



Sustainable IT

Entering the energy efficiency age – maximising your initiatives with analytics

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IT operational budget – Sustainable IT is a topic for the
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Introduction

The debate on climate change and humanity's role in fuelling it has signalled an unprecedented series of political and economic change that is now starting to impact businesses the world over. Both governmental and consumer demand for green action is influencing the very core of operational strategies, with corporate social responsibility (CSR) initiatives and shifts in company cultures that impact external and internal working practices. In this white paper, we examine how the advanced statistical modelling and analysis supplied by analytics can help organisations to advance their Sustainable IT strategy and deliver greener, business-aligned services.

The Green revolution

Although many enterprise-sized companies have embraced some environmental objectives within their operating plans, most are not faced with any legal obligation to do so and, as such, current green initiatives tend to be based purely on voluntary activities such as recycling and carbon off-setting. But this is set to change for a combination of reasons. In the midst of these developments, IT - the critical backbone of most business operations - has largely operated as normal. In dealing with the pressures to improve services for the business, many IT organisations have continued to operate oblivious to the impact that rising energy costs and environmental legislation will have upon their core budgetary costs. But the Kyoto protocol and subsequent European legislation is now bringing the question of environmentalism closer to the door of IT. Paired with this political climate is the rising cost of energy due to increased worldwide demand and the growth of Tiger economies such as India and China. With recent estimates reporting that energy costs will soon consume up to one third of IT operational spend, sustainable IT is fast becoming a topic for the boardroom and not just IT. Leading analyst firm Ovum/Butler Group summarises the challenge well: "sustainable IT is about cost savings as much as environmentalism. By being more energy efficient, a company can avoid building another datacentre and save tens of millions of pounds."



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Ovum/Butler Group

the PUE metric which determines overall power usage effectiveness by calculating efficiency based on the division of total facility power by IT equipment power; and the new CUE metric, which rates the carbon emissions produced by datacentres. But although improving datacentre efficiency should be the one of the quickest wins for CIOs to address, a recent survey revealed that many organisations have still not addressed the association between their current datacentre environment and its high running costs. Business demand for processing power and capacity is growing exponentially – organisations that have not started to implement Sustainable IT initiatives now will soon be forced to make some tough decisions to reduce costs, and risk stalling their business' future growth.

But whilst replacing existing hardware and services with more energy efficient versions represents a significant chunk of the current wave of sustainable IT spending, it should not be viewed as the only consideration. Although emissions produced from IT systems currently account for just 2% of the total greenhouse emissions, there are significant opportunities to apply IT's productivity and efficiency benefits to make a significant impact on the other 98%. Practically all businesses are critically dependent on IT to power their systems, processes and communications, but increasingly companies are applying IT to transform their working culture, innovation and competitive advantage.

Implemented strategically, IT can have a significant impact on company working culture by acting as a catalyst to transform employee behaviour and curb inefficiencies from energy heavy working practices (See Fig. 1). Business policies and initiatives on areas such as home working, meetings, facilities/office space, business and commuting travel are all influenced by how IT can be better applied. By using IT to implement smarter working practices around these key business areas and working behaviours, even greater cost savings and reduced emissions can be realised.

What's energising sustainable IT?

Most of the large IT vendors and outsourcing suppliers have now introduced greener versions of their hardware portfolio and services onto the market, from datacentre services that operate using renewable energy sources to hardware products that are not only manufactured using less toxic and recyclable materials, but deliver significant power consumption savings, some up to 20%. Datacentres in particular are touted as the core area for IT organisations to address first - and for good reason. Energy requirements here extend not only to the powering of servers and storage devices, but energy-hungry air-con systems and lighting that need to run 24x7x365. Leading the assault on datacentre efficiency is The Green Grid – an industry consortium whose focus is to instil improved standardisation around datacentre efficiency metrics, with

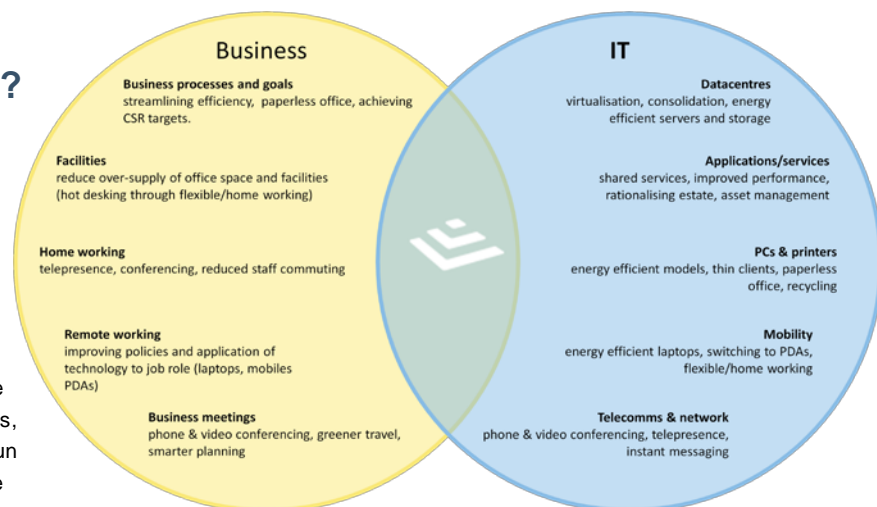


Fig. 1 - Sustainable IT decision making spaces for IT and the business





So faced with an abundance of possible choices around sustainable IT, how do businesses know which ones will have the most benefit and provide ongoing return on investment from both a cost saving, efficiency and environmental perspective? The answer lies in gaining precise facts on which to base decision making, and it is with this advanced insight in mind that analytics plays a vital role.

How analytics is applied

Analytics provides fully impartial, fact-based insight that helps businesses maximise the successful outcome of sustainable IT and energy saving initiatives. By capturing and combining utilisation data from across the IT estate (see Fig. 2) - IT Analytics establishes a "big picture" baseline model of the current IT environment's power consumption, exposing the correlations and working patterns that indicate where change can bring the most benefit from both a business and energy efficiency standpoint.

Baselining IT power consumption

By capturing and modelling IT utilisation data and applying best practice industry measurements such as The Green Grid's PUE and CUE metrics, IT Analytics builds a baseline assessment of the current power consumption position (see Fig. 3). The baseline provides a precise model with which to accurately quantify the current efficiency of IT against industry best practice and key business criteria, such as CSR initiatives and energy consumption reduction targets. The baseline model can be used as a basis for both scenario modelling and monitoring ongoing progress against plan, providing a robust mechanism to measure results and plan future projects.

When examining where in the IT estate energy efficiencies can be gained, datacentres - which form the largest concentration of IT - will no doubt be a primary area of focus for many. The choice of initiatives here is wide-ranging – from consolidation and application rationalisation, virtualisation and cloud – all presenting themselves as viable possibilities. But as outlined previously, there are many other changes that can be applied across the business that will also have a profound impact on energy consumption. Improving working practices around end-user IT (PCs, laptops, photocopiers and printers) will deliver significant rewards.

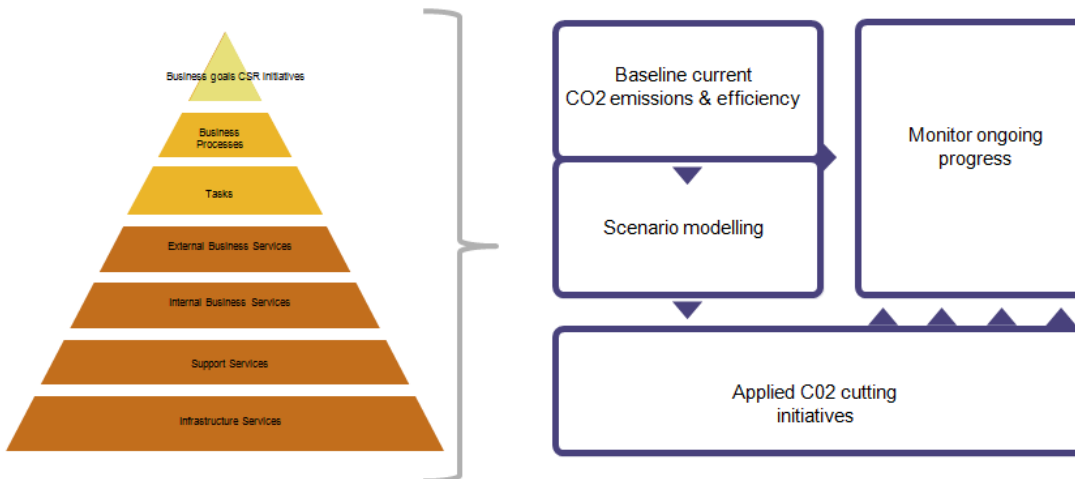


Fig. 2 – IT Analytics approach to managing sustainable IT initiatives

For example, by implementing company policies around overnight device shut-downs and encouraging a *do you really need to print?* policy around e-mails and documents, relatively inexpensive gains can be quickly realised. Similarly, improvements arising from broadband and advances in communications technology (telepresence and videoconferencing) and mobility (laptops, PDAs, Smart/iPhones, and BlackBerries) offer a vast spectrum of alternative

IT-enabled working practices, all with the potential to deliver significant energy savings. By using the baseline assessment as a gauge, organisations can then apply analytics' scenario modelling to quantify the potential gains for each one of these initiatives.

Scenario modelling options

The analytics baseline model provides a powerful basis from which to understand the before and after picture of applied Sustainable IT initiatives through the use of "What if?" scenario modelling and change analysis. The benefit of this approach is that businesses can effectively model the likely outcome of change before applying it, enabling projects to be de-risked and their targets more successfully met.

Example IT power consumption baseline			
Datacentre			Power (KW)
	Overheads		
		Cooling	276
		Lighting	3
		UPS	46
	IT assets		
		Network	38
		Servers	280
		Storage	76
Offices			
	User Assets		
		Desktops	12
		Laptops	6
		PDAs	1
	Services		
		Print	8
		Network	6

Fig. 3 – Example of analytics baseline assessment





Analytics' accurate data-driven scenario modelling helps to answer planning questions that traditionally would have been answered by best-guesses and assumptions, such as:

- *What impact will switching to virtualisation or cloud have on our carbon-reduction commitments and energy costs?*
- *What will be the potential energy savings if we commit to increasing our video-conferencing usage by 20%?*
- *When will be the optimum time for us to replace our current infrastructure with new, greener hardware?*
- *What will be the cost and energy impact of introducing PDAs instead of laptops to our field staff?*

Measuring the success of initiatives

Although sustainable IT initiatives and changes to company culture will no doubt influence the everyday working processes and behaviours of staff across the company, it is only by tracking their impact and associated savings that organisations can prove their success and ROI against company targets. By using analytics to gain impartial validation of how initiatives are influencing both productivity and energy usage, organisations can plan even more effective policies around innovative practices, and improve their understanding on which mix of technology offers the best returns on an ongoing basis. When initiatives are then put into practice, analytics tracks their relative progress and business impact by taking regular samples of data and business metrics, enabling an ongoing understanding of each initiative's success. In turn, its insight can then be used to scenario model future initiatives – and, importantly, provide independent validation of progress to the board, shareholders and customers alike.

Making sustainable IT a reality

Although sustainable IT may initially conjure up fears of just another industry hyped topic, closer inspection reveals that, at its heart, sustainable IT is just as much about cost savings as it is about environmentalism. With business demand for IT processing and capacity growing at increasingly high levels, IT organisations and business managers alike can no longer afford to see it as a fringe area of interest, as it not only represents a significant opportunity to address inefficiencies across the IT estate and working culture, but to proactively address the impending implications of rising energy costs and governmental legislation.

In using analytics' accurate insight to plan, test out scenarios and measure outcomes, IT organisations can take a leadership role in tailoring their services to a truly business-aligned approach that achieves environmental and cost commitments without compromising IT service quality.

Case study – Realising energy savings through datacentre consolidation

Sumerian worked with an enterprise-sized company who was in the process of planning the consolidation of three separate IT estates into one. The company had proactively recognised that its datacentre energy costs were reaching levels that were outstripping the total cost of the hardware and needed to take action to minimise this.

By using an analytics approach, Sumerian established a baseline assessment of the current architectures and demand profile for the company, and accurately determined the size requirements for the consolidated estate. The recommendations provided by Sumerian resulted in a set of robust planning requirements that would deliver significant productivity and energy consumption savings for the company.

More information

For further information on Sumerian or to arrange a demonstration of our services, contact us on 0141 229 7580, e-mail us at info@sumerian.com or visit our Web site at www.sumerian.com

