Designing a Sustainability Management System at BMW Group
The Designworks/USA Case Study

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This case study describes how an industrial design company developed a sustainability management system (SMS) standard, designed and implemented an SMS throughout its business, and then became the first company in the world to achieve third-party SMS certification by a third-party certification organisation.

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This study was originally conducted in conjunction with the UN Global Compact (UNGC) Learning Forum. The Forum is designed to enable and to further collaborative learning among UN Global Compact signatory companies as they work to implement sustainability. BMW was an early signatory of the UNGC, and so is fairly far along the learning curve of implementation of sustainability. As such, it has significant in-depth best practices and learning to share with other companies who are in the midst of sustainability implementation.

This study will discuss BMW’s movement from a traditional environmental management system (EMS) to a more all-encompassing and innovative sustainability management system (SMS). It will walk through the phases, steps, objectives and targets of this SMS implementation, and highlight the specific outcomes and challenges of this process. The hope is that this case study can guide other companies as they pursue not just the buy-in to sustainable development but rather the far more complex move to implementing sustainable development throughout their company’s operations and educating their employees.

Company profile

Designworks/USA provides design and engineering services and is situated in southern California among more than 20 design studios operated by major automobile companies. It was founded in 1972 as an independent design company, and the firm has developed expertise in designing vehicles—including automobiles, long-haul trucks, railroad passenger cars and construction equipment—as well as a wide array of consumer products such as cellular telephones, camera bodies, personal computer frames, ski goggles and sunglasses. Its clients have included Atomic, BMW Group, Compaq, Heidelberg, John Deere, Gulfstream Haworth, Microsoft, Motorola, Nokia, Siemens AG and Vivitar.

Designworks/USA began working with Munich-based BMW AG (which later became BMW Group) in 1985, when it was asked to design the seats for the BMW 8 series. The relationship grew and eventually BMW Group acquired 51% of the company in 1991 and the remaining share in 1995. Now a wholly owned subsidiary of BMW Group, Designworks/USA continues to serve many other clients, which enables designers to leverage their experience with BMW Group to other types of product and allows BMW Group to learn from design projects beyond the domain of automobiles. Designworks/USA employs 80 people across its four design departments. The four design areas at Designworks/USA and a description of the work that they do are shown in Table 1.

Engineering, human resources, operations, finance/administration and marketing/sales units also exist in the company. In addition, the firm bolsters its design department with nearly 20 contractors. The US$15 million firm operates in a 77,000 ft² (7,200 m²) facility roughly 72 km north of Los Angeles.

From EMS to SMS: BMW Group to Designworks/USA

BMW Group has long displayed a commitment to improving the environmental profile of its products. In the early 1970s, BMW Group introduced the first electric-powered car, was the first car manufacturer to appoint an environmental officer, and worked with other companies to establish a hazardous waste disposal system. In the late 1970s, BMW Group introduced the first hydrogen-powered car. By the late 1980s and early 1990s,
BMW Group was using water-soluble paint technology, focusing on issues of disassembly and recycling of end-of-life vehicles, and extending its management principles to include environmental guidelines. From the mid-1990s to the present, BMW Group began using low-emission, water-borne paint technology and powder clear coat, produced a natural gas-powered series-production car and a small production series hydrogen-powered car, committed itself to sustainable environmental protection, and is currently focused on clean production, clean energy and lightweight engineering.

In 1999, BMW Group achieved a major milestone by implementing environmental management systems (EMSs), which allow the company to identify and manage environmental risks and impacts, in all of its manufacturing facilities. Each of these facilities was certified to the International Organisation for Standardisation (ISO) 14001:1996 Environmental Management System Standard, and some were also verified to be in compliance with the Eco-Management and Audit Scheme (EMAS). BMW Group was the first automobile manufacturer to have an EMS in place at every one of its production plants. With this achievement, the BMW Group turned its attention to improving the environmental performance of its business partners and its non-production facilities.

Looking externally, the BMW Group began encouraging BMW dealerships in Munich and South Africa to be certified to ISO 14001. Internally, BMW Group was interested in deriving more value from their EMS efforts in a manner consistent with the company’s commitment to continuous improvement. In addition, BMW Group sought to promote the concept of sustainable development within the organisation. With over a decade of experience implementing EMS at its production facilities, BMW Group’s environmental management team developed a clear understanding of benefits and limitations to the EMS process. Accordingly, discussions between BMW Group’s environmental management systems representative and two representatives of WSP Environmental at the 1999 Munich US/European EMS Workshop led to the idea of developing a sustainability management system (SMS). WSP Environmental North America, part of WSP Group plc, provides sustainability, environmental and geotechnical consultancy services to corporate and public agency clients throughout North America, Europe and across the Pacific Rim. BMW Group had worked with WSP to implement EMS at several of its production facilities.

Several factors led to the selection of Designworks/USA as the first pilot site to develop and employ an SMS. First, it was acknowledged that design is a high leverage point over many sustainability issues. Designers are uniquely positioned to investigate and offer design alternatives that can influence the environmental, social or economic impacts of

<table>
<thead>
<tr>
<th>Design area</th>
<th>Description of services</th>
</tr>
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<tbody>
<tr>
<td>Automobile</td>
<td>Specialises in design work for cars and motorcycles, through a deep partnership with BMW</td>
</tr>
<tr>
<td>Transportation</td>
<td>Develops design solutions for public and corporate transportation, heavy industrial and medical equipment. Clients include Fairchild Dornier, Deutsche Bahn, Siemens and John Deere</td>
</tr>
<tr>
<td>Advanced communication</td>
<td>Explores all design possibilities in the frictionless landscape of mobile communications, convergence technologies and entertainment. Clients include Motorola, Nokia and Intel</td>
</tr>
<tr>
<td>Product</td>
<td>Develops object designs that are intuitive, ergonomic, and emotive. Clients include Haworth, Maxwell and Villeroy &amp; Boch</td>
</tr>
</tbody>
</table>

Table 1 AREAS OF DESIGN FOR DESIGNWORKS/USA
products. Second, designers can bring a high level of creativity to developing and implementing an SMS. Accordingly, BMW’s EMS representative and BMW Group’s director of environmental protection approached the chief of BMW Group design to suggest that one of BMW Group’s design facilities serve as the pilot test site. The chief of Group design agreed and approached Designworks/USA because it is unique among BMW Group’s design facilities as it serves a wide range of industries and clients, in addition to BMW Group which provides roughly 30% of its design work. This was an advantage because the length of time it takes to design many of the consumer products that Designworks/USA designs is significantly shorter than the length of time it takes to design an automobile, allowing for a more rapid assessment of the success of the SMS. At this point Designworks/USA had no comprehensive approach to identifying and managing its environmental and social aspects. The company’s experience would answer three key questions for BMW Group: (1) Can the EMS concept be extended into an SMS? (2) Can an SMS be made relevant and useful to a design consultancy? (3) To what extent can an SMS be adapted to suit BMW Group’s other facilities and business operations around the world?

Developing the SMS framework

Designworks/USA agreed to facilitate the pilot. Anticipating that significant modifications would be required to accommodate the many differences between its aspects and impacts and those of an automobile production facility, BMW Group lent its EMS representative to the initiative and sponsored the involvement of WSP Environmental. The SMS initiative was initially led by a team comprising the EMS representative, Designworks/USA’s director of finance, and WSP’s lead environmental consultants. The first task was to develop a framework to ensure that environmental, economic and social concerns would be incorporated throughout the organisation’s decision-making processes. While no international standard for such a system existed, the team recognised the value in creating a framework akin to ISO 14001. BMW’s EMS representative and the WSP consultants took the lead in drafting *A Sustainability Management System Guidance*, which would become the standard against which the organisation’s management system would be audited. As such, we refer to this document as the ‘SMS standard’. In part, it calls for Designworks/USA to implement five general phases as shown in Table 2. Specific objectives within these phases will be described in further detail.

The SMS standard addresses the broader sustainability issues in a similar way to that in which the ISO 14001 EMS standard deals with environmental issues. The SMS standard is based on the structure of ISO 14001, includes the same major elements, and uses common terminology and definitions (e.g. environmental aspects and environmental impacts). In addition, both standards afford the organisation wide latitude to develop its own impact prioritisation scheme.

Functionally, the SMS standard requires that roles and responsibilities for improving sustainability performance be defined, and that a host of documented procedures be developed and controlled. The SMS standard requires the organisation to develop procedures to:

- Identify and prioritise sustainability aspects and impacts
- Identify legal requirements related to sustainability concepts and to evaluate compliance
- Develop sustainability objectives and targets within each organisational function
Identify and deploy education and training to ensure awareness and competence.

Regularly interact with stakeholders including regulators and the public.

Routinely audit the organisation's management system against the requirements stipulated in the SMS standard.

Ensure that top management periodically reviews the SMS.

While the SMS standard was built on the ISO 14001 framework to facilitate certification to both standards, it contains many unique elements, particularly with regard to integrating social issues into the management system process. The SMS standard incorporates two leading conceptualisations of sustainability. First, it incorporates the ‘triple bottom line’ concept by requiring management decision-making to incorporate economic, environmental and social impacts (Elkington 1998). The Global Reporting Initiative’s 2002 Sustainability Reporting Guidelines promotes this approach, and many multinational companies have adopted it. Second, the SMS standard employs perhaps the most widely used definition of sustainable development, ‘development that meets the needs of the present without compromising the ability of future generations to meet their own needs’ (World Commission on Environment and Development 1987). Accordingly, the SMS standard defines sustainability as:

- a state of balance among the environment, society, and economy, achieved by creating a sense of shared organisational and personal responsibility for all future environmental, economic, and social impacts of the organisation, which become the basis for actions calculated to meet the needs of the organisation without compromising the future ability of others to meet their needs.

The ‘balance’ called for in this definition is left to Designworks/USA to define.

The SMS standard extends beyond ISO 14001’s environmental scope by also including social and economic aspects into the management system. The SMS standard defines a social aspect as ‘elements of an organisation’s activities, products, or services that can interact with society’ and a social impact as ‘any change to the society, whether adverse or beneficial, wholly or partially resulting from an organisation’s activities, products or services’. Economic aspects and economic impacts are defined in a parallel manner. The SMS standard also broadly defines an interested party as an ‘individual or group that is or may be concerned with or affected by the sustainability performance of an organisation’.

Even within the environmental domain, the SMS standard departs from ISO 14001 in several substantial ways. For example, while the only performance level stipulated by ISO 14001 is that an organisation’s environmental policy must include commitments to comply with all relevant environmental laws and to continuous improvement, the SMS standard includes ‘an expectation of progress in the management and consequent reduction of impacts or risks from the environmental, economic, and social impacts of the organisation’s business operations’.

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**Table 2** PHASES OF THE SMS STANDARD DEVELOPMENT

| Phase 1 | Create a sustainability policy |
| Phase 2 | Identify and prioritise SMS aspects and impacts |
| Phase 3 | Establish objectives and targets |
| Phase 4 | Develop programmes to achieve objectives and targets |
| Phase 5 | Evaluate progress via periodic internal audits and management reviews |

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Initial SMS implementation

Implementation of the Designworks/USA SMS began in January 2001. To begin developing its SMS, management created an SMS steering committee, which initially comprised Designworks/USA’s director of finance and the director of operations. A year later, the committee structure was expanded to include a representative from each department. This section describes how Designworks/USA worked to implement the SMS standard by creating a sustainability policy, enumerating SMS aspects and impacts, developing an impact prioritisation scheme, drafting action plans to address prioritised SMS aspects, and conducting their initial internal SMS audits.

Sustainability policy

One of the first steps the SMS steering committee took was to develop a sustainability policy. The policy includes a commitment to continuous improvement of environmental, economic, social and ethical performance. Furthermore, the policy commits Designworks/USA to encourage all of its stakeholders—including suppliers, contractors and clients—to implement similar practices. The SMS policy is available on the company’s website at www.designworksusa.com.

Environmental issues are directly addressed in many portions of the company’s SMS policy, including a commitment to continuously improve environmental performance and to incorporate ‘responsible resource use’ and ‘environmental protection’ into products designed for clients. Furthermore, the policy calls for Designworks/USA to incorporate the BMW Group’s Environmental Guidelines into decision-making. Social issues are also directly referred to in Designworks/USA’s SMS policy. The policy commits the company to ‘meeting or exceeding all . . . health and safety legal requirements’ and to continuously improve social and ethical performance. The policy also requires Designworks/USA to incorporate social responsibility into product development and advanced communications consulting services.

SMS aspects

After developing the policy, each department was tasked with creating a comprehensive list of environmental, social and economic aspects. These are defined, respectively, as elements of an organisation’s activities, products or services that can interact with the environment, society and the economy. After listing their aspects, departments categorised each one as relating to environmental, social or economic issues.

Identified environmental aspects include on-site issues such as solid wastes, emissions, effluents and resource use, as well as environmental issues associated with products designed for clients, including their manufacture, use and end-of-life disposition. Most environmental aspects associated with on-site activities, such as the modelling shop and general building operations, resemble those typically found in an ISO 14001 EMS. For example, Operations identified various waste streams and resources consumed as a result of their activities. More innovative environmental aspects related to the products the firm designs for its clients. For instance, the design departments identified as environmental aspects several opportunities during the project workflow process to suggest environmental criteria to clients, explore product life-cycle impacts and expand clients’ environmental/sustainability thinking. A sample of identified environmental aspects and impacts is presented in Table 3. The Significance column is explained below.

1 The BMW Group’s International Environmental Guidelines are incorporated in the BMW Group Sustainable Value Report 2001/2002.
Social aspects include on-site issues such as employee retention and turnover, optimal working conditions, gender and racial equity, workload and sufficient staffing, building evacuation and first responder training, indoor air quality, and general environment, health and safety (EH&S) awareness. The action plans also identified off-site social aspects. For example, child/forced labour and human rights screening criteria applied to suppliers/vendors and the dissemination of information and idea generation by teaching at local design schools. In relation to the design process, social aspects were not identified to the same level of specificity as were the environmental aspects. Some of the social aspects and impacts identified are presented in Table 4.

The economics aspects identified were primarily related to four themes: (1) increasing revenue by increasing sales to niche customers interested in sustainability management; (2) reducing various business risks; (3) improving employee productivity; and (4)
reducing operating costs. For example, an aspect related to human resources included improving incentives to employees for creativity, innovation and business development. The corresponding economic impact is improving employee productivity. Business recovery (Operations) is an aspect associated with the impact of mitigating risks of downtime. Table 5 illustrates a few additional economic aspects and impacts that were identified.

<table>
<thead>
<tr>
<th>Department</th>
<th>Activity</th>
<th>Aspect</th>
<th>Impact</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marketing</td>
<td>Develop success stories from use of environmental/sustainability considerations in projects</td>
<td>Use SMS as market advantage</td>
<td>Improve Designworks/USA’s economic opportunities and performance, and contribute to advancing client base environmental and sustainability thinking</td>
<td>(Not rated)</td>
</tr>
<tr>
<td>Design</td>
<td>Teaching at local design schools</td>
<td>Dissemination of information and idea generation on ‘green design careers’</td>
<td>Improve recruiting</td>
<td>28</td>
</tr>
</tbody>
</table>

Table 5  SMS ASPECTS ANALYSIS: ECONOMIC

Aspect prioritisation

All aspects were prioritised along the following seven dimensions: probability of occurrence; intensity; duration; legal and regulatory requirements; stakeholder concerns; leadership potential; and level of control. Each dimension was scored for each aspect using a five-point scale. In each case, a score of one represented the lowest priority or significance, such as the lowest probability of occurrence or the least intense impact. A score of five represents the highest priority or significance, such as an impact being of great concern to many stakeholders or where the impact presents an opportunity to demonstrate industry leadership. A score for each aspect was calculated by adding the seven sub-scores. While the SMS standard calls on the company to ‘consider inviting interested parties to participate in the prioritisation of its sustainability aspects’, Designworks/USA conducted this process in-house, with the assistance of BMW Group and WSP. Designworks/USA management indicated that they might invite interested parties to participate in this process in the future. After scoring each aspect, each department focused its efforts on those aspects with the highest scores, and set to work developing objectives and targets for many of these.

Objectives, targets and action plans

After identifying and prioritising aspects and impacts, each department created an SMS action plan. This document listed several prioritised aspects and described an objective for each one. To achieve each objective, one or more targets were established, and an individual was assigned the responsibility for meeting the target by a particular deadline. These plans are revised frequently following the SMS discussions that begin each department’s weekly meeting. After a few targets were met, each department added other aspects, objectives and targets to their SMS action plan.
Internal audits

The SMS standard requires that an internal audit be conducted annually to ensure that business operations and decision-making throughout the organisation conform to both ISO 14001 and the SMS standard. The internal SMS audit team, which consists of volunteers from several departments, developed separate SMS audit reports for the design/engineering, marketing/communications, supply/finance, human resources and operations departments. The audit scope includes examining the policy, aspects, objectives and goals, the development of each SMS action plan, compliance with legal and other requirements, and the extent to which each department applies SMS to customer relations and on-site activities. Internal audits have been conducted twice a year since August 2001.

Certification and registration

Designworks/USA sought third-party certification that its management system fully adhered to both the SMS standard and ISO 14001. Leveraging its experience with ISO 14001 and EMAS certifiers, BMW Group and WSP initially identified ten certification bodies, and used a systematic qualification process to initially reduce this number to three and subsequently select TÜV Süddeutschland. In December 2001, Designworks/USA became the first industrial design firm in the world to be certified to ISO 14001. Two months later, Designworks/USA became the first company in the world to achieve third-party SMS certification.

Outcomes and impacts

According to the director of human resources, the SMS has focused the company on its long-term vision by increasing management commitment to long-term objectives and preserving support for programmes even in tight budgetary times. This section describes various outcomes of Designworks/USA’s SMS implementation. We begin by discussing some of the firm’s internal projects, consider its work with its external stakeholders including clients and suppliers and finally look briefly at the application of SMS across BMW Group.

Applying SMS to suppliers and contractors

Designworks/USA’s sustainability policy commits the company to encourage its suppliers to share its SMS goals. So far, the company has taken four steps towards achieving this objective. First, questionnaires were developed to gather information and gain commitments on some environmental, labour and human rights practices of Designworks/USA’s suppliers and contractors. The questionnaires sought a commitment to comply with Social Accountability 8000 (SA8000), a voluntary standard that addresses several labour and human rights issues. Despite a response rate of below 35%, the information obtained has reportedly influenced supplier selection on several occasions. In a second, related, initiative some departments have taken steps to work with their suppliers and contractors.

2 SA8000 contains provisions dealing with child labour, forced labour, health and safety, freedom of association and the right to collective bargaining, discrimination, disciplinary practices, working hours and remuneration. The standard is available from Social Accountability International’s website, www.cepaa.org.
suppliers to address SMS issues. For example, Operations asked its major suppliers to reduce the size of their packaging, and has been successful in its attempts to have many of them substitute polystyrene packaging ‘peanuts’ with those made of cornstarch.

Third, Designworks/USA wrote to its principal contractors to inform them about the SMS initiative and noted that all future tenders must include descriptions of the measures that will be taken to ensure that the environment is adequately protected throughout the project. The letter also noted that Designworks/USA is seeking to identify contractors ‘who demonstrate an understanding of environmental issues and who have effective systems for management of environmental risks and prevention of pollution’. A fourth step was creating an annual vendor (supplier) open house, the first of which occurred in September 2002. In addition to introducing how both BMW Group and Designworks/USA are implementing SMS, an interactive panel discussed challenges and opportunities associated with sustainability management.

**Applying SMS to client work**

As a consultancy, the extent to which Designworks/USA is able to effect change in product design is to a great extent dependent on its relationships with its clients and the willingness of each client to improve the sustainability attributes of its products. Some clients share Designworks/USA’s commitment in this area and have been pleased to work with them to improve the sustainability profile of their products. Other clients have been sceptical of the benefits or have been uninterested in sustainability improvements to their products. The length and depth of the relationship between Designworks/USA and any particular client will affect the extent to which they can work in partnership to generate and implement design alternatives that may require the client to alter some aspects of how it does business. Designworks/USA tailors its approach to how it seeks to educate and influence its clients towards more sustainable design choices. Faced with a disinterested client, designers may recommend the use of high-quality, environmentally preferable materials without focusing on the environmental attributes of the material.

Designworks/USA has begun implementing the SMS into its design and engineering work. For example, the firm is working with a guitar manufacturer to evaluate the use of certified wood and a waste wood composite. In addition, Designworks/USA is working with a vacuum cleaner manufacturer to reduce its motor size, identify recycled materials that maintain a high-quality feel, and develop a marketing plan to focus customer attention on performance attributes (e.g. high suction power, low noise levels) instead of motor size. The firm is also working with a construction vehicle manufacturer to consider alternative materials to facilitate their end-of-life recyclability. Social issues are not yet being systematically integrated into the design process, as they are not yet well defined within the SMS, nor in the greater world of sustainability in general.

SMS implementation has also encouraged several departments to actively develop some products even in advance of customer interest. For example, the firm is working with the California Department of Conservation to design an ‘e-bin’, a recycling bin that employs used materials already being collected for recycling but for which there are currently few or no secondary markets. One essential design criterion is that the bin must be iconic: it must maintain its fundamental design attributes while being scalable for home, office and industrial use. In addition, the e-bin will be designed from a cradle-to-cradle perspective, which means it must be recyclable. By seeking to utilise materials currently entering the municipal waste stream, and by working in partnership with the California government, this project includes environmental, social and economic dimensions of the SMS. This project seeks to design an environmentally and socially...
beneficial product, and has been instigated by employees rather than clients, with the intention of identifying interested clients once the product concept is further developed.

Applying SMS to building operations and human resources management

Several projects have implemented SMS issues into Designworks/USA’s on-site activities. A recent example is the process used to renovate the facility’s roof. The typical process is to remove the existing tar, which is often landfilled, and then add new tar. According to the lead fabricator for the client, after Operations informed several contractors about its SMS initiative, one of them suggested a new coating system. By encapsulating the existing roofing material and creating a white surface, this system eliminates the need to landfill the existing material, dramatically reduces the noise, dust and fumes associated with the project, and the resulting rooftop achieves the US Environmental Protection Agency’s Energy Star rating. As a result, Designworks/USA will reduce the amount of energy required to cool its building, and will thereby reduce its overall energy costs. In addition, installing this technology qualified Designworks/USA for a rebate from its electric company that fully offset the additional cost of this technology over the conventional technique, which amounted to several thousand dollars. Over the long term, it is believed that there will be a net gain of benefits once the short-term costs were offset, although Operations was not able to come up with an exact figure for this saving per annum.

A second internal project that incorporates SMS issues is the installation of some major new machinery used to create prototype models. Contractors were sent information about the SMS and were asked to generate ideas about how the installation can promote SMS objectives. Contractor proposals included a variety of ideas, such as reusing the doors and other structural components that would be removed in the installation. In addition, contractors offered ideas to ensure that the residual construction debris would be recycled rather than landfilled. The project incorporated several such ideas, which simultaneously increased contractors’ labour costs but reduced capital and material costs.

To date, the social considerations that have been factored into the internal thinking of Designworks/USA have dealt primarily with human resources and occupational health and safety issues. For example, the issue of gender and racial equity was considered in the context of a formal compensation assessment programme that was launched under the SMS. The programme used an external salary survey and developed salary structures based on market value and then benchmarked each employee against this structure. Each person was considered according to his or her experience and education. Adjustments were made for the few individuals who fell below the appropriate level in the new salary structure. This programme was implemented in large part to ensure that Designworks/USA was providing remuneration parity regardless of gender, race or ethnicity. The company is also improving its performance appraisal process by involving multiple review partners, and is seeking permanent resident status for its key employees who are not US citizens. It is also considering ways to reduce noise levels in the workshop and is working to enhance its employee recognition programme. The SMS process has empowered staff to work with management to discuss, explore and resolve a wide array of issues, ranging from ideas to reduce waste, to improve the working environment, to bolstering employee satisfaction.
Future SMS development work: challenges and opportunities

Designworks/USA’s SMS is still in the early phase of implementation; it has been in operation for less than two years. While Designworks/USA accomplished a great deal in a short period of time, the company faced a number of implementation challenges, some of which have been resolved, some of which are under active consideration, some of which still need to be considered and remain of concern to some staff. Elements of the SMS represent a pioneering effort, such as seeking to integrate environmental criteria into the design of third-party clients’ products and contemplating the scope of social issues that fit within the sustainability concept. As such, there are few companies to learn from and no ready-made examples to apply. Given this, it is not surprising that many opportunities are available for further programme refinement and implementation.

Some challenges will be met through ongoing initiatives. For example, one designer noted that, while he was attempting to integrate SMS concepts into client discussions, often he was asked questions he was not prepared to answer because of his lower placement on the sustainable design learning curve. The designers are struggling with ways to increase their sustainability knowledge and learning within a culture of billable hours, for which the employee must bill every minute of his or her workday. This resulted in one designer conducting follow-up research after hours to prepare a response several days later. To some extent, this predicament will be mitigated as designers and engineers accumulate expertise about the sustainability implications of design choices, bolstered in part by the SMS tools currently being developed. They are currently looking into effective methods for designer sustainability training and education.

Another challenge identified is the reluctance of clients to pay Designworks/USA to research ways to improve the sustainability profile of design alternatives. On some occasions, Designworks/USA conducted this analysis anyway, absorbing the cost as an investment in developing their SMS capabilities and in exposing the client to the benefits of integrating sustainability concerns into the product design. Nonetheless, encouraging its third-party clients to value sustainable design remains one of Designworks/USA’s biggest challenges to both provide a financial return on its SMS investments and stimulate continued staff interest in enhancing the SMS.

While management has asked that SMS becomes an agenda item in each department’s weekly meeting and requires the attendance of departmental representatives at SMS steering committee meetings, as discussed earlier, the willingness of department managers to do so has varied. The engagement of management with the SMS will be encouraged by the integration of SMS as a component of performance reviews. As the organisation is becoming more energised by the implementation of the SMS, it appears this problem of early resistance from some quarters is being overcome.

Designworks/USA is still developing a plan to tap external sources of sustainability knowledge, including identifying and sending staff to appropriate training and developing partnerships with universities to increase contact with professors and student intern candidates. In one such effort, a graduate student from the University of California’s Donald Bren School of Environmental Science and Management was hired to assist in the development of SMS tools, organise the supplier open house, and work on several SMS action plan items. By the end of her three-month internship, she was among the most knowledgeable individuals at the company about its SMS. In an effort to institutionalise her knowledge, she produced a final report to the SMS steering committee.

While Designworks/USA has recognised the above issues, the organisation also faces several challenges and opportunities to improve the effectiveness and comprehensiveness of its SMS. Like many design firms, the company culture encourages creativity,
innovation and inspiration, and this led to challenges in getting the staff to document and follow procedures. BMW Group and WSP stepped in to provide initial drafts of the formal SMS documentation. While this facilitated the timely implementation of the SMS, apparent gaps remain in the knowledge about the relationship between some of the SMS documents. For example, after the initial development of comprehensive aspect/impact registries and a prioritisation scheme, several departments do not rely on the prioritised aspects as the basis for adding new items to their SMS action plans. Instead, they favour the use of a more creative process, brainstorming sessions, to add new action items or decide which ones to address next. While this process is aligned with the company’s culture of creativity, it undermines the systematic process the SMS is meant to facilitate and suggests the need to better integrate creative work processes into a systematic management system. For example, this creativity could be channelled into identifying additional SMS aspects, or enhancing the aspect/impact prioritisation scheme or sustainability policy. Such changes would then flow through the SMS in a systematic way to add new or reprioritise existing action items.

While the company has focused its SMS performance monitoring on process metrics (e.g. implementing SMS action plan items, following up SMS audit issues), few results metrics have been developed. The latter might measure, for example, the cumulative life-cycle environmental benefits of product design changes that the clients have implemented due to the Designworks/USA SMS programme. An overall attempt to measure the costs and benefits associated with integrating sustainability, both with large into the design process, and with Designworks/USA with this SMS, need to be developed at this stage in its SMS work. As stated earlier, the SMS was, at the time of writing, just two years old. Clear results metrics must be a focus if the SMS itself is to remain sustainable, and certainly if Designworks/USA is to eventually build sustainability in as a competitive advantage as it goes out to clients.

With regard to the internal social impacts of the SMS, the company is developing an employee survey. In addition, metrics—such as employee recruitment success rates and employee turnover—already collected for other purposes could also be used to assess the results of SMS implementation.

To date, the integration of social issues into the design process has remained primarily an idiosyncratic process that relies on the awareness of individual designers. Indeed, most occasions where social issues have been included in design work can be attributed to the insight, enthusiasm and persistence of individual designers. As such, systematically incorporating social aspects of product design into the design process—in a manner similarly envisaged for environmental aspects with the new SMS tools—represents another opportunity for future SMS development.

Finally, Designworks/USA can better leverage its efforts by further disseminating its novel approach to implementing sustainability. To be sure, Designworks/USA has informed its customers and vendors about its SMS, and it has shared its initiative in a few conferences. However, the company could publish a formal internal or external SMS report, integrate its SMS initiatives in its client brochures, and promote its efforts through the company website.

References
