Going Green Globally with Strategic Sustainability Systems

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ABSTRACT

This paper describes our "Going Green Globally" effort to bring first-year MBA students and business clients together to create sustainable yet profitable practices. The intensive student experience uses systems thinking to frame strategic decisions with a holistic perspective. Students obtain self-assessments on environmental citizenry, study with environmental scientists and engineers, and collaborate with industry experts to craft green practices for actual clients. This cornerstone integrative experience addresses the recognized need to apply knowledge and successfully innovate in complex situations as well as develop sound green business models for their future.

INTRODUCTION TO "SUSTAINABILITY" IN THE BUSINESS SCHOOL CURRICULUM

Business schools in general (and MBA programs specifically) have lately received much criticism. Scholars have accused them of being too out of touch with the "real" world by

focusing on scientific research which has little application to business leaders (Bennis & O'Toole, 2005) and of being too market-driven by catering to "customers" and focusing on competitive rankings (DeAngelo, DeAngelo, & Zimmerman, 2005). The MBA degree itself has taken much of the recent criticism: it is too easy to obtain (Pfeffer & Fong, 2002), caters to passive students who want only to obtain a credential without learning much (Pfeffer, 2007), too focused on job-related outcomes, not correlated highly to overall career success (Pfeffer & Fong, 2002), and too skills-focused without an appreciation of the "art" of managing (Minzberg, 2000). Today's MBA comes from a new generation of learners who are more socially aware than previous ones and who thrive in a fast-paced, complex, and inter-connected world.

Many find fault with a perceived lack of integration of functional areas (Minzberg & Gosling, 2002), overall relevance (Pfeffer & Fong, 2004; Rubin & Deirdorff, 2009), and hands-on learning-by-doing (Minzberg, 2004; Pfeffer & Fong, 2002). Summarizing these issues, Pfeffer (2007) wrote that business schools are "… plagued with three primary problems: student passivity in the learning process, a decrease in curricular relevance, and a failure to translate business knowledge into applicable business skills." The leading critic of MBA programs flatly states: "You can't create a leader in a classroom" (Minzberg, quoted in Reingold, 2000). Given these criticisms, how can MBA programs survive?

"Sustainability" means many things to many people. An accepted definition is "meeting the needs of the present without compromising the ability of future generations to meet their own needs" (Brundtland Report, 1987). Broadly defined, sustainability looks to minimize consumption of global resources in a way that allows an organization to accomplish its objectives in a cost effective manner but with an expressed goal of reducing pressure on (instead of burdening) environmental systems. But the term "sustainability" is a double entendre that

refers to sustainable business strategies and models as well as sustainable development that protects societies and the environment. The July/August 2009 issue of *BizEd* makes the case for sustainability in the business curriculum that addresses these various perspectives. For instance, the Aspen Institute's Judith Samuelson stresses the importance of business schools developing new sustainable business models to supplant the long-standing primacy of maximizing shareholder wealth. In criticizing traditional research methods, Cornell's Stuart Hart observes the importance of action research whereby "researchers need to become part of the phenomenon they're studying" (p. 28). At the same time, business schools must also demonstrate high levels of student learning and accomplishment, driven both by our faculty's desire to improve our programs and accreditation agencies' new requirements for learning outcomes assessment.

Why is "sustainability" now becoming so popular? How can businesses profit by it? Which business models are sustainable? At the July 2009 AACSB Sustainability Conference held in Minneapolis, there was broad consensus as to sustainability problems being big and complex, hence requiring cross-discipline solutions (including science and engineering, computer science, biology, public administration and policy, and law). Moreover, MBA programs are attempting to infuse their curricula with critical thinking, a whole systems perspective, ability to manage complexity, and an experiential emphasis. We describe our current approach that is very intensive, highly-collaborative, integrative, and time-consuming. After several iterations, we have settled on a twelve-day activity that develops a prototype to solve an intractable sustainability problem for a client organization.

INTRODUCTION TO G3: "GOING GREEN GLOBALLY"

With this in mind, our School of Business decided to develop an intensive cornerstone integration experience for our full time MBA students we call G3: "Going Green Globally." This was seen as a way to revitalize our MBA curriculum, engage our students in one of the most pressing issues facing them and organizations today, partner with organizations, and drive both integration and real-world applications into our program. First offered in the spring of 2007, G3 is a unique experience which begins as students have finished what might be called the typical MBA functional "core". Our rationale for including G3 into our full-time MBA program was based on several factors. First, we felt that the standard MBA core curriculum did not have a strong enough integration element to it. As an educational goal, we want our MBAs to be forced out of functional silos and understand the interconnectedness of all business processes: how operations, marketing, finance, human resources, regulatory policy, leadership, short-term objectives and long-term goals must all be factored into a successful strategy in order for the client to succeed in the global marketplace. Rather than having students break for the semester or move into their summer internships, students at our School dive directly into the integrated and applied learning of developing comprehensive sustainability initiatives and strategies for client companies as a way to learn and apply integrated business systems thinking. Secondly, we wanted to ensure that this learning was situated in a global arena. We also wanted to develop something which offered our own faculty an opportunity to work closely with their colleagues from other departments within the School of Business as well as with their counterparts across the campus. Additionally, we sought ways to partner with industry leaders both in our geographic area and beyond. Lastly, we wanted to respond to the recent changes in AACSB accrediting standards and our university's regional accrediting body standards.

All accrediting agencies have changed their standards in the past six years in ways which attempt to drive student learning outcomes assessment throughout higher education curricula. AACSB's Standard 15 specifically addresses learning outcomes through its Assurance of Learning programs which all schools have been developing since 2003. Standard 15 not only asks schools to determine appropriate learning goals for all their programs, it also specifies that these learning goals will somehow incorporate outcomes which assess student learning of topics within the disciplines, critical thinking, globalization, integration, and ethics (AACSB, nd). Specific to the MBA degree, the AACSB standards cite "… capacity to lead in organizational situations, … capacity to apply knowledge in new and unfamiliar circumstances through a conceptual understanding of relevant disciplines; … capacity to adapt and innovate to solve problems, to cope with unforeseen events, and to manage in unpredictable environments" (AACSB, nd). Beyond this, Standard 13 speaks to the need for business school to demonstrate "collaboration" and Standard 14 requires that students be challenged with difficult learning activities. G3 seemed perfectly suited to embody all of this and more.

Additionally, all regional accrediting agencies now require their members to develop learning goals which are used in a continuous improvement process designed to answer the question, aptly stated in the Middle States Accrediting Standard #14: "Are our students learning what we want them to learn?" Clearly, in a business school environment we want our students to learn both the theoretical underpinnings of each functional area in business *and* how to apply this knowledge to real-world situations. We want them to learn how to respond to the most pressing business problems of the day. We want them to understand the global context necessary for solving today's business problems *and* anticipate those which they will face tomorrow. G3 emphasizes applied learning, working on a project of monumental importance for their clients, is

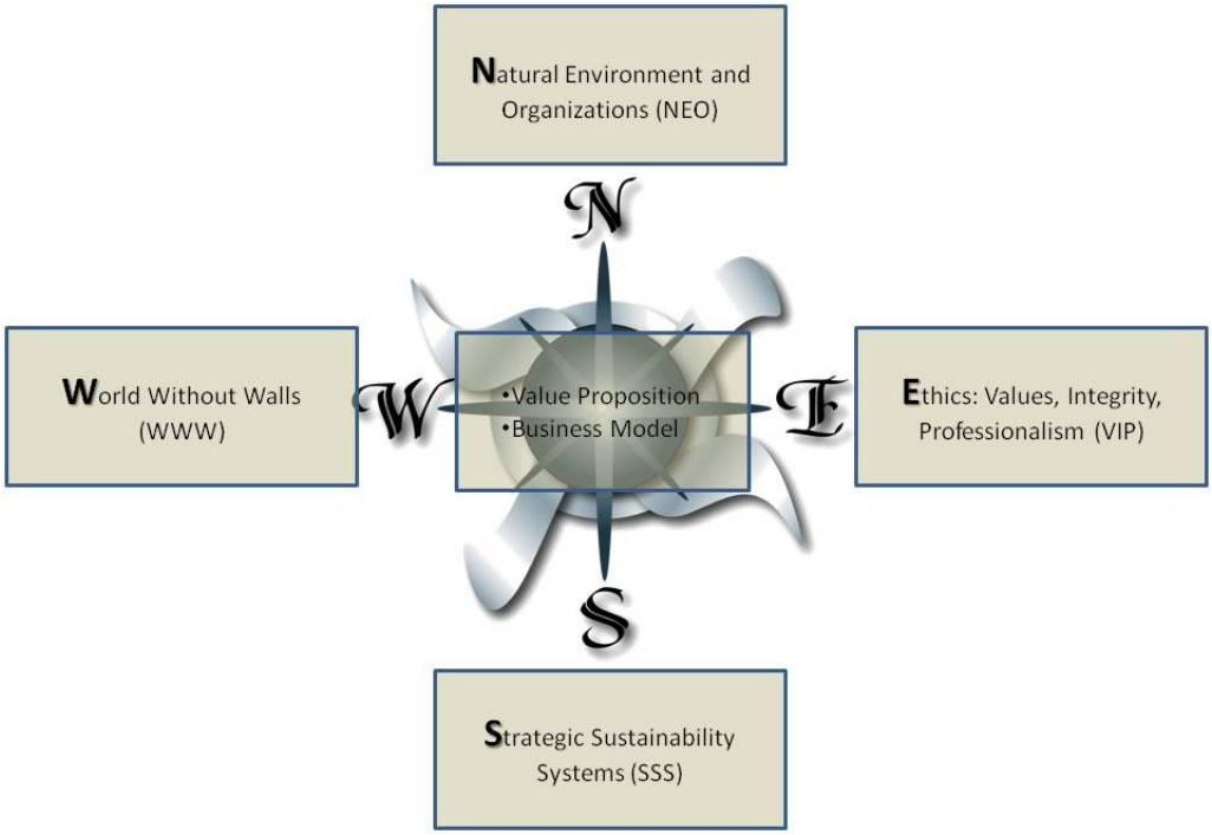
situated in a global context of competition and co-opetition, and requires knowledge and skills drawn from all the functional business disciplines. It seemed to benefit our students, our faculty, our MBA curriculum, our business school, and our university. By turning our focus to issues of sustainability (broadly defined) we have found a relevancy for which faculty, administrators, and students share a passion. As one much-cited article states: "The entire MBA curriculum must be infused with multidisciplinary, practical, and ethical questions and analyses reflecting the complex challenges business leaders face" (Bennis & O'Toole, 2005). G3 is our response to these critics.

Lastly, we wanted to develop something which did have market relevancy. While scholars criticize the MBA degree as being too focused on "selling" career enhancing outcomes (Pfeffer & Fong, 2004), studies show that advancing their careers is a top priority for MBA students (Danko & Anderson, 2005). If the market would value MBA students schooled in an interdisciplinary, hands-on approach to problem solving which drives project management and team management skills, it would seem to be advantageous for the School of Business to proceed. We found early support from key executives in the energy sector as well as from our School's Advisory Board and began development work in the fall of 2006. We feel we have found both a concept and a practical program which prepares our students for the "next economy" (McCann, 2006).

We have faced challenges we did not anticipate, revised the program in several significant ways, and found both internal and external partners we never imagined in our first three iterations of the program. For instance, we revised our last version to have teams work on sustainability issues for real "clients". In past years, the students worked on issues for companies, but it had simply been an academic exercise whereby the faculty chose publicly-traded companies and the

students did extensive "library" research. This last year, we wanted to have the students work with real "client companies". Our MBA teams now have the flexibility to look at sustainability through a wide lens and focus on issues of importance to their client companies. Yet all teams must view their client's issues from a multifaceted business perspective. We highlight these aspects by using our "G3 Compass" shown in Figure 1.

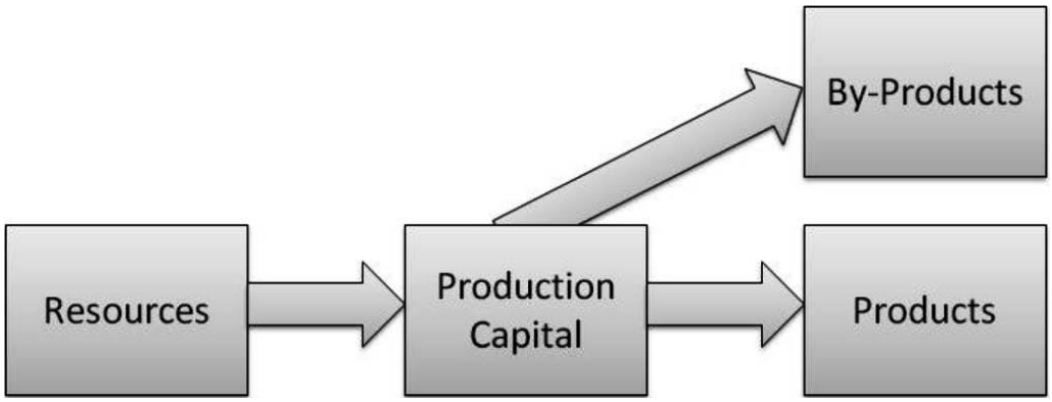
Figure 1: The G3 Compass



A Systems Perspective

The value chain perspective on corporate strategy shown in Figure 2 draws on neoclassical economic theory that places production capital at the center of the development of value and wealth (Solow, 1957) where resources are transformed into output, some of which is considered

Figure 2: The Neoclassical View of Production

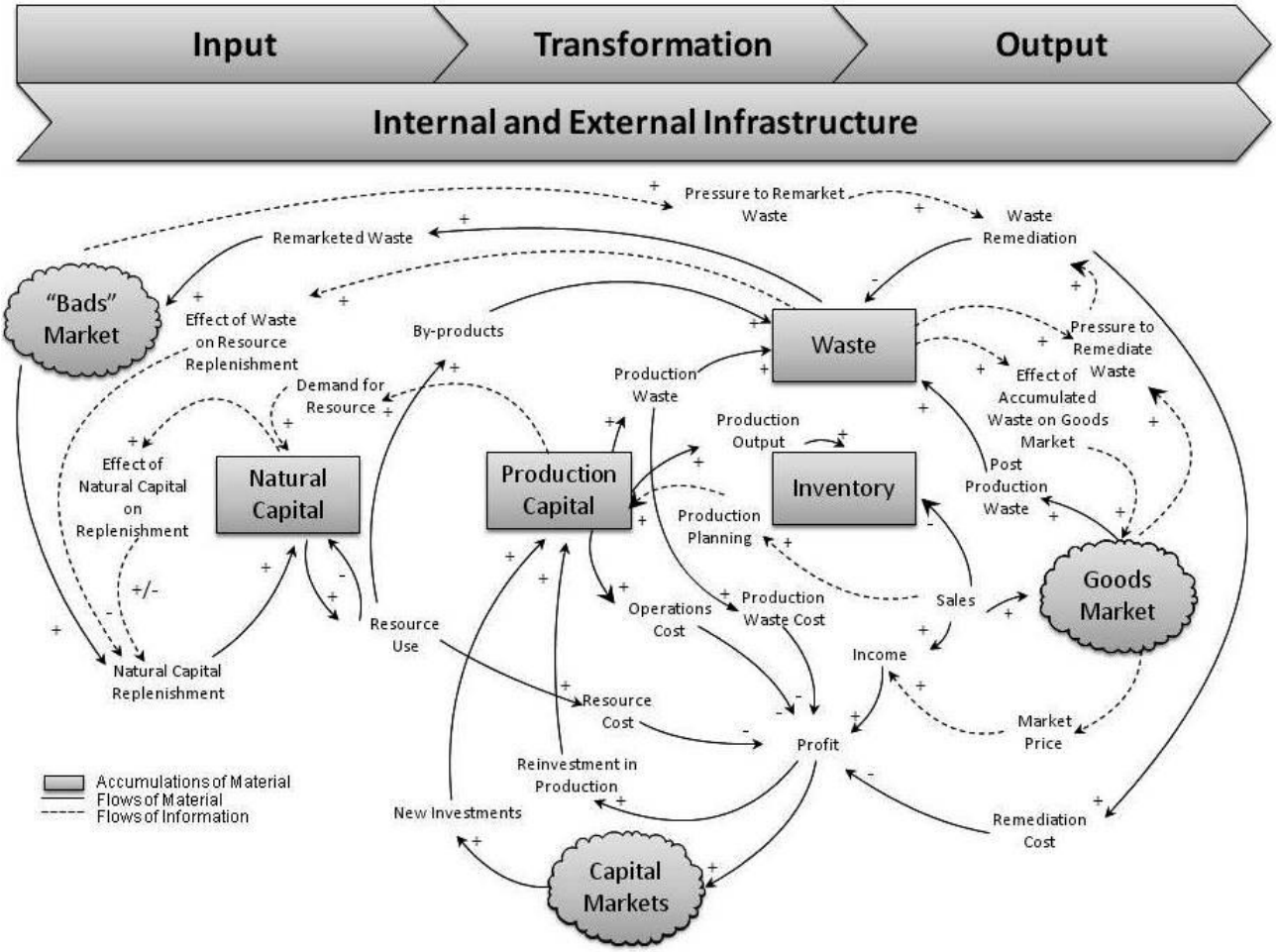


product ("goods") and other by-products parts or waste ("bads"). In a world with infinite resources, infinite capacity to absorb waste, and perfect market information, companies would produce inventory until market demand is satiated. In the physical world, the sustainability of production depends on managing scarce resources, reducing waste, and working with delayed and imperfect information about our customers, suppliers, and environment.

After a year filled with the traditional profit maximization objective and present value calculations, MBA students need a different model that includes the longer-term and broader effects of managerial choices. At the beginning of the G3 exercise, we introduced the "Tragedy of the Commons" through the Fishbanks© simulation exercise. In this simulation, modeled after the behavior of actual fishing grounds, teams compete to maximize their economic returns from a shared fishery. Most teams playing the game employed a growth strategy that maximizes team profits in the short run but with collective results depleting the fishing stock, leaving productive assets idle, and the teams unable to generate sufficient revenues to cover operating costs.

During the debriefing of the game we introduced a systems thinking perspective that explains how the seemingly rational actions of each team create an unsustainable outcome for all. The game starts with a functioning and sustainable marketplace and some liquid capital for investment. Purchase of additional production capital (fishing boats) increases the rate at which resources (fish) are extracted. If the rate of fish depletion is greater than their ability to reproduce, then the stock of resources is threatened. Unchecked extraction by continued

Figure 3: A Feedback Perspective on Sustainable Production



overfishing destroys the fishery. While this is a scenario seen over and over again in the real world (Kurlansky, 1997), students are still surprised at the inevitable self-defeating outcome. We complete the debriefing with a discussion of what actions could be taken to create a sustainable fishing program and prevent the destruction of the resource, including fishing quotas, monitoring the state of the fishing stock, substitution of different types of fish, and technology change.

Counter-Intuitive Results

One of the debates in the literature is whether a firm can attain both economic performance and environmental performance simultaneously. This debate is valid only in the short run since in the long run self-interested conduct brings "ruin to all" in our commons. We highlight the following counterintuitive results:

- *The Fallacy of the Infinite Resource:* Superior returns that are based on non-renewable or slowly-renewing resources draw in capital. This sends misleading signals to the market, serving to further increase extraction and exploitation. If extraction grows faster than replacement or renewal, the market will fluctuate: When a resource become scarce, its price rises, increasing the costs of the underlying good. Higher costs make products less attractive, reducing demand and driving capital to other more productive markets. If the resource can recover its previous levels, through investment or spontaneously, its relative cost decreases, prices decrease, and capital returns. If it takes a long time to recover, however, or the resource is non-renewable, the market may collapse.

- *Greater Productivity Speeds Decline:* Short-term economic gains by extracting non-renewable resources more productively are not sustainable, as this only reduces the time before resources are consumed. The eponymous Jevons Paradox, first identified in 1865,

states that technological progress that increases the efficiency with which a resource is used tends to increase (rather than decrease) the rate of consumption of that resource. Less productive extraction technology ironically preserves declining resources and protects them from market disruptions and side-effects until potential replacements become available.

- *Change Occurs Precipitously and Non-Linearly:* There is a difference between the effects of change and their visibility. If you pour water into an opaque paper cup, its ability to hold water seems endless until it overflows. From that point forward, though, every additional drop added will spill over. In the natural environment there are many similar uncertainties and threshold effects. We are not confident about when we reach thresholds in the capacity of the oceans to absorb carbon, the cumulative effects of waste and toxic exposure, and other factors that build over time yet only appear to be extraordinary and dramatic events.

- *Forecasts will be Erroneous:* With long delays for the effects of change to appear, we base our forecasts on incomplete models and uncertain or biased data. Strategic decisions taken from this data may carry organizations towards increasing investments even after resources have begun declining, as it is difficult to separate out early signals of resource or market changes from noise. In addition, it is hard to reduce consumption and industry patterns once they are established. All of these elements create momentum in markets that generate overshoots past sustainable resource use.

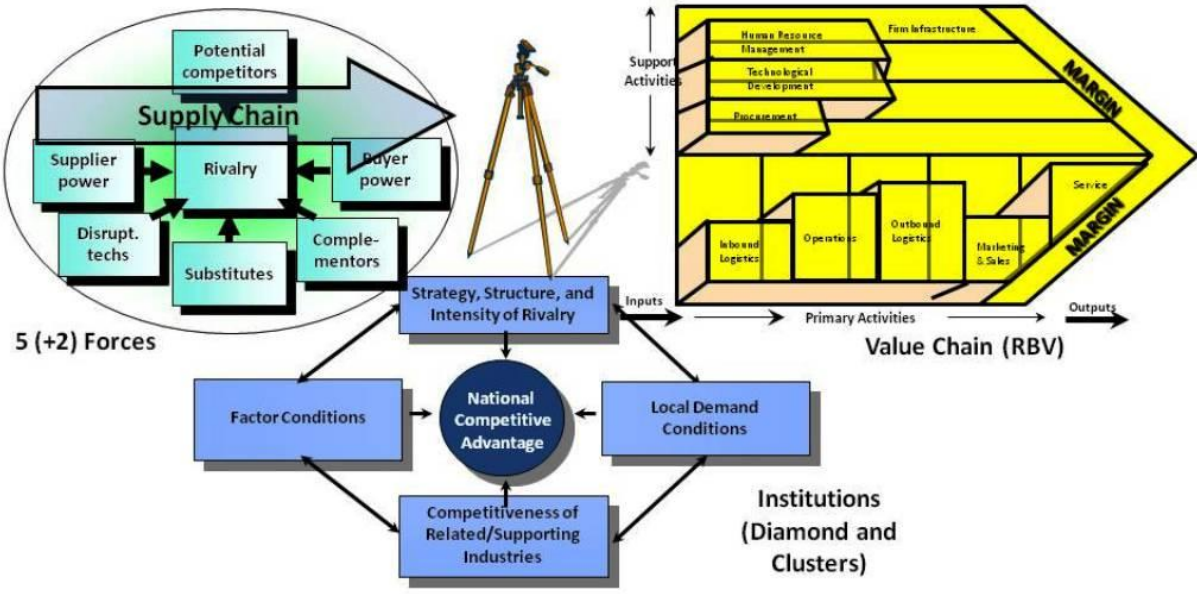
System thinking provides an important tool for strategizing about sustaining the value chain and current business model. For example, reducing the accumulation of waste is a key element of

many sustainability programs. When put into a systems context, we see that waste accumulates as a function of resource use, production, and post-production activities. Slowing the growth of waste is a good step, but it only delays the effects of accumulation. Relying on suppliers or consumers to create less detritus shifts the burden of waste management but does not reduce the amount of waste in the system. In addition, unchecked growth of waste increases pressures for its remediation. Firms can take proactive responsibility for reducing waste or they can permit these pressures to grow and have regulatory action taken against them. Correct investments in correct places ripples throughout the entire system. Abundant opportunities exist to reduce resources for production processes, energy, by-products, transportation, and a multitude of other business processes and products – all of which are avoidable business costs! These wastes are investments without business or customer value.

Sustainable Business Models: Green = Green

At the core of the G3 Compass are sustainable business models. We rely extensively during the semester on Peng's "strategy tripod" (Peng, Sun, Pinkham, & Chen, 2009) of industry analysis, the resource-based view, and institutionalism (see Figure 4). These are based on Michael Porter's concepts of five forces, value chain, and the diamond, all of which contribute to attaining a sustainable competitive advantage.

Figure 4: The Strategy Tripod



EXECUTING THE PROGRAM

In this section, we discuss our experiences in running the program and our suggestions for others who are considering a similar approach. We then provide our proposed changes and conclude with our expected schedule for the next time we teach G3.

Administration Issues

G3 is a large, complex, and dynamic project combined into a single twelve-day schedule. Hence, some of our biggest challenges have been logistical. We operate in a building that does not have sufficient space. While the semester has ended for our full-time MBA students, it has not for other classes. For instance, a free classroom might be available for the time period scheduled for this MBA class, but G3 operates like a business and we might need classroom space any hour on any given day. Because space is simply not available, G3 must meet in different classrooms

through the twelve days and even within a single day. Additionally, our school has limited space for the team meetings with clients and coaches.

Managing the logistics for our guest speakers, videotaping the student and guest presentations, and supporting the team development process falls to the MBA Program Director. However, since she is responsible for other programs and cohorts (e.g., graduation for our second-year full time students, managing all aspects of our part time MBA program, recruiting and admissions for incoming students, etc.) the time demands of G3 administration are overwhelming.

Moreover, finding our initial clients was a time-consuming task. Without a history or testimonials, we asked clients to partner with us as an act of good will. We expect that this process will become easier as word spreads of its success and we have references for prospective clients to contact. Setting expectations for clients and coaches is also important. Due to the compressed and demanding nature of G3, any question a team has must be answered immediately as it is probably needed for a deliverable due on the next day. While clients have not found the time demands of G3 to be onerous, the need to be responsive can be challenging for them. Clients need to provide enough information for teams to understand their processes and analyze opportunities without spoon feeding them or releasing proprietary information. Balancing the role of the coach and the client takes time and experience – with a need to appropriately set expectations for both before and during G3.

Another ongoing concern is the budget for this program. Our direct costs include expenses for our Executive Life Lines who travel to our campus once or twice during G3. Catering and gifts for myriad guest speakers, coaches, and clients (which can be in excess of 30 people) also are included in our direct costs. Meetings to discuss the program with clients, coaches, and industry

experts both in preparation for and debrief after G3 are included in the budget. Total direct costs are approximately $7,500. We have successfully attracted grant money to underwrite most of these expenses. We have also employed graduate assistants to help us coordinate G3 and edit videos and update the Web site during the summer. The budget cuts within the university system have hindered our ability to hire graduate assistants to work in the summer; to continue this program, these costs will need to be budgeted into G3 to ensure that we have the necessary GA support.

However, faculty time (as volunteers, currently uncompensated and unaccounted for) is expensive. The "managing partners" spend over 50 hours per week during the G3 program and countless hours in planning and coordinating the program throughout the academic year. Asking students to hand in deliverables each day also means that they need to be graded on a similarly short turnaround schedule. The Vice Dean has taken the lead for developing and implementing G3 though she does not teach in the spring semester. In our current structure, G3 is situated within one of our three-credit classes (Global Strategic Management) so the bulk of the G3 workload falls here, again as an overload. G3 remains in a precarious situation since any changes in assignments for either of these "managing partners" would mean that the program would probably end. The School of Business and the MBA program need to develop a culture and structure as well as fund G3 if it is to be sustained institutionally and not just by the passion of the managing partners and the MBA program director.

One of our biggest challenges is integrating G3 throughout the curriculum and the faculty. Ideally, sustainability concepts would be introduced in each functional class throughout the first year of the MBA program. All first year faculty should be involved in the delivery of G3: grading papers, evaluating presentations, being present for guest speakers, etc. Without reward

mechanisms (stipend, course release) and with competing pressures for faculty time and attention, the sustainability of our sustainability program is an ongoing challenge.

Lessons Learned

As we reflect on G3, it is clear that our business and industry partners are highly committed to the program. Our ability to attract executive life lines, coaches, and guest speakers has, in some instances, outpaced our ability to integrate them into the program. Corporate partners like National Grid and Battelle have invested resources to support the program. The program has also garnered support on our university campus: faculty from the Colleges of Nanoscale Science and Engineering and Arts and Sciences have been great supporters. The program was recognized at the University level as a recipient of an innovative teaching grant.

G3 has not only been recognized as an exceptional educational experience, but also for the experience it provides our students. Internship and employment opportunities have increased due to the G3 experience. We attribute this to two factors. First, the experience in the renewable energy and sustainability sector has opened doors with our partner companies where heretofore we had not had much placement success. But the experience of working with clients, managing multiple deliverables, performing under pressure, and integrating business functions into a coherent strategy are skills valued by employers regardless of the sector.

Second, clients have been very supportive. We have worked with local companies, global companies, and companies whose headquarters and G3 contacts have been outside the local area. So far, we have found it important for clients to have the commitment of their senior level executives. Our best clients have had long-standing relationships with our school or our faculty and made resources available to our teams. As G3 evolves and grows, we will need to develop a

better process to vet and educate client companies as well as further define the value proposition to their organizations. By working with our clients, we hope to build the G3 program into a series of quality deliverables for which client companies would be willing to pay. This will allow the School to build capacity into the program, develop recognition and reward mechanism for faculty and corporate partners, and further integrate G3 into the MBA experience.

Proposed Changes

As we look forward, we envision several changes which we hope will both further integrate G3 into our School's culture and curriculum and attract financial support from clients and industry partners. These include:

- Adding a series of "white papers" on sustainability topics which would both drive research and writing skills for our students and provide more value for our clients. Additionally, by establishing a library of past G3 projects and white papers which our clients would be able to access, we hope to encourage best practices, research, and innovative sustainable practices in organizations.
- Reduce the amount of time we lecture during G3 and increase the amount of dialogue between students and industry experts. We are changing the format of several sessions to be more interactive than the traditional guest speaker format.
- Encourage more student participation and leadership throughout the first year of the MBA program in topics surrounding sustainability issues. Our students recently established a campus chapter of Net Impact.

- Encourage and provide support for all faculty teaching in the first year of the MBA program to include one exercise, case study, or guest lecture on a sustainability-related topic in their core class.
- Work more closely with client companies before G3 begins. We are currently developing a background and sustainability survey which client companies would complete 60 days prior to the start of the program. We expect to assign teams to their clients earlier and facilitate more student/client/coach interaction.
- Build a network of faculty interested is both teaching and research in sustainability topics. This cluster would include faculty from inside and outside the School of Business. In this way, we hope to spur more cross-functional research in this important topic.
- Create a coalition of industry partners – organizations which provide expertise, financial support, and access for research and who in turn, share in the academic proceeds of partnering with the university on this important issue.

The New Schedule

What would our twelve day schedule look like? We provide here an outline of the activities we anticipate for the spring 2010 version of G3.

Pre-G3

- January – *Manage Expectations:* Clients receive information packet on what G3 is and what the deliverables will be along with a questionnaire; begin gathering information their team will need and conversations about what an appropriate project might look like. We would like to add some sort of MOU to begin seeing the project as a mutual contractual obligation. It is important to agree on what the project will not do as well as what we would like to be able to deliver.
- March – Questionnaire due from the client; project broadly defined and scoped out. We would like to have the coach involved at this stage as well.
- Early April – *Teams Formed:* Assign clients and give completed client questionnaire, forms, information. The client, coach, and "managing directors" meet to further define and scope the project.

G3 Starts

- Friday am – *Kick-Off:* The science of sustainability; Discussion about what consultants do
    - 12-1:30 – Student panel (last year's group)
    - 2:00-4:30 – System Dynamics exercise
    - 4:30-6:00 – Teams meet clients and coaches
- Weekend – Work - Work - Work on very specific, directive deliverables; build the research component of final report

- Monday – *Energy:* Morning panel discussion followed by our version of "speed dating"
    - Lunch – With coaches
    - Afternoon – Work time; Skype with "Life Lines"
- Tuesday – *Policy and Regulation:* Morning panel discussion followed by our version of "speed dating"
    - Lunch – With clients or tour of facilities
    - Afternoon – Work time; Skype with "Life Lines"
- Wednesday
    - Morning – Student presentations to faculty
    - Noon – Conference calls with coaches
    - Afternoon – Field Trips: Members go to different site
    - Evening – Teams brief each other
- Thursday – *Water and Consumption/Packaging:* Morning panel discussion followed by our version of "speed dating"
- Thursday – *Sustainability:* Afternoon panel discussion followed by our version of "speed dating"
- Friday
    - Morning – Work time
    - Afternoon – Presentations with coaches and clients
- Weekend – Work - Work - Work

- Monday – Morning presentations to faculty on client recommendations and 2 minute executive summary of white "research" papers (3-5 pages each)
    - Industry sustainability analysis
    - Global supply chain analysis
    - Global best practices and technology advances
    - Creating a culture of sustainability and marketing sustainability
- Tuesday – *Work Day:* Teams meet with "T-CELLS" (Team Coaches and Executive Lifelines)
- Wednesday – Final presentations; Lunch; Group photos

SUMMARY AND CONCLUSIONS

G3: Going Green Globally has been an interesting and rewarding journey. As an academic experience, it challenges our students and integrates our curriculum. It helps the school meet its articulated learning goals and reach new heights in critical areas recognized by accrediting agencies. Through it, the School of Business has raised its profile both on its own campus and in the external business community. We are beginning to attract students who are choosing our full time MBA program because of this unique interdisciplinary, experiential, cornerstone project. We are opening new doors for our students (in the way of internships and placement opportunities) and our faculty (in the way of industry contacts and research partners). It is a tool to encourage cross discipline teaching and scholarship. As a result, our client recommendations have been multifaceted and integrated, covering strategic management, marketing, finance, public policy, human resources, information technology, science, and communications. At the

same time, our students are better able to deal with pressure, deadlines, and ambiguity while delivering multiple deliverables for multiple stakeholders.

G3 also challenges our school to improve. We need to find ways to foster integration between traditional functional classes and faculty. We need to recognize and reward innovative teaching and pedagogical research. And we need to look at the sustainability of our own business models and practice. G3 challenges us to change how we, as a leading public business school in the northeast, respond to the educational and environmental challenges we face and thereby being sustainable ourselves.

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