The Business Case for Greening the Built Environment

Ronald Fry
Weatherhead School of Management
Case Western Reserve University
10900 Euclid Avenue
Cleveland, OH 44106-7235
E-mail: ronald.fry@case.edu

Garima Sharma
Weatherhead School of Management
Case Western Reserve University
10900 Euclid Avenue
Cleveland, OH 44106-7235
E-mail: garima.sharma@case.edu

Green building construction is increasingly gaining currency amongst business organizations. United States Green Building Council (USGBC) has predicted that the overall green building market is likely to more than double from today's $36-49 billion to $96-140 billion by 2013. Despite this growth there are still many organizations that resist green construction (Hoffman & Henn, 2008). Research that builds a stronger business case for green buildings can contribute in overcoming this resistance and highlighting how green built environment can be mutually beneficial for the business, the environment and other stakeholders.

The existing work on business benefits of the green built environment has largely focused on operational benefits like cost savings, resource efficiency and productivity (Heerwagen, 2000). Establishing how green built environment can help an organization achieve its strategic goals like brand building (Roper, & Beard, 2006) and talent acquisition (Paumgartten, 2003) requires further empirical investigation.

This study is an effort in that direction- to underscore the spectrum of benefits, both anticipated and unanticipated, that a business can accrue from green buildings. This is important because by highlighting both the cost reductions and addition of value as the business benefits organizations can overcome the short sightedness of investments that yield immediate gain (Heerwagen, 2000) and perhaps consider green built environments as sources of long-term competitive advantage. Moreover, this is important for the research in corporate social responsibility and sustainability. Many studies (e.g., Burke & Logsdon, 1996; Funk, 2003; Hart, Milstein, & Caggiano, 2003) have addressed the benefits an organization may gain by engaging in corporate social responsibility. But the conceptual development and research on the business benefits of green built environment have not been as strong (Heerwagen, 2003) as that for other

facets of corporate social responsibility. Empirical work that develops a framework for business benefits of green construction can be valuable for future research in the realm of CSR.

Thus, in this study we explore the question 'What is the benefit for a business to engage in green construction?' We explore this question by presenting a framework of business benefits derived from interviews of ten individuals in eight different organizations who successfully executed a green building project. We also explore the drivers and inhibitors of these projects. We discuss the implications of our findings for future research and for businesses that want to overcome the social and psychological barriers for green construction (Hoffman & Henn, 2008) existing within their organizations.

Green Buildings and Business Benefits

Paumgartten (2003) defines green buildings as "any building that meets the high standards set forth by USGBC's LEED green building rating system, the pre eminent metric system by which new buildings are judged to be environmentally conscious" (p. 126).A less stringent definition is provided by Roper and Beard (2006), "sustainable buildings are defined as those buildings that have minimum adverse impacts on the built and natural environment in terms of building themselves, their immediate surroundings and the broader global and regional setting." (p. 93).

Green buildings can be a source of competitive advantage for the firm in many ways. Competitive advantage stems from the way different activities fit and reinforce one another such that the activity costs are lowered and value to the customer is enhanced (Ngowi, 2001). Green buildings can help lower the activity costs by revisiting and refining the processes for greater efficiency. They can add value by what Hall (1993) calls as positional, functional and cultural capabilities.

Positional capability is developed through past actions and decisions that produce certain reputation and certain configuration of the value chain (Hall, 1993). Green construction can help build that capability by being a symbol of the organization's intent to be environmentally responsible. It can also build this capability by redefining the value chain such that supplier, employees as well as the customers benefit from being a part of the green built environment (Roper & Beard, 2006).

Functional capability is about the ability to do specific things, and is contingent upon the knowledge, skills and experience of the employees, and others in the value chain (Hall, 1993). Because a green construction project challenges the existing frames and requires a new way of thinking and operation (Brown & Vergragt, 2008) it can be valuable in developing the functional capability of those associated with the construction and those who operate in and are educated about the construction.

Finally, cultural capability is about the attitudes, values, habits and beliefs that permeate the entire organization. Culture can contribute to competitive advantage when it encourages say a perception of high quality or the ability to learn (Hall, 1993). Green construction can create a culture of stewardship that is not only directed at the environment but can permeate to other facets of organizational functioning like the concern for customers, suppliers and other employees. By asking to change the current way of constructing and functioning it can also enhance the organizational capability to change and learn.

As described in the following sections, we found evidence of all of the aforementioned sources of competitive advantages and more. There were affirmations of our expectations, like energy efficiency as a business benefit, as well as surprises, like benefit from green construction

as the manifestation of the organization's value of environmental stewardship. We present below the methodology we followed and the framework that emerged out of our exploration.

Methodology

This is an exploratory study based on an existing database of stories of business innovations for the mutual benefit of organizations and its stakeholders including the environment. This database is from a project called the 'World Inquiry' an initiative of the Fowler Center for Sustainable Value at Case Western Reserve University. The World Inquiry is a global effort to identify, amplify and promulgate stories of business innovations that highlight the idea of business prospering in mutual benefit with the earth's ecosystems and the world's societies (Fry, 2008).

Sample

The World Inquiry database (http://applications.weatherhead.case.edu/bawb/inquiry/default.cfm) currently holds 175 such stories of business innovations (and is continually growing). These stories describe the innovation and provide details of the impact of the innovation for the business and its stakeholders. The initial sample of our study came from 25 stories in this database that specifically focused on green construction. This included stories about green buildings constructed by business organizations as well as the businesses that produce and/or sell materials for green construction. In order to focus on benefits specifically from green buildings we chose to narrow that list to organizations that have constructed green buildings. Our reduced sample was a list of 12 companies.

In order to get more details on the benefits than is currently available in these stories, we decided to interview the CEO, Head of Sustainability or an individual associated in the company with the construction of the green building. We contacted these 12 companies from our sample and received responses from all of them. We interviewed 8 of the 12 companies (see appendix

for a list of companies). The remaining 4 were not interviewed because of the constraints of language (some of them were outside the United States) and availability of the interviewee. Each interview lasted from 45 minutes to an hour. The organizations came from a diverse set of industries ranging from manufacturing to service and from being a large multinational to relatively small family-owned organization.

Given the nature of the initial pool of companies, all of them had sustainability[1] as one of their core values and manifested it through various initiatives. Green construction was one of the many ways sustainability was realized. This enabled us to get the perspective on green construction as another step in the organization's journey toward sustainability. How green construction pans out for organizations that are still in the initial stages of espousing sustainability is a question beyond the scope of our data.

Data Collection

The interview was based on a semi-structured protocol that asked the respondents about the drivers, inhibitors, benefits and future trajectory of a specific green construction (see appendix for the interview protocol). All the interviews focused on LEED certified buildings though some of the interviewees discussed applying principles of LEED in other green construction (especially while discussing the future trajectory). Along with the interview we used the company's website (sections that described the green building), original World Inquiry story and the informational materials provided by the respondent as additional sources of data.

Analysis

We employed thematic analysis as described by Braun and Clark (2006) and Boyatzis (1998) to propose a framework of business benefits from green construction. We conducted the analysis

[1] In defining sustainability we adopt Burtland Commission's (1987) report that describes it as "Meeting the needs of the present without compromising the ability of future generations to meet their own needs"

using Atlas.ti version 6.0. Each interview was loaded as one primary document into what atlas.ti calls as the hermeneutic unit. The primary documents were coded first in-vivo (line-by-line). These in-vivo codes were merged into axial codes representing categories. We linked multiple quotations to the axial codes (across the interviews) and created a network of codes that was merged into what we call as the themes in the framework that follows.

The emerging themes were refined by constantly comparing them to each other (Lincoln & Guba, 1985), to the prior literature and to data from the additional sources. The inclusion of a theme was determined by its substantive significance and not simply frequency of occurrence (Patton, 2002) especially since we had a small dataset. These themes were organized in a framework that we present below.

Framework of Business Benefits of Green Construction

Based on the analysis described above, we define the framework for business benefits such that the benefits range from tangible to intangible on the vertical axis and from short to the long-term on the horizontal axis (see figure 1).

Most of the previous literature has categorized business benefits from green construction into tangible (like energy efficiency) and intangible (like employee morale), albeit conceptually. For example, in a call to pay more attention to green buildings not only as efficiency advantage but also as a strategic asset, Heerwagen (2000) separates the benefits into cost advantage and value addition. She highlights the importance of consciously using building design to foster strategic organizational goals like attracting and retaining high quality workers and improving the corporate image.

Similarly, speaking broadly in terms of environmental responsibility of organizations Hart (1997) emphasized that “Greening has been framed in terms of risk reduction, re-

engineering, or cost cutting. Rarely is greening linked to strategy or technology development, and as a result, most companies fail to recognize opportunities of potentially staggering proportions." (p. 68). This idea is also shared by Morton (2003) asking the organizations to move from traditional cost-based models to those that recognize the value of green construction. Paumgartten (2003) also suggests that strategic benefits like attracting and retaining talent can have an impact on the company's bottom line that can make operation and energy savings appear 'pale in comparison' (p. 29). To capture this dominant distinction in the previous literature around cost and value advantage of green construction, we define the vertical axis of the framework from tangible to intangible.

Both these categories of benefits can be realized by the firm immediately or in the distant future. For example, influencing the stakeholders and gaining legitimacy through green construction (Roper & Beard, 2006) may take a longer time than cost saving through energy efficiency (Kats, 2003).Thus, the horizontal axis of the framework runs from short-term to long-term capturing the time aspect of benefit for the firm.

Insert Figure 1 about here

Short-term Tangible Benefits

The themes in this quadrant are around cost-saving through energy efficiency, less use of water, heating and cooling and saving the money spent on waste disposal. Benefits here are relatively immediate and affect the bottom line of the business.

Somewhat surprisingly, cost-saving was a given for most of our respondents, to the extent that some mentioned it only after the interviewer probed in that direction. Heerwagen

(2000) in her work delineated the factors for organizational success. She highlighted that from a long list of factors of organizational success only one (resource efficiency) is oriented toward cost while the rest (e.g., customer satisfaction and employee engagement) are oriented toward value addition. She further underscores that in facility decisions costs are ironically the primary consideration. Our sample of organizations did not fully reflect her observations, where most of the respondents emphasized the value adding aspect of green construction. Cost-saving as an advantage was either not mentioned or was mentioned in the passing. When it was mentioned, some quoted the actual dollar savings, *"We on an average used to spend 268000 dollars to send our waste to landfill. After constructing this new building our cost last year was 8000 dollars."*

Cost-saving was also mentioned to justify the increase in upfront capital because of the special features of a green building, *"because of (the) energy efficiency of the system even though it was more expensive upfront we are looking at 18 months' ROI—we save money on energy cost which pays for the higher capital cost*."

One respondent affirmed our observation that cost-advantage may be the benefits that are passé for organizations further ahead in their understanding of why green construction is important, *"Many companies are looking at making improvements in buildings for nothing else but to reduce their energy cost---not for their staff altruistically but only for bottom line cost reduction— we believe that even if the reason is to save energy costs inevitably it creates better workspaces and ultimately employees benefit from it."*

Short-term Intangible Benefits

The themes in this quadrant elucidate benefits that may not be as directly linked to the bottom line of the business as the tangible benefits mentioned above. As described before these can also be understood as benefits that help the organization meet more strategic goals than transactional

goals of cost saving. In terms of the time frame of realization these are relatively more immediate than the categories under the long-term benefits. The themes in this quadrant focus on attracting and retaining new customers, attracting and retaining talent and meeting the unmet needs of the customers.

Green buildings are used strategically by many organizations as marketing tool (Petzinger, 1997) both for attracting customers and potential employees. Focusing on Corporate Social Responsibility in general, Turban and Greening (1996) found in their study that independent ratings of Corporate Social Performance were related to the firm's reputation and attractiveness as an employer. Studies explain this link by signaling theory (e.g., Turban & Greening, 1996) which suggests that through an environmentally or socially responsible product or service the organization is signaling to its employees and customers that they will be treated with similar sense of responsibility in terms of the quality of the product or work environment. For such organizations the relationship with the employees and customers is based on a shared higher purpose making switching costs higher (Werther & Chandler, 2005). In a similar vein, Howard (2005) suggests that a certification plaque on a building is a potent symbol of what the organization stands for in turn attracting and retaining people who share this ethic.

Many respondents in this study mentioned how walking the customer through their LEED certified building created a stronger relationship with the customer. For one architectural firm it resulted in new business. Another respondent from a retail showroom expressed this as, *"There is huge amount of traffic through the showroom. Lot of customers want to see what Platinum (LEED Certification) looks like. We designed it (the showroom) so that we showcase that you can have beautiful design and green design. It appeals to both design oriented customers and green minded customers."*

Speaking of attracting talent, another respondent commented, *"A huge benefit is employee retention and also attraction. People see all that we do for the environment and the community and want to work for an organization that is innovative."*

Long-term Tangible Benefits

The themes in this quadrant revolved around increase in employee productivity, employee health and well-being, better relationship with suppliers and contagion or percolation of green building practices to other spaces. All of these represent quantifiable benefits that are realized in a relatively longer time-frame.

One respondent echoed this as, *"(at the time of construction) we were thinking long- term so for us it was okay to be looking at 3,5,7 or even 9 years' ROI—the founders want us to look at how we can stay in business for next 100 yrs—we are thinking long term."*

Increase in employee productivity is a dominant theme in existing literature on green construction. Surveys and case studies on green construction (e.g., Romm, 1999) highlight the benefits of better lighting, indoor air quality, comfort and aesthetics (see Heerwagen, 2000; Paumgartten, 2003 for a review) on employee productivity. Specifically describing LEED buildings, Kats (2003) attributes a 1% productivity and health gain to certified and silver level buildings and 1.5% gain to gold and platinum level buildings. Related to this is the gain in employee health and well-being, which translates not only in higher productivity but also less healthcare expenditure and less cost of absenteeism for the firm (Frisk & Rosenfeld, 1997). Positive and "spirit lifting" features within the building, like window views and sun- patches have been found to promote positive emotional functioning and less stress (Heerwagen, Heubach, Montgomery, & Weiner, 1995).

A respondent, while describing a LEED certified showroom, expressed this benefit as, "*More and more of our employees want to work in this office space because it has a lot of ambience day light. We have big windows and comfortable seating besides the windows. This has been so successful that we are out of desk-space. We wish we had known this would be so successful and would have built more room. Not many in this building call in sick."*

In addition to employee productivity and well being, another theme in this quadrant focused on enhanced relationship with the suppliers, contractors and others in the construction team. Because green features require different specification and intents the construction process is an educational experience for all involved. The experience is valuable for establishing the firm expectations of the supplier and contractors and can result in cost-saving, efficient construction and better relationship for future work. This was expressed as, *"We have educated practitioners over the years. It's hard to keep a carpenter from running over to Lowes and picking up unsustainable material-- education at ground level where work is done is incredibly important. We have put lot of LEED intent right on drawing, not buried in specification but in drawing for people who are doing it. We spend lot of time with the site supervisor. This is important because you get the cost back by being clear about what you expect. Being ambiguous equals spending dollars, intents in LEED help in being clear, they spark conversations."*

Another dominant theme in this quadrant was regarding the percolation of green construction practices from one building to another. There was an obvious contagion of the returns from one project onto another. For example, "*The left wing was not built with green features in mind while the new right wing is. When people come from the left to the right wing they find it more inviting because it is better lit. It led us to put solar tubes for light in the left*

wing to make it more inviting. We carried a concept that worked into other parts of the building."

Long-term Intangible Benefits

Benefits in this quadrant are indirect, not easily quantifiable and can help the organization meet its strategic goals. The time-frame of realization for these is relatively long. Themes of benefits in this category are employee engagement and citizenship behavior, brand building, building the capacity to influence stakeholders, meta-learning and manifestation of organizational values.

When employees work for an organization whose values align with their own values, they may find what Glavas and Piderit (2009) call as 'meaning in work'. They cite Csikszentmihalyi (2003) to suggest that meaningful work enables a state of flow through which employees become more engaged. Other authors (e.g., Rupp, Ganpathi, Aguilera, & Williams, 2006) propose a link between CSR and organizational citizenship behavior. These are employee behaviors that are above and beyond the call of duty (Organ, 1997). When the employee experiences value enactment through work, he or she would want to reciprocate the experience (Blau, 1964; Gouldner, 1960) by going the extra mile for the organization. This was expressed by one respondent as, *"We see a difference between the employees working in this (LEED) building and others in terms of volunteerism for other initiatives, keeping the plant clean and being more involved."*

Describing his own behavior another respondent shared, "*The lights in this new building automatically shut off. It made me more cognizant, now when I go to the older buildings and see lights left on in offices I go around and switch them off."*

In addition to the value alignment as described above, another benefit of green construction for the organization is the opportunity to enact its values. Value manifestation or

enactment is related to organizational performance (Connor & Becker, 1975). Moreover, just as value enactment through work may be a source of satisfaction for confirming the self-identity for an individual, organizations too may derive satisfaction and motivation through value enactment. As one of our respondents said, "*We would have gone ahead despite the initial cost of constructing a green building. For us there is no question, environmental stewardship is the way to be."*

Green construction may also provide the legitimacy and image to organizations and help build what Barnett (2005) describes as the stakeholder influence capacity. Green construction can improve an organization's relationship with its stakeholders through education and awareness, mentoring the stakeholders for their own green construction and providing evidence of environmental stewardship. As the most visible manifestation of the organization's values, buildings provide what Heerwagen (2000) call as a unique insight into the workings of the organization. These improved relationships result in more trust between the organization and its stakeholders and less risk for the organization (Barnett, 2005) by claiming the available reputational space (Hart, 1995). This was echoed by one of the respondents,
"*We do many guided tours of the building. Most of the times the community members who take these tours are just admiring thinking this is at a corporate level, not applicable to them. I did a presentation in one of the community fairs explicitly showing how principles of LEED can be applied to their homes."*

Another benefit shared by many respondents was the learning resulting from executing a green construction project, for many, at a time when this was a nascent field. Literature on organizational learning describes this as meta-learning from reflecting and assimilating the experiences of challenging projects (Lundberg, 1995). Such learning helps develop problem-

defining and problem-solving insights (Lei, Hitt, & Bettis, 1996) or competences that can be leveraged in the future. Brown and Vegragt (2008) describe this as double-loop or higher order learning where through reflection and self-evaluation the assumptions, norms and interpretive frames of an organization are modified. In their study of green building construction they found similar phenomenon where the participants admitted to carrying their learnings back to their communities of practice. In our study respondents used phrases like "*Getting our feet wet showed us it can be done", "if we do it all over again we can do it for less",* and *"take the principles we learnt in constructing a LEED certified buildings and apply them at other places"* to express that the learning for the organization is beyond a single green construction project.

Implications

We began our paper with the rationale that the organizations should consider cost advantage as well as the value added from a green built environment. We then proposed a framework of business benefits based on the themes from interviews with respondents associated with green building projects in eight different organizations. As echoed by most of the respondents, the cost-saving advantages or efficiency gains are easier to identify. It is the intangible benefits that have the most leverage but are difficult to recognize and build upon. Heerwagen (2000) describes this as the relationship between green buildings and the strategic performance of the firm. Using a resource-based view of the firm this can be explained as building and employing resources that are neither perfectly imitable nor easily substitutable by the competition (Barney, 1991). Thus, intangible benefits like stakeholder influence capacity, employee engagement or brand-building can be resources unique to the firm providing it a competitive advantage. Below we suggest some of the ways organizations can underscore these intangible benefits and overcome the barriers associated with green construction.

As found in some of the examples that our respondents shared, activities of environmental stewardship have the characteristic of radiating to other realms of work-life for an individual and to other stakeholders for an organization. When an employee finds meaning in work and can live out his or her values engagement, creativity (Glavas & Piderit, 2009) and citizenship behavior are but some of the outcomes. It is for the organizations to create a context, say through education and awareness around the rationale of a green building, such that the employee can bring his or her whole self to work. The organizations need to also highlight and allow the outcomes of such value alignment to percolate to all aspects of work life such as caring for colleagues, customers and other stakeholders of the organization. Similarly, organizations can amplify the benefits of green construction by creating awareness and opportunities to allow these benefits to reach to other stakeholders. Many of the respondents shared examples of how their firm has mentored other businesses in the area to help them construct green buildings. Some respondents went further to suggest that education is a primary responsibility of organizations that have been successful in green construction. For example, *"We engage in educating our stakeholders, it's not easy and takes time. The biggest impact can be obtained by educating the government and municipalities in the intents of green construction- they are making the decisions to allow or restrict certain features. By creating awareness amongst them we can create a ripple effect."*

Another implication for organizations is in tapping the double-loop learning (Argyris, 1976) generated by green construction. By creating the space for reflection and self-evaluation from constructing and operating in a green building the learning for the organization can be deeper and transferable across projects. One of the respondents expressed this as, *"LEED intents are written in a broad-brush way. But these intents and sustainable design principles spark*

conversations with the parties involved in the construction. It can trigger innovation by uncovering opportunities that we may not have considered before."

Finally, for the organizations that are working against the social and psychological barriers for green construction (Hoffman & Henn, 2008) the data from this study elucidates the potential drivers of green construction as well as the suggestions to overcome the inhibitors. Leadership, a champion at lower levels in the organization, collaborative team and starting small were some of the drivers mentioned by the respondents. Cost was shared as a concern by a few respondents and one individual mentioned the learning curve of employees working in a green building as a small concern.

As expected, leadership was the prime driver. Values of the founder were important in seeing the construction come through. But for many firms a champion for green buildings at the lower levels in the company was equally conducive to such efforts, contingent upon the buy-in from leadership. Having a champion within the company who builds a business case for green construction can thus provide enough momentum to kick-start a green construction project.

Additionally, when the organization empowered and engaged those involved with the construction, it encouraged what Busche (2007) describes as generativity, where a group of people discover and create new ideas that are compelling to themselves and others and provoke new actions. The story shared by one of the respondents affirms this, "*I would say the sub-contractors really got enthusiastic about the way this project had to be done and brought in their own ideas. What we found unexpectedly was that they brought in more than just their skill sets, not only their hands but brought their brains about how we could do it better. At the end of day they brought their hearts too since they felt this project will be distinctive. If you ask people to come in do work and go home at night they don't get as much satisfaction as they derived from*

this project. It was a revelation to us—we hadn't thought about engaging people in this way. They came in early and shared ideas in a roundtable. The collaboration was excellent. Because of an engaged coherent team we could get it done and stayed within the budget."

One of the main concerns mentioned by the interviewees was around the upfront cost of a green building. To overcome this concern most of the respondents suggested repositioning the payback. Instead of calculating a yearly ROI as done for most investments, they proposed changing the paradigm so that the returns are defined as the ability of the organization to sustain and thrive for many years to come. It asks for making the choice to be at the forefront of how construction will be done in the future, aptly expressed by a respondent as, "*In near future there will be a tipping point when everyone will jump onto the bandwagon. But it requires a change in the way of thinking-whether you want to be a part of the problem or the solution. If you are at the forefront of what is new and you are open to change you can reap the benefits."*

At a more concrete level, overcoming the resistance may require starting small and combining the many wins along the way. As one respondent said, "*It is many small things put together that make for a big innovation."* Not every organization may be ready for a LEED certification, but by incorporating green features in new and existing constructions the organization may move toward a green building that it aspires for.

Conclusion

This study offers an expanded view of the potential benefits a business can derive from green buildings. The benefits in the four quadrants of the proposed framework are directed toward the stakeholders who are internal, are immediate users or inhabitants as well as for those who are external to the organization. This provides a broader stakeholder map for the organization that includes those stakeholders who may not have what Agle, Mitchell, and

Sonnenfield (1999) describe as high power, salience or legitimacy for the organization. This expanded view re-defines the business benefits. As a respondent said, "*Our buildings don't belong to us; they belong to the community since the community has to interact with these*." This holistic view of benefits, if elucidated from the beginning can create a different definition of value for the organization.

Our exploration of the business benefits of green construction provides questions for future research. For example, can the advantage derived from green construction be contingent upon the stage of the organization's journey toward sustainability? Our sample consisted of companies which are relatively further ahead in this journey. Future research can expand this sample to include companies that are at different stages of integrating sustainability in their business. This can empirically test the proposition that the firms which are at earlier stages of their journey are more focused on the cost savings from green construction but as they move further ahead they start identifying and leveraging the intangible benefits. Some of the other questions that future research can explore are: What might be the drivers of an organization's focus on both tangible and intangible benefits of green construction- is it the culture, values and beliefs of the organization, the industry it belongs to or the function served by the green building? These and similar questions need further examination for the progress in both the practice and research on green construction.

Finally, considering the business benefits of green construction can take us beyond construction into the larger realm of environmental and social responsibility. Describing the awards for green construction, an interviewee proposed that instead of an award for a green building there should be recognition for thinking that avoids construction, we need to begin there in order to have the least impact on the environment and the community we live in. Green

construction requires a new way of thinking, new paradigms of operation and new definitions of advantages such that the business as well as its stakeholders reap the benefits of a green built environment.

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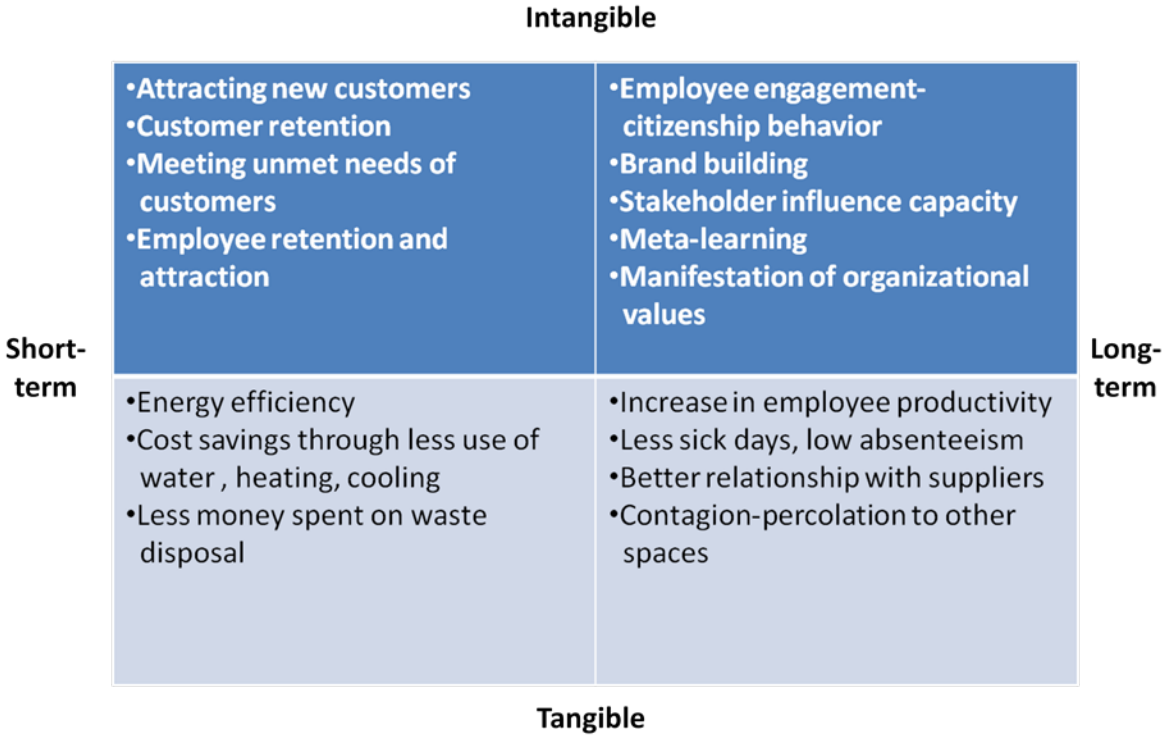
Figure 1: Framework for Business Benefits of Green Construction



Appendix

Table 1: Companies in the Sample

Company Name	Industry
Alberici	Construction and construction-related services
Interface	Carpets
Patagonia	Outdoor clothing and gear
Fairmount Minerals	Industrial sand
Oatey Co.	Plumbing products
Doty and Miller Architects	Green Architecture
Cascade Engineering	Large-part Injection Molding
Herman Miller	Furniture

Interview Protocol

- Please describe how your company has engaged in green building/construction. Choose one example that stands out for you and share the details.
    - Who all were involved
    - How long did it take
    - Were green features integrated during the planning or added to a traditionally planned and designed facility
    - How long has this building been in operation?
- Take me back to the time when the idea of a green building first emerged in your company. What led to the decision to include environmental/green building features in your building? What were some of the facilitators /turning points for this? What obstacles/ inhibitors did you encounter? Do these obstacles still exist?
- What would you say are some of the benefits your company has derived from this green construction? How well you think these benefits are directly related to the business of the company? Are there any unanticipated benefits?
- Has there been a formal assessment of advantage of green construction (like lifecycle cost analysis)? If yes, were there any surprises?
- How do you see the benefits of green construction extending to your suppliers/consumers/other stakeholders?

- In terms of green construction are there any plans for the future--where does the company go from here? Are there other sustainability initiatives that are an off-shoot of this green building innovation?