

# Towards a sustainable business

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*Identifying, measuring, monitoring and optimising energy and resource usage in an organisation*

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# Towards a sustainable business

*Identifying, measuring, monitoring and optimising energy and resource usage in an organisation*

*Whether an organisation is looking for immediate “green” savings, where energy savings result in a positive impact on the organisation’s bottom line, for meeting legislative requirements for carbon emissions, or to move towards a longer term sustainable business model, a change in how the business identifies, measures and monitors its resource usage is required.*

- **Long term trends in energy pricing will be upwards**  
The age of low cost energy is fast disappearing. Renewable energy sources cannot compete with “dirty” fossil fuel systems at a price per KWh level, and the decommissioning costs of nuclear also make such an approach costly. Planning for an upward trend in energy pricing is a necessity.
- **Sustainability is not just about electricity**  
Although energy usage is the factor most easily seized on by businesses, future availability of raw materials, of such simple things as water and of cheap long distance supply chains will be increasingly impacted.
- **The consumer is becoming more aware of sustainability – and is choosing suppliers based on perceptions of sustainability**  
Demonstrable sustainability – not just “greenwash” statements – will increasingly drive ecologically aware consumers to choose suppliers based on real capabilities. The need to be able to fully back up sustainability claims with hard facts will be a basic requirement.
- **“Eating the elephant” is a non-starter**  
Trying to run a “Sustainability Project” will not work. Smaller, interlinked projects each with a desired outcome will enable teams to focus on the small wins, and the big wins will come through pulling everything together further up the chain.
- **A means of managing the interlinks between the various projects is required**  
Ad hoc project management will lead to disconnects and problems across the board. Project portfolio management is a must, with cascade capabilities both down and up through project managers, project leaders and team workers to ensure that interdependencies are fully managed.
- **The business has to have visibility of past, present and future statuses**  
For the business to be able to plan appropriately, current state and any variances against planned state need to be immediately visible. Predicted future states – based both on past performance and on any planned changes – need to be quickly and easily viewed so that small changes can be made to maintain planned sustainable performance.
- **Energy usage and carbon emissions are not the same thing**  
Different energy sources have different carbon footprints, while water purification can be a high emissions process. Being able to understand how all resources impact emissions enables a highly prioritised and coherent sustainability plan to be drawn up.
- **Infrastructure change needs to be supported by people change**  
Although direct improvements can be made through changing how technology works across a business as well as through changing basic processes in areas such as the supply chain, people will remain a very important part of any sustainability strategy. Involvement of people in the provision of ideas and in optimising existing and new processes can take a sustainability strategy from being “good” to being “excellent”.

## Conclusions

Sustainability is not just about electricity usage within a business. When viewed across the complete value chain, the different resources employed will have their own emissions profiles, and a fully cohesive sustainability strategy can only work when all aspects are capable of being identified, monitored, measured and optimised. This will require new business approaches, crossing over the many groups involved within an organisation, and will also require an integrated set of underlying tools will be required to ensure that the past, present and future are all brought together in a manner that helps the organisation make the right decisions going forward.

## 1. Introduction

Businesses of all kinds are at the corner of a profound turning point, beyond which lies the requirement to closely manage and ultimately reduce the ecological impact of the organisation's activities.

In an effort to reduce the level of greenhouse gases being emitted to the atmosphere governments around the world are implementing, or moving toward implementing legislation designed to assign a cost to greenhouse gas emissions. One example of such legislation is the UK's Carbon Reduction Commitment, since 7<sup>th</sup> October 2009 officially known as the "CRC Energy Efficiency Scheme", whilst other high per capita and high net emission countries including the USA, Australia, China, India and numerous other countries are moving toward the adoption of some form of emissions taxation and control, albeit that progress can at times appear halting. While consensus on the specifics of the required international frameworks remains something to be thrashed out on the world political stage, it is reasonable to assume for purposes of corporate governance and strategic planning that one or another form of carbon cap and trade schemes will generally be universally introduced in the medium to long term.

Such efforts are designed to introduce a pricing and trading mechanism for the major greenhouse gases (GHGs) that are emitted through human activity, and in doing so to internalise to the balance sheet the hitherto economic externality of atmospheric pollution. The most commonly referred to greenhouse gas is *carbon dioxide* (CO<sub>2</sub>), thus efforts to understand levels of emissions and reduce them is often referred to as "CO<sub>2</sub> reduction" or simply "carbon management". Regardless of nomenclature, the crux is that the economic internalisation of the cost of emissions through such trading schemes is of strategic importance to business leaders navigating their organisations successfully into the future. This is because such carbon trading schemes are by design intended to influence corporate behaviour and decision making wherever energy is utilised or fuel consumed.

In the longer term, as carbon intensive fuels become more expensive, companies may, for example, find themselves revisiting the cost analysis associated with long tail supply and manufacturing chains that rely on relatively cheap fuel to move products to globally dispersed cheap labour pools in order to exploit cost savings wherever they may be found during a multi-step manufacturing process. Corporate governance is beginning to cast an eye toward the need for operating in an ecologically sustainable manner even as the attention remains firmly focussed on the issues of business resilience, corporate and fiscal responsibility, and keen competitiveness.

Meanwhile attention is also turning to the consumption of other resources critical both to the daily operations of human society, and to Nature's ecosystems. From water to the rare earth elements, from numerous raw materials to that every day utility that we take so much for granted - electricity - awareness is increasing of the need to minimise overall usage whilst ensuring that every unit that is consumed of a resource is converted with a minimum of wastage to a value added end product.

Whilst the importance of the environmental case may be new to many, the economic argument for ensuring efficiency is almost universally understood. The natural importance of efficiency has been re-emphasised to business leaders of late during a time of extreme and historically difficult economic conditions. As organisations have sought ways to reduce the cost of doing business, attention has turned to the need to accurately meter the resource inputs that keep the business operating, and to understand exactly where and why those resources are being consumed. Management begins as always with accurate and timely measurement.

The challenge businesses face is threefold. Firstly, they must accurately gather the data related to the organisation's energy and resource consumption in a manner both timely and cost effective. Then they must use the data thus collected to support a myriad of strategic business decisions, and may need to prepare for the reporting needs stemming from an increasingly complex set of environmental legislation and an increasingly interested set of other stakeholders including shareholders and customers. Thirdly, they must manage *as a whole* a potentially complex portfolio of projects that emerge as efforts are undertaken to increase efficiency and reduce the financial impact of the emissions regulations.

Even as the understanding of the need for corporate governance to consider sustainability grows, solutions are being brought to market that reduce the burden of cost and effort associated with the necessary metering, reporting, and planning efforts. Such solutions provide the means to automate the not inconsiderable task of measuring, in detail, energy use and needs across all aspects of the facility and operation of the organisation.

Early efforts to measure energy use and report on greenhouse gases have quickly uncovered various "carbon hotspots" within organisations; hotspots where the energy demands of a particular activity far exceeds the average (when calculated per employee, for example) for the overall organisation. Unfortunately for the CIO, the data centre, and all too often the sprawling desktop office estate, has been found to be the equivalent of a huge old gas-guzzler in terms of electricity usage. Considerable attention has therefore turned towards gaining a detailed understanding of the electricity needs for the IT estate. Perhaps more importantly, attention has also turned toward correlating energy use with IT system status and performance, and with the business applications that the facilities and the hosted IT systems serve. Correlation of performance and availability data across three key domains of management; "Facilities", "IT hardware infrastructure" and "Business application" is in Quocirca's experience almost never performed. Addressing this goes a long way toward closing what has been one of the last and most resilient major gaps of communication - that experienced between IT planners and their Facilities Management counterparts.

Meanwhile, experience has shown that as the demands of external reporting ramp up, reporting platforms rapidly return on the investment placed in them. Whilst manually gathering and reporting performance data related to a company's environmental footprint, and on the status of numerous projects related to corporate improvement is possible, it is also expensive and onerous. Whilst it is tempting to turn to the ubiquitous spreadsheet in an attempt to track performance, it is dedicated eco governance and reporting platforms that provide the needed scalability, reliability and consistency in reporting, and they are also the crucial enabler for auditing.

Looking to the decade ahead it is clear that the world is entering a period of unprecedented awareness of the need to develop in ways that have far greater consideration of the finite nature of our world. Energy use, resource consumption and land use will be increasingly governed at a national and global level as efforts are made to reduce humanity's impact. In reality such efforts also set a burden of responsibility onto individual businesses, requiring corporations of all sizes to deliver continual improvement, along with transparent reporting. It is metering, reporting and governance solutions that provide the basis for effectively meeting the new definition of corporate governance - one that includes the attainment of the traditional business needs such as market share growth, profit and shareholder returns, all achieved within the constraints of a lower carbon future. In this future, being able to achieve and demonstrate a higher performance level for a lower associated greenhouse gas emissions level will likely prove to be a positive brand differentiator against competitors.

## 2. Driving toward efficiency

Organisations have long sought to achieve lean and well-tuned operations. There is however a renewed and intensive focus on further ensuring the highest possible degree of efficiency. The global economic recession which began in 2008/2009, along with the associated difficult trading conditions, has highlighted the significant financial benefits in eliminating waste and ensuring that heightened productivity is achieved for every dollar invested. Organisations are refocused on the many opportunities for saving money to be found in tuning processes, consolidating and better managing facilities, and focusing on where, how and why investment is made in energy and other costly consumables.

Whilst efficiency makes bottom line sense fiscally, it is also recognised as being a strategically important exercise in terms of reducing the emissions of the greenhouse gases responsible for climate change. The Intergovernmental Panel on Climate Change (IPCC) has estimated that efficiency focused within the building envelope could deliver global carbon emission reductions of about 5-10% of projected buildings-related emissions in the first decade of the century, rising to about 10-15% by 2020, and about 10-30% by 2050<sup>1</sup>. Such efforts include the use of energy efficient heating, lighting and cooling systems, and the use of IT equipment with a high performance per unit of energy consumed.

There exists, therefore, a nexus of interests between a varying set of concerned stakeholders. An attention to the elimination of waste, and ensuring that maximum returns result throughout operations, is a sound business strategy recognised by external shareholders and business leaders alike. Energy efficiency is likewise counted as being an important method for reducing GHG emissions. As legislation is introduced governing emissions through the proxy of a pricing mechanism for carbon, the fiscal business case for efficiency and the strategic case for achieving an ecologically sustainable business, one that successfully operates in a low carbon economy, become increasingly aligned.

***"A well-tuned organisation extracts maximum value for every dollar spent and every KW of energy expended and burned."***

Meanwhile there is evidence that consumers are becoming sensitised to the environmental track record a company has, and marketers too have become aware of the benefits of highlighting a company's environmental credentials. New market opportunities are becoming available: from cars to light bulbs there are to be found wholly new products and old products re-engineered and re-imagined with a reduced ecological impact in mind. While consumers are becoming more sensitized to the green credentials of a product and a business, corporations and government departments are also looking toward their supply chains to ensure that all providers of goods and services are on-track to improve their ecological performance. Both Product and Services vendors have reported to Quocirca that they are being asked to report and prove their current GHG emissions levels and their plans for reductions, in tender responses and similar business development bids. Being able to operate with an eye to being green, and perhaps more significantly being able to report on such achievements continues to be a competitive differentiator.

### 3. "You can't manage what you can't measure"

The first stage of improving the productive yield of the energy and resources consumed throughout the business is to understand the current state. Unfortunately, the status quo in terms of systems and processes related to measuring the many aspects and indicators that describe "sustainable operations" do not lend themselves well to the more rigorous demands of today and tomorrow. From metering of energy and other consumed resources to tracking waste disposal, in most cases, systems and processes lack granularity and require intensive manual effort to operate.

Accurate measurement of energy and resources usage allows for identification of un-tuned processes, energy consumption hot-spots, and areas of poor productive yield. For example, a "whole of company" view of the electricity demands for all of the buildings held in the company's facilities portfolio allows for comparison of each of the facilities' energy productivity on a building by building basis or even more granularly at a department by department level.

Meanwhile, within a building, a more granular approach to metering electricity and other energy consumption can identify energy consumption hot-spots at a departmental and process level. Office heating, lighting, IT operations and other intensive energy consumers, and even the individual entities which constitute these areas, can be identified and targeted for efficiency improvement. Such granularity makes for more accurate and faster diagnosis of problems as well as decision-making when changes are being considered.

Electricity meters are typically electro-mechanical in nature, installed in areas intended to be convenient to the utility provider rather than the customer, and do not provide data which is in any way intended to be friendly and accessible to the energy consumer. Furthermore, existing electricity metering systems are rarely granular, providing no means for identifying and diagnosing high-energy users - for example a particular floor or department within a building - nor specific equipment. Perhaps worst of all, it is difficult to gather data from all the various metering points, and bring it together in a way conducive to comparative analysis in context of the downstream business application being served. Even where electromechanical meters have been replaced with smart-meters, there typically remain many standalone metering points and an overall lack of ability to easily correlate data.

***"Software maker CA Technologies reports more rapid diagnosis and resolution of IT network failures, due to the ability to investigate and rule out power supply problems at a component level by using the CA ecoSoftware solution."***

While data from all those meters that do exist may be collected manually, input to the spreadsheet and analysed to identify problem areas, doing so is neither scalable nor real-time. Such an approach therefore does not lend itself to the needs of any but the smallest and most simple business. A typical enterprise that has a property portfolio of upwards of half a dozen major buildings (including shared tenancy locations) will rapidly find that taking a more granular approach to energy metering is a burdensome task when performed manually.

#### 4. Energy versus emissions

Existing energy metering systems are also solely that - they meter energy. They do not directly measure the GHG emissions associated with the consumption of energy. The accurate measurement of greenhouse gas emissions is, meanwhile, a key and basic aspect of the various voluntary and mandatory carbon reporting schemes.

Accurately translating energy usage into emissions requires reference to conversion factors. At face value performing such a conversion may seem fantastically simple - a simple multiplication of kilowatt-hours used or litres of fuel (such as diesel in a generator) by the GHG emissions factor associated with the fuel used. Such textbook simplicity however does not translate into the real world of a complex business.

Almost all greenhouse gas reporting schemes differentiate between fuel burned by a business and fuel burned by another party in order to generate electricity that the business may consume. Fuel burned or electricity consumed by a third party in order to provide an outsourced service to the business is similarly counted separately. Ownership of and responsibility for the resulting emissions is apportioned according to these categories. Therefore, for the typical business, gaining an understanding of the business's emissions requires a detailed understanding of not only the electricity used and the fuel burned, but also the nature of commercial service and supplier relationships such as outsourcing contracts.

Meanwhile, the conversion factors that translate fuel use to the levels of emissions associated with the fuel are almost constantly being refined as new scientific data emerges, reporting protocols evolve and calculation techniques mature. This is one area in particular where attempts to rely on home-grown spreadsheets for analysis and reporting can rapidly become a barrier to accuracy, especially when attempting to compare the performance of the company across multiple reporting regions and when comparing multiple year reporting periods.

#### 5. Building a governance framework around eco-efforts

Whilst measuring and managing energy usage across the business brings a whole host of challenges, there are a lot more potential changes that companies may have to deal with as "eco" becomes imbedded. Smoothly and effectively balancing the various demands of the organisation in consideration of corporate sustainability will require close attention to improved corporate governance, and portfolio management of the numerous projects and initiatives undertaken to improve the bottom line, while meeting the demands of the energy and emissions frameworks as they evolve. While it is clear that the details of the national and international agreements related to carbon reduction remain unresolved, it is also clear that the market is inexorably moving in the direction of heightened sensitivity toward and action on reducing harmful pollutants of all kinds that result from an organisation's activities.

As well as the current "hard requirements" for measurement and reporting greenhouse gas emissions, waste recycling and reduction, and resource consumption, there will likely be many initiatives that will be undertaken under the umbrella of "eco" - some existing (recycling and waste water reuse, etc.) and some new. It will be very important to appropriately manage each project and initiative in order to assure success, and to ensure success is delivered on time and on budget. Effective governance of the project portfolio also requires prioritisation of individual projects, including the sidelining of potentially interesting and worthwhile initiatives that do not meet the current operating model criteria for project approval; for example a proposed project may not be able to meet the ROI payback period required nor be aligned with the organisation's strategic objectives for sustainability. Meanwhile, the fact that many initiatives are being undertaken in parallel also means that a "whole of system" view needs to be available.

There is also a requirement to support "people and process" change. Effective communications to stakeholders, including the general staff within an organisation, strongly supports the building of a culture attuned to sustainability. Organisations involved in efforts to reduce energy use, improve efficiency, and reduce the greenhouse gases (and other pollutants) they are responsible for, report to Quocirca that considerable benefit is to be derived from being able to communicate progress on sustainability efforts in a timely and consistent manner to stakeholders and staff. Centralised reporting software is reported as being a highly valuable toolset supporting the production of such communications.

Over time, it will be desirable to "bake in" considerations of efficiency and sustainability. Organisations may get fiscal gains in the short term from efficiency efforts, however it is unlikely that they can "turn on a pin" to achieve an organisational operation that could be considered highly efficient in all respects, and highly tuned to the needs of *sustainability*, in the broader context and meaning. This will be a process that is characterised by a continual state of

improvement. As such, governance is even more important - lots of "moving parts" to manage with all the complexities of inter-relationships.

There are strong parallels to existing, enterprise wide risk management and information security efforts. A low-carbon business model is not simply achieved by the introduction of any single technical solution. Rather; it requires effective leadership and the commitment of the organisation's Executive Team to ensure that technology, people and processes are all adapted as need be, in a co-ordinated fashion. Technology is an enabler for change as well as being a solution in its own right - providing the means to improve and ensure process improvements as well as being a tool for staff communications, training and policy compliance.

The complex and wide ranging set of stakeholders, both internal and external, who are all parties interested in an organisation's sustainability efforts, also demand a well governed approach to sustainability. As an example, accurate and detailed measurement of electricity and resource usage across the business, as enabled by solutions such as CA ecoSoftware, provides organisations with the foundation for understanding current state and planning action. Such tools provide immediate and lasting benefit to the organisation (as Quocirca's interviews with users of the product demonstrate; please refer to the case studies). Solutions such as CA ecoSoftware provide the platform to enable the required steering of all process improvement efforts; enabling a coordinated set of actions and helping to ensure overall successful outcomes. Together with the appropriate methodologies and processes, such tools provide the capability to deliver necessary reporting data on outcomes to all interested stakeholders.

## 6. Case Studies

In preparing for this whitepaper, Quocirca spent time interviewing users of CA ecoSoftware. CA Technologies, the software maker, has undertaken a well-balanced and considered approach toward developing offerings in what might be termed the "eco market", that includes a strong focus on internal improvements before external product launch. Indeed the genesis of CA ecoSoftware is to be found in the lessons CA Technologies learned during their own efforts to improve their own operations and report on their achievements. Such an approach is to be lauded, being as it is the direct opposite of the lamentable green-washing of existing and new products that has been evident in the technology marketplace since 2007.

Quocirca spoke with service provider Datotel regarding the organisation's use of CA ecoSoftware. Interestingly, the use of the CA Technologies solution represents an entirely new relationship between the two companies, demonstrating that CA Technologies' energy and sustainability products can provide immediate and standalone benefit to an organisation, without relying on there being an existing set of CA Technologies solutions implemented.

Quocirca also spoke at length with CA Technologies' own data centre manager regarding the vendor's own use of the same technology. Property portfolio management experts and service providers Jones Lang LaSalle Incorporated (JLL), which manages the CA Technologies building estate, also shared their considerable insight into the challenges of carbon reporting, how they manage a wide portfolio of projects, and how they use CA Technologies' software in meeting their goals.

Both case studies highlight organisational needs that are common across industry sectors and national boundaries. They ought to resonate strongly with any organisation that is focussed on bottom line performance and customer service improvement. Those that also have an eye toward improving environmental performance and compliance with related reporting requirements will find much to relate to, and perhaps even to be inspired and encouraged by.

## Case Study One - Datotel

**Datotel at a glance.**

Datotel is a company based in the mid-west United States which provides IT solutions including colocation, cloud computing, managed services and insourcing. Founded in 2004, Datotel operates a mission-critical colocation facility in downtown St Louis.

St. Louis (Illinois) headquartered data centre outsourcer Datotel supports hundreds of customers throughout the continental USA. This enterprise class service provider runs a highly complex environment, with tens of thousands of blade and boxed servers. Datotel's customers range from the SMB market to larger enterprise customers, but regardless of the size of the business served one thing was common - a need to improve efficiency, reduce costs, and manage electricity consumption.

Speaking with David Brown, President of Datotel, Quocirca got a taste for the benefits the service provider is receiving from taking a more measured approach to energy usage. "Energy usage represents our second highest cost in the business, and the billing rates we get from utilities tend to be non-negotiable. So the opportunities for tuning cost savings are limited to the actions we can take within the data centre."

Equally importantly, Datotel's customers also care about energy savings as the billing rates they see are directly tied to the energy consumed by the equipment servicing their computing needs. Brown says that Datotel's customers focus just as much on driving down the total cost of ownership as they do on seeing the service

levels improve, and improving the relationship between the amount of electricity consumed and the production computing value returned meets both goals. Brown - "We serve a huge SMB customer base in our home town, St. Louis, Illinois, while forty per cent of our customers are spread across the breadth of the USA. Lowering TCO and improving service is a universal goal of our business customers, wherever they are and whatever their size."

Also with an eye toward the developing legislative landscape related to carbon cap and trade, Datotel began to speak with software maker CA Technologies on how to better understand electricity usage, and more importantly how to manage it downward. Brown says that Datotel had no historical relationship with CA Technologies within the data centre, and CA ecoSoftware was the catalyst for an entirely new point of engagement with the software maker. "Our customers were pushing us for an increasingly sophisticated and detailed level of data regarding their own individual levels of electricity usage within our data centres. We started a wholly new engagement with CA Technologies in order to try to solve what was a wholly new and increasingly difficult problem for us - managing energy costs."

*"Any efficiencies we can introduce in our energy usage feeds directly to the business bottom line."*

*- David Brown  
President,  
Datotel*

*"CA Technologies demonstrated to us the best solution on the market in terms of (electricity) billing, capacity planning, and problem diagnosis."*  
*- David Brown,  
Datotel*

Datotel's growing requirement to better understand and manage electricity usage demonstrated that a new approach was needed. Brown describes it thus; "Existing methods of measurement and reporting, based on manual data collection and relying on utility provided billing data simply were not adequate. The number of customers Datotel supports, across our multiple data centre facilities, really challenged us to meet our new measurement and reporting needs for energy use. Manual data collection and reporting just does not scale."

The new relationship with CA Technologies and the introduction of the CA ecoSoftware solution meant that for the first time, a detailed level of understanding could be gained on how and where electricity was being consumed.

The use of CA ecoSoftware immediately began to challenge some long standing assumptions regarding electricity usage. "We had assumed that we'd be able to

cut our power usage basically overnight. However CA ecoSoftware brought home to us the reality that managing electricity use in a complex data centre architecture like Datotel's is something that requires a highly sophisticated and professional approach to measuring and planning consumption requirements."

In common with many businesses, Datotel's various functional teams, including Finance, Facilities Management, and Operations, rarely had exactly the same view of the data centre world. Brown reports that one of the major benefits delivered by the CA solution has been far greater clarity of understanding between teams of the nature of the electricity requirements in the company's data centres. The data delivered by CA ecoSoftware is enabling an entirely new level of cross-discipline data sharing and team collaboration. The result: from the Executive Leadership Team to Network Operations to Finance and Facilities, all now share the same operational view of the current and future requirements.

Datotel has also been able to use the CA Technologies solution to provide real-time diagnosis of problems, leading to a far more rapid understanding of where problems are occurring and a reduced time-to-fix. Brown - "To our customers, service continuance is paramount. Being able to rapidly and proactively diagnose potential problems allows us to remain within our agreed service levels. Not only is that important to our existing customers, it's also a competitive differentiator for us in a difficult market."

*"Enabled by CA ecoSoftware we are now looking forward to managing (downward) our electricity demands."*

*- David Brown,  
Datotel*

With data centre managers needing to continually adapt to new market requirements, measurement and management of energy demands will become crucial deliverables across all facilities, as Datotel has already seen. For the St. Louis headquartered service provider, CA ecoSoftware has provided a solid basis for meeting rapidly emerging future needs and has also been the basis for an entirely new engagement with the software maker.

As Datotel looks to a future that now includes the ability to measure electricity demands in a granular and accurate manner, Brown finds the hosting provider now in a solid position to better partner with their customers. "Our customers require accurate data in order to be able to plan and architect for future demands; data that previously we struggled to deliver. Using CA ecoSoftware we are now in a far better position to be able to sit down with our customers and plan for future power needs."

#### Case Study Two – CA Technologies/ Jones Lang LaSalle

*"It was very difficult to plan for power savings in the absence of a quantifiable baseline of our performance. We had no granular data with which to identify power consumption hot-spots"*

*- Bill Galinsky, CA Technologies*

Regardless of the hardware and software architecture an organisation relies upon for its business critical applications, one crucial resource is required - electricity. Without electrical power, all the debates about mainframe versus distributed IT and cloud versus discreet hardware are irrelevant. Given energy's importance then, it has long seemed an oddity that the responsibility to manage reliable and scalable electricity supply to the data centre has been entirely separated from those responsible for the IT infrastructure itself. Such division has often led to misalignment and misunderstanding between those responsible for the IT infrastructure and those responsible for the building housing it, all too often leading to poor planning decisions, bumpy capacity planning experiences and unnecessary delays in diagnosis and remediation of problems.

Software maker CA Technologies was historically no exception. Quocirca spent time with CA Technologies SVP Bill Galinsky in order to better understand CA Technologies' experiences, and how they are overcoming them using the vendor's CA ecoSoftware solution.

## CA Technologies and JLL at a glance.

**CA Technologies** is an IT management software and solutions company with expertise across all IT environments—from mainframe and physical to virtual and cloud.

**Jones Lang LaSalle (JLL)** is a financial and professional services firm specialising in real estate services and investment management. Jones Lang LaSalle has more than 30,000 people in 750 locations in 60 countries serving the local, regional and global real estate needs of their clients, growing their company in the process.

Galinsky, who is responsible for the stable operations of the company's five production data centres, described the problem thus; "Historically, we in the IT management team never saw a power bill. As long as electricity was reliable in supply, had provisions for business continuity, and had headroom capacity to meet our growth demands we gave it no particular attention."

Galinsky's experience is a common one. In many organisations, responsibility for the fit-out, planning and maintenance of the electricity supply within the data centre lies with the in-house Facilities Management team, or a contracted third party supplier, rather than with anyone in the I.T. team. Reporting lines are separate, as are budgets. At CA Technologies, all Galinsky's team ever saw was a power charge billed back to his department based on a simple set of metrics including the department head count and the square footage of the cube space.

All that changed, however, as attention turned both to the question of how to rein in ballooning power costs. In addition, throughout the business, awareness was growing of the need to understand and reduce the associated GHG emissions. Facilities Management began to look for ways to contribute to a companywide cost saving effort, and immediately identified that in order to reverse the trend of ever increasing energy consumption and associated costs, behaviour would need to change. In the data centre, Galinsky immediately saw a difference; "Facilities Management began charging us for exactly what we consumed. Meanwhile, across the company, other departments were also beginning to fall under the same charging regime. As those departments began to be internally cross charged for their own electricity usage, we suddenly saw a company-wide push to centralise computing back out of the distributed offices and into a central data centre facility."

CA Technologies' Galinsky not only found himself paying more for the power he already needed, he found himself having to plan for a flood of computing capacity demand coming back into the data centre. While much of this computing was generally not

considered "production", it was for the software maker a vital pool of computing resource termed "Labs on demand", that enabled critical business functions such as new software development, support, and customer problem diagnosis. Such platforms were so ubiquitously used throughout the vendor's business that the total compute capacity for "Labs on demand" outstrips that of the actual production environment.

As what was previously distributed and decentralised moved back onto Galinsky's turf, along with it came new requirements from the business owners for improved disaster recovery and improved resilience. Galinsky - "The business owners of the lab environments began seeing the benefits of having UPS and a fault tolerant dual power supply architecture." Meanwhile, those same UPS systems were reaching their natural end of life. As plans were drawn to renew the UPS array, Galinsky's team urgently needed more accurate data on power consumption in order to plan for the capacity needs of the future.

CA Technologies' own CA ecoSoftware solution provided the answer Galinsky's team needed. More granular power meters were installed throughout the data centre, while those servers and devices involved in power supply to the computing racks that were able to report on their power consumption

*"Using CA ecoSoftware, we have been able to diagnose potential power supply problems far more rapidly and accurately than previously. There is no finger pointing between departments, and no lost time in fixing problems and restoring service."*

*- Bill Galinsky, CA Technologies*

states were also hooked in. Galinsky's team went from having no data to being able to measure data centre PUE and DCIE<sup>ii</sup> in five minute intervals. Whilst such metrics are far from being comprehensive indicators of overall data centre performance, they are commonly relied upon as useful point-in-time indicators of the productiveness of the facility in terms of the power consumed. With PUE and DCIE plotted, Galinsky's team have a basis for long term benchmarking of the facility's performance.

Being able to measure data centre performance according to comparative industry measures like PUE isn't the only benefit, however. Immediately, CA Technologies' data centre management team had a new and powerful problem diagnosis tool at their disposal. "After some changes in our power systems, we began to see problems in some of our core network routers, with them recycling automatically. The obvious suspect was in the supply of power, as that was where changes had been recently introduced. However, using the CA ecoSoftware solution we could rapidly see that the power supply to the network equipment was reliable and clean, and that the problem lay elsewhere."

Looking to the future Galinsky already sees further benefits. One of the most important is to be able to correlate the power supply and the power needs with the business application they support. Taking that a step further, the circle between consumption, business service delivery and power billing can be closed. "Now," Galinsky says "we don't just care about kilowatt hours, we also care about dollars." The capabilities introduced by CA ecoSoftware are also enabling Galinsky to better plan for the appropriate introduction of cloud computing into the production environment. CA ecoSoftware has given Galinsky and his team the power to measure and to manage the computing facility and the hardware housed therein to a degree never before possible. The paybacks have been as rapid as they have been profound. Galinsky sums it up best; "I expect to be responsible for every cent of power consumed in my data centre, and today by using the CA ecoSoftware solutions, I am ready for that."

Meanwhile the efforts to understand emissions, tune for efficiency, and seek innovative ways to drive continual improvement extend far beyond Galinsky's data centre. Across the entire CA Technologies property portfolio, almost all of it managed by Jones Lang LaSalle (JLL), GHG reporting has now been performed for several years and an entire portfolio of improvement projects are being conducted and tracked. Brett Prochazka (CA Technologies' Senior Principal, Facilities Services), now another internal user of CA ecoSoftware, states that prior to their availability, the heavy lifting involved in reporting requirements actually took the focus away from real and broader focus on sustainability.

Property services giant Jones Lang LaSalle (JLL), which works hand-in-hand with Brett's department on a daily basis, concurs regarding the benefits of centralised reporting and project governance. JLL's Steve Rutledge, who managed the CA Technologies relationship during the development of the CA ecoSoftware solutions, describes the effort involved in creating the Carbon Disclosure Project CDP4 and CDP5 reports especially for multi-facility clients as "significantly time consuming". JLL now uses CA ecoSoftware to manage the software vendor's property portfolio, an effort that Rutledge reports as delivering considerable benefit. "JLL works closely with Brett (Prochazka) and his peers across the entire global CA Technologies estate. The effort required to produce timely and accurate CDP reports is now much lower due to the multi-user aspect. Meanwhile, project governance is much improved with one department being able to transparently examine the initiatives and innovations of others." Back in the data centre, JLL manages all the way down to the PDU, interlocking with Galinsky's team, which has responsibility downstream from there to the rack space. The mutual reliance on CA ecoSoftware has enhanced the working relationship between the two teams. The JLL and CA Technologies teams may draw a pay check from different masters, but in terms of managing the CA Technologies data centres, they work as one, from the infrastructure, the building envelope and the power, availability and performance demands of the servers in the racks, to the need to reduce the GHG emissions resulting from them and to report on those gains.

*"One department can now see the (sustainability) projects and initiatives undertaken by another, in a different facility, halfway around the world. They can see results, ROI performance and a host of project documentation. There is a huge improvement in the speed of information flow across departments. Change inspires improvement everywhere."*

*Brett Prochazka - Senior Principal, Facilities Services, CA Technologies*

## 7. Conclusion

Sustainability is an area that will only grow in importance for an organisation. Whether the focus is an internal cost saving one, an external legislatively driven one, or based on a long term view that only those who fully embrace sustainability will be successful, the basic needs are the same. All aspects of an organisation's activities that result in carbon emissions must be identifiable – across the whole of the value chain.

Once the various energy and resource usage components have been identified, then a prioritised set of projects can be put together that can address the underlying issues and can help to move the business towards longer term goals.

To manage this, a set of tools are required that can identify, measure and monitor those business activities that result in resource consumption and emissions. The end result should be a set of advice that can help an organisation make the necessary decisions to decide in what areas to focus its investments on. Then, a fully flexible and end-to-end project management capability is required to manage the sets of smaller projects that will be a necessary part of an overall sustainability strategy.

Savings made from immediate paybacks, such as energy savings through the introduction of low-energy lighting, can be ploughed back in to the projects, making many of the "investments" self-funding, whilst also providing the business with longer term viability and the capability to market itself as a greener organisation.

## About CA Technologies, Inc.

CA Technologies is an IT management software and solutions company with expertise across all IT environments – from mainframe and distributed, to virtual and cloud. CA Technologies manages and secures IT environments and enables customers to deliver more flexible IT services. CA Technologies innovative products and services provide the insight and control essential for IT organizations to power business agility. The majority of the Global Fortune 500 relies on CA Technologies to manage evolving IT ecosystems.

CA Technologies has leveraged its capabilities in areas such as systems management, governance and project and portfolio management to create CA ecoSoftware. CA ecoSoftware is focused on providing innovative solutions to the energy, carbon and sustainability challenges faced by organizations. CA ecoSoftware is designed to help organizations measure, analyse, report and take action on energy, carbon, water and waste. It helps them improve environmental performance, align sustainability initiatives with business goals and automate sustainability processes across geographic and functional boundaries to accelerate their energy and corporate sustainability efforts.

To learn more about CA ecoSoftware visit <http://www.ca.com/ecoSoftware>

#### REPORT NOTE:

This report has been written independently by Quocirca Ltd to provide an overview of the issues facing organisations seeking to maximise the effectiveness of today's dynamic workforce.

The report draws on Quocirca's extensive knowledge of the technology and business arenas, and provides advice on the approach that organisations should take to create a more effective and efficient environment for future growth.

Quocirca would like to thank CA Technologies, Inc. for its sponsorship of this report and the CA Technologies, Inc. customers who have provided their time and help in the preparation of the case studies

## About Quocirca

Quocirca is a primary research and analysis company specialising in the business impact of information technology and communications (ITC). With world-wide, native language reach, Quocirca provides in-depth insights into the views of buyers and influencers in large, mid-sized and small organisations. Its analyst team is made up of real-world practitioners with firsthand experience of ITC delivery who continuously research and track the industry and its real usage in the markets.

Through researching perceptions, Quocirca uncovers the real hurdles to technology adoption – the personal and political aspects of an organisation's environment and the pressures of the need for demonstrable business value in any implementation. This capability to uncover and report back on the end-user perceptions in the market enables Quocirca to advise on the realities of technology adoption, not the promises.

Quocirca research is always pragmatic, business orientated and conducted in the context of the bigger picture. ITC has the ability to transform businesses and the processes that drive them, but often fails to do so. Quocirca's mission is to help organisations improve their success rate in process enablement through better levels of understanding and the adoption of the correct technologies at the correct time.

Quocirca has a pro-active primary research program, regularly surveying users, purchasers and resellers of ITC products and services on emerging, evolving and maturing technologies. Over time, Quocirca has built a picture of long term investment trends, providing invaluable information for the whole of the ITC community.

Quocirca works with global and local providers of ITC products and services to help them deliver on the promise that ITC holds for business. Quocirca's clients include Oracle, Microsoft, IBM, O2, T-Mobile, HP, Xerox, EMC, Symantec and Cisco, along with other large and medium-sized vendors, service providers and more specialist firms.

Details of Quocirca's work and the services it offers can be found at <http://www.quocirca.com>

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<sup>i</sup> Source: "IPCC Technical Paper: Residential, commercial and institutional building sector",  
*Section 2.3.2*. Source Location: <http://www.gcrio.org/ipcc/techrepl/residential.html>

<sup>ii</sup> For more information regarding PUE and DCIE, refer to the information published by the Green Grid. See <http://www.thegreengrid.org/>