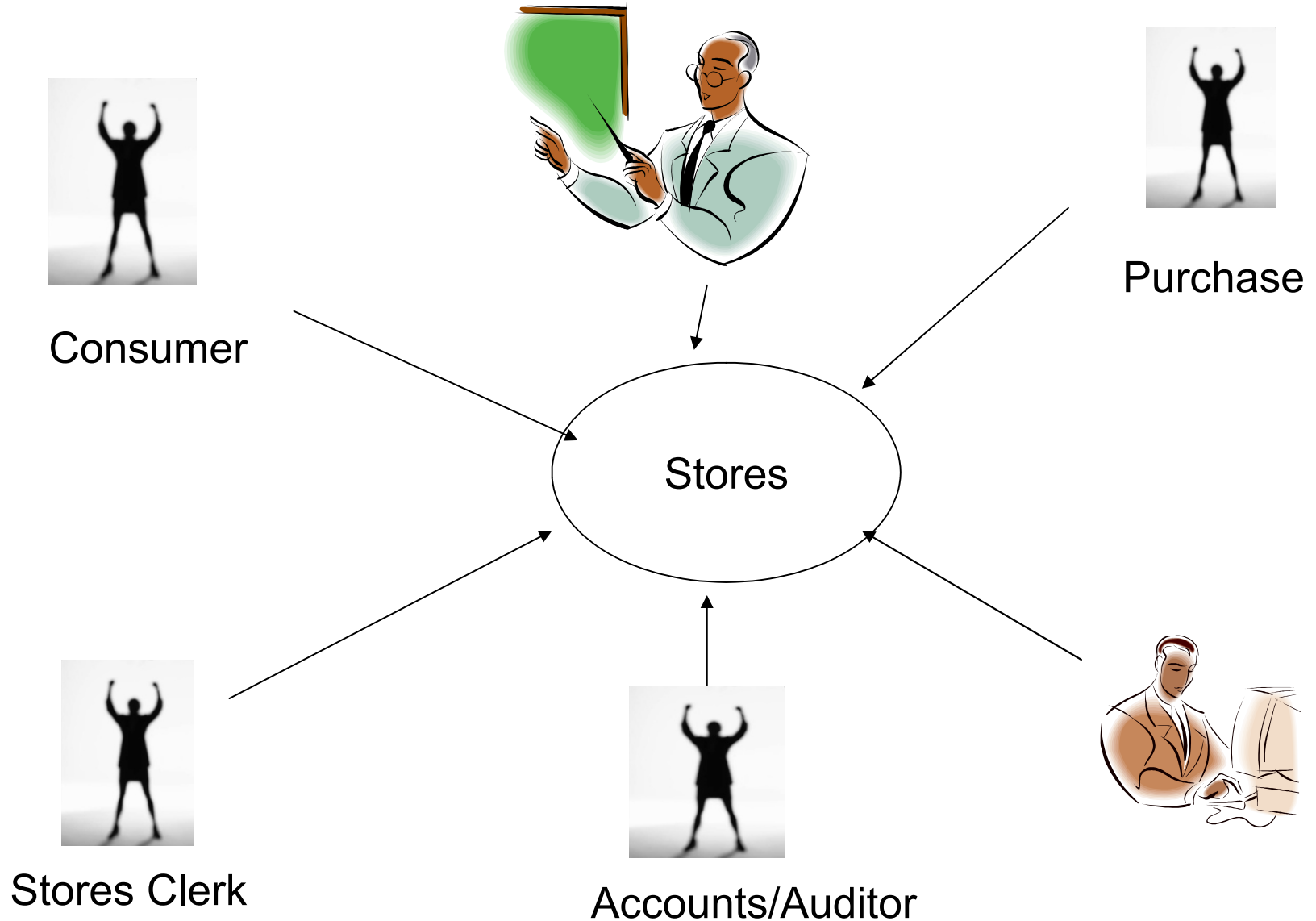
Use Case Approach

- Identify Actors
- Identify Business Events @ Actor
- Each Event is a potential Use Case
- Visualise Each Use Case (Dialog bet Actor and Machine)
- Identify Screens
- Design each screen
- Construct a Prototype

Visualising a solution – Use Case

Chk Balance
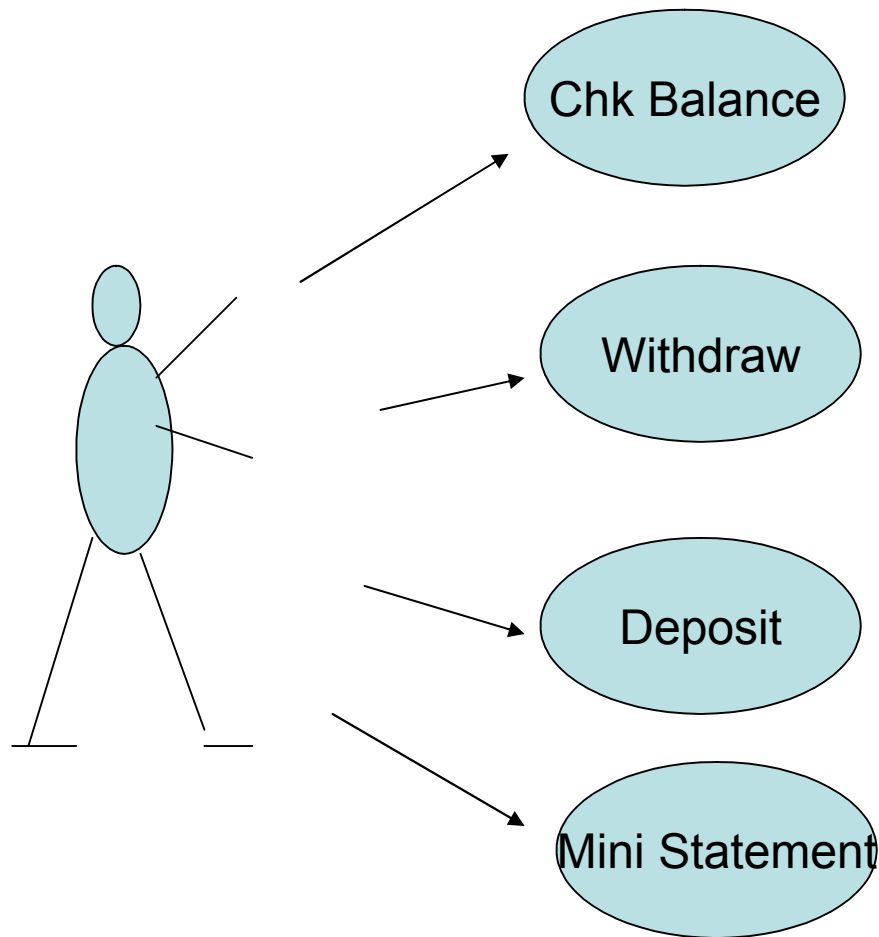
Withdraw

Identify Use Cases

Deposit

Mini Statement

Visualising a Use Case

Normal flow

Customer   **ATM**

                                                Logs in customer
                                                Displays menu screen
Selects Withdraw Option   Display Withdraw Screen
Types amount   Seeks Confirmation of Amount
Confirms Amount   Processes Request
                                                Dispenses Cash
Collects Cash   Asks if more transactions ? Y/N
Customer says 'NO'   Logs out customer, ejects card
                                                Displays default screen

Visualising a Use Case

Alternate flows and exceptions :

- Wishes to change withdrawal amount

- Requested Amount > Balance

- Requested Amount > cash in ATM

- Requested Amount > Cash limit for customer

- More than one withdrawal during the same day

- ATM fails – power, link etc

- Error in disbursal of cash

- Customer forgets to take cash

- Customer asks for more transactions

Visualising a solution

- ## Visualise Screens
  - Default screen
  - Menu Screen
  - Withdrawal Screen
  - Confirmation of amount
  - More Transactions ?
  - ….

Human Computer Interaction & Useability

- **Goals**
  - Business Goals
  - IT Goals
  - User Experience Goals

- **Useability Goals**
  - Functionality
  - Efficiency
  - Attractiveness
  - Making things simple and intuitive
  - Ease of learning
  - Safety and security

HCI /Useability tools

- Ethnographic Studies
- Identification of Users and defining personas
- Affinity Diagrams
- Life of a Hero
- Task analysis
- Application of Design Principles
- Use of Metaphors and anologies

HCI/Useability
New Subjects to learn

- Design principles/elements
  - Colour
  - Form
  - Shape
  - Aesthetics
  - Balance
  - etc

- Anthropology
- Semiotics
- Semantics
- Typography
- Visual Language
- Cognitive Psychology
- Perception
- etc

Use of Metaphors for Visualisation

- Browsing
- Surfing
- Windows
- Pipes
- Filters
- Pointing
- Java/Java Beans
- Agent
- Broker
- Queue
- mail

- Folder /file
- Desktop
- Button
- Hour glass
- Avatar

Etc

Enterprise Analysis

Enterprise Analysis

Business Strategy Frameworks

- Michael Porter's Industry Structure Analysis

Information architecture & Strategy

- Zachmanns Framework
- Metaphors & Information Architecture
- SIA framework

Strategy Alignment & focus

- Critical Success Factors
- Alfred Chandler's
- Nolan's EDP Lifecycle
- McFarlan's Strategic Grid
- Frameworks for Evaluating IT Strategy/Investments
- Technology Diffusion models
  - Roger Moore
- Technology Forecasting & Selection models
  - Gartner's Hype Curve
  - Gartner's Magic Quadrant

Information Architecture - Metaphors

- Digital Nervous System

- Onion Peel

- Information Bus

- Layered Architecture

- Service Oriented Architecture

What is the best architecture for me ?

Information Strategy
- Information Architecture

- How should information be created and used in my organisation ?

- Architecture is about –
  - Broad Structural components for Information
  - The rules for interaction
  - The desired business outcomes
  - Consistent and repeatable Style
  - Identity for the organisation
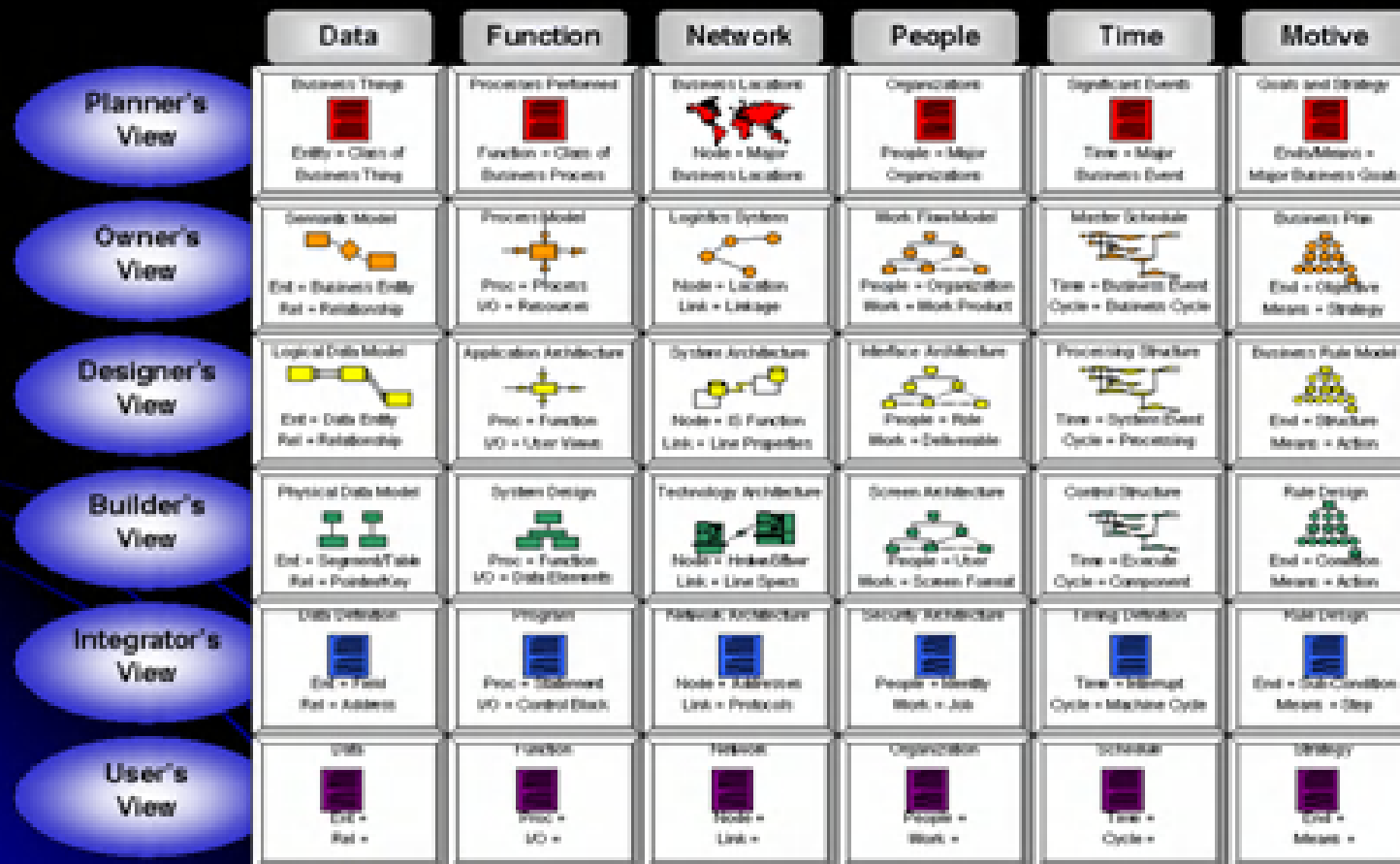
Conceptual Frameworks for Information Systems Planning

- Zachmann's Framework
- SIA Framework
- CSF Methodology
- Alfred Chandler's Strategy Trilogy
- Nolan's – EDP Life Cycle
- Cash & McFarlan's Strategic Grid
- Adequacy Grid
- Strategic Information management Framework
- Strategic Information Systems Planning – Venkataraman et all
- IT Performance Management Grid
- Portfolio Management Matrix

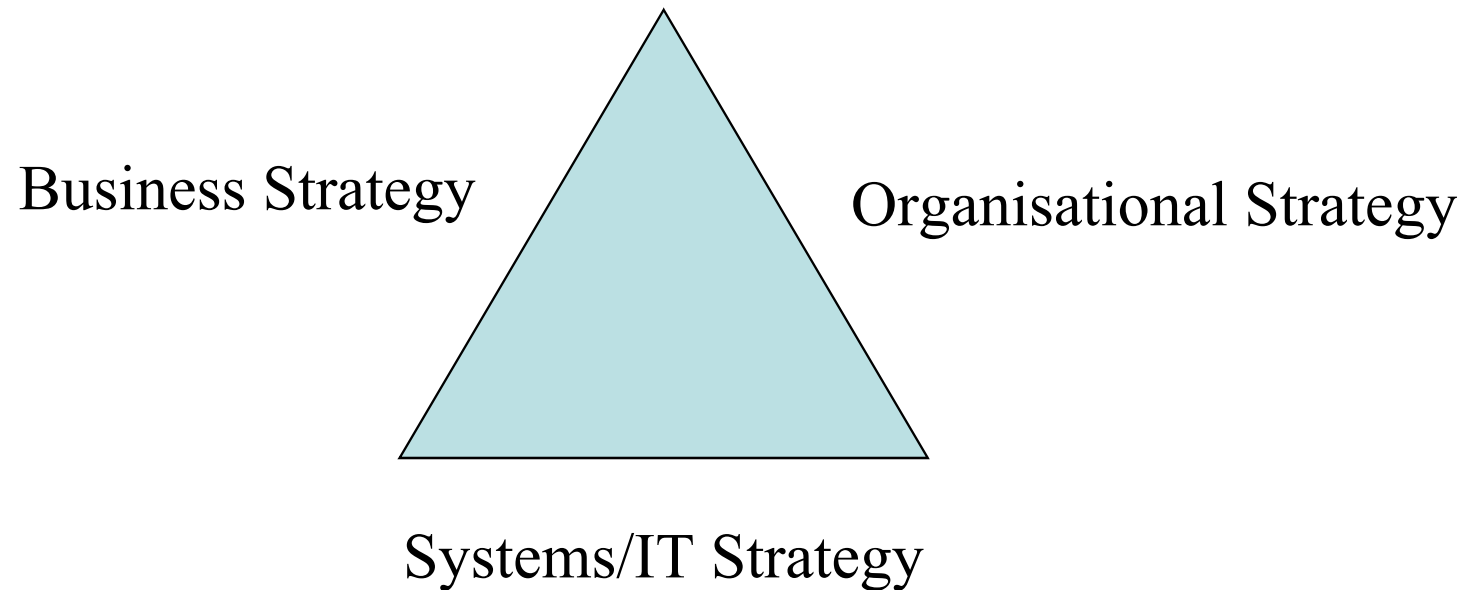# Information Strategy
-Information for Strategic Advantage

Add Value

Reduce
Costs

Reduce
Risk

Create New Reality
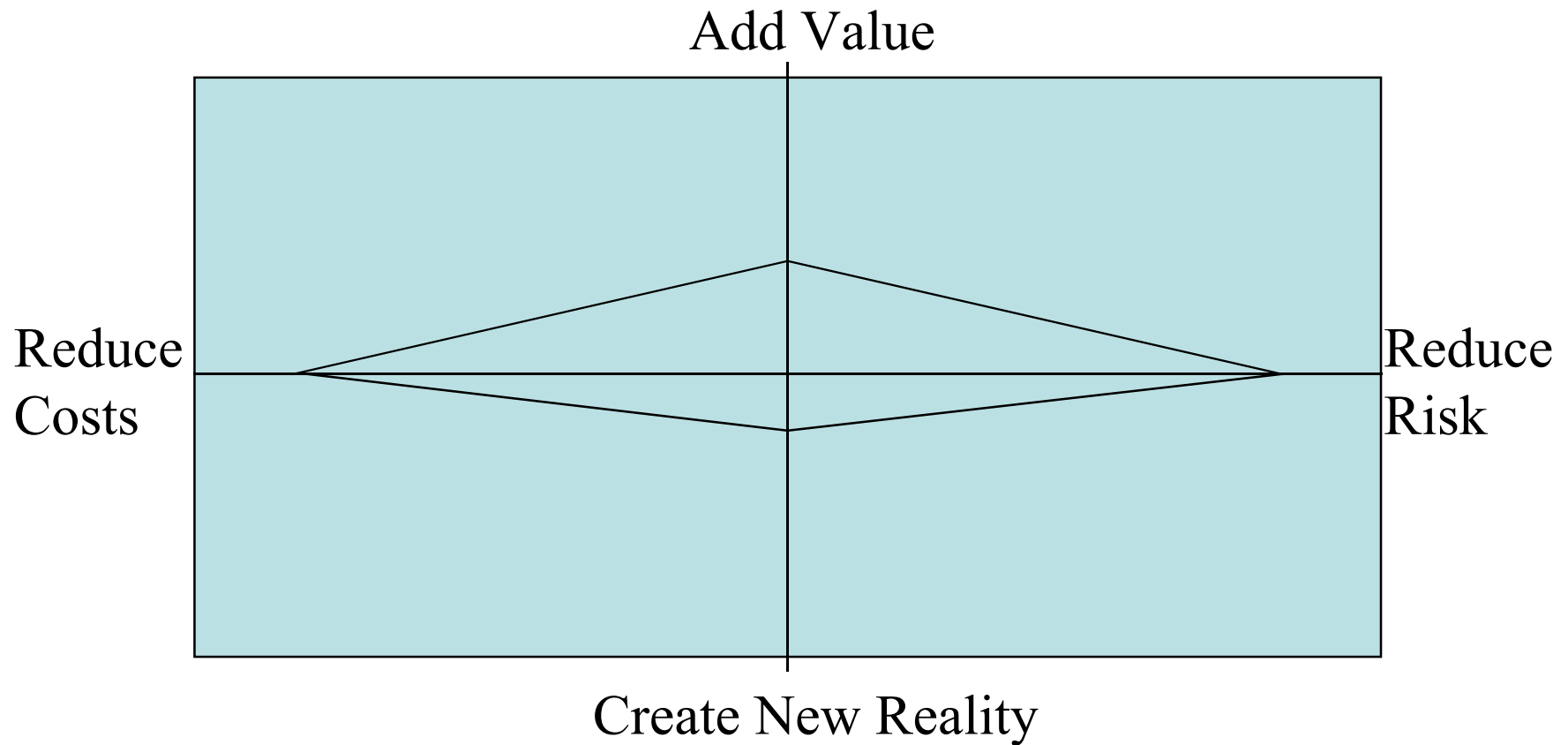
Information Strategy
-Information for Strategic Advantage

Are Info Systems Aligned to Business Needs ?
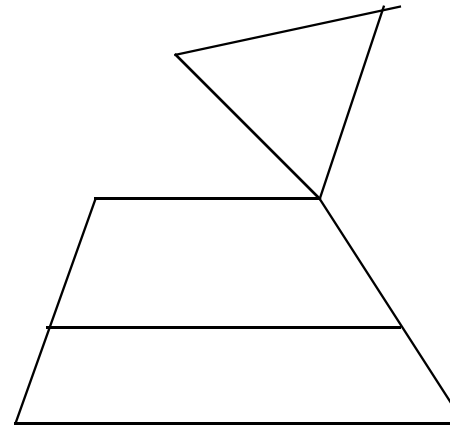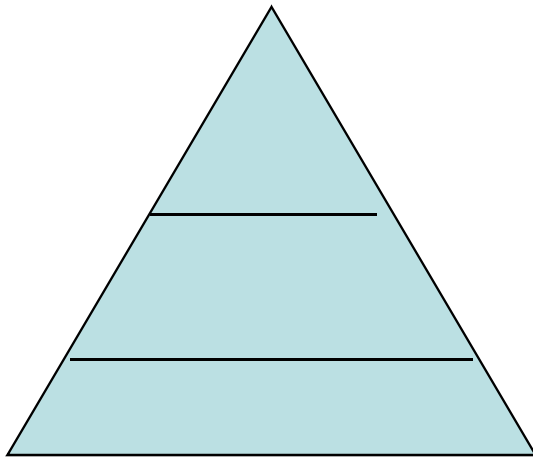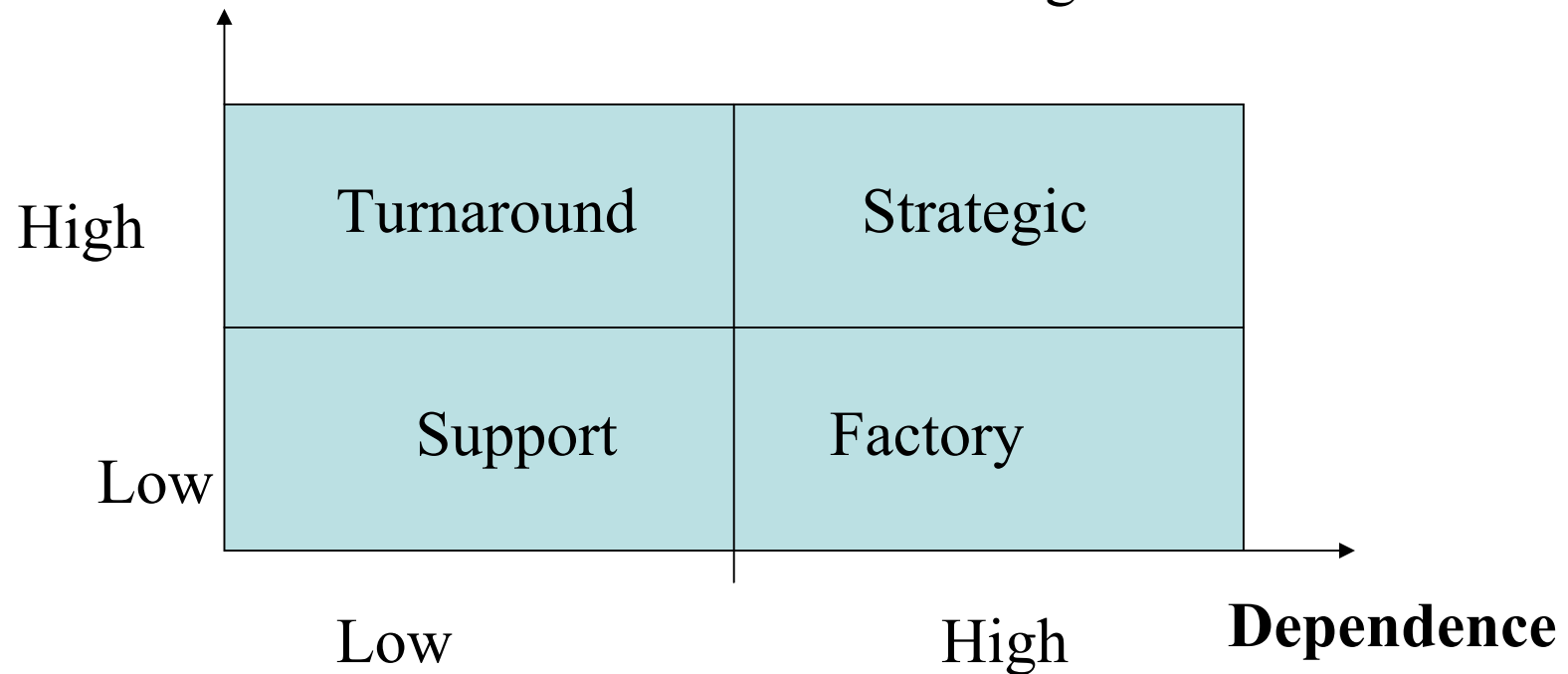
IT Strategy
- Alignment of IT Strategy

Business Strategy

Organisational Strategy

Systems/IT Strategy

IT Strategy
-Direction of IT Investments

Impact

MacFarlan's Strategic Grid

	Low Dependence	High Dependence
High	Turnaround	Strategic
Low	Support	Factory

Low   High   **Dependence**

IT Strategy
-Direction of IT Investments

Impact

MacFarlan's Strategic Grid

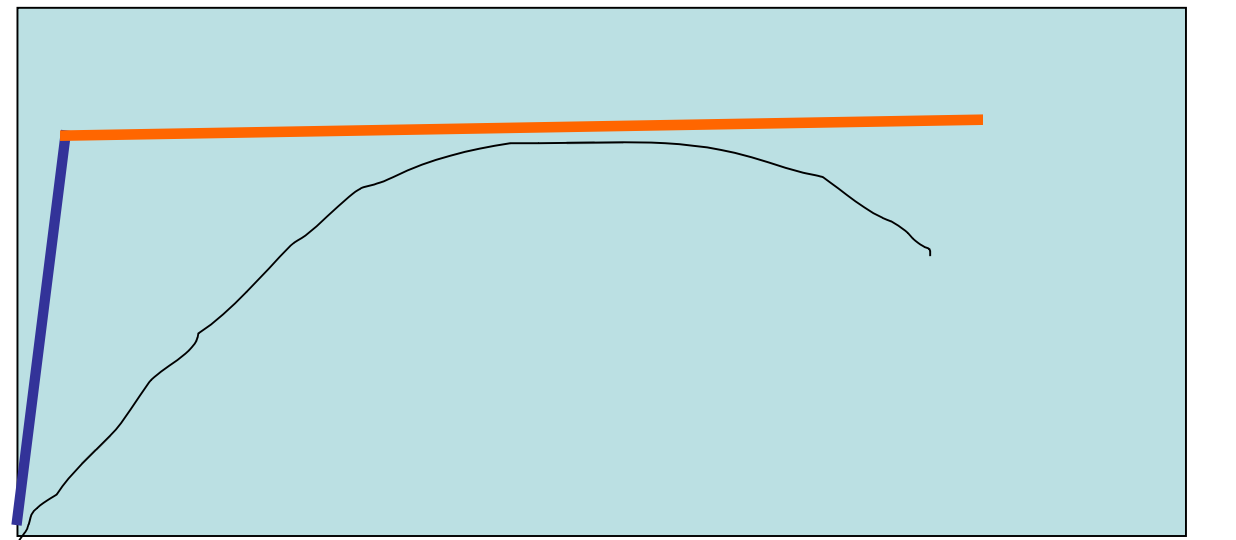|	Low	High
High	ATMs in early 90s	ATMs in the late 90s
Low		ATMs today

Low   High   **Dependence**
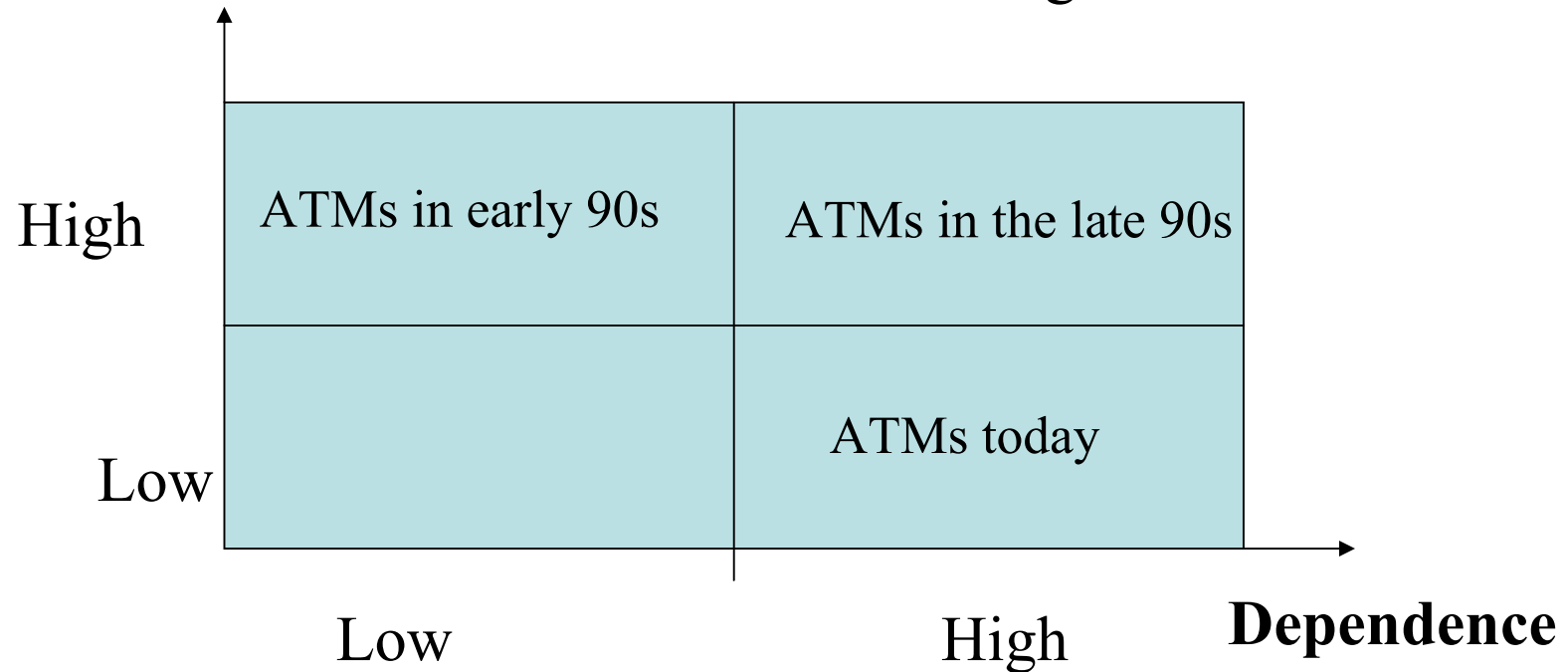
Planning of Info Systems
Nolan's -EDP LifeCycle
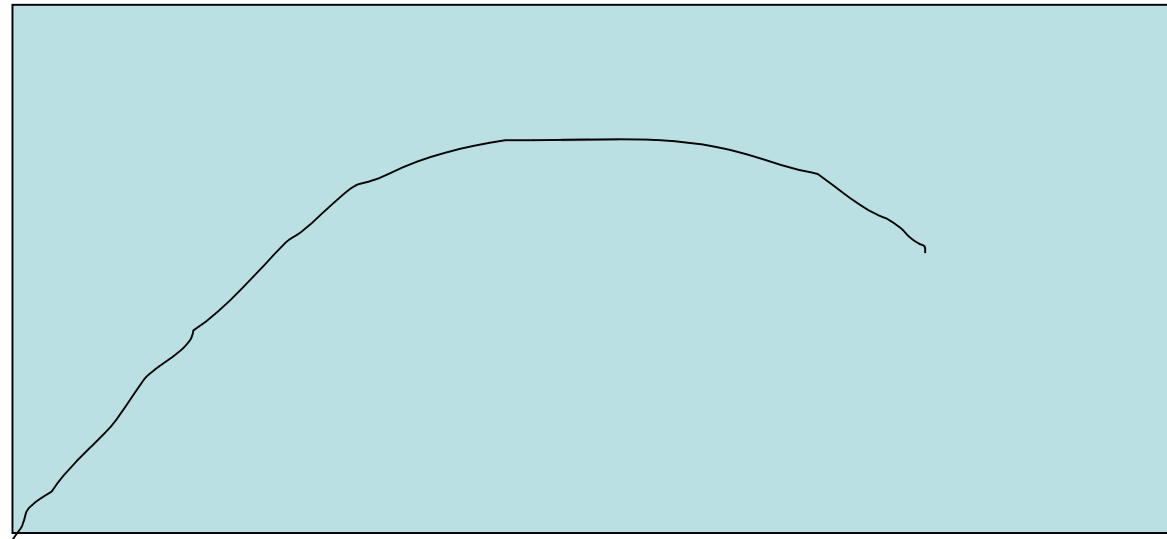
Initiation

Integration

Maturity

Contagion

Admin

Decline

Planning of Info Systems
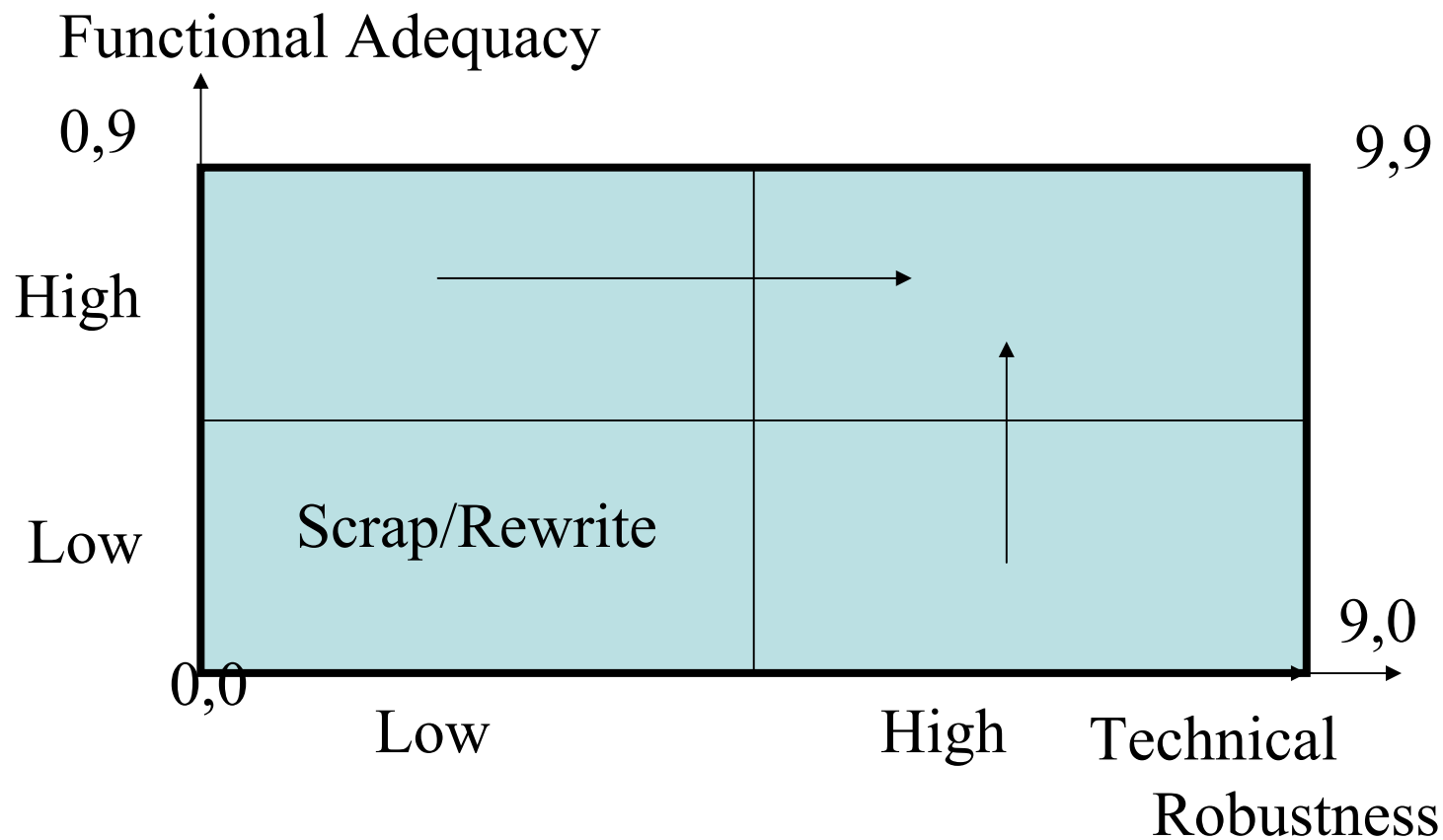# Nolan's -EDP LifeCycle

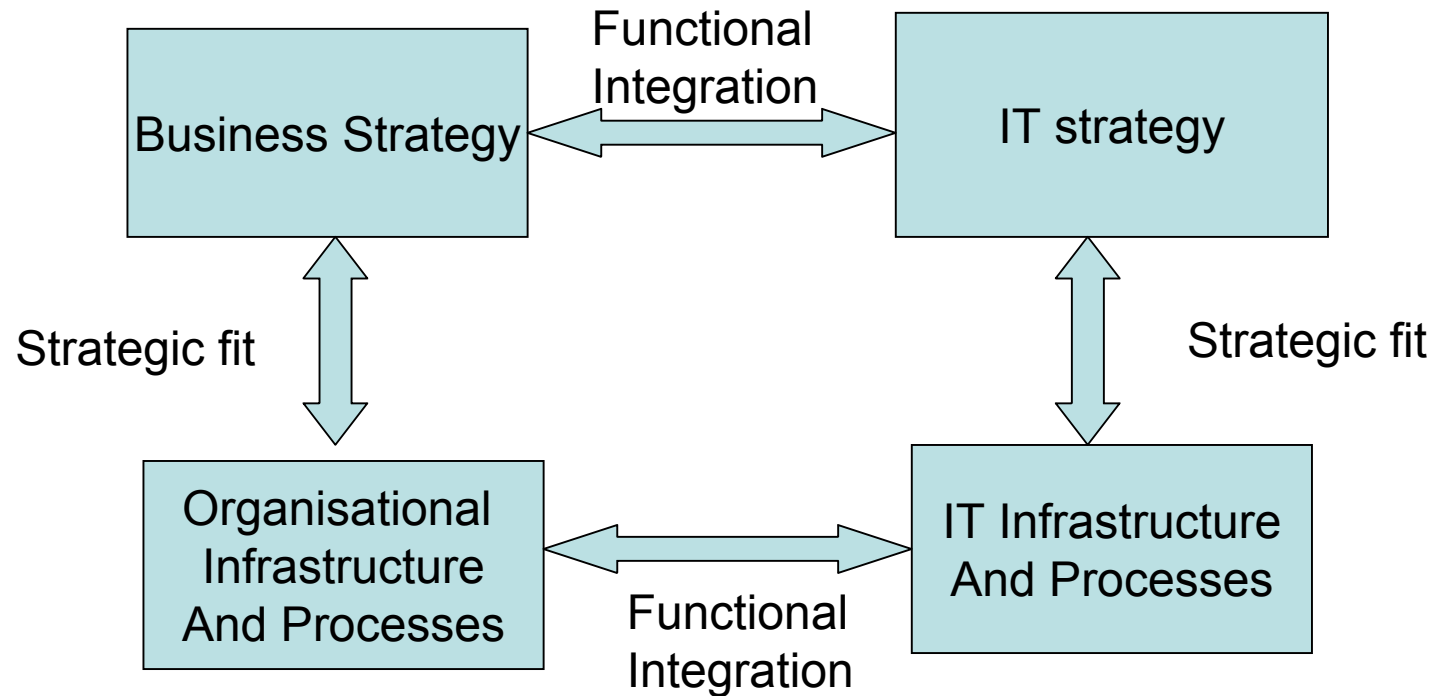Initiation Integration Maturity
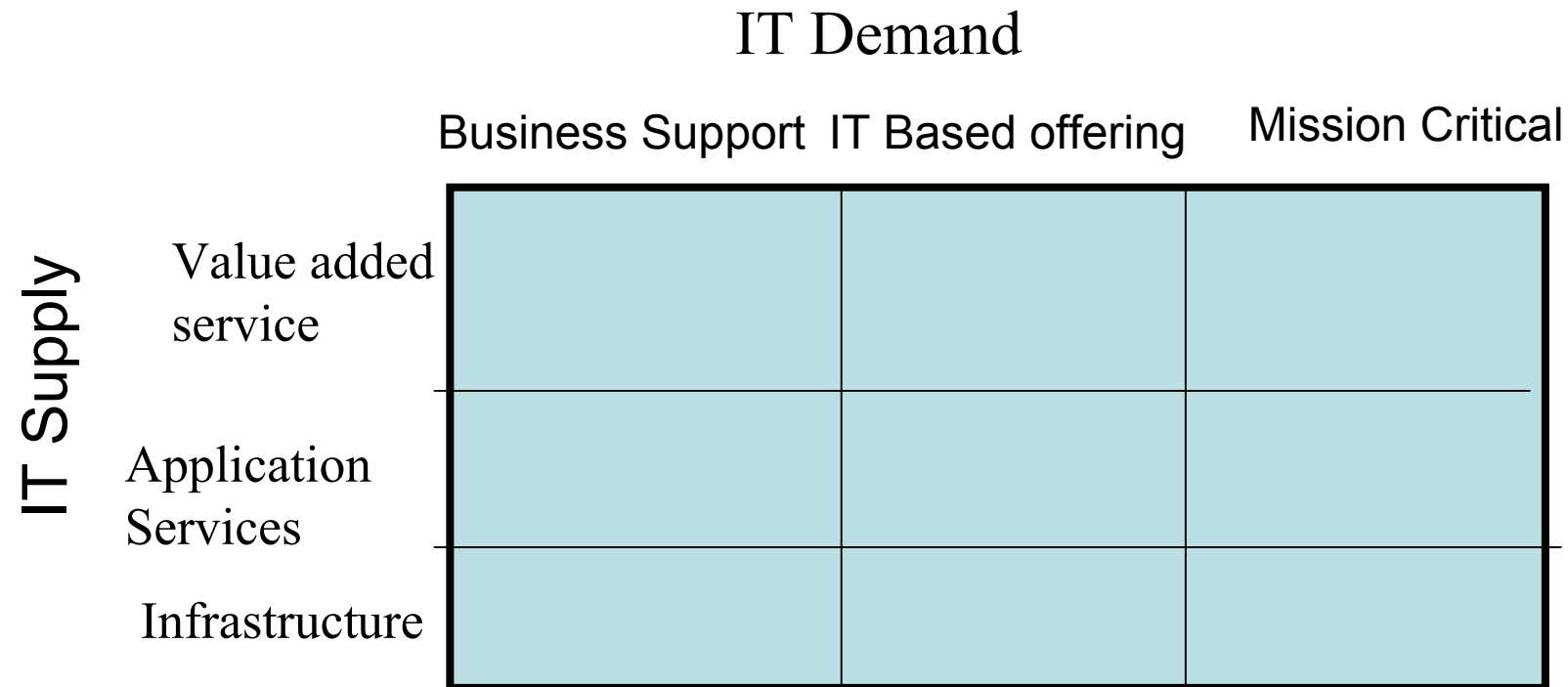
Contagion Admin Decline

Planning of Info Systems
Technology-Functional Adequacy Model

Business and IT alignment

```
┌─────────────────┐   Functional    ┌─────────────────┐
│                 │   Integration   │                 │
│ Business Strategy│ ←──────────→   │   IT strategy   │
│                 │                 │                 │
└────────┬────────┘                 └────────┬────────┘
         ↕                                    ↕
   Strategic fit                         Strategic fit
         ↕                                    ↕
┌─────────────────┐                 ┌─────────────────┐
│  Organisational │   Functional    │ IT Infrastructure│
│  Infrastructure │ ←──────────→    │  And Processes  │
│  And Processes  │   Integration   │                 │
└─────────────────┘                 └─────────────────┘
```

IT Performance Management Grid

IT Demand

	Business Support	IT Based offering	Mission Critical
Value added service			
Application Services			
Infrastructure			

IT Supply

IT Performance Management – by Wiggers et all

Portfolio Management Matrix

	Low — Financial Contribution — High	
High Strategic Contribution	Medium/Low Priority	High Priority
Low	Low Priority	Medium Priority

IT Performance Management – by Wiggers et all

Classifying IT Investments

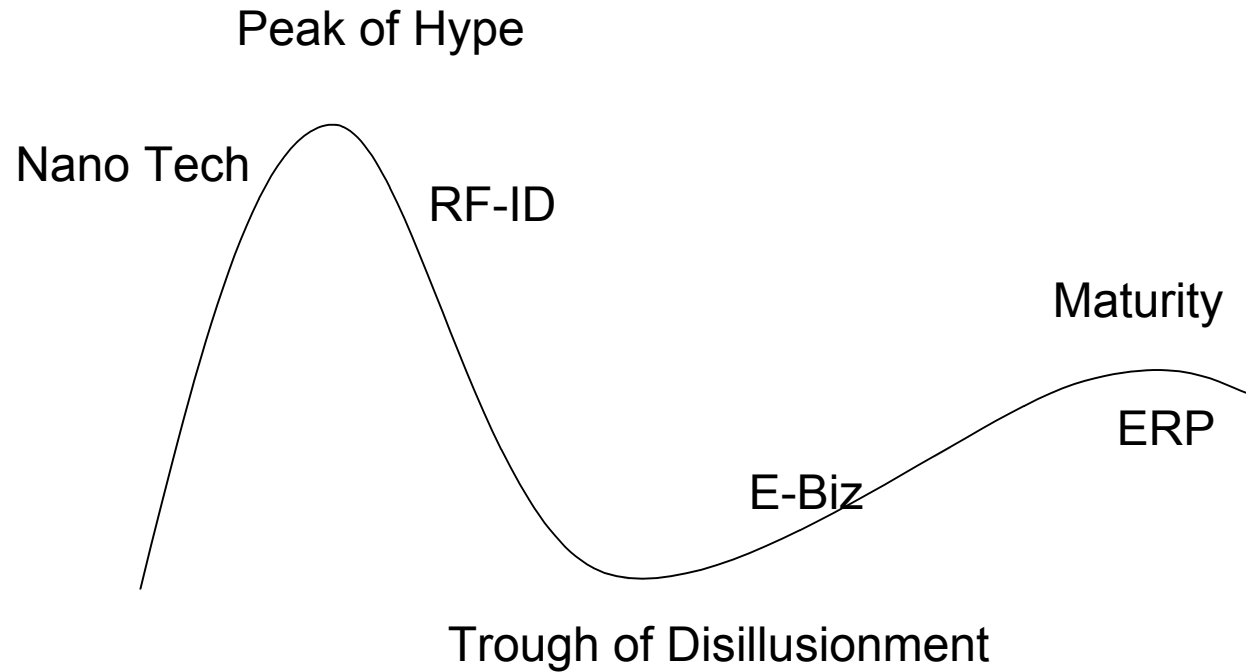Investment Match Business Objectives with type Of IT Project
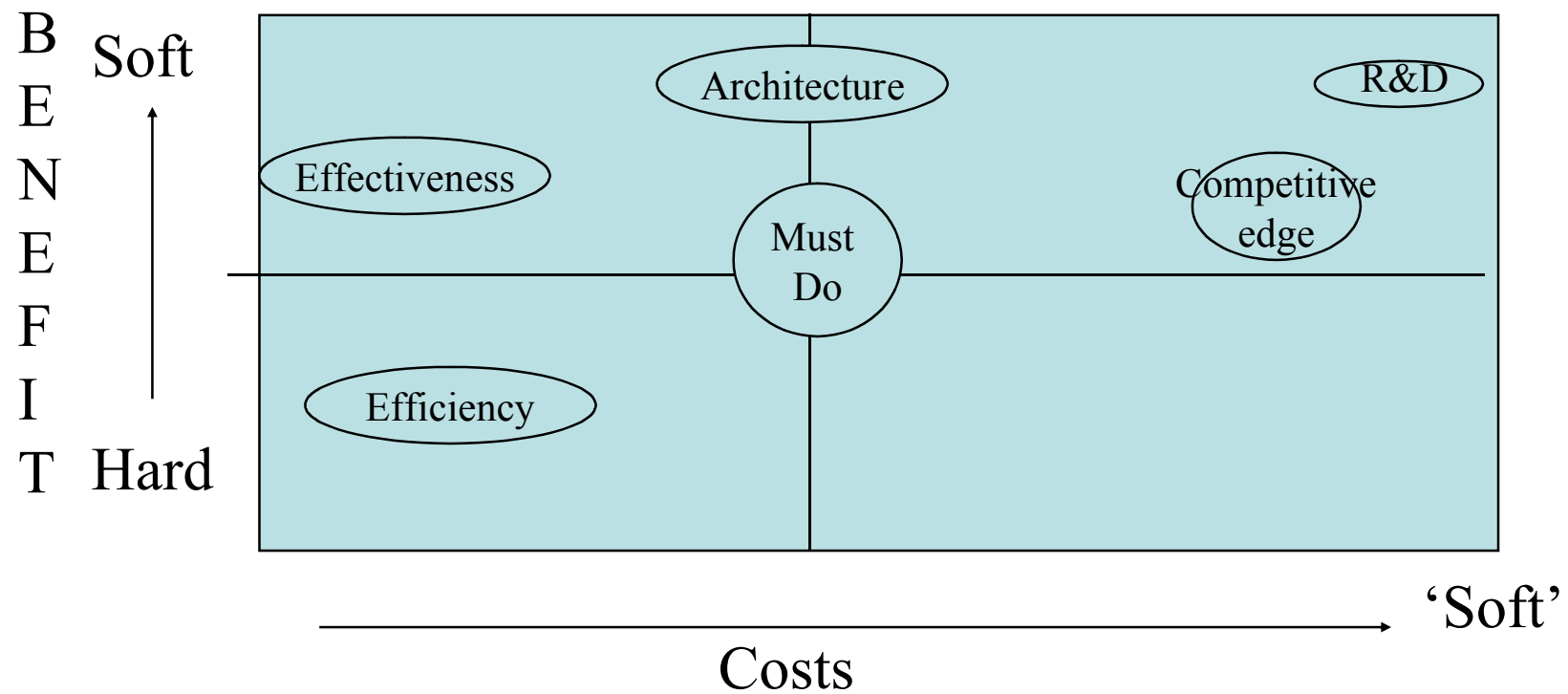
Matching Projects to Techniques
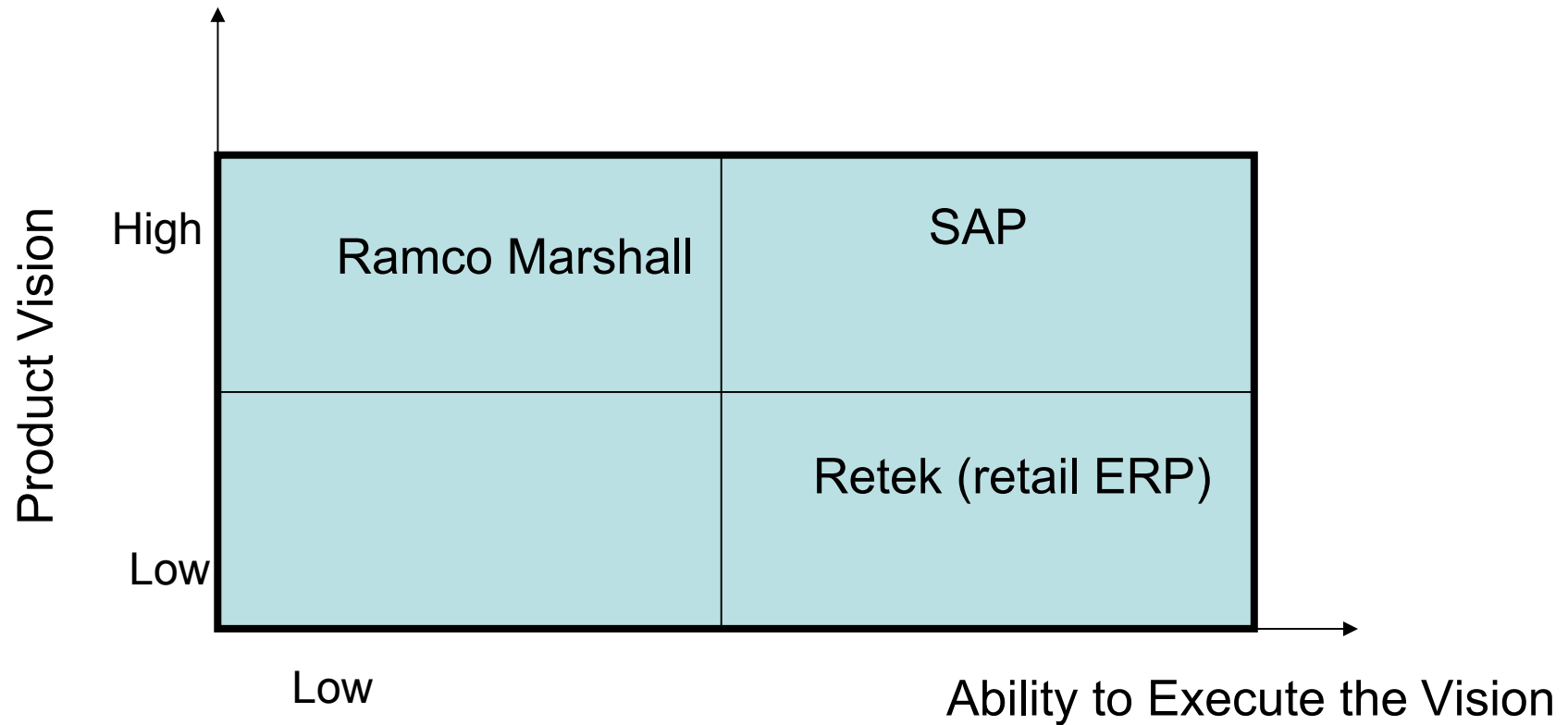
Investment Match Eval Techniques with Tasks on Hand

Technology Forecasting & Selection

Peak of Hype

Nano Tech

RF-ID

Maturity

ERP

E-Biz

Trough of Disillusionment
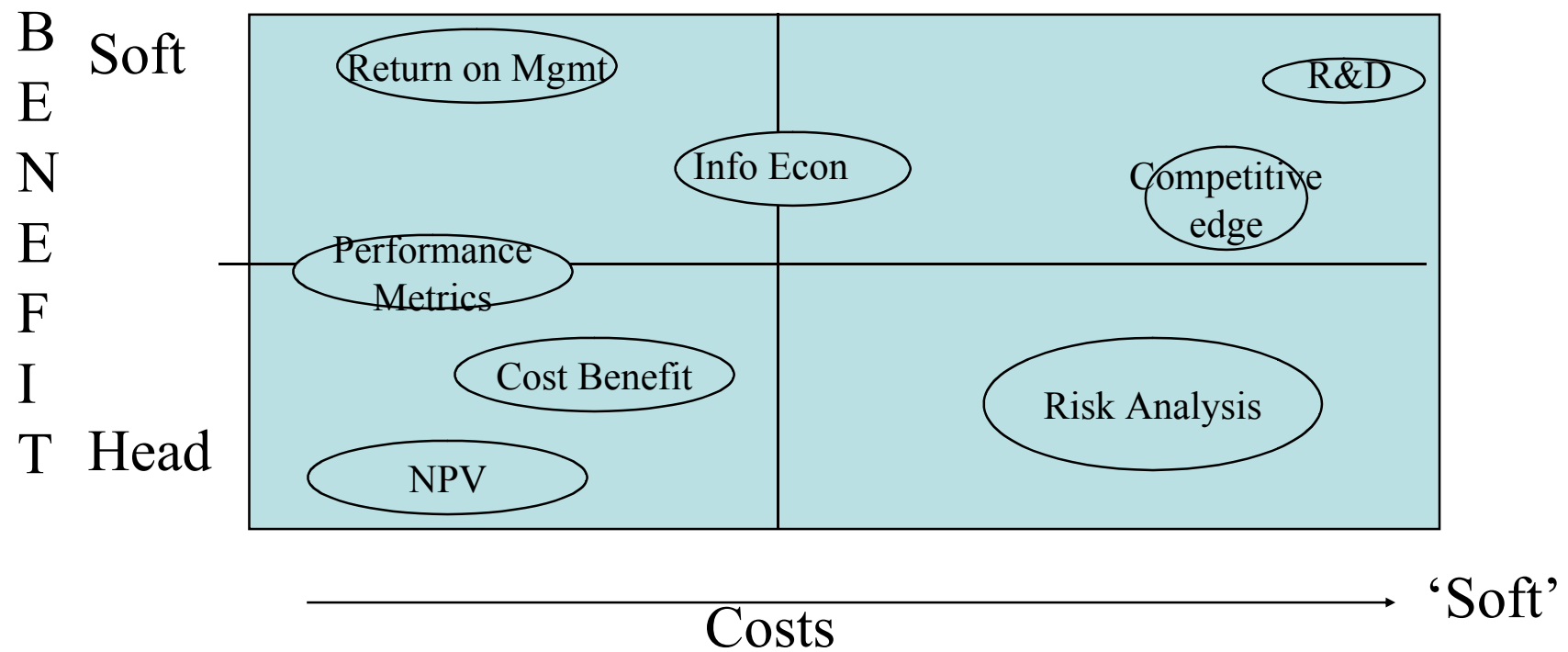
Gartner's Hype Curve

Technology Forecasting & Selection

Quality

- Functional v/s Non-Functional Requirements
- Quality in Use
- Internal quality Requirements
- External quality requirements
- Process Quality
- Metrics and standards
- Verifying quality

Security

- Functional requirements
  - What the software **should do**

- Security Requirements
  - What the software **should NOT** do

Techniques for eliciting & modelling Security requirements

- Non-use case
- Attack trees

Design thinking
Thinking like a Designer

- About Creation
- co-Creation
- Multidisciplinary
- Idealise
- Comfort in ambiguity
- Empathy
- Focus on Needs
- Multisense
- Be Creative

- Observe Deeply
- Think Critically
- Think Holistically
- Think Visually
- Think Abstract
- Abductive Thinking
- Experiment
- Be Hands-On
- Communicate

Where can You apply Design Thinking ?

- Products

- Brands

- Processes

- Services

- Customer Experiences

- Organisations Structure

- Business Models

- Business Strategy

- Community Projects

- etc
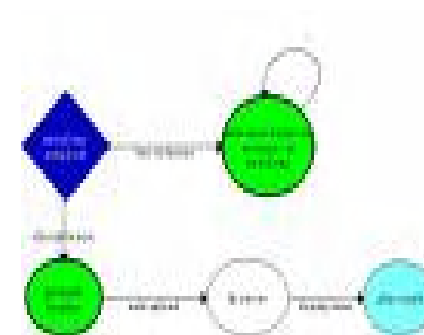
How does Design led innovation happen ?

- Incremental improvements – new features, markets, positioning
- Disruptive Innovation
- Deep involvement with user community or community at large
- User do not necessarily know what they want – vision for future
- Help create New language and meaning
- Challenge existing norms, practices
- Create platforms
- Create an entire eco-system to support
- Co-create with others in the same or other domains
- Dominant Design
- Design Classics
- Modularity
- Parallel Inventions & Parallel Innovations
- Open innovation

Innovation Personas

(7 faces of innovation -Tom Kelly)

- ## Learning Personas :
  - The Anthropologist
  - The experimenter
  - The Cross-Pollinator

- ## Organising Personas
  - The Hurdler
  - The collaborator
  - The Director

- ## Building Personas
  - The experience Architect
  - The set Designer
  - The care giver
  - The story teller