

2012 TRENDS TO WATCH

2012 Trends to Watch: Sustainability Technology

Recession will add urgency to energy management and transparency, and drive outsourcing and market consolidation

Reference Code: OI00139-009

Publication Date: November 2011

Author: Warren Wilson

SUMMARY

Catalyst

Sustainability management will remain an important corporate priority in 2012 due to high energy prices, climate change and related carbon regulations, and louder demands from more stakeholders. The same pressures will also prompt a sharper focus on initiatives that deliver the quickest, surest return on investment and reduce the overhead associated with managing businesses more sustainably. In this piece, we address key trends in the market for energy and sustainability solutions, and how enterprises and vendors should respond to optimize results, minimize risk, and gain maximum competitive advantage.

Ovum view

Economic conditions have made companies extremely cost-conscious and forced them to narrow their focus to initiatives with a measurable and rapid return on investment (ROI). In the sustainability realm, this often means energy management, because energy conservation initiatives can quickly yield significant savings that carry straight to the bottom line, while the benefits of other types of sustainability initiatives can be harder to measure and take longer to accrue.

Still, the pressures that have made sustainability a buzzword over the last several years continue to grow, such as climate change, resource scarcity, rising energy prices, and consumer and investor pressure for green products. CEOs recognize these things, increasingly believing that sustainability should be a board-level concern and that sustainability management should be embedded throughout their operations, those of their subsidiaries, and their supply chains.

The result is that companies must manage within short-term constraints, without taking their eyes off long-term trends and responsibilities.

IT has a critical role to play in both dimensions. It can provide visibility, analysis, and control over processes (including energy consumption) throughout the business – processes that remain invisible and impossible to control using unstructured, manual methods or spreadsheets. Technology vendors are responding by building solutions specifically for energy management, to help companies address the broader set of sustainability issues they face today. These solutions often involve reducing waste and inefficiency, so they can actually improve business performance by cutting costs and risks, simplifying regulatory compliance, and strengthening a company's brand.

2012 will see these trends continue and accelerate.

Key messages

- Energy management will take center stage.
- Cost concerns will drive a need for greater visibility.
- Outsourced and Software-as-a-Service (SaaS) sustainability solutions will gain traction.
- The sustainability solutions market will begin to consolidate.

BUSINESS TRENDS AND TECHNOLOGY ENABLERS

A challenging environment is prompting new solutions

Table 1: Key trends in sustainability management	
Monitor the business environment	A stagnant economy, volatile energy prices, and increasing resource scarcity, among other factors, are driving companies to control costs. Meanwhile, regulators are imposing new mandates, and customers, investors, and NGOs are demanding more transparency in business operations, including sustainability metrics.
Create the technology portfolio	Energy management solutions are coming to the fore because conservation can quickly yield savings that carry straight to the bottom line, while also reducing the company's environmental footprint. Enterprises also need solutions that put sustainability data in the context of financials and data from core applications such as ERP and supply chain management.
Select solutions and services	Several types of vendors and solution providers are moving to fill these needs, such as enterprise application vendors, domain experts, and systems integrators (SIs). Selection revolves around company size, capital cost, return on investment, solution scope, deployment preferences, and integration with existing infrastructure.
Manage deployment and outcomes	Tight resources favor SaaS sustainability solutions and outsourcing of sustainability management as companies seek to minimize capital costs for software licenses and IT infrastructure. Outsourced sustainability management has the added appeal of off-loading a complex problem to domain experts, sparing the company the cost of acquiring such expertise, and creating a single point of accountability, though it may also entail ceding some control.

Source: Ovum OVUM

ENERGY MANAGEMENT WILL TAKE CENTER STAGE

Companies face sustainability pressures across the board, but energy management is gaining priority because of its solid ROI

Sustainability is an umbrella term for a broad range of environmental, social, and economic issues. During the last decade, growing scientific consensus about the central role of carbon dioxide and

other greenhouse gases in climate change has driven the adoption of carbon regulations around the world, and made carbon compliance an important enterprise concern. At the same time, human rights organizations have raised public awareness of social issues such as population growth, income inequality, and working conditions in developing countries. Other activist groups have focused attention on environmental issues such as the use and disposal of hazardous materials and the increasing scarcity of potable water and other natural resources. Legislators in some regions have responded with stronger employee rights laws, and restrictions on hazardous substance use and disposal.

None of these pressures have eased in the slightest; in fact, they have only increased, and corporations are listening. To cite just two examples:

- In a 2010 survey by the United Nations Global Compact, 96% of CEOs said that environmental, social, and corporate governance issues should be fully embedded in their companies' strategy and operations, a dramatic increase from the 72% who expressed that opinion in 2007.
- The Carbon Disclosure Project (CDP), a leading non-governmental organization, said the number of companies using its framework to report their carbon footprints reached 3,050 in 2010, up nearly 25% from the year before, and an almost 13-fold increase since 2003.

Nonetheless, the global recession has sapped political will and severely tightened corporate budgets for broad-based sustainability management initiatives. Pragmatism has forced companies to focus their "green" initiatives on measures that improve business results – a broad category, fortunately – and, within that category, to focus on the measures that yield the greatest return on investment.

In many cases, this has meant energy conservation, which reduces costs at the same time as it shrinks carbon emissions. For various reasons, most companies have yet to examine their energy consumption closely. But those that have done so often report pleasant surprises in the form of plentiful low-hanging fruit. Many have found that energy conservation projects can pay for themselves relatively quickly – often in 12-18 months, a recent Ovum survey found – after which they continue to deliver savings indefinitely. Large, energy-intensive companies can find savings of tens – even hundreds – of millions of dollars each year.

Such results mean that 2012 will see software vendors and services companies sharpen their own focus on energy management solutions. Companies such as Hara, which set up shop a few years ago to help companies manage carbon emissions, are pivoting toward energy management, as are established companies like Enviance and IHS, which have primarily focused on compliance

solutions for companies that are highly regulated and/or have especially complex industrial processes. Enterprise application vendors such as SAP and Oracle are extending their capabilities into the energy management realm, while SIs and consultants from Accenture to SAIC are incorporating energy management into broader practices focused on manufacturing efficiency and supply chain management.

Neither vendors nor their customers can afford to ignore the broader picture, however. Yes, they must continue to be pragmatic and concentrate their resources on initiatives like energy management, which deliver strong near-term results. But they must remember that all of the other sustainability issues are only becoming more severe. Although the economy is likely to remain sluggish for the next couple of years, growth should strengthen after that. As it does, public and regulatory pressure will regain momentum, and competitors will have more resources to invest in sustainability management solutions that pay off with more efficient business processes, simplified compliance and greater brand strength. Businesses must live within their near-term constraints, but they ignore the broader, longer-term sustainability trends at their peril.

Sensors and machine-to-machine communications will play a growing role

Among the most fertile areas within energy and sustainability management is the emergence of sensors that, in recent years, have become vastly cheaper, more powerful, and easier to network. Small enough that they are referred to as "motes" (as in dust motes), sensors can measure temperature, pressure, vibration, and various other parameters. Some are powered by long-lasting batteries, while others are called "parasitic" because they are powered by the vibration of the devices they are monitoring, so they can operate indefinitely. Built-in wireless networking capabilities allow these sensors to send data to centralized systems for collation and analysis, creating the potential for unprecedented visibility and fine-grained management of a wide variety of business processes. In factories, sensor systems can not only measure energy consumption in much finer detail than was possible before, but also can detect changes in temperature and vibration that signal when a machine needs servicing or repairing. Sensor systems enable much more granular control over heating, lighting, and air conditioning systems in buildings of all types. Vehicle-based sensors can track engine conditions, fuel efficiency, driving habits, and load conditions, such as temperature, which can be of critical importance for perishable goods such as food and pharmaceuticals. Urban sensor networks can help manage traffic flows, lighting costs, and emergency response systems, among other things.

New-generation sensors will help break down technological and cost barriers which have left many companies blind to the details of their internal operations. With the kind of visibility that sensor



networks can provide, companies will be able to root out waste and optimize processes in ways that simply were not possible in the past. This potential will draw increasing attention in 2012 from IT vendors and network solution providers, as well as the customers that stand to benefit.

COST CONCERNS WILL DRIVE A NEED FOR GREATER VISIBILITY

You can't manage what you can't measure

The phrase has been repeated countless times, but it is still true, still frequently ignored, and still at the core of effective management of any aspect of business, including sustainability management.

Various studies have pointed out that more and more companies are adopting sustainability management solutions, and the growing numbers willing to publicly disclose their sustainability metrics to organizations like the CDP and the Global Reporting Initiative speak for themselves. But overall, the state of play is abysmal.

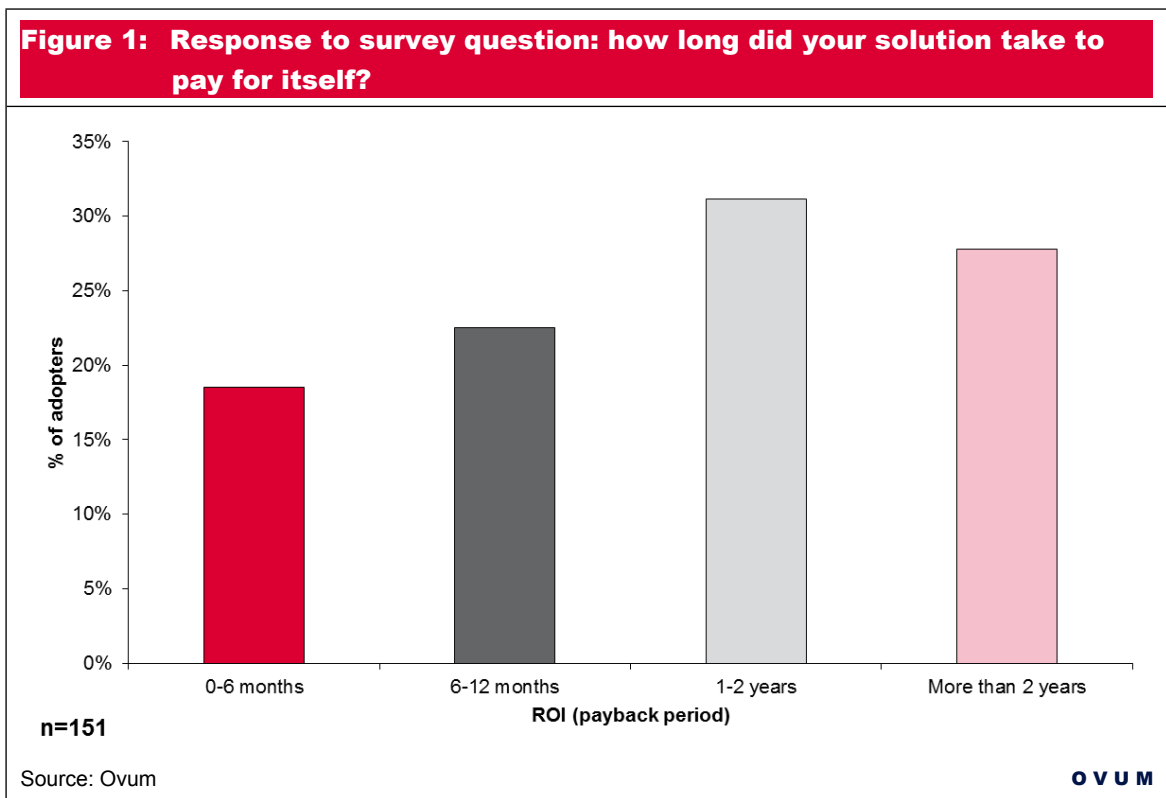
When Fujitsu surveyed approximately 1,000 end-user organizations earlier this year about ICT sustainability, more than 42% of respondents said they "never see" the ICT power bill and have "no idea how much [power] we consume." Imagine what share of respondents would have similar answers if asked about the company's overall energy consumption, or any component of it – office buildings, industrial operations, vehicle fleets or employee air travel, for example.

Imagine how they would answer a second-order question, such as "is the amount of energy you consume in (name a business unit, factory, country, or other area) trending up or down?" Or "what types of hazardous substances are included in the bill of materials for your most important product?"

Ovum's recent global survey of nearly 1,500 companies with 1,000 or more employees found that only approximately 10% had adopted any type of software solution to help manage energy consumption, corporate social responsibility, environmental footprint or reporting. Of the companies that said they had adopted software for one or more of those purposes, approximately 25% said they use a spreadsheet-based solution – hardly better than no solution at all, given that spreadsheets are subject to high error rates and substantial delays.

The common thread is that most companies have so little visibility into their operations that they would be hard pressed to answer such questions with any degree of accuracy or certainty. Yet our survey respondents also said that they place high value on solutions that will help them manage costs, especially for energy.

Companies that have adopted sustainability management solutions reported high rates of success – substantial progress toward the goals they had set, whether financial, environmental or social. They also reported compelling returns on investment. In our survey, 41% of "adopters" said their solution had paid for itself in 12 months or less; another 31% said the payback time was one to two years.



Such rapid ROI should be compelling to even the most penny-pinching CFO. In the economic climate likely to prevail over the next couple of years, sustainability management investments, especially for energy management, will make as much, or more, fiscal sense than many other options.

Data is not actionable until it is in context

If the case for standalone sustainability management solutions is growing stronger, so is the case for integrating the information they yield into broader management systems and applications. True,

a six to 12 month ROI for a sustainability solution is compelling compared to almost any alternative. But any major investment, especially one with a longer payback period, must be assessed in terms of opportunity costs and its effect on business performance, which implies a need to put sustainability data into context by integrating it with financial and analytic applications. For example, a company might substantially reduce its energy costs by switching from truck to rail shipment, but the switch might hamper the supply chain by delaying delivery of critical components, or disrupt shipment of finished goods. Such an initiative cannot be fully understood unless viewed in the broader context of supply chain, manufacturing, and distribution management systems.

Companies also must weigh up the fact that regulators, investors, and non-governmental organizations are pressuring companies to integrate their reporting of sustainability and financial information. Investors are an especially important force here – not just investors in sustainability-focused funds, but also pension fund managers; these must ensure that the companies in which they invest have sustainable business plans that address long-term risks – two or three decades ahead – so that they can meet obligations to beneficiaries that far in the future.

The US Securities and Exchange Commission issued "guidance" in 2010 that spells out companies' obligations to disclose certain sustainability information in their SEC filings, because it relates to the financial risks they face. Denmark and South Africa have each imposed integrated financial sustainability reporting requirements, and similar moves are under discussion in the UK and elsewhere. We expect the pressure for integrated reporting to increase during the next several years.

OUTSOURCED AND SAAS SUSTAINABILITY SOLUTIONS WILL GAIN TRACTION

Sustainability management is complex; companies must weigh up the costs and benefits of developing in-house expertise

Because it is a broad concept, sustainability management involves many types and sources of data. Energy consumption, carbon dioxide and other greenhouse gas emissions, and hazardous substances used within a company's own operations, are just the starting point. Organizations also face mounting pressure to take responsibility for their products throughout their lifecycle, including their supply and distribution chains and end-of-life product disposal.

For many companies, especially retailers that make no goods of their own but simply resell goods made by others, the vast majority of their environmental impact may reside in their supply chain.

That is why the world's largest retailer, WalMart, began to demand sustainability information from key suppliers some years ago, as a requirement of doing business together. Microsoft and Ford Motor have recently begun initiatives to increase visibility into their suppliers' sustainability practices. HP, Intel, Sony, and several other electronics companies have joined an alliance that aims to promote transparency on, and reduction of, the use of so-called "conflict minerals" from the Democratic Republic of Congo and surrounding countries. The Dodd-Frank financial reform law, passed in 2010, imposed new requirements on companies that use minerals such as tantalum and tungsten, because rebel groups in Congo have financed their operations with the proceeds from minerals mined with slave labor. In recent years, companies from Mattel to BP and Apple have faced financial and/or public relations problems from events or conditions for which suppliers bore responsibility.

Sustainability information is, evidently, widely dispersed. Even within a single company, it may reside in multiple departments, locations, and business units. Gaining insight into the supply chain can be an exponentially greater challenge for organizations.

Some companies have extensive in-house IT expertise and the deep relationships with independent software vendors, SIs, and consultancies that is needed to develop and deploy effective solutions – though very few have done so with regard to their supply chains. For many other companies, however, it will be a long, expensive process to develop or acquire such skills. They may not have the time or resources required to do so quickly enough to meet the pressures they face from regulators, customers, and investors, not to mention their own budget limitations.

Outsourcing and SaaS solutions can be an attractive option

SaaS solutions and outsourcing can be attractive alternatives to in-house sustainability solutions, for the same reasons that they have been adopted in other areas of IT. SaaS solutions such as CloudApps and SAP's Carbon Impact can be implemented quickly, with relatively little up-front cost. And their subscription pricing model allows companies to adjust the costs of these solutions as business conditions change and their needs rise or fall (at least in theory – some providers impose restrictions that limit this flexibility).

Outsourcing sustainability management is closely related. It also lets the company trade large up-front license costs for a fixed fee, but has the additional attraction that the service provider may have deep expertise in a particular area. The outsourcer also may have more professional services capabilities than a vendor focused primarily on selling software, and thus be better able to manage the implementation. Outsourced sustainability management offers some other potential advantages as well, such as a fixed-price/fixed scope model, full accountability (i.e. "one throat to

choke"); and, possibly, service-level agreements on results, defined in terms of parameters such as energy consumption and compliance.

Companies such as FirstCarbon Solutions have offered outsourced sustainability management for some years, while Capgemini and CA announced such a partnership in February this year. East River Software, based in Sydney, Australia, blurs the lines a little – it describes itself as a SaaS solution provider, but it also has the domain expertise to manage complex implementations. This model is in its infancy, and can entail some challenges in the ceding of operational control to the outsourcer, but we expect it to grow significantly in 2012 and beyond.

THE SUSTAINABILITY SOLUTIONS MARKET WILL BEGIN TO CONSOLIDATE

The market is crowded with dozens of carbon/energy management solutions

The adoption of carbon regulations around the world during the last few years has spawned a number of new vendors, and new products from existing vendors, aimed at simplifying compliance. Reducing carbon emissions correlates closely with energy conservation, of course, since so much of our energy is based on fossil fuels, and energy conservation yields cost savings that carry straight to the bottom line. Accordingly, energy management is a welcome side-effect of initiatives prompted by carbon regulation. As economic and political conditions have changed, however, the goal of carbon reduction has lost some of its urgency, and vendors that once focused on carbon have tried to shift focus to energy instead.

But carbon management and energy management, however closely they are linked in terms of results, are achieved in different ways. Carbon management solutions focus on measuring emissions and identifying ways to reduce them, primarily by conserving energy. Energy management solutions, on the other hand, focus directly on measuring energy consumption more closely and accurately – for example, through the use of sensor networks – and treat carbon reduction as a byproduct of energy conservation.

This has engendered a significant shift in the market. New vendors have appeared, such as C3, which offers a highly scalable platform for measuring and managing energy consumption across the enterprise. Other new vendors have built solutions with strong benefits in very tightly defined niches; one example is Vigilent, which focuses on data center air conditioning systems. Meanwhile, vendors that had focused primarily on carbon compliance are turning towards energy management, with varying degrees of success. Enterprise applications vendors such as Oracle

are recognizing that their manufacturing and logistics management solutions can also optimize energy consumption, so they are both extending those capabilities and amplifying that aspect of their marketing messages. Similarly, professional services companies are recognizing that their core competencies in optimizing various aspects of their customers' business operations also apply to energy management. Accenture, for example, when it engages with customers around supply chain optimization, does not lead with energy conservation or carbon management, but typically achieves strong results in both of those as it overhauls the customer's supply chain to reduce waste and inefficiency.

Some will make the shift, others will fall away

The result is a crowded and fragmented market, in which smaller vendors struggle to be heard and customers face a confusing array of options. The sluggish economy has made sales difficult for startups, and is now making it difficult for them to find additional venture capital. Potential customers are more wary of vendors whom they suspect might not have the staying power to survive over the long haul.

In such an environment, large vendors with large installed bases have a distinct advantage. They can add sustainability management capabilities to existing products and build entirely new offerings. And they can include their deep pockets, longevity, and stability as part of their value proposition.

Similarly, many vendors with deep expertise in a certain domain have also demonstrated their staying power. They stand to do well if their platforms are flexible enough to adapt to customers' changing needs and if they can integrate with customers' existing systems of record.

In some ways, the current market for sustainability solutions resembles the sales force automation market in the early 1990s, when Tom Siebel founded Siebel Systems. Siebel drove a major consolidation of that market and effectively created the customer relationship management solution category, which today is a multi-billion-dollar market. There is another parallel of which enterprises and vendors should be aware: after selling the company to Oracle in 1995 for \$5.8bn, and running it as an Oracle brand for several years, Tom Siebel is now in the energy management business, as co-founder of C3. It may well be that the energy management market undergoes a roll-up similar to that of the sales force automation market, and that Tom Siebel is, once again, behind it.

RECOMMENDATIONS

Recommendations for enterprises

With stubbornly high unemployment, tight credit, sovereign debt crises, volatile energy prices, a sluggish global economy, instability across North Africa and throughout the Middle East, and a highly polarized US election season, to name some of the most salient factors, 2012 may prove to be extremely wild.

In such an environment, enterprises must recognize that managing for sustainability is good business. It is about reducing costs, waste, regulatory risk, and risk of supply disruption; with the global sustainability solution adoption rate at approximately 10%, prompt action will likely yield an additional benefit in strategic advantage over slower-moving competitors.

Energy management should be a prime focus area because, for many companies, it represents a major cost, and relatively inexpensive conservation initiatives can quickly generate substantial savings that carry straight to the bottom line. Specialists in this field say they routinely achieve energy cost reductions of 10% and more, by looking across the enterprise at manufacturing and industrial processes, building operations (heating, lighting, ventilation, and air conditioning), and logistics, including vehicle fleets and warehouse operations. New technologies are enabling much closer control than was previously possible, so even companies that think they have optimized their energy use and eliminated all waste should re-evaluate in light of these new capabilities.

Enterprises must also recognize the importance of viewing sustainability data in context – integrating it with operational data from financial management, enterprise resource planning, supply chain management, and other core business applications. Viewed in isolation, sustainability initiatives may achieve a narrow purpose while also causing unintended and undesirable consequences for other business processes. Integrating sustainability data with other core systems achieves two purposes: it helps companies to understand their own operations better, including cause-and-effect relationships between different systems, and it prepares them to meet growing demands from regulators and other stakeholders for integrated financial sustainability reports which accurately depict the company's long-term viability and prospects.

Enterprises also must work to gain greater visibility into their supply chains because for many, the supply chain accounts for a major share – even the largest share – of the overall environmental footprint. Today, more companies are asking their suppliers for sustainability-related data; in the future, they will need to integrate both supplier and distributor information into automated tracking systems to achieve greater visibility across their products' entire lifecycles.

Budget constraints, increased pressure for rapid results, and the complexity of sustainability management should prompt companies to consider alternatives to traditional, on-premise solutions with their steep up-front costs for licenses and additional IT infrastructure. Companies should consider both SaaS solutions and outsourced sustainability management as ways to avoid those costs, achieve rapid time to benefit, and, in the case of outsourcing, turn the complexity over to a service provider with proven sustainability expertise rather than developing in-house or acquiring such skills.

Finally, companies should be wary of the forthcoming consolidation in sustainability solutions and make decisions accordingly. To gauge its staying power, assess your vendor's customer base, its finances, and its alliances. In addition, companies also must assess the flexibility of the vendor's solutions to gauge whether they can adapt as market requirements change.

Recommendations for vendors

Sustainability management still suffers from an image problem: companies look at it as a "nice-to-have" rather than a "must-have" because they do not fully appreciate the business benefits it can deliver. Vendors must help customers understand these benefits – that sustainability management is fundamentally about activities such as reducing waste, increasing efficiency, and limiting dependence on scarce resources. It is about simultaneously improving a company's environmental and social responsibility footprint, optimizing business processes to improve the bottom line, and enhancing its brand and appeal to customers and investors. Energy management initiatives are an optimal place to start because they can deliver tangible benefits with a compelling ROI quickly.

It is also up to solution providers to explain to customers why they need to integrate sustainability with core applications like financials, ERP, and supply chain management, and how they can accomplish this. Vendors must develop value propositions that help customers balance where they are today – in a shaky economy, with tight budgets and many uncertainties ahead – with where they need to be in three years and more, when sustainability pressures will inevitably be even stronger than they are today.

The same unpredictable business conditions should also prompt vendors to devote more resources to SaaS and outsourced sustainability management offerings that offer rapid time to value and can spare customers the need to develop or acquire in-house expertise in this area. Application vendors should look for integrators and consultancies with whom to partner to develop outsourcing options.

Vendors must also prepare for the forthcoming market consolidation. All vendors, especially small ones, should forge strong alliances with implementation partners. Smaller companies must make

sure their solutions are easy to deploy, demonstrate solid ROI, and can integrate easily with customers' incumbent systems of record. Larger companies should look for acquisition targets among smaller companies that have compatible technology but may not have deep enough pockets to survive on their own. SIs and consultancies can take comfort in the complexity of sustainability management and the resulting need for their specialized skills, but must take care to avoid vendors that may be at risk, or at least spread their bets by partnering with multiple vendors.

Alternative views

It is entirely possible that the 2012 US elections will increase the political power of climate change skeptics, who may look to weaken environmental laws and further postpone meaningful action by the world's largest economy and most profligate energy user. This could have negative knock-on effects around the world and diminish incentives for companies to deploy sustainability management solutions.

On the other hand, disruptive events – oil price shocks, another incident like the Deepwater Horizon oil spill of 2010 or the Fukushima Daiichi nuclear disaster in Japan, or increasing climate instability – may grab the public's attention and galvanize action to reduce fossil-fuel dependency, limit carbon emissions or both, which, in turn, could increase the urgency of sustainability management.

Even in the absence of major disruptions, however, the important trend lines all point in the same direction – towards the need for more sustainable business practices, and the IT solutions that enable them.

APPENDIX

Further reading

Profiting From Sustainability, OI00139-040 (July 2011)

The Critical Role of IT in Sustainable Supply Chains, OI00139-004 (April 2011)

Carbon Accounting: A Key Step Toward Broad Sustainability Management, OVUM052486 (August 2010)

Author

Warren Wilson, Lead Analyst – Energy, Sustainability and Telecoms Technology



warren.wilson@ovum.com

Ovum Consulting

We hope that this analysis will help you make informed and imaginative business decisions. If you have further requirements, Ovum's consulting team may be able to help you. For more information about Ovum's consulting capabilities, please contact us directly at consulting@ovum.com.

Disclaimer

All Rights Reserved.

No part of this publication may be reproduced, stored in a retrieval system or transmitted in any form by any means, electronic, mechanical, photocopying, recording or otherwise, without the prior permission of the publisher, Ovum (an Informa business).

The facts of this report are believed to be correct at the time of publication but cannot be guaranteed. Please note that the findings, conclusions and recommendations that Ovum delivers will be based on information gathered in good faith from both primary and secondary sources, whose accuracy we are not always in a position to guarantee. As such Ovum can accept no liability whatever for actions taken based on any information that may subsequently prove to be incorrect.