Supply Chain Management

Trends and Risk

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APICS-Chicago/ISM Chicago
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World & US

Trends Affect Each Somewhat Differently
US Shares Global Considerations

...and *Somewhat* in Unison
“The Future Ain’t What It Used To Be”
~ Yogi Berra
Blending Drivers = General Trends

- Trend - SC Trend
  - 2012 World  18.3T Export & 18.6 Import
  - 2012 US    1.5T Export & 2.3 Import

- Demographics - Population
  - 2025 World – 8.3B
  - 2025 US    – 360M

- Large Scale Impacts – Energy
  - Energy costs drive & are driven by economy
  - Crude oil pricing & availability will be a wildcard

...Future Forecast – Major Variables
Comparison of Population Rates

World compared to US

Current
Trends

- Globalization
- Social Responsibility
- Sustainability/Green
- Supply Chain/Geopolitical Instability

Population Growth

- Global Age Gap - Aging Population in Developed Nations/Younger Population in Emerging Nations
- Continuing Technology Improvements
- Social Networking
- Japan Weakens as a Source of Supply
- Urbanization
General Impacts - World

• More People
• More people than ever before making $5,000 USD equivalent
• Migration to Cities
• More consumers of low priced CPGs
• Increasing political instability
• Higher taxes
• Large unskilled labor pool
General Impacts - US

• Further Extension of Supply and Demand Chains/Increased SC Complexity
• Economic/Financial Market Fluctuation/Highly variable supply costs & demand patterns
• Increasing Instability of Supply Chain/Supply Disruptions and price spikes
• Supply Breaks/Commodity/Natural Resource Scarcity (Rising Petro prices? Spot shortages & price spikes
• Key people retiring in bunches-Competition for unskilled jobs
• Systems and Automated Solutions & Tools Offer Capital Cost Savings
• Buzz on Social Networks Provide Early cues of Trouble/Opportunity
• Increasing Logistics Issues Getting Into & Out Of Cities
• Plan to Zero out Carbon Footprint/Localization
• Population Migration/Requires Awareness of Shifting Cultural Mores
• Higher Taxes/Companies Rotate Mfg to Geographies
• Increasing Complexity in General
• Wealth Creation/Higher Demand for Consumer Goods – larger Market
Processes - US

- Modeling
- Planning
- Advanced Planning Tools
- Agility
- Resilience
- Simplification
- Cost Efficient
- Consolidation and Collaboration
- Integrated Risk Management
- Product Data and Security Tracking - RFID, QR, Enhanced Bar Code
- New Measurements (ROI/ROA on changes, production per carbon unit, etc)
- Secure, Automated, But Limited Inter Company Transfers of Information
Systems Considerations - US

- BI
- Dashboards
- Execution Systems
- "Best-in-Class" Sub Systems
- Relationship Management Systems
- Social Network Monitoring
Skill Requirements - US

- Automated Equipment/Computer interface skills
- Communication skills
- Reasoning
- Xtraining
- Multilingual
- Relationship management, internal and external
- Ability to integrate wide variety of information and make decisions
- Planning
- Analysis
- Financial math
- Computer programming in anyone of several key languages (SQL, C++, Visual Basic/.net, DB2, etc.)
Recommendations/Changes - US

- Succession Planning
- Hiring
- Training
- Support for ongoing learning, create and maintain a Learning Organization
- Phase in Fast, Flexible, Reliable, Automated Equipment
- Reserve Funds for Capital Purchases
- ID System vendors
- Utilize Logistics Companies that provide ship & rail
- Review source of supply & supplier portfolio; change supplier scoring based on new requirements, educate and change suppliers as indicated
- Reset Incentive Plans to focus on New Priorities
Future Forecast - Take Away

“The best way to predict the future is to create it ”

~ Peter Drucker
The Management of Risk
Points

• Uncertainty vs Risk
  ▪ *Uncertainty is not quantifiable*
  ▪ *Risk is quantifiable*

• Converting Uncertainty to Risk

• What does Risk Management mean?

• Steps to be taken
Definition of Terms

Risk Management is…

Having the ability to handle uncertainties in a way that allows us to make rational decisions regarding them.
Uncertainty

Probability

Risk
Disaster planning is ONLY one piece of the story…

- Strong Emotional Response
- ‘Concrete’ Target
- Feeling of Accomplishment
- Removes/Reduces Threat

-Is This Your Company’s Approach?
-Is This The Best Approach?
Definition of Terms

Currently, Risk Management is...
In the Context of Business

Risk Management *should be*…

RM
In the Context of Business

Possibly Risk Management should be --

$M_R$
In the Context of Business

Importantly, consider --

Integrated Risk Management
the integrated management of risk
Importance/Relationship

Our Company
In Relation to...

Risk Management
Operations Management
Financial Management
Quality Management
Future Direction/Future State

Our Company

Risk Management
Why IRM???

What types of activities does your company engage in

- Sales?
- Procurement/Supply Chain?
- Warehousing/Inventory
- Assembly?
- Manufacturing?
- Compounding?
- Quality Testing?
- Distribution?
- Transportation?

which of these activities have elements of risk?
Other activities of interest?
Other activities of interest -

• Growth?
• Innovation?
• R&D
• New Product Development
• Process Improvement
• System Implementations
Context

Compare & Contrast

Risk Management (RM)

to

Financial Management (FM)
Context

The Goal

Financial Management  Risk Management

Profitability  Sustainability
Context

The Goal

Financial Management  Risk Management

Profitability  Sustainability
The Goal

Financial Management  Risk Management

Profitability & Sustainability
Comparison to Financial Practices

**Risk**
- Prevention
- Reaction
- Impact
- Convert/Quantify
- Large Impact
- Immediate Concerns
- Prevention

**Cost**
- Avoidance
- Identification
- Drivers/Root Cause
- Quantification
- Total Impact
- Prioritization
- Reduction
Progressive Companies
From 2009 Presentation

Typical Risk Management Model

Center for Professional Management

Diane Kulisek, CAPAtrak, LLC
Typical Approach

• Brainstorm
• Capture **ALL** Risks (mix of uncertainties and risks)
  • Try to think about the unthinkable
• Consider all associated elements
• Develop a plan for prevention/elimination
• Consider contingencies and identify alternatives
• Develop alternatives as “needed”

…and No Coordination or Integration
Generally,
Move From Higher to Lower

- Measurement - ISO/FDA/+ 
- Reduce Risk 
- Remove Risk 
- Take Informed Risks
Typical Approach

Risk Taking

effective only for discrete components of risk
In Aggregate -

functional **Enterprise** risk management approach

**Risk Management**

effective **Enterprise** risk management requires management across the entire risk continuum
Risk Management Flow

Steps

- Initial Assessment
  - Identification
  - Conversion
  - Segmentation/Categorize
  - Prioritization
- Business Case
- Planning
- Implementation
- Communications
Risk Management Flow

Steps
- Initial Assessment
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Decision Points
- Prevent
- Eliminate
- Avoid
- Control
- Leave Alone
- Take
It’s Risk **Management**…

- **Not** Risk Prevention
- “Management” is an equally important word
- Employ Management Processes
Risk Management Tools

Mapping

- Heat Matrix
- Segmentation
- Characteristic Matrix
- Concentric Vulnerability
- Causal Loop Diagram
- Decision Tree
- Etc.
# Heat Mapping

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<th>Impact/Severity</th>
<th>Likelihood/Probability</th>
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Segmentation
Identification, Mapping & Visualization
Identification/Visualization

The diagram illustrates a matrix for assessing severity and probability. The axes are labeled 'Severity' and 'Probability,' with categories ranging from 'Low' to 'High.' The high severity and high probability quadrant is highlighted, indicating a significant risk area.
Individual vs Aggregate
Approach

- Understand
- Prevent/Eliminate
- Reduce
- Plan for/Allowance
Allow for Added Risk

- Understand
- Prevent/Eliminate
- Reduce
- Plan for/Allowance
- Taking on New Risks
The Requirement Remains Ongoing…
... And it *shifts & changes*

- Revisiting
- Re Prioritizing
- Understand
- Prevent/Eliminate
- Reduce
- Plan for/Allowance
- Taking on New Risks

Probability and/or Frequency
Supply Chain Risk/Resiliency Modeling

Concentric Vulnerability Map

GM Model
The Resilient Enterprise
Yossi Sheffi

The Great East Japan Earthquake
Mark Schmale
Presentation to APICS-Chicago
5/17/2011
Risk Management Processes

- ISO 9001 - Preventative Action
- cGMP
- APR Review
- MES/SCADA
- Six Sigma
Process Mapping/Management

Where Does Risk Management Fit-in?
Where Does Risk Management Fit-in?
Comparison to Inventory Management

Where Does Risk Management Fit-in?
Specific Enterprise Risk Management Processes

- COSO ERM – Integrated Framework
- ISO 31000

- Also Consider SOA Courses
Company Objectives

- Equipment
- Material
- Computer Network
- Vendor Certification
- Production Lines

Methods

- Morale
- Quality Mgt.
- Performance Measure
- Mgt. Initiatives

Add On

Company Mission

- Tooling
- Outsourced Product
- Components
- Chemicals

Direction

Company

- Communications
- Coaching&Mentoring
- ERP System
- Training&Devlpmnt
- ISO
- EPA
- FDA
- CPI

Profitability

- Equipment
- Material
- Computer Network
- Vendor Certification
- Production Lines
At Your Company…

Is This Homework?
Who is waiting for whom?

Why can’t we get Management support?

Why aren’t they doing something??
Enduring Risk

- As part of active informed decision making
- Not through -
  - Oversight
  - Neglect
As with any management process…

Make Decisions Based on Facts
4 Issues with Frequency as “facts”

1. You cannot forecast an occurrence that you have not experienced
2. You have to suffer the ‘Same Fate’ some number of times for it to be forecastable
3. Frequency tools offer little/no insight into the nature of the data points
The Business Forecasting Deal by Michael Gilliland
4 Issues with Frequency as “facts”

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4. You cannot add-in your what you know
Is It Risk *Management*?

- Risk Mgt activities are focused on disasters
- Risk Mgt & Cost Accting are separate
- Risk is not part of most meeting discussions
Integrated Risk Management

Practice Integrated Risk Management
From corporate strategy and plans to frontline operations...people and processes

1. Identifying Issues, Setting Context
2. Assessing Key Risk Areas
3. Measuring Likelihood and Impact
4. Ranking Risks
5. Setting Desired Results
6. Developing Options
7. Selecting a Strategy
8. Implementing the Strategy
9. Monitoring, Evaluating, and Adjusting

What Makes it Integrated?

- Aligned to Corporate Strategy
- Integral Part of the Business
- Tactics Coordinated
- Practices/Procedures Embedded
- Common Tools, Language & Understanding
IRM Roll-out

- Select Appropriate Risk Tools
- Develop Knowledge & Skills
  - Train a Core Group of Managers
  - Use Train-the-Trainer to Train Others
- Incorporate RM Measures into Reporting
- Establish Testing and Audit Procedures
Business Has Inherent Risk

Find Out If You Have A Case

Complex disease targets
Cost
Adverse reactions
Poor absorption
Low levels in body
Not effective enough
Not sufficient selection

Most Compounds Do Not Become Medicines

Not sufficiently selective
Side effects
Unsafe
Unstable
Competition
Impractical
Confidential

Product Failure

Economic Crisis:
To Address Inherent Business Risk...

...Integrate Risk Management
Embedding RM into Functions

- Environment of Process Improvement
- Committed Managers
- Informed Managers
  - Use Proven RM/FM Methods
  - Train-the-Trainer
  - Distribute Throughout Organization
  - Build into New Employee Orientation
- Repeat
So,

- Plan for the Future
- Move toward **Integrated Risk Management**
  - Appropriately MANAGE Risk
    - Eliminate Undo Risks/Take Informed Risks
    - Develop Risk Managers
    - Integrate Risk Management in ALL Processes
- **Drive** the Process
  - Bring Energy
- **Share**
  - Be a “smart person at the table”
Thank You

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