In the spring of 2014, with corporate sponsorship from Waste Management, the Center for Business & Society at the Tuck School of Business held the sixth annual Executive Environmental Sustainability Forum. Each year, the Forum provides a setting in which sustainability executives can meet for candid conversation, knowledge-sharing, and peer learning focused on a specific topic of corporate interest related to environmental sustainability. This year’s Forum explored the relationship between corporate environmental sustainability initiatives and suppliers, and examined how sustainability influences practices in supply chain management. Prior years’ Forums have explored environmental sustainability and its links to shareholder value creation, to corporate innovation strategies, to company roles in public policy, and to customer relationships.

Session 1: Measuring Environmental Impact Across the Supply Chain

The opening session of the Forum was led by Tony Craig, an Associate at MIT’s Center for Transportation & Logistics. The Center focuses on supply chain management issues through research, education and outreach. Craig discussed the importance of approaching sustainability and environmental impact in terms of the supply chain.

Every step of a supply chain uses inputs and leaves an environmental impact, but companies tend to examine and manage their specific pieces and processes within the boundaries of their own organization, isolated from those owned by other entities. From a traditional standpoint, however, it is preferable to examine a supply chain as a whole, so that suppliers can maximize mutually beneficial opportunities for collaboration. The same opportunities exist with minimizing environmental impacts, said Craig, and we should apply that same broader systems approach to sustainability thinking.

According to Craig, the traditional definition of supply chain (“the right product in the right place at the right time”) leaves out final delivery to and ownership by the consumer, as well as what happens at the end of a product’s life. But the
environmental impacts during those phases are significant. “We need a shift from a production focus to a consumption focus. Companies should consider issues such as materials, recycling, disposal, recovery and remanufacturing along the way, to further help reduce supply chain impact.”

So why aren’t some companies taking a supply chain systems approach? To dig into this question, Craig conducted a case study of a product in which a significant portion of the supply chain was owned by one company, and the product was seemingly simple: Chiquita bananas. The study showed that even these types of products aren’t nearly as simple as one might think, and that identifying environmental impacts such as the overall carbon footprint of even a single product such as a banana can be challenging. Growing and selling bananas involves multiple chemical inputs, packaging, storage and transportation, drawing on many different industries. Because each of these different functions are owned by specific departments within Chiquita, data gathering was a time consuming process. The study finally arrived at a specific number of grams of carbon per banana. Perhaps more useful was the insight that the biggest source of carbon was in transportation, and in particular, ocean transport.

Leigh Ann Johnston, Director, Sustainability, Tyson Foods, Inc., asked whether the average consumer would be able to compare carbon footprints between products in a meaningful way, and noted that some consumers are more interested in knowing about certain aspects of production (for example, whether bananas are ripened naturally or by using artificial processes such as gases). Craig agreed that it’s impossible to agree on a single metric across all companies, and that each one must choose its own metrics to measure. “Let’s get something that’s ‘good enough’ to drive the kinds of decisions we want to make.”

**Session 2: Initiating and Implementing Supply Chain Management Protocols: Key Issues**

Presenter Davor Grgić is CIO & Vice President – Sustainability for Kohler Co. Kohler is best known for its plumbing products, but the company also manufactures furniture, cabinetry, tile, engines, and generators, and has a small leisure resorts business.

Grgić began Session 2 by describing Kohler's approach to sustainability. He framed it as something that everyone should see as a win for the company, its associates, the environment and consumers. The ‘win’ aspect of it makes it easier to bring sustainability into an analytical culture compared to marketing it as the equivalent of a philanthropic effort. The company’s sustainability strategy has three pillars: footprint reduction (CO₂, energy, water & solid waste), product innovation, and education and culture.
Sustainability efforts were initially focused on Scopes 1 and 2 (i.e., the direct footprint with each, and the indirect footprint embedded in the direct purchases made by the company). Now Kohler is looking more systematically at Scope 3, which would broaden the assessment of indirect footprint to the entire value chain, all the way from raw material extraction through to customer use and disposal (or recycling/recovery) of the product or service. To assess the supply base, the company decided to skip long questionnaires, instead asking basic questions of its suppliers. “Do they have a program? What are the main elements?” Kohler also tapped into LCI/LCA (‘life cycle impact/assessment’) initiatives that were already in place for some of their product lines, which has helped them to locate the major opportunities for footprint reduction in the supply chain. “We use Pareto’s analysis, or the 80/20 rule – let’s go after the biggest opportunities in a big way, such as opportunities in carbon improvement internally.”

Kohler has gathered LCI/LCA information for some of its product lines. Understanding and identifying operational efficiencies allows for streamlined processes and improved performance. Grgic explains, “When you ask a question from an environmental resource standpoint, rather than purely financial, you identify things that a financial viewpoint or cost analysis won’t show. Where are we using energy that we don’t need to? The person on the shop floor will know the answer to that.”

When designing products for environmental sustainability, Kohler uses a methodology that examines what the tradeoffs would be if such a design were used. “Designers are sophisticated about material’s properties, but they know less about supply chain effects, so even a little education gets them to start to consider where and how to source things.”

Do consumers care about a product’s detailed environmental impact data? Grgic believes they do. “If you look at environmental performance as a secondary characteristic, people are interested, as long as you’re starting with a great product. Performance is the number one consideration, but once you’re over that hurdle, they want to know about your product’s carbon footprint.”

Session 3: How Successful Firms Are Transitioning from “Procurement & Logistics’ to ‘Supply Chain Management’

Mark Cates, Director, Corporate Environmental Control and Chief of Staff Manufacturing Technology and Engineering for Corning Incorporated, led the next session. Corning manufactures materials for industrial and scientific applications. The company invests 10% of its revenue stream back into research and development.

Corning is moving away from the traditional supply chain paradigm of transaction-focused procurement, which was aimed to avoid future price increases, and is now
adopting a supply chain management concept with supply management services companies (SMSCs) in locations like Singapore and Switzerland. From such centralized locations, Corning can manage large company purchases regionally to achieve cost reductions. SMSCs also facilitate addition of new suppliers, reduce non-value added work, help to recruit talent, save on transaction costs, minimize bureaucracy, and improve cycle time.

Corning’s approach to sustainability has been to work internally with ‘B2B’ customers. Customer pressure is usually focused by industry segment (especially automotive, telecom, and consumer electronics). Each customer has a different vantage point on what is valued and expected from Corning. For example, the company has worked with Apple to make display glass more sustainable by removing metals and toxins and making the glass thinner (thereby using fewer natural resources and requiring less energy).

Corning is decentralized, with some outside contract manufacturing and other divisions in-house, with each division having a unique culture. To influence these diverse cultures, Corning works with Assent, a Canadian company that gathers compliance data from suppliers. One positive result from this was a new awareness of which data was hidden deep in each decentralized company or division, allowing Corning to fix these gaps on a business by business basis. The Assent system pings each supplier with surveys asking for whatever compliance data is needed. If suppliers don’t respond to these surveys, Corning is armed with that information and can decide whether to go to another supplier.

Cates has also worked with life cycle analysis (LCA) software to examine supply chain impacts. Corning has used that capability to win contracts when potential customers have asked for information such as carbon footprints of the company’s inputs. Corning has then taken that same LCA analysis to market the same products to other customers and partners.

John DeAngelis, Leader, Global Sustainability Initiatives for Steelcase, Inc., favorably contrasted that type of competency leveraging with the more difficult case in which LCA within a company is driven mainly by one region. “Trying to translate that to other regions can be a huge challenge if you originally came at it from a country-specific approach, rather than a corporate approach.”

**Session 4: Supplier Evaluation – Pros and Cons; Effective Approaches**

To arrive at the optimal way to set sustainability standards for suppliers, Georgia-Pacific LLC (GP) hired consultants and graduate students from Carnegie Mellon in 2009 to conduct a study of company supplier codes. As Bill Frerking, Vice President and Chief Sustainability Officer explained, GP asked two key questions: 1) What are the minimum standards for an acceptable supplier sustainability program? 2) What is “best in class” for such programs, and who’s doing that? From this data, GP could
make strategic decisions about its own supplier sustainability program and where the greatest value could be gained in aligning GP’s vision of sustainability with its suppliers.

GP expressly organizes each topic of consideration into one of three dimensions: social, environmental or economic. “Sustainability must always be a discussion of all three,” Frerking said. “If even one is missing, the tradeoffs and other impacts are not being fully evaluated. We should consciously choose the outcomes we want and then try to optimize the balance of these three dimensions in every decision we make.”

GP prefers to use sustainability guidelines, as opposed to rules, with its suppliers. “We like to be principle-based, not rule-based. We’re comfortable with subjectivity. We want our suppliers to make continuous improvement, and innovate ways to bring us value, consistent with our sustainability guidelines.” Suppliers play a critical role in GP’s sustainability effort, and the company works with them to help them become better suppliers.

To monitor the effectiveness of how the Guidelines are applied among its approximately 40,000 suppliers, GP conducts assessments with a subset of these suppliers each year, but utilizes a risk-based approach. The company considers various factors, but believes the most important risk factor is the supplier’s location. “If they’re in a place where there is a strong rule of law, with strong social norms protecting human rights, property rights and economic freedom, those places tend to have the lowest corruption and low risk. They also tend to have the highest quality of life for citizens on almost all such indicators. That doesn’t mean that there is no risk in those areas -- just much lower risk. Where legitimate societal protections exist, we don’t believe that we can provide significantly better assurance as a foreign corporation.”

“We like our risk based approach,” Frerking concluded. “But it has its challenges. Using a risk-based approach means that we only take a relatively small sampling of our suppliers each year. Also, we must keep focus on better understanding the value we are attempting to create out of this process, because it takes a lot of our time and our supplier’s time to gather and evaluate all of this information and resolve issues of potential concern.”

Session 5: Leveraging Market Dynamics to Partner with Suppliers in Achieving Sustainability Outcomes

When pursuing sustainability, the language we chose to discuss goals can either unite or separate stakeholders. “The word ‘green’ turns people off – they have preconceived notions about it,” said presenter Mark Buckley, Vice President of Environmental Affairs, Staples, Inc. “But sustainability isn’t just about ‘green’. We
need a common language to talk about sustainability to our customers and to our supply chain partners in order to create the shareholder value that we all want.”

About 12 years ago, Staples, an office supply store chain with over 2,000 stores worldwide, began to build an integrated carbon and energy plan, aiming for an absolute carbon reduction target. The approach was cross-functional, engaging a multi-stakeholder team including operations, construction, facilities, energy management, design and procurement. As a group, the team would examine prototypical plans and specifications for design and operation of Staples’ buildings, evaluating building envelope, lighting, HVAC systems, insulation, etc. as part of their standard lease document. This gave Staples powerful leverage negotiating with suppliers for specified products at favorable prices.

Subsequently, when Staples began to think more specifically about sustainability, “we realized that we were doing life cycle work before that discipline had even been recognized. The people who were evaluating plants weren’t just the construction and engineering people, they were also the facilities and maintenance people who would have to maintain the building throughout its life. No one division got exactly what they wanted, but we always got something incrementally better every year. So we started to develop a culture of continuous improvement.”

Other creative mechanisms have included: using power purchase agreements for renewable energy purchases, including all-electric delivery trucks in Staples’ fleet, and establishing a goal to change the life cycle analysis for all products. For Staples, this means no longer thinking about sustainability as a separate category, or “no more unsustainable SKUs”.

Buckley summarized by advising companies to take three main actions. First, think about how to engage with nontraditional stakeholders. For Staples, some of the biggest transformational opportunities have come through talking with stakeholders in the value chain that one might not normally engage around sustainability, such as the owner of the fleet of vehicles previously mentioned. Second, continually challenge the status quo. What constitutes business and environmental value today may represent potential risk tomorrow. Finally, focus less on best practices and more on “next practices”. Instead of following what has already been done, businesses have an opportunity to carve out what the next best practices could look like, and start to move markets in that direction.

Session 6: Leveraging Supplier Relationships

John DeAngelis (Steelcase) led the next session, facilitating a dialogue on how to best leverage supplier relationships. Steelcase is a global company that develops and manufactures furniture, interior architecture, and technology products and services for corporate offices. The company’s opportunities have started to shift globally, now reaching out to manufacturers throughout the world. “We’re recognizing that a
lot of impact is deep in the supply chain. If that’s where our impacts are, how can we work to make improvements while still realizing benefits ourselves?”

From a supply chain and procurement perspective, Steelcase has been moving toward building more and deeper supplier partnerships. “When our suppliers know that they are growing together with us as organizations, we develop mutual trust,” said DeAngelis. “They may be more willing to come to us with ideas.” One example of the way in which Steelcase leverages its supplier partnerships: gathering together all suppliers connected with a particular product, and presenting them with cost and profitability challenges. “We explain that if we can’t sell a particular product because of the cost, then none of us will earn a profit. We ask them to help us figure out the best way to reduce the costs in order to make the product more competitive.” The company has found that when suppliers have a complete understanding of how their part will interact with others in the final product, they can suggest changes to improve product performance and cost.

Laurie Zelnio, Director – Environment, Safety, Standards & Sustainability Strategy, Deere & Company, says that her company has had positive experiences with multi-supplier collaboration. Deere engages suppliers in new facility design and product design. For new facilities – whether offices, factories or distribution locations – all capital expenditures greater than $3 million must submit a “Sustainable Building Design strategy” as part of their capital request, incorporating best practices from within the company and from the supply base. Best practices from the global supply base can positively impact the cost of the building and what goes into it. Deere cultivates ongoing relationships with suppliers so that they are involved with design and have opportunities to provide their insights building a business partnership that extends well past a simple piece part price contract – both for products and facilities.

Ian McCulloch, Managing Director of Supply Chain Strategy, Duke Energy, says that his company creates value upfront, during the sourcing process. “We educate our sourcing people by giving them opportunity finder templates to use, to consider things like energy consumption, water conservation and packaging. That prompts those conversations as they go through their sourcing and bidding processes. We’re not deciding anything independent of cost and quality, but sustainability definitely becomes a factor. Our product is energy, but we buy a lot of equipment that consumes energy, so we look at the efficiency of the equipment.” McCulloch sees a need for developing an ongoing, engaged supplier relationship process, so that these issues continue to receive attention throughout multi-year contracts, as opposed to just the initial phase.

Jed Davis, Directory of Sustainability, Cabot Creamery Cooperative has observed that other companies (General Mills in particular) actually specify energy and water factors in their bill of materials, on a product basis.
Session 7: Next Steps in Sustainability:
The Net Positive Firm? The Case of Owens Corning

The final session began with a brief presentation by two second-year Tuck MBA ’14 students, Brian McKenzie and Difu Li. They presented an overview of a case they created in their roles as this year’s Owens Corning Fellows at Tuck (a new student fellowship and case-writing grant funded by Owens Corning at Tuck), to be used in the classroom. The case chronicles key decisions made by Owens Corning’s CEO and Chief Sustainability Officer in developing and implementing the company’s sustainability strategy, as well as earning company and stakeholder buy-in. In researching the case, the students attended an Owens Corning investor day, interviewed C-level execs, and reviewed key documents.

Presenter Steve Nowak, Vice President, Global Sourcing, Owens Corning next took the podium, beginning with his company’s sourcing mission: “We create value and mitigate risk inside the strategies of the businesses for competitive advantage as measured through the financial statements.” Nowak emphasized that “we always start with the business case – we’ve got to see it in the financial statements. Our sourcing mission and sustainability aren’t divergent. We don’t make decisions to destroy value.” He approaches sourcing and sustainability as being simultaneously achievable, as opposed to being mutually exclusive. “If you force the conversation to be “and” and not “or”, you make better decisions.”

Owens Corning defines sustainability as “meeting the needs of the present without compromising the world that we leave to the future.” The company set aggressive 10-year sustainability goals in 2000 to reduce solid waste, greenhouse gasses and energy consumption, and reduced their footprint in a ten year period. In 2010, they set another 10-year goal. Today, half-way through that period, the company is making good progress, but is seeing the law of diminishing returns. “It’s been a lot harder to reduce footprint in the 2nd decade than it was in the 1st decade.”

The next phase in the company’s sustainability journey is in trying to push the envelope in the company’s thinking, in an effort to integrate sustainability into its supply chain and become a “net positive” company. The more traditional “footprint reduction” approach, when taken to its logical conclusion, assumes that it’s better to reduce or entirely eliminate business operations to achieve zero impact. Owens Corning is embracing a more open-ended “handprinting” perspective, which quantifies the net positive impacts a company causes or enables to happen, relative to business as usual. “We’re focusing on why the world needs more of us, not less.” Handprinting allows for unlimited potential, aligns with business growth, and can be exponential. It focuses on affirmative actions that the company can take that are beyond just looking at the business of Owens Corning.

This has included considerations such as employee health and safety. As one example, the company looked at one of its acquired facilities in China. “We worked...
to bring it up to our standards in a way that was engaged with the local community, and raised the standards of what good companies do in terms of acquisitions.”

**Conclusion**

During the conference, Professor Sundaram cited a Stanford study\(^1\) on “responsible supply chain and performance” which gives a succinct summary of the potential benefits to bringing sustainability practices to the supply chain. The study showed that despite massive investments, “responsible” supply chain practices are associated with lower costs and with improved overall financial performance.

Companies can find rich potential for value creation, waste, emissions, and pollution reduction, and more efficient use of natural resources in their value chain by taking a fresh look at supply chains through the lens of sustainability. There are opportunities to collaborate, share and think of other companies not as competition, but as business partners who may hold the key to unlocking value while pursuing sustainability. Suppliers are better leveraged as business partners, not via policing.

Sundaram noted that “carrots are likely better than sticks” for getting suppliers to buy into and align with corporate environmental sustainability initiatives.