MID - EXAM REVIEW

- Multiple Choice, True and False, Fill in the Blank, Short Answer
- Chapters 1,2, 3, 4 and 8
- All assigned readings (SCOR article, Strategy maps, Rich Picture Diagram article)
- All lecture content
- 30% of your final grade

Session 1:

- The Process Management Framework
- Basic Concepts of BPR
- The Business Enterprise as a System
- What Are Organizations For?
- Principles for an organization* :
- Process Management and Process-oriented Improvement Programs
- What Makes Organizations Successful?
- The Keys To Organizational Performance and therefore Success and Competitive Advantage Are:
    - ***People*** – educated, trained, capable, process aware, business literate, well organized
    - ***Technology***– strategy and culture, passion and motivation, technology
    - ***Processes*** – customer focused, well-designed, measured and managed
- What is Value? How is Value Produced?
- What Is A Process?
- A process view
- The Traditional Organization vs. The Process Focused Organization
- Core principles of well-managed processes
- 3 Phases of Successful process management
- BPR – buzzword of 90's
    - BPR project failure – reasons?
- Revolutionary vs Evolutionary change
- The Payoff of Focusing on Processes
- What is Process Analysis and Design?
- What is the Business Driver for Business Process Analysis and Design?
- Measurement is critical
- Reliable processes?
- How are Business Benefits Realized from Process Change?
- Focusing only on process design is necessary but not sufficient to realize business benefits
- If significant benefits are expected, process design work must be a part of a larger initiative, such as: (Continuous Improvement / Total Quality Management (TQM), Benchmarking, Business Process Re-engineering (BPR))
- Processes are at the heart of an organization
    - Creators of ALL value for ALL stakeholders
    - Determinants of organizational performance / success
    - Implementers of strategy / change
- Business Process Analysis and Design skills are required in all organizations to ensure
    - continuous improvement of process designs
    - improvement in an organization's performance
- Business Process Analysis and Design activities are necessary but not sufficient for business benefit realization; we also need
    - Leadership
    - An overall change initiative (BPR, TQM, Benchmarking etc.)
    - Change Adoption Activities
    - And Frequently Technology / Systems implementation

Rich Picture Diagrams

- Elements of an Effective Rich Picture – what are they?
- Developing RPD's - how?
- Methodology in Developing a Rich Picture

Supply Chain Operations Reference Model (SCOR)

- The Primary Use of SCOR:
  - To describe, measure and evaluate supply chain configurations.
- SCOR contains:
  - Standard descriptions of management processes
  - A framework of relationships among the standard processes
  - Standard metrics to measure process performance
  - Management practices that produce best-in-class performance
- Enables the companies to:
  - Evaluate and compare their performances with other companies effectively
  - Identify and pursue specific competitive advantages
  - Identify software tools best suited to their specific process requirements
    - Supply Chain Operations Reference Model (SCOR): Boundaries
- SCOR spans:
  - All customer interactions, from order entry through paid invoice.
  - All product (physical material and service) transactions, from supplier's supplier to customer's customer, including equipment, supplies, spare parts, bulk product, software, etc.
  - All market interactions, from the understanding of aggregate demand to the fulfillment of each order
- SCOR does not attempt to describe every business process or activity, including:
  - Sales and marketing (demand generation)
  - Research and technology development
  - Product development
  - Some elements of post-delivery customer support
- Supply Chain Operations Reference Model (SCOR):Basic Management Processes

Plan-Source-Make-Deliver-Return

- Supply Chain
- Scopes of Basic Management Processes
  - *Plan* (Processes that balance aggregate demand and supply to develop a course of action which best meets sourcing, production and delivery requirements)
    - Balance resources with requirements
    - Establish/communicate plans for the whole supply chain
  - *Source* (Processes that procure goods and services to meet planned or actual demand)
    - Schedule deliveries (receive, verify, transfer)
  - *Make* (Processes that transform product to a finished state to meet planned or actual demand)
    - Schedule production
  - *Deliver* (Processes that provide finished goods and services to meet planned or actual demand, typically including order management, transportation management, and distribution management)
    - Warehouse management from receiving and picking product to load and ship product.
  - *Return* (Processes associated with returning or receiving returned products)
    - Manage Return business rules
- Level Metrics Facts
- Level 1 Metrics are primary, high level measures that may cross multiple SCOR processes.
- They do not necessarily relate to a SCOR Level 1 process (Plan-Source-Make-Deliver-Return).
- Level 2 Process Types and Definitions
- Planning: A process that aligns expected resources to meet expected demand requirements.
  - Balance aggregated demand and supply

    - Consider consistent planning horizon
    - (Generally) occur at regular, periodic intervals
- Execution: A process triggered by planned or actual demand that changes the state of material goods.
    - Scheduling/sequencing
    - Transforming product
    - Moving product to the next process
- Enable: A process that prepares, maintains, or manages information or relationships on which planning and execution processes rely
- SCOR describes processes not functions. In other words, the Model focuses on the activity involved, not the person or organizational element that performs the activity.
- Implementation level, Level 4, is not described in SCOR.
- Once a complex process is captured in Standard Process Reference Model Form…
    - It can be
        - Implemented to achieve competitive advantage
        - Described clearly and communicated
        - Measured, managed and controlled
        - Tuned and re-tuned to a specific purposed

- Why are Enterprises Doing BPR?
- The Business Process Management Challenge
- To be *world-class* a firm must know:
    - its business processes better than its competitors know their's;
    - its customers better than its competitors know their's;
    - how to respond more rapidly to market changes than its competitors;
    - how to use employees more effectively than its competitors;
    - how to compete for market share on a customer-by-customer basis.
- The Business Process Management Challenge
- Key issues of Business Process Management:
    - Strategic Focus and Customer Focus
    - Continuous learning and improvement
    - Performance Excellence and Benchmarking
    - Appropriate IT Support

- Lean Process with Knowledge Visibility
- What is BPR?
- Business Process Re-engineering
    - Is a systematic approach to rationalizaion and innovation of business processes in order to achieve improvements in productivity and quality
    - Fundamental Argument upon which BPR rests
    - Information technology can be used to enable new ways of doing work which are more time and cost efficient and effective than old/existing ways of working
- Business Process Re-engineering uses concepts
    - Business strategy
    - Accounting
    - Organization Design
    - Information Systems
    - Industrial Engineering
- What is a Business Process?
- **Business Process**
    - At its most generic level
        - any set of activities performed by a business that is initiated by an event
        - transforms information, materials or business commitments
        - and produces an output.

    - Value chains and large-scale business processes produce outputs that are valued by customers.
    - Other processes generate outputs that are valued by other processes.
- 1. Scoping an Enterprise – Initiating BPR Projects

    i. Ready to Launch
    ii. Operationalize Process Performance Targets
    iii. Define Process Boundaries
    iv. Identify Key Process Issues
    v. Understand known Best Practices and Define Initial Vision
    vi. Familiarize Participants with BPR Tools
    vii. Outline Data Collection Plan and Collect Baseline Data

    2. Operationalize Process Performance Targets
    3. Define Process Boundaries
    4. Identify Key Process Issues
    5. Understand Known Best Practices and Define Initial Vision
    6. Familiarize Participants with BPR tools
    7. Outline Data Collection Plan and Collect Baseline Data

- The Business Process Management Framework
- The BPR Problem Matrix
- The BPR Life Cycle
- Who is involved in doing BPR

Strategy Maps

- How can employees embrace the future if they don't know the destination?
- Strategy Maps show cause and effect
    - …faster process cycle times will increase retention of customers
- Businesses must create and deploy intangible assets
    - Employee skills and knowledge
    - Information technology
    - Corporate culture that encourages innovation, problem solving, and organizational improvement
- Strategy maps are a tool to describe intangible assets
- "Value" in an information age
- Balanced Score Card
    - Financial
    - Customer
    - Internal process
    - Learning and growth
    - Balanced Score Cards
    - Show the knowledge, skills and systems that employees need to innovate and build the right strategic capabilities and efficiencies that deliver value to customers

Strategy Maps

- A common visual framework
- Embeds the elements of the balanced score card into a cause and effect chain
- Connects desired outcomes with the drivers of those results
- Common language
- From mission, achieve vision
- Strategy must define the logic of how to get there
- Developing the Strategy Map

1. Financial Perspective

2. Customer Perspective
3. Internal Process Perspective
4. Learning and Growth Perspective

Modeling Business Processes

- *Rules* for Describing / Documenting Processes
- No "rules" only guidelines
- No absolute rights or wrongs – context is everything
- The appropriate tools and technique to describe, document and analyse a process depends on
    - Why the analysis is being performed
    - What problem is being solved
- Many many techniques for describing and documenting process
- What is business process modelling? Types of models

Process Flow Analysis

    - general process chart
    - process flow diagram
    - process activity chart
    - Flowchart
- these charts divide activities into 5 different categories
    - Operation
    - Transportation
    - Inspection
    - Storage
    - delay
- Process models
- A process map is…
    - A drawing that shows a sequence of steps or activities from beginning to the end of a process
    - A "Road map" for how to get from "here" to there
    - A good tool for identifying improvement opportunities
- Use of process maps
- For existing processes – how does a process map help?
- For new processes – how does a process map help?
- Why and when is process mapping used?
- Steps in Preparing Process Models
    - For currently existing processes
    - For new processes

- The "Departments" vs "Processes" Syndrome

- "Swim Lane Diagrams," also known as "Rummler-Brache Diagrams."
- allows you to quickly and easily plot processes and the interconnections between processes, departments and teams. Process diagrams help spot processing gaps and inefficiencies.

    - The added advantage of the Rummler-Brache or Swim Lane Diagram approach is that it focuses on the high risk interconnections between departments and teams, and helps you spot more clearly issues and risks associated with these.
- Improving the process
- Once the diagram is complete, it is easy to see who is responsible for what and it is also easy to start identifying potential inefficiencies.

    - helps you break down your process so you can spot the bottlenecks, redundancies, and other causes of inefficiency
- Creating and Using Rummler-Brache Diagrams
    - The first step to spotting inefficiencies and making improvements
    - Break down your organization's processes into manageable pieces
    - Determine your scope
- If you are trying to find strategic inefficiencies, then analyzing every process in detail is unnecessary and cumbersome.
    - you might assign each main functional area to a swim lane and look at the interchanges in and between them.
    - this would help you spot disconnects between functional areas of the business.

- If you were trying to diagnose inefficiencies in your hiring and recruitment process then you would look at specific roles, departments and perhaps some key individuals and assign these to the swim lanes.
- Tips for process models
- Define the current practices of the process- start by clearly specifying the beginning and end points.
- Understand and define the stakeholders in the process.
- Understand where and how the process fits into the organization.
    - How will changes in the process impact either processes or stakeholders. (Relationship Map)

A Comprehensive Approach

- Start by analyzing the processes and organization using high level swim lane diagrams
    - Then, once you have spotted areas you need to focus on, you can drill down there using more detail diagrams.

- 1. Determine what you aim to accomplish:
- 2. Clarify the processes you are focusing on:
- 3. Identify all participants in the processes you are analyzing:
- 4. Now it's time to start creating the diagram:
- 5. List the step or activities required at each stage of the process:
- 6. Analyze the diagram for potential areas of improvement:
- Levels of Process Modelling
- A decision that must be made – *What is the level of process modelling needed?.*
- Flow chart Symbols (Activity, decision, document, flowline, connector, loop,

How to Create Flowcharts?

- Consult with the experts. These are the people managing and working with the process.
- Identify the boundaries. Where does the process begin? where does it end?
- Identify the participants. What roles are involved in the processes?
- Hand draw the process in front of the expert, getting him/her to confirm the steps.
- Identify the steps. What is done first? What is done next? By who?
- Identify the decision points. What are the alternatives? What determines which alternative is chosen?
- Draw an initial process flow. Draw and label the swim lanes using standard symbols.
- Check for completeness. Are all participants represented? Are all processes shown? Are there any alternatives that have not been considered? Refine and finalise.
- Review with the experts to ensure completeness.

- Draw and label the swim lanes
- Add in the process flows
- Swap lanes and enter decision points
- Complete the process map

Supply Chain Strategy – Chapter 3

What is a Supply Chain?

- Supply Chain – Management Vs Strategy
- Supply Chain Management
- Supply Chain Strategy
- Services Vs. Manufacturing Supply Chains **

Inventory Management/ Measurement

Average Aggregate Inventory Value = (# of units of Item A Typically on Hand) x ($Value per Item A) + (# of units of Item B Typically on Hand) x ($Value per Item B) +…..

Weeks of Supply = Avg Aggregate Inventory Value / Weekly Sales at cost

Inventory Turnover = Annual Sales at cost / Avg Aggregate Inventory Value

- Measurements for Business Cases

- Supply Chain Disruptions
    - Bullwhip Effect
    - External Effects
    - Internal Effects
- Minimize Disruptions?
    - Solution: Develop a supply chain with a high degree of functional and organizational integration.
- Integrated Linkages between :

SUPPLIERS -> THE FIRM -> CUSTOMERS

- Customer Orientation: work with customer to improve flow of service / materials
- Supplier Integration: understanding of capacities, strengths and weaknesses. Integrate early on in process.
- Very Complex
- Provides Framework for Firm's Operating Decisions
- The Customer Relationship
- To identify, attract and build relationship with customer to facilitate the transmission and tracking of orders
    - Marketing Process
    - Order Placement Process
- B2C
- B2B
- Role of E-Commerce (cost reduction, revenue flow increase, global access, pricing flexibility)
- Order Fulfillment Process
- Linked to Customer Relationship Process
- From Customer Order to manufacturing to delivery.
- Streamline while maintaining high level of quality and productivity
- Streamline - Order Fulfillment Process
- Tactics:
    - Inventory placement:
        - Centralized placement
        - Inventory pooling
        - Forward placement
    - Vendor Managed Inventories (VMI)
    - Continuous Replenishment Program
    - Radio Frequency ID (RFID)
    - Distribution Process

- Supplier Relationship Process
- Focuses on the interaction of the firm and upstream suppliers

Why is it important?

- Affects **quality, timeliness and price**
- Affects **negotiation and design collaboration process**
- Strategies in Supply Chain

1. Efficient Supply Chains
2. Responsive Supply Chains

A firm can use both Efficient and Responsive Supply Chains.

- Environments in Supply Chain
- Design Features in Supply Chain
- Mass Customization
- "A strategy whereby a firm's flexible process generates a wide variety of personalized services or products at reasonably low costs"
    - Examples?
    - Competitive Advantages

1. Managing Customer Relationships
2. Eliminate Finished Good Inventory
3. Increased Perceived Value of Goods/Services

- Mass Customization and SC Strategy
- Affects SC in 3 ways:
    1. Process Design is "Assemble to Order" Strategy
    2. Service / Product must be a MODULAR DESIGN that enable customization
    3. Postponement
    4. Lean Supply Chain
- Requires:
    1. Strategic Sourcing – for high quality and delivery performance
    2. Cost Management – by limiting suppliers and working with suppliers to reduce costs. High collaboration with Supplier.
    3. Supplier Development – shifts from price negotiation to cost management
- Outsourcing /Offshoring Vs. Vertical Integration

Cycle Time / Capacity – Chapter 8

- Performance Analysis of Business Processes – Cycle Time and Capacity Analysis

- Stock Levels
- Stocks are affected by inflows and outflows (chequing account balance, WIP, finished goods, etc)
    - throughput, work-in-process, cycle time
    - discrete processing vs continuous processing
    - jobs = "units of flow"
- Routing
- Resources may be capital assets or labour
    - job follows a routing within a process
    - routing provides information about the activities
        - sequence, resources needed, and time standards

- A process can be characterized in terms of its jobs, activities, resources, routings and information structure
    - three types of flows
        - Divergent (separate input into several outputs)
        - Convergent (brings several inputs together)
        - Linear (result from sequential steps)
- Throughput Rate

Ri(t) should = Ro(t) over the long run = ג

- Work in Process
    - all jobs within the process boundaries (no longer raw material, not yet finished product)
    - because inflow and outflow rates vary over time, WIP also fluctuates
    - See Figure 5.2, p. 143
- Cycle Time
- Cycle Time – (throughput time) – very important measure of performance of a business process
    - is the time it takes to complete a job from start to finish – ie time it takes for a job to go from the entry point to the exit point of a process
    - depends on both the arrival rate of jobs in a given period, the routing and available resources
    - it is the total time in the process including value-adding and non-value-adding activites – generally includes:
        - processing time
        - inspection time
        - transportation time
        - storage time
        - waiting time (planned and unplanned)
- Little's Law
- WIP=גCT
  The average number of jobs in the process is proportional to the average time that a job spends in the process, where the factor of proportionality is the average arrival rate

- WIP increases if the throughput rate or cycle time increases
- throughput rate increases if WIP increases or cycle time decreases
- cycle time increases if WIP increases or the throughput rate decreases
- Cycle Time and Capacity Analysis
- Cycle Time Analysis
    - refers to task of calculating average cycle time for an entire process or process segment
        - Rework
        - Multiple Paths
        - Parallel Activities
- Cycle time efficiency = (process time)/CT
- Calculate the Cycle Time
- Capacity Analysis
- Managing Cycle Time and Capacity
- Cycle Time Reduction -methods
- Process Capacity
- Increasing Process Capacity
    - add resource availability at the bottleneck
    - reduce the workload at the bottleneck
- Theory of Constraints
    - bottlenecks affect efficiency because they limit throughput, and may restrict quality, speed, cost and flexibility
- Cycle Time
- Why reduce cycle time?
- Stalk and Hout Four Rules of Responsiveness (reducing time as a competitive advantage)
- .05 to 5 rule. Value is created in only .05 to 5 percent of the total time employed in a process
- 3/3 rule. The time lost in most processes is equally attributed to three sources:

        - Waiting for the completion of a unit of work
        - Waiting for the physical or intellectual rework to be completed
        - Waiting for a management decision to send work to the next step
- 1/4 – 2/-20 rule. If time is compressed in a process by one quarter, labour productivity doubles, and costs are reduced by 20 percent
- 3 X 2 rule. When time is compressed in an organization's processes to be at least 50% faster than competition - growth at three times the industry average is likely, and profits of two times the industry average is possible.
- Three categories of Cycle Time
    - RVA, BVA, NVA

Real Value-Add (RVA)
Business Value-Add (BVA)
Non-Value Add (NVA)