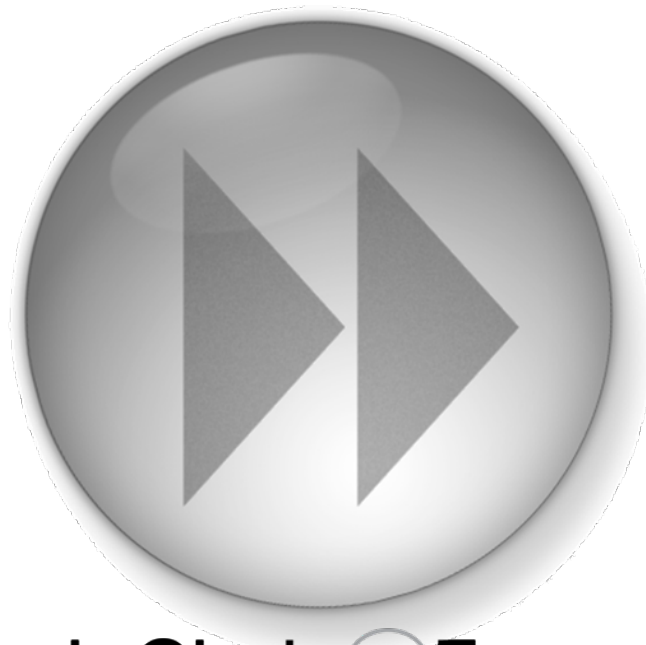




material handling  **logistics conference**
SPONSORED BY HK SYSTEMS

Developing A Green Supply Chain- Thinking Outside The Hive

Track 3 Session 1



Supply Chain  **Forward.**

Drew Schramm

**Sr. VP, Global Supply & Logistics
Herman Miller, Inc**

Drew_schramm@hermanmiller.com

616.654.3453

Abstract

- ▶ **In this practical case study, we will hear how Herman Miller, Inc., office furniture leader, set aggressive sustainability goals and how they are working to successfully achieve them. In an uncommon show of continuity, Herman Miller takes a comprehensive approach to sustainability through both product design and supply chain behavior. Find out why supplier partnerships and supply processes are critical to green initiatives. This timely discussion will show you how the Herman Miller team turned a sticky situation into a win/win for both the environment and the bottom line.**

Flow of our Discussion

Our View

**DfE
Protocol**

**Supply Chain
Integration**

Results

**Current
Materials
Projects**

Questions

The Hive Story!



Herman Miller's Story

- ▶ **Began in 1923 as a manufacturer of traditional residential furniture**
- ▶ **Became a leader in modern furniture in the 1930s and 1940s**
- ▶ **Developed lasting ties through the 1950s with legendary industrial designers who led us in new directions-including office furniture**
- ▶ **Transformed the office furniture industry with the first panel system in the 1960s**

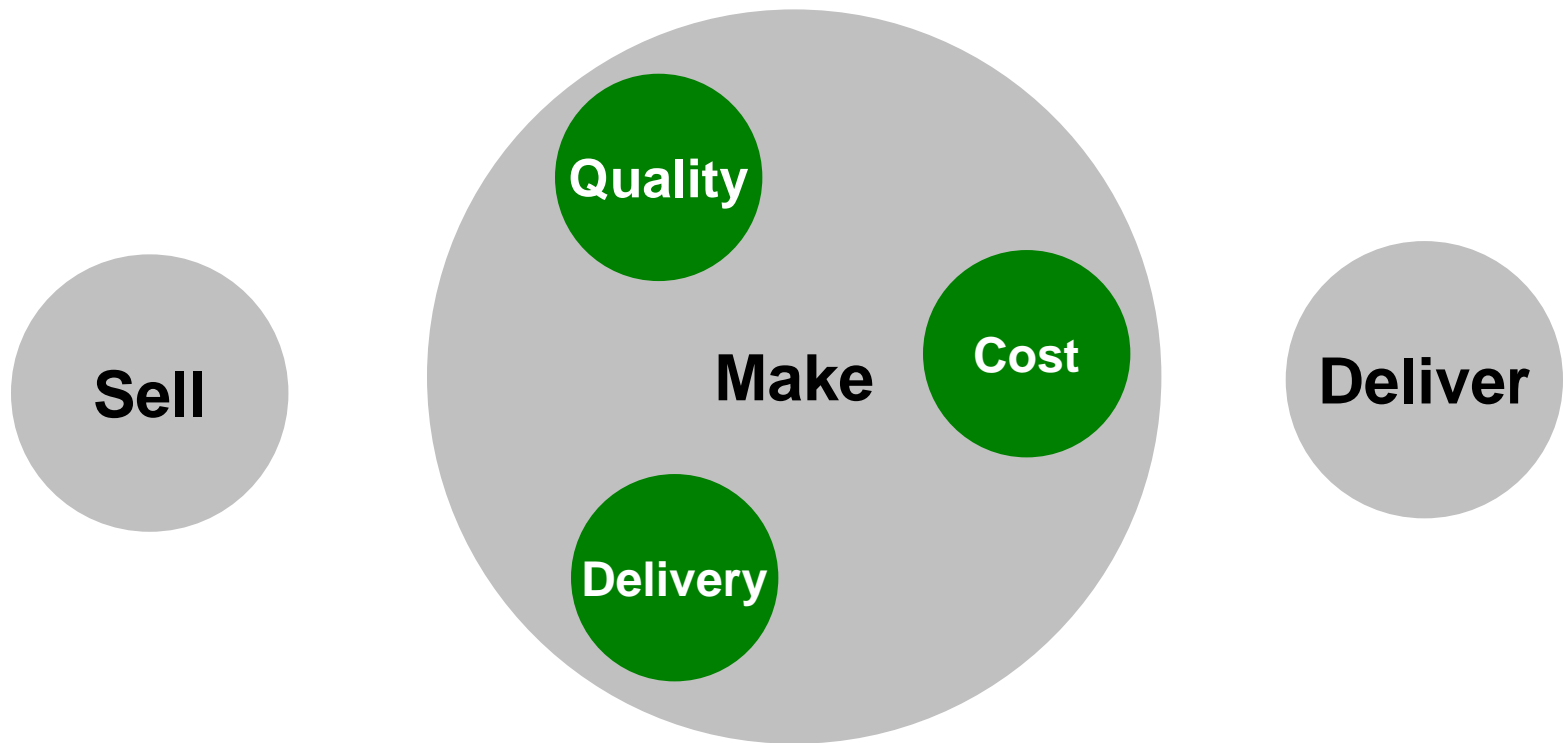


Herman Miller's Story

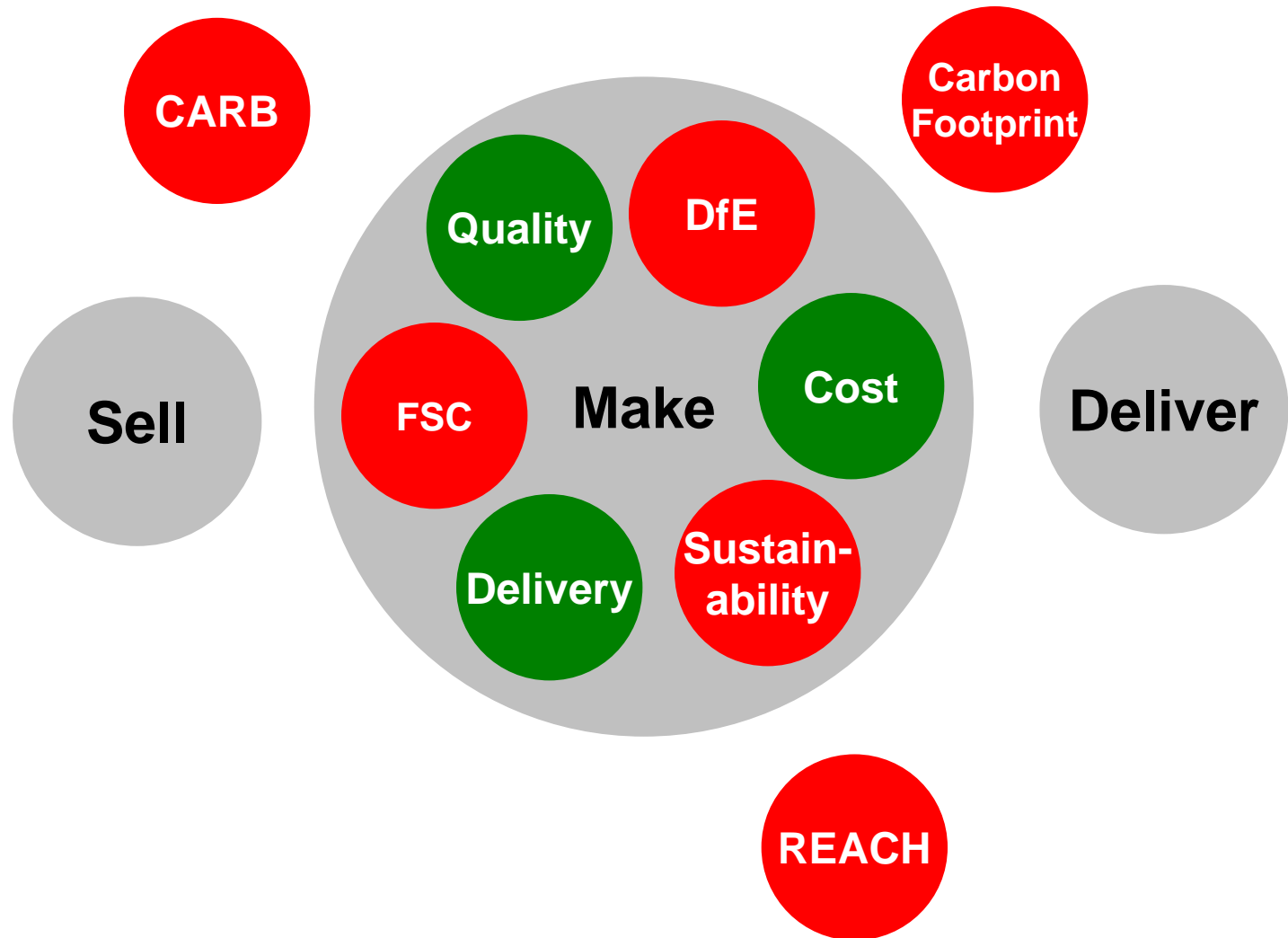
- ▶ **Invented and refined ergonomic work seating in the 1970s, 1980s, and 1990s**
- ▶ **Reinvented the geometry of systems furniture in 2000**
- ▶ **Sales of \$1.6 billion during 2008/09**



Life Used to Be Easy!



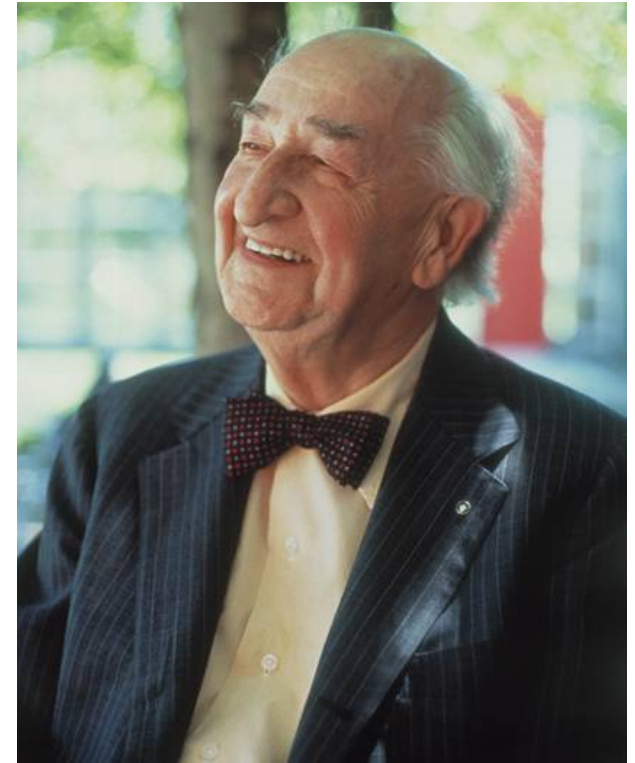
Now it's More Complicated!



Environmental Legacy

“Herman Miller shall be a good corporate steward of the environment.”

- DJ DePree, 1953



Commitment From the Top

“We contribute to a better world by pursuing sustainability and environmental wisdom. Environmental advocacy is part of our heritage and a responsibility we gladly bear for future generations.”



- Brian Walker, President & CEO

A Recognized and Respected Business

- ▶ '100 Best Corporate Citizens'
- ▶ National Design Awards
- ▶ 'Most Admired' company
- ▶ USGBC 2004 Leadership Award
- ▶ Dow Jones Sustainability Index
- ▶ Publicly owned, employee shareholders

America's **Most Admired** Companies EXCERPT

Here's how we did the calculations. For the industry list, the Hay Group started with the ten largest companies by revenue in 64 industries, including foreign firms with large U.S. operations. (In some cases it included 11 companies). Then it asked 10,000 executives, directors, and securities analysts to rate the companies in their own industries on eight criteria (see table), using a scale of one to ten.

By contrast, for the top ten list, respondents selected the ten companies they admire most in any industry. They chose from a list of corporations that ranked in the top 25% overall last year, plus any that finished in the top 20% of their category. Because insiders may grade differently from the business world as a whole, high scorers on the industry lists don't always make the overall top ten. — Ann Harrington

Eight key attributes of reputation

To arrive at each company's score on the industry rankings, we averaged the scores of these eight criteria.

- Social responsibility
- Long-term investment value
- Employee talent
- Quality of products/services
- Innovation
- Use of corporate assets
- Financial soundness
- Quality of management

Innovation: TOP TEN

Rank	Company	Industry Rank
1	Washington Mutual	1
2	Starbucks	1
3	Procter & Gamble	1
4	Herman Miller	1
5	United Parcel Service	1
6	Nike	1
7	Fortune Brands	1
8	Newell Rubbermaid	2
9	FedEx	2
9	Pactiv	1

Furniture

2003/2002		SCORE
1	2 Herman Miller	7.87
2	1 Hon Industries	7.35
3	3 Leggett & Platt	7.07
4	4 Steelcase	6.60
5	5 La-Z-Boy	6.23
6	8 Sealy	6.16
7	7 Kimball International	6.13
8	6 Furniture Brands Intl.	5.85

Produced exclusively by FORTUNE Custom Reprints. FORTUNE is a registered trademark of FORTUNE magazine, a division of Time Inc. All rights reserved. For information on ordering Custom Reprints (1,000 minimum), please call 212 522 5342. Visit our website at www.fortune.com

Dollars and the Environment

- ▶ **Customers are increasingly aware of environmental impacts of building products**
- ▶ **Superior environmental performance can sway purchasing decisions**
- ▶ **Total cost becoming more important than first cost**
- ▶ **Green buildings may contribute to productivity and also higher resale/leasing value**



Perfect Vision - by 2020

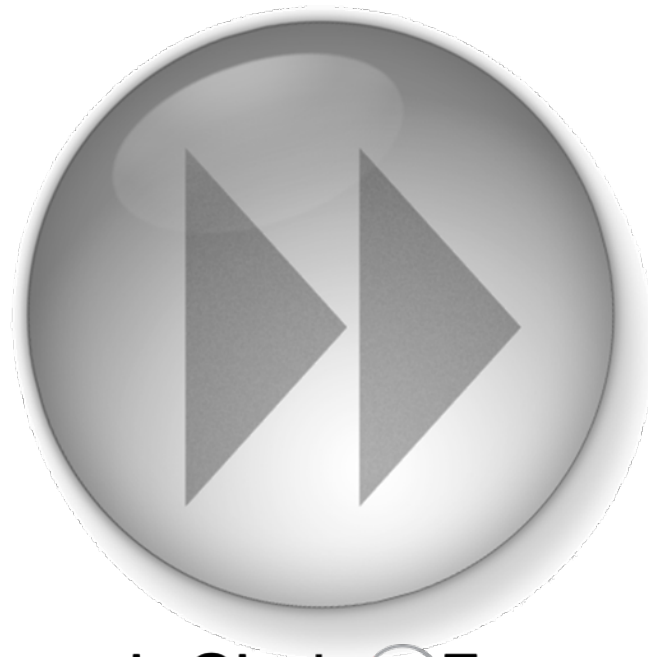
- ▶ **Zero landfill**
- ▶ **Zero hazardous waste generation**
- ▶ **Zero air and water emissions from manufacturing**
- ▶ **100 percent green energy**
- ▶ **All buildings constructed to a minimum LEED Silver certification**
- ▶ **Generate 100% of all sales from products that meet the DfE protocol**

Definition of Sustainability

Sustainability is more than recycled content.

“Sustainable development meets the needs of the present without compromising the ability of future generations to meet their own needs.”

- 1987 Brundtland Report



Supply Chain  **Forward.**

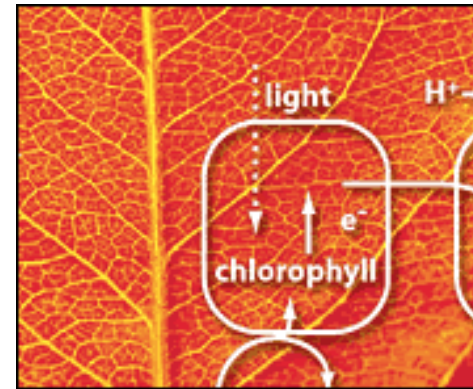
Design for the Environment Product Assessment Protocol

McDonough Braungart Design Chemistry

Cradle-to-Cradle Design Protocol

► **Products and Services:**

- ◆ **Product Research and Development**
- ◆ **Cradle-to-Cradle Design Education**
- ◆ **Leadership Visioning**
- ◆ **Design Tools**
- ◆ **Product Co-Marketing**



 **MBDC**

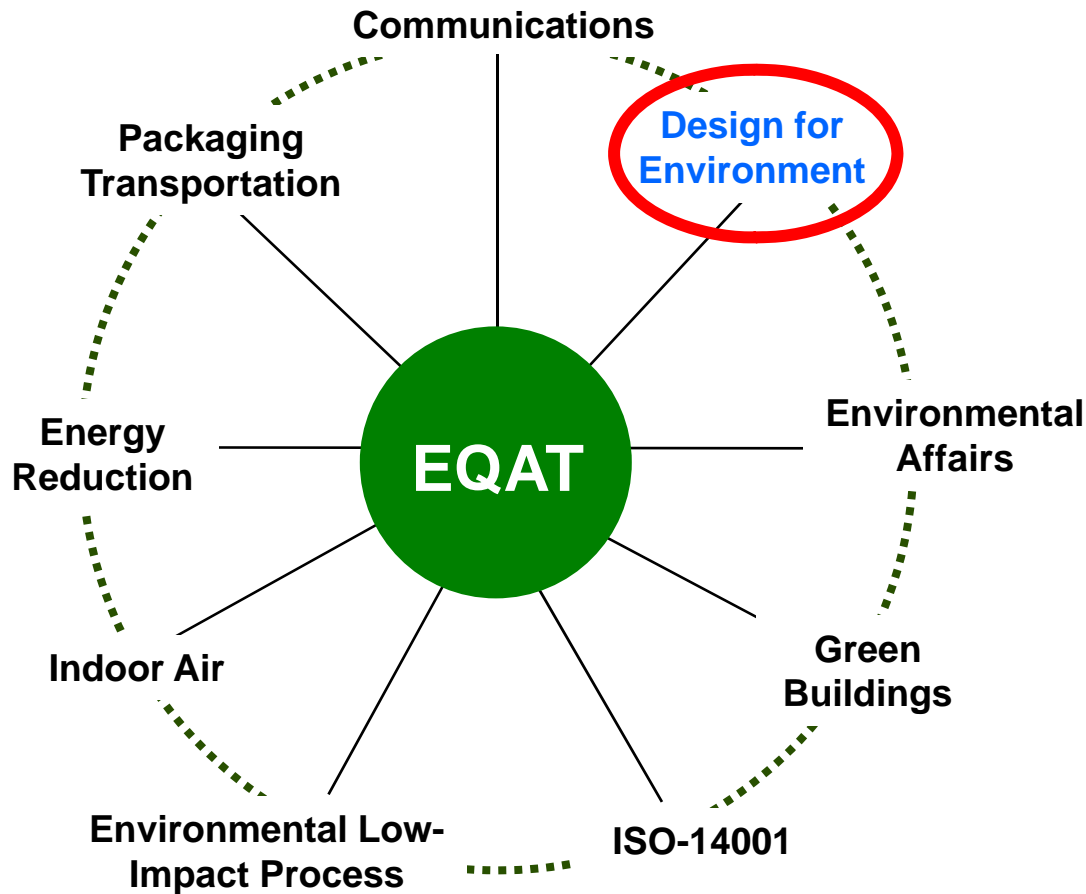
Design for the Environment (DfE)

- ▶ **Comprehensive approach to sustainable product design.**
- ▶ **Requirement for all new HMI products.**
- ▶ **Cross functional steering team.**
- ▶ **Product teams active in the process.**



EQAT-Environmental Quality Action Team

A Comprehensive Approach



Supply Chain Integration Process

- ▶ **Supply Management Goals**
- ▶ Map the **value chain**
- ▶ Develop relationships
- ▶ **Communicate** goals and expectations
- ▶ **Negotiate** boundaries
- ▶ Build **trust** & share information openly
- ▶ Product assessment **process**
- ▶ The need to start in **early** phases of design

Performance Plans

Workspace Performance Planning - Plans... X Performance Plan: Buckley,... X

Open for Reading Close Save Printable Version Create Utilities

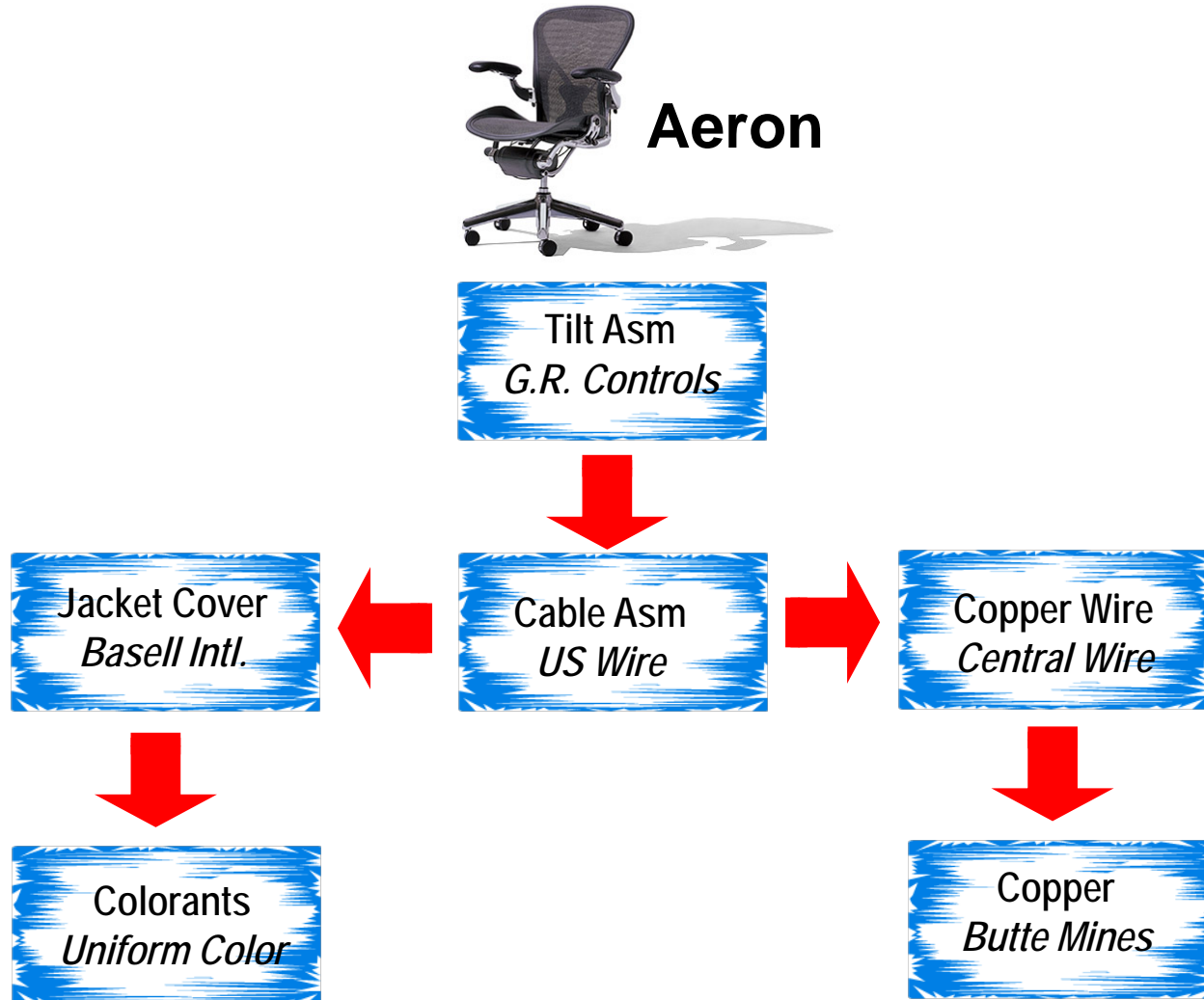
Weighting Summary

Expected Results Total: 100% Skill and Behaviors Total: 100%

Expected Result 4	<input type="checkbox"/> Diversity--to support doubling the business, achieve 13% spend with minority suppliers by June 1, 2008	
Milestones	<input type="checkbox"/>	
		Weight <input type="checkbox"/> 20% <input type="button" value="v"/>
Employee Comments	Work Team Leader Comments	

Expected Result 5	<input type="checkbox"/> DfE--to support the goal of achieving 50% of sales from products meeting the DfE protocol, manage programs to achieve the following: Eliminate PVC from Etho and Vivo wiring harnesses (Electrical) Eliminate PVC from Aeron Tilt Cover, Aeron Hip Pivot, Aeron Hip Pivot Insert (Plastics) Eliminate PVC from Lateral Files PVC bearing retainer, Filing & Stg Hudson Lock leaded brass, and Ethospace Nuvar PVC on cable mgt tile (Misc.) Source formaldehyde free particle board Source antimony-free PET for textiles <input type="checkbox"/> Prepare supplier for LEED and Bifma programs <input type="checkbox"/>	
Milestones	<input type="checkbox"/>	
		Weight <input type="checkbox"/> 15% <input type="button" value="v"/>
Employee Comments	Work Team Leader Comments	


Map the Value Chain




Develop Relationships



Communicate Goals & Expectations

					
SQP			Supplier Name		
Supplier Qualification Process			Jun-03	Dec-03	Jun-04
TOTAL SQP SCORE			0.00	0.00	0.00
Quality			0.00	0.00	0.00
Delivery and Replenishment			0.00	0.00	0.00
Total Cost			0.00	0.00	0.00
Technology Enabled			0.00	0.00	0.00
Service and Support			0.00	0.00	0.00
Sustainability / Social Responsibility			0.00	0.00	0.00
Applied Continuous Improvement			0.00	0.00	0.00
TOTAL SQP SCORE			0.00	0.00	0.00
Adjustment for Quality, Delivery, and Cost Sharing¹			1	1	1
LEVEL RANKING ¹			4	4	4
SUPPLIER DEVELOPMENT PRIORITY					
¹ Level 1 = 28 points plus the following score levels: Quality PPM scoring of >=8, Delivery PPM scoring of >=8, sharing and understanding of cost build-up >=2, and >=3 on Competitive Pricing. Level 2 = >20. Level 3 = >12 Level 4 = < or =12.					

Communicate Goals & Expectations

							
SQP						Supplier Name	
Sustainability / Diversity							
1	Design for the Environment Compliance (25%)					Score:	
	Supplier is participating and supporting the DfE project. Supplier is actively working with or facilitating contact with tier II & III suppliers in an effort to report material chemical & recyclability information.				5		
	Supplier meets the minimum standards for participating in the DfE project with DfE team support.				3		
	Supplier is willing to supply limited material chemical information and recyclability information.				1		
	Supplier does not support or participate in the DfE project.				0		
2	Sustainable Resources and Compliance (25%)					Score:	
	Formal environmental program in place, exceeds all government compliance expectations, aggressively investigates alternate materials.				5		
	Meets government compliance expectations, considers environmental resource planning important but have implemented limited supporting initiative.				3		
	Meets government compliance expectations, recognizes important of environmental efforts and developing formal program for implementation.				1		
	No focused recognition or environmental efforts.				0		

Negotiate Boundaries, Build Trust, Share Information Openly



Product Assessment Process



Chemistry



Disassembly



Recyclability

Product Assessment – Material Chemistry

▶ Supplier Information

▶ Datasheets

▶ MSDS

▶ Chemical composition

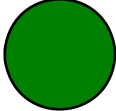
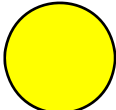
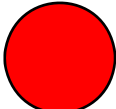
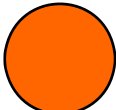
◆ Component	CAS#	Function	Percentage
◆ Nylon	23038-54-4	Base Resin	96%
◆ Calcium Stearate	82-16-22	Lubricant	1%
◆ Carbon Black	111-11-11	Pigment	1%
◆ Titanium Dioxide	112-11-1	Pigment	2%

▶ Recycled Content (PIR & PCR)/Renewable Content

▶ Recyclability



Material Assessment – Stop Light Approach

- ▶ **Green** 
 - ◆ Little or no hazard. This chemical is acceptable for use under the Cradle to Cradle Design Protocol.
- ▶ **Yellow** 
 - ◆ Low to moderate hazard. This chemical is acceptable for use until a green alternative is found.
- ▶ **Red** 
 - ◆ High hazard. This chemical should be phased out as soon as possible.
- ▶ **Orange** 
 - ◆ Incomplete HH or ER data. There is no indication that this is a problematic chemical (i.e., Red) but a complete assessment is not possible due to lack of information.



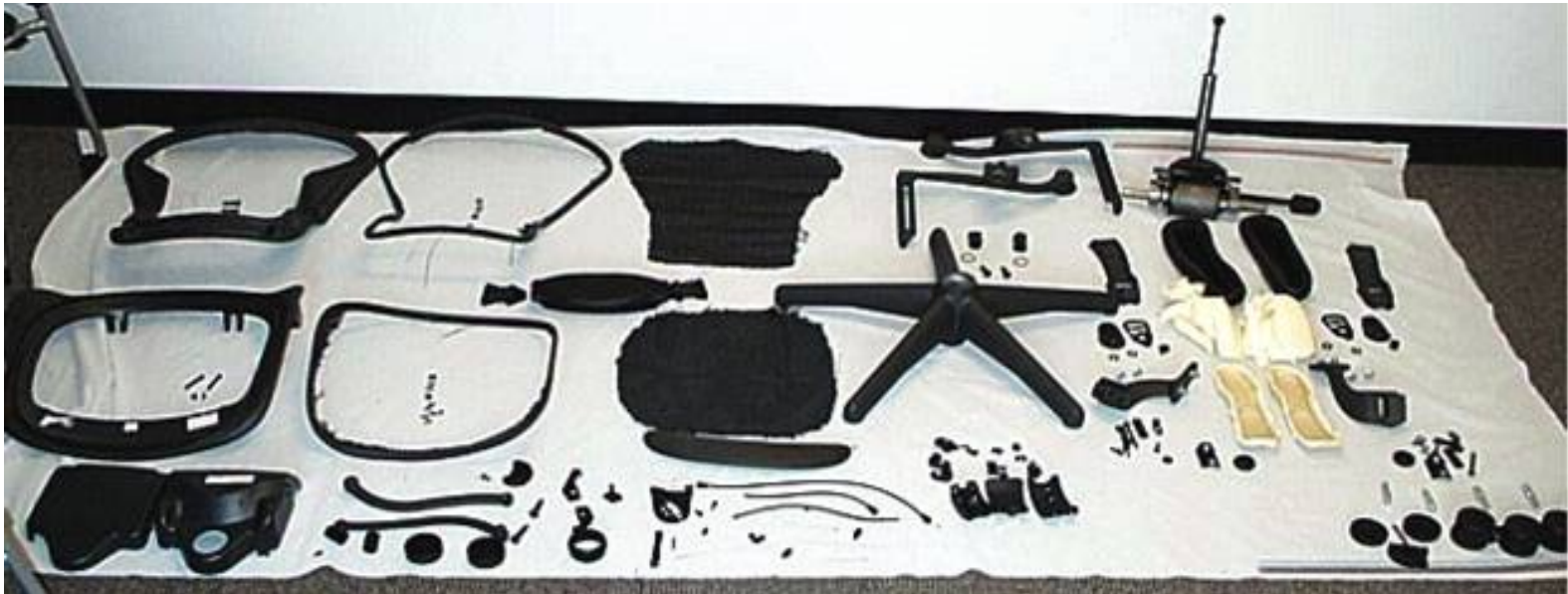
Product Assessment – Material Chemistry

▶ Confidentiality

- ◆ Information used to develop sustainable materials
- ◆ Chemical engineers controls all proprietary information
- ◆ Secure data file
- ◆ MBDC is involved in the HMI relationship
- ◆ Non-disclosure agreements



Product Assessment – Disassembly



Product Assessment – Disassembly

- ▶ **For each component ask:**
 - ◆ **Homogeneous Material? Yes / No**
 - ◆ **Common Tools Used? Yes / No**
 - ◆ **One person less than 30 seconds? Yes / No**
 - ◆ **Material Identifiable / Marked? Yes / No**
- ▶ **All answers must be YES!**
- ▶ **“Can we take apart our products?”**



Product Assessment – Recycling

- ▶ **Herman Miller Recyclability Hierarchy**
 - ◆ **Material is a technical or biological nutrient and a commercial infrastructure exists.**
 - ◆ **Material can be down-cycled and a commercial infrastructure exists.**
 - ◆ **Material can be incinerated for energy recovery.**
 - ◆ **Material is normally land filled.**
- ▶ **“Are the materials recyclable?”**



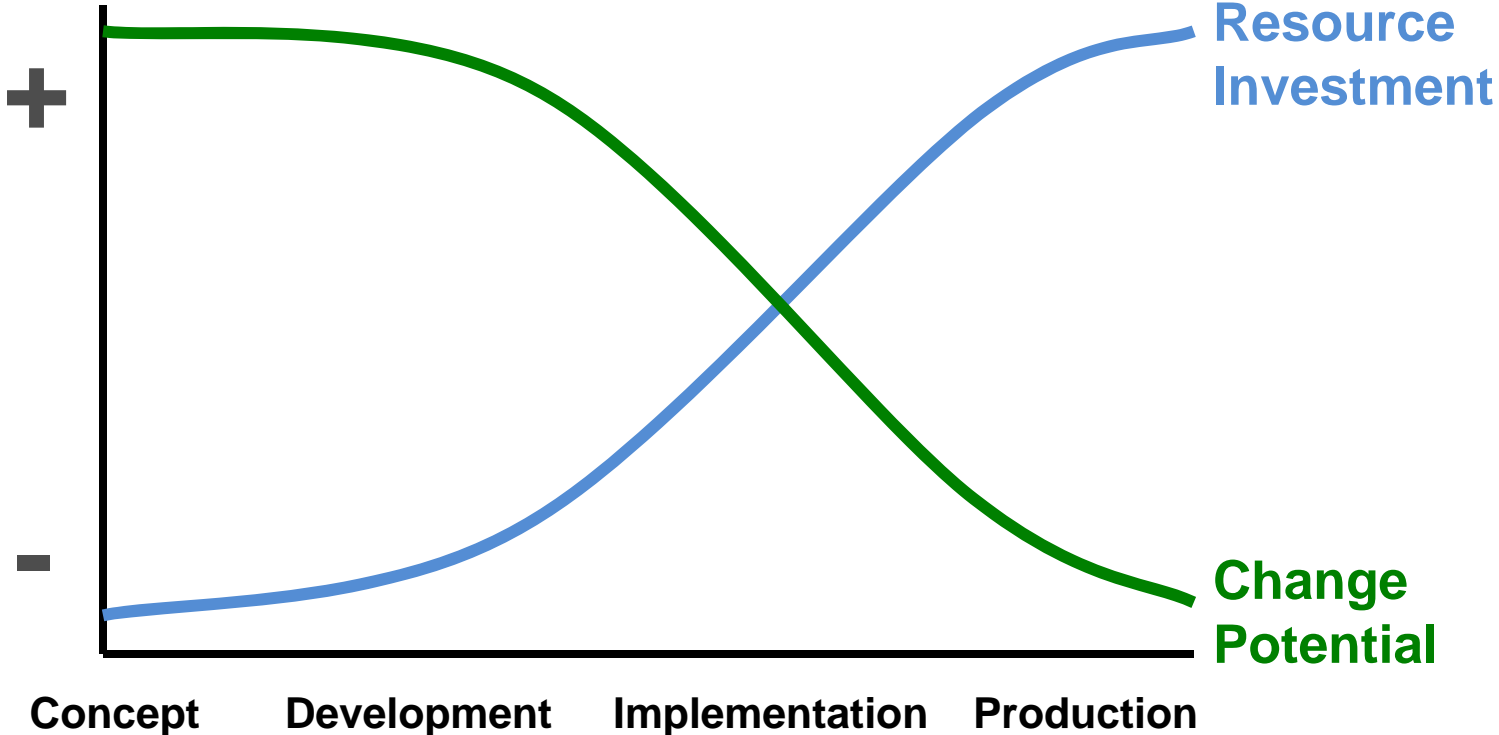
Current Material Projects

- ▶ **PVC alternatives**
- ▶ **Formaldehyde-free particle board binders**
- ▶ **Fiberglass alternatives**
- ▶ **Textile fiber and dyestuff optimization**
- ▶ **Safer metal finishes**
- ▶ **Bio-based materials**
- ▶ **Packaging materials**

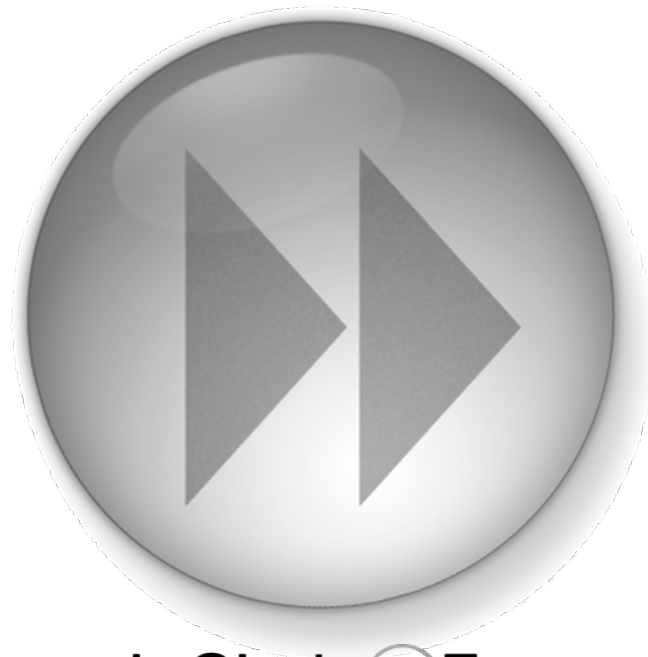
Targets for Success

- ▶ **Keys to Maximize DfE Score**
 - ◆ **No PVC**
 - ◆ **Avoid 'RED' materials**
 - ◆ **Design for disassembly**
 - ◆ **Label all molded and cast parts**
 - ◆ **Utilize recyclable materials**
 - ◆ **Maximize recycled content**
- ▶ **Minimum Requirement to be DfE Approved**
 - ◆ **50% DfE Score (70% for Seating)**
 - ◆ **All materials assessed**
 - ◆ **No priority 'RED' materials**

Window of Opportunity



Product Development Phases



Supply Chain  **Forward.**

Sustainable Product Results

Design for Environment and Mirra™

- ▶ **1st Herman Miller Product Designed with Cradle to Cradle Design Protocol**
- ▶ **PVC-free**
- ▶ **All 200 chemicals fully assessed**



Material Chemistry and Mirra

- ▶ **High Recycled Content - 42%**
- ▶ **Design for Disassembly - 96% Recyclable**



DfE Design Impacts

- ▶ **Original Y-Spine Design**
 - ◆ **Over-mold Construction**
 - ◆ **Non-Recyclable**
 - ◆ **\$\$ (expensive part)**
- ▶ **DfE Design**
 - ◆ **Mono-material Construction**
 - ◆ **Recyclable**
 - ◆ **\$ (Less expensive than original design)**
 - ◆ **Created intellectual property**



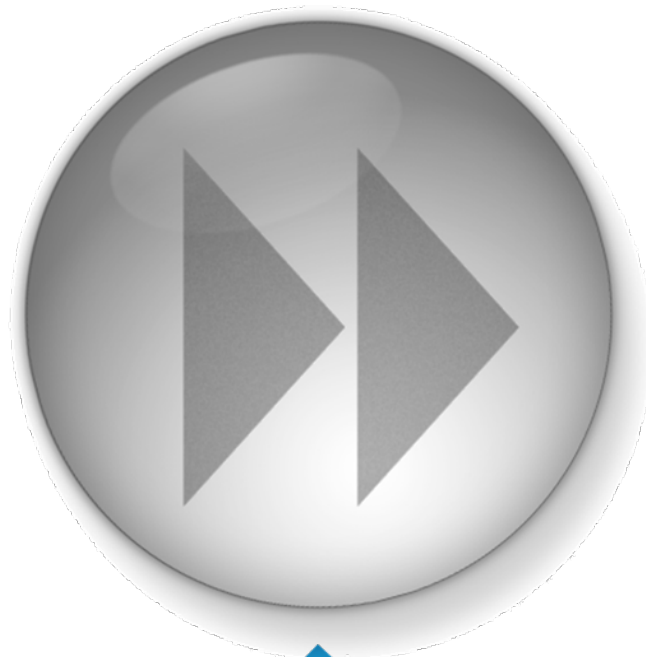
Current Logistics Projects

- ▶ **Focused on reducing our carbon footprint**
- ▶ **Developing new packaging to ship products knocked down to more can be on a truck**
- ▶ **Eliminating packaging w/blankets**
- ▶ **SmartWay Transport Partnership**
 - ◆ **EPA certification program to reduce fuel consumption and pollution**
 - ◆ **First in our industry!**
 - ◆ **Score of 1.25 – highest rating possible**

Key Takeaways

- ▶ **Environmental leadership requires commitment**
- ▶ **Sustainable product design is possible**
- ▶ **Supplier partnerships are critical**
- ▶ **“Green” does not always cost more**
- ▶ **Need to build sustainability into the supply processes**

“Environmental advocacy is part of our heritage and responsibility that we gladly bear for future generations.”



material handling  **logistics conference**
SPONSORED BY HK SYSTEMS

Questions?