OPPORTUNITIES FOR THOUGHT LEADERSHIP IN SUSTAINABILITY

This report summarizes observations of opportunities for the Poole College of Management to provide leadership in sustainability education through our College’s curricula, research, outreach, and service.

Prepared by the Poole College of Management’s Sustainability Task Force

December 2011
Dear Dean Weiss and Poole College of Management Faculty and Staff:

In response to the funds provided by Lonnie C. Poole, the Poole College of Management (PCOM) Sustainability Task Force (Task Force) was formed. As requested, the Task Force explored ways where PCOM could integrate sustainability into our curriculum, research, engagement with business, and the PCOM culture.

The Task Force engaged in extensive background work to better understand issues related to sustainability, including detailed market analysis of sustainability trends and business drivers, emerging regulations and standards related to sustainability reporting, benchmarking of what other business schools are doing related to sustainability, and market demands for talent and student placement. Based on our background work, the Task Force arrived at three clear observations:

a. Sustainability represents a sea change for many businesses,

b. The PCOM is clearly behind many of the business schools against which we benchmarked, and

c. Sustainability is a subject our students should possess when they join businesses and some students are making decisions as to which business schools to attend based on the availability of a sustainability curriculum.

It is important to note that the Task Force has not arrived at any specific conclusions as to how the PCOM should be involved in sustainability thought leadership. Instead, the Task Force has outlined in this report a series of opportunities and next steps that the PCOM faculty and staff should consider further as it seeks to define specific initiatives for the College to take. We have organized our observations about opportunities and next steps along four dimensions: teaching, research, engagement with business, and PCOM culture. We have also included observations and next steps regarding the creation of a Center (or Area of Excellence) in Sustainability.

However, before seeking input from the faculty and staff as to which avenues to pursue, we recommend that the College provide a series of “brown-bag” lunch workshops to communicate the results of our efforts and to bring in experts who are experienced with sustainability. Because sustainability represents an emerging issue for businesses, the Task Force believes the faculty and staff need to go on the same journey the Task Force embarked upon in order to be able to make informed recommendations. We suggest the following topics and facilitators for the four lunches:

- Business view – Alexander M. Cutler, Chairman and Chief Executive Officer, Eaton Corp. This company has taken many steps to integrate sustainability across the enterprise.
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- Global view – Peter M. Senge, MIT Sloan School of Management. Professor Senge is a world-renown educator on sustainability issues
- University Ongoing Research – Researchers across selected NC State Colleges will provide an overview of their research related to sustainability being conducted at NC State.
- PCOM view – Sustainability Task Force will provide an overview of key observations and next steps.

The Task Force members have learned much about sustainability throughout the process and are available to answer any questions the Executive Team or you may have. Thank you for the opportunity to explore this opportunity on behalf of the Poole College of Management.

The next page provides an overview of the organization of this report. We hope this report generates rich discussion about strategic opportunities to further advance the mission of the Poole College of Management.

Task Force Members

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1 Peter Senge is a senior lecturer at the MIT Sloan School of Management and the founding chair of the Society for Organizational Learning.
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I. Executive Summary

The pages that follow contain much information about how businesses are modifying their corporate strategy and business practices in response to the need to operate in a more sustainable manner and how business schools are adjusting to prepare their students and their research for this emerging need of businesses. We encourage you to delve into any of the areas that interest you and to explore any of the over 100 links to additional information contained throughout this document.

Understanding that many of you may not have the time (or to be blunt, interest) to dig into the details, the following summary is provided to highlight our observations and suggested next steps.

Market Analysis

It is clear from our research that businesses are undergoing a significant change in developing strategies and business practices to operate in a sustainable manner. In fact, at a conference attended by one of the sustainability Task Force members, a keynote speaker presented an analogy where sustainability will have as much impact on businesses as globalization has and will continue to have in the future. Although the Task Force did not attempt to define sustainability, it is obvious that businesses “know it when they see it” and they define it in a manner that meets their business strategy and needs. One referenced source in this paper refers to sustainability as the ability for a company to “endure.” So, we have embraced that broader view of sustainability.

The information in the Market Analysis section of this report demonstrates much activity by corporations specific to sustainability and other related components, such as industry groups, standard setters, and reporting trends. The Market Analysis section also includes a brief summary of what other business schools are doing. As sustainability is a relatively new subject area, it was not uncommon to learn that a school had expanded into offering sustainability topics in the last 3-5 years, with the more mature programs going back 10-12 years. Either way, most programs are relatively new. This section highlights the rankings that have developed to measure the extent business schools have incorporated sustainability into their programs. Significant additional details are provided in the Opportunities section of the report. Finally, the last part of the Market Analysis section provides a peek into the needs of employers specific to sustainability. Although the information we were able to identify was limited due to the emerging nature of sustainability, we especially call your attention to the report that was developed by Arizona State University as they undertook their sustainability efforts a few years ago. The report is titled, “Training and Education Needs for Green Businesses.”

Opportunities

Through our research, the Task Force identified and discussed many opportunities for the Poole College of Management (PCOM), our students and faculty. For purposes of this report, we have categorized our observations into four areas 1) teaching, 2) research, 3) engagement with business, and 4) culture. We also include a section that considers opportunities for the creation of a Center of Excellence in Sustainability. After a brief description of each area, suggested next steps are indicated. Within each
opportunities, we have indicated groups and individuals whom we recommend should lead each next step. Our intent is for these groups and individuals to leverage the information contained in this report in arriving at the direction the PCOM should pursue.

Teaching

Many of the business schools we reviewed have modified their curriculum to incorporate sustainability topics. Most strive to incorporate the sustainability into existing courses through content, problems and cases. Some schools have developed some stand alone sustainability classes on which to build a common understanding. Most of the schools began the integration of sustainability at the graduate level, although William and Mary began their integration effort with the undergraduate program. Very few programs offer a major in sustainability; most programs offer a concentration, certificate or minor. For example, the Task Force learned that approximately ¼ of the MBA graduates from UNC graduate with a concentration in sustainability. For the schools where the Task Force was able to interview an individual from that program, the representatives all stated that they began small and expanded the class offerings as the faculty became more knowledgeable of the topic and students requested more classes – both of which occurred.

Next Steps: Our graduate and undergraduate level curriculum committees should engage in evaluations of the opportunities for sustainability in our graduate and undergraduate programs.

Research

There are also many opportunities to conduct and publish research related to sustainability. However, outside the sciences, there does not appear to be many opportunities for external funded research. Therefore, PCOM faculty may need to seek partnering opportunities with other NC State Colleges, especially the Colleges that submit grant applications to the National Science Foundation. As an indication of the acceptance of the topic for research, many academic journals have been established that focus on sustainability – again broadly defined. Additionally, other business academic journals accept sustainability-related articles and/or dedicate special issues to sustainability. There are also opportunities to publish in professional journals. Finally, there are academic sustainability conferences in which faculty can participate. Some of the leading conferences are Portland State University’s International Conference on Business and Sustainability (2011 is 5th year) and the University of British Columbia’s International Conference on Environmental, Cultural, Economic and Social Sustainability (2012 is 8th year).

Next Steps: Our College research committee, in conjunction with the Associate Dean of Research, should identify the faculty and topics of interest and provide funding for research. Also engage with other NC State Colleges to identify opportunities for joint research.
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Engagement with Business

In discussion with individuals from other programs and from attending conferences, it became apparent that schools with sustainability programs view engagement with business as critical to the success of their efforts. In addition to assisting businesses with implementing sustainability initiatives, the programs have leveraged businesses sustainability experience to inform curriculum development, classroom teaching and research. Business engagement activities include 1) college sustainability advisory boards, 2) providing opportunities for internships and practicums, 3) developing cases for classroom instruction, and 4) providing motivation and data for research opportunities. The PCOM has a unique opportunity to engage with businesses that is not available to most other business schools. For example, our existing centers and initiatives could engage in potential business collaborations related to sustainability issues through projects such as the “Big Data” analytics (led by CIMS), life cycle analysis studies (led by SCRC), and integration of sustainability risk within the context of ERM assessments (led by the ERM Initiative), as well as other opportunities. The PCOM Centers and Initiatives have extensive ties to the business community that can be leveraged for sustainability engagement.

Next Steps: Leaders of the PCOM Centers and Initiatives should identify possible areas for engagement with businesses on sustainability related topics through existing business relationships within the PCOM Centers and Initiatives, including identifying additional sustainable-focused businesses.

Culture

The Task Force also identified the PCOM culture as an opportunity to expand our student’s knowledge and experience with sustainability. Possible culture efforts within the PCOM include 1) sustainability-focused student groups, such as Net Impact, 2) participate in sustainability-oriented case competitions and/or sponsor such competitions, 3) expansion of the Wells Fargo Lecture Series or other dedicated lecture series, 4) engagement across campus with other Colleges and sustainability-oriented student groups, and 5) sustainability-oriented student activities with the PCOM and departments, such as Saatchi and Saatchi’s “Do One Thing” initiative and Graduation Pledge Alliance.

Next Steps: Leaders of the undergraduate program and the Jenkins Graduate School of Management should explore areas for student engagement on sustainability-related efforts. In the near term, expand the Net Impact student organization beyond the MBA program to include other graduate and undergraduate students.
Center of Excellence in Sustainability

In gathering information about the other Opportunities summarized in this report (teaching, research, outreach and culture), it became apparent that a center or area of excellence focused in sustainability, hereafter referred to as center, could be the cornerstone for each of the Opportunities both individually and collectively. While the Task Force did not initially focus on the establishment of a center, from discussions with individuals in other business schools, it became apparent that they attributed much of their success to the establishment of a central function to support the faculty in integrating sustainability into their classes, develop new sustainability classes and conducting sustainability-related research. While not a primary objective initially, the center also served as a contact point for the engagement with businesses. A later section of the report contains a description of how the center would support all the above Opportunities and also contains a list of sustainability centers for your reference.

Next Steps: Assemble a group of faculty representing all PCOM departments and PCOM Centers and Initiatives to explore the role, function and form of a Center of Excellence in Sustainability.

A final note

Although the receipt of the Lonnie Poole endowment provided the motivation for this study, the Task Force was in agreement that the funds from the endowment only should be used to initiate the efforts discussed in this report. At some point in the future (3-5years), the use of the funds in this manner should diminish or cease as the sustainability efforts become “sustainable.” This would free the endowment for other uses to advance the College.

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As noted above, this Executive Summary is intended to whet your appetite to “turn the pages” in search of additional information. The Task Force encourages you to “go exploring” in those areas that interest you.
II. Market Analysis

A. Business Drivers

One question that is always raised when the topic of sustainability arises is whether sustainability is a passing fad or will it have lasting impact. At this point, no one really knows the answer to that question. However, to address this issue, we looked at a number of leading indicators contained in thought-leadership documents issued by a wide variety of experts in the field. Although “sustainability” is not consistently defined with the business community, we concluded that sustainability is a growing challenge facing many businesses and businesses are placing significant efforts in addressing sustainability issues.

While there is no one generally accepted definition of sustainability, there are common characteristics among the various definitions observed. We find the following description put forth by KPMG LLP as a good representative of the various definitions we have observed and we believe it provides a platform for common understanding:

“Leading organizations are re-imagining and re-shaping their long-term competitive business strategies. They’re moving away from a now-outmoded view of sustainability as a compliance or reporting risk alone. The result: significant opportunities to achieve both short- and long-term value become apparent. Today, management teams are seeking to realize such potential benefits as:

- **Revenue growth** through the introduction of environmentally or socially responsible products and services; penetration of new consumer markets; and a stronger competitive position.

- **Cost optimization** through increased resource and operational efficiencies; rationalization of assets and suppliers; waste reduction; and the elimination of potential costs of noncompliance with regulatory requirements.

- **Enhanced risk management** through improved transparency in identifying and managing operational events and risks; the development of appropriate and effective responses to regulatory changes; and protection of brand value.”

Likewise, Duke Energy demonstrates the wide umbrella sustainability covers. In their 2011 sustainability report, Duke Energy describes the five components of their sustainability plan:

*Innovative Products and Services* – Provide innovative products and services in a carbon-constrained, competitive world.

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Environmental Footprint – Reduce the company’s environmental footprint.

Quality Workforce – Attract, develop and retain a diverse, high-quality workforce.

Strong Communities – Help build strong communities.

Governance and Transparency – Be profitable and demonstrate strong governance and transparency.

Similarly, Burt’s Bees is a company built on sustainability practices and has demonstrated over time how a company can return value based on those principles⁴. Burt’s Bees summarizes sustainability on their website as follows:

“You can learn more about what actions we take to reach our goals and how these choices are benefiting our consumers and our community by reading more in our Corporate Social Responsibility (CSR) Reports to see how we continue to work harder every year for the Greater Good. After many years of pioneering sustainable practices and leading the Natural Personal Care industry, we intend to rigorously measure our progress and have set ambitious, quantitative goals to better assess our achievements and understand our challenges.”

The key components of sustainability for Burt’s Bees include⁵:

“We believe natural products should be 100% natural.

We believe companies should be transparent.

We believe all packaging should hold to the highest standard possible of environmental sensitivity.

We believe in preserving the rights of both humans and animals.

We believe in giving back.

We believe in taking care of the people who make our business what it is.”

Growing Embrace of Sustainability

Although it is hard to assert that the issue of “sustainability” is mainstream, there are clear pockets of implementations among larger corporations and corporations that view sustainability important to their success. While many of these initiatives were first observed outside the U.S., many are clearly moving into the U.S. corporate board room. Here are few examples of what we have observed:

* Steve Fludder, Vice President, ecomagination, GE stated, “I think that the world has reached a tipping point now. We’re beyond the debates over whether [addressing sustainability] is something that needs to be done or not—it’s now mostly about how do we do it. And from an ecomagination perspective, it’s not about altruism, it’s about creating value.”⁶

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⁴ See http://www.burtsbees.com/c/commitment/ for additional information.
⁵ See http://www.burtsbees.com/c/commitment/greater-good.html for additional information.
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- H. Lee Scott Jr., Chairman of the Executive Committee of the Board of Directors, Wal-Mart Stores, Inc. stated “Being a good steward of the environment and being profitable are not mutually exclusive. They are one and the same.”

- In “Five Ways to Convince Your CFO that Sustainability Pays,” Kurt Kuehn, CFO of UPS, provided attributes to demonstrate sustainability pays off. The five attributes are 1) being sustainable reduces costs and improves efficiency, 2) focusing on sustainability mitigates risk, 3) being green creates new competitive and revenue opportunities, 4) sustainability fuels innovation, and 5) strong sustainability values enhance employee recruiting, development and retention.

- William Clay Ford, Jr, Chairman, Ford Motor Company in an interview conducted by McKinsey stated, “For us, sustainability in its broadest sense is about economic sustainability. It’s not just about sustainability for environmental reasons – if you don’t have a sustainability business model, none of the rest matters.”

The results of a study released in September 2011 by the American Institute of CPA’s, Chartered Accountants of Canada, and the Chartered Institute of Management Accountants dispel the myth that only larger companies are concerned about sustainability. The study revealed

“...that one-third of smaller companies have a defined sustainability strategy, and a further 23% intend to develop one in the next two years. Their reasons for doing so may vary, but the core message is that sustainability is good for business. In some industries it appeals to customers’ changing values, it may strengthen relationships with suppliers, it can have a huge impact on the positioning of a brand as a good corporate citizen that operates in harmony with local communities and the environment, and it can reduce the variable costs of running a business and, therefore, drive profitability.”

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6 Provided during the Prince of Wales’s Business & the Environment Programme on February 1, 2007. “The Business & the Environment Programme (BEP) aims to help a select group of highly influential decision-makers understand the challenges and opportunities of sustainable development, to inspire them to make the necessary changes within their organizations and beyond, and to become champions who will help business and society work together to create sustainable economic development.” [http://www.cpsl.cam.ac.uk/About-Us/What-we-do/Working-with-the-Private-Sector.aspx](http://www.cpsl.cam.ac.uk/About-Us/What-we-do/Working-with-the-Private-Sector.aspx)


A recent article in CFO Magazine (September 2011) confirmed similar observations. In the article, Going for the Other Green, Once the domain of tree-hugging do-gooders, the green movement now offers bottom-line appeal, and finance executives are taking notice\textsuperscript{10}, the authors stated,

“Today, CFOs looking to squeeze as much efficiency out of their plants and operations as possible have found that certain cornerstones of the sustainability movement, such as reducing waste and power usage, offer fresh ways to do what they do so well: manage risk and control costs. The environmental benefits are a nice outcome, too, of course, but they are not the main motivation behind many companies' heightened focus on green initiatives....Finance executives are also realizing that greener practices may be able to help them control volatile energy and input costs, which are a growing concern.”

The National Association for Environmental Management (NAEM) issued a summary of Key insights from NAEM’s “Measuring Corporate Sustainability” conference.\textsuperscript{11} In the report, NAEM concluded that

“Interest in ESG information is growing, but is not yet mainstream... some companies do a great job of reporting on their ESG progress, but they are still in the minority among publicly-held companies.”

An observation that indicates the trend is turning to additional reporting includes

“Although still only a small slice of the overall investment universe, the amount of money in social responsible investment is significant. And demand for ESG information is growing.”

**Surveys of What Businesses Are Doing**

To gain an understanding about this movement within the corporate community, we looked at surveys conducted on the implementation of sustainability practices by businesses and businesses that provide sustainability services. Some insights gained include the following:

**MIT Sloan** - “First and foremost, our survey revealed that there is no single established definition for sustainability. Companies define it in myriad ways—some focusing solely on environmental impact, others incorporating the numerous economic, societal, and personal implications. Yet while companies may differ in how they define sustainability, our research indicates that they are virtually united in the view that sustainability, however defined, is and will be a major force to be reckoned with—and one that will

\textsuperscript{10} Going for the Other Green \url{http://www.cfo.com/article.cfm/14596268?f=related}.

have a determining impact on the way their businesses think, act, manage, and compete.\textsuperscript{12}

KPMG — “The evidence that sustainability is becoming a core consideration for successful business around the world grows stronger every day. .... Nearly half of the people who took part in our survey thought that sustainable practices would definitely improve profitability for their companies. One respondent whose company has a long-running program reported that for every dollar they are spending, they are getting US $1.50-2.00 back, while another told us, with complete confidence, that ‘...all issues of sustainability will be solved by innovation.’... Clearly, sustainability is rapidly becoming a strategic priority for businesses. Around the world and throughout this survey, we see encouraging examples of pioneering companies that have recognized the imperative of sustainability and created strategies and solutions to effectively respond to the issue.”\textsuperscript{13}

In recognition of this movement by business toward becoming more sustainable businesses, KPMG International open its Global Center in Climate Change & Sustainability located in Amsterdam in spring 2011. In opening the center, KPMG stated:

“Business is engaged. With increasing intensity today’s enterprises are applying sustainability as a strategic lens to help determine where the risks are, and how to convert change to opportunity. The objective: sustainable business performance improvement and revenue growth.”

Economist Intelligence Unit – “Skeptics once dismissed sustainable environmental, social and governance principles as a passing trend. Yet, over the past decade, sustainability has begun a clear shift into the mainstream of business. This shift has accelerated more recently, in the wake of the global financial crisis, as scrutiny of business has intensified. Now, as executives embrace sustainability, many are doing so to ensure their firm’s long-term survival. Today, it’s clearer than ever before that the principles of environmental, social and governance sustainability are becoming an integral part of business management.”\textsuperscript{14}

PwC – For the seventh consecutive year, PwC and SAM Group have jointly published the sustainability yearbook. The Sustainability Yearbook 2011 presents an overview of the results of SAM’s 12th annual assessment of corporate sustainability practices, which

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provides the basis for the Dow Jones Sustainability Indexes. The yearbook contains sustainability analysis for 58 sectors. The top performers in each sector qualify as SAM Sector Leaders. The 2011 edition presents three perspectives on managing water-related risks. PwC explains why water risk management should be an integral part of corporate strategy. SAM outlines preliminary findings from its evaluation of companies’ water risk management approaches based on the newly introduced water-related risk management criterion in SAM’s Corporate Sustainability Assessment (CSA). José Lopez, Executive Vice President of Operations at Nestlé, explains how Nestlé manages its water-related risks.15

Deloitte – As with most of the accounting and consulting firms, Deloitte has established a Climate Change and Sustainability service offering16. A visit to their website reveals topics on 1) strategy, 2) supply chain, 3) analytics, and 4) reporting. On December 10, 2010, Deloitte announced it has acquired the assets of ClearCarbon Consulting, Inc. (ClearCarbon) and DOMANI Sustainability Consulting, LLC, (DOMANI) both of which were integrated into Deloitte’s sustainability services practice.

According to Deloitte:

“With ClearCarbon and DOMANI, Deloitte takes a significant step forward in achieving its goal of being a leading sustainability services provider. The combined sustainability offerings create a new hub of sustainability excellence, highlighting a combination of strategic insights and deep knowledge of complex challenges impacting organizations across all industries and sectors.

Deloitte has identified the sustainability services market as a key growth area,” said Jessica Blume, national managing principal, research and innovation, Deloitte LLP. “As an emerging offering, the acquisitions of ClearCarbon and DOMANI will further strengthen Deloitte’s ability to help clients drive value, mitigate business risk, and drive growth, efficiency and innovation through improved environmental, social and financial performance.”17

McKinsey – All is not unanimous on the sustainability front. For example, a study published by McKinsey in February 2009 concluded “The results indicate agreement that environmental, social, and governance programs do create shareholder value, though the current economic turmoil has increased the importance of governance programs and


17 For additional information see http://www.deloitte.com/view/en_US/us/press/Press-Releases/77c3ee704b1dc210VuCM2000001b56f00aRCRD.htm.
decreased that of environmental and social programs. Nonetheless, a significant proportion of respondents don’t fully consider these programs’ financial value when assessing the attractiveness of business projects or companies. Some think the value is too long-term or indirect to measure, and others just aren’t satisfied with the metrics available.”

Additionally, most executives believe environmental, social, and governance programs create shareholder value, but neither CFOs nor professional investors fully include that when evaluating business projects or companies.

According to a study recently completed by Verdantix, *Green Quadrant Sustainability Assurance Providers*, the financial materiality of sustainability performance data relating to energy consumption, greenhouse gas emissions, water usage, supply chain policies and environmental management is growing. As a result, a wider range of senior managers need confidence in these data sets and management systems. The study finds that six suppliers currently lead the market — Bureau Veritas, Deloitte, DNV, Ernst & Young, KPMG and PwC. The study further concluded from 2013 forward,

“…the growth of carbon regulation as well as an increasing realization that sustainability is a source of competitive advantage will drive investor interest in firms’ sustainability performance. This will create demand for “financial grade sustainability management information” and increase involvement from the CFO in sustainability-assurance purchase decisions.”

**Thought Pieces About Business’ Focus on Sustainability**

The business profession has also begun to write about sustainability. For example, an article in the February 2011 issue of *The CPA Journal*, “Corporate Social Responsibility Reporting: The Growing Need of Input from the Accounting Profession,” concludes

“Global trends in the number of companies issuing CSR reports according to GRI standards suggests that CSR reporting is rapidly becoming a regular part of business reporting, rather than a rare exception.”... “This growth in reporting and demand for assurance creates opportunities for the accounting profession to apply its expertise and support these growing needs.”

Likewise, an earlier article appeared in the December 2006 issue of the *Journal of Accountancy*. The article, “The Future of Corporate Sustainability Reporting, a rapidly growing assurance opportunity,” stated:

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20 For additional information see [http://viewer.zmags.com/publication/205d12e6#/205d12e6/1](http://viewer.zmags.com/publication/205d12e6#/205d12e6/1)
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“To satisfy the information needs of external and internal stakeholders, more organizations are measuring and reporting on their social and environmental performance. CPA’s can play an important role in providing the needed information and helping to verify it accuracy.”

The Conference Board has also entered into the field of sustainability. The Conference Board established the Center for Sustainability to allow companies to come together to:

- examine issues from a global, enterprise-wide and cross-functional perspective;
- engage in discussion about the role of the board and the C-suite in the governance of sustainability;
- hear from experts and benefit from research about current and emerging best practices;
- share experiences, exchange lessons learned, and enjoy dialogue with peers; and
- have the opportunity to select one board member to join the Directors Council on the Governance of Sustainability.

For additional information see http://www.conference-board.org/sustainability/. The Board also plans to hold a Corporate Citizenship and Sustainability Conference in 2012.

Guidelines for Sustainability Reporting

More companies are beginning to produce reports on their sustainability efforts. To do so, companies seek standards or guidelines on which to base their reporting.

The most notable sustainability guidelines used to produce external reports are those issued by the Global Reporting Initiative (GRI) based in the Netherlands. According to the GRI website, approximately 1800 companies currently issue sustainability reports following their guidelines – an increase of 300% since 2000. They are currently preparing to issue their 4th generation of their GRI Guidelines (G4) to meet the evolving needs of the companies and the users of the reports. GRI also grades company’s compliance with the GRI guidelines.

For additional information see http://www.globalreporting.org/Home.

Guidelines and indexes are issued by other organizations as well. For example:

- **United Nations Global Compact** – The United Nations Global Compact is a strategic policy initiative for businesses that are committed to aligning their operations and strategies with ten universally accepted principles in the areas of human rights, labor, environment and anti-corruption. For additional information see http://www.unglobalcompact.org/.

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21 For additional information see http://www.journalofaccountancy.com/Issues/2006/Dec/.
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- **SustainAbility** – Founded in 1987, the organization has evolved by helping companies with sustainability issues related to consumption, transparency, stakeholder engagement, and strategy. For additional information see [http://www.sustainability.com/](http://www.sustainability.com/).

- **Dow Jones Sustainability Indexes** – Launched in 1999, the Dow Jones Sustainability Indexes were the first global indexes tracking the financial performance of the leading sustainability-driven companies worldwide. Based on the cooperation between Dow Jones Indexes and SAM, the indexes provide asset managers with reliable and objective benchmarks to manage sustainability portfolios. The indexes are based on economic, environmental and social factors. According to their website, there are 19 unique indexes, primarily determined by geography. For the past 6 years, PwC has provided assurance on the research process used by SAM to arrive at the indexes.

  According to Dow Jones,

  “Corporate Sustainability is a business approach that creates long-term shareholder value by embracing opportunities and managing risks deriving from economic, environmental and social developments. Corporate sustainability leaders achieve long-term shareholder value by gearing their strategies and management to harness the market's potential for sustainability products and services while at the same time successfully reducing and avoiding sustainability costs and risks. The quality of a company’s strategy and management and its performance in dealing with opportunities and risks deriving from economic, environmental and social developments can be quantified and used to identify and select leading companies for investment purposes.”

  For additional information see [http://www.sustainability-index.com/](http://www.sustainability-index.com/).

- **The Sustainability Consortium (TSC)** – Formed in 2009, the primary objective of TSC is the development of a standardized framework for the communication of sustainability-related information throughout the product value chain. The TSC has approximately 80 corporate and NGO’s members. For additional information see [http://www.sustainabilityconsortium.org/](http://www.sustainabilityconsortium.org/).

  - **International Organization for Standardization (ISO)** – In 2004, ISO Issued ISO 14000, Environment Management standard series that specifies requirements for an environmental management system to enable an organization to develop and implement a policy and objectives which take into account legal requirements and other requirements to which the organization subscribes, and information about significant environmental aspects. In November 2010, ISO issued ISO 26000, Guidance on Social Responsibility. While not used for certification purposes, it provides guidance to organizations interested in operating in a socially responsible manner. In issuing the
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guidance ISO stated "The publication of ISO 26000 is eagerly awaited by organizations worldwide, whether they are business enterprises, or public sector organizations. Operating in a socially responsible manner is no longer an option. It is becoming a requirement of society worldwide. What makes ISO 26000 exceptional among the many already existing social responsibility initiatives is that it distils a truly international consensus on what social responsibility means and what core subjects need to be addressed to implement it. In addition, it is based on broad stakeholder input, including from developing countries, business, government, consumers, labor, nongovernmental organizations and others." For additional information see:


- **Carbon Disclosure Project (CDP)** – Over 3,000 organizations in some 60 countries around the world now measure and disclose their greenhouse gas emissions, water management and climate change strategies through CDP, in order that they can set reduction targets and make performance improvements. This data is made available for use by a wide audience including institutional investors, corporations, policymakers and their advisors, public sector organizations, government bodies, academics and the public. CDP operates the only global climate change reporting system. The CDP was launched in 2003. This past year CDP significantly increased its standards related to verification and assurance of company disclosed CDP measures, thereby placing more pressure on companies to improve the quality of their disclosures.

  For additional information see https://www.cdproject.net/en-US/Pages/HomePage.aspx.

- **True Sustainability Index** – As sustainability reporting continues to develop, the concept of context-based measures has become more prevalent. “The True Sustainability Index™ (TSI) is the world’s first context-based triple bottom line model for measuring, rating, ranking and reporting the true sustainability performance of organizations. It is context-based in the sense that it expresses organizational performance in terms of impacts relative to actual social and environmental conditions in the world, and not just in terms of top line trends, efficiency or incremental effects.” The index consists of 15 metrics as opposed to the other indexes which can contain up to 150 metrics. “Very simply, CBS is an approach for measuring, managing and reporting sustainability performance against standards of performance for what impacts on social and environmental resources in the world must be (or not be) in order to be sustainable. Such standards, in turn, are (a) grounded in the principle of ensuring stakeholder well-being, (b)
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take the existing state of relevant social and environmental conditions explicitly into account, and (c) should not, if generalized to the population as a whole, put the quality or sufficiency of vital resources or human well-being at risk.” For additional information see


According to an international survey conduct by KPMG International in 2008, other indexes businesses follow include:²²

- International Labour Organization Core Conventions -
- The Universal Declaration of Human Rights -
- OECD Guidelines for Multinational Enterprises -
  http://www.oecd.org/topic/0,3699,en_2649_37425_1_1_1_1_37425,00.html.
- International Chamber of Commerce Business Charter -
  http://www.iccwbo.org/policy/society/
- Sullivan Principles -
  http://www.mallenbaker.net/csr/CSRfiles/Sullivan.html

Regulatory Movement

Although most reporting is voluntary at this point, we are beginning to see movement by regulators. For example:

- Securities and Exchange Commission (SEC) - SEC Issued Interpretive Guidance on Disclosure Related to Business or Legal Developments Regarding Climate Change on January 27, 2010. The interpretive release provides guidance on certain existing disclosure rules that may require a company to disclose the impact that business or legal developments related to climate change may have on its business. The relevant rules cover a company’s risk factors, business description, legal proceedings, and management discussion and analysis. For additional information see http://sec.gov/news/press/2010/2010-15.htm.

- Johannesburg Stock Exchange (JSE) - In 2010, the Johannesburg Stock Exchange made a listing requirement that companies must produce an integrated report or explain why not. Additionally, The JSE launched the first Socially Responsible Investment (“SRI”) Index in May 2004. Reviews take place annually during the second half of each year, with results usually announced at the end of November each year.

**Opportunities for Thought Leadership in Sustainability**

**State of California** – The California Environmental Protection Agency approved a cap-and-trade law that incorporates rigorous oversight and enforcement provisions, including third-party assurance on cap-and-trade reporting. For additional information see http://arb.ca.gov/cc/capandtrade/capandtrade.htm.

**Business Organizations Come Together to Address Sustainability Issues**

Businesses have also launched organizations to address sustainability issues. A list of such organizations includes:

- **World Council for Sustainable Development** – The World Business Council for Sustainable Development (WBCSD) is a CEO-led, global association of some 200 companies (from 30 countries and 20 major industrial sectors) dealing exclusively with business and sustainable development. The Council provides a platform for companies to explore sustainable development, share knowledge, experiences and best practices, and to advocate business positions on these issues in a variety of forums, working with governments, non-governmental and intergovernmental organizations.

  The Council’s objectives are to:

  - Be a leading business advocate on sustainable development;
  - Participate in policy development to create the right framework conditions for business to make an effective contribution to sustainable human progress;
  - Develop and promote the business case for sustainable development;
  - Demonstrate the business contribution to sustainable development solutions and share leading edge practices among members; and
  - Contribute to a sustainable future for developing nations and nations in transition.


- **Cambridge Programme for Sustainability Leadership (CPSL)** – The University of Cambridge Programme for Sustainability Leadership (CPSL) works with leaders from business, government and civil society to address the critical global challenges that affect the success of their organizations -- from low carbon technology to food and resource security; from green buildings to sustainable mobility; from health and wellbeing to sustainable finance. CPSL assists leaders to assess the evolving business and policy environment and influence the direction of their organizations and the future of their sector. For additional information see http://www.cpsl.cam.ac.uk/.
Opportunities for Thought Leadership in Sustainability

- **Globally Responsible Leadership Initiative (GRLI)** – GRLI was co-founded by the United Nations Global Compact and European Foundation for Management Development (EFMD) in 2003. It is legally set up as a Foundation of public interest in Belgium. Its stated purpose is to determine “How do we develop a next generation of globally responsible leaders?”

GRLI has 67 partner organizations and its membership is expanding. It has set a limit of 120 partners to remain a fully integrated and action oriented global network, and to fulfill its unique role as a leading global catalyst for key challenges and future demands regarding how to develop a next generation of globally responsible leaders. GRLI accomplishes its objectives through three efforts:

- *Advocating* for global responsibility as the highest form of responsible behaviour and for the development of globally responsible leaders.
- *Concept Development (Thought Leadership)* of new concepts and ideas as well as the identification of existing ones which assist in identifying what it means to be globally responsible and how to develop/educate leaders with that focus.
- *Practice/Execution* of practical projects that businesses and business schools/learning institutions initiate in pursuit of our goals.

For additional information see [https://www.grli.org/](https://www.grli.org/).

**Professional Standards**

Professional standard setters have also begun to set standards on how to attest to the accuracy of the sustainable information presented. Examples include:

- **AICPA** – The American Institute of CPA’s issued Statement of Position 03-02, *Attestation Engagements on Greenhouse Gas Emissions Information* in 2003 to assist auditors in attesting to the accuracy of greenhouse gas emissions information. This standard was issued in anticipation of the trading of emission credits.

AccountAbility – AccountAbility is a global non-profit network with representatives in London, Washington, Beijing, Geneva, Sao Paulo and San Francisco, established in 1995 to promote accountability innovations that advance sustainable development. AccountAbility works with business, government and civil society organizations to advance responsible business practices and the governance of collaborations between public and private institutions. AccountAbility's AA1000 series are principles-based standards to help organizations become more accountable, responsible and sustainable. The standards address issues affecting governance, business models and organizational strategy, as well as providing operational guidance on sustainability assurance and stakeholder engagement. The AA1000 standards are designed for low carbon and green economy, and support integrated reporting and assurance. For additional information see http://www.accountability.org.

In addition to the above, some companies are exploring combining reporting on their sustainability efforts with their financial results. Such a report is called “integrated reporting.” To respond to this need, the GRI and IFAC have responded by forming the International Integrated Reporting Committee to develop standards for integrated reporting. Integrated reporting demonstrates the linkages between an organization’s strategy, governance and financial performance and the social, environmental and economic context within which it operates. By reinforcing these connections, integrated reporting is intended to help business to take more sustainable decisions and enable investors and other stakeholders to understand how an organization is really performing. A discussion paper on the Integrated Reporting framework will be released for public comment on September 7, 2011. For additional information see http://www.theiirc.org/.
II. Market Analysis

B. What Other Business Schools are Doing

Sustainability is a rather new discipline facing schools of business. Similar to the Poole College of Management, some schools became engaged due to a benefactor providing support to promote and develop sustainability within the school. Also similar to the PCOM, some business schools have recently concluded that sustainability is an area worth further exploration. The more established programs appear to have been established within the last 10-12 years. So while we may be late to the game, the more established programs are not that far ahead of us.

Several overall observations can be drawn from talking with faculty and administrators at other Colleges about their sustainability efforts:

- They didn’t spend a lot of time defining sustainability as it continues to evolve in the marketplace. Rather, the programs and curriculum they designed needed to be flexible enough to adjust as sustainability evolves in the marketplace.
- Most programs began small and grew as the program continues, again responding to activities in the marketplace and student needs.
- There are many different models deployed by business schools, the schools appear to develop programs consistent with what they believe is their strategic advantage.
- Support from the administration is important in implementing programs and providing resources (both financial and knowledge resources) directed toward implementation appears critical to success of the program.

In September 2011, Graduate Management News contained an article, “Five Questions on Teaching Sustainability for…” In the article the author concluded,

“Right now, it feels like businesses sector is doing a much better job than business schools in teaching these issues. It’s really important that business schools lead rather than lag in these issues, which are important for businesses both now and in the future….To me, what’s most important is whether students are getting the information they need to be aware of sustainability issues and how they can integrate them into their business…It is vital that students get core business knowledge, so I wouldn’t necessarily create an MBA that’s focused on sustainability. However, I would have sustainability woven seamlessly throughout the MBA program, not just in the curriculum but in a whole range of activities, such as consulting projects, volunteer projects, working abroad, speaker series, and many other such undertakings. It is important to embed a whole range of sustainability issues into the student experience—working with faculty on these issues, working out curriculum reform, and independent projects—to make sure the students are getting this information from a wide range of angles.”

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In addition, the March/April 2011 issue of BizEd contained an article, “The Eco-Friendly Academic,” which profiled Michael Crooke, the former CEO of prAna and Paragonia. Since leaving those companies, he joined the faculty of Pepperdine University’s Graziadio School of Business of Management. The article describes the school’s Certificate in Socially, Environmentally and Ethically Responsible (SEER) Business Practice program. When presented with the question, “What approach do you think that programs like SEER should avoid?” Michael responded,

“They shouldn’t be programs for people who only want to be sustainability managers or who only want to go into nonprofits. SEER is a mainstream program. Our students are going to Wall Street, they’re going to Main Street, they’re going into sustainability ventures. The whole idea of this business model is that any business in any domain or industry can use these principles to optimize its strategic plan.”

Students are also focused on sustainability. For example, students from 100 colleges and universities have participated in the Graduation Pledge Alliance, which reads: “I pledge to explore and take into account the social and environmental consequences of any job I consider and will try to improve these aspects of any organization for which I work.” Since 1987, the Graduation Pledge of Social and Environmental Responsibility has been offered at colleges and universities throughout the world. The mission of the Graduation Pledge Alliance (GPA) is to build a global community of responsible graduates improving society and the environment through the workplace. GPA’s vision is a world where every graduate, through the workplace, is an effective leader for social and environmental improvement.

While further sections of this report contain specific details about what business schools are doing relative to the curriculum, academic research and engagement with business, this section provides a high level description of activities for which business schools are engaged.

Topics included in this section include:

- Rankings
- Centers
- Organizations
- Faculty recognition
- Engagement with businesses
- Curriculum & Research

Rankings

As everyone is very aware, there are many academic rankings available. Within the rankings game, sustainability is beginning to be measured. Below are a few examples.

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25 Graduation Pledge Alliance is a project of Bentley Alliance for Ethics and Social Responsibility [http://www.graduationpledge.org/](http://www.graduationpledge.org/)
• **Beyond Grey Pinstripes** is a research survey and alternative ranking of business schools that spotlights innovative full-time MBA programs leading the way in the integration of issues concerning social and environmental stewardship into the curriculum. This ranking is the result of over 18 months of rigorous research – designing the survey, outreach to MBA programs around the world, data collection and analysis – looking at how well MBA programs incorporate social, environmental and ethical issues into the training of future business executives. Approximately 12,000 courses and faculty research abstracts and 4,000 examples of institutional support (e.g. extracurriculars, joint degree opportunities) were collected from 149 participating schools. Locally, UNC is ranked 9th and Wake Forest is ranked 44th, NC State is not ranked in the top 100. The survey also reported that the percentage of schools that require students to take a course dedicated to business and society issues has increased dramatically: 34% in 2001 to 79% in 2011. For additional information see [http://www.beyondgreypinstripes.org/rankings/index.cfm](http://www.beyondgreypinstripes.org/rankings/index.cfm).

• **Bloomberg Businessweek** annually publishes undergraduate business school rankings. This past year senior business students from the 139 participating schools were asked to assign letter grades (from A to F) indicating how well their respective business programs teach 14 specialty areas. The areas included quantitative methods, operations management, ethics, sustainability, calculus, microeconomics, macroeconomics, accounting, financial management, marketing management, business law, and corporate strategy, as well as entrepreneurship and international business.

The Mason School of Business at the College of William & Mary (ranked 24th overall) took top honors in sustainability. The ranking was attributed to “the school's extreme focus on everything green. Undergrad business students can enroll in such courses as Green Supply Chain and Environmental Consulting, or join the Net Impact chapter. In addition, the Mason School, along with Saatchi & Saatchi, a consulting firm focused on corporate social responsibility, has launched the "Do One Thing for Sustainability" initiative (DOT), pushing students to do their part in the green movement. Some student- and faculty-suggested DOTs include eliminating textbooks where possible and getting rid of plastic bottles at various campus events.”

Further Seattle University's Albers School of Business, previously ranked fourth in sustainability, is increasing its sustainability efforts by introducing a new special topics elective called Sustainable Marketing in the spring of 2012. At the University of Richmond's Robins School, ranked seventh in sustainability, the new business facility, Queally Hall, is expected to receive a LEED Silver rating in 2012, with such features as low-flow water systems and the use of recycled material in construction. For additional information see [http://www.businessweek.com/bschools/content/may2011/bs2011054_031567.htm](http://www.businessweek.com/bschools/content/may2011/bs2011054_031567.htm).

• **The Sustainable Endowments Institute** was founded in 2005 as a special project of Rockefeller Philanthropy Advisors. “The Cambridge-based nonprofit organization has pioneered research
and education to advance sustainability in campus operations and endowment practices. The College Sustainability Report Card is the only independent evaluation of campus and endowment sustainability activities at colleges and universities in the United States and Canada. In contrast to the academic focus on sustainability in research and teaching, the Report Card examines Colleges and universities, as institutions, through the lens of sustainability.” For additional information see http://www.greenreportcard.org/.

Centers

Many schools have established “centers” as a means to organize and sustain their sustainability efforts. Some are internally focused on the students and faculty, while others are more externally focused and the remainder has both aspects. Below are examples of centers:

- Arizona State University – Global Institute of Sustainability (founded 2004); focusing on global sustainability. For additional information see http://sustainability.asu.edu/practice/index.php.
- Stanford University – Global Supply Chain Management, Socially and Environmentally Responsible (SER) Supply Chains Program (founded 1995); focusing on global supply chain management. For additional information see http://www.gsb.stanford.edu/scforum/ser/.
- University of North Carolina at Chapel Hill – Center for Sustainable Enterprise (founded 2001); focusing on sustainable enterprise in strategy, marketing, finance, real estate, and entrepreneurship. For additional information see http://www.kenan-flagler.unc.edu/cse/index.cfm.
- University of Oregon – Sustainable Supply Chain Management Center (founded 2006); focusing on supply chain and operations management and measurement and analysis for the life cycle. For additional information see http://sustainability.uoregon.edu/sustainability-database/center-sustainable-business-practices.
- University of Colorado at Boulder Leeds School of Business – Center for Education on Social Responsibility (founded 2007); focusing on substantial infusion of values and social responsibility throughout all years of the business education. For additional information see http://leeds.colorado.edu/cesr#about.

Organizations

Business schools have joined organizations focused on sustainability. Examples include:

Principles for Responsible Management Education (PRME)26 - The mission of PRME is “to inspire and champion responsible management education, research and thought leadership globally. In the current academic environment, corporate responsibility and sustainability have entered but

26 PRME http://www.unprme.org/
not yet become embedded in the mainstream of business-related education. The PRME are therefore a timely global call for business schools and universities worldwide to gradually adapt their curricula, research, teaching methodologies and institutional strategies to the new business challenges and opportunities.”

- **Association for the Advancement of Sustainability in Higher Education (AASHE)**: “AASHE’s mission is to empower higher education to lead the sustainability transformation. [AASHE does] this by providing resources, professional development, and a network of support to enable institutions of higher education to model and advance sustainability in everything they do, from governance and operations to education and research.”

- **The Aspen Institute** published *The Sustainable MBA: A Guide to Business Schools that are Making a Difference.* This publication describes how leading MBA programs are integrating social, ethical and environmental impact into their academic and extracurricular offerings to prepare future business leaders to be champions of corporate citizenship and sustainability. The publication provides highlights about over 150 MBA programs located in 20 plus countries—including course offerings, activities, clubs, joint degrees, and career resources.

**Faculty recognition**

AASHE supports the *Faculty Sustainability Leadership Award*. This award is presented to a “faculty member from an AASHE member institution who has demonstrated international, national, or regional leadership in establishing, promoting, or in other ways furthering the goals of education for sustainability. The award is based on the contributions that have been made by the individual(s) to increasing the breadth and depth of sustainability education and her/his/their impact on individuals and the field in general.”

The Darla Moore School of Business at the University of South Carolina sponsors the annual **Dr. Alfred N. and Lynn Manos Page Prize for Sustainability Issues in Business Curricula**. “The Page Prize has two objectives: to encourage efforts to expose business students to state-of-the-art environmental sustainability knowledge and to demonstrate the Moore School’s commitment to promoting sustainability in business education. Each year, the school adds the new winning submissions to its database of high-quality teaching/curricular materials related to environmental sustainability, which it houses on this Web site and through the Moore School’s Partner Page on The Aspen Institute’s [caseplace.org](http://caseplace.org).”

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29 AASHE Faculty Sustainability Leadership Award [Faculty Sustainability Leadership Award | Association for the Advancement of Sustainability in Higher Education (AASHE)]
30 Page Prize for Sustainability [http://mooreschool.sc.edu/about/sustainableenterprisedevelopment/pageprize.aspx](http://mooreschool.sc.edu/about/sustainableenterprisedevelopment/pageprize.aspx).
**Engagement with businesses**

One of the clear messages we received in discussions with other schools and from reviewing their websites is that many sustainability programs engage with business in the delivery of their programs. This is accomplished through:

- Sustainability internships and case assignments with businesses
- Corporate sponsor
- Sustainability advisory board

**Curriculum & Research**

While this section contains high-level observations, see the later sections of the report for specific details about curriculum and research.

Business schools have taken many approaches to curriculum. It appears few schools offer a major in sustainability. The schools that have sustainability programs offer sustainability minors, concentrations, and certificates. Most schools offer a combination of stand-alone sustainability classes and sustainability topics integrated into existing course offerings. Also, most schools appear to begin offering sustainability options in their graduate programs, with William and Mary being a notable exception.

Some schools have created concentrations in sustainability. For example, UNC has an MBA Sustainability Enterprise Concentration. For additional information see [http://www.kenan-flagler.unc.edu/cse/mba-sustainable-enterprise-concentration.cfm](http://www.kenan-flagler.unc.edu/cse/mba-sustainable-enterprise-concentration.cfm).

MIT Sloan School of Management has created a MIT Sloan Sustainability Certificate that is only open to masters-level students at MIT, as an add-on to their existing degree programs. For additional information see [http://mitsloan.mit.edu/sustainability/certificate.php](http://mitsloan.mit.edu/sustainability/certificate.php).

There are a number of academic conferences held with a focus on sustainability. Below is a list of selected conferences:

*Eight International Conference on Environmental, Cultural, Economic and Social Sustainability*

Robson Square, University of British Columbia, Vancouver, Canada

January 10-12, 2012

This year’s Sustainability Conference will take place in Vancouver, Canada at Robson Square, University of British Columbia. This conference aims to develop a holistic view of sustainability, in which environmental, cultural and economic issues are inseparably interlinked. It will work in a multidisciplinary way, across diverse fields and taking varied perspectives in order to address the fundamentals of sustainability.

For additional information see [http://www.SustainabilityConference.com](http://www.SustainabilityConference.com).

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Authenticity: building trust through sustainable business

“What is the state of corporate trust in the world today? What competitive advantage will be gained by those who successfully repair and earn public trust in today’s recovering marketplace? In the wake of the global financial crisis, business executives and thought leaders are clear that restoring trust is critical to fueling economic recovery and generating future value. Increasingly, global CEOs and entrepreneurs alike are elevating the role of sustainability as a central business strategy. Sustainability-inspired campaigns and strategies, however, are only as credible as the tangible initiatives and top-level commitments that underpin them. The 5th Annual International Conference on Business & Sustainability will explore authenticity as a business imperative from perspectives ranging from product design to brand integrity to performance measurement to corporate strategy.”

For additional information see http://sba.pdx.edu/sustainabilityconference11/.
II. Market Analysis

C. Business Needs for Talent and Student Placement

Trying to determining what skills and knowledge related to sustainability that businesses would like our students to obtain as well as student placement related to obtaining those skills and knowledge is difficult to obtain. First, as the programs are relatively new, placement statistics are not available. Second, even those schools that do have sustainability programs often don’t specifically track subsequent careers in sustainability. Alternatively, it maybe that sustainability-related skills and knowledge may be skills needed to be successful in business going forward, as opposed to a stand-alone career. We used several methods to obtain such information.

Skills and Knowledge

For the skills and knowledge needed by businesses, three focus groups were held:

- October 14 – PCOM Advisory Board
- October 25 – CIMS Annual Fall Sponsor Meeting
- October 28 – 7th Annual Biosciences Forum

The focus groups were facilitated by Mark Beasley or Scott Showalter. During each focus group, we asked business leaders what sustainability-related skills and knowledge they believe are important for our students to have to be successful in the future; those related to sustainability-related positions and business in general. We also inquired about how their specific businesses viewed sustainability and specific areas where they are seeking assistance.

As expected, the input received varied by their exposure to sustainability within their company. Considering all three focus groups combined, below are some observations:

1. Most participants acknowledged sustainability had an impact or focus somewhere in their businesses (specifically, no one questioned why the PCOM would be focusing on sustainability as a subject our students should know.) Granted, the impact varied by industry and where they were in the sustainability value chain.

2. Many organizations were focused on the regulatory aspects of sustainability and the day-to-day impact of sustainability issues on their businesses.

3. While a few individuals mentioned strategy, more individuals identified sustainability as a factor that should be addressed in their risk assessment process.

4. Some of the participants noted that their customers have inquired about sustainable practices and products and that was a driver in their company to implement sustainable practices and products.
5. While the participants did not identify any specific sustainability skills or knowledge, they did emphasize that sustainability underscored the importance of some existing skills such as, 1) ability to work in interdisciplinary groups, 2) need for “out of the box” thinking to address sustainability issues, 3) ability to deal with ambiguity due to the evolving nature of sustainability practices and products, 4) ability to consider the total system impact of implementing sustainability practices, 5) greater focus on global practices, 6) understanding that it is okay to fail, and employee engagement in implementation.

6. Notwithstanding the above observation, the participants concluded that there is a need for a stand-alone class in sustainability topics to help students understand what is sustainability, how it impacts businesses and current industry trends. The general belief was that sustainability skills and application should be incorporated into our existing classes.

7. Generally, companies were not able to identify specific areas where the PCOM could assist them in implementing sustainability practices.

In addition, from interaction with business leaders from the North Carolina Business Sustainability Network and The Sustainability Consortium, we have identified the following skills and knowledge:

- Knowledge of and application of life cycle analysis
- Integration with strategy and enterprise risk management
- Skills to quantify return on investment from sustainability efforts
- Industry specific issues, such as a Carbon Disclosure Project

In 2009, The Boston College Center for Corporate Citizenship conducted a study to assess the competencies needed to lead a successful corporate citizenship or community involvement initiative in the 21st Century. The results were published in the report, “Leadership Competencies for Corporate Citizenship.” The resulting models, designed in partnership with the Hay Group, are intended to be used by students as practical tools for charting a course of personal and professional development. The Corporate Citizenship Leadership Competency Model provides a view of the primary leadership competencies needed among effective corporate citizenship practitioners. The components of the model include 1) change driver, 2) strategic influence, 3) visionary thinking, 4) system perspective, 5) collaborative networker, 6) peripheral vision, 7) optimistic commitment, 8) personal maturity. For additional information see [http://www.bcccc.net/index.cfm?fuseaction=Page.viewPage&pageID=2020](http://www.bcccc.net/index.cfm?fuseaction=Page.viewPage&pageID=2020).

As further explained below, Arizona State University conducted a survey of job opportunities for students with sustainability skills. As part of the survey, they asked about skills needed to be successful in the sustainability field. Survey results concluded:

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32 The North Carolina Business Sustainability Network is a recently formed network of sustainability leaders from North Carolina-based companies where sustainability is important to their corporate strategies and their desire to come together as a group to solve common issues related to sustainability.
“The survey participants also said certain sustainability-related topics should be taught to all managers and executives. These areas include corporate social responsibility, sustainability strategy, measuring sustainability, sustainability-related product and process improvement, and environmental and health policy and business.”


**Student Placement**

For the reasons stated above, student placement and career success related to sustainability is difficult to locate. To find such information, three methods were used. First, a select list of graduate programs known to have programs related to sustainability, was canvassed to determine the existence and availability of such information. Second, the websites of business schools known to have programs related to sustainability programs were reviewed to identify any placement information. Third, representatives from three business schools were interviewed to determine the existence and availability of placement information.

Of the 14 graduate programs contacted, only four programs responded and one of those was not complete. Due to the small number of responses, there were no obvious conclusions; however, one of the questions asked was “What advice would you give NC State’s MBA Career Center if we decide to start to expand our academic offering in sustainability.” Below are the responses we received from the three programs that responded.

- **Wake Forest** – “Assess the market carefully, there is a lot of talk about sustainability but not as much action on the development.”
- **University of Michigan** – “Identify a contact with your office to head up this effort. This person will need to become familiar with the recruiting opportunities available in sustainability and have a good grasp of how to conduct an individual self-directed job search. The recruiting landscape for sustainability is very unique and time consuming and you will find that students want the process to be similar to what they experience with traditional functions (i.e., consulting, finance, marketing, etc.).”
- **Portland State University** – “We always tell our students that you can’t become a "sustainabiliologist" We encourage them to find ways to make an impact by specializing in functions (supply chain, finance, marketing, project management) etc. and then go to work for traditional companies. Also, students should look at companies in industries that value

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31 Programs contacted include: University of Arkansas, Arizona State University, Stanford University, University of Michigan, University of Oregon, Portland State University, Temple University, Elon University, Wake Forest, Syracuse University, Cornell University, Pepperdine University, University of South Carolina, University of Colorado at Boulder.
sustainability. Energy, consulting, consumer project firms seeking more sustainable supply chain, etc.”

One observation from the information provided by the respondents is that for the well established sustainability programs, it appears employers come to the schools seeking graduates with sustainability knowledge and for the other programs, it seems harder to place students or the employers don’t differentiate in their hiring.

As for the websites visited, except for UNC noted below, most programs do not provide sustainability-related placement information even though they have sustainability programs, concentrations or minors.

Discussions were held with representative from three schools.34

- UNC Kenan-Flagler Business School posts alumni who have been successful in careers involving sustainability on their website. See [http://www.kenan-flagler.unc.edu/cse/alumni-careers.cfm](http://www.kenan-flagler.unc.edu/cse/alumni-careers.cfm) for UNC Kenan-Flagler alumni who are making an impact in careers across the sustainable enterprise spectrum and around the world. In addition, the program produces a Sustainable Enterprise Student Guide that contains a list of alumni full-time jobs and internships. The guide lists approximately 170 alumni who hold full-time jobs related to sustainability between 1991 and 2011 and approximately 290 internship opportunities between 2002 and 2012.

- The representative from the University of Colorado at Boulder Leeds School of Business stated that they did not have much information on job placement as their program is four years old. However, the nature of their curriculum is that students receive some exposure to sustainability topics throughout their 4 years and therefore most graduates have gained exposure to sustainability and therefore is not tracked separately. As a result of our conversation with the Leeds School of Business, the PCOM has been invited to participate in the Leeds sponsored Sustainability Curriculum Thank Tank to be held in July 2012. It is an invitation-only event where 15 business schools with sustainability curriculum are invited to share successful applications.

- In developing their sustainability program35, the W.P. Carey School of Business at Arizona State University conducted a market analysis for graduates with sustainability skills. That market analysis was provided to the Task Force and incorporated into this report. See Appendix for

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34 Interviews were held with representatives from: UNC Kenan-Flagler Business School (Carol Seagle), University of Colorado at Boulder Leeds School of Business (Donna Sockell), Arizona State University (Kevin Dooley).

35 “The W. P. Carey School of Business currently offers a Bachelor of Arts in Business with a concentration in sustainability. More than 350 students are taking advantage of this program, which includes a traditional, high-caliber business core, along with courses focused on sustainability. On the graduate side, the W. P. Carey School of Business recently added sustainability as an area of emphasis for MBA students. Other sustainability coursework has also been added to master’s and executive education programs.”
copy of Training and Education Needs for Green Businesses. The executive summary of the report concluded:

“The W.P. Carey School of Business is faced with numerous educational opportunities related to sustainability. Recently the School has begun to offer a B.A. in Business with a concentration in Sustainability, and there may be as many as 250-350 students annually graduating with this degree within two years. Additionally, educational opportunities in sustainability exist within the Masters and Executive Education programs.

We analyzed job descriptions, interviewed corporate sustainability officers, and surveyed business managers and executives to identify the type of job opportunities these students are likely to have, their potential career paths, and the specific knowledge, skills, and abilities needed for these jobs.

Over 87% of respondents from large companies, including 97.5% of the executives from these firms, said that the Sustainability Concentration would make a difference in the hiring of our BA students. The data are also supportive of MBA and Executive Education Opportunities.

The school is not keeping separate sustainability placement statistics at this time.

Additionally, Net Impact and the Center for Corporate Citizenship at Boston College in February 2011 published, “Corporate Careers That Make a Difference” to help students identify job opportunities in corporate responsibility. The publication amplifies the undefined path for careers in corporate responsibility and the various career paths in the yet to-be-defined profession. For additional information see http://netimpact.org/associations/4342/files/CorporateCareersThatMakeaDifference_v2.pdf.
III. Opportunities

The Task Force analyzed the information and feedback obtained as a result of the Market Analysis research to identify a number of opportunities available to the Poole College of Management to provide sustainability thought leadership. We have categorized these opportunities along the following dimensions:

- Teaching
- Research
- Engagement with Business
- PCOM Culture
- Center of Excellence in Sustainability

The next section of this report provides an overview of a variety of opportunities along each of these dimensions. Embedded within each subsection of the Opportunities portion of this report are a number of “next steps” that the College should consider to further pinpoint specific strategies and initiatives that could be undertaken to provide thought leadership related to sustainability within each of these dimensions.
III. Opportunities

A. Teaching

Introduction

The first category of opportunities relate to Teaching. As the business world continues to expand its embrace of sustainability in the development of long-term strategies and execution of current business operations, executives will benefit from greater awareness of issues surrounding sustainability. That creates unique teaching opportunities for the Poole College of Management faculty as it accepts responsibility for helping educate the next generation of executives.

Business schools that have embraced some kind of focus on sustainability have adopted a variety of tactics to integrate this topic into their curricula. To obtain a sense for approaches other business schools have taken, we engaged in an analysis of business school program offerings at 15 schools to determine the nature and extent of undergraduate or graduate program areas of focus in sustainability. Some of these fifteen schools include business schools that are considered as Poole College of Management peer Schools.36 Others that we examined include business schools with an already established reputation for providing sustainability education or business schools that are generally highly regarded business schools in the United States.37, 38

<table>
<thead>
<tr>
<th>Schools</th>
<th>Graduate Level</th>
<th>Undergraduate Level</th>
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<tbody>
<tr>
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<td>Number of Schools with One or More “Sustainability-Titled” Courses</td>
<td>Number of Schools Offering a Concentration in Sustainability</td>
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<td>Total (n=15)</td>
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</table>

36 The list of Poole College of Management peer schools examined include the business schools at Duke, UNC-Chapel Hill, Wake Forest, Georgia State, South Carolina, Maryland, and Virginia Tech.
37 The list of schools with well-established areas of focus in sustainability includes Arizona State, University of Colorado-Boulder’s Leeds School of Business, and Portland State University. The list of well-respected business schools we examined include University of Virginia’s Dardin School, Kellogg at Northwestern, Stanford, Michigan, and Wharton.
38 There are other business schools that we could have examined as part of this benchmarking exercise. However, we limited our analysis to these 15 schools because of the in-depth nature of the analysis required to locate information related to sustainability course offerings within the business schools’ websites. Furthermore, our intent is not to use this analysis to obtain a precise measure of specific courses and programs. Rather, we are more interested in using this to obtain a high-level overview of what our peers and other highly-respected schools are offering related to sustainability education.
Key Themes Regarding Sustainability Education

Sustainability is clearly a dominant theme at almost all the schools we benchmarked. Out of the 15 business schools examined in our benchmarking exercise, all but one (Virginia Tech) offer stand alone courses in sustainability at either the undergraduate or graduate level. Five of the PCOM peer schools offer one or more “sustainability-titled” courses in their graduate programs (MBA level), while only two have courses at the undergraduate level. The three schools with well-established sustainability program reputations all offer undergraduate “sustainability-titled” courses while two of the three offer those courses at the graduate level. All of the top business schools offer “sustainability-titled” courses at the graduate level, with three of five offering concentrations in sustainability as part of their graduate programs. While our benchmarking data shows that courses are available at both the undergraduate and graduate level, the greatest number of stand-alone course offerings on sustainability is at the graduate level.

In addition to this benchmarking data, members of the Poole Sustainability Task Force met face-to-face or engaged in telephone conversations with faculty leading the sustainability efforts at these as well as other business schools and have attended AACSB conferences on sustainability education. Collectively, all this information suggests that while most of the benchmarks schools offer stand-alone sustainability courses, schools have by and large embraced an integrated approach whereby relevant topics addressing sustainability have been embedded in already existing courses on traditional topics (e.g., operations, finance, accounting, economics, etc.), much like the approach some business schools have used to address issues related to ethics. In some cases, business schools have developed a series of courses on sustainability that students complete to earn a minor or concentration in sustainability and some schools offer “certificate programs” in sustainability. This data suggests that there are a number of opportunities for faculty at the Poole College to consider as alternatives for teaching sustainability from a business school perspective.

Several common themes emerged:

- Sustainability is a concept that requires each business school to “put its stake in the ground”, as there is no single definition for sustainability that emerges. As such, business schools should attempt to define how sustainability impacts their curriculum. The implication here is that the Poole College of Management should seek to integrate sustainable concepts into its existing core strengths in curricula.
- Second, some schools have developed “standalone” sustainability courses while others have integrated topics related to sustainability into existing courses. Again, the implication is that the Poole College (PCOM) should seek to determine whether stand alone or integrated courses, or both, are best suited. This approach may include consideration of minors and perhaps concentrations that include sustainability foci.

39 Examples of “sustainability-titled” courses include offerings such as “Sustainable Operations,” “Sustainability and the Global Enterprise,” “Strategies in Sustainable Enterprise,” “Systems Thinking for Sustainable Enterprises,” among others.
Third, it is clear that interaction with business executives to identify focused projects and collaborative activities dealing with sustainability is an important element. This also bodes well for PCOM, as many of our concentrations and our Centers and Initiatives already have a great deal of corporate interaction. The key will be to direct more of this interaction to sustainable concepts.

Fourth, many schools have a Center that serves as a coordinating mechanism to link sustainable course development and content. We also believe this could be an important contributing factor to driving a more sustainable curricula, if funding was provided to drive this activity further. Given that PCOM already has several key Centers and Initiatives, a Sustainability Theme could be interwoven into these center efforts perhaps through a coordinating Center and support.

If we choose to apply these four core themes, we believe that there are foundations in place at the Poole College that provide a base upon which we can build a differentiated teaching curriculum with a highly focused sustainability offering.

**Summary of Key Activities/Elements**

This section of our report outlines examples of opportunities our faculty can consider in identifying ways in which we can integrate a focus on sustainability into our program offerings. As we think about teaching, we want to consider opportunities across our graduate and undergraduate curricula as well as opportunities for non-traditional teaching, such as certificate programs, executive education, and non-degree distant education.

The key activities/elements included in this building block include the intersection of sustainability and the Poole College of Management’s:

- Undergraduate programs
- Graduate programs
- Non-traditional teaching offerings

**Undergraduate Programs**

Most business schools have focused their efforts related to sustainability on graduate versus undergraduate programs. That may provide the Poole College of Management a unique opportunity to be one of the first business schools to provide unique undergraduate program opportunities, especially in light of the land-grant focus of NC State and the university’s areas of noted expertise, such as textiles, engineering, forestry, and design. This section explores steps our Poole faculty should consider as they evaluate opportunities at the undergraduate program level.

A natural starting point is to evaluate whether and how issues related to sustainability tie to topics that are the primary focus of each undergraduate degree program. As our faculty expands its knowledge and understanding of issues related to sustainability, we are likely to identify numerous intersections of
sustainability topics with issues that are the primary focus of undergraduate degree programs. Each of our undergraduate degree program curriculum committees should consider engaging in a process that examines where and how knowledge and understanding of sustainability issues might enhance the education and professional success of our students completing degrees in each of our undergraduate programs. For example, the Department of Accounting’s undergraduate curriculum committee may identify a need for more focused coverage of sustainability in our undergraduate accounting program, given the fact that organizations are increasing external sustainability reporting to investors and the marketplace with some of that reporting embedded in financial statement disclosures.

As part of our consideration of opportunities to address sustainability in our undergraduate programs, our undergraduate curriculum committees may also want to consider whether the establishment of a concentration within the context of an undergraduate degree program would provide a unique educational opportunity for our undergraduate students that would enhance their marketability in professional job search. The individual undergraduate program curriculum committees should also work together to identify whether common courses could be developed and cross-listed as appropriate courses across each of the undergraduate programs.

**Graduate Programs**

Most business schools that have developed sustainability program offerings began by focusing on graduate level programs rather than those at the undergraduate level. While graduate programs in other business schools may be further ahead and already branded as providing leading sustainability-focused programs, the Poole College should explore ways to leverage its strengths, including its well-established Centers and Initiatives and the strengths at the university-wide level such as engineering, textiles, forestry, and bio-sciences to provide unique sustainability focused programs at the graduate level. Similar to our observations related to undergraduate programs, our graduate level curriculum committees should engage in evaluations of the intersection opportunities for sustainability and our graduate programs.

**Alternative Models to Consider**

As we consider stand-alone courses as an option, we should be open to the development of short courses, much like the 1.0 hour credit courses offered by the MBA program. Additionally, we should explore already existing courses offered outside the Poole College (e.g., textiles, forestry, engineering, etc.) that may provide unique education related to topics affecting sustainability.

We should also explore opportunities to create practicum course offerings for our students across our undergraduate and graduate programs. Because the business world is at the early stages of understanding issues related to the impact of sustainability on their business operations and strategies,
they may be more willing to embrace teams of students (both undergraduate and graduate) who would partner with those organizations to evaluate particular aspects of sustainability on their operations and strategic areas of focus. Students could work on specific projects for these organizations in a consulting capacity. That would provide real-world education and experiences for our students and faculty who oversee practicum teams. It would allow our university to help introduce sustainability considerations within the businesses who partner with us on these practicum offerings and it would enhance the “Real” branding of the Poole College.

In some areas, content is already under development, and with some additional focus and development, we could provide the beginning of a set of pilot courses upon which we can build. To provide a visual example of how a practicum course might be developed, we have provided two examples in the Appendix of how this integration could occur. The first example illustrates both an integrated approach and a stand-alone course approach to introducing sustainability into the supply chain concentration curriculum. The second example illustrates how sustainability might be integrated into the Finance concentration.

[See Appendix – Example 1 and 2]

Other opportunities that we might consider to enhance our teaching focus on sustainability topics would include engaging students as participants in one or more of the following examples of non-coursework methods of expanding student knowledge and understanding about sustainability:

- Conferences focused on sustainability,
- Student case competitions
- Executive lecture series focused on sustainability topics
- Outside speakers in classes
- Study abroad trips focused on raising awareness of global sustainability concerns

The Poole College could also consider hosting some of the above, including sustainability-focused conferences and case competitions, for example. We have included a third example in the Appendix of how non-traditional learning opportunities can help expose students to issues related to sustainability through program offerings in our Centers and Initiatives.

[See Appendix – Example 3]

Non-Traditional Program Offerings

While our primary focus in the Poole College is on traditional undergraduate and graduate programs, we should also be open to considering other market opportunities related to teaching sustainability in non-traditional programs. Two of the three schools with already-established sustainability programs offer certificates in sustainability, while one of the five top-business schools offers a certificate program.
None of the Poole College peer schools offers a certificate program, which may present a unique opportunity for us.

In conjunction with our departmental faculty, leadership in functions within our College, such as our Business Collaboratories efforts and the College’s various Centers and Initiatives may want to work together to explore market interest in certificate programs, distance education, and executive education courses related to sustainability. Most likely there are opportunities to address sustainability issues as part of our Centers and Initiatives training and executive education offerings.

As our faculty expands its expertise related to sustainability, we may have increasing opportunities to provide non-traditional program offerings, which will not only help enhance brand awareness of the Poole College among executives, but will also provide possible alternative revenues for the College.

**Leadership of Next Steps**

The Task Force recommends that each of the graduate and undergraduate level curriculum committees be responsible for engaging in further evaluation of teaching implications related to sustainability.
III. Opportunities

B. Research

Introduction

The second set of opportunities relates to Research. The exact definition of sustainability is elusive, because it can be interpreted very broadly or more narrowly. In the last few decades, the term sustainability first gained prominence in ecology where the primary concerns were with maintaining the viability of ecological systems. Originally many ecologists were discussing what is now called “strong sustainability” where each generation leaves the world and all its resources in the state in which they found them. Over the same time period, environmental economists were favoring the concept of “weak sustainability” where each generation has the capability to have an equal or better life than the previous generation. This allows some nonrenewable resources to be used as long as substitutes are developed that allow maintaining the overall quality of life.

Researchers in most fields now would choose the latter definition over the former. However, sustainability can be broader than just natural resources and ecology. Sustainable production and marketing can mean more than just environmentally sustainable. A sustainable economic system must also think about issues beyond the environment, and so forth. In thinking about sustainability research in the Poole College of Management, we must consider all the research areas that this might encompass.

We must also consider how our own research areas might fit within the general area of sustainability, how fields within the College might work together on common research goals, and what role we might play in the interdisciplinary research on sustainability on this campus and more broadly. Some of the possibilities are readily apparent: studying product life cycles, sustainability issues in supply-chain management, sustainable business models, packaging decisions, green marketing, green materials, sustainable energy and production, streamlining the interaction of businesses and environment policies, and environmental economics and sustainability. Others are only now emerging, such as the relationship between ethics and trust and sustainability.

If the Poole College of Management decides to encourage research in sustainability, this could take a number of forms. Such research could be encouraged with seed money to individuals or groups within the College to assist in initiating lines of research. This money could be linked to internal grants for sustainability research (similar to other internal grant programs we currently have) or distributed by the Dean. This would get the money directly to the researchers without much overhead but would probably be less visible than some of the alternatives. A more formal structure could involve a Sustainability Center, which would administer the funds. The Center could solicit research in specific areas, accept unsolicited proposals, or both. The details of the possibility for a Center are discussed in a later Opportunity section.
An alternative to a center that has been proposed is to use some Poole money to support Term Professorships in Sustainability in each department. This would provide visibility for sustainability research and might serve as a catalyst for broader research efforts.

The research Opportunity includes several facets; they are:

- External funded research
- Publishing in academic journals
- Publishing in professional journals
- Participating in academic sustainability conferences
- Sponsoring academic sustainability conferences

**External Funding for Interdisciplinary Research on Sustainability**

Currently Awarded Campus-wide Funded Research with Sustainability Links

There are a wide variety of externally funded research efforts at NC State that have links to sustainability. The funding ranges from relatively modest projects to multi-million dollar projects. The major grants are housed in the College of Agriculture and Life Sciences, College of Engineering, College of Natural Resources, and the College of Textiles, although almost every College has funded sustainability research being conducted. Among CALS’ major projects are a $2 million dollar project (Department of Energy funding) on evaluating the sustainability of using southeastern forest biomass for energy, a couple of projects with over $800K of funding sustainable aquaculture in North Carolina and abroad, and a study of the economic and environmental sustainability of grape and wine production in North Carolina. It is clear there are business and economic issues involved in projects such as these. In Civil Engineering there are funded projects on Improved Water Resources Sustainability, Climate Uncertainty and Sustainability, and Solid Waste Management and Environmental Sustainability in a Carbon Constrained Environment. These projects have combined funding from the NSF of over $800K. The College of Natural Resources also has over $600K on biomass for sustainable energy. In addition there are NSF-funded centers including the NC State Future Renewable Electric Energy Delivery and Management Center, with $11.6 million of funding. In the future there could be opportunities such as these in which our College could participate.

Opportunities for Future Campus-wide Funded Research with Sustainability Links

Most of the current requests for proposals (RFPs) in the sustainability area are from NSF and have multi-million dollar funding in each category with individual research efforts expected to be between $500,000 and $1,000,000. One set of calls is for the Science, Engineering, and Education for Sustainability (SEES) NSF Wide Investment. Others are for Sustainable Energy Pathways; SEES Fellows; Sustainability Research Networks; Water Sustainability and Climate; Dimensions of Biodiversity; Dynamic of Coupled Natural and Human Systems; Climate Change; and Ocean Acidification. It is clear that NSF is whole-heartedly behind the effort. These are all interdisciplinary, and competition will be
Opportunities for Thought Leadership in Sustainability

stiff, but they indicate the types of opportunities that may be available in the future. All the NSF RFPs include the Directorate for Social, Behavioral, and Economic Science, which is the category in which most in our College efforts would be.

External Funding for Poole College Research on Sustainability

There were not many specific RFPs on sustainability oriented strictly to the business fields. One recently issued was the AT&T Technology and Environment Awards Program — Connecting Minds for a Sustainable Future. This program issues grants of up to $25,000. The fact that we did not find other requests for proposals does not mean that there is no funded research being conducted in the business fields. However, most of the funding is not coming through the traditional channels.

Recently five professors in the Department of Accounting were awarded a grant of $22,500 by the Institute of Management Accountants to fund a “Case Study of Bacardi Limited’s Activity Based Flexible Budgeting for Physical Sustainability Indicators.” The objective of the research is to demonstrate how management accountants can adapt familiar analytical methods to physical (nonfinancial) performance indicators in the emerging field of sustainability decision support, planning, and control.

Outlets for Research on Sustainability

Research on sustainability is being published in journals in a variety of fields, such as governance, management, marketing, environmental economics, and ecological economics. Given the magnitude of the sustainability issue, the research areas included within this topic are numerous and broad. They run the gamut of academic areas represented within PCOM.

A few examples from the conference at Portland State University in November ’11 organized by the Center for Global Leadership in Sustainability include examination of sustainable business practices that either maintain or enhance the physical or social environment. Jerry Greenfield, co-founder of Ben & Jerry’s Homemade Inc. provided a colorful description of how the company was founded on a shoestring, against all odds. What he described made clear that as the company evolved, they made intentional decisions about how they recognized that they were embedded in an environment that their firm affected. They raised money from people who lived in Vermont, and wanted to give back to that community. One of the things Ben & Jerry’s did was purchase brownies to put into one of their ice cream flavors. The company that makes the brownies employs people who are recovering from substance addiction or ex-cons who were otherwise unemployable. The scale of their purchases (in the millions of dollars per year) obviously helps the company to survive, helping keep its employees out of the socially and financially costly prison and healthcare systems.

Toby Pomeroy, Founder of Toby Pomeroy Jewelry. The movie Blood Diamonds has made most people aware of the savage way that many poor people have been treated in the production of diamonds. Mr. Pomeroy discussed how systems have developed to track gems from mine to consumer to try to choke
Opportunities for Thought Leadership in Sustainability

the market for gems that leave a human toll in their production. He spoke also of the increasing attention being paid to sustainable mining operations for gold. They carefully remove layers of topsoil and other materials and, after reaching and removing the gold, replace the other materials to leave the area as it was before the mining. This is quite in contrast to the type of strip mining operations that treat removed materials as waste, and leave the area in shambles. One need only drive through West Virginia on Interstate route 77 to see the money that is being spent to wage war against the EPA by mining operations, suggesting a false dichotomy of protecting the environment or protecting jobs for the local population. Mr. Pomeroy discussed increasing demand of consumers to know that the products they buy—in this case, the jewelry—does not do damage to the environment or to people. He explained there are tracking systems developing to certify this social responsibility in the processes leading to finished jewelry.

These two presentations, while in very different industries, illuminated the interest in sustainable business practices that maintain or help the physical or social environment in which we live. One area that presents clear research needs is how to report and track carbon production and footprint stewardship. Another is how entrepreneurs and firms can find ways to compete in the vast and evolving market that is evolving based on consumers’ interest in products, packaging, and procedures that are more environmentally and socially friendly. Specific sessions at this particular conference were devoted to such varied topics as accounting, marketing, international supply chain management, management & culture, social sustainability, and trust. This short list vastly under-represents the number of research areas within PCOM that are already associated with various tentacles of the research areas within the domain of sustainability.

In addition a number of journals have recently been started that focus explicitly on sustainability. Examples of the wide variety of journals include:

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<tr>
<th>Journal</th>
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<tbody>
<tr>
<td>Development and Planning</td>
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Opportunities for Thought Leadership in Sustainability

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<td>Social and Sustainable Entrepreneurship</td>
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<td>A Journal on Sustainable Human Development Journal</td>
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<td>The International Journal of Environmental, Cultural, Economic and Social Sustainability</td>
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<tr>
<td>The Sustainability Review</td>
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In addition to journals focused on sustainability, other business journals accept individual articles or dedicate special issues to sustainability. For example:

- *International Journal of Business Insights and Transformation* – Special issue on achieving sustainability innovation
- *Journal on Management Development* – Special issue on “The Role of Management Development in Achieving Organisational Change for Sustainability”
- *Journal of Business Ethics* – Special issue for papers submitted to The 18th Annual International Conference Promoting Business Ethics

Additionally, there are also numerous listserv’s such as MANAGING-FOR-SUSTAINABILITY (MANAGING-FOR-SUSTAINABILITY@AOMLISTS.PACE.EDU).

There are also opportunities for publishing in professional journals. Such journals include most professional journals associated with all the disciplines located in the PCOM such as marketing, finance, economics, finance, supply chain, accounting and entrepreneurship. In additional, there are professional journals focused on sustainability. Such outlets include:

- Sustainable Brands - http://www.sustainablelifemedia.com/
Participating in Academic Sustainability Conferences

There are numerous academic conferences on sustainability; some include:

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<th>Conference</th>
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<td>The 2011 Conference on CSR in Sub-Saharan Africa</td>
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<tr>
<td>ARCS Fourth Annual Research Conference at Yale University^40</td>
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</tr>
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In addition to attending academic conferences, there are opportunities for the PCOM to sponsor academic sustainability conferences or to sponsor conferences in conjunction with other NC State Colleges.

Leadership of Next Steps

The Task Force recommends that PCOM’s research committee, in conjunction with the Associate Dean of Research, be responsible for engaging in further evaluation of research implications related to sustainability.

^40 The ARCS Conference will be preceded by the first ARCS Sustainability Teaching Summit - From Classrooms to Boardrooms: Embedding Sustainability Research in Curriculum and Corporate Strategy, to showcase and discuss the latest available pedagogical approaches, tools and materials.
III. Opportunities

C. Engagement with Business

The third set of opportunities relates to Engagement with Business. There are numerous ways the PCOM could engage with businesses in meeting the needs of businesses while providing an opportunity to enrich our faculty and students exposure to and understanding of sustainability. In fact, many of the observations noted elsewhere in this report could not be achieved without effective relationships with businesses; for example internships, practicums, speakers, support for research, and contribution in the classrooms.

In addition to the opportunities described elsewhere in this report, the summary that follows provides a unique opportunity for the PCOM to leverage a current capability into a new area – sustainability.

Opportunity for Poole College to Engage with Companies

In order to gauge the industry engagement opportunities - i.e. research grants, executive education programs, conferences, student practica, etc. - that sustainability represents to the College, it is imperative that we first know where companies stand on this issue and what they want and need to be successful.

Section I. Embracers and cautious adopters segments companies into two camps with regard to their embracing sustainability as a key driver of competitive advantage. Section II. Making the case for Sustainability identifies a common management problem facing both camps. Section III. BIG (business intelligence gathering): A solution for the dilemma managers face proposes a unique solution to this challenge that will differentiate Poole College of Managements’ service and support to these companies from those of other business schools. Section IV. Integrating Sustainability into Poole College of Management’s industry-focused initiatives gives a Sustainability outreach progress report and lays out the actions required in order to seize this advantage.

I. Embracers and cautious adopters

Research done by the Boston Consulting Group reveals two distinct camps of companies: “embracers”, those who place sustainability high on their agenda, and “cautious adopters,” who have yet to focus on more than energy cost savings, material efficiency, and risk mitigation. But the commitment of the cautious adopters to sustainability is increasing at a far faster rate than that of the embracers. Most companies — whether currently...
embracers or not — are looking toward a world where sustainability is becoming a mainstream, if not required, part of the business strategy.41

Sustainability embracers tend to be larger, in heavier industries and in growing markets; these are not the only characteristics they share. Critically, embracers not only claim that sustainability strategies are necessary to be competitive, they also believe these strategies are helping them to gain competitive advantage. Indeed, the overwhelming majority of these companies see themselves as outperforming their competitors, with 70% of respondents stating this to be the case, compared with only slightly more than half (53%) of the cautious adopters. Moreover, a larger number of cautious adopters lack confidence about their competitive position. Some 14% told us that they were underperforming relative to industry peers, more than double the number of embracers that see their business in this light.

Besides being distinguished by their approach to sustainability, the embracers are also distinguished from the cautious adopters by structural characteristics such as size and sector. For a start, embracers tend to be found among large global or regional companies. According to our data, only 9% of the small companies (with fewer than 1,000 employees) that responded to our survey are embracers, for instance. Meanwhile, 34% of the companies with workforces of more than 10,000 are embracers.

In addition, embracers tend to be part of resource-intensive industries. Data indicates that 23% of embracers operating within the service sector, it found a higher proportion (30%) in the product industry sector, where it is more common to find companies that see sustainability as necessary to be competitive and have developed a business case for pursuing sustainability. Product industry embracers focus more closely on efficiency and regulations, care more about the environment and are nearly 25% more likely to consider intangibles in their sustainability-related investments. That is perhaps unsurprising since heavy industries have larger environmental footprints than sectors such as media, technology, financial services and health care. Heavy industries must also tackle a business risk not faced by service industry companies, and that is the risk of losing their license to operate (or being unable to win a contract in the first place). And for companies in sectors such as mining, auto manufacturing and oil and gas, investments are substantial and they cannot pick up and move elsewhere. That means they have to think long term and adhere to a broader definition of sustainability than some companies, paying attention to human and worker rights and community health and security.

Boston Consulting Group asserts that companies that are in the process of growing, spending on sustainability makes sense, since the required investments - which might be seen as a burden to low-growth businesses - are easier for expanding companies to justify. “Companies with rapid growth are placing sustainability at the core of their operations,” says Janmejaya Sinha, Boston Consulting Group’s chairman of the Asia-Pacific region. “Whether because of a closer connection to the social, environmental and economic issues that drives sustainable business practices, or because it’s easier to implement changes in a fast-growing company, we expect sustainability capability and leadership to

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41 SPECIAL REPORT: SUSTAINABILITY & INNOVATION Sustainability: The ‘Embracers’ Seize Advantage, Boston Consulting Group, 2011
emerge from these regions and companies.” Certain investments are also more compelling for companies located in regions whose markets are growing. That is reflected in the results of our survey in which we find more embracer companies focusing more intently on revenue streams and innovation than their larger counterparts. Meanwhile, larger embracer companies tend to pay more attention to the regulatory environment and the concerns of investors. Some are also looking ahead to try to predict future regulatory changes.

Whether or not their activities are governed by climate change regulations, embracers place consideration of environmental issues at the heart of their approach to sustainability (and they are much more likely to do so than cautious adopters). However, senior leaders surveyed by Boston Consulting Group reported that the way that they include environmental issues in their business strategy has changed. For a start, they are moving away from relying on specialists to manage it. Wal-Mart took this approach when it established 12 sustainable value networks across its business — covering everything from waste and energy reduction to sustainable products and supply chain. Each one was led not by an environmental expert but by a businessperson, so it became integrated into the business.

II. Making the case for Sustainability

Where companies struggle - when it comes to making sustainability an integral part of the business - is often not so much with the technical side of things but with the human dimension of managing it. It is interesting to note that while embracers appear to be approaching sustainability in more sophisticated ways — making a better business case for it, and integrating sustainability strategies in everything from procurement and supply chain management to marketing and brand building — they say they face just as many difficulties overcoming sustainability challenges as do the cautious adopters.

Research done at the Sloan Business School at M.I.T indicates that there are three major barriers which impede decisive corporate action. First, companies often lack the right information upon which to base decisions. Second, companies struggle to define the business case for value creation. Third, when companies do act, their execution is often flawed. Their research uncovered three main challenges that trip up companies. The first challenge is forecasting and planning beyond the one-to-five-year time horizon typical of most investment frameworks. It is easy to assert that sustainability is about taking a long-term view. But in practice, calculating the costs and benefits of sustainability investments over time frames that sometimes span generations can be difficult with traditional economic approaches. This is further exacerbated by the short-term performance expectations of investors and analysts. The framework mentioned above can provide a company’s board, shareholders, employees, and investors

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with a starting point for assessing the potential of short- and long-term moves in sustainability to create value.

The second challenge is gauging the system-wide effects of sustainability investments. Companies find it difficult enough to identify, measure, and control all of the tangible facets of their business systems. So they often do not even attempt to model intangibles or externalities such as the environmental and societal costs and benefits of their current business activities and potential moves in sustainability. This hinders their ability to get a true sense of the value of investments in sustainability.

The third major challenge is planning amid high uncertainty. Factors contributing to uncertainty include potential changes in regulation and customer preferences. Strategic planning, as traditionally practiced, is deductive—companies draw on a series of standard gauges to predict where the market is heading and then design and execute strategies on the basis of those calculations. But sustainability drivers are anything but predictable, potentially requiring companies to adopt entirely new concepts and frameworks.

In general, the industry executives surveyed with experience in sustainability believe that *clarifying the business case for sustainability may be the single most effective way to decisive corporate action, since it gets to the heart of how companies decide where they will - and will not - allocate their resources and efforts.*

**III. Integrating Sustainability into Poole College of Management’s industry-focused initiatives**

Like research and teaching, the engagement with business in regards to sustainability should be integrated across every initiative: Bioscience Management MBA, CIMS, SCRC, ERM, TEC, etc., aimed at supporting the productivity and growth of our corporate partners. Below are some examples of how existing relationships with businesses through our centers and initiatives within the PCOM could be leveraged to provide sustainability thought leadership.

*CIMS Engagement Opportunities*

CIMS believes that the chief cause of a lack of clarity regarding a sustainability focus - and resulting lack of decisiveness - is that these companies lack the right information upon which to base decisions. Managers lack a common fact base about the full suite of drivers that are relevant to their company and industry. Decisions regarding Sustainability have to be made against a backdrop of uncertainty. Myriad factors muddy the water because of their unknown timing and magnitude of impact.

Within the rapidly changing global picture, organizations that want to make Sustainability a strategic competitive advantage must monitor six major forces: demographic, economic, natural, technological, political/legal, and social/cultural forces. Although these forces can be analyzed separately, decision makers must pay attention to the causal interactions, since these set the stage for new opportunities as
well as threats. In the case of Sustainability, explosive population growth (demographic) leads to more resource depletion and pollution (natural environment), which leads consumers to call for more laws (political/legal). The imposed restrictions stimulate new technological solutions (technological), which if they are affordable (economic), may change people’s attitudes and behavior (social /cultural).

Advances made at NC State University in cloud computing, along with advanced text analytics tools supplied by IBM, now make widespread implementation of this type of business decision-making feasible. To prove this new method of business intelligence is generic and can be applied successfully in any business activity, we and our partners (IBM Software Group and NC State’s Department of Computer Science) are developing and testing a unique and robust business intelligence gathering (BIG) capability across an array of strategic business issues.

The BIG capability is comprised of four major components:

I. VCL cloud computing environment
II. Advanced IBM analytics software platforms
III. A process for gathering, filtering, annotating, and displaying massive amounts of data
IV. Resulting corpus of information

The cloud computing environment is hosted by the Virtual Computing Lab (VCL) at NC State University. NC State’s Department of Computer Science has been a pioneer in cloud computing since 2004 (please see [http://vcl.nc.stat.edu/](http://vcl.nc.stat.edu/)). The overall purpose of BIG is to provide clarity to organization’s decision making so that compelling and durable business cases for Sustainability can, in fact, be constructed. CIMS feels that BIG can be used for identifying, predicting, and discerning sustainability drivers that can have a significant influence on the resulting business case.

Examples of Sustainability drivers that can be gathered, filtered, and linked:

- **Business activity of venture capitalists and other angel investment firms.** Using unstructured text data analytics the research group will attempt to determine the business plan’s technological focus, investment levels, and when these innovations are planned to be commercially available.
- **Solicitations issued by federal agencies.** By examining the solicitations issued for example by the NSF, DOE, etc. in the United States on an annual basis, the proposal if implemented, can

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map the scientific priorities of the United States and its level of investment in a particular technology. This can be repeated for every one of the G20 nations.

- **User groups.** By literally counting the formation of institutions dedicated to a particular Sustainability topic over time, the companies can see the emergence - and assess the importance - certain issues have over others.

- **Consumer sentiment.** Similarly, by accessing social media sites (LinkedIn, Facebook, Twitter, etc.) the research will highlight customer preferences regarding a particular issue over time.

- **Government regulations and policies.** By categorizing and plotting the advent of new regulations around the world, smart suppliers will be able to turn, what are normally thought of as encumbrances, into business opportunities.

CIMS believes that these types of big data analytics can be made feasible and highly useful to organizations engaged in creating sustainable products and services -- be they embracers or cautious adopters.

Similarly, CIMS is in conversation with the research directors of The Sustainability Consortium (TSC), located at the University of Arkansas and Arizona State University, to define the 'ontology of Sustainability', that is the semantic rules and specific dictionaries needed to build this corpus of knowledge.\(^{44}\)

In the case of the TSC, they need our help in creating what they term, Product Category Dossiers and Sustainability Profiles to compare the products - and sustainability practice - of one consumer products firm versus another. However, there are two dimensions of the Dossiers and Profiles that have proven problematic for TSC researchers to systematize and scale: stakeholder concerns and consumer insights. By using BIG to literally read and filter the enormous flows of real-time social network data these problems can be solved. In return for our assistance, the TSC research directors, and their industry members, can help us define and validate the full data set of Sustainability drivers, not just consumer sentiment.

CIMS has created executive education programs around the BIG capability. Please see the *Executive Series: Managing Disruptive Innovation* [http://execseries.mgt.NC State.edu/](http://execseries.mgt.NC State.edu/). This program emphasizes that competing today requires a new way of doing business – a new way of thinking. Market leaders need to understand and respond to the technological, social and political trends with better information—more quickly. The program provides executives with a framework and tools for adapting business models to rapidly shifting market conditions, such as Sustainability.

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\(^{44}\) The Sustainability Consortium is an organization of diverse global participants working to make the world more sustainable through better products, services and consumption. They develop and promote science and integrated tools so that together TSC and its member companies can improve informed decision making for product sustainability throughout the entire product lifecycle across all relevant consumer goods sectors. ([http://www.sustainabilityconsortium.org/](http://www.sustainabilityconsortium.org/))
SCRC Engagement Opportunities

The SCRC has the opportunity to engage with partner companies in a number of areas. One of the key opportunities is in developing sustainable supply chain projects. For example, one student project developed a sustainability scorecard to evaluate the relative sustainability of promotional products used with customers at the Bank of America. Another project identified key scorecards of corporate sustainability for Bayer. Yet another project examined waste management strategies being used at BP’s downstream operations and refineries, and helped understand the nature of the market.

Another opportunity would be to conduct Life Cycle Analysis studies for companies that are interested in green labeling of products. Discussions with Walmart in November 2011 revealed that there is a high level of interest for partnering with other colleges in agriculture, engineering, and poultry science to study life cycle analysis and sustainable business practices.

A final opportunity is to roll out broader applications of sustainable scorecards for supply chains. Currently, the SCRC has conducted assessments of over 250 companies in a database, which measures the maturity of their environmental and labor human rights policies, and are using these data to benchmark and conduct analyses.

ERM Initiative Engagement Opportunities

As the ERM Initiative engages with businesses to assist them in strengthening their board and senior management processes related to enterprise-wide risk oversight, there are a number of opportunities for the ERM Initiative to help organizations expand their considerations of how sustainability drivers will impact their organization’s risk profile. Many organizations are not explicitly focusing on issues related to sustainability (or their focus is limited to environmental related sustainability concerns). The ERM Initiative would engage with businesses to help expand their consideration of broader sustainability risk drivers. Furthermore, as organizations engage in processes to identify and assess risks across their enterprise, they are mostly focusing on potential risk exposures over a time horizon consistent with the time horizon in their strategic plan (generally 2-3 years). Businesses are not focusing on risk drivers that might impact the long-term sustainability of their business models over significantly longer time horizons. The ERM Initiative could work with businesses to help them identify relevant practices to focus on long-term sustainability risk drivers.

Other Opportunities for Engagement

In addition to the opportunities indicated above, since the event hosted for The Sustainability Consortium in July 2011 (as described under the Market Analysis section of this report), the PCOM, College of Textiles and College of Natural Resources have developed ongoing relationships with The Sustainability Consortium. Specifically, a representative from the PCOM is co-chairing a task force that
will design the role and responsibilities of the to-be-formed Academic Advisory Council. Due to its participation in the task force, NC State will be offered a position on the Academic Advisory Council. Participation in the advisory council will open up opportunities to engage with the 80 corporations participating in The Sustainability Consortium and the other global universities focused on sustainability that are involved with The Sustainability Consortium.

Final thought

Poole College of Management is strongly positioned to offer valuable services to companies who are embracing Sustainability, as well as those who are cautious and lack the information to be decisive and act. Every initiative / department in the College should determine how they can engage with businesses to address sustainability issues within the context of their technical area of focus (e.g., innovation, supply chain, enterprise risk, etc.)

Leadership of Next Steps

The Task Force recommends that the leaders of the PCOM Centers and Initiatives be responsible for engaging in further evaluation of opportunities to engage with business related to sustainability.
III. Opportunities

D. Culture

Introduction

The fourth set of opportunities relates to Culture. By culture we mean the Poole College of Management would “live the values of sustainability.” It not so much about building a new building, it is about living the building we have in a sustainable manner. Additionally, the programs, activities and events we hold in the College would contain sustainable elements or be primarily focused on sustainability. This section includes examples of how other schools have instilled a culture of sustainability.

Summary of Key Activities/Elements

The key activities/elements included in this building block include:

- Student groups
- Case competitions
- Lecture series
- Student engagement
- Operations
- Cross campus

Examples

This section contains examples of the activities and elements noted above.

Student groups

Net Impact45 is the primary nationally organized student group pertaining to sustainability. “Net Impact members believe in the power of business to create a more socially and environmentally sustainable world.” Through more than 260 local chapters worldwide, Net Impact provides opportunities to learn, network and build careers. There are membership options for professionals, graduate students, and undergrads. The PCOM has a Net Impact chapter46. The chapter has historically been run by the MBA program. Efforts are underway to broaden its membership to the remainder of the College. The chapter hosted the Sustainability Interchange on October 15, 2011.

45 Net Impact http://www.netimpact.org/
The mission of the *Graduation Pledge Alliance (GPA)*[^1] is to “build a global community of responsible graduates improving society and the environment through the workplace.” At graduation, students sign the following pledge: “I pledge to explore and take into account the social and environmental consequences of any job I consider and will try to improve these aspects of any organization for which I work.” Students are encouraged to make their pledge commitment public by wearing a green Pledge ribbon, pin, or button at commencement.

Although pledge efforts are most noticeable around the time of graduation, schools are encouraged to establish GPA chapters to encourage the establishment of a year-round program to deepen awareness of the Pledge on campus and, whenever possible, in the surrounding community. Such programs can include curricular and extracurricular activities, special events, presentations, and guest speakers, recognition of distinguished alumni, newspaper articles, and press releases.

There are two minimal expectations that each GPA chapter needs to meet in order to be considered an active chapter and be listed on the Graduation Pledge Alliance website. Each year, no later than August 1st:

- Complete and submit the “GPA Pledger Information Template” to the GPA Executive Director. This report contains information about Pledgers who have graduated that year.
- Complete and submit the end-of-year survey administered by the GPA Executive Director.

New chapters gain the *active* classification following their first graduation pledging as long as the above two expectations are met. Ongoing chapters renew their “active” status every year by completing and submitting these two reports. The following North Carolina institutions have chapters: Appalachian State University, UNC-Wilmington, and Wake Forest University.

**Case competitions**

Case competitions consist of two elements. Sponsoring sustainability case competitions and participating in case competitions. There is significant activity on both fronts.

Examples of case competitions include:

Washington University in St. Louis, Olin Sustainability Case Competition – This year’s case revolves around the implementation of Green Labs on the Danforth campus. Laboratory energy use is probably one of the biggest energy hogs in any research oriented facility - be it a university or a company and organizations today are looking at this issue from the environmental as well as economic standpoint.

[^1]: Graduation Pledge Alliance [http://www.graduationpledge.org/](http://www.graduationpledge.org/). The Graduation Pledge of Social and Environmental Responsibility, started in 1987 at Humboldt State University, has since spread to many Colleges, universities, and other schools around the world, under the coordination of the Graduation Pledge Alliance (GPA). The program was initially housed at Manchester University (Indiana) during the late 1990s and early 2000s, before moving to Bentley University in 2007.
Opportunities for Thought Leadership in Sustainability

For additional information see http://apps.olin.wustl.edu/mba/casecompetition/index.cfm?action=caseinfo.


xpedx Sustainability Scorecard Challenge – In the xpedx Sustainability Scorecard Challenge, teams of 2-4 graduate students work to develop a sustainability scorecard and vendor survey that measures environmental practices at xpedx’s various suppliers. The winning team presents its scorecard directly to a group of xpedx executives, who intend to integrate the results into the company’s sustainability program. For additional information see http://www.netimpact.org/displaycommon.cfm?an=1&subarticlenbr=3528.

Walmart Better Living Business Challenge – The competition challenges students to invent sustainable products or business solutions and present them to a panel of Walmart executives, suppliers, and environmental organizations. The winning team will receive $20,000 to invest in its business or product. For additional information see http://www.netimpact.org/displaycommon.cfm?an=1&subarticlenbr=2315.

Lecture series

Some schools provide a lecture series in conjunction with the activities of their center. The Wells Fargo Executive Lecture Series provides an opportunity to expand the series to include leadership on sustainability.

For example, UNC’s Center for Sustainable Enterprise sponsors the Leaders in Sustainability Speaker Series. For additional information see http://www.kenan-flagler.unc.edu/cse/speaker-video.cfm.

Student engagement

Schools provide opportunities to live the sustainability values. For example:

William and Mary Mason School of Business was the first university to participate in Saatchi & Saatchi S’s “Do One Thing” or DOT program. Saatchi & Saatchi “believes that sustainability is driven from consumers-up, not companies down, and the heart of True Blue is to inspire people to make the best choices for themselves and for the planet.” DOT is about taking a pledge to do one personal thing on a routine basis to promote sustainability. Their goal is to have 1 Billion DOT’s created. To date 32 million DOT’s have been recorded. According to William and Mary, “When we first heard about the DOT idea, it was a part of the first Sustainability in Business symposium in the Spring 2009,” says Adkins. “We had a speaker from Saatchi and Saatchi come and share with us how they make their companies more sustainable, both top-down and bottom

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Opportunities for Thought Leadership in Sustainability

We thought that students could lead a campaign like this, and they could get other students excited and then the faculty and then maybe even find a way to get alumni connected. William and Mary’s Mason Scholl of Business also provides sustainability tips for students. Examples include tips on selection of lighting, the way you print, how you drive, where you eat and what to do with that old cell phone.

Faculty can also help by teaching in a sustainable manner. Temple University provides tips on teaching in a sustainable manner. For additional information see http://www.temple.edu/sustainability/documents/Sustainability_Tips_for_your_Teaching_08_28_09.pdf.

Also AASHE supports the Student Sustainability Leadership award. The award recognizes an undergraduate student from an AASHE member institution who has demonstrated outstanding leadership in promoting campus sustainability. The Student Sustainability Leadership Award includes a $750 prize.

Operations

There are opportunities to work with NC State’s University Sustainability Office to promote and support sustainability efforts on the campus and within the PCOM. For additional information see http://sustainability.NC State.edu/.

Across campus

The NC State campus includes 10 individual Colleges. Each College has their own specific experiences in sustainability. In July 2011, NC State hosted a cross-campus meeting with The Sustainability Consortium. For that meeting representatives from 9 of the Colleges prepared a 50 page document summarizing the sustainability expertise across all the Colleges. The extent of experiences was truly amazing. This knowledge and experiences in the other 9 Colleges are available to the faculty of the PCOM to support research and class activities. See Appendix for a copy of Sustainability and Life Cycle Analysis: Statement of Competencies and Activities North Carolina State University.

Leadership of Next Steps

The Task Force recommends that the leaders of the PCOM Office of Undergraduate Programs and the Jenkins Graduate School of Management be responsible for engaging in further evaluation of opportunities to engage with business related to sustainability.

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51 AASHE Student Sustainability Leadership award http://www.aashe.org/about/aashe-awards/student-leadership.
III. Opportunities

E. Center of Excellence in Sustainability

Introduction

The fourth set of opportunities relates to the creation of a Center (or Initiative) for Sustainability. At the ceremony where the naming of the Poole College of Management was announced, the concept of developing a Center of Excellence in Sustainability was introduced. Specifically, Dean Ira Weiss stated...

“Through our Center of Excellence – and through the College as a whole – we are going to pay testimony to Lonnie’s legacy by making a significant contribution to the body of knowledge and best practices of sustainability by providing real answers to today’s real problems and preparing our students to bring the core values of sustainability, the environment, and ethical business practices to the global business challenges of the 21st century.”

The nature and extent of such a center was left unanswered and to some extent became the responsibility of this Task Force. Understanding that the term “center” has specific meaning within the University; our use of the term “center” in this report is broader and encompasses the concept of centers, initiatives and areas of excellence. The Task Force did not undertake its effort with the assumption that a center should be established; rather the Task Force considered what benefits would accrue to the PCOM from establishing such a center. In fact, with the number of centers and initiatives currently supported by the College, one could ask, “why another center”? We felt it was important to answer this question.

In gathering information, we particularly focused on why many of the other programs developed some type of center focused on sustainability. While we did not initially conclude a center would be necessary, it became obvious that in many of the successful programs, the establishment of a sustainability center was important to their current success.

Impact on other Opportunities

In gathering information about the other Opportunities summarized in this report (teaching, research, outreach and culture), it became apparent that a center could be the cornerstone for each of the Opportunities individually and collectively. Therefore, instead of addressing the establishment of a sustainability center within each opportunity, we decided to discuss the establishment of a center in one location of the report.

Center as a Cornerstone

In our discussions with UNC-Chapel Hill, Arizona State University, and University of Colorado at Boulder53, each of the schools attributed their success to the establishment of a sustainability center. While each program began with an external focus to their sustainability centers (and most still retain an element of that today), each quickly realized that in order for their efforts to be successful, they needed to provide support and guidance for their faculty and students. Therefore, their sustainability centers are heavily focused on supporting the needs of their faculty and students.

In addition to helping faculty gain additional knowledge about sustainability, such support includes:

**Teaching** – Assistance with curriculum development through support of curriculum committees54; assistance with syllabus development and integration of sustainability topics/skills into the syllabus; identification or development of sustainability related cases, problems, or exercises; identification of sustainability related classroom educational materials such as textbooks, periodicals, and other technical guidance materials.

**Research** – Assistance with identification of research topics; identification of partners in research, such as other Colleges within the university; identification of grant opportunities; identification of sustainability related journals; sponsoring sustainability related academic conferences; identifying and encouraging opportunities for cross-department and cross-College interdisciplinary research; identification of sustainability-related academic conferences.

**Outreach** – Focusing on the identification and engagement of businesses in outreach activities55; identification and coordination of internship opportunities; identification and coordination of practicums; identification and coordination of sustainability speakers for classroom and student groups; maintaining ongoing relationships with businesses and industry groups (such as The Sustainability Consortium and the North Carolina Business Sustainability Network); identification of opportunities to solve business’s sustainability-related issues; development of College sustainability advisory council.

**Culture** – Work with the university to develop a sustainability culture within the PCOM; advise sustainability-related student groups (both within the College and with other Colleges); serve as a coordination point for the university’s Office of Sustainability Development; identify and arrange for sustainability-oriented speakers, including part of the Wells Fargo Lecture Series; sponsor sustainability case competition; identify sustainability case competitions for our students to participate.

53 See Market Analysis section for the report for additional information on the schools and individuals interviewed.
54 See [http://www.babson.edu/faculty/teaching-learning/gvv/Pages/curriculum.aspx](http://www.babson.edu/faculty/teaching-learning/gvv/Pages/curriculum.aspx) for Babson College “Giving Voice to Values” curriculum for example of available curriculum materials.
One coordination role the center could play is to serve as the central funding source to promote and lead many of the efforts noted above. The Lonnie C. Poole Endowment can serve as the initial funding resource for these activities. The view of the Task Force is the center would seek external funding opportunities so that overtime, the center activities would be self-funding without the support of the endowment.

**Sustainability centers**

In conducting our research for this report, we identified many schools that had established centers. Due to the lack of a generally accepted definition of sustainability, the scope of the centers vary widely; including one, two or all three of the bottom triple line sustainability elements – Environment, Economic, Social. In determining the focus and name for the center, the schools were trying to create a unique strategic advantage specific to their respective College.

The table below provides a list of some of the schools, colleges and universities with a link to their website if you would like to obtain additional information about the type of centers being developed and the range of services provided by the centers. Some of the centers are specific to a college of management or business, while others have a much broader focus across the university. The Task Force has been discussing the former type of center.

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Leadership of Next Steps

The Task Force recommends that the Dean assemble a group of faculty representing all PCOM departments and PCOM centers and initiatives to be responsible for engaging in further evaluation of the role, function, and form of a center or initiative focused on sustainability.
IV. Conclusion

This report explores many aspects specific to sustainability and the opportunities sustainability provides for the Poole College of Management. This section of the report captures some of the key observations, conclusions and recommendations spread among the many pages of the report.

In researching current and evolving industry and regulatory trends, the Task Force arrived at three clear observations:

a. Sustainability represents a sea change for many businesses,
b. The PCOM is clearly behind many of the business schools against which we benchmarked, and
c. Sustainability is a subject our students should possess when they join businesses and some students are making decisions as to which business schools to attend based on the availability of a sustainability curriculum.

This brings the Task Force to further conclude that these trends provide opportunities for the Poole College of Management, our faculty, business partners and students.

While the Task Force did not arrive at any specific conclusions as to how the PCOM should be involved in sustainability thought leadership, the Task Force outlined a series of opportunities and next steps that the PCOM faculty and staff should consider further as it seeks to define specific initiatives for the College. The Task Force used two guiding principles in arriving at the next steps: 1) to arrive at an informed decision, the faculty and staff need to undertake a journey similar to the Task Force to learn more about sustainability, but in a more efficient and streamline fashion and 2), we should leverage the existing governance structure within the college to arrive at the ultimate recommendations.

As to the first guiding principle, the task force recommends a series of four brown-bag lunches over the spring 2012 semester to provide an opportunity for faculty and staff to learn from business leaders and other individuals knowledgeable about current and future trends in sustainability, while at the same time providing an opportunity to ask questions. The potential speakers are noted in the transmittal letter.

Under the second guideline, the recommended next steps are directed toward utilizing existing college committees and efforts in arriving are final recommendations to take advantage of the opportunities presented. Accordingly, the Task Force recommends the following next steps:

a. *Our graduate and undergraduate level curriculum committees should engage in evaluations of the opportunities for sustainability in our graduate and undergraduate programs.*
b. Our College research committee, in conjunction with the Associate Dean of Research, should identify the faculty and topics of interest and provide funding for research. Also engage with other NC State Colleges to identify opportunities for joint research.

c. Leaders of the PCOM Centers and Initiatives should identify possible areas for engagement with businesses on sustainability related topics through existing business relationships within the PCOM Centers and Initiatives, including identifying additional sustainable-focused businesses.

d. Leaders of the undergraduate program and the Jenkins Graduate School of Management should explore areas for student engagement on sustainability-related efforts. In the near term, expand the Net Impact student organization beyond the MBA program to include other graduate and undergraduate students.

e. Assemble a group of faculty representing all PCOM departments and PCOM Centers and Initiatives to explore the role, function and form of a Center of Excellence in Sustainability.

The Task Force hopes the information contained in this report generates rich discussion about strategic opportunities to further advance the mission of the Poole College of Management and provides the foundation for the next steps to build upon.
V. Activities of the Sustainability Task Force

Below is a summary of the activities undertaken by the Sustainability Task Force in preparing this document.

<table>
<thead>
<tr>
<th>Type of Activity</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>First meeting</td>
<td>May 24, 2011</td>
</tr>
<tr>
<td>Report completed</td>
<td>December 6, 2011</td>
</tr>
<tr>
<td>Number of task force meetings</td>
<td>Six, not including additional activities noted below</td>
</tr>
<tr>
<td>Timeline</td>
<td>See next page for initially proposed timeline.</td>
</tr>
<tr>
<td>Student research</td>
<td>A graduate student conducted research of 20 peer schools as provided by Dean Weiss and supplemented by Task Force members (file containing detail findings is available from the task force)</td>
</tr>
</tbody>
</table>
| Interviews with other programs | UNC Kenan-Flagler  
University of Colorado at Boulder  
Arizona State University  
Arkansas University                                                                 |
| Conferences            | AACSB Sustainability Conference (June 15-17th)  
The New Metrics of Sustainable Business at the Wharton School of Business (October 24th)  
Portland State University International Conference on Business & Sustainability (November 3rd -4th) |
| Focus Groups           | College Board of Advisors (October 14th)  
CIMS Fall Sponsor’s meeting (October 25th)  
BioSciences Forum (October 28th)                                                                 |
| Survey of MBA Programs | 14 schools surveyed, 3 schools responded                                                                                                      |
| Business analysis      | Ted Senko, KPMG LLP  
Eric Israel, formally KPMG LLP, currently PwC  
Nick Hamon, Bayer Crop Sciences  
North Carolina Businesses Sustainability Network (15 companies)  
Net Impact “Sustainability Interchange”  
Internet search to identify research, white papers, and related industry groups |
| Industry groups        | The Sustainability Consortium                                                                                                               |
| NC STATE Colleges      | Developed document summarizing university-wide sustainability qualifications and coordinated one day meeting with board member from The Sustainability Consortium and 8 other NC State Colleges (60 participants in total) |

56 Business schools at the following universities were surveyed: Arizona State University, Duke University, Georgia State University, Georgia Tech, Harvard University, New York University, Northwestern University, Portland State University, Stanford University, University of Colorado at Boulder, University of Maryland, University of Michigan, University of North Carolina - Chapel Hill, University of North Carolina – Charlotte, University of Pennsylvania, University of South Carolina, University of Virginia, Virginia Commonwealth University, Virginia Tech, Wake Forest University.
Poole College of Management

Sustainability Task Force

Proposed Time Line

<table>
<thead>
<tr>
<th>Data Gathering</th>
<th>Recommendation Development &amp; Site Visits</th>
<th>Report Preparation</th>
</tr>
</thead>
<tbody>
<tr>
<td>June 14</td>
<td>July 21-22</td>
<td>Nov. 1</td>
</tr>
<tr>
<td>Meet w/ TSC</td>
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<td>Nov. 30</td>
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<td>Dec. 16</td>
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<tr>
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<td></td>
<td>Draft Report</td>
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<tr>
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<td>Final Report</td>
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</tbody>
</table>
VI. Appendices
Appendix to Opportunities for Teaching

Example 1: Integrating Sustainability into Supply-Chain Curriculum

This example illustrates two ways sustainability is being integrated into the Supply Chain curriculum. The first describes how sustainability is embedded into existing courses. The second illustrates a 1.0-credit hour course in sustainable supply chains.

1. Inclusion into Existing Curricula

Students in the supply chain concentration are required to take BUS 541 (Supply Chain Relationships) and BUS 549 (Supply Chain Practicum) which both have a business partner project requirement associated with them. In the former class, (BUS 549), several sustainable projects have already been completed, including a project on Life Cycle Analysis (Bayer Crop Science), Sustainable Cafeteria Services (Bank of America) and others (TBD). In the BUS 541 class, similarly several projects have been also completed with partners focused on different elements of supplier sustainable practices, including Sustainable Promotional Products (Bank of America), Waste Management Strategies (BP), and Sustainable Analytics (Bayer Crop Science).

2. Minor / Stand-alone 1-credit course on Sustainable Supply Chain Management

Over the last three years, a one-credit course has been offered every other semester to MBA students in any concentration, focusing on assessing Corporate Responsibility in the form of Labor and Human Rights in the supply chain, as well as Sustainable Environmental Performance in the Supply Chain for a set of Fortune 500 firms. (The curricula are shown in the appendices). This course provides students with a maturity assessment based on current global regulatory guidelines, including ISO 14000 and the UN Compact and Fair Labor Association criteria that define the journey ahead for organizations to address violations in their supply chain. This maturity model provides clear actionable guidelines for senior leaders to adopt in their strategic supply chain configurations, and helps to provide a vision for future collaboration with global business communities and industry associations. As part of the course requirements, each student is responsible for assessing a set of companies and providing background information, as well as assessing others' work and providing an independent rating of sustainable supply chain maturity.

Results of the maturity guidelines provide a model for socially responsible investors, as well as consumers, to understand which companies are more socially responsible than others. Most importantly, the framework emphasizes the importance of transparency and disclosure in global
opportunities, and the need for continuous monitoring and improvement of global supply chain conditions on a global basis. Although many companies seek to cover-up their environmental nightmares, our framework suggests that a characteristic of best in class environmental compliant supply chains is transparency itself.

Although companies often cater to value-norm driven interest groups concerned with community impacts, as well as investor groups concerned with corporate financial outcomes, the sustainable framework proposed addresses the overlapping interests of these groups.

The sustainable maturity model applies to any company that sources from a global network, including apparel, footwear, retailers, toy manufacturers, but also financial institutions and IT firms that offshore services. The framework is flexible enough to apply to any of these segments, yet provides specific guidelines that are actionable to managers. The framework helps ensure that a company’s supply chain has the right checks in place to make sure LHR violations do not occur, as well as remediation and problem-solving when it is discovered that abuses have taken place. Students learn to apply the maturity model to any firm they encounter in their business career, as well as criteria to consider in their supply chain management careers.

**Example 2: Integrating Sustainability into Finance or Accounting Curriculum**

Building upon the example of how sustainability is currently a part of the Supply Chain curriculum, we believe that sustainability could be integrated into several other concentrations, majors, or minors in the Poole College. This section includes an example of how sustainability might be integrated in the Finance and/or Accounting programs through a number of potential avenues:

1. **Inclusion into Existing Curriculum.**

Financial analysis of sustainable projects could be introduced into Financial Management or Management Accounting courses to introduce new and complex ways of thinking about the tradeoffs between sustainable investments, short-term costs, and life cycle analysis of “hidden” savings associated with sustainable activity and resource reduction. Similarly, cases could be introduced into managerial accounting or finance courses to focus on sustainable accounting and how it complements or enhances GAAP standards.

2. **Creating Minor Classes / Concentrations**

A one-credit class on financial analysis of sustainable technologies could yield some potential opportunities for partnering with local companies. In particular, companies such as BiogenIdec are looking at “disposable factory” concepts, that entail construction and rapid demobilization of factors based on product life cycles. The financial analysis of such projects remains largely unexplored, and the
different assumptions on how to value such technologies could provide important insights for financial or accounting students. Other opportunities exist with local companies such as Bayer, Novozymes, IBM, Bank of America, Lenovo, Syngenta, and others who have sustainability as a key element in their corporate agenda. Additionally, many of the international and national accounting and consultancy firms are building practices areas related to sustainability advisory services.

3. Integration into Center

Although there is currently no existing center for partnering with industry, there could be the development of a Sustainable Valuation center focused on tracking and measuring financial performance of sustainable companies. For example, using the sustainable maturity model for supply chain, a parallel effort tracking the stock portfolio associated with ‘green’ companies versus S&P and others into their industry group could shed light on the assertion that there is a return on sustainability.

Example 3: Integrating Sustainability into Finance or Accounting Curriculum

In addition to integrating sustainability topics into undergraduate and graduate programs, we should also explore opportunities to expose our Poole College students to sustainability issues through non-course educational opportunities. This section highlights an example of student learning opportunities outside the classroom.

In December 2010, the SCRC held its 22nd Bi-annual meeting in Raleigh, NC, with a core theme on Sustainable Supply Chains. The invitation letter and agenda for the meeting is shown on the pages that follow. A number of industry speakers presented their views on sustainability at this conference. Some of the notable speakers included:

- Mr. Lou Ferretti, Director, Environmental Compliance, IBM, “Sustainability in Supply Chains at IBM”
- Mr. Steve Walker, Manager, Environmental Sustainability, Burt’s Bees, Inc.
- Ms. Shannon Hess, Senior Manager, Sustainable Sourcing, Burt’s Bees, Inc. “Culture of Sustainability”
- Mr. Jason Schenker, ChFC, ERP, CFP; Economist, Prestige Economics, "What Sustainability Means for Sourcing Natural Resources and the Global Economy"
- Mr. Nick Hamon, PhD., VP, Head of Sustainability, Bayer CropScience North America, “Sustainability at Bayer CropScience”
In this manner, industry viewpoints on sustainability were brought to the forefront, with additional discussion and debate on what sustainability means for supply chain management. In the words of Nick Hamon, “You have to get started somewhere. Just do SOMETHING – anywhere in your company, in your school, or in your community. That’s how we believe it has to happen to make a difference.”

This meeting was attended by a number of faculty, MBA and undergraduate students who benefited from hearing the speaker presentations.
We are pleased to announce our upcoming 23rd Semi-Annual Supply Chain Resource Cooperative (SCRC) Meeting and sincerely hope that you can accept this invitation to participate. The meeting will take place on April 28th and 29th at NC State University in Raleigh, NC. The theme of this meeting focuses on the increasing strategic focus on sustainability that many organizations are seeking to weave into their supply chain operations. Sustainability comprises not only environmental impacts, but also spans areas such as labor and human rights violations in the extended supply chain.

Despite the continuous discussion of sustainability theme in the press, the fact is that there remains a fundamental disconnect between the concept of sustainability and its application into organizations’ supply chain operations. This is true on a number of fronts, including contract compliance, low cost country sourcing compliance, product and process design material planning, life cycle costing assessments, disposition and reverse logistics, and logistics carbon foot printing. Many of the tools in these areas have been around for a number of years, yet their application rates are low due to the complexity and policy impact requirements that remain unresolved.

On the other hand, the risks associated with not focusing on sustainability issues are also apparent. Organizations that have had environmental or human rights mishaps have been sorely punished at the hands of the press. Whether executives believe it or not, sustainability is a topic on the front of everyone’s mind, and must be planned for and managed accordingly. In our next meeting, “Applying Sustainable Principles to the Supply Chain” we explore some of the lessons learned from a number of industry experts who bring to bear their views on this issue in a closed forum of executives.

Some of the questions that we will consider in the areas of sustainable supply chain management include the following:

- How are environmental and human rights criteria are integrated into global low cost sourcing activities if there is no visibility into operations in these areas?
- How can your organization align sustainability with current contract structures, cost reduction initiatives, regulatory requirements, and supply chain planning?
- What incentives can be created for suppliers and logistics partners to ensure that sustainability becomes part of their own corporate agenda?
- What changes in current sourcing, planning, and logistics activities will be impacted if sustainability initiatives are truly taken seriously?
- And finally, how can sustainable supply chains be measured and linked to shareholder value?

This SCRC meeting, “Applying Sustainable Principles to the Supply Chain,” is an excellent opportunity for you and your team to listen to a number of expert opinions on these topics, network and share
Opportunities for Thought Leadership in Sustainability

perspectives with other executives facing the same sets of challenges. The meeting is a private forum for open discussion of problems faced by executives with a common interest in driving intelligent solutions to a largely undefined and challenging public directive.

The meeting agenda will include:

- “Achieving Sustainable Outcomes Through Collaborative Contracting” – Rob Handfield, SCRC. This presentation will present recent research results from a joint study of sustainable supply chains with the Manchester Business School.
- “Sustainability and the Economy”. Jason Schenker, PhD, Economist, Prestige Economics. Jason has worked extensively in the oil and gas, financial services, and business forecasting sectors, and will share his thoughts on what sustainability means for the economy, as well as providing his views on the current health of the economic sector.
- “Sustainability in Supply Chains at IBM”, Lou Ferretti, IBM. Lou will provide insights into how IBM adopted sustainability into its supplier certification initiative.
- “Sustainability at Bayer”, Nick Harmon, Bayer Crop Science. Nick will share how Bayer is adopting LCA into its current operations (TBD).
- Student company project presentations, including: Bank of America, Biogen Idec, BP, Caterpillar, Chevron, Duke Energy, Lenovo and others.
- Networking opportunities.
- Reception and dinner.

The reception and dinner will be held at *******8 in Raleigh on Thursday evening and will be attended by professionals as well as a number of faculty and students. This is an enjoyable event that facilitates an informal networking opportunity for students to meet executives and be in touch with supply chain issues in the “real world.” Dress for the meeting, reception and dinner will be business casual.

Please let us know if you will be able to join us for this unique and important event by completing the attached registration form and returning it by April 15th to Lauren Van Arsdale at lsvanars@unity.NC State.edu or Lauren Van Arsdale, N.C. State University, Campus Box 7229, Raleigh, NC 27695. We will send a detailed agenda and directions upon receiving your registration.

We hope you can join us for our Spring 2011 SCRC meeting! If you have any further questions, please contact Rob Handfield at 919 515 4674 or Clyde Crider at 919 513 4487.

Regards,

Robert Handfield
Bank of America University Distinguished Professor of Supply Chain Management
Director, Supply Chain Resource Cooperative
North Carolina State University
http://scrc.NC State.edu; http://scm.NC State.edu
THE SUPPLY CHAIN RESOURCE COOPERATIVE  
23rd SEMI-ANNUAL PARTNERSHIP MEETING  
McKimmon Center, North Carolina State University  

AGENDA  
“Applying Sustainable Principles to the Supply Chain”  

Thursday April 28th  

7:30-8:00 Registration and Breakfast  

8:00-8:30 Welcome / Introductions  

8:30-9:15 SCRC Update – Director, Mr. Robert Handfield, PhD., Bank of America University Distinguished Professor of Supply Chain Management; Mr. Charles Canteen, Webmaster, Instructional Technologist  

9:15-10:15 Keynote Address: “Achieving Sustainable Outcomes through Collaborative Contracting”- Mr. Robert Handfield, PhD., Bank of America University Distinguished Professor of Supply Chain Management  

10:15-10:30 Networking Break
Opportunities for Thought Leadership in Sustainability

10:30-10:45 Career and Employment Opportunities: Linda Taylor, Director of Career Resources

10:45-11:30 Mr. Lou Ferretti, Director, Environmental Compliance, IBM, “Sustainability in Supply Chains at IBM”

11:30-12:15 Lunch

12:15-1:30 Undergraduate Practicum Gallery Walk
- Bayer CropScience #1 – Freight Payment Process Improvement
- Bayer CropScience #2 – VMI Analysis
- Biogen – Engineering Services Market Research
- Caterpillar Inc. – Forklift Fleet Analysis
- Glaxo Smith Kline #1 – SKU Proliferation/Packaging Postponement
- Glaxo Smith Kline #2 – Working Capital Improvement
- Lenovo – “ThinkGreen”
- Novozymes #1 – Inventory and Warehouse Capacity Analysis
- Novozymes #2 – Transportation Lifecycle Assessment

Graduate Supplier Relationships Gallery Walk
- Bank of America #1 – Promotional Material Sustainability Program
- Bank of America #2 – GSMP Process Assessment & Benchmarking
- Bayer CropScience – KPI Metrics for Supply Chain
- Biogen Idec – Benchmarking Global Quality Practices for Contract Manufacturing
- Glaxo Smith Kline – Global Supply Chain Security
- Lenovo – Predictive Model for Energy Prices
- Ministry Health Care – Software Sub-Category Sourcing Strategy
- Novozymes – Sourcing Benchmarking
1:30-2:00 “Executive Education at NC State: Methods for Effectively Teaching Supply Chain to Seasoned Professionals” Mr. Cecil Bozarth, PhD., Operations and SCM, Poole College of Management; Mr. Donavon Favre, Lecturer, Operations and SCM, Poole College of Management; Mr. Dan McGurrin, Director of Executive Education, Poole College of Management

2:00-3:00 Mr. Steve Walker, Manager, Environmental Sustainability, Burt’s Bees, Inc.
Ms. Shannon Hess, Senior Manager, Sustainable Sourcing, Burt’s Bees, Inc. “Culture of Sustainability”

3:00-3:15 Networking Break

3:15-4:00 Student Project Presentations Module I – MBA Practicum Projects
- Bank of America – Capital Equipment Purchasing Lead Time Production
- Bayer CropScience – Analyze /Benchmark CMS
- Caterpillar – Inbound Logistics Value Stream Analysis

4:00-5:00 Mr. Jason Schenker, ChFC, ERP, CFP; Economist, Prestige Economics, “What Sustainability Means for Sourcing Natural Resources and the Global Economy”

5:00 Adjourn

5:30-8:30 Reception and dinner – Jimmy V’s Steak House & Tavern, Cary, NC
Friday April 29th

8:00-8:30  Breakfast

8:30-9:30  Mr. Nick Hamon, PhD., VP, Head of Sustainability, Bayer CropScience North America, “Sustainability at Bayer CropScience”

9:30-10:00  Networking Break

10:00-11:00  Student Project Presentations Module II – MBA Practicum Projects
  - Glaxo Smith Kline #1 – Global Contract Services Management
  - Glaxo Smith Kline #2 – Supply Chain Scorecard
  - Lenovo – Perfect Order Fulfillment Initiative

11:00-11:30  Wrap-up – Rob Handfield, Director Supply Chain Resource Cooperative

11:30  Adjourn
Training and Education Needs for Green Businesses

[insert document here]
Sustainability and Life Cycle Analysis: Statement of Competencies and Activities North Carolina State University

[insert document here]