Enterprise Interactions and Waste

Professor Deborah Nightingale
October 17, 2005
Objectives

- Enterprise Interactions
  - Process
  - Stakeholder

- X- Matrix to assess alignment of
  - Strategic Objectives
  - Metrics
  - Key Processes
  - Stakeholder Values

- Enterprise-level Wastes
Enterprise Interactions

• Process Interactions

• What flows in interactions between processes?
  • Material
  • Information
  • Resources (people, $s, etc.)
Interaction Performance Parameters

- Reactive vs. Proactive
- Stability
- Timeliness
- Accuracy
- Completeness
Interaction Checklist Template

What flows in this interaction?
- Information
- Material
- Resources

Goes from: _______________ to _______________

Note: __________________________

Is this interaction Reactive □ Proactive □

Rate each of the following as: Lo Med Hi
- Stability
- Timeliness
- Accuracy
- Completeness
Mapping Enterprise Interactions
Interactions
Supply Chain Management

Diagram:
- System Engineering
- Contracting
- Information Tech
- Base Support
- Bases
- AFMC
- SCM
- Determine Req's
- Budget Req's
- Buy Repair
- Distribute Assets
- Dispose Excess
- Tech Orders
- Analysis Problem Tracking
- Mfg Contracting
- Repair Contracting
- AF
- DRMO
- Other ALC MA
- Depot Maintenance
- Planning
- Scheduling
- Production
- Material Support
- Quality
- Execution Reporting
Supply Chain Management

- System Engineering
- Contracting
- SCM
- Buy Repair
- Distribute Assets
- Dispose Excess
- Tech Orders
- Analysis Problem Tracking
- Planning
- Production
- Other ALC MA
**Process Interactions Analysis**

**Supply Chain Management (Overall)**

**Incoming Interactions**
- Most low assessed interactions occur in sub-processes
  - Analysis & Problem Tracking (46%) & Determine Requirements (31%)
  - Timeliness largest driver (54%) with remaining split evenly Stability, Accuracy, & Completeness

**Outgoing Interactions**
- Most low assessed interactions occur in sub-processes
  - Buy/Repair (75%)
  - Dispose of Excess Assets (25%)
- Stability largest driver (38%)
  - Timeliness (25%) & Accuracy (25%)
Objectives

• **Enterprise Interactions**
  - Process
  - Stakeholder

• **X- Matrix to assess alignment of**
  - Strategic Objectives
  - Metrics
  - Key Processes
  - Stakeholder Values

• **Enterprise-level Wastes**
## X-MATRIX

<table>
<thead>
<tr>
<th>Stakeholder Value</th>
<th>Strategic Objectives</th>
<th>Key Processes</th>
<th>Metrics</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Enterprise Process</td>
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<td></td>
<td>Enterprise Process</td>
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<td></td>
<td>Enterprise Process</td>
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</tbody>
</table>
X-Matrix Assessment Process

- The grids in each corner of the matrix represent potential interaction between the row and column they connect:
  - Strategic objectives
  - Enterprise metrics
  - Enterprise processes
  - Stakeholders values
X-Matrix Completion Process

• Start in the upper left quadrant and move around the matrix in a counter-clockwise direction

• The following questions will help fill in the matrix with either, strong, weak, or no interaction.

1. Is this strategic objective measured by this metric?

2. Does this metric measure performance of this process?

3. Does this process contribute to delivering this stakeholder value?

4. Is this stakeholder value represented by this strategic objective?
Metric Alignment with Strategic Objectives

- Do the metrics currently employed align to the strategic objectives?
- What is the relationship between the metrics and the strategic objectives?
- Do the metrics accurately evaluate enterprise performance and achievement of strategic objectives?
Metrics Alignment with Processes

• *Do the enterprise metrics measure the performance of the enterprise processes?*

• *What is the relationship between the metrics and the processes?*

• *Do the metrics flow down through the organization in a logical manner to measure process performance?*
Process Alignment with Stakeholder Values

• Do the enterprise processes deliver the stakeholder values for the enterprise?

• How well do the enterprise processes deliver value to the stakeholders?

• Which processes deliver the most value? which deliver the least?
Strategic Objectives Alignment with Stakeholder Values

- **Do the strategic objectives represent the stakeholder values?**
- **Are the strategic objectives well aligned with the stakeholder values?**
- **How many stakeholder perspectives are represented by the strategic objectives?**
X-Matrix

Strategic Objectives

Metrics

Stakeholder Values

Key Processes

Achieve high performance on every high importance stakeholder
Lead the industry on performance survey results
Eliminate cost growth
Eliminate the manpower shortfall
Reduce cycle time for every process by 50%
Deliver on cost - every time
Deliver on time - every time
Deliver a quality product (material and intellectual) the first time
Improve product availability by 20% by implementing PBL.

Determine requirements
Develop plan
Implement plan
Monitor and report status
Disposition
Determine requirements
Budget
Buy/repair assets
Distribute assets
Dispose of excess assets
Tech Orders/Libraries
Workload
Plan
Schedule
Production

Number of entries in high importance stakeholder
Buy/repair assets
Deliver a quality product (material and intellectual) the first time
Deliver on time - every time
Deliver a quality product (material and intellectual) the first time
Improve product availability by 20% by implementing PBL.

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Objectives

• Enterprise Interactions
  • Process
  • Stakeholder

• X- Matrix to assess alignment of
  • Strategic Objectives
  • Metrics
  • Key Processes
  • Stakeholder Values

• Enterprise-level Wastes
Production Wastes

**Waiting:** Idle time in which no value is added

**Transportation:** Excessive movement of material, tools or parts

**Over-processing:** Effort expended which does not add customer value

**Inventories:** Accumulations of materials beyond JIT requirements

**Unnecessary Motion:** Any human movement that does not add value

**Product Defects:** Any item that does not meet specifications

**Over Production:** Producing more or sooner than required
Information Wastes

Waiting: Idle time due to unavailable information

Transportation: Unnecessary movement of paper, people, or bits

Excess-processing: Processing information beyond requirements, e.t., unneeded precision

Inventory: Information that is unused or is “work in progress”

Unnecessary Motion: Any local human movement necessitated by poor Information System design

Defects: Any element of data, information or intelligence that is erroneous

Over Production: Producing, duplicating and distributing more information to more people than is needed
Enterprise Level Wastes

- Waiting/Delays
- Excessive Transportation
- Inappropriate Processing/Ineffectual Effort
- Inventory
- Excessive Motion
- Defects/Rework
- Over Production
- Structural Inefficiencies
- Opportunity Costs
Waiting/Delays

Idle time due to late decisions, cumbersome and excessive approvals, and unsynchronized enterprise processes
# Waiting/Delays

Idle time due to late decisions, cumbersome and excessive approvals, and unsynchronized enterprise processes

<table>
<thead>
<tr>
<th>Examples</th>
<th>Causes</th>
</tr>
</thead>
<tbody>
<tr>
<td>In making decisions</td>
<td>Unnecessary levels/steps in decision structure and approval processes</td>
</tr>
<tr>
<td></td>
<td>Multiple handoffs</td>
</tr>
<tr>
<td></td>
<td>Information unavailable or inaccessible</td>
</tr>
<tr>
<td></td>
<td>Risk aversion mentality</td>
</tr>
<tr>
<td></td>
<td>Inflexible policies and procedures</td>
</tr>
<tr>
<td></td>
<td>Excessive rules and regulations</td>
</tr>
<tr>
<td>In administrative processes</td>
<td>Undisciplined processes and practices</td>
</tr>
<tr>
<td></td>
<td>Variability in enterprise processes</td>
</tr>
<tr>
<td></td>
<td>Lack of standardization</td>
</tr>
<tr>
<td></td>
<td>Lack of common tools and systems</td>
</tr>
<tr>
<td></td>
<td>Errors in data</td>
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<tr>
<td></td>
<td>Linear, serial task sequencing</td>
</tr>
<tr>
<td></td>
<td>Batch and queue mentality in enterprise processes</td>
</tr>
<tr>
<td></td>
<td>Lack of flow—lack of level scheduling of administrative processes</td>
</tr>
<tr>
<td></td>
<td>Unsynchronized enterprise processes</td>
</tr>
<tr>
<td></td>
<td>Delays in information processing, dissemination and consequent actions</td>
</tr>
<tr>
<td></td>
<td>Ineffective, inefficient business systems</td>
</tr>
<tr>
<td></td>
<td>Lack of connectivity and interoperability</td>
</tr>
</tbody>
</table>
Excessive Transportation

Unnecessary movement (including electronically) of administrative information and people; multiple approvals and handoffs
# Excessive Transportation

Unnecessary movement (including electronically) of administrative information and people; multiple approvals and handoffs

<table>
<thead>
<tr>
<th>Examples</th>
<th>Causes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Movement of forms, reports, other paperwork</td>
<td>Poor design of business processes</td>
</tr>
<tr>
<td>Multiple handoffs</td>
<td>Unsynchronized enterprise processes</td>
</tr>
<tr>
<td>Expediting administrative paperwork</td>
<td>Poor design of business processes</td>
</tr>
<tr>
<td>Dispersed facilities</td>
<td>Poor location decisions</td>
</tr>
</tbody>
</table>
Inappropriate Processing/Ineffectual Effort

Effort expended that does not increase value to any of the enterprise’s stakeholders; can occur within the workforce, within management ranks, or across the entire enterprise
Inappropriate Processing/Inefffectual Effort (cont.)

Effort expended that does not increase value to any of the enterprise’s stakeholders; can occur within the workforce, within management ranks, or across the entire enterprise

<table>
<thead>
<tr>
<th>Examples</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Poor enterprise performance</td>
<td>Inefficient, ineffective process interfaces</td>
</tr>
<tr>
<td></td>
<td>Physical, information and conceptual disconnects—lack of connectivity and interoperability</td>
</tr>
<tr>
<td></td>
<td>Lack of standardized processes; lack of common tools, systems and platforms</td>
</tr>
<tr>
<td></td>
<td>Bloated middle management</td>
</tr>
<tr>
<td></td>
<td>Outdated, counterproductive financial systems &amp; performance measures</td>
</tr>
<tr>
<td></td>
<td>Enterprise managers not on the same page</td>
</tr>
<tr>
<td></td>
<td>Inflexible policies and procedures, excessive rules and regulations</td>
</tr>
<tr>
<td></td>
<td>Organizational rigidity, lack of responsiveness and adaptability</td>
</tr>
<tr>
<td></td>
<td>Unsynchronized enterprise processes</td>
</tr>
<tr>
<td></td>
<td>Wrong metrics</td>
</tr>
<tr>
<td></td>
<td>Poor strategy execution</td>
</tr>
<tr>
<td></td>
<td>Business systems are cumbersome and disconnected</td>
</tr>
</tbody>
</table>
Inventory

Unnecessary levels of any enterprise resource: capacity, space, workforce, suppliers, information/data
### Inventory

Unnecessary levels of any enterprise resource: capacity, space, workforce, suppliers, information/data

<table>
<thead>
<tr>
<th>Examples</th>
<th>Causes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excessive capacity</td>
<td>Poor planning</td>
</tr>
<tr>
<td>Excessive space</td>
<td>Poor planning, redeployment of freed-up resources</td>
</tr>
<tr>
<td>Excessive workforce</td>
<td>Poor planning, redeployment of freed-up resources</td>
</tr>
<tr>
<td>Excessive technical staff</td>
<td>Poor staffing planning</td>
</tr>
<tr>
<td>Excessive suppliers</td>
<td>Lack of rationalized lean supply chain network</td>
</tr>
</tbody>
</table>
Excessive Motion

Any human effort that does not increase stakeholder value.
Excessive Motion

Any human effort that does not increase stakeholder value.

<table>
<thead>
<tr>
<th>Examples</th>
<th>Causes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Redundant activities</td>
<td>Poor integration</td>
</tr>
<tr>
<td>Excessive and uncoordinated initiatives</td>
<td>Chasing fads</td>
</tr>
<tr>
<td>Wasted effort</td>
<td>Excessive number of meetings, status reporting</td>
</tr>
<tr>
<td></td>
<td>Unsynchronized enterprise processes</td>
</tr>
</tbody>
</table>
Defects/Rework

Erroneous results from defective enterprise processes and decisions
## Defects/Rework

Erroneous results from defective enterprise processes and decisions

<table>
<thead>
<tr>
<th>Examples</th>
<th>Causes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Errors</td>
<td>Physical information and conceptual disconnects—lack of connectivity&lt;br&gt;Undetected errors in data entry and processing&lt;br&gt;Out-of-date policies and procedures—lack of configuration control&lt;br&gt;Variation in enterprise processes&lt;br&gt;Misinterpretation of data</td>
</tr>
<tr>
<td>Incorrect, inappropriate decisions</td>
<td>Optimizing within one function causes sub-optimal enterprise performance&lt;br&gt;Errors (defects) in enterprise processes&lt;br&gt;Unsynchronized enterprise processes&lt;br&gt;Misinterpretation of processes information&lt;br&gt;Confusion regarding roles and responsibilities&lt;br&gt;Lessons learned are not captured and archived&lt;br&gt;Decisions re-decided or changed later&lt;br&gt;Excessive metrics, inappropriate metrics&lt;br&gt;Poorly prepared and facilitated meetings&lt;br&gt;Multiple handoffs</td>
</tr>
</tbody>
</table>
Overproduction

Any creation of enterprise outputs that does not increase stakeholder value
Overproduction

Any creation of enterprise outputs that does not increase stakeholder value

<table>
<thead>
<tr>
<th>Examples</th>
<th>Causes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excessive dissemination of data, reports</td>
<td>“Push” mentality prevails</td>
</tr>
<tr>
<td></td>
<td>Outdated policies and procedures</td>
</tr>
<tr>
<td></td>
<td>Wrong metrics</td>
</tr>
<tr>
<td>Over-managing</td>
<td>Lack of appropriate delegation, employee empowerment</td>
</tr>
<tr>
<td></td>
<td>Command and control mentality prevails</td>
</tr>
<tr>
<td>Exuberant pursuit of illogical initiatives</td>
<td>Too many “movements” (initiatives) being pushed, some at cross purposes, leading to diffusion of commitment</td>
</tr>
<tr>
<td></td>
<td>Failure to stay grounded in fundamentals</td>
</tr>
<tr>
<td></td>
<td>Over-reliance on “solutions of the month”</td>
</tr>
<tr>
<td>Marketing campaign</td>
<td>Belief that “pushing” sales via incentives will result in overall increase in sales volume, but usually results in short term demand amplification and then sharp drop in demand</td>
</tr>
</tbody>
</table>
Waste resulting from inappropriate organizational structure, policies, business model structure, alignment, or strategies
Structural Inefficiencies

Waste resulting from inappropriate organizational structure, policies, business model structure, alignment, or strategies

<table>
<thead>
<tr>
<th>Examples</th>
<th>Causes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organizational structure</td>
<td>Redundant activities, overlapping command and control</td>
</tr>
<tr>
<td></td>
<td>Failure to deploy critical resources horizontally along the value stream</td>
</tr>
<tr>
<td></td>
<td>Bloated middle management</td>
</tr>
<tr>
<td></td>
<td>Unclear chain of command</td>
</tr>
<tr>
<td></td>
<td>Unsynchronized enterprise processes</td>
</tr>
<tr>
<td>Supplier relations</td>
<td>Tendency to view suppliers in an adversarial way</td>
</tr>
<tr>
<td></td>
<td>Failure to create “win-win” relationships</td>
</tr>
<tr>
<td></td>
<td>Reluctance to share detailed operations data</td>
</tr>
<tr>
<td>Partner relations</td>
<td>Lack of interconnectivity and interoperability</td>
</tr>
<tr>
<td></td>
<td>Reluctance to share detailed internal data</td>
</tr>
<tr>
<td>Customer relations</td>
<td>Failure to focus on customer needs and values</td>
</tr>
<tr>
<td></td>
<td>Failure to anticipate how we can help our customers be successful</td>
</tr>
</tbody>
</table>
Opportunity costs

Wastes resulting from lost opportunities, e.g., untapped talent in the workforce
## Opportunity costs

Wastes resulting from lost opportunities, e.g., untapped talent in the workforce

<table>
<thead>
<tr>
<th>Examples</th>
<th>Causes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Customer disconnects</td>
<td>Remoteness from customer</td>
</tr>
<tr>
<td></td>
<td>Failure to focus on what customer values</td>
</tr>
<tr>
<td>Untapped talent in workforce</td>
<td>Failure to capitalize on the whole person by helping each employee grow to full potential; underutilization of people</td>
</tr>
<tr>
<td></td>
<td>Inappropriate reward/incentive systems</td>
</tr>
<tr>
<td>Failure to view knowledge as a corporate asset</td>
<td>Managers unaware of potential of knowledge management</td>
</tr>
<tr>
<td></td>
<td>No tradition of capturing lessons learned, of growing corporate knowledge base, lack of knowledge transfer internally</td>
</tr>
<tr>
<td>Unmotivated workforce</td>
<td>Workforce not empowered, people have no authority or accountability</td>
</tr>
</tbody>
</table>
Enterprise Monuments

- Centralized command and control structure
- Fragmented, multiple legacy information systems
- Highly bureaucratic and/or stagnant rules, regulations and procedures
- Excess layers of management
- Highly concentrated, centralized headquarter facilities
- Excessive, bloated corporate staff functions
- Monolithic functional organizations (Silos): Purchasing, H.R., Finance, Engineering, etc.
- Facilities in disparate locations
- Strategic objectives not in alignment