



Expanding Possibilities

# Hewlett-Packard's Packaging Supplier Evaluation Process and Criteria

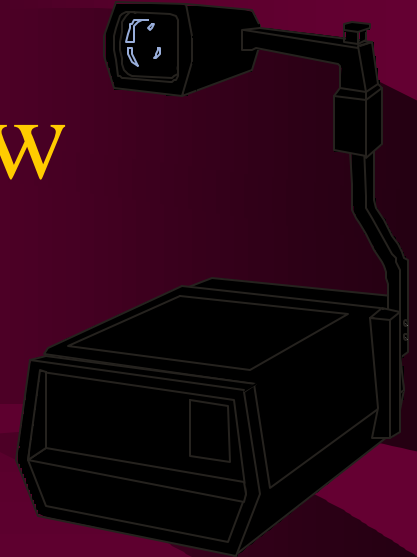
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Hewlett-Packard Company



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# Overview

- Philosophy & Purpose
- What is TQRDCEB
- Who We Look at
- Overview of Metrics
- Case Studies - Home Products Division
- Conclusion



# Philosophy & Purpose

- Philosophy

- Establish long-term mutually beneficial relationships

- Leverage expertise to meet or exceed HP's requirements
    - Work closely together to improve quality, productivity, and process improvements
    - Develop needed linkages to work on next generation technology

- Purpose

- TQRDCEB criteria

- Developed to provide a framework of evaluation
    - Provide consistent terminology and metrics



# What is TQRDCEB?

- The initials TQRDCEB stand for:
  - Technology
  - Quality
  - Responsiveness
  - Delivery
  - Cost
  - Environment
  - Business
- A set of performance expectations and measurements.
- Used in qualifying new suppliers, and managing the ongoing long-term business relationship with existing suppliers.





# Expectations & Measurements

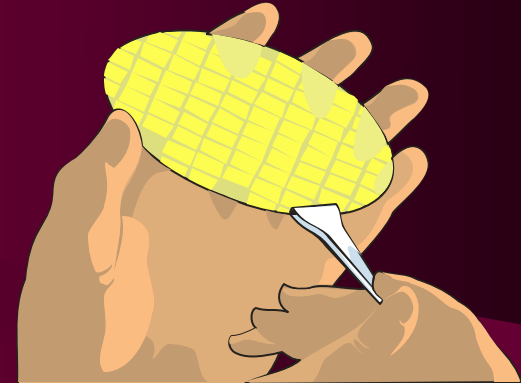
- Technology

- Musts

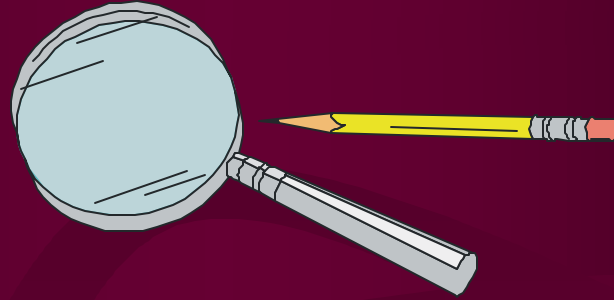
- Proactive Improvement (Utilizing Latest In Proven Technology)
    - Proactive Mutual Engineering (Design & Testing capabilities)
    - Documented Process Controls (Closed Loop Controls)

- Wants

- CAD/CAM Capability (System Compatible with HP systems)
    - EDX Capability for Design/Drawing Transfer (Experienced)



# Expectations & Measurements



- Quality

- Musts

- Discrepancy / Non-Conform Rate (<1000 PPM)
    - Documented Statistical Process and Quality Control Programs (active and effective)
    - Continuous Process Improvement Programs
    - Corrective action program to receive/implement upon customer inputs (Active and effective)

- Wants

- Documented Quality Program (i.e. ISO 9000)

# Expectations & Measurements

- Responsiveness

- Musts

- Effective Service and Support

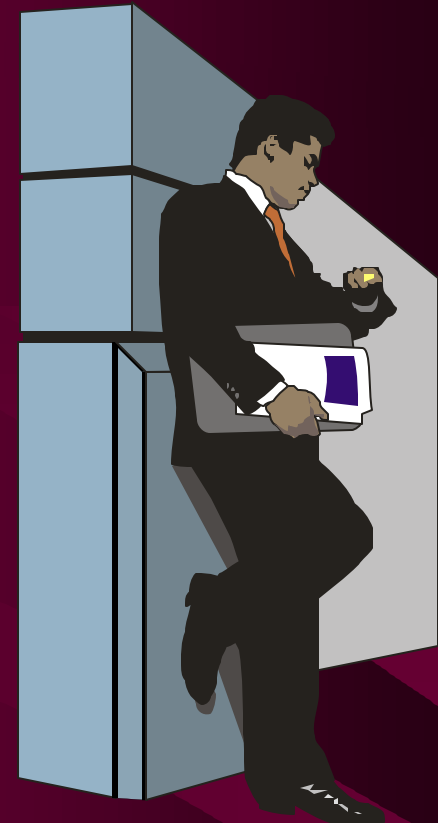
- 1) 24 hour acknowledgement of orders
- 2) < 3 day response to routine inquiries
- 3) 24 hour resolution of problem reports
- 4) Same day response to emergency inquiries

- Support of Sole Sourced Parts

- 1) Maintain adequate inventory levels
- 2) Provide timely notification of potential shortages
- 3) Has contingency plans in place for shortage or quality problems.

- Wants

- Single contact to handle all requests



# Expectations & Measurements

- Delivery

- Musts

- On-Time Delivery (=> 95 % on-time or 24 hr. delivery)
    - Packaging Conformance (Labeling, Documentation, Packing Slips, P.O.'s, Etc.)
    - World Class JIT Program (Make On Demand or Active JIT Program)
    - System / personnel in place to pre-alert customer that may affect order delivery or quantity
    - Disaster Contingency Plans



# Expectations & Measurements

- Cost
  - Musts
    - Price Competitiveness  
( $< 10\%$  below average)
  - Wants
    - Price Controls Evident
    - Available Model of Cost Drivers & Breakdowns
    - Continuously Assess Cost Reductions



# Expectations & Measurements

- Environment

- Musts

- Environmentally Responsible
    - No Ozone Depleting Substances
    - No Heavy Metal Usage
    - Environmental Management System

- Wants

- Proactive Reduction of Industrial Toxins
    - Environmental Awareness





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# Expectations & Measurements

- Business
  - Musts
    - HP as a Percent of Total Sales ( $\leq 40\%$ )
  - Wants
    - Dun & Bradstreet Risk Rating
    - Participates in Zero Based pricing
    - Year 2000 Compliant





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# Manufacturer and Suppliers We Look at

- Consultant
- Contract Packer
- Corrugated
- Distributor
- Equipment Supplier
- Foam Fabricator
- Foam Molder
- Foam Tool Maker
- Folding Carton
- Labels
- Molded Pulp
- Pallet
- Paper
- Polybag
- Preprint
- Printed Paper Board
- Print Plate
- Slip Sheets
- Thermoformer
- Testing
- Third Party Packaging Engineer
- Others





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# Our Expectations

- Knowledge of all HP specifications and requirements for project
- Pro-active attitude
  - Communications & Information
- Leader in field
  - Technology, Processes, Cost, & Environment
- Ownership of the problem/solution
  - Strong Customer Service Support
  - Flexibility to Change



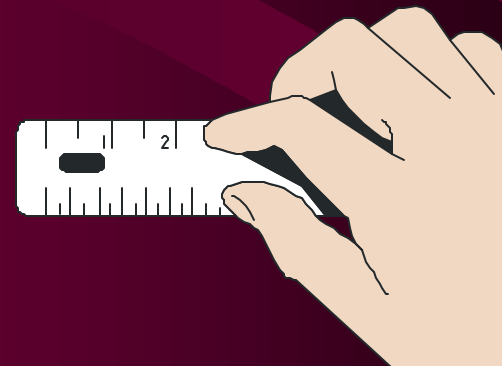
# Metrics Overview

- Time Frame
  - first = 9 months to a year
  - Follow-up as needed

- Weighted strength towards ranking:

• Technology	10%
• Quality	25%
• Responsiveness	15%
• Delivery	15%
• Cost	15%
• Environment	5%
• Business	15%

Total 100%



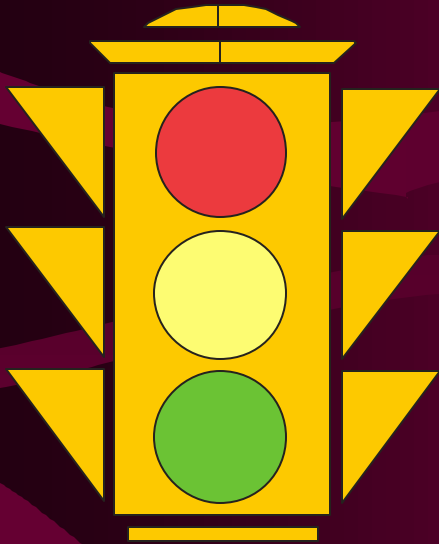
# Metrics (continued)

- Definition of performance:

**Fails -** Insufficient to fulfill the intended purpose or is inconsistent in performance. **Corrective Action Required**

**Meets-** Sufficient or adequate to fulfill the intended purpose or functions consistently.

**Exceeds -** Surpasses and is **pro-active** in the intended purpose or function.



# Metrics (continued)

- Scoring

- New suppliers

- A color system is used to indicate problem area
    - A total score is not determined but a subjective opinion is developed

- Current suppliers

- a point system is use to identify problem areas, measure improvement, and rewards pro-activity

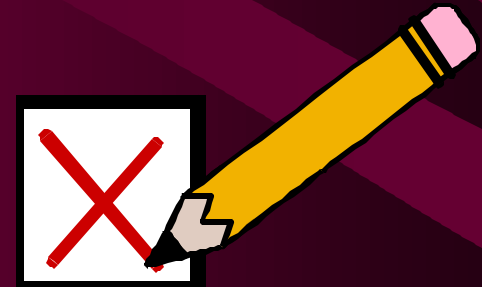
- System

Fails (red) = 0 points

Meets (yellow) = 1 point

Exceeds (green) = 2 points

- Partial points can be awarded





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## Case Studies

- Home Products Division
  - Cutting Edge Operation
  - Around for 4 years
  - Needed to survive in a volatile market



- Sales
  - Started in Low Millions
    - Now in Low Billions
  - 1st year ~ 50,000 units
    - Few months back 60,000 units in 4 hours

# TQRDCEB Firsts

- Suppliers fill out / grade their own performance (4-5 weeks prior to review)
- Do not share until day of review
- Actual review
  - Runs 3-5 hours



# Data Collection

- 3-4 weeks to Accumulate
  - Contract Manufacturers (CM)
  - Divisional Sources
  - On-Time Delivery, Quality, & Performance Data Collected
  - CM & HP Division co-host review of data



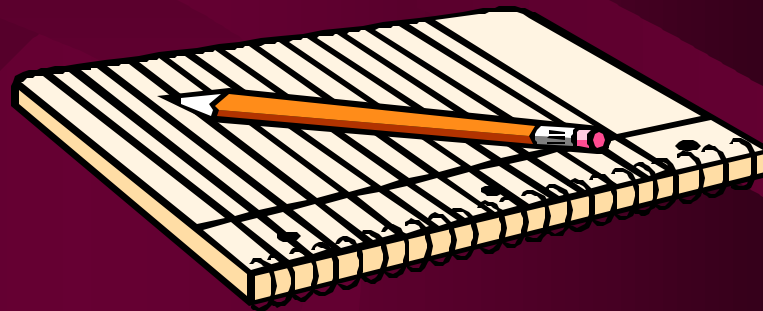


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# Pencil Review

(Informal)

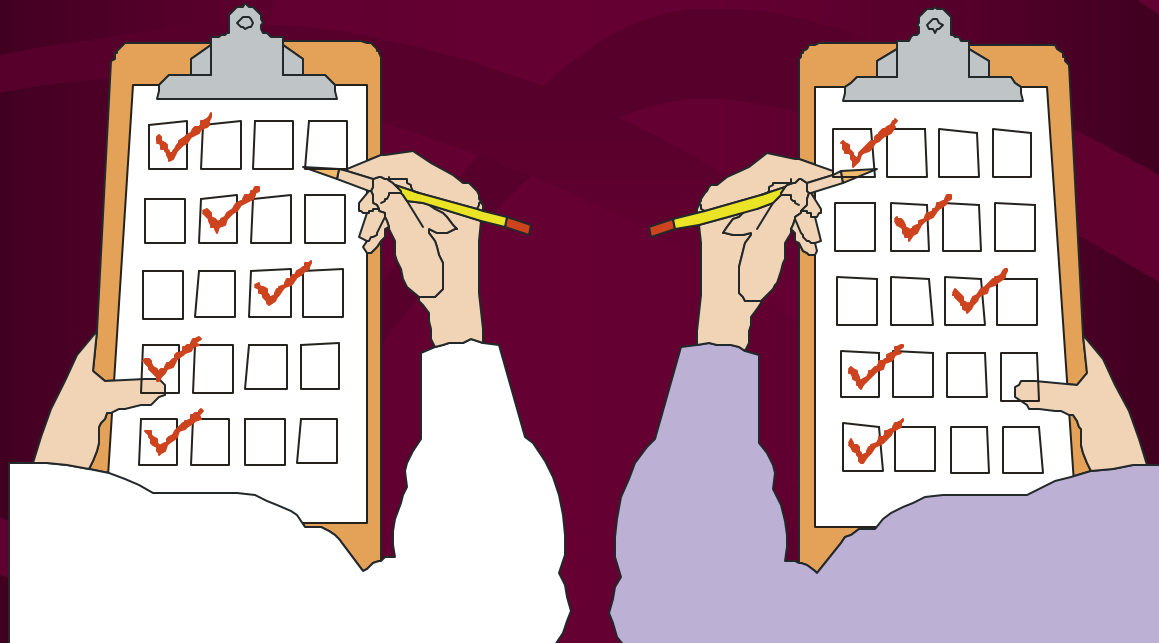
- Mini Review by Supplier / CM (Quarterly)
- Capture Any Problems
- Improve Feedback Loop





# “Key” Observations

- Virtually all suppliers were in agreement on overall review
  - Small % difference in range



# Team Focus

- Not a “Tops Down” approach
- “Exchange” of information
  - Opens dialogue that leads to issues unknown by other parties
- Sets the stage for future success!!



# Supplier Action Items

(for each category)

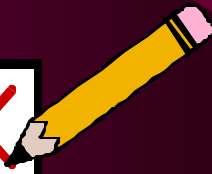
- Focus on Main Key Issues
- Make it Tangible and Manageable
- Performance Measurement for the Year



1 ☒

2 ☒

3 ☒



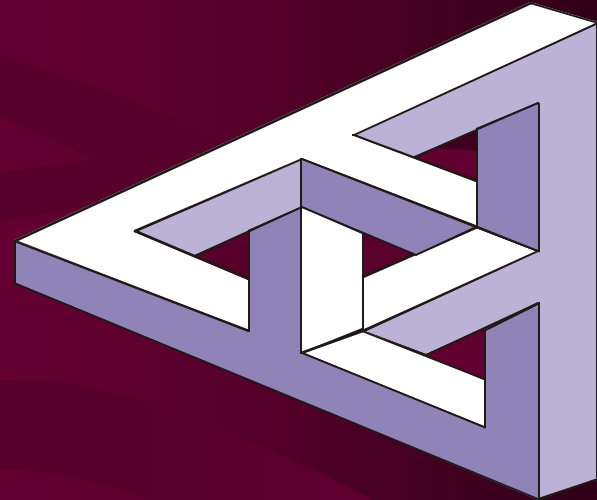


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# Weave Together

- Examples
  - Supplier Comparison
  - Supplier Improvement
  - Supplier Failure vs. Supplier Resurrection



## Technology / Cost Comparison

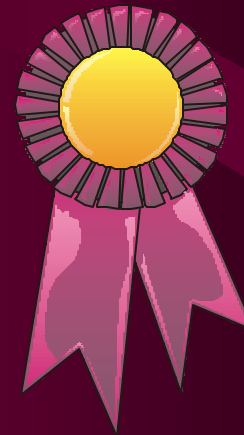
- Foam Supplier A
  - Needs improvement for Mfg efficiency for cost reduction
- Foam Supplier B
  - No Quality Issues, State-of-the-Art Equip., Lower Cost

### Supplier A

T ●  
Q ●  
R ●  
D ●  
C ●  
E ●  
B ●

### Supplier B

T ●  
Q ●  
R ●  
D ●  
C ●  
E ●  
B ●



# Corrugator Supplier C Improvement

- Action Items

- Hire new QA Mgr. - replacement
- Improve internal process controls
- Hire on-site representative at CM
- Provide quarterly reports

- Direct Results (within 4 weeks)

- Dramatic improvement in Quality
  - very low reject / non-compliance rate
- On-site inventory review
- Hired in factory representative

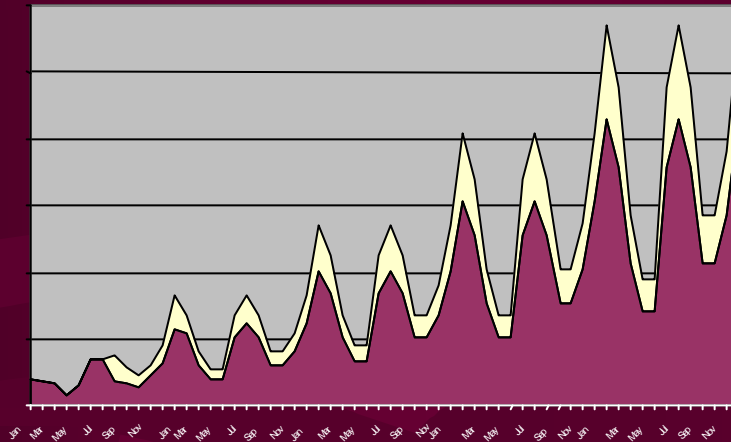
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E ●  
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# Supplier D Fatal Errors

- Did not read (believe) production plan



- Did not communicate tool capacity issue
- Agreed to safety stock - but didn't build
- Work force "off" for holiday
- Not responsive to urgent situation



## Impact of Mistake

- On HP
  - Quarter of a million \$ additional cost to be able to ship
  - \$10+ million in potential lost revenue
    - Loss of market share
    - Customer Dissatisfaction
    - CEO and CFO attention
- On Supplier
  - Sales representative fired
  - Loss of future contacts
  - Exposure of failure to rest of company

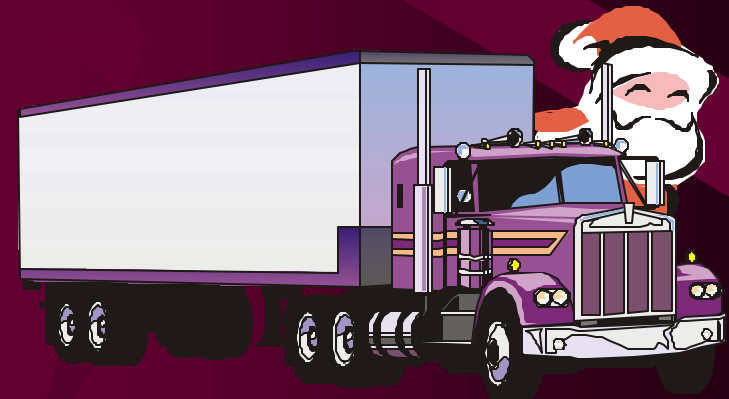




## Supplier E “The Resurrection”



- Took action - Proactive!!!
- Team effort with HP, CM, to solve problem
- Created “miracle” scenario
- Temporary solution design “to go”
- Saved production - no down time



# Key Breakthroughs

- Share some “intimate” best practices from supplier to supplier
  - Quality forms, Process equip., JIT, etc.
- Bring “competing” suppliers together
- Share drawings and data



# Key Point

- Pro-Activity!!!!
  - For all suppliers (contact if Good or Bad news)
  - Communication with CM & HP on-going basis
  - New ideas
    - Cost saving
    - New technology
    - Tooling



# Conclusion

- There are other methods for measuring supplier performance.
- The TQRDCEB framework offers the best combination.
  - Long-term, mutually beneficial relationship.
  - Leverages expertise
  - Develops linkages
- Suppliers have been able to identify problem areas or opportunities that they were not aware of



# Conclusion (continued)

- Expectation of this paper
  - Other companies or suppliers can leverage from this framework
  - In today's global business environment
    - Competitors are also your suppliers or CM
    - We should strive for:
      - Common criteria
      - Consistent terminology
      - Similar Metrics

