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Environmental Standards, Management Systems and the Illusion of Progress

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Abstract: This paper aims to specify the conceptual and operational limits of codified environmental management systems (EMSs). Taking technical standardization as a departure-point, it is argued that key shortcomings regarding the contribution of EMSs towards environmental performance improvement (and thus ecological sustainability) can be identified: First, there are limitations to the self-regulatory framework adopted by organizations. Second, there are problems inherent within the development of EMS from prior management systems approaches, mostly based on a narrow and limited definition of quality. Third, there are errors of implementation and associated certification which compound a lack of progress in environmental improvement and progress towards sustainability. The implications of these limitations are presented and it is demonstrated that they are compounded by an appearance of progress, when in reality, little is changing. The authors point out that this failure of system based self-regulation argues for a move to performance based regime, driven if necessary by regulation.

Keywords: *Environmental management systems, EMS, ISO14001, EMAS, sustainability, performance improvement.*

1. Introduction

The first commercial SMS (text) message was sent over the Vodaphone mobile phone network in 1992. Fifteen years later, the Mobile Data Association announced figures that indicated that an average of 1.2 billion text messages are now being sent every week in the UK alone. It appears on this basis that businesses and the general public are not shy of change, either socially or technologically.

However, in that same period, while environmental management systems (EMS) have been codified, assessed and certified, environmental performance in the public and private sector has continued to create significant ecological damage. Ubiquity alone (a quality shared by SMS texts and EMSs) is thus no guarantee of effectiveness. On this basis alone, it appears that Management Systems standards like ISO 14001 [1] and EMAS [2] are part of the problem and not the solution. If the introduction of EMSs was a solution, there would be more evidence that environmental performance improvement is impacting on ecological systems.

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If ISO 14001 in particular (and EMSs in general) is treated as though it were a solution when in reality its effect inadequately addresses the needs, then its presence becomes a problem in itself. Of course, it might not be the systems themselves, it might be that they are simply not being driven hard enough by the organisations that implement them. Or perhaps, organisations are only part of the answer, with a vast untapped opportunity for improvement residing in the hands of individual consumers and their behaviour. There is too little data available on either of these globally scoped questions, though they are often quoted by the industrial sector as a reason for the apparent lack of environmental improvement. However, despite this it is still possible to look critically at systems, standards, their development and their final contribution, all of which is much more closely documented.

Following an examination of the references and the author's own experience, it is the contention of this paper that management systems have real limitations that are not addressed by the current conceptual frameworks that support them.

EMSs have been around for nearly 18 years and are well taken up by organisations, with 'at least 129,199 certificates issued in 140 countries' [3]. The systems are adopted to help organisations make sense of environmental management within the context of individual businesses, irrespective of industrial sector. More recently, they have become a common administrative tool in the field of organisational responses to the sustainability agenda. Used as a framework for sustainable development activity, both ISO14001 and its European cousin EMAS, are very limited and do not in themselves speak directly of strategic planning for sustainability, nor of upstream solutions of problems at their source. Although both ISO14001 (and its supplementary guidance standard, ISO14004) and EMAS allude to the environmental component of sustainability in their prompting towards continual improvement. They however omit any direct references to the economic and social aspects of sustainability. It is our premise that confusion exists with respect to where and how these formal standards sit in relation to an increasingly complex array of tools and techniques to address sustainability issues.

A recent Chartered Institute for Personnel & Development study [4] concluded that the environmental performance of business is a 'mixed bag' and they could do more to help tackle climate change. The study highlighted that UK workplaces are making a 'real contribution' to the environment (but was not specific about what that means in reality nor how a 'real contribution' was being measured) but with quick and easy economic wins such as recycling and energy-saving schemes. However, far fewer take a green approach to more significant issues with wider social and economic impacts such as transport. Interestingly the report also found that 29% of organisations have changed their emergency planning procedures to take account of the impact of climate change.

Copious guidance publications exist to aid organisations implement 'the sustainability agenda' and many focus on the 'green' or environmental activity with limited challenging of organisations to address the holistic perspective that sustainability needs in practice. For example, following consultation sessions with 350 stakeholders, The Advisory Committee on Business and the Environment developed a "Briefing Paper for Directors" [5] to assist with the identification and prioritisation of sustainable development issues within companies. This briefing paper is firmly rooted in environmental management

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and seeks to develop the sustainability agenda from this perspective. Although we might argue it makes sense to build from the business reality, if sustainability is to really change business culture it needs to be much more than just a quick 'bolt on' to an EMS.

2. A short history of management systems standards

To understand how environmental management systems have developed and why they are like they are, we need to start with a wider perspective. The roots of management systems can be traced back to the early 1920's production quality control ideas, and particularly the concepts developed in Japan beginning in the late 1940's and 1950's, pioneered there by three Americans Feigenbum, Juran and Deming.

Three Japanese quality gurus, Kaoru Ishikawa, Genichi Taguchi, and Shigeo Shingo developed and extended the early American quality ideas and models. Japan's industrial system was virtually destroyed by the Second World War and in the early 1950's, quality management practices developed rapidly in Japanese plants to become a major theme in Japanese management philosophy. By 1960, quality control and management had become a national preoccupation.

Deming, one of the early pioneers, in Japan also encouraged a systematic approach to problem solving and promoted the widely known Plan, Do, Check, Act (PDCA) cycle (Figure 1). The PDCA cycle is also known as the 'Deming Cycle' [6]. It was in fact developed by a colleague of Deming, Dr Shewhart, a fact that Deming himself underlined by referring to it as 'the Shewart Cycle'.

Figure 1: The plan-do-check-act cycle

PDCA is a universal improvement methodology, the idea being to constantly improve, and thereby reduce the difference between the requirements of the customers and the performance of the process. The cycle is about learning and continuous improvement, learning what works and what does not and promoting change in a systemic way; and the cycle repeats; after one cycle is complete, another is started.

Plan what is needed
Do it
Check that it works
Act to correct any problems

The 'Deming Cycle' forms the hub of the formal management systems that emerged in the 1970's.

When the concept of producing technical standards that would define management systems first arose in the 1970s, the aim was to publish a document that would record all the landmark activities and functions that made for a successful system. The system would

in turn deliver the outcomes that its management had identified as a desirable series of objectives.

At the time of publication in 1979, British Standard BS 5750 was the world's first national standard on quality management systems, or indeed, any type of management system. It drew on 2 models that had already been in use both in the UK (the Ministry of Defence 05-20 series) as well as around the world in various forms, such as the US Mil-Q-9858a standard Quality Program Requirements. It provided a remarkably enduring model, and is still in use today as the international standard ISO 9000. However, the aegis of this standardized approach to quality management formed a departure point from the common understanding of the word 'quality'. The model enshrined in quality management systems standards was more about conformance with a given specification and consistently delivering against the same specification over a period of time. Whereas 'quality' had previously been a characteristic of the performance of a product experienced by the user, it becomes a minimum value defined by 'fitness for purpose' and a pre-agreed detailed specification. This has important implications for the whole management system approach as we shall see in Section 5.

Building from BS5750, an environmental standard was a logical if flawed evolution. Management systems could deliver performance improvement, but the definition of quality was narrowed considerably. As we shall see in the rest of this paper, a similar conceptual narrowing has happened at a number of key stages in the development of EMSs.

BS7750 was published In June 1992 as the world's first environmental management system standard. As an illustration of how close the two standards were originally conceived, during the development process, the initial drafting centred on attempts to create an annex to BS 5750/ISO 9000. The only reason that this idea was dropped was that it manifestly failed to address the full scope of organizational environmental impacts.

A January 1994 revised edition was superseded in September 1996 by the environmental equivalent of ISO 9000 and called ISO 14001: *Environmental management systems – specification with guidance for use*. This became the flagship standard in the 14000 series of guideline standards relating to environmental techniques. The two very different background drivers of change were the Uruguay round of the GATT negotiations [7] and the Rio Summit on the Environment held in 1992. While GATT concentrated on the need to reduce non-tariff barriers to trade, the Rio Summit generated a commitment to protection of the environment across the world and 'sustainable development' emerged as its key buzz phrase. The original definition: '*development that meets the needs of the present without compromising the ability of future generations to meet their own needs*' [8] now exists in scores of variants. Environmentalists fear that in the implementation of GATT, dispute-resolution panellists will be drawn from the international trade profession and so will automatically promote freedom of the marketplace over human health and environmental concerns [9].

In the early 1990's in a parallel EMS development at a European level, the European Commission had already begun drafting a regulation relating to the auditing of environmental performance for organization. The early drafts did not include references to management systems and concentrated instead on how to establish credible environmental performance reporting. However, with the development of voluntary technical standards in the area, the Commission shifted from the original focus on environmental performance and attempted to incorporate management systems into their original scheme. The result was a similar, but in many ways more prescriptive, voluntary scheme focused on the

publication of a statement of environmental performance and subsequent registration as part of the 'Eco Management and Audit Scheme' (EMAS).
ISO 14001 and EMAS have been paramount in providing a focus of activity in the development of environmental management systems. They have facilitated the development of external certification of systems, which ensures that the organizations claiming conformance with the standard or scheme have their claims verified. However, only EMAS registration verifies the actual level of performance attained by the organization.

3. Standards and their role in self-regulation.

Environmental management system models thus have their roots dangling in the growing medium of quality management. However, to consider this in isolation divorced from the wider historical context of self-regulation and standardization is to misunderstand the nature of the problem.

The process of technical standardization that began in the early 20th century had one aim in mind, namely the reduction of 'needless technical diversity'. Thus in 1901, one of the most significant achievements of the forerunner of the British Standards Institution (a committee formed by representatives from Institutions of Civil Engineers, Mechanical Engineers, Naval Architects and the Iron and Steel Institute) was the reduction of the number of tram track gauges from 75 to five, making it possible for manufacturers to compete more successfully with each other in terms of design and reducing the amount of waste through excessive differences in specifications. The savings were spectacular, amounting to some £1 million a year (the current equivalent using GDP measures would be £687 million).

Building on these early successes, the committee spawned further working groups and grew in size. The First World War is generally accepted as the first global conflict to have been fought in the age of technology. By the end of the war, munitions, weaponry and transport on land, sea and air had all gone through accelerated technological development. More than ever, engineers were held in high regard and favoured economically, politically and even socially. It is no co-incidence that the inter war years the earlier engineering committees became more systemized themselves. In 1929 they were brought together and renamed the British Engineering Standards Association (BESA) [10], winning special status by being granted a Royal Charter.

As technical standardization continued to be driven by economic need and the fear of war, the BESA (or BSI as it renamed itself a year later) thus found it necessary to re-organize itself in terms of the ever expanding workload. Having already published British Standard no.1, when it came to standardizing the standards making process itself, the document had to carry the number 'zero'. As a result, BS 0 'A Standard for Standards' still drives the standards making process in the UK, covering everything from forming a drafting committee through to standardized documentary layouts.

BS 0 has been revised continually throughout its life, as is normal with all technical documents, accordingly, the original aims of standardization have been broadened to include 'improvement in the quality of life'.

Though the history of national standards bodies may vary from this UK model, by and large the process of technical standardization has followed a remarkably similar pattern. As global trade and further economic links drove market patterns to change throughout the 20th century, so the need for regional and then international standards grew in line with the emergent 'global market'. By 1947, the International organization for

Standardization (ISO) was formed in Geneva, where it remains today, overseeing the development of international technical standards.

Although technical standards can be linked to statutory instruments and therefore support a regulatory regime, the process of creating standards can also be used politically for the purposes of heading off proposed legislation in favour of self regulation. Technical standards are created by technical committees, the membership of which is largely drawn from representatives in the appropriate industrial and regulatory sector. Once drafted, the document is then placed in the public arena as a 'Draft for Public Comment' so that other interested parties can comment on the contents in detail.

However, this process presupposes that there is enough relevant knowledge that exists outside the business sector affected in wider society. In the case of environmental management systems, this was by no means certain (see section 5 below) as there was not a large body of pre-existing practice to build upon. In addition, as we saw in Section 2 above, the regulatory moves undertaken by the European Commission appeared to be setting a legislative framework for detailed auditing of environmental performance.

Industry and commercial organizations often claim that progress along the road to sustainability requires all the actors and players to play their part. While this is fundamentally true, it is also functionally meaningless. It is still possible for any one sector (individuals, government, industry sectors etc) to take the initiative. The claim that 'we only supply what the customer wants' sounds perilously close to an abdication of responsibility and a negation of unilateral action. To put it another way, if all the players are in a lifeboat, does no-one pick up an oar until everyone does?

However, the conceptual constraints traditional economic models impose allow such thinking to thrive and continue to hold sway. It is no surprise that the Sustainable Development Commission entitled there recent study into sustainable consumption 'I Will if You Will' [11]. Current thinking about economic modelling allows self-interest to dictate actions to the exclusion of collective benefit. As a result, sustainability may have to become an issue of 'survivability' before unilateral action is considered.

Thus, from an organizational and free marketers point of view, a self regulatory framework that included a form of certification made possible by voluntary standards was much more preferable to an externally imposed (and much more detailed) mandatory regulatory regime. As subsequently proved to be the case, ISO 14001 proved an effective 'spoiler' for the development of meaningful performance oriented environmental auditing.

4. What happens to systems when management fails?

Numerous guidance documents exist to aid organisations in the implementation and management of their environmental management systems (EMS). At the time of writing Google throws up over 1.6 million references to 'Environmental Management Systems'. Almost all the authors carefully highlight the benefits of an EMS from a solely business perspective with limited acknowledgement of the really big thorny issues that begin to shift the focus closer to environment and away from the somewhat dreary and one dimensional world of economics.

For example, in its position paper on environmental management systems [12], the UK Government's Department of the Environment, Food and Rural Affairs (Defra) sets out the benefits of an EMS and the importance of a 'robust and credible system' to ensure positive environmental outcomes. It talks about how 'Properly implemented EMSs will

help with managing risks, liabilities and legal compliance' with almost no linkage to the wider issues of environment, social cohesion and equity that characterise sustainability.

Much of what we see on the ground in a standards driven EMS has its entire focus on alignment with managing risks, liabilities and legal compliance and very little else. The really challenging aspects tend to drop off the agenda at this point and, as finite resources are sucked in to address these purely market focussed drivers, often don't get back on. The 'measurement' part of the EMS then quite naturally focuses on ensuring that a really good job is done of managing risks, liabilities and legal compliance. It is no surprise then, that we have an impressive back catalogue of outstanding performance in this 'risks, liabilities and legal compliance' trinity.

Writing in the Royal Society for the encouragement of Arts, Manufactures & Commerce Journal [13], Simon Caulkin notes that management has chased itself obsessively up a blind alley of its own making. Pursuing their exclusive function of maximising shareholder value, companies will do everything in their power to externalise their costs on to customers, suppliers, employees and society as a whole, and vociferously lobby against any regulation which restricts their ability to make profits any way they can, usually on the grounds of competitiveness.

The systems theorist Russ Ackoff describes the trap as 'doing the wrong thing righter'. 'The righter we do the wrong thing,' he explains, 'the wronger we become. When we make a mistake doing the wrong thing and correct it, we become wronger. When we make a mistake doing the right thing and correct it, we become righter. Therefore, it is better to do the right thing wrong than the wrong thing right.' Most of our current problems are, he says, the result of policymakers and managers busting a gut to do the wrong thing right. [14]

Prakesh [15] indicates four types of environmental 'policy' in terms of organisational response to environmental management. (Table 1). He concludes that since type 3 and type 4 policies are required by law, organisations are de facto required to adopt them and since pollution represents resource waste, that businesses can increase profits by voluntarily reducing pollution.

Table 1: Policy responses to environmental management

Type	Characteristics
1	Beyond compliance, profitability can be assessed through investment appraisal procedures, and meet / exceed *ex ante* profit criteria
2	Beyond compliance, profitability cannot be assessed through investment appraisal procedures, therefore cannot be demonstrated to meet the ex ante profit criteria
3	Required by law, profitability can be assed through investment appraisal procedures, and meet or exceed the ex ante profit criteria
4	Required by law, profitability cannot be assessed through investment appraisal procedures, and therefore cannot be demonstrated to meet the ex ante profit criteria

ex ante: A term that refers to future events, such as future returns or prospects of a company. Using ex-ante analysis helps to give an idea of future movements in price or the future impact of a newly implemented policy.

Porter and van der Linde [16] suggest that much of what has happened in the somewhat static polarisation of society's desire for environmental protection and industrial economics reduces environmental improvement to an arm wrestling match. They hypothesize then demonstrate that the probability of registering for a certified EMS

increases when environmental demands of customers are present and that properly designed environmental standards can trigger innovation and these innovations may be partially or more than fully offset the costs of complying with them. In short, competitive advantage. They suggest we are still in a transition phase of industrial history where companies are still inexperienced in dealing creatively with environmental issues.

Neoclassical economics characterizes business as maximizing profits without sufficiently explaining how they actually did it. [17]. If it is a primary management objective to maximize profit then much of what we observe in the implementation of environmental management systems is only driven by this cornerstone of management. Baulch-Jones [18] argues that the evolution of an EMS in business is often rooted in quality management systems (QMS). An EMS requires two key things not found in a QMS, namely explicit 'top management commitment' and 'a scope and objectives based on what is deemed important'. If, not surprisingly, profitability is deemed most important, then an EMS does not establish absolute requirements for environmental performance or guarantee environmental outcomes beyond meeting internal needs to then deliver profit to shareholders or business owners. The procedures that flow from the policy seek to realize this embedded profit and so will be deemed successful when it is revealed through the monitoring and measuring that follow and are focused on the bottom line.

In essence then, there is no tension between EMS within the business and very limited progress towards wider environmental change. Indeed, in the author's experience an EMS is that it is often used in the short term to drive competitiveness as well as differentiating services in an ever crowded marketplace. Reinforcing this point, Christmann [19] found a positive correlation between cost advantage and financial performance and that only well run, already profitable firms can gain cost advantage from environmental strategies. If the implementation of the EMS is to do more than just 'add to the bottom line', then the drivers for change will almost always come from external pressures.

Prakesh suggests that organizations who adopt 'Type 2' policies which move the organization beyond compliance will do so in response to demand from key stakeholders. Without this external pressure, it is unlikely that organizations will have any incentive to move beyond compliance. The 'low hanging fruit' and 'quick wins' cited in numerous EMS implementation guidance publications tend always to be responses to the trinity of managing 'risks, liabilities and legal compliance'. In the author's extensive national and international experiences of working with organizations, they tend not to get beyond these drivers in their manifestation of environmental management practice. Indeed, in the absence of any tangible business benefits why would they? Prakash argues eloquently that if real progress is to be made in improving the environment condition and reducing pollution, environmental regulation of the future needs to move beyond limiting economic parameters and be justified on non-economic grounds as well.

In short, businesses are highly unlikely to get there on their own via an EMS because, despite a plethora of case histories and good practice examples, an organization cannot adequately demonstrate beforehand that an EMS will be profitable from their unique perspective. Uncertainty restricts EMS implementation and in the main organizations do things because they have to. Even exemplar case studies, which demonstrate clear benefits, can be rejected by businesses because 'they are not our case studies' [9]. Greater certainty is likely to encourage investment in any area, and framing environmental improvements in terms of resource productivity, or as Porter and van der Linde call it,

'efficiency and effectiveness' may help to bring about sustained change in business practice. Fortunately we are beginning to see this shift of perspective, for example the EU's Integrated Pollution, Prevention and Control (IPPC) Directive [20] sets out to prevent, reduce and 'as far as possible' eliminate pollution by giving priority to intervention at source and ensuring prudent management of natural resources, a clear shift from pollution control to resource productivity.

5. The specific limitations of management systems

We have already investigated the specific problems relating to management system standards development and their subsequent implementation by business oriented, free-market organizations. Their contribution to solving environmental problems worldwide is not proven but given the ten year horizon for change and the fifteen year history logged so far, the precautionary principle demands seeking other faster acting solutions.

However, there is a final area that requires some further examination; that of the generic application of management systems standards to the problems posed by seeking sustainability from product design, through use to eventual recycling.

In essence these problems can be given a series of headings. Management systems standards fail to make a significant contribution to achieving the desired results when:

- codified in advance of practice
- applied to the wrong subject
- used to drive innovation
- used at an inappropriate organizational level
- harnessed to the status anxiety of individuals
- driving legal compliance

Taking the points in order produces a catalogue of inherently flawed conceptual development, each compounding the mistakes of the one before.

5.1 Codified in advance of practice

There is no doubt that, prior to the development of BS 7750, a systematized approach to environmental management did not exist. This, however, is not to say that the required technical disciplines were not already developed to a sufficient level, merely that they had not been brought together in a single cohesive structure. Ecologists, designers, engineers with a specialist background in environmental impacts, chemists, biologists, planners and others were already contributing to the management of activities, products and services that produced adverse impacts on the environment. This fact is readily acknowledged by standards makers who often refer to ISO 14001 as an 'umbrella standard' bringing together specialist techniques enshrined in further technical standards in the 14000 series.

However, as this article has already posited, the very ethos of standardization is the avoidance of technical diversity rather than the fostering of understanding of the need for or even desirability of such diversity. As a result, a single specification, created in advance of any observable practice not only drives future agendas, but creates a conceptual obstacle, making alternative approaches doubly difficult to gain acceptance, or even, in practice, to be conceived.

In order to standardize an approach or series of specifications most effectively, there has to be activity, product or service available to observe in the first place. This enables committees to construct the most effective standard by combining the most efficient parts of each approach. By definition then, the development of environmental management

system standards in advance of much practice, let alone best practice, was bound to be based on theoretical concepts rather than any empirical evidence
provide the mental framework for all subsequent development

For example the foreword of ISO 14031 [21] indicates that this guidance standard was written as an alternative approach to the management of environmental impacts by organizations. However, this approach did not attract certification bodies, government agencies and business associations as it did not immediately present a framework that could be self regulating and externally verified.

Instead of allowing or promoting the use continual improvement by focusing directly on environmental performance evaluation, organizations were instead encouraged to focus all their energies and attention on how they were managing these 'aspects', spending less time focusing on the actual impacts themselves. If this were a 'safe driving' campaign, it would thus be the equivalent of focusing on giving a certificate of roadworthiness to the vehicle, instead of training individual drivers. The focus becomes one of context and less of performance.

5.2 Applied to an inappropriate subject

Environmental management as a phrase is misleading. It is not the environment that is being managed, but human activities products and services that give rise to adverse impacts on the environment. As it is centred on activities and the outputs of those activities, it follows that managing (as a process) should be the focus of the systems.

However, what prompted and continues to drive the nature and scale of our current series of activities has not simply been defined by an absence of consideration of the environmental dimension of our world. It has been the presence and use of particular economic models of resource utilization interwoven with and concretized by technological development.

Managing such activities without investigating the potential for change in these other spheres makes such an approach at best an 'end of pipe' solution. The principle of 'continual improvement' does not lend itself to a re-examination as to the context of activities, simply the improvement of the activities themselves. The approach thus supports and deepens Ackoff's contention that management is engaged in 'doing the wrong things righter'.

In this way, the environment is not an appropriate subject for a management systems approach. It encourages organizations to design management tools that support their current operations, but only with a view to incremental change and in line with their economic aspirations. It is therefore dogged by the same limitations as the 'quality as consistency' concept; the baseline of performance is decided by the market not by the needs of the environment, the supposed subject of the activity.

Even more worryingly, the management systems model is now being applied in the same way to the subject of sustainability. Sustainability is a characteristic of action, a description that cannot be applied with certainty until that action is completed. To quote Jonathan Porritt, the Chairman of the UK Sustainable Development Commission, 'Something is either sustainable or it isn't.' This widely accepted definition implies that there is no middle ground in terms of identifying whether the state of sustainability is present or not and therefore no way of grading progress towards the ultimately desired state.

Yet management systems are often preferred by organizations precisely because they represent ways of taking incremental steps towards a specified ultimate goal. As

Broadhead has pointed out [22], incremental modes of thought and problem solving environmental issues at the appropriate level are not a recipe for success.
Incremental steps pre-suppose an extended time available for their application. As soon as the time element becomes truncated, the steps are perforce larger. When time becomes truncated enough, incremental steps are forced to merge into one large watershed of change in which individual steps are no longer discernable. Functionally, incrementalism has disappeared.

Given the two opposing operational modes of both sustainability and organizations it is hard to see how one can be achieved by the other.

5.3 Used to Drive Innovation

Byrd and Lockwood Brown [23] use a dictionary definition in their study of innovation, individuals and organizations. 'The act of introducing something new' is taken further by the authors and developed into two basic elements; that of risk – taking and creativity. They then posit the idea that the definition can be rendered as a simple equation,

Innovation = risk-taking x creativity

Interestingly, the authors go on to look at the enemies of innovation within organizations, and attempt to identify what qualities are required by individuals in order to innovate effectively. These qualities or organizational drivers are variously labelled as: ambiguity, independence, inner directed, uniqueness, authenticity, resilience and self acceptance

One of their least surprising conclusions is that organizations not fostering these qualities innovators are themselves not innovative.

Yet one of the most frequently voiced criticisms of management systems is that they are too bureaucratic, a characteristic not known to promote creativity or innovation. Foster and Kaplan [24] expand this idea when they state that 'Corporate control systems limit creativity through their dependence on convergent thinking. Convergent thinking focuses on clear problems and provides well known solutions quickly. It thrives on focus'. Hamel and Prahalad go even further [25]. 'Most companies long ago reached the point of diminishing returns in their incremental improvement programmes'. Even Einstein [26] is quoted as saying that "Innovation is not the product of logical thought, even though the final product is tied to a logical structure"

But is innovation needed in the environmental arena? Given the size and complexity of environmental problems, the acceleration of cumulative environmental consequences of human induced change and the increasingly strident appeals by scientists to politicians for urgent action and innovation typified by the Bali UN Conference on Climate Change, the act of introducing something new would need to be carried out on a global scale and within a ten year time horizon. Reliance on incremental change (and thus management systems that rely on such a slow rate of change) appears to be a wholly inadequate response to the nature of the challenge.

5.4 Used at the inappropriate organizational level

Part of ISO 14001 requires that the top management of an organization undertake a Management Review. This should consider the organization's management system in order to, among other things, 'ensure its continuing suitability, adequacy and effectiveness'. However, there is a marked preference for top management to put environment at the same level of operational management as health and safety or quality,

two management disciplines known more for their risk averse approach than their strategic value.

The overall quality of Management Reviews can thus either drive the environment into the arena of strategic business decision making, or can keep it solely at an operational level, to be applied only after strategic matters have already been decided. Given the limitations of organizations already identified in Section 4 Above, it is no surprise that economic necessities take precedence within business decision making parameters. Environmental concerns are thus applied post hoc to pre-existing strategies.

Most importantly, this problem is allowed to persist not because the appropriate mechanism within the structure of ISO 14001 doesn't exist, but because it is not being used effectively. The responsibility for this has to be borne, in the first instance, by the organization's top management. However, certification bodies engaged in the external assessment of the organization for conformance to the standard also obviously find such a situation acceptable. There has been no diminution of the rate of ISO 14001 certificates issued despite the evidence that management reviews remain largely ineffective.

5.5 Harnessed to the 'status anxiety' of individuals

Twitchell [27] is not the first to have stated that our society is 'not materialistic enough', but he is one of the first to give the idea a working social context. Essentially, 'materialism is a concept that applies to the external world around an individual, rather than the inner life. Although materialism is blamed for much of the environmental damage that we are now observing, if society were truly materialistic, then objects would be simply objects in themselves. Our major social pre-occupation is that the objects confer some kind of intangible status and that is thus not the material but the immaterial world that drives damaging levels of consumerism.

The theory that the material world is a pawn in our collective search for status is further developed by de Botton [28] who states "We may seek a fortune for no greater reason than to secure the respect and attention of people who would otherwise look straight through us". This is an interesting coda on the observation of Adam Smith [29] that "The pleasures of wealth and greatness …strike the imagination as something grand and beautiful and noble…It is this deception which rouses and keeps in continual motion the industry of mankind"

This unfortunate obsession with individual status and social hierarchy then warps our perception of the world around us, so much so that we are willing to manipulate the material world on such a way that it will give us the most perceived status, usually through economic activity far in excess of that necessary to meet immediate and future needs. In this vision of the world, any tool, especially those available within organizations (in themselves a social microcosm) can be utilized to support existing hierarchies or to promote the growth of new ones.

The introduction of an environmental management system thus provides an opportunity for status sensitive individuals to promote their own personal ends. Although this state of affairs may be equally true for most other management initiatives, it is hard to see, for example, how techniques that focus not on systems but on environmental performance could be hi-jacked by these personal agendas. Where systems function within a pre-existing culture, the systems are subsumed or even subverted by the individuals that run them. Systems are more prone to 'turf wars' because ownership of the systems are initially hard to distribute unless the individuals concerned are quick to perceive their personal gain. Once this ownership has been taken on, however, future change becomes

entangled in internal political wrangling that completely derails the idea of improved corporate performance.

The argument is thus that a systems based approach in organizations to any type of problem solving is bound to be disrupted by cultural filters. While this is true of all systems, the effects are most keenly felt in the inadequate responses to environmental change. It is another indication that a management systems approach is inappropriate for the subject matter.

5.6 Driving Legal Compliance

As we have observed in Section 2 above, Prakesh's study of environmental policies and the organizations that adopt them had important conclusions about the future of regulation. However, even if the recommendations are followed, there is no proof that the use of environmental management systems will deliver anything like the socially desirable level of legal compliance.

The link between environmental management systems and regulatory compliance levels was explored in depth by the European environmental regulators through a project managed by the UK Environment Agency. The purpose of the project, known as REMAS , involving over 500 companies and running between November 2002 and October 2005, was to investigate whether industrial sites that had implemented a robust environmental management system had improved their environmental performance. Implementing an EMS should improve a company's environmental performance, but prior to the project there has been little data to back this up.

The findings were remarkable for their very lack of clarity. Quoted on the REMAS website [30] the relevant results were tabulated as follows:

There is some evidence that improved site environmental management leads to lower average emission levels. However, the strength of the evidence differs significantly between receiving media, regions of Europe and sectors.

There is strong evidence that improved environmental management has an impact on the number of self recorded permit / license breaches. The impact may be observed both positive (i.e. reducing the number), or negative (i.e. increasing the number), and varies between regions and sectors.

It seems that after three years of the most in depth survey ever undertaken in the area, the results of a link were, at best, inconclusive. The findings were established not because there was a lack of data but that the data did not reveal a clear pattern of changed behaviour. In statistical terms, this does not constitute an absence of findings, but a finding of absence.

In other words, whereas logic dictated that there should have been a clear and transparent link between implementing formal management systems and improved performance, none was conclusively established.

6. Conclusion

Our conclusion is short and simply expressed. In the last fifteen years, progress towards improving environmental performance of organizations has been slow and piecemeal. Much has been hoped for through the use of formal environmental management systems, but the decade and a half since their introduction has proved that systems alone are at best not the sole answer or at worst a distraction and waste of valuable time

To produce the desired result within the decade that we are by common scientific consensus held to have left prior to runaway climate change, we need to recognize that

management system standards are not part of the solution, but part of the problem. They are not fit for purpose in part due to their design (including their reliance on self-regulation) and in part due to their application.

It is time to stop regarding them as anything like an adequate response to the challenge that lies ahead. Their continued use as managerial currency allows them to perform a blocking role in the drive for meaningful and effective action. If they were a meaningful solution, there would be evidence of adequate progress in addressing environmental problems. The trends identified by the Worldwatch Institute in their 'State of the World' publications from 2000 – 2009 [30] suggests that the rate of such progress has been negligible.

The urgent switch should be to management by results in terms of environmental performance. Given the timescales involved, only regulatory pressure can create these socially acceptable levels of performance, levels that have so far eluded an essentially self regulatory regime.

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