

## **Cost and Value in Sustainable Building Practice: An Exploration of Perceived and Actual Impacts on Organisational Performance**

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### **Abstract**

With the recent trend toward downsizing, restructuring and an increasing competitive global environment, there is a growing realisation among businesses that property has a potential strategic role in supporting their objectives and in fostering human resource development, if relevant organisational capabilities for organisational sustainability are to be developed. It can be seen that further diffusion and commercialisation of sustainable building practice in the commercial property industry is largely contingent on client realisation of the concept's ability to align and support this emerging trend whilst mitigating environmental impacts and contributing to organisational effectiveness.

This paper presents the preliminary results of an exploration into the cost and value effects of sustainable building practice at the levels of business and organisation. Literature research and interviews with client groups operating in the commercial property industry have been conducted to elicit potential links and effects influencing key decision makers in client organisations to adopt and implement sustainable building practice. An approach used to evaluate business and organisational performance, the Balanced Scorecard, is used as a tool to conceptualise the explicit and more implicit links and effects. Case study projects in Australian commercial property and construction are then elaborated upon to illustrate the perceived relationships and any measurable outcomes in the context of the four perspectives presented in this approach. The paper then evaluates the potential to identify and develop key indicators within this framework to provide a method that facilitates a more systematic and objective environmental performance assessment in and across client organisations and which support managerial decision making and sustainable operations in the long term.

### **Keywords**

Client Organisations, Sustainable Commercial Buildings, Sustainable Organisations, Innovation, Cost and Value, Balanced Scorecard, Strategic Business and Organisational Performance

### **1. Introduction**

The business case for sustainable building practice has emerged as a prominent perspective to support client adoption and implementation in commercial property and construction. Within this perspective, the economics or cost benefits of the concept has been the primary approach to justifying the concept's integration in building development, operations, management and maintenance. However there is

increasing recognition that it is the more intangible benefits of sustainable building practice perceived by clients which have the potential to contribute to sustainable market development and diffusion in mainstream property and construction. The difficulty of quantifying such benefits, its more implicit links with higher-level client organisational goals, organisational success and the absence of explicit and reliable cost data continues to be a major obstacle to the wider diffusion of innovations in sustainable building practice.

Recent research into the economics of sustainable building (Bordass 2000; Hawken et al 1999) and the development of economic decision tools to support investments in innovations in sustainable building practice (Loftness and Hartkopf 2002) has identified a number of significant cost-benefit factors associated with the concept's principles and systems that support the workplace. Whilst it is indisputable that costs are a dominant consideration in commercial property decisions, growing recognition of property as significant infrastructure supporting changing business functions, workplace strategies and the development of human resource capabilities necessary to create and sustain productive organisations, is an area where sustainable building practice can be effectively introduced to clients. This paper argues that the client's explicit recognition and ability to envisage the more implicit contributions of sustainable building practice to other key performance perspectives (business process, customer/community relations, learning and growth) that support an organisation's long term financial success can potentially advance adoption and implementation. Clarifying and understanding these relationships can assist the development of appropriate indicators (both quantitative and qualitative) and performance measurement if the communication of substantiated information and knowledge development are to be advanced to encourage the diffusion of sustainable buildings that are also sustaining in the business operational context.

## **2. Sustainable Building Practice: Sustainable Building and Sustainable Organisations**

There is a propensity for the commercial property industry to confine sustainable building practice to energy efficiency and technical considerations in the implementation of products and integration of systems. Bergs and Renes (2000) assert that this narrow perspective fails to consider the comprehensibility of the resulting building to users and advocate a broader perspective that integrates sustainable entrepreneurship. This concept recognises that central to the physical component of sustainable building, is its sustainability in use, stemming from its ability to support an organisation's primary and secondary processes whilst minimising environmental impacts. In line with this perspective, sustainable building practice in this research encompasses both 'sustainable building' (sustainable development, design and construction) and 'sustainable organisations' (sustainable operations, management and maintenance).

The concept of innovation in sustainable building practice is therefore defined as 'any ideas, products and/or services, techniques, systems, tools and/or processes of production and administration, old or new, applied to any aspect of building production, operations and management such that it directly or indirectly generates measurable environmental, economic, social and cultural benefits in building performance and in organisational performance.' Innovations in sustainable building practice can therefore take many different forms and occur at various levels (macro and micro) in the context of the building life cycle.

A consideration of the relative cost and value of sustainable building practice is largely contingent on the stakeholder's interest or involvement in building development, operations and management. Owner-occupiers and tenant organisations are primary drivers of demand for sustainable building practice and are key actors from the perspective of creating sustainable organisations. Cost and value of sustainable building practice in this paper is therefore considered from the strategic business and property perspective of these client organisations.

### **3. Innovations in Sustainable Building Practice and Organisational Performance**

Organisations increasingly recognise the limitations of traditional financial measures to adequately reflect value-creating actions and to indicate continuous improvement, innovation and future performance (Kaplan and Norton 1992). In the 'Business and the Environment' field, it is also recognised that financial measures of performance based solely upon return on investment, shareholder value, cost savings and competitive advantage are narrow, short term and backward looking. Emerging measures that focus on intangible assets such as customer capital and structural capital for example have been suggested as valuable indicators of an organisation's long term performance and sustainability (Read 2000).

Similarly property performance measurement, particularly in the commercial property sector, has customarily relied on financial performance indicators. In line with encompassing more than a financially based approach to organisational goals, and the rise of strategic corporate real estate management, property performance measurement has also in recent times begun to integrate both financial and non-financial (objective and subjective) performance indicators (CREAM 2000). Hence it can be argued that aside from the present dominant emphasis on the ability of sustainable building practice to contribute to financial performance, the potential for the concept to contribute to non-financial performance in both business and property constitute large untapped potential to further diffusion of the concept.

The 'Balanced Scorecard' approach developed by Kaplan and Norton (1992) to evaluate business and organisational performance has been suggested as a useful framework to conceptualise and understand the potential relationships between the cost and value benefits of innovations in sustainable building practice and organisational performance (Heerwagen 2000). The Balanced Scorecard is a useful conceptual tool through its explicit consideration and balanced integration of both financial measures and operational measures on which future financial performance is dependent. Four different perspectives of performance are simultaneously considered in this approach: financial, internal business process, customer relations, learning and growth. Alignment of performance with an organisation's strategic objectives can therefore be measured and evaluated with a number of operational indicators in each of these areas. Considered together the perspectives provide a more comprehensive view of the potential contributions, both financial and non-financial, of the concepts of sustainable building and sustainable organisations. This approach has also been proposed and adapted as a useful method to evaluate real estate performance in relation to an organisation's strategic aims and objectives (CREAM 2000). The approach provides a framework with which managers can envisage and measure the potential performance contribution to each area and alignment with an organisation's business and property objectives. It is a tool that can evaluate if and how sustainable building practice is being diffused or can be more widely diffused.

### **4. Preliminary Findings**

Potentially significant relationships between the cost and value contribution of innovations in sustainable building practice in commercial property and construction with business and organisational performance are elicited and illustrated in Table 1 for each of the Balanced Scorecard perspectives. These preliminary results have been derived from a literature review and comparative analysis of interviews with various client groups in the Australian Commercial Property Industry. Structured pilot interviews were conducted with commercial owners, developers, investors and tenants and government owners and tenants to explore primary factors affecting the diffusion of innovations in sustainable building practice from their perspectives. A key factor identified is concerned with client perceptions of the innovation attributes of sustainable building practice and the cost and value associated with the concept in influencing diffusion. Research findings presented in this paper is concerned with an analysis of this factor. However analysis of another key factor of organisational characteristics associated with more and less environmentally innovative organisations in influencing diffusion of the concept has previously been documented (Kam et al 2002).

**Table 1. Potential Links and Effects of Sustainable Building Practice on Business and Organisational Performance**

<b>The Financial Perspective</b>		
<b>Generic Measures of Business/Organisational Performance</b>	<b>Cost or Value Added Contribution from Sustainable Building Practice</b>	<b>Business/Organisational Effects</b>
Revenue growth	Expanding and reaching new customers and markets based on environmental sustainability in adding value to business products or services, operations and property	Increase in profitability Increase in stock value (Both present and future)
Cost reduction and productivity improvement	Enhancing capabilities of the organisation's physical and personnel resources	Revenue productivity from organisational improvements in quality, cost, performance and time to bring products/services to the market
Asset utilization/investment strategy	Capital/first cost savings in investments  Reduced operational expenses from physical capital investments based on efficiency and effectiveness of resource use	Increase cash flow and Returns on Investments Enhanced ability to rent or sale space
Risk management	Reduced risks from resource efficiency, pollution prevention, code compliance, health and safety	Reduced legal costs Reduced insurance costs
<b>The Customer/Community Perspective</b>		
Market share	Contribution to market share attributed to business and building reputation and image based on environmental and social performance	Increased marketing and sales capabilities Enhanced marketplace position
Customer retention, acquisition, satisfaction and profitability	Sustainable business and building programs indicating commitment to environmental and social performance	Enhanced relationships with the public and education
<b>The Business Processes/Services Perspective</b>		
Innovation	Adaptability and flexibility through easy disassembly, reuse and recycling  Integrated and multidisciplinary cooperation	Organisational and technological churn/development cost savings (per employee) Innovation in business and property processes Waste cost savings
Operations	Improved building operational processes and efficiencies	Operational cost savings (per employee) Facilities management cost savings
<b>The Learning and Growth Perspective</b>		
Employee satisfaction	Satisfaction from a better physical and psychological environment	Higher employee morale
Employee retention	Quality benefits from related to the physical and environmental workplace and potential prestige associated with the building image	Attraction of high quality workers Reduced employee turnover, training and reskilling Reduced costs of employee benefits related to health
Employee productivity	Improved individual health and well being through better indoor work environment quality	Productivity improvements (revenue per employee) from increased employee efficiency, effectiveness through creativity and learning leading to greater customer satisfaction Reduced absenteeism

In line with a business perspective of sustainable building practice and the Balanced Scorecard approach, it can be seen that each of these perspectives and their interrelationships can potentially contribute to an organisation's long-term financial performance explicitly through cost savings or more implicitly through value added. Whether these links and effects are perceived or actual are now discussed in the context of some case examples.

#### 4.1 Some Case Studies

In Australia, sustainable building practice may be seen as an extension of the emerging trend for socially responsible investments, but more often than not it is a sole concern for cost savings. While there is indication that ethical funds in Australian share portfolios have consistently outperformed the broader market in the ethical investment industry (Anon 2003), there is little direct evidence to suggest the extent

to which these results are attributed to sustainable business or property practices. Furthermore, a lower penetration of strategic property management strategies, policies and tools in Australia when compared to the UK and the US (CREAM 2000), suggest that there is large potential for property and sustainable building practice to be seen as adding value to businesses. However some business organisations operating in the Australian commercial property industry are beginning to recognise the cost effective contribution of sustainable practices in business and property.

PricewaterhouseCoopers for example is committed to improving the greenhouse performance of their new and existing tenancies through their participation in the Australian Building Greenhouse Rating Scheme (ABGR). The company's goal is to achieve 3 and 4 star ratings for their existing and new tenancies respectively. It is also demanding a base building rating of 4 stars where possible from the lessor in their commitment to a new space. Benefits the organisation believes could accrue from this participation include lower whole of life costs for tenancies, support for their 'employer of choice' efforts and corporate responsibility whilst reducing greenhouse gas emissions. Based on a number of energy saving initiatives, their 5037m<sup>2</sup> 'QV1' office in Perth aimed to achieve a 4 star rating based on an energy consumption of 425 000kWh per annum at a cost premium of \$130 000 with an IRR of 16%. Assessment of the project has illustrated that it is meeting its energy goals whilst providing positive financial impacts or returns on investments as anticipated, positive client feedback, positive staff feedback, education and involvement in addition to generating publicity for the organisation in the marketplace (SEDA 2003).

The 60L Green Building in Melbourne exemplifies the customer/community relations' perspective. The owner-developer aimed to provide a best practice sustainable commercial building that is commercially viable whilst minimising ecological impacts and creating healthy work practices. Tenant commitment to this refurbishment prior to completion and willingness to sign a 'green' lease that integrates an Environmental Management Plan illustrates the potential for increased marketing and sales capabilities from sustainable business practices and sustainable building reputation and image. As the completed building has only been occupied since early 2003, the ability of the building to retain and satisfy tenants has not been assessed. However, the explicit education and involvement of tenant organisations in the operations and management of the building, demonstrate the ability to foster commitment between the owner and tenants. Attraction of the broader community and industry stakeholders to tour the facility also illustrate the ability for a business organisation to enhance public relations with these groups through an explicit education strategy. The project also paves the way for future projects through raising the awareness of government bodies with which they have dealt with and setting a precedence from which institutional barriers were identified and removed ([www.60lgreenbuilding.com](http://www.60lgreenbuilding.com)).

From the learning and growth perspective, there is case study evidence to indicate that energy-efficient design can achieve productivity improvements of 7 to 15 percent, while sick leave and absenteeism can simultaneously drop. Given that people costs typically account for 92 percent of life cycle costs of a building over thirty years, these gains can reduce the payback time and increase return on investment (Romm 1999). Romm (1999) provides numerous US case examples that demonstrate the links between the physical and environmental quality of the workplace to gains in individual and organisational productivity. The work of Loftness and Hartkopf (2002) in the US also provides measurable and demonstrable case evidence of the benefits generated from the link between aspects of the work environment (ergonomics, daylighting, acoustics, ventilation, thermal control, access to the natural environment) with productivity and health. There are however very few Australian case examples that explicitly demonstrate the economic, environmental or social benefits of these links. Recent projects such as the 60L project mentioned above and 'The Bond' office project in Sydney by Bovis Lend Lease and Deutsche Office Trust have explicitly integrated the goal of occupant health, comfort and productivity through the provision of an office environment based on the above principles and creating greater flexibility and worker control over their environment (SEDA 2003).

Although there are demonstrated annual operating savings for per m<sup>2</sup> of lettable floor space from energy efficient design and this can be translated to cost savings per employee, there is little evidence to

demonstrate cost savings resulting from accommodating for organisational and technological change through the sustainable building characteristics of adaptability and flexibility. From the perspective of business processes, environmental strategies in business and multidisciplinary cooperation in sustainable building practice have led to innovations in business and property activities through its infusion in organisational culture as demonstrated by BP Amoco Australia. In 1998, the organisation launched an Environmental Improvement Program (EIP) aimed at reducing the impact of their office on the environment. This incorporated environmental building improvements that included a resource reduction program. The program also raised awareness of environmental concern and educated staff on skills needed to achieve program objectives (Simonelli 1999).

## 6. Conclusions

Preliminary research demonstrates perceived, emerging and actual relationships between the cost and value of innovations in sustainable building practice and organisational performance. However, there is a need to develop a more objective and systematic method of measurement, to provide a more tangible basis for communicating and evaluating the objectives and cost and value contribution of sustainable building practice, to a client organisation's property portfolio and strategic organisational performance. This can provide a foundation to monitor and encourage organisational progress towards environmental sustainability. The Balanced Scorecard framework explicitly identified key areas and significant cause-effect relationships where potential indicators can be selected for environmental performance assessment in business and property. Further work involves a comprehensive primary survey of various client groups in the Australian Commercial property industry, to test and evaluate relationships and extracts core indicators for each of the four perspectives, with a view to develop a more substantiated database, facilitate knowledge development and benchmark continuous improvement in the industry. Better information, industry benchmarking not confined to organisational self assessments, and feedback visibility of intentions and outcomes expressed in way conducive to client objectives, decision making and understanding, is needed if measurable progress in an uncertain global environment is to be made.

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