Using Supplier Quality Management

Visibility Into Processes Across the Business Ecosystem
Before We Begin

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Today’s Presenters

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Vice President, Global Sales Operations for Sparta Systems

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Editor in Chief of Quality Digest
Why Is Quality Important to Your Business Ecosystem?

- **Globalization**
- **Vendor Network**
- **Evolving Market**
- **Brand Protection**
- **Innovation**
- **Speed to Market**
- **Consultative Sales**
- **Cost, Price & Margins**
- **Consistent Delivery**
- **Evolving Compliance Requirements**
- **Shopper Marketing**
Quality Challenges within an Organization

**Supply Chain**
- Tier 1 Suppliers
- Tier 2, 3 Suppliers & Supplier’s Suppliers
- Contract Manufacturers & Packagers
- High Risk
- No Quality Visibility

**Internal Infrastructure**
- Brand Owner
- EQMS
- Regulatory Bodies
- Finance & Sales
- Manufacturing & Packaging
- ERP
- MES
- Master CAPA
- Master Change Control
- Master Deviations
- Master Investigation
- Low Risk

**Value Chain**
- Distribution
- Retail
- Issue Resolution Cost:
  - 1x
  - 10x
  - 100x
  - 1000x...
Example:
Contract Spending Grouping and Rations

3 categories are under scrutiny by Regulatory Agencies
– Must be fully audited
The Challenge

Raw Material Supplier

- Product shipped late
- Product damaged
- Manufacturing delays

Impact

- Distribution delays

Packaging

- Poor quality product delivered

Impact

- No visibility
- Inconsistent processes
- Poor information
- Reactive Environment

Contract Manufacturers & Packagers

- Issue not captured
- Dangerous product distributed

Impact

- Distributor
- Pharmacy (Out of Stock)
- Consumers

Issues Not Captured:

- Poor quality product delivered

Business Impact

- Overhead Costs
- Out of Stock Costs
- Organizational Impact
- Compliance & Litigation

Market Impact

- Time = Money
- Poor Quality = Danger
- Poor Quality Affects Brand Reputation
Addressing the Challenge

Better Visibility

- On-Time Shipping
- Fewer Damaged Products

Efficiency

- Product In Spec
- Accurate Labeling
- Correct Product Shipped
- Fewer Damaged Products

Consistent Quality

- Supplier Quality Management
  - Nonconformances
  - Quality Audits
  - Change Notifications
  - Onboarding

Interactive Supplier Scorecard

- Real-Time
- Consistent
- Accurate

Manufacturing Quality
- Few Manufacturing Delays
- Fewer Shipping Delays
- Less Product Quarantined
- Less Waste/Rework

Protected Supply Chain

Better Visibility

- On-Time Shipping
- Fewer Damaged Products

Efficiency

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Protected Supply Chain
Stratas – Supplier Scorecard
Accurate Data When you need it

Supplier Scorecard
(Material x Supplier x Manufacturer)

<table>
<thead>
<tr>
<th>SKPI</th>
<th>Supplier’s Score</th>
<th>Supplier Quality Management Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost Reduction</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Payment Terms</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Lead Time Days or Consignment Inventory</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>On-Time Delivery</td>
<td>0</td>
<td>✓</td>
</tr>
<tr>
<td>Supplier Business Planning &amp; Innovation</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Rejection in PPM</td>
<td>0</td>
<td>✓</td>
</tr>
<tr>
<td>Quality Systems</td>
<td>1</td>
<td>✓</td>
</tr>
<tr>
<td>% of CAPs generated</td>
<td>1</td>
<td>✓</td>
</tr>
<tr>
<td>CAP closure time</td>
<td>0</td>
<td>✓</td>
</tr>
<tr>
<td>End User Satisfaction Voice of the Plant</td>
<td>3</td>
<td>✓</td>
</tr>
<tr>
<td>On Time Delivery</td>
<td>3</td>
<td>✓</td>
</tr>
</tbody>
</table>

Manufacturing Metrics

**PROCESS FLOW METRICS**
- **MWTQ Percent (%)**
  - Ratio of waiting time for materials to total manufacturing lead time (TML)

**QUALITY METRICS**
- **SR Percent (%)**
  - Percentage of units starting as raw material that are lost as scrap from all steps in the process.
- **RR Percent (%)**
  - Percentage of units starting as raw material that have to be reworked at least once in the process.

**FINANCIAL METRICS**
- **CPP $/unit**
  - Total cost per unit for raw materials, processing and indirect overhead.

Net Effects

- Greater Transparency
- Better Accountability
- More Efficiencies
Stratas
Protecting the Supply Chain from Supplier Issues

Can you get to the data you need to protect your entire supply chain?
Meeting the Needs of the Organization

Internal Teams Need to Increase Visibility

- **IT**
  - Accuracy
  - Speed

- **QA Processes**
  - Supplier Nonconformance
  - Supplier Audits
  - Supplier Onboarding

- **Risk/ Compliance**
  - Warning Letters/Decrees (483s)
  - Recalls

PROCUREMENT → QA → MANUFACTURING
The Challenge
Technology Driving Efficiency & Accuracy

- Days or months to receive data
- Lost or incomplete data at time of business decision
- Resulting in negative monetary impact

ACCURACY

- Paper-based Audits
- Lost or slow data

Manufacturing Process

ISSUE VOLUME

On Premise SQM

Quality Processes
- Investigation
- Risk Evaluation
- Root Cause Analysis
- CAPA
- Change Control
- Effectiveness Check

TrackWise Analytics

TrackWise

ERP

CRM

PLM

ESM

TIME
Addressing the Challenge
Technology Driving Efficiency & Accuracy

**ACCURACY**
- Complete data at time of business decision

**TIME**
- On Premise SQM

**Quality Processes**
- Investigation
- Risk Evaluation
- Root Cause Analysis
- CAPA
- Change Control
- Effectiveness Check

**Manufacturing Process**

** ISSUE VOLUME**

Electronic Audits
- Electronic Upload

TrackWise®
Via Stratas

On Premise EQMS

ERP
- CRP
- CRM
- PLM
- MES

Resulting in positive monetary impact
The Challenge
Supplier Audits

Suppliers and CMOs to Be Audited

- Critical Suppliers
  - Supplier qualification
  - Risk Assessment
  - Interim Check
  - No Quality Visibility

- Important Suppliers
  - Supplier qualification
  - Risk Assessment
  - Interim Check
  - No Quality Visibility

- General Suppliers
  - Supplier qualification
  - Risk Assessment
  - Interim Check
  - No Quality Visibility

Supplier Audit Checklist

1. Online Assessment
2. Audit Execution
3. Observations & CAPAs

Step
- Paper-based Audit Planning
  - Prioritize
  - Schedule
  - Manage

- Paper-based Audit Execution
  - Execute

- Manual Management
  - RemEDIATE

- Measure and Inform
  - Measure

Challenge
- Cumbersome
- Resource Intensive
- Difficult to coordinate
- Inconsistent
- Detached
- Inaccurate Decisions
Addressing the Challenge
Supplier Audits

![Diagram showing suppliers and CMOs to be audited with a checklist]

**Suppliers and CMOs to Be Audited**

- **Critical Suppliers**
  - Supplier qualification
  - Risk Assessment
  - Interim Check

- **Important Suppliers**
  - Supplier qualification
  - Risk Assessment
  - Interim Check

- **General Suppliers**
  - Supplier qualification
  - Risk Assessment
  - Interim Check

**Supplier Audit Checklist**

- **Audit Planning**
  - Prioritize
  - Informed
  - Systematic
  - Efficient

- **Audit Execution**
  - Execute
  - Consistent

- **Audit Management**
  - Remediate
  - Integrated

- **Measure and Inform**
  - Measure
  - Accurate
  - Decisions

1. Online Assessment
2. Audit Execution
3. Observations & CAPAs
The Challenge
Product Non-Conformance

- Paper based Management
- Slow Response
- Detached

Product Damaged
- Notification Received
- Supplier Response
- Due Date Extension
- Product Damaged (Repeat Issue)

Issue Missed
- Product Manufactured
- Product Shipped

Issue Identified
- Notification
- SCAR
- Reviewed
- Action Item
- Extension Approved

Poor Quality = Brand Reputation
Poor Quality = Danger

Increased time to resolve
Days or months to receive data
Quarantine

No Visibility

Quality Processes
- Investigation
- Risk Evaluation
- Root Cause Analysis
- CAPA
- Change Control

Effectiveness Check
The Solution
Product Non-Conformance

Electronic Record Management
Efficient Response
Connected

Product Damaged
- Notification Received
- Supplier Identification
- Root Cause
- CAPA Plan
- Effectiveness Check

Efficient Response
Electronic Record Management

Issue Identified
- Notification
- SCAR
- Reviewed
- CAPA Approved
- Action Item
- Reminders

Quarantine

Visibility

TrackWise EQMS

Quality Processes
- Investigation
- Risk Evaluation
- Root Cause Analysis
- CAPA
- Change Control
- Effectiveness Check

Product Manufactured
Product Shipped

On time
Quality
Safe
The Challenge
Supplier Onboarding

Poor Onboarding and subsequent management leading to:

- **Onboarding x Supplier x Material**
  - Raw Material x 1,000’s

- **Inconsistent Processes**
- **Inefficient Management**
- **Poor Recordkeeping**

- **Material #1 Cert**
- **Material #2 Cert**

- **Material Certification**
  - **Material #1**
    - Received - Improperly Filed
    - PLM – Cert Flagged - Out of Date
  - **Material #2**
    - No Cert Received
    - PLM – Supplier Flagged w/ Cert

Less Compliance
More Risk
Higher Costs

- **Non-Compliant Certs. = Danger**
- **Poor Recordkeeping = Brand Risk**

Product Manufactured
The Solution
Supplier Onboarding

Automated onboarding and subsequent management leading to:

- Consistent Processes
- Efficient Management
- Electronic Recordkeeping

Onboarding x Supplier x Material
- Raw Material x 1,000's

- Material #1 Cert
- Material #2 Cert

Supplier A

Product Manufactured

Manufacturing Facility 2

Automated Facility

Compliant Certs. = Quality

Sound Recordkeeping = Brand Protection

- Higher Compliance
- Less Risk
- Lower Costs

Material #1
- Certification: Received
- Doc Posted: Systematic
- Business Rules: Efficient
- Safe Material: Delivered

Material #2
- Certification: Received
- Doc Posted: Systematic
- Business Rules: Efficient
- Safe Material: Delivered
Fast and efficient management of information so you are working with complete and accurate data sets

Single integrated quality and analytics platform to narrow in on your most important supplier related issues

Reduction of risk by virtue of better supplier quality management (i.e., protect your downstream interests)

Margin and profit protection as a result of improved operations and a quality consumer experience
Building a Culture of Quality
Deming Prediction after Lecture
Within 5 years, if Japanese manufacturers faithfully follow the principles I’ve shared, Japan will be **economically competitive** and **consumers worldwide will clamor** for Japan’s products

Actual Outcome

**18 Months:** Quality of Goods ↑ Productivity ↑

**5 Year Prediction:** Beat by 1 year
What Did A Statistician Teach the Japanese about Quality, Management and Business?

**Suggested Fallacy**

Results to Cause
- Profits should not drive actions
- Actions should drive profits

Independent Goals
- All businesses are an ecosystem
- Sales are a result of quality, usefulness, inter-departmental cooperation

Best Efforts
- Working harder, or giving more doesn’t work
- People need decisions, direction, knowledge and training

**Suggested Assertion**

A Better Way
- Quality in everything the organization does must be the #1 priority

Old Attitude vs. New
- Organizations must always stay committed to the continuous improvement journey

Quality Impact on Profits
- Quality must be viewed as a driver of profits and not an inhibitor

No Defects
- Product defects must be prevented as they are expensive to manage and fix
Case Study #1: RCA – “Pennywise, Pound Foolish”

**Context**
- Mid-80’s Worldwide Leader Electronics
- Organization was focused on innovation and thought leadership
- Chairman of RCA maintained an apartment near the R&D facility

**Recommendation:** Don’t work backwards from profits and margins. Focus on research, innovation, quality, consumer needs and execution. The profits will follow.

**Deming Philosophy:** Look Forward, Not Backwards.....

**Outcome**
- Sharp increase in the # of televisions failing during the warranty period
- Warranty costs (paperwork, personnel, process management) escalated (~25% or more of manufacturing costs)
- Fixing the televisions became prohibitively expensive. The cost of repairs equated to the original manufacturing costs
- Televisions accumulated in warehouses and all had to be written off
- How many RCA customers were lost in the process? How many customers were gained by Sony as they rose in the 80s as the electronics leader?
Case Study #2: ITT

Context

• In 1961 ITT had sales of $756.6M and earnings of $29M when the new CEO took over
• In 1977 when the CEO stepped down, sales were $16.7B and earnings were $562M
• In the 16 years of business, ITT bought, sold and merged more than 350 businesses

**Recommendation:** Build a sustainable business with repeatable, and scalable processes that focus on quality and continuous improvement

**Deming Philosophy:** Arbitrary goals sales goals don’t work, arbitrary shipment goals will fail and morale will suffer. *Shortcuts* to reach business goals will mount, snowball and impact margins in the long run

Outcome

• Shareholder value is lost
• ITT’s brand is eroded
• Competitors gain market share
Case Study #3: 1980’s Ford vs. GM vs. Toyota

**Context**
- In 1980, Ford, GM and Chrysler were on the brink of collapse
- Chrysler was “grabbing headlines” with its flirtation with bankruptcy & federal loan guarantees

**Recommendation:** Real profits are generated by loyal customers not just satisfied customers. Satisfied customers will try or change brands based on price. Loyal customers brag about the goods and services they are receiving.

**Deming Philosophy:** Deming’s philosophy calls for organizations to produce products and services that help people live better. Providing those goods and services is the raison d’etre of an organization. By providing ever improving services and products, an organization develops loyal customers.

- In 1986, Ford emerged as the darling of the automotive industry.
- For the first time, Ford's earnings exceeded that of Chrysler and GMs (and actually exceeded their combined earnings).
- Earnings again exceeded GM's and Chrysler's in 1987, which resulted in profit sharing of $2,000/employee in 1987 and $3,700 in 1988.
## So what is quality?

<table>
<thead>
<tr>
<th>Quality is NOT:</th>
<th>Quality is:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preference</td>
<td><strong>Understanding the CoPQ</strong></td>
</tr>
<tr>
<td>Technology or Features</td>
<td>• Recognizing the cost of the lack of quality</td>
</tr>
<tr>
<td>Backup Systems or Overdesign</td>
<td>• Understanding the consequences of better quality in the marketplace</td>
</tr>
<tr>
<td>Uniformity</td>
<td><strong>Pride of Workmanship</strong></td>
</tr>
<tr>
<td>• Clear specifications</td>
<td>• Happy employees means more productivity and better quality</td>
</tr>
<tr>
<td>• Consistent manufactured output</td>
<td></td>
</tr>
</tbody>
</table>