A Closer Look at Applied Sustainability Centers

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EXECUTIVE SUMMARY

Just as business school courses and programs with sustainability elements have proliferated in recent years, so have centers. This edition of *A Closer Look* discusses the rise of academic centers with a focus on applied sustainability, primarily in environmental subjects, and examines a number of those centers in detail. Our hope in offering this information is to provide a survey of the current sustainability landscape, help schools learn from each other's experiences and inspire greater collaboration and creativity.

By "applied sustainability," we connote a focus on the development and adoption of sustainable practices. Many parts of the academy seek to encourage applied research and education, and sustainability in particular is an area given to interdisciplinary approaches. Therefore, while we focus here mostly on centers based in business schools, we also examine some centers based in other parts of the university.

We use the term "center" loosely, to encompass organizations of various titles within the university that focus or catalyze sustainability research or teaching through engagement of external stakeholders. While their other goals and functions are also vital, in this review we focus on what they do to influence the world of practice.

Our key findings:

- Rapid Growth: the number, and size, of centers is increasing quickly. Numerous centers reported recent surges in requests for engagement from companies and other stakeholders. Likewise, centers are attracting significant resources for work on applied sustainability.

- Opportunities for research and innovation: companies turn to academia for help with sustainability challenges because they seek out-of-the-box thinking backed by research, seen as a strength of academia relative to corporate staff or consultants in this fast-developing field.

- Wide-open field: the centers we examined have widely varying topical agendas, making trends difficult to discern. They universally report expanding opportunities and need for more, and more diverse, approaches to applied sustainability within academia. Further, sustainability lends itself to multi-disciplinary inquiry (from chemistry to management to political science), and to industry-academic collaboration, creating countless opportunities, strategies and approaches. Finally, there is a widespread agreement on the urgency, importance, and legitimacy of addressing applied sustainability. Consequently, center directors and others we interviewed see many opportunities for their own, or new, organizations to contribute to applies sustainability research.

- Collaboration: perhaps because they are generally created as a mechanism for outreach, not to mention the sprawling agenda they are confronting, most centers would like to collaborate and communicate with each other more than they do now.

- An edge in recruiting: many centers report that their leadership in sustainability provides an increasing edge in attracting top students, and companies, to their schools. The institutional commitment crystallized in the form of a center also helps attract top professors with relevant research interests.

- Support: a common ingredient to enable growth appears to be a secure (sizable and long-term) funding commitment (endowment or budget allocation) that demonstrates to stakeholders that the center is in it for the long haul.

- Intellectual independence: at the same time, to become a "trusted voice," a center must signal that its sponsors are partners, not drivers, in the research agenda. Researchers continue to cherish intellectual freedom, serendipitous findings result from open-ended research questions, and the community of practice will trust – and more quickly build upon and implement – results that come from unbiased inquiry. Sponsors who point out new domains for inquiry, provide access for field research, and help promulgate promising results are valued, and seem often to value this collegial experience as well.

- Leadership: center leaders benefit from appointments and funding that give them enough security to shift significant attention from their own research to organizational development.

- Fit: a center must also fit well with the strengths, goals and culture of its institution. Generous donors and strong center leadership are important, but it's difficult and time-consuming to overcome indifference or opposition from the administration and other faculty. An inclusive and open process during the setup phase of a center, soliciting wide input from immediate stakeholders and even broader constituents whose research may not be directly in the area (e.g., the department chair who may soon be asked to give a junior scholar a course release), will insure greater buy-in. Centers that appear to be born "top down," or to satisfy external stakeholders, even if excellent in vision and design, may have a harder journey toward buy-in.

Our findings derive mainly from in-depth interviews with directors (staff or professors) at 20 centers. We chose centers for both their leadership and their diversity in terms of center types, size, age, agenda, strategy, organizational type within the university, etc. The methodology used for the survey is detailed in Appendix A. A tabular summary of the surveyed centers' key characteristics is provided in Appendix B. Altogether, we identified 239 academic centers around the world with at least some sustainability focus. The complete list, along with basic descriptions and Internet links, can be found at http://www.aspencbe.org/documents/Summary Database Appendix for Research Paper.xls.

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INTRODUCTION

Sustainability is providing business schools around the world with many opportunities for growth. The Aspen Institute's *Beyond Grey Pinstripes 2007* report documented a general increase in business school courses that cover sustainability since 2005. Center directors similarly report strong growth in requests from companies for research, advice, education and training on sustainability topics. Because sustainability is a new and quickly developing field with few established practices and little conventional wisdom, companies value academia's ability to collect, synthesize, and analyze information to generate original insights and new directions that consultants or corporate staff typically do not have the time or mandate to pursue.

Stakeholder demand is drawing new business-school entrants to the sustainability field. The intellectual process, and competition for resources, will inevitability lead some to prosper and others to stumble. Our intent in conducting this study of centers is to increase the number that succeed, by divining lessons about strategy, structure, financing and processes from a diverse set of established centers, and by encouraging communication and cooperation among centers in order that more may thrive and create positive economic, social and environmental impacts.

We identified several factors that can help a center get off to a fast start:

Secure, accomplished leadership: establishing a new organization requires considerable management time, which inevitability reduces a professor's capacity for pursuing his or her own research, at least in the short term. Tenured professors, who have job security and whose research reputations are already established, are best positioned to achieve a workable balance. Pre-tenure professors who undertake center administrative responsibilities need relief from teaching duties, and job security that might include a multi-year appointment and funding commitments.

Administrative support: to succeed, a center must attract participation and support from its institution's key external stakeholders – businesses and business leaders, for example, particularly alumni. It must also weather competition for resources and attention from numerous other agendas within the institution. Thus, support from the dean and general administration is crucial. Professors in the Lundquist Business School, University of Oregon, enjoyed faculty interest and general political support for years, but were able to establish the Sustainable Supply Chain Management Center only when a new business school dean was appointed, and with that support are making promising fundraising progress in the corporate community. Centers that are unable to secure sincere and active support from the dean's office may gain a toehold, but they appear rarely to grow much in size, scope or impact.

Fit: centers need to fit into the culture, strengths, resources and self-image of their host institution. Any initiative is going to find itself embroiled in battles for resources with other peoples' pet ideas. Beyond that simple fact of organizational politics, sustainability is abuzz with ideological agendas, with plenty of skeptics who question its underlying legitimacy. Serious opposition from within is very difficult to overcome, even with support from a visionary dean and a generous funder. What's better is an astute read of what the faculty and

other internal stakeholders will support – or at least not oppose – pitched in such a way that it complements the school's self-image and existing commitments.

Money: most – not all – centers that thrive benefited from a running start afforded by a substantial, long-term commitment of funding support. With such support, the center can quickly launch its research agenda rather than focusing on administration and fundraising; external stakeholders feel safer in committing to work with the center; the center can hire staff and professors can do research. In contrast, centers that have launched without a major funding commitment in hand seem to have a hard time landing one later. It's easier to set an agenda and create a branding opportunity *tabula rasa.* The source (endowment, major foundation grant, government or university budget allocation) and purpose (endowed chair, research grant, etc.) of the start-up funding seems to matter less than the security its simple existence provides.

STRUCTURE

The centers we interviewed have various titles (e.g., school, institute, forum, program, as well as center), positions within the university structure, and ways of interacting with external stakeholders. These differences roughly reflect the diverse goals, target audiences, funding models and other aspects of the centers.

The Bren School of Environmental Science and Management (Bren) at the University of California at Santa Barbara, and the School of Sustainability at Arizona State University (ASU), award their own degrees and have their own, dedicated, multidisciplinary faculties. Directors at Bren and ASU told us that the school structure is very effective at encouraging faculty from different disciplines to work together, because professors do not need to buy out of teaching assignments in their home departments, or fend off deans and colleagues who do not understand what they are doing "across the street." Establishing a new school can be a difficult path, requiring considerable political and bureaucratic will within the university and significant funding. Establishment of the Bren School and construction of its building were based on funding from the State of California and the program was enhanced with substantial funds from a private donor. The ASU program was made possible by a private eight-figure gift.

CGDM's Long-Term Impact

The Consortium for Green Design and Manufacturing's goal is to connect their research to environmental stakeholders in industry, government and education. Longer-term projects are not always immediately applicable, but with strong connections to California's industry and local and state government, they have had a real impact. The nature of the problem often determines how quickly work finds its way into relevancy, and strategic and infrastructure issues take longer to have an impact. In 2001 they built a pavement selection and lifecycle software assessment tool (PaLATE) that was slow to be picked up, but now has a steady stream of users.

Among organizations that exist within another school or department, we identified two non-exclusive sub-groups: those that exist mostly to advance research, and those that provide opportunities for students. They all do both, but shade one way or the other. The Center for Responsible Business (CRB) at University of California, Berkeley, to a great extent engages companies as a way to provide students with hands-on learning opportunities, help them plan their

careers and establish professional contacts. Likewise, the Erb Institute for Global Sustainable Enterprise (Erb) at the University of Michigan sponsors a wide range of education, research and outreach programs. Significant resources are allocated to financial support and action-based learning opportunities for students in a dual-masters program, the institute's largest initiative. Three Michigan professors with joint appointments in the schools of Business and Environment hold endowed chairs that are attached to the Institute. Financing and management of their research occurs outside the Institute itself. Both Erb and CRB have external advisory boards with members representing many corporations and nonprofit organizations. The boards focus mainly on the student experience, which may include internships, experiential learning, networking and placement.

CRB's Path to Sustainability

Berkeley's Center for Responsible Business began at the urging of students, as has been focused on providing the best in sustainable business education to them ever since. Initially supported by major donations from philanthropists (including Paul Newman) and alumni, CRB is now shifting its focus to a more sustainable funding model. Approximately 20 corporate partners provide support through annual contributions. Focused on the win-win proposition of MBA students researching a specific problem in their industry, companies now pay to participate in the students' experiential learning courses. The school also does its part by considering these contributions gifts to the School. Using these resources, CRB continues to focus on building strong learning experiences and corporate engagement.

The Center for Sustainable Global Enterprise (CSGE) in the Johnson School at Cornell University houses both research and teaching programs. With a strong mandate to develop interdisciplinary approaches, the Center has created an advisory board mostly comprising Cornell alums who are both professionally accomplished and already involved in other parts of the university. Their logic is that alumni are the most reliable sources of money, research opportunities and jobs for students, especially if they have already proven their dedication to Cornell.

Other centers, among them the Center for Advanced Processing and Packaging Studies (CAPPS) at North Carolina State University and the Forum for Corporate Sustainability Management (CSM) at IMD, Switzerland, are research centers with less teaching emphasis. CAPPS has an external advisory board and CSM uses project-specific boards, which help them to identify, prioritize and develop research topics. Member companies pay a membership fee that entitles them to shape the research agenda and review research results before publication.

The Center for Sustainable Enterprise (CSE) at University of North Carolina's Kenan-Flagler Business School is an outlier among the centers we interviewed in that it has no external advisory board, which was disbanded in 2006. The board had grown very large and diverse, with too few common interests among members to plan meeting agendas that were adequately engaging for all. Other, historical functions of the Board had diminished in importance. For example, the sustainable enterprise MBA concentration managed by CSE now has a large number of alumni, who are better positioned and motivated than Board members to help current students with advice, internships, employment opportunities and research. Further, CSE now enjoys strong institutional support within the business school and the university, so there is less need for financial and political help from an external board. As the Board was

disbanded, members were invited to participate in specific activities such as mentoring, employment and collaborative research. CSE reports that members are happiest when their time is spent working directly on projects that create value for their organizations, students and professors.

Money Matters

It may surprise nobody that securing substantial and long-term funding early in the life of a center appears to contribute substantially to its chances to thrive. We heard, variously, that secure funding allows a center to operate strategically rather than opportunistically; that it gives faculty breathing room to attend to organizational development (otherwise a risk to long-term research productivity); and serves as an "anchor tenant," helping to create an environment in which other stakeholders feel secure investing time and resources in the center. The amount and term of the funding appears to be more important than the source or intended use (chair, program gift, research support, etc.).

What may be more arresting to note here is our observation that rarely does a center secure substantial, long-term *core* funding after it is already up and running (supplemental or complementary substantial gifts are a different matter). Centers that start up on a fee-for-service (including project grant) or membership model seldom transition to a funding model that offers longer-term security. Plausible explanations abound: it's much easier for a potential sponsor to be inspired by a blank slate than a re-organization or turnaround opportunity; it's too hard to shoehorn an existing program agenda, image and brand into the interests of a prospective donor; etc. In sum, you're only born once.

Thus, while the temptation to just start doing the work is great, among the centers we examined it was clear that careful attention to organizational development up front paid off handsomely over time. In contrast, centers that pursue an opportunistic model in hopes that a focus and funding source will emerge, are much more likely to stay in hand-to-mouth mode indefinitely.

Monday Mornings with CSM

Most of the topics discussed at the Forum for Corporate Sustainability Management ring familiar, but their take on climate change, supply chains, or stakeholder involvement brings a different twist to its members. The IMD center helps corporate members integrate CSR management into their corporate strategies, and everything they do is focused on the take-home value of their service for corporate management executives. Three times a year, CSM brings member representatives together to discuss research directions, hear updates on current projects, and network. The forums are interactive, avoid stale presentations, and the goal is to address managerial challenges. Above all, they provide a concrete focus on what you actually do about issues of sustainability in your office on a Monday morning.

Project-focused, fee-for-service models provide flexibility for a center to respond to diverse opportunities with many different kinds of stakeholders. The Center for Sustainable Enterprise at the Illinois Institute of Technology (CSE at IIT), for example, reports fielding a rapidly growing number of requests from companies and agencies for support on technology and

policy questions, and is hosting a Chicago-region sustainable business organization. The Center's projects have immediate application and impact, yet its lack of substantial, long-term funding support makes it difficult to hire staff, focus the agenda and plan for the future. It should be noted, however, that local universities like IIT and Portland State have different societal roles than major international research universities like Stanford; they may be expected to provide direct service, support and training to local companies and constituencies. They also have less ability to attract major gifts. So, although the fee-for-service route is difficult, it may be the best fit for local or regional public universities considering their roles and opportunities. While several centers in our survey sample operate sustainably on membership revenue (which carries a general expectation from members of near-term return on investment), no centers appear to have achieved a secure existence relying solely on a fee-for-service model. One center that has incorporated fee-for-service strategies into a larger financial model is the Public Utilities Research Center (PURC), which uses predominantly fee-for-service support (approximately 80%) in conjunction with stakeholder sponsorship for core funding.

We also found that centers tend to rely on one type of funding, rather than an evenly balanced portfolio that might arguably reduce risk. The major funding sources included endowments and other gifts; fee-for-service (including grants and contracts); membership fees; and budget allocations (from the school, university, legislature, etc). We hypothesize that an organization's choice of primary funding type interacts with its strategy, agenda and stakeholder engagement, and trying to balance different revenue streams creates too many strategic and operational conflicts. While most of the centers interviewed did have multiple streams of support to balance overall risk, these centers commonly had one dominant funding type. The frequent exception to this observation appears to be among centers that receive substantial budgetary support from the university, often to pay overhead, salaries and other expenses that outside funders hesitate to cover.

Deployed and communicated shrewdly, financial support from the school or university can be a powerful magnet to attract outside investment. For example, endowed chairs often cover only part of the compensation and support expenses of a senior professor, and the rest is covered by the regular school budget. The Business as an Agent of World Benefit (BAWB) program in the Weatherhead School of Management at Case Western receives significant overhead support from the management school, which allows outside funds to support activities and research as well as the Chair of the Center who received the first endowment in the U.S. for a social entrepreneurship chair from Fairmount Minerals. At UC Berkeley's CRB, the university has agreed to treat individual and corporate contributions as gifts to the School, which are subject to much lower overhead rates.

Better Food, One University at a Time

The Center for Advanced Processing and Packaging Studies started out in 1987 as an NSF industry/university initiative, with the goal of transferring university-developed technology to industries in food processing and packaging who could actually use it. Two decades later, they have spread their reach to include North Carolina State, Ohio State, and UC Davis. Between these three universities they are able to connect with companies across the continent, and to build on each other's work through annual conferences.

PRODUCTS

The role of research, teaching, training, and other outputs is, or should be, strongly related to the center's focus. Based on the interviews we conducted, we found that it is better for a center to omit those options which do not play to its strengths, and to unabashedly highlight those which do.

Centers that established a strong reputation generally had several distinctive products. Academically-focused centers, for example, concentrated on research that is publishable in peer-reviewed academic journals as well as generating research translations for wider audiences. They also often participated in conferences that both showcased their research and updated industry affiliates. Industry-oriented centers often deemphasized the importance of peer-reviewed publications for the center as a whole (if not for individual researchers) and instead focused on making more immediate connections with their target audience, including industry conferences, "first look" papers for sponsors, and executive training.

Centers should not try to do everything, but should instead evaluate potential outputs within the context of their larger agenda. By using a coordinated outputs strategy that focuses on some of those elements and omits others, these products can be very effective tools for forwarding both a center's internal and external agendas.

Making the Most of It

Nearly half of the sustainability centers in our initial survey were established less than a decade ago. Rising interest in CSR and the environment has encouraged universities to support these centers, encourage their development, and help them connect to alumni and industry. But there's one more thing that home institutions can and should do to ensure the success of these centers: waive overhead costs. It may sound minimal but with overhead charges reaching ~50% at some universities, this can mean the difference between a budget that's bare bones or well-rounded. Even if the university doesn't provide outright support, it can smooth the center's path by granting cost reductions (as with CAPPS), or by treating the center's funding as a gift (which incurs costs closer to 2.5%, as at CRB). That can mean the difference between struggling year-to-year, and establishing successful long-term operations.

Research

Sustainability is an integrative, trans-disciplinary field that draws from, and adds value to, numerous traditional disciplines and subject areas. The research undertaken by centers surveyed for this project reflects this diversity. Companies, policymakers and others turn to academia for help with sustainability challenges because they seek out-of-the-box thinking backed by research, seen as a strength of academia relative to corporate staff or consultants in this fast-developing field. Universities also rightly perceive that they are able to offer a longer-term approach to fundamental research questions than can corporations. The reputation enhancement for companies and universities can be mutual.

Broadly speaking, we identified two approaches to research in the centers we interviewed. At the Center for Responsible Business, for example, researchers use an academic focus on more fundamental issues related to sustainability, and the Erb Institute uses a traditional academic research with integrated field-based learning to address issues related to sustainability. Other centers, including the Global Supply Chain Management Forum (GSCMF), PURC at the

University of Florida, and the Green Design Institute (GDI) at Carnegie Mellon explicitly examine industry's current dilemmas, identifying the implications of alternative policies, or providing engineering solutions to emerging problems. The two approaches are by no means exclusive, but the distinction provides a useful way to parse centers' paths to success.

Setting the Agenda: The Internal Approach

The academic research agenda is driven by individual faculty members and their interests, and the focus is on "marketing" the results at academic conferences and peer-reviewed publications in top-level journals. Several of the centers interviewed reflect this approach to research development. The Global Institute of Sustainability at ASU (GIOS) supports specific products initiated by individual faculty; the University provides seed funding to advance initiatives in specific areas. The Kerr Food and Agricultural Products Center (FAPC) is similar in this regard; their dominant theme is fundamental research, with a strong emphasis on publications. Berkeley's Consortium for Green Design and Manufacturing (CGDM) has no budget of their own, but acts as a nexus for students and faculty interested in related issues.

If there is already a strong pool of sustainability-related research within an institution, the internal approach can be an effective means of channeling existing efforts into the center's overall mandate. The centers that have been successful at building on this model are those that actively bring their faculty members together with a shared sense of purpose, preferably with funding, and act as links to external connections. This can happen within a single center, as with the Virginia Center for Coal and Energy Research (VCCER), which assembles cross-disciplinary faculty on a project-specific as-needed basis, or between centers acting together to build on one another's strengths, as with CAPPS, member of a three-university food-processing consortium designed to complement each others' strengths.

A potential stumbling block with this approach is that a good match between research and the needs of present or potential corporate partners is not assured. Research at sustainability centers can take several years before finding its way to appropriate industry users. With the right outlook, however, such mismatches can be used as mutual learning experiences that help coordinate the short-term needs of industry with the longer timelines of academia. Academics can benefit from learning to more quickly share a snapshot of what they learned, even before they do more complex analyses, and get industry feedback. Corporations can learn that the pace of discovery takes time, but is valuable to connect to at every stage, rather than just at the end-of-the-pipe.

Aging Well with PURC

The oldest center in our study, the Public Utility Research Center was created in the heat of an energy and economic crisis. Since 1972, PURC has been helping regulators and utility managers face game-changing developments in energy availability and telecommunications technologies. Initially a small group, PURC responded to the challenges of energy and telecommunications deregulation in the '80s, and globalization in the '90s, by expanding into a large interdisciplinary center. Through training, development programs, internationally-recognized research, and seminars, PURC educates decision makers, designs incentive programs, and develops institutional arrangements that promote smart decision-making in infrastructure while helping to enhance efficiency, clean energy, telecommunications, and clean water services worldwide.

Major questions in sustainability are ripe for interdisciplinary research collaborations, unfortunately a potential weakness in academia. The ASU and Bren Schools were created, in part, to transcend disciplinary boundaries by housing researchers with diverse backgrounds under the same administrative roof. Several other centers, including the Portland State Food Industry Leadership Center and UNC's Center for Sustainable Enterprise, have drawn professors from outside the center into research collaborations by offering modest stipends ($5,000-$10,000). Stipends can produce good research, but rarely seem to create lasting interdisciplinary research links; most research is generated by faculty specifically appointed to the centers.

More fundamental academic research like that being done through the Global Climate and Energy Project (GCEP) at Stanford is critical to the long-term development of ideas and solutions in the sustainability field. Based on these interviews, however, the surest way of influencing industry in the short term is through the second approach, to collaboratively develop the center's research agenda in partnership with industry.

Setting the Agenda: Outside Influences

Centers' research agendas may also reflect corporate partners' needs and interests. Kerr's FAPC is one example of this. They bridge the gap between academics and the private sector by offering large and small businesses, producers, and entrepreneurs access to faculty and staff with expertise in business and technical disciplines. The FAPC also offers pilot processing facilities, research laboratories and outstanding educational programs. Instituto de Empresa Business School's PwC & IE Centre for Corporate Responsibility (CCR) works with the management of numerous multinational corporations to incorporate CSR, specifically strategic CSR and sustainability, into their core strategies. The target audience at PURC is the practitioner, regulatory and business community. The CSM Forum at IMD and the GSCMF at Stanford are two additional examples of centers who organize their research agendas according to the interests and needs of their corporate partners. Center staff at CSM develop a list of potential research topics, then survey member companies to determine interest levels, then plan ongoing research accordingly. At GSCFM, staff work with members to develop a research agenda that builds on synergies between the center and its corporate partners. At CAPPS, supporting members use points awarded by membership level to vote for potential research projects.

Funding the Future of New Energy Technologies

Industries typically fund near-term, applied research focused on solving immediate problems, but one center is trying to rewrite the rules of the game entirely. If you have an idea for breakthrough energy technology, Stanford's Global Climate and Energy Project wants to hear it. With major backing from industry sponsors ExxonMobil, GE, Toyota and Schlumberger, they fund energy-related research projects by faculty at Stanford and beyond. Focused on finding methods to significantly change greenhouse gas levels and emissions, they see the university setting as an ideal platform from which to address this issue by taking advantage of what universities do best, fundamental research. Rather than incremental improvements to current technologies, however, they are interested in high-risk, high-reward ideas in the hopes of radically changing energy and energy transformation technologies.

When industry actors are closely linked to the center, they are much more likely to act as sources for research topics, or as sounding boards as work progresses. They are also likely to see research results as the explicit or implicit benefit of partnership with the center. At CSM, corporate input and access to their research is promoted as a major benefit of membership. This arrangement provides a number of benefits to the center as well, including increased levels of monetary support and general engagement, but can also constrain the agenda as well as the form of research results. The VCCER reported that ten years ago they focused primarily on information dissemination through traditional academic outlets. Now there is pressure to produce information as soon as possible. There is no time to write papers, much less go through peer review because by the time a paper is published via this route it is old news. Their focus now is on getting things out quickly via meetings or PowerPoint presentations directly to companies. For those researchers in our survey with the security to move beyond tenure-related publications, reports, case studies, presentations, and other material focused on industry problems were key to influencing industry behavior while continuing to shape careers that make a difference.

The Path Less Traveled

Much of the discussion around making an impact centers on connections with industry, and while this is important, the Green Design Institute knows that this isn't the only way to make a difference. GDI stands out for its focus on policy makers and scientists. While the Institute does work with the auto, oil, coal, and other industries, its work is geared toward encouraging smart public policy on a federal level. Their peer-reviewed research is frequently published in acclaimed environmental science and technology journals and their research expertise allows them to influence the regulatory and policy landscape, give them access to the legislative process, and have a strong positive impact.

Well-rounded centers are associated with a strong academic focus while centers with an explicit industry orientation produced more, had more extensive partnerships with industry, and generally had more resources. At the same time, several survey participants noted that focusing on industry issues tended to highlight research that was short-term and immediately practical, making it difficult to support larger, longer-term projects on fundamental topics.

Regardless of the overall approach, for the center to act as a catalyst for good research, it must focus, and it's important that the center's research goals are aligned with faculty interests. Not surprisingly, money doesn't hurt, but isn't the answer to everything. Ideally, the goal of many centers is to offer a wide variety of research that is also responsive to industry needs. What works? Building on your strengths by choosing a research strategy that complements your researchers, connects with your supporters, and fits your institution and goals.

Teaching, Training, and Connections

Each of the centers we interviewed has established its own balance between teaching/curriculum development and research. Successful centers tend to do one or the other; while they may have crossover affiliations, they rarely try to create excellence in both teaching and research. One exception to this trend is that centers can be ideal places for experiential learning to flourish. This affords faculty the opportunity to work with graduate students, and

provides those students opportunities to work closely with industry. Berkeley's CRB has a strong emphasis on students and uses experiential learning as the capstone of its MBA curriculum. The CSM at IMD, while very industry focused, has a small staff that supplements their research team with Ph.D. students, benefiting both.

Degree Programs

Some of the sustainability centers we interviewed are affiliated with academic programs (or, like Bren, are schools in themselves), but most are dedicated to catalyzing research. The exceptions are centers specifically created to "serve the students." The Erb Institute employs a dedicated research staff, but keeps much of the focus on the student experience. Berkeley's CRB began at the urging of interested students and has a strong emphasis on integrating responsible business education into the curriculum. Most of the emphasis is on graduate level offerings providing advanced training for students, although several centers include opportunities for undergraduates as well. (One possible pitfall of such student-focused centers is that it may be more difficult to attract strong researchers to schools that prioritize teaching; programs with strong research apprenticeship programs are attractive, but high teaching loads can deter research-focused faculty.) Many student-focused centers measure their success in terms of student participation in course offerings, the number of students graduated, and the number of alumni with positions tied to sustainable business.

Non-degree Programs

While much less common, several centers also have some connection to non-degree program offerings. Stanford, for example, does not conduct executive education but periodically provides a course offering for that program. As mentioned earlier, however, centers with fee-for-service models have not been as successful as those with more focused agendas. A more typical approach is to involve representatives of the center's industry membership in events that emphasize networking and learning exchange.

Breaking New Ground

The road to success is not always easy. After a change in leadership, a new dean looking for ways to leverage Weatherhead's strengths on a global scale saw that the Center for Business as a World Benefit was the perfect vehicle for the school's new direction. Now BAWB is the main leverage point for the school's goals around "design and sustainability." They are helping with a serious redesign of core curriculum, generating teaching cases for the Weatherhead Management School, serving as a Secretariat for the US Network of the United Nations Global Compact, as well as aiding countless companies to become sustainable through their Appreciative Inquiry seminars.

Events

The diversity of faculty, advisory members, students and corporate partners at these centers make it important to maintain ties, exchange ideas, and report on research, and events are one way to make that happen.

Meetings and other events are used by the centers we surveyed in several different ways. CSM, with its focus on specific managerial challenges, holds tri-annual forums that are interactive think tank seminars; based around a case study, members provide feedback on current research, and participate in a stakeholder discussion around the particular topic. CAPPS meets with the three-school

Local Ties, Global Reach

When the VA legislature responded to the energy crisis of the 1970s by establishing the Virginia Center for Coal and Energy Research, they envisioned a local center focused largely on public service for the Commonwealth. Spurred on by new leadership, another energy crisis, and increased attention by mineral and energy companies to sustainability, however, its responsibilities have expanded considerably in scope and global application. Their earlier emphasis on health and safety, mining and minerals has expanded to include sustainability and sequestration. Starting with minimal funding from the state and university, VCCER now runs a number of large-scale projects focused on carbon capture and storage, as well as issues of sustainable harvesting of nonrenewable resources around the globe.

consortium twice a year to review progress on current projects and vote on potential research initiatives; it used to be once a year but members voted to speed up the research and funding cycles, as well as meeting times, reflecting their short-term industry focus. Stanford's GCEP holds an annual symposium with 400-500 people in attendance. They also give periodic workshops open to all, featuring a diverse array of speakers; their sponsors send up to six people to each of these events, depending on their interest in the specific topic. Individual research groups also give their own talks as a way to engage with the academic community. Every two months, IE Business School's CCR invites top management from leading companies to discuss CSR-related topics. Based on their own experiences, each company speaks out on specific issues related to CSR and strategy, discussing how they approach it within their particular contexts. Empresa also publishes the results of those meetings.

The specific form of these events follows from the organization's focus; research-oriented centers give presentations at conferences, while those interested in industry impact give corporate seminars or convene consortiums with industry partners.

A Modest Proposal…

The large, and quickly growing, number of academic organizations engaged in applied sustainability issues also amplifies their desire for more communication and coordination. For academics, there is value in sharing research findings and plans in order to speed progress and reduce unnecessary competition. Professors have some opportunities to present the substance of their work at academic conferences, but few platforms to discuss the process that goes into its development, including building an organization, managing ongoing projects, and engaging stakeholders. Center staff appear to have very few structured forums in which to communicate and collaborate. For their part, external stakeholders – businesses in particular – increasingly seek academic help on sustainability matters but have no easy way to find the best academic partner for a given need.

An organization, whether new or within some existing group, formed to support communication and cooperation among applied sustainability centers may prove quite valuable to all concerned. We did not identify any such efforts in the course of our research, and we would welcome reader response regarding the desirability of such an effort and ideas on how to make it happen.

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The Aspen Institute Center for Business Education (CBE) equips business leaders for the 21st century with a new management paradigm—the vision and knowledge to integrate corporate profitability and social value. To that end, it provides business educators cutting edge classroom resources and creates peer networks to incorporate social and environmental stewardship into teaching, research and curriculum development. CBE websites draw over 75,000 visits monthly and its events and networks attract over 1,000 participants each year.

CBE is a part of the **Aspen Institute Business and Society Program (BSP)**, an organization dedicated to developing leaders for a sustainable global society. Through dialogues and path-breaking research, we create opportunities for executives and educators to explore new pathways to sustainability and values-based leadership.

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APPENDIX A: METHODOLOGY

Research was conducted for this project via three different methods – a broad internet scan, in-depth interviews, and an online questionnaire. The first method surveyed a variety of academic centers on a number of metrics – in this broad scan we gathered basic information about a great many centers around North America and around the world. The latter phases went deeper into the activity, conduct, and goals of a handful of centers, and were designed to shed light on the detailed workings of this smaller group of centers.

1. Broad Internet Scan

In this expansive phase, Aspen CBE surveyed the academic center landscape, with special attention to sustainability. The goal was to identify centers to provide a comprehensive description of this landscape.

a. Criteria

Our first step was to build a database of academic centers with some activity in sustainability. We began with data from The Aspen's Institute's biennial Beyond Grey Pinstripes Survey, which produced over 200 centers from 111 MBA programs. Using an expansive search of top colleges and universities across a variety of disciplines, we added nearly 400 additional centers to the database. For example, we combed the top engineering and agriculture programs, among others, for those with a sustainability component included in their work. We also reached out to thousands of faculty for other center recommendations, and compiled a list of more than 600 centers for review.

Determining whether a center met the "sustainability" criterion involved the review of publicly-available information on each of the 600-plus centers. In order to cover a broad selection of centers and to emphasize the environmental dimensions of sustainability, our final list also included a number of centers for whom sustainability was peripheral to their main agenda, but we erred on the side of inclusion. From the full list of centers identified and reviewed, we selected 239 to evaluate in more detail.

While our final database is not a complete list of every academic center that deals with sustainability issues, it is a useful cross-section to serve the greater purpose of the research study: to survey the sustainability center landscape, provide useful analysis on several notable centers, and encourage further development in this field.

b. Content

For each of the 239 sustainability centers we recorded basic information such as name, institution, internet address, year established, and a description. All data during this collection phase was acquired via publicly available resources – primarily center websites. We also coded each center on a variety of metrics, including geographic location and scope of work, whether a center's work was applied, whether a center had a significant focus on industry, and a variety of other measures. The purpose of these metrics was to categorize centers and highlight their distributions, and to inform the selection process for centers to be interviewed in the next stage of the project.

Based on the interest expressed by the people and centers contacted during the course of this project, we have made an abridged version of the database available in conjunction with this publication. It includes general information about all 239 centers, and can be accessed at http://www.aspencbe.org/documents/Summary Database Appendix for Research Paper.xls. (We did not code the non-sustainability centers on any metrics but the most basic – name, description and focus – and they have not been included in the summary database.)

2. Interviews of Targeted Centers

For the second phase of research, reported on here, The Aspen Institute selected 20 centers from the sustainability database for in-depth interviews. The purpose of these interviews was to explore the development, scope, structure, and workings of a sample of sustainability centers, in order to provide an overview of their experiences.

Through these interviews we obtained detailed qualitative data not available through our earlier research. The completed interviews shed light on the stories that brought these centers to prominence and illustrated how each center managed itself, its staff, its programmatic work and research, and its partners.

a. Selection

Our goal was to interview a selection of centers that were substantially distinct from each other, and acquire as wide a range of information as possible. It should be noted that our selection is not an endorsement of these 20 centers over others. They were chosen because they represented a broad and significant picture of the overall landscape. Time permitting, additional centers would have been interviewed.

Based on our analysis of the Phase I data and our understanding of the sustainability landscape as a whole, we chose 20 centers that were sufficiently interesting, influential, and distinct from each other, for in-depth interviews. The included centers are diverse, and include those both small and large, with strong academic focus or strong industry focus, with a dominant funding partner or multiple funding partners, etc.

b. Content

In the interviews, we asked about the centers' history, functioning, and outputs. We also discussed the centers' governance and advisory structure, funding models, the types and substance of their partnerships (corporate, academic, NGO, or government), size and scope, agenda, the research capabilities, influence on its target audience, and more. We explored the challenges these centers faced, what made them successful, and their impact on their university and the world at large.

APPENDIX B: KEY CHARACTERISTICS

University	Center	Year Est.	Focus	Public / Private Institution	Geographic Scope	University Size[i]	Funding (Major Sources)	Advisory Board? (Role, Placement and Composition)	Focus (Industry Problems and Research, Teaching and Curriculum, or Other Areas)
Arizona State University	Global Institute of Sustainability (GIOS at ASU)	2004	Global sustainability	Public	AZ, US, international	Extra large	Individual philanthropy, Federal grants, and State funds	External advisory board of CEO's, academics, NGO representatives	Both – heavy focus on applied research and links between industry and academia, as well as education, curriculum, degree programs
Carnegie Mellon University	Green Design Institute (GDI)	NA	Sustainable design	Private	US	Large	Government grants, largest ones from NSF; consortium with corporate members	No general advisory board; receive grant specific advising, but this is voluntary, not required by grants	Focus on influencing policy at the federal level
Case Western Reserve University	Center for Business as an Agent of World Benefit (BAWB)	2004	Business and society	Private	International	Medium	Initial funding from university endowment; now funded through the management school; foundation grants / donations; and service-oriented revenue	Advisory Group that provides general direction and support; internal faculty leadership group that guides research, education, and other activities	Heavy focus on applied work with regard to research and programmatic work; Appreciative Inquiry serves as the core of most of their applied work
Cornell University	Center for Sustainable Global Enterprise (CSGE)	2003	Sustainable global development, BoP	Private	Global	Extra large	Endowments and programmatic work brought in equal and significant amounts	External advisory board comprising NGO and business leaders with emphasis on Cornell alumni	Focus on commercialization of inherently clean technologies and the development of new, disruptive business models needed to address the needs of the world's four billion poor

University	Center	Year Est.	Focus	Public / Private Institution	Geographic Scope	University Size[i]	Funding (Major Sources)	Advisory Board? (Role, Placement and Composition)	Focus (Industry Problems and Research, Teaching and Curriculum, or Other Areas)
Illinois Institute of Technology	Center for Sustainable Enterprise (CSE at IIT)	2000	Sustainable business	Private	Greater Chicago Area	Medium	Project by project funding	Advisory function for specific programs but not for greater center	Focus on improving products and processes of small and mid-sized businesses; teaching on environmental management, graduate degrees offered related to sustainability
IMD - International Institute for Management Development	Forum for Corporate Sustainability Management (CSM at IMD)	1993	Corporate sustainability	Private	International	Small	Half from corporate membership fees; half from IMD matching funds	Project specific advisory panels; great deal of autonomy though	Industry focused research; member companies help to choose research topics every 2 years
Instituto de Empresa	PwC & IE Centre for Corporate Responsibility (CCR)	2006	Corporate responsibility	Private	International	Small	Endowment from PwC; fixed costs and overhead covered by university	No advisory board; frequently consult with PwC on direction, but under no operational restrictions	Aim to research and shed light on management, facilitating the exchange of experiences and adoption of best practices
Ohio State University–Columbus / North Carolina State / UC Davis	Center for Advanced Processing and Packaging Studies (CAPPS)	1987	Processing and packaging	Public	US	Extra Large	Substantial NSF grant to start; now supported by corporate membership fees; reduced overhead from school	Advisory board consists of 1-2 people from each member company; board decides on the rules and any changes to the Center's structure and operations	Aim to influence industry in using technology developed in universities

University	Center	Year Est.	Focus	Public / Private Institution	Geographic Scope	University Size[i]	Funding (Major Sources)	Advisory Board? (Role, Placement and Composition)	Focus (Industry Problems and Research, Teaching and Curriculum, or Other Areas)
Oklahoma State University	Robert M. Kerr Food & Agricultural Products Center (FAPC)	1997	Food and agricultural products	Public	OK, US	Extra large	Grants from Oklahoma state legislature	Advisory board put in place by state government, comprised of state officials and legislators, as part of grant conditions	Industry-focused research done with the sole purpose of improving the OK agriculture and food industry
Stanford University	Global Climate and Energy Project (GCEP)	2002	Climate, energy	Private	US, International	Large	Significant 10-year grant from major corporations	External advisory board that meets yearly to discuss progress, workings, and difficulties; members include government, NGO, and university staff	Fund a variety of research products across energy transformation landscape aiming to affect industry; primary audience is other academic researchers
Stanford University	Global Supply Chain Management Forum (GSCMF)	1995	Global supply chain management	Private	International	Large	Corporate membership fees	Advisory committee for advice and guidance; directors have decision making power	Focus largely on industry-targeted research regarding supply chains
University of California, Berkeley	Sustainable Products and Solutions Program, at the Center for Responsible Business (CRB)	2007	Sustainability, products and processes	Public	US	Extra large	Initial funding from individual gifts; moving toward funding base of corporate partners; reduced overhead from school	Senior advisory board and faculty advisory board	Focuses largely on student experience

University	Center	Year Est.	Focus	Public / Private Institution	Geographic Scope	University Size[i]	Funding (Major Sources)	Advisory Board? (Role, Placement and Composition)	Focus (Industry Problems and Research, Teaching and Curriculum, or Other Areas)
University of California, Berkeley	Consortium on Green Design and Manufacturing (CGDM)	1993	Green design, manufacturing, engineering and management	Public	US	Extra large	Most from government sources, smaller portion from industry	No advisory board, only corporate and government partners who may request research based on their needs and industry	Research focused on improving industry function and technologies; some sponsorship by specific companies; also teaching and curriculum development
University of California, Santa Barbara	Bren School of Environmental Science and Management (Bren)	1994	Environmental science and management	Public	US, International	Extra large	University support and government grants are most significant forms of funding; corporate partnerships and private donors (significant but not as large)	Advisory board to provide guidance on education of students and broad program strategy	Since it's a school, more of a focus on student needs, curriculum and teaching than acting as a bridge between industry and academia; however, there are industry connections via students and research
University of Florida	Public Utility Research Center (PURC)	1972	Infrastructure policy	Public	Florida, US, International	Extra large	Currently, mostly from international training programs and projects; some core funding is from partner utility companies; also from state regulatory agencies	Executive committee appointed Florida sponsors to promote center accountability and transparency	Aims to impact the utilities industries through training and industry-relevant research
University of Michigan	Erb Institute for Global Sustainable Enterprise (Erb)	1996	Sustainable enterprise, energy, climate, BoP, green design, sustainable mobility	Public	International	Extra large	Endowments, supplemented by scholarship and research grants	Advisory board with 35 members from corporations and nonprofit organizations	Focus on degree programs, student experience, and scholarly research

Un iversity	Center	Year Est.	Focus	Public / Private Institution	Geographic Scope	University Size[i]	Funding (Major Sources)	Advisory Board? (Role, Placement and Composition)	Focus (Industry Problems and Research, Teaching and Curriculum, or Other Areas)
University of North Carolina at Chapel Hill	Center for Sustainable Enterprise (CSE)	2001	Sustainable enterprise in strategy, marketing, finance, real estate, and entrepreneurship	Public	US, North Carolina	Extra large	University and business-school budget allocations; some fee-for-service from companies	No advisory board / function (dismantled in 2006)	MBA program concentration in sustainable enterprise; thematic focus on innovation, financial metrics, economic development, leadership and corporate governance
University of Oregon	Sustainable Supply Chain Management Center (SSCM)	2006	Sustainable supply chain and operations management; change and innovation for environmental stewardship; measurement and analysis for the life cycle	Public	Northwest, US	Extra large	Mostly from corporate partnerships; reduced overhead from school	Plans to develop advisory council, with mostly private sector representatives, but also some NGO and government members	Experiential learning is central priority of school and center
Portland State University	Food Industry Leadership Center (FILC)	1994	Retail and packaged goods in the food industry	Public	US	Extra large	Advisory board is not a membership program; most of their money comes in through sponsorships, donations, and funding of particular projects	Comprised of a skilled team of industry leaders representing a wide variety of industry interests	Exclusive industry focus; offers courses, programs, conferences, forums, seminars and internships to current industry employees as well as talented students interested in developing careers in food industry management

Un iversity	Center	Year Est.	Focus	Public / Private Institution	Geographic Scope	University Size[i]	Funding (Major Sources)	Advisory Board? (Role, Placement and Composition)	Focus (Industry Problems and Research, Teaching and Curriculum, or Other Areas)
Virginia Tech	Virginia Center for Coal and Energy Research (VCCER)	1977	Energy, mining, coal and other mineral resources	Public	VA, US, International	Extra large	Government research grants, company membership fees and specific project support	Board comprised of high-level representatives from coal, energy, and transportation industries, state agencies and academia	Industry problems and research, energy policy and public issues

[i] Size categories are based on those used by US News & World Report's college rankings for the overall student body of the parent university and are estimated from publicly-available sources: small = 0-2,000; medium = 2,000-5,000; large = 5,000-10,000; extra large = 10,000 and over.