Driving Supply Chain Sustainability & the Circular Economy

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Dell’s Supply Chain

Dell’s Supply chain

Dell internal

Supplier

Customers order
Taken by internet or phone

Manufacturing

Storing
Internal storing in the manufacturing plant

Merging
Merging centres combine all finished product to order

Customer

Supply on demand every two hours
Typical Supply Chain

Source: http://www.scpiteam.com/
Current Supply Chain Trends

SOME KEY FINDINGS

1. Eliminating supply chain risks is the main driver: Over 32% of executives polled said they are still incentivised by eliminating supply chain risks.

2. Industry collaboration is the biggest opportunity in 2015 / 2016: Just over 24% of respondents stated that industry collaboration is the single most exciting opportunity in relation to supply chains sustainability. The second most exciting is creating a circular economy and third is customer / consumer awareness, at 16% and 11% respectively.

3. Traceability and environmental concerns are the biggest issues to watch out for in 2015 / 2016: Nearly 30% of the community stated that traceability and environmental improvements will be key issues in the coming years.

Source: Sustainable Supply Chain Trends 2015
Current Supply Chain Trends: *Drivers*

We then asked our respondents what they were incentivised / driven by. Their answers were as follows:

- Cost reduction: 13%
- Eliminating supply chain risks: 32%
- Finding supply chain opportunities: 18%
- Reputational concerns: 23%
- Other: *15%*

Source: Sustainable Supply Chain Trends 2015
Current Supply Chain Trends: Issues

For our respondents the biggest issue in 2015/2016, in relation to their supply chain, was as follows:

- Community engagement: 14
- Consumer/customer engagement: 26
- Eliminating dependency on unsustainable raw materials: 39
- Engaging supply chain colleagues: 38
- Environmental concerns: 53
- Factory engagement: 10
- Human Rights: 44
- Measurement: 16
- Other: 26
- Resource efficiency: 27
- Supplier diversity: 10
- Traceability: 56

Top 3 issues in 2015/2016:
1. Traceability
2. Environmental concerns
3. Human Rights

Source: Sustainable Supply Chain Trends 2015
Supply Chain *Issues* by Region

Biggest supply chain issue by region:

- **North America**: 20% - Eliminating dependency on unsustainable raw materials
- **Europe**: 21% - Traceability
- **Asia Pacific**: 21% - Environmental concerns

Source: Sustainable Supply Chain Trends 2015
Current Supply Chain Trends: **Opportunities**

The single most exciting opportunity in 2015 / 2016 in relation to supply chains:

- Circular economy: 16%
- Consumer / customer awareness: 11%
- Eliminating dependency on unsustainable raw materials: 9%
- Industry collaboration: 24%
- Measurement: 7%
- Other: 2%
- R&D innovation: 7%
- Resource efficiency: 10%
- Supplier diversity: 4%
- Supply diversification: 2%
- Sustainable agriculture: 8%

24% of respondents believe industry collaboration is the single most exciting opportunity in 2015/2016.

Source: Sustainable Supply Chain Trends 2015
Supply Chain *Opportunities* by Region

Most exciting supply chain opportunity by region:

- **North America**
  - 1. Industry collaboration: 24%
  - 2. Circular economy: 18%
  - 3. Consumer/customer awareness: 16%

- **Europe**
  - 1. Industry collaboration: 25%
  - 2. Circular economy: 21%
  - 3. Resource efficiency: 10%

- **Asia Pacific**
  - 1. Industry collaboration: 28%
  - 2. Consumer/customer awareness: 12%
  - 2. Resource efficiency: 12%

Source: Sustainable Supply Chain Trends 2015
Issues & Opportunities by Company Type

### Biggest supply chain issue by company type:
- **B2B**
  - Traceability: 19%
  - Human Rights: 17%
  - Eliminating dependency on unsustainable raw materials: 15%

- **B2B B2C**
  - Environmental concerns: 16%
  - Traceability: 13%
  - Resource efficiency: 10%

- **B2C**
  - Traceability: 22%
  - Consumer / customer engagement: 18%
  - Engaging supply chain colleagues: 15%

### Most exciting supply chain opportunity by company type:
- **B2B**
  - Industry collaboration: 29%
  - Circular economy: 16%
  - Resource efficiency: 9%

- **B2B B2C**
  - Industry collaboration: 19%
  - Circular economy: 17%
  - Resource efficiency: 12%

- **B2C**
  - Consumer / customer awareness: 23%
  - Industry collaboration: 20%
  - Circular economy: 14%

Source: Sustainable Supply Chain Trends 2015
In Summary: Current Supply Chain Trends

Supply Chain **Drivers**

1. Eliminating supply chain risks: 32%
2. Reputational concerns: 23%

Supply Chain **Issues**

1. Environmental concerns: 53%
2. Traceability: 56%

Supply Chain **Opportunities**

1. Industry collaboration: 24%
2. Circular economy: 16%
3. Consumer / customer awareness: 11%
4. Resource efficiency: 10%

Source: Sustainable Supply Chain Trends 2015
Supply Chain Environmental Concerns

**Inputs**
- Transportation
- Packaging
- Energy
- Water

**Outputs**
- Resource extraction
- Suppliers
- Food manufacturing
- Consumer
- Future Generations

**Impact**
- Waste water
- Air emissions
- All other wastes
Supply Chain Risk & Environmental Concerns

✓ Christmas 2001

✓ Dutch government blocking Sony’s entire European shipment
  ✓ 1.3 million boxes sitting in warehouses
  ✓ Cadmium found in game controls (small, but legally unacceptable). Quickly replaced.

✓ 18 month investigation: inspected >6,000 factories

✓ Results:
  • Cost $130 million
  • Created a new supplier management system
  • Environmental issues can cost businesses real money
  • Brand may be tarnished
Supply Chain Impacts

“Environmental, social and economic impacts occur during every stage of supply chains. In addition, governance, which is how an organization demonstrates accountability for its stakeholders, is important at every stage”

UN Global Compact, “A Practical Guide for Continuous Improvement for Small and Medium Enterprises”
Supply Chain “Sustainability”

• The United Nations Global Compact defines supply chain sustainability as “the management of environmental, social and economic impacts (sustainability), and the encouragement of good governance practices (accountability), throughout the lifecycles of goods and services (supply chain)”

• “The objective of supply chain sustainability is to create, protect and grow long-term environmental, social and economic value for all stakeholders involved in bringing products and services to market.”

Supply Chain Value

LINEAR ECONOMY

RESOURCES EXTRACTION → PRODUCTION → DISTRIBUTION → CONSUMPTION → WASTE

Take... Make... Use... Dispose.

- $25 Trillion: Projected loss of growth by 2050 using a linear economy model
- 32%: CEOs think the global economy is on track to accommodate a growing population
- 33%: CEOs who believe business is doing enough to meet the global sustainability challenge
- 85%: CEOs who state that clearer market & policy signals are needed to advance sustainability

Source:
1 Accenture, Waste to Wealth, 2015
2 United Nations Global Compact, Global Corporate Sustainability Report 2013
Supply Chain Value

LINEAR ECONOMY

CIRCULAR ECONOMY

Source: NERC

Video: http://circulareconomytoolkit.org/introduction.html
The Circular Economy: 5 Business Models

**Business Models**

- **Circular Supplies**: Provide renewable energy, bio-based or fully recyclable input material to replace single-lifecycle inputs.
- **Resource Recovery**: Recover useful resources/energy out of disposed products or by-products.
- **Product Life Extension**: Extend working lifecycle of products and components by repairing, upgrading and reselling.
- **Sharing Platforms**: Enable increased utilization rate of products by making possible shared use/access/ownership.
- **Product as a Service**: Offer product access and retain ownership to internalise benefits of circular resource productivity.

*Can be applied to product flows in any part of the value chain.*

Source: Accenture
The Circular Economy in Practice

The Circulars 2015 Awards

DELL Winner, The Accenture Award for Circular Economy Pioneer

"The Circulars is bringing visibility to an important shift happening in our world, and the people, companies and countries bringing innovative approaches to addressing this shift. Winning The Circulars’ Pioneer Award validated our longstanding commitment to running a sustainable business and energized our teams to continue driving circular principles into our value chain."

Read more about Dell’s project

Ecovative – Finalist for Circular Economy Entrepreneurship
**The Ecovative Process**

- Ecovative’s Mushroom Materials start on a farm, with the parts of plants that cannot be used for food or feed.

- A patented process cleans and prepares a blend of agricultural byproducts, and inoculates it with mycelium (mushroom tissue).

- Packaging parts are then “grown” into the required custom shape.

**Ecovative Benefits**

- By using mycelium and agricultural by-products, Ecovative uses materials that are environmentally low-impact, biodegradable and renewable.

- This product replaces synthetic petrochemical based materials such as Styrofoam™.

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**SSC&T Project Description**

- Provide assistance to Ecovative for obtaining Biodegradable Products Institute (BPI) certification for their packaging products.

**SSC&T Project Objectives**

- Support Ecovative in preparation of samples for testing to satisfy BPI Requirements

- Develop an in-house disintegration test platform comparable to the ISO 16929 Disintegration test, so that Ecovative may validate new products prior to paying for independent lab testing for BPI certification.

**Ecovative’s Expected Results**

- Forecasts 49 jobs retained; 2 jobs added

- Estimates 20% increase in sales due to project; Up to 20% increase in customers
Transitioning to a Sustainable Supply Chain

Supply Chain Opportunities

- Industry collaboration
- Circular economy
- Consumer/customer awareness
- Resource efficiency
Benefits of a Sustainable Supply Chain

• Ensures compliance with laws and regulations
• Enables company to meet customer requirements
• Differentiates company from their competition
• Adheres to and supports international principles for sustainable business conduct
• Improves social, economic and environmental impacts
• Acts in the company’s own interests, the interests of their stakeholders, and the interests of society at large

Benefits of becoming a “Sustainable Supplier”

Risk Reduction
• Mitigate business and brand risk by understanding environmental impacts of self and suppliers

Cost Reduction
• Identify opportunities for efficiency improvements leading to reduction in total cost of ownership

Revenue Growth
• Seen as a leader verses competition
• Viewed as a trustworthy and respectable company
• Become a supplier of choice
Components of Sustainable Supply Chain Programs

• **Commit:**
  – Develop a **business case** by understanding the drivers for a sustainable supply chain
  – Establish a sustainable supply chain **vision** and set objectives
  – Establish sustainability **expectations** for the company’s supply chain

• **Assess:**
  – Determine the **scope** based on business priorities and impacts (map suppliers; determine key, strategic, high risk suppliers)

• **Define & Implement:**
  – **Communicate** expectations and engage with suppliers to improve performance (**Code of Conduct**)
  – Monitor to establish baseline and assess performance (**Supplier Scorecards** and Audits)
  – Ensure **alignment** and follow-up internally (remediate supplier non-compliance and invest in continuous improvement)
  – Enter into **collaboration** and partnerships (capacity building)

• **Measure & Communicate:**
  – **Track** performance against goals
  – Be **transparent**
  – **Report** on progress to stakeholders

[Link to the document](http://unglobalcompact.org/docs/issues_doc/supply_chain/SupplyChainRep_spread.pdf)
New York State Manufacturers Working towards Greening the Supply Chain

Sustainable Supply Chain Program
New York State Pollution Prevention Institute

http://www.youtube.com/watch?v=BjLqluC_8Cg
Rochester Institute of Technology

- Founded in 1829
- One of America’s leading technological universities
- More than 17,000 students
- Among the nation’s 15 largest private universities
- Bachelor’s, Master’s, and Ph.D. programs

GOLISANO INSTITUTE FOR SUSTAINABILITY

- Academic Programs and Applied Research Labs
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Thank You!

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Benefits of Sustainability

Why be a “sustainable” company?

- **Strengthen** risk management, compliance, productivity, and credibility
- Avoid problems of the past, pursue new opportunities for the **future** and tie to **innovation**
- **Holistic** approach with many issues and different priorities
- Generate additional **sales**, recruit and retain **employees**, facilitate transactions and **partnerships**, charge premium **prices**
- **Economic Benefits**, as reducing environmental wastes and efficient use of raw materials, energy and water can reduce overall **manufacturing costs**
- **Transparency** across supply chain & stakeholders
- **Competitiveness**
Committing to Sustainability: Requirements for Developing a Sustainability Plan

- Leadership support required
- Make a business case
- Effectively deploy
- Fully engage all key players
- Create a good mix of technology, practices, and awareness
- Choose the right metrics and effective measurement
- Produce clear and concise reporting
- Act on results and improve
- Keep following the process towards continuous improvement: Assess → Plan → Implement → Monitor
Internal Business Case for Sustainability: Understanding Risk

- **Market Risk**: Non-governmental organizations (NGO) environmental rating activities for investors – Protecting market value
- **Competitive Risk**: Financial costs and balance sheet - preserving profitability and competitiveness
Creating a Vision and Policy

**Vision**: How you see your business, your industry, and your company in terms of the challenges associated with environmental, social, and economic issues.

- Example: “Our vision is to increase shareholder and societal value while decreasing our environmental footprint.”

**Policy**: commitment to compliance, continuous improvement, pollution prevention, and communication. The elements in a policy are designed to address the core principle aspects of sustainability that reflect what the company has put into place.

- Be focused: Must clearly state the company’s vision statement and present core values and principles. The policy is meant to provide inspired leadership that establishes the framework for the policies and procedures that will be implemented to meet the stated objectives.
- Contain relevant content to the company’s existing culture and operation
- Be signed and dated.
The process for developing a Sustainability plan has the same elements as any other strategic planning process:

Who Should Be Involved?

- **Business leadership** – someone who understands overarching company strategy, future product and service direction, brand identity
- **EHS leadership** (often the organization that retains ownership of plan) – someone who understands key environmental, health and safety impacts and challenges
- **HR leadership** – Someone who understands the communities and workforce that the business relies on

Remember – Sustainability is a three-legged stool, so the diversity of the team matters!
Step 1: Internal Assessment

• To set the context for your planning process, begin by examining:
  – Company values and brand identity
  – Core strengths and weaknesses
  – Current positioning in the market
  – Critical issues facing the organization

• For a Sustainability plan, this must include measurement of baseline social and environmental impacts related to operations, supply chain and product use or service delivery.

• In the context of an Environmental Management System (EMS), this activity is called defining “Environmental Aspects and Impacts”.

Step 2: External Assessment

• An external analysis is also key to setting the stage for planning. It should include:
  – Benchmarking competitors
  – Assessing market opportunities and threats, such as emerging regulations
  – Assessing customer expectations
  – Understanding company touch points with broader societal issues (e.g. climate change, water scarcity)
  – Understanding the key concerns of the communities in which you operate

• Consider using tools, such as the Global Reporting Index (GRI) to help characterize the external environment

• Other tools – Sustainability and Corporate Social Responsibility Indices, e.g. DOW Jones Sustainability Indices (criteria categories); guidance from industry-specific associations (e.g. Electronic Industry Citizenship Coalition)
Step 3: Developing the Vision Statement

The organization’s vision statement should:
• Be aligned with the values of the company
• Indicate a long term direction/focus
• Articulate what sustainability means to your company.
• Be supported by a set of key principles, which will help to ensure clarity

For Example:

– Ecoimagination is GE’s commitment to build innovative solutions for today’s environmental challenges while driving economic growth

– URS has promoted sustainable development around the world. We apply the principles of sustainability in our work for clients, within our operations, and in communities worldwide to:
  • Design energy- and resource-efficient facilities;
  • Develop alternative and renewable energy sources;
  • Improve water storage, conveyance and treatment systems;
  • Clean up hazardous waste and restore ecosystems;
  • Reduce the carbon footprint of our own operations;
  • Contribute to the health and prosperity of communities around the globe.
Step 4: Setting Goals

• The previous process steps were about understanding where the company is today and envisioning where you want to be, the impact you’d like to have, and the brand identity you’d like to build.

• Goals outline what your organization needs to accomplish to move in the direction of your vision.

• Goals must respond the internal and external assessment (SWOT analysis):
  – Capitalize on strengths and market advantages
  – Mitigate risks and emerging threats
  – Anticipate opportunities
Step 5: Prioritizing Strategies

- There will be many possible ways to achieve your goals, so it will be important to prioritize.
- The emerging concept of materiality in corporate reporting (originally developed for financial analysis) is a useful starting point.
- Strategies should move the needle on the company’s most significant impacts as viewed by key stakeholders, including:
  - Investors
  - Employees
Step 6: Establishing Performance Metrics

• Plan performance metrics should answer the following questions:
  – Are we executing our strategy?
  – If we are not executing or do not know, what are the leading indicators that we will need to provide this information?
  – Do we have the right strategy in place?

• Metrics must be visible and well integrated with business process

Source: Chris Davis, METIS Strategy (2013) “Managing Through Metrics: The Other Sides of SMART.”
A long term sustainability plan is ineffective without an action plan. Key next steps include:

- Identifying resources for taking action
- Establishing an ongoing communication plan
  - Internal and external plans will likely differ
- Evaluating performance against plan targets
- Conducting management reviews
- Continuous improvement
  - Our understanding of both current state and future trends is dynamic, so resulting plan should be viewed as a living document
Sustainability
# Sustainability – Defined

**Internal and External Respect and Values**

<table>
<thead>
<tr>
<th>Sustainability – 3Ps</th>
<th>Component</th>
<th>Internal (Company) Aspect</th>
<th>External (Societal) Aspect</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>People</strong> (Social)</td>
<td>Respect for People</td>
<td>Respecting the needs of people inside the company</td>
<td>Respecting the needs of people outside the company</td>
</tr>
<tr>
<td><strong>Planet</strong> (Environmental)</td>
<td>Wise use of natural resources</td>
<td>Leaving enough resources to meet current and future needs of company</td>
<td>Leaving enough resources to meet current and future needs of society</td>
</tr>
<tr>
<td></td>
<td>Respect for living things</td>
<td>Treating living things with respect w/in company operations (e.g., respecting animal rights)</td>
<td>Protecting ecosystems so living things can survive in the environment</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Preventing and controlling pollution w/in company property</td>
<td>Preventing and controlling pollution of the external environment</td>
</tr>
<tr>
<td><strong>Profit</strong> (Economic)</td>
<td>Wise use of economic resources</td>
<td>Achieving economic success of company</td>
<td>Achieving economic prosperity of society</td>
</tr>
</tbody>
</table>

Figure 2.6, *The Sustainability Handbook*, Wm. R. Blackburn
Sustainability – Defined

Many Phrases for the Same Concept

Many terms for addressing social, environmental and economic initiatives:

• “3Ps” – People, Planet, Profit
• Social, Economic, Environmental
• “Corporate Social Responsibility”
• “Corporate Citizenship”
• “Sustainable Growth”

Each company or organization should define how they address “sustainability”.

Sustainability is actualized
Sustainability is a “Journey”
**Vision:**

The vision of the NYSP2I is to foster the transformation and development of sustainable businesses and organizations in New York State in a collaborative program committed to making the State a leader in environmental stewardship.

**Mission:**

The mission of the Institute is to provide a high-impact, comprehensive and integrated program of technology research development and diffusion, outreach, training and education aimed at making New York State more sustainable for workers, the public, the environment and the economy through:

- reductions in toxic chemical use
- reductions in emissions to the environment and waste generation
- the efficient use of raw materials, energy and water
New York State Pollution Prevention Institute

- Core funding by NYS Department of Environmental Conservation
- Statewide Coverage
- Committed Partnerships:
  - 4 Universities
  - 10 Regional Technical Development Centers