

UNIT-I

Conceptual foundation of Business Process reengineering

Syllabus

- Role of information Technology and BPR;
- Process improvement and Process redesign,
- Process identification and mapping;
- Role/Activity diagrams,
- Process Visioning,
- Benchmarking.

What is BPR?

- Business Process Reengineering (BPR) means not just change—but dramatic change and dramatic improvements.

Definition BPR

- “The **fundamental** rethinking and **radical** redesign of business **processes** to achieve **dramatic** improvements in critical contemporary measures of performance, such as cost, quality, service, and speed.”

Keyword: *Fundamental*

- Understanding the fundamental operations of business is the first step prior to reengineering.
- Business people must ask the most basic questions about their companies and how they operate: Why do we do what we do?
- And why do we do it the way we do?
- Asking these basic questions lead people to understand the fundamental operations and to think why the old rules and assumptions exist.
- Often, these rules and assumptions are inappropriate and obsolete.

Keyword: *Radical*

- Radical redesign means disregarding all existing structures and procedures, and inventing completely new ways of accomplishing work. Reengineering is about business reinvention, begins with no assumptions and takes nothing for granted.

Keyword: *Dramatic*

- Reengineering is not about making marginal improvements or modification but about achieving dramatic improvements in performance.
- There are three kinds of companies that undertake reengineering in general.
 - First are companies that find themselves in deep trouble. They have no choice.
 - Second are companies that foresee themselves in trouble because of changing economic environment.
 - Third are companies that are in the peak conditions. They see reengineering as a chance to further their lead over their competitors.

Keyword: *Processes*

- Process is the most important concept in reengineering.
- In classic business structure, organizations are divided into departments, and process is separated into simplest tasks distributing across the departments.
- The preceding order-fulfilment example shows that the fragmented tasks - receiving the order form, picking the goods from the warehouses and so forth - are delayed by the artificial departmental boundaries.
- This type of task-based thinking needs to shift to process-based thinking in order to gain efficiency.

Different Phases of BPR

1. Begin organizational change
2. Building the reengineering organization
3. Identifying BPR opportunities
4. Understanding the existing process
5. Reengineering the process
6. Blueprint the new business system
7. Perform the transformation

Begin organizational change

The main activities in this step are:

- Assess the current state of the organization.
- Explain the need for change
- Illustrate the desired state
- Create a communications campaign for change

Building the reengineering organization

The major activities of the second phase are given below:

- Establish a BPR organizational structure
- Establish the roles for performing BPR
- Choose the personnel who will reengineer

Identifying BPR opportunities

This phase consists of the following activities:

- Identify the core/high-level processes
- Recognize potential change-enablers
- Gather performance metrics within the industry
- Gather performance metrics outside the industry
- Select processes that should be reengineered
- Priorities selected processes
- Evaluate pre-existing business strategies
- Consult with customers to know their desires
- Determine customer's actual needs
- Formulate new process performance objectives
- Establish key process characteristics
- Identify potential barriers to implementation

Understanding the existing process

The main activities of the fourth phase are:

- Understand why the current steps are being performed
- Model the current process
- Understand how technology is currently used
- Understand how information is currently used
- Understand the current organizational structure
- Compare current process with the new objectives

Reengineering the process

The major activities are:

- Ensure the diversity of the reengineering team
- Question current operating assumptions
- Brainstorm using change levers
- Brainstorm using BPR principles
- Evaluate the impact of new technologies
- Consider the perspective of stakeholders
- Use customer value as the focal point

Blueprint the new business system

The main activities of the fourth phase are:

- Define the new flow of work
- Model the new process steps
- Model the new information requirements
- Document the new organizational structure
- Describe the new technology specifications
- Record the new personnel management systems
- Describe the new values and culture required

Perform the transformation

The activities of the last phase are:

- Develop a migration strategy
- Create a migration action plan
- Develop metrics for measuring performance during implementation
- Involve the impacted staff
- Implement in an iterative fashion
- Establish the new organizational structures
- Assess current skills and capabilities of workforce
- Map new tasks and skill requirements to staff
- Re-allocate workforce
- Develop a training curriculum
- Educate the staff about the new process
- Educate the staff about the new technology used
- Educate the management on facilitation skills
- Decide how the new technologies will be introduced
- Transition to the new technologies
- Incorporate process improvement mechanisms

Challenges of BPR

- Unfortunately, all BPR projects are not as successful as those described.
- Most of the BPR projects will fall short of expectations.
- Companies that begin BPR projects face many of the following challenges:
 - Resistance from employees
 - Changing the traditional ways of doing things
 - Time requirements (BPR is a lengthy process, almost always taking two or more years to complete.)
 - High cost of BPR
 - Skepticism(doubt) about BPR and its success
 - Manpower reduction (BPR often results in employees being laid off)

Role of information Technology and BPR

- Information technology (IT) plays an important role in the reengineering concept.
- It is considered as a major enabler for new forms of working and collaborating within an organization and across organizational borders.

The various fields of IT that can be useful are:

- Shared databases, making information available at many places.
- Expert systems, allowing generalists to perform specialist tasks.
- Telecommunication networks, allowing organizations to be centralized and decentralized at the same time.
- Decision-support tools, allowing decision-making to be a part of everybody's job.
- Wireless data communication and portable computers, allowing field personnel to work office independent.
- Interactive videodisk, to get in immediate contact with potential buyers.
- Automatic identification and tracking, allowing things to tell where they are, instead of requiring to be found.
- High performance computing, allowing on-the-fly planning and re-visioning.

Capabilities of IT in Reengineering

Capability of IT	Organizational Impact of the Capability
Transactional	IT can transform unstructured business process into standardized transactions
Geographical	IT can transfer information with rapidity and ease across large distances, making business process independent of locations
Automation	IT can reduce human labor in certain process
Informational	IT can bring vast volumes of detailed information into a business process
Analytical	IT can bring complex analytical methods to bear on a process.
Sequential	IT enables changes in the sequence of tasks in a process, often allowing multiple tasks to be worked on simultaneously
Knowledge management	IT allows the capture and dissemination of knowledge and expertise to improve the process
Tracking	IT allows detailed tracking of status, inputs and outputs
Reduction of intermediaries	IT can be used to connect two parties within a process that would otherwise communicate through intermediaries

Future role of IT in Reengineering

IT can be identified into three main categories:

- Participate as a member of the reengineering team, but do not take control of the project.
- Define technology solutions to enable new business processes and take time to educate operational managers about new technology.
- Implement technology needed to support the new business processes. Be sure to set expectations and define deliverables clearly.

Role of IT in Reengineering

Reengineering Area	Role of IT
Analysis phase	Partnership with the Process owner, and team who are responsible for implementing reengineering
Design phase	Partnership with the Process owner, leader, and team who are responsible for implementing reengineering
Implementation phase	Partnership with the process owner, steering committee, leader, and team who are responsible for implementing reengineering
Overall accountability and leadership	Support; project management expertise, design principles, key ingredient in the reengineered process
Reengineering plan and implementation	Partnership with the leader, and team who are responsible for implementing reengineering
Project management expertise	Leadership; IT group should provide their project management expertise in the implementation of reengineering
Technology expertise	Leadership; The technological capabilities should be evaluated before implementing reengineering
Identifying the process to be reengineered	Partnership with the leader, and team who are responsible for implementing reengineering
Business vision	Support; While defining new goals and vision the capability of IT has to be taken into account

Process improvement and Process redesign

Business Process Improvement

- Improving business processes is a must for businesses to stay competitive in today's marketplace.
- Customers are demanding better and better products and services.
- If they do not receive what they want from one supplier, they have many options to choose from.
- So the companies began business process improvement with a continuous improvement model.
- This model attempts to understand and measure the current process, and make performance improvements accordingly.

The figure below illustrates the basic steps:

- Documenting what you do today, establish some way to measure the process based on what your customers want,
- Do the process,
- Measure the results,
- Identify improvement opportunities based on the data you collected.
- Implement process improvements, and measure the performance of the new process.

Continuous Process Improvement Model

Document
As-is
Process

Establish
Measures

Follow
Process

Measure
Performance

Identify and
Implement
Improvements

Process Redesign

- While business process improvement can be applied to incremental process improvement efforts, it is more commonly and increasingly associated with dramatic or radical overhauls of existing business processes.

	PROCESS IMPROVEMENT	PROCESS REDESIGN
Level of change	Incremental, gradual constant	Abrupt, radical, discontinuous
Intended Result	Small, steady improvement	Breakthrough, quantum leap improvement
Starting point	Existing process	Clean state
Frequency of change	One-time/continuous	One-time
Time required	Short(up to 2 yrs)	Long(as long as 5-10 yrs)
Participation	Bottom-up	Top-down
Skills Required	Effective work teams & groups	Strong, individual leadership
Impact on employees	Typically supportive, skill building	Dramatic changes, innovative excitement

Resistance to change	lower	Potentially high, requiring active program to overcome resistance
Primary enabler	Statistical control	Information technology
Type of change	cultural	Cultural/structural
Change management	Implementation of Kaizen culture	Skilled, planning & change management
Typical scope	Narrow within functions	Broad, from cross functional to enterprise wide
Investment	Low initial investment, significant long term investment to sustain	Large initial investment
Return on investment	Potentially difficult to compute, typically high long term pay-backs	Shorter term, high ROI
Risk	Low to moderate usually no danger of major failure	High risk of major failure

Process identification and mapping

- In order to effectively analyze business processes, reviewers need a tool that takes into account the objectives of the business, the actual work being accomplished, and, most importantly, the impact of processes on customers.
- Business process mapping is just that tool. Process identification is a part of process mapping.

The Four Major Steps of Process Mapping

- **Process identification** -- attaining a full understanding of all the steps of a process.
- **Information gathering** -- identifying objectives, risks, and key controls in a process.
- **Interviewing and mapping** -- understanding the point of view of individuals in the process and designing actual maps
- **Analysis** -- utilizing tools and approaches to make the process run more effectively and efficiently.

- The process map should give the following details for any business process:
- The total time the business process takes to complete.
- The total number of on points involved.
- The number of departments that the business process involves.
- The flow of information.
- The number of reporting points.

Role/Activity diagrams

- A Role Activity Diagram is a flowchart-type notation.
- Role Activity Diagrams (RADs) are a useful way of describing processes.
- They are valuable in documenting processes. There can be many constructs in a role/activity diagram.
- Originally developed in 1983, Role Activity theory (RAT) has been used for business process modeling in all commercial sectors for over a decade, and is the subject today of much ongoing academic and industrial research.
- RADs were a major feature of the Business Process Reengineering (BPR) movement in the 1990's.

The main constructs are:

- Roles
- Activities
- Ordering
- Choices
- Part Refinement
- Cardinality
- Explicit State Marker
- Iteration
- Waiting
- Starting Another Rule
- Identifying Role Deliverables

Roles (that users play within processes):

- a set of activities which when taken together achieve some particular goal.
- Roles may or may not be equivalent to organizational job titles.
- For example, 'Manager' might be a role.
- So too might 'Financial Performance Review' - it all depends on the scope and focus of the model being created.
- Sometimes gerunds are used to denote roles.
- This is because it helps some people to emphasize the activities taking place rather than just the person or job-title involved. Hence, 'Manager' might become 'Managing'.

Role bodies

Officer



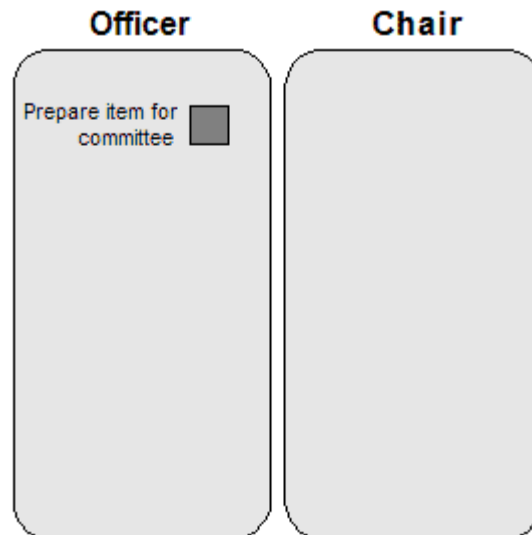
Chair



Activities:

- carried out by roles to manipulate resources. The items of work that people do.
- Activities are represented as boxes within a role.

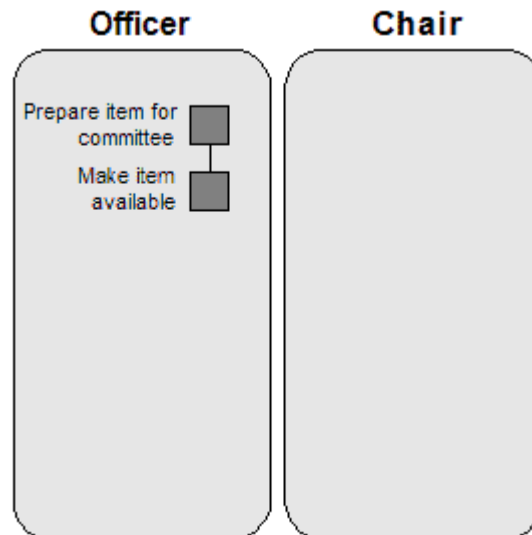
Activities



Ordering

- activities are ordered by state.
- Activity Diagrams are state diagrams.
- The vertical lines linking activities denote the different states of the role.
- In reality it is very unlikely that the ordering of activities is as precise in the real world as it is in a Role Activity Diagram.
- People work in a complex manner often tackling more than one task at a time.

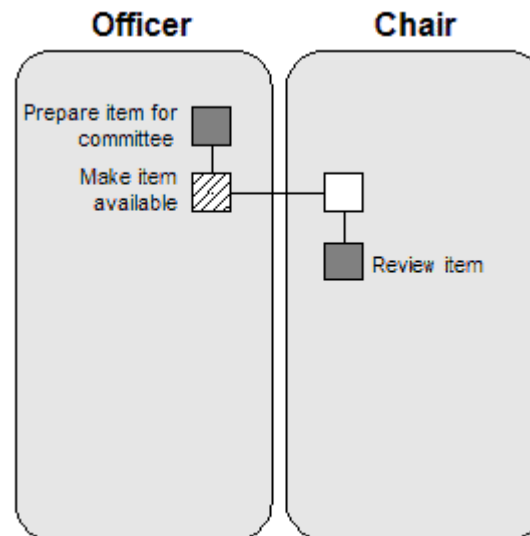
Ordering



Interactions

- the point at which a role interacts with another role in order to fulfill an objective.
- Interactions are shown by a horizontal line linking two boxes.
- They designate synchronous behavior between the roles.
- They are easiest to understand when two people are involved. In other cases we can understand them as points of synchronization between roles.
- We can consider two functions undertaken by the same person so there is a logical interaction.
- For example, the roles 'Agreeing Purchase Price of House' and 'Legal Administration of House Purchase' could be undertaken by the same person, but there will definitely be a logical interaction between them.

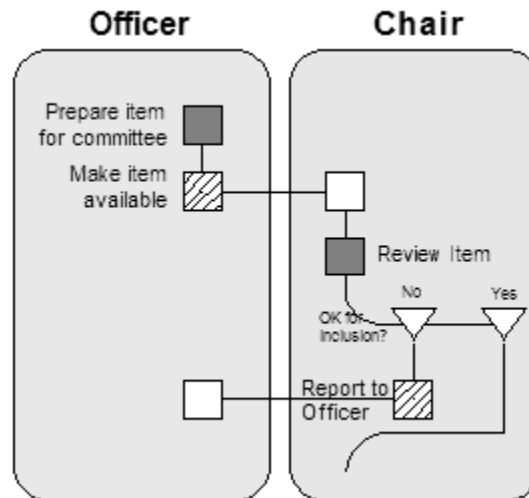
Interactions



Choices (i.e. case refinement)

- The conditions under which different activities take place.
- These are shown as inverted triangles. In the diagram below it can be seen how the 'Chair' reviews the item for inclusion. If it is ok, no action is taken. If it is not ok, the Chair reports the fact to the officer.

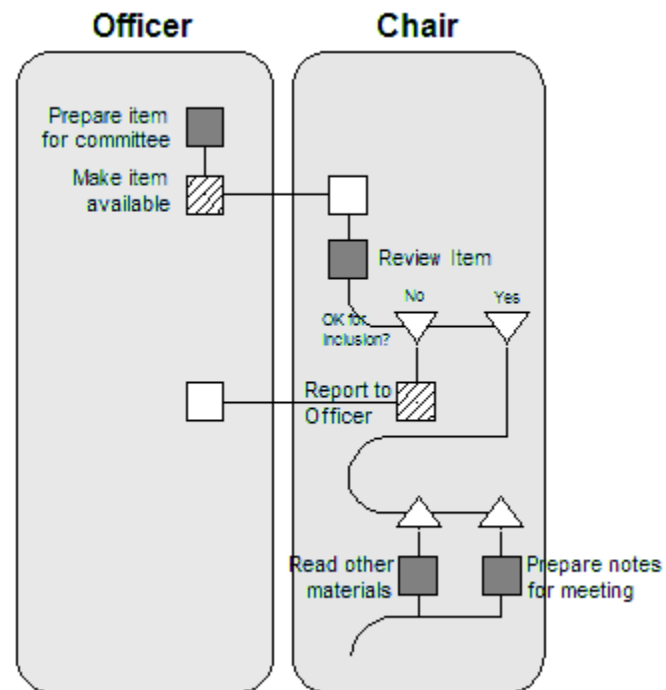
Choice



Part refinement

- shows activities in sub-threads to the main thread.
- This means that the ordering of these sub-threads is not significant.
- Linked triangles indicate that activities below them can be undertaken in any order.
- Therefore, 'Prepare notes for meeting' can be undertaken before, at the same time as, or after 'Read other materials.'

Part Refinement

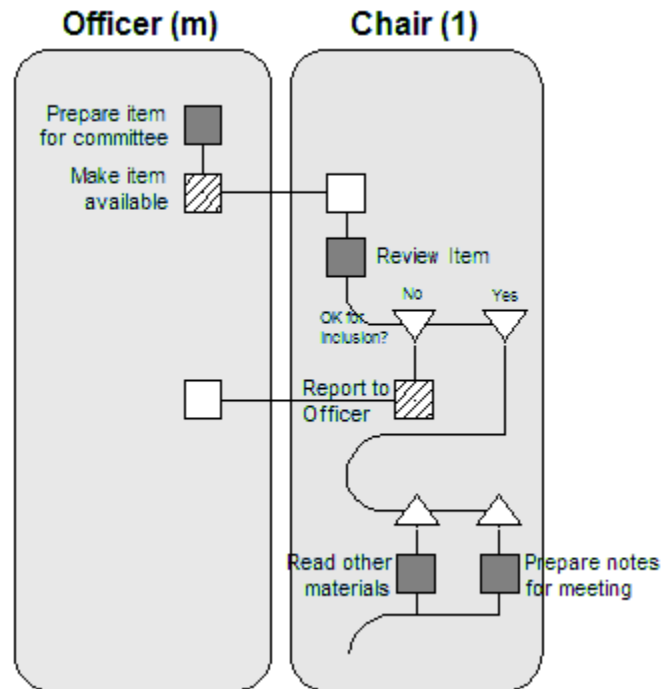


Cardinality

- the numerical relationship between role types.
- Cardinality is difficult in Role Activity Diagrams.
- Interpreting the semantics of the previous diagram in a precise way reveals how this can be manifest. It can be seen that two roles interact.
- The 'Chair' role receives an item for the committee from the 'Officer' role.
- The Chair reviews it and may reject it.
- The Chair will then read other materials for the meeting and prepare notes. So, what happened to all the other items for the committee? The diagram shows an interaction between two roles. The implication is that the committee considers only one item.

- It is therefore helpful to show the cardinality occurring across the interaction. This is done simply by denoting a relationship of the following sorts:
 - One to one (default)
 - One to many (1:m)
 - Many to one (m:1)

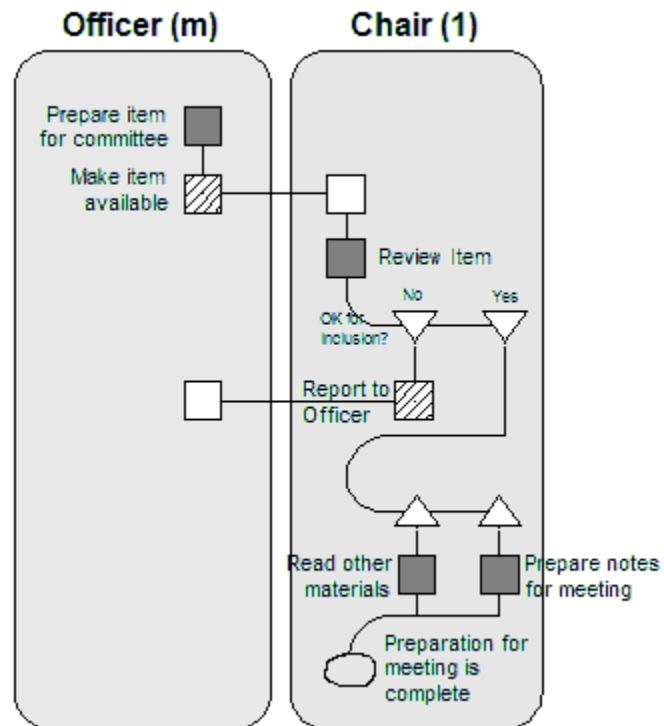
Cardinality Shown



Explicit State Marker

- State - It is sometimes useful to identify and label particular states in a Role Activity Diagram.
- A state is marked explicitly by a freeform loop. This is done to promote clarity and to show iteration. In our example we are showing a state when Chair's preparation for the meeting is over.

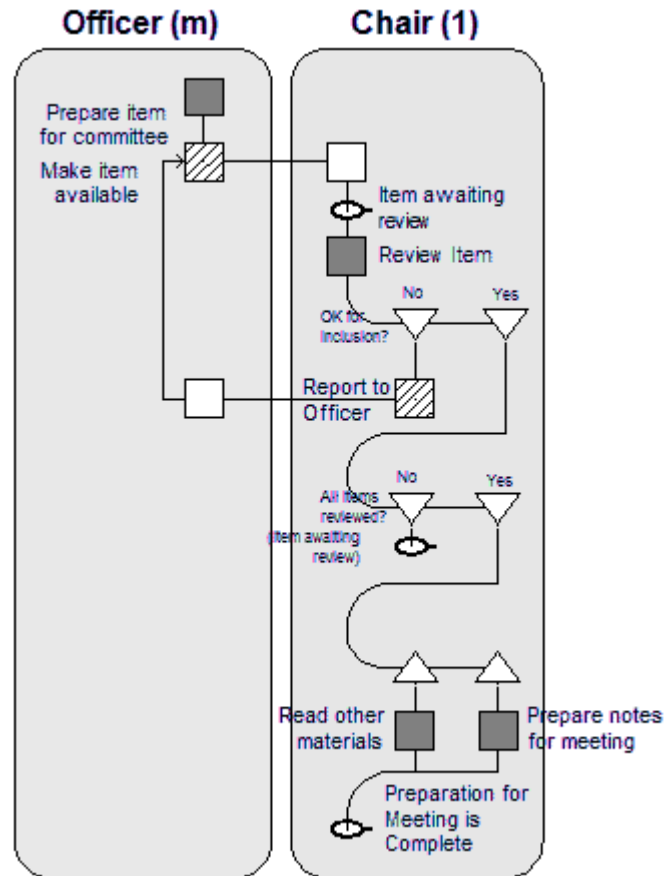
Explicit State Marker



Iteration

- a return to a previous state of the role.
Iteration can be shown in two ways.
- State markers can show iteration.
- An arrow which linking two states in a role.

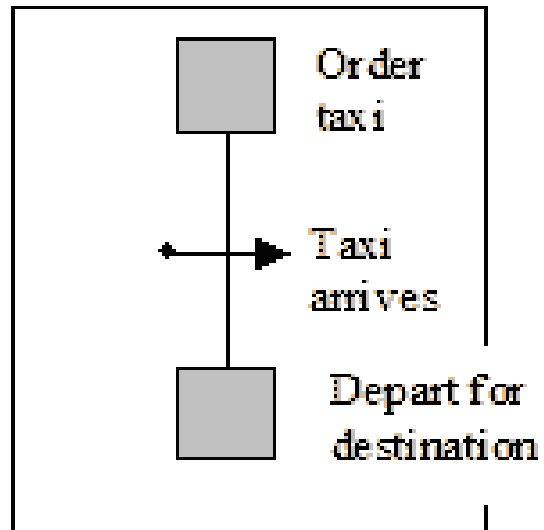
Iteration shown by State Markers



Waiting (trigger)

- external events or inputs are sometimes needed before work can continue.
- These are shown in Role Activity Diagrams by an arrow entering from the left.

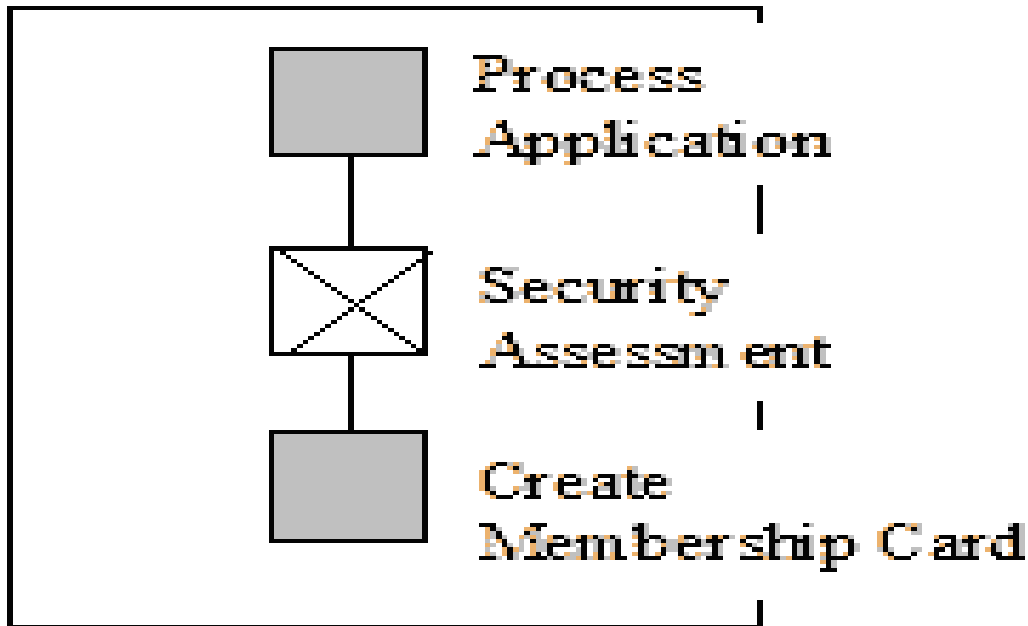
Waiting



Starting Another Role

- one role can start off another role. A crossed box is used to indicate the point at which another role is started. This is an important feature through which Role Activity Diagrams can be used to represent dynamic behavior.

Starting off another role



Role Deliverables

- identifying the concrete outputs of a role. Sometimes it is useful to provide a highlighted description of the outputs of roles.
- This enables the reader to quickly peruse the diagram, focusing upon how each role works on the deliverables described.
- This kind of highlighted description can be provided below each role body.

Process Visioning

- Creating a strong linkage between strategy and the way work is done is an enduring challenge in complex organizations.
- Process- define how work s done.
- Strategy - a plan for actively doing something.

Characteristics (objectives and attributes)

- Process visions should be easy to communicate to the organization, non-threatening to those who are affected by that.
- The process vision shows what we want our new process to do and how it will do it.
- Theses are basically objectives and attributes respectively.
- The objectives should have customer focus.
- They must be measurable-we must be able to tell how we have done. They should be simple and non-contradicting.
- Example: reduce delivery time by 50%.
- Double the number of potential customers contacted per month.

Benchmarking

- In process visioning we are dealing with our own processes and strategies.
- But in benchmarking we see how other people do it.
- This related to the idea of adopting “best practices”.
- We are not copying the ideas, so we may look for benchmarks in quite different types of organizations.
- Benchmarking is a tool to help you improve your business processes.
- Any business process can be benchmarked.
- Benchmarking is a process of identifying, understanding and adopting outstanding practices from organizations any where in the world to help your organization improve its performance.

The findings we will get after benchmarking:

- Who performs the business process very well and has process practices which are adaptable to your own organization.
- Who is the most compatible for you to benchmark with?

Characteristics

- Focus- a single process at a time.
- Partners- not chosen until after undertaking a through analysis of your own practices and performance.
- Form of comparison- whenever possible, by actually visiting the partner's places of business.
- Confidentiality- the identity of partners is known and the exchange of information is protected by a code of ethics.

Method

- **Choose a process to study:** we have already discussed that one process at a time is studied. If we want to study more than one process then setup separate studies for each process. Example of process
 - Customer service delivery
 - File processing
 - Payroll processing
- **Form a team:** the team should include representatives of all the key stakeholders in the process being studied.
- **Develop a baseline for comparison:** develop an intimate knowledge of own practices and performance. This may be via flowcharts, identification of problem areas, cause-and-effect analysis etc.

Continued....

- **Research and select partners:**
 - identify those having some processes
 - Identify organizations that are leaders in these areas. Consult customers, suppliers, financial analysts and magazines to determine which companies are worthy to study.
 - Partners should be non-competitive organization and necessary in the same industry area.
- **Compare process:** via site visits or detailed discussions, exchange information with your partners that allows both you and each partner to gain some new ideas about how the process is carried out and what enables good performance.
- **Plan for change:** as a result of what you have learnt from your partners, identify which ideas you can adopt or adapt to improve your process and how to implement them.
- **Implement new process:** put the ideas in place, monitor their success and get ready to re-benchmark them at specific intervals.

Advantages

- Allow a focus on something that will make a significant difference to organizations effectiveness.
- Enables detailed examinations of the drivers for success and efficiency.
- Change arising from process benchmarking is generally readily acceptable by the employees and management.
- Creates opportunity for both individual and organizational development.

Disadvantage

- If done correctly, takes more time than we think it should.
- Can use significant staff resources.

Pitfalls to avoid

- Rushing to compare with partners without an intimate knowledge of your own processes.
- Picking partners for convenience rather than for excellence.
- Selecting processes that do not have sufficient potential for improvement.
- Not allowing enough time for the methodology.