Reducing Costs/improving quality in today’s global manufacturing environment

Barry Braunstein
Director, Strategic Accounts
Camstar Systems, SigmaSure Division
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Agenda

- A Brief Camstar Introduction
- Global Electronics Supply Network Challenges
- Camstar Solution for Advancing Product Quality
- Our Value Proposition
Camstar’s mission is to enable *brand-owners, manufacturers* and *suppliers* to produce the *highest quality products* through *Global Supply Networks*.

**Company At A Glance**
- Privately Held
- Founded 1984
- 225+ Employees

**Offices**
- **USA:** Charlotte NC, San Jose CA
- **APAC:** Singapore, Shanghai, Malaysia
- **EMEA:** Germany, Belgium, Ireland

**Industries**
- HighTech / Electronics
- Medical Device
- Semiconductor
- Solar
- A&D
- Industrial
- Biotechnology

Headquartered in Charlotte, North Carolina
Supply Chain Leaders Choose Camstar

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Supply chain matters are top of mind at the board level

Mattel fined $2.3 million over lead in toys

“Toymaker Mattel Corp. agreed Friday to pay $2.3 million in civil penalties for violating a federal lead paint ban that resulted in the recall of millions of its Barbie, Dora and other popular-branded toys in 2007.”

Supply Data Now a Focus of Probe

“Has the "channel check" become a criminal act?... Wall Street analysts have been left bewildered in recent days, as federal prosecutors begin to home in on insider-trading cases that appear to involve routinely published information about public company supply chains…”

Devastation Tsunami in Japan could affect economies worldwide

“Already, the turmoil in Japan is affecting U.S. companies, investors and consumers, threatening disruptions in the flow of products and parts used to manufacture everything from Apple iPads to Sony televisions…”

March 16, 2011
Market Pressures

- Increased Customer Expectations
- Increased Product Complexity
- Shorter Product Introduction Cycles
- Growing Global Demand and Competition
- Increased Global Supply Risk
- Increased Risk for Counterfeiting

*Pressure to reduce manufacturing costs*
Gartner research found that organizations were primarily using *Microsoft Excel and homegrown systems to obtain MTSCV*....

Furthermore, homegrown tools seldom include analytics that sift the millions of data elements to alert brand owners to exceptions.

- Lack of Multi-Tier Visibility
- Disconnected Product Information
- Fragmented Technology
- Rapid Change
- Antiquated Monitoring Methods
- Slow and Reactive Issue Detection
Warranty Cost is a Drain to the Bottom Line

- From a recent IDC Report:
  - Warranty cost variability is “exorbitant” when viewed over time
  - Ability to drive improvement limited due to lack of adequate methods and tools (“Excel hell”)
    - No benchmarking to assess performance/implement performance improvement
    - Few tools to perform warranty/quality analysis
  - Disparate data from independent sources
    - Take advantage of data already collected
    - Accelerate analysis of warranty and peripheral data via report templates and dashboards
    - Provide root cause analysis with segmentation flexibility (ie, returns by channel, geography, reported vs. actual failure, etc)
Today’s Environment

**ERP (SAP)**
- Shipments
- Receipts
- Part numbers

**CRM (Salesforce.com)**
- Customer Complaints
- RMA’s

**PLM (Agile)**
- Bill of Material

**Manufacturing**
- NPI Data
- Manufacturing/Supply Chain Data
- Test Records/Specs

**RMA Repair Center**
- Repair
- Test Records

**CM** – Contract Manufacturer
**ODM** – Original Design Manufacturer
**RMA** – Return Material Authorization

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CRM – Customer Relationship Management
ERP – Enterprise Resource Planning
PLM – Product Lifecycle Management
Today’s in house quality systems

- Silo’d systems collecting data – no cohesiveness
- Engineers spend 80%+ of their time collecting and synchronizing data / 20% of their time taking action
- “Excel Hell” is time consuming and can lead to errors/skew’s in data
- No easy correlation between field and manufacturing/supply chain
- Reactive vs. Proactive
Ex: Cost of Reactive Issue Detection

When and where do you detect an issue?
When and where should you detect an issue?
What is the impact of this variance?
BOTTOM LINE: Lack of a Comprehensive Supply Chain Strategy

- **Observations of Brand Owners**
  - Lack strategy to understand interdependencies between Innovation Lifecycle and the Value/Supply Chain Lifecycle
  - Lack tools for timely Supply Chain Quality Issue detection
  - Lack tools for timely comprehensive Supply Chain Risk Management

- **Solutions**
  - Require 360 degree holistic visibility of product data…“Cockpit of information and analytics”
  - Require Real-Time alerting to detect, contain, diagnose and correct upstream supplier quality issues
  - Require robust analytics to quickly and comprehensively address risk across the supply chain
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SigmaSure: Supply Network Multi-Tier Visibility

360 VIEW OF SUPPLY NETWORK

SUPPLIERS

MANUFACTURING

SERVICE / WARRANTY

SUPPLY NETWORK VISIBILITY

MONITOR • DETECT • NOTIFY • VALIDATE • DISCOVER

SUPPLY NETWORK

COMPONENT / SUPPLIER NETWORK

CONTRACT MFG NETWORK

MANUFACTURING SITES

REPAIR / RMA DEPOTS
What is Supply Chain Quality in the Cloud?

Supply Chain Quality
Visibility, Intelligence, Collaboration

External Supply Chain
(Suppliers, CMs)

Internal Supply Chain

After Market
(Service Centers)

GLOBAL MANUFACTURING SUPPLY NETWORKS
What is Supply Chain Quality in the Cloud?

Supply Chain Quality
Visibility, Intelligence, Collaboration

External Supply Chain
(Suppliers, CMs)

Internal Supply Chain

BRAND OWNER

After Market
(Service Centers)

Automated Data Acquisition
- Returned Material Data
- Warranty Data
- Service Data

Automated Data Acquisition
- Manufacturing/Supplier Test Data
- Process Data
- Repair and Rework Data
- Incoming Quality Data

GLOBAL MANUFACTURING SUPPLY NETWORKS
SigmaSure Functionality

1. Collect
   - Database
   - FTP + DB
   - Machine to System
   - Paperless Environment

2. Aggregate/Synchronize & Retain

3. Analyze/Discover & Predict

4. Alerts & Actions
Real-Time Dashboard

Inspect your key supplier measurements at the source.

Measure the impact of Engineering Change Order (ECO) on your product quality.

Access to real-time production & quality across your global organization.

Identify key defective products by customer, failure code, supplier, & return status.

Automatically measure your key product returns & customer satisfaction.

Monitor your global test station health & utilization in real-time.
Drill Down to Root Cause

- Schedule a monthly warranty return rate. Accessible from a personalized dashboard.
- Click on your personal dashboard to identify your top-ten failures.
- Click over a given data-point to drill-down further into your RMA records.
- Monitor percentage of returns & track total RMA’s versus units shipped by month.
- Quickly identify top failed components & critical reference designators.
Factory Production Insight

Access to real-time production & product quality across your global organization.

Monitor your test station health & utilization in real-time.

Set real-time alerts to monitor non-conforming parameters.

Track your yields across different locations, stations, product lines, & operators.

Verify production test levels to ensure product and inventory availability.

Share critical reports with your team to enhance cross-organizational synergy.
Supplier Quality Insight

Monitor lot-to-lot variations for consistency & proactively detect marginal issues.

Detect component deviations across multiple suppliers.

Investigate yield issues & collaborate with suppliers to drive corrective actions.

Measure performance indices of all critical, key characteristics.

Assign corrective action with deadlines, key owners, & escalation rules.
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### Success Story: Electronics – Networking

**Business Challenge**
- Rapid innovation cycles
- 100% External supply chain dependency
- Increased warranty reserves due to field reliability issues.
- Running out of service inventory due to rise in returns

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<td>• ODMs</td>
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**Business Results**
- Reduced Return Rates 50%+  
- Decreased Warranty Reserves by $100Ks / product line  
- Prevented shipping $200K+ of defective product through early detection of quality issues at CM  
- Reduced Service inventory  
- Dramatic improvement in customer satisfaction & brand perception

**Original Systems**
- ERP  
- CRM  
- PAPERWORK/EXCEL with SHIPMENTS  
- SUPPLIERS’ Quality and Test Results

**Camstar Solution**
- Dashboards  
- Metrics  
- Drill-Down

- CM, ODM, REPAIR CENTERS  
- Quality and Test Results

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Success Story: Electronics – Audio Technology

Business Challenge

► Introducing new BlueTooth solution
► Impossible to get useful data from manufacturing sites
► Firefighting supply chain quality and manufacturing issues
► Scaling Manufacturing/engineering

Business Results

► Reduced Quality escapes on an annual basis by $1.5 M
► Identified $830K CM variance error
► “If we didn’t have Camstar we would be back in the Dark Ages”

$700M+ Audio Blue Tooth and Office with Global Supply Chain:
• 5 Global Strategic Sites
• US, Mex, China, SE Asia

Camstar Solution

- ERP
- PLM

• Dashboards
• Measur
• Metrics
• Drill-Down

CM & ODM Sites

Manufacturing, Test and Quality Data

From: JOHN (CRITICAL VENDOR A)
Sent: Monday, February 21, 2011 5:41 PM
To: AI (BRAND OWNER)
Subject: RE: OLP Trip Voltage Shift - XXXX

Hi AI,
Thank you for letting us know this. We changed the vendor of the material in this model that same as previous Part Number since 2/18. Thank you for your feedback, and we will change back to the original vendor, we hope the OLP Trip reading will get it back previous status. Thank you AI,

Best regards,
John

From: AI (BRAND OWNER)
Sent: Sunday, February 20, 2011 6:02 PM
To: JOHN (CRITICAL VENDOR A)
Subject: OLP Trip Voltage Shift – XXXX

Hi John,
Starting 2/18, there was a sudden shift in the OLP Trip voltage on the xxx program, PN xxx-xxx. Did anything change on that date? Looking forward to seeing you and Bob on Thursday at Supplier X.

Best Regards,
AI
Success Story: Electronics – Smart Boards

Challenge

- Difficult to measure lots of NPI CTQs and “make sense of the data”
- Difficult to analyze supplier data in a timely manner - prototype & ramp-up

Customer Feedback

- “Measuring everything” = more variables to analyze = “Visibility to trends and variation we never saw” = quicker issue detection and RC diagnosis.
- Collecting Full Product Supplier Data = “Trust But Verify”.
- “Without visibility to Supplier Yields and bone-pile scrap, AQL Sampling didn’t provide level of confidence we need that our Suppliers are in Control.”

Impact

- Quickly detected critical “Field of View” issue; RC in 2 days (vs 3 weeks).
- Yield Improved from 30% to 90% in 1 week.
$830K CM variance (bonepile scrap report)

all failures which don’t have a subsequent pass i.e. must be sitting in a bone pile somewhere. They essentially become dead inventory after a while.

I clicked on B2000 (first bar which represents the assembled phone) to see the aging. Note there are a lot of old parts dating back to 2009.
Solution Deployment

Data Feed from Supplier

Supply Chain Site A

Supply Chain Site B

Supply Chain Site C

Data Monitoring and Support Engine

Supply Chain SQE

Camstar China SQE

Camstar US SQE

Customer SQE

Data Feed Monitoring

Data Accuracy Verification

Data Trend Analysis

Supplier Adoption and Communication

Data Upload

Data Monitoring and Support Engine

Supply Chain Site A

Supply Chain Site B

Supply Chain Site C

Management View

Engineering View

Service View

• Data Feed Monitoring
• Data Accuracy Verification
• Data Trend Analysis
• Supplier Adoption and Communication

• Web based – no application to install
• Hosted Environment
• SAS 70 Type II Certified
• Data Encryption
• Data Backup and Disaster Recovery Support
• 24 x 7 Hosting IT Support

Request for Resolution
Recap

Real Time Data
End to End Visibility

Real Time Alerting
Sense and Respond

Granular Analytics
and Drill Down

Timeliness of Issue Detection

Verification of Supplier Compliance

Ineffective and Inefficient Data and Analytics
Thank You

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