

Strategic Intent in the Management of the Green Environment within SMEs

An Analysis of the UK Screen-printing Sector

Ian Worthington and Dean Patton

What drives the environmental behaviour of companies is an under-researched and under-developed area of study, particularly in the context of small and medium enterprises (SMEs). This article investigates to what extent the responses by UK screen-printing companies to pressures to improve their environmental performance represented a deliberate attempt by senior managers to provide their organisations with a strategic competitive advantage.

Using both a quantitative and qualitative approach, the research shows that the environmental responses of this sector tended to be reactive, defensive and driven by – and frequently limited to – legislative compliance. Even though companies accepted that there were potential commercial benefits to be gained from environmental action, there was very little evidence to indicate that managerial decisions were motivated by strategic intent or that managerial mindsets were tuned to the notion that a proactive environmental response could offer a competitive edge. The article discusses the management implications of this lack of strategic orientation and highlights how a more innovative response by companies could provide both demand and supply side benefits.

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Introduction

The question of how far companies have a social responsibility to improve their environmental performance, and the relative costs and benefits to the organisation of doing so, has engaged academics and practitioners for more than 30 years.¹ A key strand in this debate has been the idea that complementarity can exist between a company's economic and environmental goals,

a proposition which has found support in political, business and academic circles and which is exemplified by concepts such as 'eco-efficiency', 'ecological modernisation' and 'win-win'.² In essence the argument is that companies that voluntarily embrace environmental good practice can simultaneously improve their business performance, thereby helping to create what has been called the 'double dividend' of environmentally responsible behaviour. Under this view the environment is seen as a critical business concern and an area of managerial activity that can yield significant benefits to the organisation, whether via the adaptation of business behaviour to a changing external context or through the accumulation of resources that promote distinctive organisational competencies.³

While there is empirical evidence to indicate that larger companies are increasingly seeing environmental performance as a strategic issue⁴, our knowledge of the factors shaping the environmental decisions and actions of small and medium enterprises (SMEs) is relatively under-developed. Most studies of small company ecological behaviour have focused on 'how' smaller businesses have responded to pressures to improve their environmental performance, rather than 'why' such responses have occurred and 'what' the consequences might be.⁵ The general picture that emerges from the extant literature is one of positive environmental attitudes but accompanied by relatively limited and compliance-driven behaviour. Little attempt has been made to examine the degree to which SME environmental responses represent a conscious and deliberate intention by managers to utilise environmental performance as a potential source of competitive advantage.⁶

Companies that voluntarily embrace environmental good practice can simultaneously improve their business performance

This gap in our knowledge is surprising when we consider the importance of smaller businesses to a modern economy and their potential contribution to environmental problems. In the UK, for example, SMEs constitute more than 99 per cent of all businesses and account for more than half of the country's economic activities, providing 56 per cent of non-government jobs (excluding financial services) and 52 per cent of turnover.⁷ Some estimates suggest that they may be responsible for as much as 60 to 70 per cent of carbon dioxide emissions and commercial waste.⁸

This paper addresses the knowledge gap by reporting on a study into the motivations that have underpinned recent environmental responses in the UK screen-printing sector. This is a relatively self-contained part of the UK printing industry with an annual turnover in excess of £1bn. The sector is dominated numerically by SMEs and has its own trade association as well as customers in every sector of the economy. Prior research had indicated that screen-printing operations have a discernible effect on the natural environment and that responses by companies in the sector to environmental pressures offered opportunities for commercial gain.⁹

This article focuses not only on what actions have been pursued by SMEs, but also the degree to which these actions can be linked to notions of competitive advantage as conceptualised under the strategic choice model. Under this perspective environmental responses that are specifically undertaken as part of a competitive strategy would be tied to the creation of tangible benefits at the company level or to customer or competitor imperatives.¹⁰ The evidence presented in this study suggests that at present such responses are largely absent and that this reflects a managerial mindset which tends to be reactive, compliance-based and operationally-focused. We discuss possible explanations for this relatively cautious approach and indicate how a more proactive stance might provide a company with opportunities to gain a competitive edge (e.g. through what Porter has termed 'cost leadership', 'differentiation' or 'focus') and help it to reduce the risk of adverse market reactions by anticipating future changes in its external environment (e.g. from increased customer, supplier or legislative demands).

Table 1. The literature of corporate greening*

Indicative Authors	Key findings in the literature
Azzone and Bertele (1994)	Environmental commitment is linked to managerial perceptions of stakeholder importance Corporate ecological response is shaped by external and internal influences In an industry subject to strong institutional pressures companies exercise strategic choice when pursuing beyond compliance strategies
Bansal and Bogner (2002)	Gaining environmentally-based business opportunities is linked to an
Bansal and Roth (2000)	anticipatory and proactive attitude
Bonifant et al (1995)	A proactive environmental stance can lower the current and future costs of compliance
Dechant and Altman (1994)	Green responses are compatible with good business
Gallorotti (1995)	Competitive advantage can arise from integrating environmentalism with organisational strategy
Henriques and Sadorsky (1996) (1999)	Appropriately designed regulations can generate a first mover advantage at the company level
Hutchinson (1996)	Environmental regulation encourages better environmental management practices
Porter and van der Linde (1995) (1995a)	Regulatory influences do not appear to prompt environmental innovation
Prakash (2000)	Doubts exist over the validity of the ‘win-win’ hypothesis Environmental responsiveness can enhance company efficiency and drive down costs
Rugman and Verbeke (1998)	
Russo and Fouts (1997)	
Shrivastava (1995)	Competitive advantage can derive from harnessing existing capabilities in areas such as quality management
Walley and Whitehead (1994)	Heterogeneity in company resources and capabilities moderates the relationship between environmental best practices and cost advantage

* Azzone and Bertele; P. Bansal and W.C. Bogner, Deciding on ISO14001: Economics, Institutions, and Context, *Long Range Planning*, 35, 269–290, (2002); P. Bansal and K. Roth, Why companies go green: a model of ecological responsiveness, *Academy of Management Journal*, 43(4), 717–73, (2000); B.C. Bonifant, M. B. Arnold and F.J. Long, Gaining competitive advantage through environmental investments, *Business Horizons*, 38(4), 37–47, (1995); Dechant and Altman; Gallorotti; Hart; I. Henriques and P. Sadorsky, The determinants of an environmentally responsive firm: an empirical approach, *Journal of Environmental Economics and Management*, 30, 381–395, (1996); I. Henriques and P. Sadorsky, The relationship between environmental commitment and managerial perceptions of stakeholder importance, *Academy of Management Journal*, 42(1), 87–99, (1999); C. Hutchinson, Integrating Environment Policy with Business Strategy, *Long Range Planning*, 29(1), 11–23, (1996); M.E. Porter and C. van der Linde, Green and competitive: ending the stalemate, *Harvard Business Review*, 73(5), 120–134, (1995); M.E. Porter and C. van der Linde, Towards a New Conception of the Environment-Competitiveness Relationship, *Journal of Economic Perspectives*, 9(4), Fall, 97–118, (1995a); A. Prakash, *Greening the Firm: the Politics of Corporate Environmentalism*, Cambridge University Press (2000); A.M. Rugman and A. Verbeke, Corporate Strategies and Environmental Regulations: an Organizing Framework, *Strategic Management Journal*, 19, 363–375, (1998); M.V. Russo and P.A. Fouts, A resource-based perspective on corporate environmental performance and profitability, *Academy of Management Journal*, 40(3), 534–559, (1997); P. Shrivastava, The Role of Corporations in Achieving Ecological Sustainability, *Academy of Management Review*, 20(4), 936–960, (1995); Walley and Whitehead.

The current state of knowledge

A review of the literature of corporate greening reveals a number of key issues and themes pertinent to this study. As Table 1 illustrates, considerable scholarly effort has been devoted to identifying the drivers of corporate ecological responsiveness and to debating the question of whether businesses can gain a commercial and/or competitive advantage through improved environmental behaviour.¹¹ In general the picture that emerges is one of environmental action motivated by a variety of influences within a company’s market and social domains, including considerations of business performance. For writers such as Porter, an organisation’s competitiveness derives from

a dynamic and innovative response to environmental issues that is encouraged by a supportive regulatory regime. For others, including Hart, sustained competitive advantage is likely to be rooted in developing environmentally orientated resources and capabilities which can simultaneously improve a company's economic performance.

Almost without exception the empirical evidence which underpins much of this literature is based on analytical studies of the attitudes and behaviour of larger organisations. In contrast, much of the work on smaller businesses and the environment has been descriptive and output-focused, concerning itself with issues such as awareness of environmental regulations, sources of advice and types of managerial response or with general attitudes to environmental action and regulations (see Table 2). As indicated above, questions of 'why' smaller companies respond in the way they do have gone largely unexplored, especially with respect to the role that competitive advantage might play in the development of business initiatives.

From the perspective of strategic choice theory, a key issue which remains to be examined is whether managers in SMEs see the environment as a business opportunity to be exploited and marshal their resources accordingly. In short, the greening of business represents an important strategic issue that is increasingly confronting corporate decision-makers in firms of all sizes.¹² Given differences in the structure, governance, scale, reach and resource base of large and small enterprises, it would be unwise to presume that findings in the general literature can be directly applied to the small company sector.

Research aims, focus and methodology

The primary aim of this study was to investigate the motivations that underpin the responses of screen-printers in the UK to the pressures to improve their environmental performance. The central

Table 2. Literature on SMEs and the Environment*

Indicative Authors	Key findings in the literature
Environment Agency (2002) Groundwork (1998) KPMG (1997) Petts et al (1999) Rutherford et al (2000)	SMEs often feel they have little/no impact on the environment Businesses tend to see environmental actions as a cost rather than a business opportunity Their focus tends to be on the shorter rather than the longer term SME actions are often driven by fear of prosecution SMEs see the environment as an important business issue but are often unaware of environmental legislation affecting their business There is a gap between the environmental attitudes and behaviour of small companies
Tilley (1999) Taylor et al (2003)	Despite positive environmental attitudes many SMEs have limited awareness of business issues relating to environmental management The positive culture in small companies towards the importance of compliance differs from the operational climate of many SMEs. Accordingly many SMEs are 'vulnerably compliant'

* Environment Agency, *NetRegs Benchmarking Survey 2002*, available at www.environment-agency.gov.uk (accessed 27/1/03); Groundwork, *Small firms and the Environment Report*, Birmingham, Groundwork UK (1998); KPMG, *The Environmental Challenge and Small and Medium Sized Enterprises in Europe*, The Hague, KPMG Consulting (1997); J.Petts, A. Herd, S. Gerrard and C. Home, The climate and culture of environmental compliance within SMEs, *Business Strategy and the Environment*, **8**, 14–30 (1999); R. Rutherford, R.A. Blackburn and L.J. Spence, Environmental Management and the small firm: An international comparison, *International Journal of Entrepreneurial Behaviour and Research*, **6**(6), 310–325 (2000); F. Tilley, The gap between the environmental attitudes and environmental behaviour of small firms, *Business Strategy and the Environment*, **8**, 238–248 (1999); N. Taylor, K.Barker and M.Simpson, Achieving 'sustainable business: a study of perceptions of environmental best practice by SMEs in South Yorkshire, *Environment and Planning C: Government and Policy*, **21**, 89–105 (2003).

research question focused on how far and under what circumstances SME environmental responses went beyond legislative compliance and reflected a strategic orientation on the part of managers that was designed to enhance their organisation's competitive advantage. In investigating this issue we also sought to identify possible barriers that might prevent SMEs from taking a strategic approach.

For the research we used a multi-stage investigatory process which focused initially on company-level awareness of environmental impact and legislative obligations, before moving on to examine what subsequent environmental actions SMEs had undertaken and the motivations underlying business environmental responses. In essence, the study utilised a conceptual framework linking ecological responsiveness to antecedent knowledge, perceptions and motivations at the company level (see [Figure 1](#)). These were key themes which emerged from prior discussions with industry and environmental experts and from an examination of the extant literature.

Given the dynamic and complex nature of the screen-printing environment, we adopted a hybrid research methodology as advocated by both Desphande and Harrigan, based on fine-grained qualitative approaches (e.g. case studies) and more coarse-grained, quantitative techniques (e.g. surveys).¹³ Such a methodology reflects a distinct tradition within the social sciences that recommends the use of multiple methods to provide for the triangulation of research findings.¹⁴

Information on the different stages of the research process is contained in [Appendix 1](#). Given our concern to provide an overall picture of behaviour and motivations among the sample companies, we decided to undertake the quantitative research first and to use this to identify suitable case study material. The initial data for the survey were gathered by a pre-tested postal questionnaire sent to a sample of 200 SMEs defined as having fewer than 500 employees in keeping with EU operational definitions at the time of the survey.¹⁵ As initial evidence had indicated that companies with fewer than 25 employees were less likely to be able to commit resources to environmental improvements these were excluded from the sample. Details of the sample size, structure and response rate, together with key questions used in the survey, can be found in [Appendix 2](#) and [Appendix 3](#).

The accompanying case data were gathered through semi-structured interviews with a sub-set of five companies that had been identified through the postal survey as particularly environmentally active in that they had sought accreditation to an external environmental standard. The taped interviews – each of which lasted about three hours – were transcribed and analysed to provide an insight into the attitudinal and behavioural dimensions of the 'exemplar' companies. Classification and codification of related documents and supportive materials (e.g. environmental policy statements) was also carried out at this stage.

Research findings

The postal survey generated 65 (33 per cent) usable responses from a sample of 200 companies (see [Appendix 2](#)). To verify that companies with enhanced environmental performance were not the

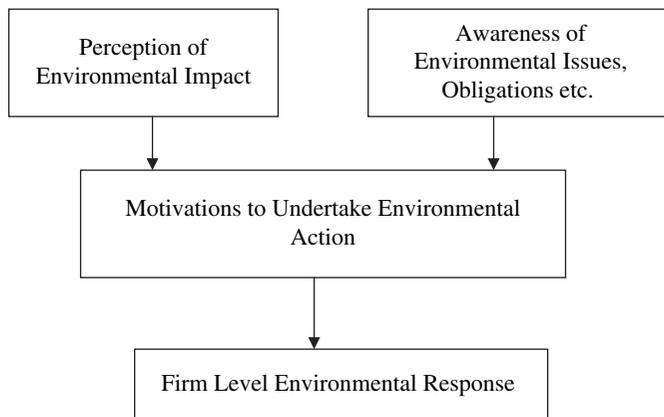


Figure 1. Conceptual Framework

only participants, we examined the answers to one of the questions regarding environmental actions undertaken. We observed no significant bias in the pattern of response. We also monitored respondents by company size and sub-sector to confirm that our data represented an acceptable cross-section of views in the screen printing industry.

Respondents to the survey occupied senior roles within their organisations and were able to make informed comments on the company's environmental attitudes and how these related to the overall strategic approach of the business. In order to examine in more detail the findings from the questionnaire, the sample data were divided into two groups based on company size. Previous research had suggested that this was likely to be a key influence on environmental responses at company level.¹⁶ Companies in cohort 1 were those with fewer than 100 employees, while those in cohort 2 had between 100 and 500 employees, reflecting the contemporary definition of the division between small and medium-sized enterprises. Conveniently the number of companies in each cohort was almost identical: 33 in cohort 1 and 32 in cohort 2.

An outline of the main research findings from the quantitative survey is shown in Table 3. Summary data based on a chi-square test of the relationship between company size and a range of other variables can be found in Table 4. The overall picture that emerges from the survey data is that SMEs in the screen-printing sector accept that they have a negative environmental impact and appear generally aware of environmental issues, obligations and responsibilities, although levels of perception and knowledge tend to vary with company size. In responding to this situation the larger companies frequently pursued a range of environmental actions often beyond those required by legislation, while smaller companies tended to be largely compliance-driven. For the latter in particular, the main barriers to enhanced environmental performance included the question of perceived costs against benefits, a lack of time and financial resources and a tendency to focus on day-to-day issues.

While some companies were able to identify potential gains from going beyond compliance, these were almost invariably couched in operational rather than strategic terms. The data reveal few, if any, examples of new products developed, new markets exploited or new custom created because of environmental improvements; nor was there any significant indication of managers anticipating future threats and opportunities, engaging in sound strategic analysis, setting strategic objectives for environmental behaviour and marshalling resources accordingly. In short, for the vast majority of companies compliance does not appear to have encouraged the type of innovative behaviour that could provide them with a competitive advantage, whether through 'positioning' (e.g. cost leadership, differentiation or focus) or through the development of 'distinctive organisational competences'.

Compliance does not appear to have encouraged the type of innovative behaviour that could provide a competitive advantage

Details of the case study respondents are contained in Table 5. The findings to emerge from the qualitative research help to support and enhance the information derived from the larger survey and provide insights into the context and process of decision-making among the more environmentally active companies. They show that for most, if not all, the sample organisations compliance with legislation formed the baseline for corporate action and that formulating and implementing responses beyond this point was influenced by a range of factors including the predisposition of management, employee involvement and experience with quality systems. Of these, the one common factor was the active support of senior management in committing time and corporate resources to the development of environmental initiatives, albeit within a framework of corporate agendas which ranged from seeking further competitive advantage by extending quality/environmental management to pursuing environmental action to gain both operational advantages and an enhanced public image (see Exhibit in the Appendix).

While the study did not set out to link specific environmental responses to managerial motivations, the case material indicates that the decision to pursue environmental accreditation was closely linked

Table 3. Summary of survey findings

Perception of environmental impact	<p>The majority of SMEs recognised they had a negative impact on the environment</p> <p>All respondents were able to specify particular types of negative impact for their organisations</p> <p>Companies in cohort 2 were more likely to accept that they had a wider variety of impacts than those in cohort 1</p>
Environmental awareness	<p>Respondents claimed a high level of awareness of environmental issues and responsibilities</p> <p>Many companies relied primarily on their trade association and/or suppliers for information on environmental issues</p>
Environmental responses	<p>Environmental responses by companies took a number of forms including changes in management approach and/or organisational systems, the use of an environmental audit and the development of an environmental policy</p> <p>Such responses were far more prevalent among companies in cohort 2 than cohort 1</p> <p>Most actions were subject to internal rather than external verification</p> <p>Only a few companies in cohort 2 and none in cohort 1 had purchased new capital equipment or achieved an externally accredited environmental standard</p>
Forces driving environmental response	<p>A majority of companies accepted that environmental action could bring commercial benefits at an operational level</p> <p>Cohort 1 companies saw little relationship between profit and environmental action whereas cohort 2 believed the two were interrelated</p> <p>Cohort 1 companies claimed that compliance was their primary aim; cohort 2 said they were prepared to go beyond compliance</p> <p>There was some recognition by cohort 2 that customer pressure could drive future behaviour but no real evidence of supply chain influences</p> <p>There was no evidence that companies had been proactive in identifying market opportunities or in developing market niches</p> <p>Barriers to further environmental action included considerations of time, resources, priorities, perception of costs versus benefits and short-term focus</p> <p>There was evidence that some companies in cohort 2 saw a link between environmental and quality standards</p>

to the beneficial experiences respondent companies had gained in implementing quality systems. Data provided by the survey also adds weight to this conclusion, with 86 per cent of companies who already held a quality standard agreeing that the successful implementation of such a standard had been or would be an important factor in the decision to seek environmental accreditation.

The question whether strategic intent was a driver of improved corporate ecological responsiveness was limited in the cases studied. Although all respondents identified potential benefits from implementing environmental initiatives, none appears to have sought truly innovative ways of eliminating environmental damage at source or developing capabilities that would allow it to take advantage of being the first mover in the sector. The very limited take-up of water-based inks, for example, illustrates the conservative view which the majority of businesses – including the exemplar companies – took of the process of environmental change.

Table 4. Summary Data

Variable	Company Size
Company has impact on the environment	10.05**
Awareness of BS 7750 or ISO 14000	12.08***
Change in percentage of respondent resources devoted to environmental performance issues	12.20**
The company only takes action to meet legislation	7.33**
Compliance with current legislation was a benefit	11.46***
Environmental issues affect the profitability of the business	13.48***
Environmental action had saved money	18.84***
Environmental action had reduced levels of waste	15.60***
There is a clear relationship between TQM and environmental management	8.02**
Training to develop the quality initiative is also used to develop the environmental initiative	15.83***

*** = 0.001; ** = 0.01.

Discussion

This study of SMEs in the UK screen-printing industry has provided important insights into the links between environmental attitudes, behaviour and motivations within the small company sector. In addition to providing the first empirical investigation of the role of strategic choice in shaping SME environmental responses, the research highlights the link between company size and

Table 5. Summary of case respondents

Company	Legal status	No. of staff	Location	Position of interviewee	Current accreditation	External verification	Management stance on environmental action
A	Private limited company	73	South East	Founder and Quality and Environmental Manager	ISO 9002 ISO14001 EMAS IIP	Yes	As a means to further competitive advantage through an extension of quality/environmental management
B	Private limited company	65	South East	Founder	ISO 9002 ISO14001 EMAS	Yes	As the right thing to do but unsustainable without the development of a market niche
C	Private limited company	185	Midlands	Managing Director and Health and Safety Manager	ISO9001 ISO14001	No	As a barrier to entry for current and future rivals
D	Public limited company	425	East Anglia	Production Manager	ISO9001 ISO14001 IIP	No	As providing scale advantages through the integration of quality and environmental issues and of avoiding adverse publicity
E	Division of large corporation	500	South East and West Midlands	Environmental Manager	ISO 9002 ISO14001 EMAS IIP	Yes	As a necessity that offered some operational advantages and as a public relations consideration

environmental attitudes and behaviour and enriches our understanding of the complexity of factors influencing the environmental actions of smaller enterprises. It also confirms the central role of regulation in shaping the ecological responses of small companies.¹⁷

The research highlights the link between company size and environmental attitudes and behaviour

In summary, the evidence suggests that while respondent SMEs largely accepted that they had an adverse effect on the natural environment and recognised that there could be commercial benefit in taking action to address such an impact, their responses tended to be driven by – and frequently limited to – legislative compliance. This response was particularly prevalent among smaller businesses, the majority of which regarded the advantages of environmental improvement to be outweighed by the costs and cited financial barriers as a major constraint on corporate action.

While the findings show that bigger companies are more likely to go beyond compliance measures, there was very little evidence to suggest that environmental responses were motivated primarily by a desire on the part of a company's senior management to exploit opportunities that would give the business a competitive edge. Examples of innovatory responses, market development, product differentiation and cost competitiveness were rare among the respondent companies which tended to focus mainly on the operational rather than the strategic level. Even where it was accepted that increased environmental performance could provide operational benefits, few companies had established objectives that could be monitored and measured or had set in place techniques for evaluating the impact such actions had on costs, resource utilisation, output of waste and overall operational efficiency. Without such information it is difficult to see how companies can undertake an appraisal of resource investments, using for example discounted cash flow techniques.

An examination of key stakeholder relationships helps to reinforce this picture of a lack of strategic intent by the majority of sample firms. Thus while both consumers and suppliers were recognised as exercising some influence on environmental behaviour, there was little indication of any attempt to exploit new opportunities through environmentalism or to build collaborative relationships along the supply chain in order to develop innovative products or markets. Similarly, while many companies claimed a knowledge of competitor responses and industry norms, there was virtually no evidence that the actions of rivals had influenced or would influence an individual company's environmental actions beyond regulatory compliance.

How can we evaluate this tendency towards a reactive and non-strategic approach to the environmental challenge by the overwhelming majority of small screen-printers?

Viewed from a voluntaristic perspective, it can be argued that the relative failure of SMEs to behave strategically in the face of a changing external environment represents a missed opportunity to gain a competitive advantage through superior ecological performance: in effect a sub-optimal solution.¹⁸ Evidence drawn from a range of studies indicates that such an advantage could derive from a variety of sources including improvements in resource productivity and process efficiency, reduced input costs, opportunities for green differentiation and the development of rent-earning company-based resources such as improved quality and corporate reputation.¹⁹ Examples pertinent to this study are discussed in the section below.

If we adopt a more deterministic orientation, then it could be suggested that a strategy of legislative compliance represents a less risky alternative for the majority of smaller businesses, many of whom were more immediately concerned with short-term survival and who defined competitive advantage in terms of price, product quality and speed of response. In short, for many businesses a tendency towards 'isomorphism' might have appeared a safer and more attractive option. As Bansal and Roth have noted, an imitative strategic posture appears consistent with a corporate

ecological response based on an underlying motive of ‘legitimation’, where company survival is linked to compliance with norms and regulations.

This latter line of reasoning gains added value if one adopts a broader definition of ‘compliance’ to include the idea of responding to market and social pressures as well as to legislative requirements.²⁰ The very fact that the majority of SMEs did not appear to have experienced significant demands either from the market or society concerning their environmental performance probably encouraged a cautious approach towards environmental action, especially among the smaller companies. It is perhaps not surprising that for many businesses compliance with legislative demands was regarded as the price that had to be paid for business continuity, rather than as the springboard for developing a competitive advantage.

For many businesses, compliance with legislative demands was regarded as the price that had to be paid for business continuity

Management issues

Despite being cross-sectional in approach and limited to one sub-sector of the UK economy, we believe that this study raises some generic issues. These issues are summarised in [Tables 6 to 8](#). In making our observations we recognise that not all small companies have the same goals, predispositions or capacities and that for some a reactive approach to environmental demands may appear a sensible – though not risk-free – strategic option. Rather, our stance is that a business driven simply by compliance will tend to focus on environmental problems (and their solutions) as short-term operational considerations and consequently is not likely to use its environmental practices to gain a competitive advantage over its rivals.²¹

If we concentrate on the managerial issues presented in [Table 6](#) we can see that the key question emerging from this the research is whether a cautious approach to environmental action has been and/or will continue to be an appropriate strategy in the context of a changing and increasingly competitive business environment. Studies from a range of industries and sectors suggest that the

Table 6. Lessons from the study

Issues for managers

Given the relatively cautious approach of most small businesses to environmental action, an entrepreneurial and innovative environmental response could provide a company with an opportunity to gain a competitive advantage over its rivals. The strategic and environmental management literature indicate that such a position could derive from both demand and supply side developments including opportunities for product differentiation, cost leadership, the exploitation of a niche market and/or the development of distinct organisational competencies.

A cautious approach to environmental action could equally represent an increased threat to a business as the external demands (e.g. from legislators, the market, society) for environmental performance grow more significant. Companies responding strategically are likely to reduce the future costs of compliance and gain a time advantage over competitors by being ahead of future legislative and/or market demands. Where such imperatives result in changes in an industry’s competitive structure (e.g. through consolidation), being ahead of one’s rivals could be an important determinant of long-term prosperity and survival.

Companies have opportunities to develop congruity between environmental and economic performance by establishing links between quality and environmental actions. According to Porter, pollution (like defects) can be seen to represent a flaw in product design or the production process. Efforts to eliminate pollution can therefore follow the same basic principles used in quality programmes.

Table 7. Lessons from the study

Issues for researchers

The internal and external triggers of environmental behaviour within the SME community are worthy of further investigation by academics. A longitudinal study, possibly using ethnographic techniques, could prove informative.

Applying concepts, frameworks and models from the strategy and management literature (e.g. strategic choice) to an investigation of small company environmental behaviour can add value to our understanding of managerial motivations. Other approaches which recommend themselves include resource dependency theory and institutionalism.

Opportunities exist to examine whether there are differences in the degree to which the 'win-win' hypothesis has penetrated the small business community by company size, sector and location. A cross-cultural study would be particularly interesting.

answer to this is probably 'no'. While we accept that no strategic position – including proactivity – is entirely free of risk, growing expectations of environmental performance by legislators and other stakeholder groups (including larger corporate customers) seems destined to ensure that the environment will become a strategic issue for businesses of all sizes and one which will impact upon competitiveness. To paraphrase Porter, in the future managers will need to see environmental improvement as an economic and competitive opportunity rather than as an inevitable threat or cost to the business; those who see the opportunity first (i.e. 'early movers') and who embrace innovative solutions are likely to reap major competitive benefits.

In the context of this study we believe there are a number of initiatives which could offer tangible benefits to companies which are prepared to respond creatively to the growing environmental challenge. These are summarised in Table 9. The analysis illustrates that opportunities exist on both the product and process side for improving a company's eco-efficiency and for enhancing its market position and its relationship with key stakeholder groups. For example, environmentally friendly inks would help to reduce a company's compliance costs and allow it to differentiate its product on the basis of environmental performance, thereby helping it to exploit markets that demand higher environmental standards.²² Similarly, businesses which work more closely and

Table 8. Lessons from the study

Issues for policy makers

While regulation is an important tool for encouraging environmental action at company level, it may also help to encourage the development of a 'compliance mentality'.

The challenge for policy makers is to find ways of encouraging managers to adopt a more strategic orientation on green issues. A 'twin track' approach which helps to reduce the barriers to environmental action and increase the drivers is likely to provide the best option (Tilley).

A more proactive and innovative environmental response by SMEs could be encouraged by initiatives which help to increase market pressures (e.g. from customers and/or suppliers) on smaller businesses. Governments could contribute to such pressures both directly and indirectly, for example through their purchasing decisions.

Greater integration between quality and environmental management systems is likely to encourage more companies to go beyond compliance with environmental regulations.

Initiatives which focus on educating small company owner-managers of the commercial advantages of environmental action could encourage a more strategic response to environmental performance at company level.

Table 9. Opportunities to gain organisational benefit

Possible Initiatives	Potential Organisational Benefits
Introduction of water-based inks to reduce the polluting effect of the screen-printing process	Opportunities for product differentiation; improved access to new markets and customers; positive effect on regulatory compliance and on organisational image
Purchase of cleaning and recovery equipment to reduce solvent use and to reduce/recover chemicals	Improved efficiency; longer-term reduction in costs; positive effect on regulatory compliance and on employee morale
Building collaborative links with suppliers to identify opportunities to remove/reduce the use of hazardous materials from the production process	Increased opportunities for materials substitution; reduced risks of pollution incidents; enhanced image with the public, regulators, investors, insurers; positive effect on regulatory compliance

collaboratively with suppliers on issues of environmental management are more likely to be able to identify opportunities for reducing pollution (e.g. through material substitution) and this would have positive benefits both internally and externally for the organisation.

Given the barriers to environmental action previously referred to, how can managers be persuaded to adopt a more positive mindset in responding to the growing demands for enhanced environmental performance?

The answer we believe lies in a combination of increased external pressures (see Table 8) and in raising small company awareness of the potential commercial and competitive benefits of a more innovative response. As far as the latter is concerned, evidence from the case studies suggests that owners and senior managers of smaller businesses are more likely to see the advantages of environmentalism if they perceive it to be an integral part of the quality debate, particularly if this idea is reinforced along the supply chain. Government and/or industry-based schemes which promote this message and seek to integrate issues of environmental performance with those of quality, could prove instrumental in changing managerial perceptions and responses within the small company sector.

Concluding remarks

We began this paper by observing that little was known about the extent to which small company environmental behaviour had a strategic dimension and whether managers in small businesses see the environment as a potential source of competitive advantage. The evidence we have presented in this article sheds light on both these issues. In summary, the environmental behaviour of small companies in the UK screen-printing sector does not generally indicate a strategic intent on the part of managers to use environmental performance as a means of gaining a competitive advantage. For many smaller businesses the environment tends to be seen primarily as a cost imposed on the organisation by the regulatory authorities, rather than as a value-adding activity. Such a view highlights the limited extent to which notions of ‘win-win’ appear to have penetrated small company managerial culture within an industrial sector known to have an adverse environmental impact. It also underlines the considerable challenge facing policy-makers seeking to promote ecological modernisation.

While a cautious approach to environmental action can be construed as a less risky option, it could equally be presented as a missed ‘opportunity’ and/or potential ‘threat’ in a changing external context. Given the expectation in the small business community that the burden of environmental

regulation and other pressures will increase in the future, we believe it could be advantageous for managers to establish strategic intent by moving away from a focus on regulatory compliance and towards a position where enhanced environmental action becomes part of the company's competitive profile. Such a mindset might be achieved by encouraging managers to see environmental response as an integral part of the quality debate and as a contributor to the organisation's value-adding activities.

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Appendix 1. The research process

Stage 1: Literature review to generate initial areas for discussion with contributing parties.

Stage 2: Semi-structured interviews with industry representatives, industry federations and Environment Agency to establish research focus and propositions. Results of discussions cross-checked with interviewees prior to design of questionnaire. Design of sampling frame.

Stage 3: Piloting of questionnaire, revision and fine-tuning.

Stage 4: Postal questionnaire sent to sample companies with covering letter and self-addressed envelope. Reminder letters sent within one month of the initial posting.

Stage 5: Input and analysis of survey data. Identification of case study companies.

Stage 6: Design and delivery of case study interviews involving use of semi-structured questionnaire to validate survey findings and to probe into origins and motivations of environmental management practices, including drivers of organisational response. Taped interviews were transcribed and examined for emerging themes; these included degree of management commitment, role of legislation and links with quality.

Stage 7: Analysis of case material and supporting evidence.

Appendix 2. The sample size, structure and response rate

Following considerable investigation of alternative sources of information, the sample companies were drawn from a commercial database which at the time of the survey was the most appropriate source for this sector of the printing industry. This database contained the details of around 2,000 companies segmented by location, organisational size and industrial sub-sector. The decision to omit companies with fewer than 25 employees reduced the number of qualifying companies in the sample frame but it was still possible to select, on a random basis, 200 businesses that represented a cross-section by size and activity. The sample was divided into three sub-sectors to reflect the industry's three main activities. The number of companies allocated to each of the three sub-sectors was based on the percentages employed in those sub-sectors, according to information provided by the Screen Printing Association. For each sub-sector, this number was then segmented by company size so as to achieve a reasonably representative sample of small and medium-sized organisations.

From the 200 questionnaires mailed to screen-printing companies 65 usable responses were received, a creditable response rate of 33 per cent. To contribute to the reliability and validity of the findings we used industry and environmental experts in the development and pilot testing phases of the questionnaire as well as employing a multi-method approach. While the research was not able to take account of non-response, it did employ a range of response-building techniques including a second mail out. Careful monitoring of respondents by company size and sub sector indicated that we achieved an acceptable cross-section of views.

Appendix 3. Key questions from the survey

The survey contained open and closed questions, a number of which used ranking techniques. The following four examples illustrate some of the key issues raised by the questionnaire.

1. Respondents were asked to rank the extent of their agreement/disagreement with the following statements (ranging from strongly agree to strongly disagree)
 - ◆ My firm does not have an impact on the environment
 - ◆ There is currently no commercial benefit to my firm in having an environmental policy
 - ◆ We only take action to meet legislation
 - ◆ Suppliers are pushing the environmental message down the supply chain
 - ◆ Customers are becoming more aware of environmental matters and some product switching is occurring
 - ◆ There is a clear relationship between total quality management and environmental management

2. Has your firm, over the last five years, introduced a change in managerial approach, process procedures or capital equipment that could be said to have improved its environmental performance? Please tick as appropriate.

Type of change	Yes	No
Change in managerial approach		
Change in organisational systems		
Installation of new capital equipment		

3. What influenced you to change procedures or install new equipment at the time? Please circle as appropriate.
 - ◆ To meet legislation
 - ◆ To reduce costs
 - ◆ To improve image among customers
 - ◆ The actions of suppliers
 - ◆ To reduce waste
 - ◆ External advice etc.

4. How would you rate the importance of the following factors in encouraging the improved environmental performance of your firm? Please rank on a scale of 1 to 5, where 1 = very important and 5 = not at all important.
 - ◆ Long term financial benefits
 - ◆ Short term financial benefits
 - ◆ Legislative compliance
 - ◆ Customer pressure
 - ◆ Suppliers initiatives
 - ◆ Market position and market share etc

Exhibit

Firm A was established in the South East of England in the 1950s. It specialises in the printing of large format advertising posters, bus side and bus shelter advertising panels and point of sale display work. At the time of the survey it employed 73 people, had an annual turnover of £3.5m and its performance was above average for the sector.

The company recognised that its processes had an adverse impact on the environment and appointed the individual responsible for the introduction of the quality standard, ISO 9002, to oversee the process of environmental accreditation via certification under ISO14001 and the EU's Environmental Management and Audit Scheme (EMAS). Following the introduction of these environmental standards a number of initiatives were undertaken including the purchase of new equipment, changes in raw materials and the development of staff awareness and training. As a consequence, the company's emissions of Volatile Organic Chemicals (VOCs) was reduced substantially below the existing regulatory standard, materials usage fell, existing materials were used more efficiently and waste was reduced. Auditing and monitoring of other environmental impacts also indicated improved environmental performance in areas such as waste discharge, energy consumption and carbon emissions.

For the owner-manager of the business the issue of 'quality' and 'environmental performance go hand-in-hand and represent a critical concern in an increasingly competitive environment. The company's annual report says:

"Our vision is for the company to be one of Europe's leading screen process printers, utilising the latest innovations in technology, environmental control and the expertise of our people to enable us to offer our customers the highest quality work in the most efficient and cost effective manner".

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Biographies

Dr Ian Worthington is a Principal Lecturer in the Department of Strategy and Management, Leicester Business School, De Montfort University, Leicester, where he specialises in Greening Business and the External Context of Management. His research focuses on environmental issues and he has published in a variety of environmental and policy journals. He is also co-author of a number of books on business topics, including *The Business Environment*, now in its 4th edition.

Dr Dean Patton is a Senior Enterprise Fellow in the Institute for Enterprise at the University of Southampton. He specialises in strategy, small businesses and environmental issues and has considerable research and consultancy experience. He has published widely in a range of business and environmental journals.