Case Studies

Greening Your Business Through Technology
Leading you towards a sustainable future through GreenIT
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Introduction

Over recent years, a large number of AIIA members have actively worked to progress GreenIT issues and have been supported in this aim by AIIA and Multimedia Victoria. As a result, the contributions made by AIIA members have been integral in raising awareness of the importance of being ‘green’ and have provided insight on how to implement sustainable, environmentally friendly IT practices at an organisational level.

The AIIA Sustainable Futures Forum has simultaneously grown in stature to become a premier forum for thought leadership on GreenIT and as such, has provided much practical industry insight into ‘green’ practices. As a result, a number of excellent local case studies have been showcased that both improve the financial bottom line and reduce the environmental footprint for an organisation - thereby leading the way for others to follow in creating a low-carbon economy.

The case studies documented in this book have been done so in order to provide a ready-at-hand resource for small business managers and busy professionals seeking information across a range of GreenIT practices. These case studies cover a wide variety of the different business and technology innovations that are available today and illustrate through practical know-how, the application and insight needed to implement and execute GreenIT initiatives in order to realise benefits for at an organisational and environmental level. If your organisation has achieved something in the GreenIT space that is different to, or adds to that which is outlined in the case studies presented in this document, AIIA would be keen to hear from you in order that your information and insights can be included in further evolutions of the

If you would like to access the AIIA GreenIT eBook, click here

Methodology

Each of the case studies presented in this document have been prepared in a collaborative effort with each of the featured organisations. Where possible, relevant reference material was provided by each of the vendors/suppliers, enabling the inclusion of additional support information to assist in highlighting the key messages being made.

To keep the presentation of all the case studies consistent, the following format has been used where possible:

1. The client problem – what was the issue that needed to be addressed?
2. What was the solution proposed by your company and/or partners to address this problem?
3. What was the net result of the application of the technology to:
   a. Efficiencies e.g. cut in carbon.
   b. Productivity in staff.
   c. Financial, e.g. initial cost to invest in new technology, how after 2 years this has reduced expenditure for the business unit by more than 50 percent, i.e. we have paid it back and the investment is now making the business line more profitable etc.
   d. Any cultural shift or changes that were hurdles etc.
   e. Other areas of significance.
4. Application to other businesses, e.g. this was a large scale/small scale project but the same principles can be applied to an SME etc.
5. A quote from someone involved in the project.

AIIA has taken all reasonable steps to ensure that all the information provided and represented by participating companies involved in each case study is factually correct and relevant. All copyrights, designs, trademarked images, logos, graphs and corporate information provided by contributors and represented in this publication by AIIA is done so in good faith, without prejudice to AIIA in the event of any IP infringement, misrepresentation, or any other legal infraction whatsoever.
Case Study: Canon – GreenIT Drivers

Synopsis

In 2004, Canon established a global environmental performance program with specific targets for the company. The program, Factor 2, provided Canon a framework to measure its progress towards doubling its eco efficiency by 2010, based on 2000 figures.

The initiatives undertaken by Canon to maximise value, while minimising resources were:

1. Maximising resource productivity through Technological Innovation.
2. Reducing environmental burden through improved management efficiency (Business Innovation).

After eight years, Canon reduced CO₂ emissions per units of net sale by 30 percent as compared with 2000 figures. Though resulting in some reporting in-normalities, the use of this Key Performance Indicator (KPI) has been an effective communication tool for keeping key stakeholders updated and sustained peoples engagement throughout this long period of time.

In addition, the technology innovations achieved through focusing on waste minimisation assists Canon in being regularly ranked in the top three companies in the USA for patents granted, where many of Canon’s new devices provide customers with significant savings in energy consumption and lower operating costs.

The principles applied by Canon to reduce its carbon emissions can be applied to any organisation, regardless of size.

Taking the time-old approach of measure, monitor and reduce approach, Canon quickly identified the quick win opportunities and then progressively made improvements to further reduce emissions. By focusing on efficiency and productivity by deriving maximum value from minimum resources, Canon has improved its bottom line and reduced its environmental footprint.

Featured Organisations

**Canon** is a leading professional and consumer imaging solutions corporation with a comprehensive product line including: digital video cameras, digital compact and SLR cameras, printers, scanners, fax machines and networked multifunction devices.

**Carbon Planet** is a global full-spectrum carbon management company that brings together scientific expertise, industry experience and business insights to deliver an integrated suite of carbon management services.
The Path to Sustainable Development

Through its philosophy of ‘Kyosei’ (roughly translated as living and working together for the common good) Canon has always had a commitment to Sustainable Development. In 2004, Canon established a global environmental performance program with specific targets for the company. The program – Factor 2 – provided Canon with a framework to measure its progress towards doubling its eco efficiency by 2010, based on 2000 figures.

After eight years, Canon reduced CO₂ emissions per units of net sale by 30 percent as compared with 2000 figures. Though resulting in some reporting abnormalities, the use of this Key Performance Indicator (KPI) provided an effective communication tool for keeping key stakeholders updated and sustained peoples engagement throughout this long period of time.

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As can be seen from the diagram below, operational site-related and distribution activities accounted for 29 percent of Canon’s lifecycle CO₂ emissions in 2008. Product use by customers, raw materials and parts manufacturing by suppliers accounted for the remaining 71 percent. Activities focused on the full product lifecycle are therefore vital to reducing the company’s environmental footprint. To this end, Canon is promoting technological innovation and improved management efficiency as well as eliminating its use of hazardous substances above its legal obligations.

Total CO₂ Emissions per year

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[Diagram showing total CO₂ emissions per year with categories: Emissions per unit of net sales (Compared to 2000 levels), Customer usage, Logistics, Operation site activities, Raw Materials / plant production]
The Problem to be Addressed

Essentially, the aim is to achieve the productivity and creativity benefits available through the use of Canon products while continually reducing the environmental footprint of those products. This demands the use of leading edge global research and development in order to deliver new ways of working and the use of smaller, lighter, more energy efficient products that utilise materials with more renewable components, thereby having less overall impact on natural resources.

The Proposed Solution

The two key approaches Canon adopted to maximise value while minimising resources were:

2. Reducing Environmental Burden through Improved Management Efficiency.

1. Maximising Resource Productivity through Technological Innovation

Canon invests a significant amount of both time and money in Research and Development for identifying new ways to increase productivity through technology innovation. As such, Canon has been ranked in the top three companies in the US for patents granted over many years.

Two new technology developments were developed as a result of Canon changing focus towards measuring CO₂ emissions at each stage of the lifecycle – ‘Induction heating’ and ‘On-demand’ fixing technologies. These enabled the realisation of significant reductions in energy consumption for many of Canon’s products. This in turn provides Canon’s customers with tangible cost savings as a result of lower operational costs without any loss in functionality.

Further information about Canon’s environmental technologies is available on the Canon web site.
2. Reducing Environmental Burden through Improved Management Efficiency.

The aim to eliminate waste and reduce the impact on the environment at all stages of the product lifecycle extends to all Canon companies. For Canon Oceania (Canon Australia and Canon New Zealand), this has translated into the following actions being taken:

• Carbon footprint calculation

This provided the opportunity to identify where improvements can be made. Activities that have been completed as a result include:

a) Purchasing green energy.

b) Converting to more energy efficient lighting in some offices.

c) Reducing the size and efficiency of Canon’s branch offices by moving in to new energy efficient premises.

d) Reduction of 22 percent in overall greenhouse gas emissions in New Zealand between 2007 and 2008 due to significant decrease in business flights.

• Effective recycling processes

While Canon already had effective recycling processes in place, additional opportunities were identified to extend Canon’s participation in reducing the environmental issues associated with the end-of-life treatment of its equipment by customers. As a result, Canon has been very active in the following local industry recycling programs to address this issue:

a) Byteback – a pilot project between the Australian Information Industry Association (AIIA) and the Victorian Government to collect and recycle end-of-life consumer IT products.

b) Cartridges for Planet Ark (C4PA) - one of the world’s most successful cartridge recycling programs which allows business customers and consumers to recycle toner and ink cartridges with a zero waste guarantee. C4PA recently recycled its 10th million cartridge after 7 years in operation.

c) eDay – a regular event held throughout New Zealand to collect end-of-life consumer eWaste.

d) Australian Battery Recycling Initiative (ABRI) – a new industry association aimed at encouraging a national product stewardship approach to all types of batteries.
What were the End Benefits? (Efficiencies, Productivity, Financial, Cultural or Other)

Canon’s primary benefit for adopting GreenIT practices throughout the entire life cycle of its operations to be able to provide customers with a superior product that operates with optimal efficiency and has minimal impact on the environment. Further, this ‘environmental offering’ helped to strengthen Canon’s brand as a supplier of choice and also helps Canon provide customers value for money and in turn be able to deliver ongoing product development through innovation and technology advancement.

In 2008, Canon Australia was awarded the prestigious Association of Field Service Management International (AFSMI) inaugural Australian Green Service Award, scoring well under the four major categories:

- Environmental Benefits
- Green Innovations
- People Involvement
- Responsible Trading

Another benefit of Canon’s global approach to Research and Development is the employment opportunities provided in Australia by Canon Information Systems Research Australia (CISRA). CISRA is one of Australia’s top software research companies which provides innovative digital imaging technologies that strengthen and diversify Canon’s worldwide business offerings.

Application to Other Businesses (can the same principles be applied to an SME)?

The principles applied by Canon to reduce the organisation’s carbon emissions can be applied to any organisation, regardless of size. Taking the time-old approach of measure, monitor and reduce approach, Canon quickly identified the quick win opportunities and then progressively made improvements to further reduce emissions. Focusing on efficiency and productivity by deriving maximum value from minimum resources has enabled Canon to improve the organisation’s bottom line and reduce its environmental footprint.

“For us it’s a journey – a continual process of improving the performance of our products while reducing their environmental impact at all stages of the lifecycle. Our part in that journey, as the local Sales and Marketing arm of Canon is to educate our customers to use our products in the most efficient way and to reduce our own impacts – particularly in relation to eWaste and Carbon Emissions”

Janet Leslie, Quality Safety and Environment Manager, Canon Australia Pty Ltd.

www.canon.com.au
Case Study: SEMA – eLearning (Business Innovation)

Synopsis

SEMA achieved increased productivity, competitiveness and profitability by embracing the use of eLearning to provide tailored educational sessions in the fields of business, IT and business transformation skills. By offering greater flexibility for the delivery of educational material, the disruption to business operations was minimised and staff members had the opportunity to progress at their own pace.

From a sustainability perspective, the delivery of eLearning modules on-demand through the internet has provided SEMA with a number of opportunities to reduce the carbon emissions associated with:

- Travel to training courses.
- Hiring of training facilities.
- The provision of paper related course material.
- IT related book resources.

The use of eLearning practices can be implemented within any organisation, regardless of size, language or location.

Though the environmental benefits associated with less travel and paper consumption are becoming increasingly important, it is the increase in staff retention and productivity that provides the strong business case for organisations to make the change to eLearning practices.

Featured Organisations

SEMA is a leading Direct Marketing, Consulting and IT Business Solutions group with the largest 100 percent privately owned direct mail operation in Australasia.

SkillSoft is a leading provider of on-demand eLearning and performance support solutions for global enterprises, government, education and small to medium size businesses.

The Problem to be Addressed

A high level of staff turnover was leading to significant costs associated with maintaining staffing levels and associated training. This was in-turn impacting quality, job knowledge, turn-around times, system knowledge and placing a significant strain on management staff. Due to the costs involved, investment in training was low across the board and was only provided to key staff members. Those staff that did receive training were off-site for up to five days in order to participate in training, which in turn impacted the operational departments and was not flexible enough to meet SEMA’s client needs.

The Proposed Solution

SEMA embraced the eLearning programs that are offered by SkillSoft in order to provide tailored educational sessions across the fields of business, IT and business transformation skills. All course-ware is provided to SEMA staff online via the internet and has enabled SEMA to offer a wider range of educational information to a larger number of staff.
What Were the End Benefits? (Efficiencies, Productivity, Financial, Cultural or Other)

The key benefits achieved were:

- 822 percent Return on Investment (RoI).
- Average staff tenure increasing to 2.8 years and growing.

This has allowed SEMA to keep key skills and knowledge in-house and has provided a stable platform to both increase competitiveness and profitability.

From a sustainability perspective, the delivery of eLearning modules on-demand through the internet has provided SEMA with a number of opportunities to reduce carbon emissions associated with:

- Travel to training courses.
- Hiring of training facilities.
- Provision of paper related course material.
- Provision of reference books.

19.5 t CO₂-e has been abated as a result of using SkillSoft to host 2293 eLearning sessions, given the CO₂ emissions associated with travel and course material that have not been used. This is made up of 10.4 t CO₂-e associated with travel and 9.1 t CO₂-e associated with course material.

Travel Calculation – Assumptions

- Average trip distance is 17.7 km.
- Car efficiency is 0.107 L petrol/km (default)¹.
- CO₂-e conversion factor is 2.4 t CO₂-e/kL petrol².

\[
2293 \text{ trips} \times 17.7 \text{ km/trip} \times 0.107 \text{ L petrol/km} \times 2.4 \text{ t CO}_2\text{-e/kL petrol} \times 1\text{kL petrol/1000 l petrol} = 10.4 \text{ t CO}_2\text{-e}.
\]


Course Material Calculation – Assumptions

- 240 pages per course manual.
- An A4 sheet of paper measures 0.297 m X 0.21 m (0.06237m2) and weighs 80g/m2\(^3\).
- CO\(_2\)-e conversion factor is 3332.25 kg CO\(_2\)-e/tonne of paper (Virgin paper and disposed at landfill)\(^4\).

\[
\text{2293 courses x 240 A4 pages of course material. x 0.06237 m}^2/\text{A4 page} \times 80\text{g paper/m}^2 \times \frac{1 \text{ t paper}}{1,000,000 \text{ g paper}} \times 3332.25 \text{ kg CO}_2\text{-e/tonne of paper} = 9149.9 \text{ kg CO}_2\text{-e.}
\]

Other benefits include:

- Increased staff and management satisfaction levels.
- Increased staff development opportunities.
- Increased staff motivation through the provision of flexible, self-paced training solutions.
- Reduced course setup time and associated costs.
- Increased quality of work due to knowledge and retention of staff.

Application to Other Businesses (can the same principles be applied to an SME)?

The use of eLearning practices can be implemented within any organisation, regardless of size, language or location. Though the environmental benefits associated with less travel and paper consumption are becoming increasingly important, it is the increase in staff retention and productivity that provide the strong business case for organisations to make the change to ‘being green’.

“\text{What started as an initiative to solve our growing quality and retention issues, had the unexpected double benefit of fixing our problem, by enabling us to provide training in a more effective, efficient and cost effective way, whilst significantly improving our environmental impact in the IT discipline.}”

\text{David Kerr, Commercial Manager – Analytics, SEMA Group}

www.semagroup.com.au

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\(^3\) Environmental Defender’s Office New South Wales (Ltd) – Technical Fact Sheet: Measuring and reducing the greenhouse gas footprint of a small office. \url{http://www.edo.org.au/edonsw/site/pdf/scifs/sfs_greenhouse_smalloffice071101.pdf}

\(^4\) Environmental Defender’s Office New South Wales (Ltd) – Technical Fact Sheet: Measuring and reducing the greenhouse gas footprint of a small office. \url{http://www.edo.org.au/edonsw/site/pdf/scifs/sfs_greenhouse_smalloffice071101.pdf}
Case Study: Tradeslot – Client Facing Teleconferencing (Business Innovation)

Synopsis

Tradeslot reduced the cost and risk of converting international enquiries by using online meeting and teleconferencing software which offered a more viable solution than more traditional methods. Now, online meetings are hosted through CitrixOnline’s ‘GoToMeeting’ offering and all telephony enquiries are facilitated using Skype.

Tradeslot has achieved a low cost operating model by virtualising client facing communications and thereby embracing a low-carbon economy. Further, Tradeslot's clients are also being educated in the practical ways in which they too could progress to a low-carbon economy in the future.

The additional benefits of this change in communication methods include improved customer service and the ability for Tradeslot to have a viable global presence.

Client facing teleconferencing is applicable to all business operations and is simple to use. While the environmental benefits of not travelling can be measured (and are increasingly important), it is the savings of direct travel costs and lost time that make this a viable and beneficial practice.

Featured Organisations

Tradeslot is a leading provider of allocation mechanism technology and carbon management software. Tradeslot was looking for a cost effective way to manage international enquiries.

The Problem to be Addressed

Traditional techniques for managing international relationships were both too costly and risky to be considered as a viable option. New, low cost techniques using easily available technology were required in order to effectively nurture an international enquiry into a converted customer.

The Proposed Solution

Use of easily accessible online meeting and teleconferencing software was integrated into key business development activities. The aim was to find a cost-effective way to progress customer enquiries. Now, online meetings are hosted through CitrixOnline’s ‘GoToMeeting’ offering and all telephony enquiries are facilitated using Skype.
What Were the End Benefits? (Efficiencies, Productivity, Financial, Cultural or Other)

The implementation of online meeting tools into the lead generation process has been essential for Tradeslot to demonstrate its leadership in the low-carbon economy. Not only is Tradeslot now seen to be ‘walking-the-talk’ by embracing approaches to reduce travel related emissions, the company is now educating its clients in simple ways to adapt to a low-carbon economy.

Other benefits include:

- **Improved customer service.** Face-to-face contact is only required for key negotiations, thereby maximising the time available to speak with clients. Online demonstrations have provided the opportunity for Tradeslot staff to enhance their understanding of client queries and provide a tailored response to show the capability of its software.

- **Viable global presence.** The use of online meeting tools enabled Tradeslot to serve the global market place, where it was previously too costly to do so.

Tradeslot staff have had minimal issues as a result of using online meeting tools to nurture initial enquires into converted customers. An initial setup is required for customers new to this type of format, however, this is quickly resolved as soon as all headset/s and microphone/s are working correctly. Meetings are then activated with a click of a button at which time customers can be guided through the demonstration.
Alternative approaches available that are less effective include:

- Sending the client a static PDF brochure – customers will typically have already seen this by the time they experience an online demonstration.
- Sending a link to a video demonstration – this method doesn’t provide the opportunity to listen to clients and customers in order to establish what they require within the context of the demonstration.

Application to Other Businesses (can the same principles be applied to an SME)?

This solution has application across any business that have business units or clients across sites, cities, or countries. While the environmental benefits of not travelling can be measured (and are increasingly important), it is the saving of direct travel costs and lost time that really put the case forward for ‘being green’ with this approach.

“We use online meeting software several times a week. It is more useful than a demo video because we can begin to build a relationship with potential clients by listening to their needs and customising what they see from the outset.”

Jesco d’Alquen, CEO, Tradeslot

www.tradeslot.com.au
Case Study: PowerfulCMS – Teleworking (Business Innovation)

Synopsis

PowerfulCMS utilises low cost techniques to manage international sales and mobilise a global workforce. The latest project management and client collaboration ‘Software as a Service’ (SaaS) offerings centralise all communication in a virtual environment that is shared between customers and staff regardless of their global location.

Adopting the use of SaaS tools in order to facilitate collaborative environments on-demand has enabled PowerfulCMS to establish a clear value proposition and competitive advantage. Cloud computing has enabled PowerfulCMS to manage cash flow more effectively as software licence costs become an operational expenditure instead of a capital expenditure. Further, by embracing the global workforce, PowerfulCMS is able to increase overall productivity.

From a sustainability perspective, the use of remote work environments also provides PowerfulCMS with opportunities to reduce carbon emissions, thereby requiring fewer natural resources per unit of production and emitting less CO₂e (CO₂ equivalent) emissions into the atmosphere.

Though this model demands a highly skilled workforce, these principles can be applied to any business considering new ways in which to increase its value proposition and competitive advantage.

Featured Organisations

PowerfulCMS is a local business that specialises in helping SMEs grow their business online. PowerfulCMS specialises in helping small to medium businesses with a proven concept and online revenues of 100K+ or successful offline businesses (under 10M) with no online revenues to achieve online revenues of 1M+.

Forward Shift Environmental is an environmental Research & Consultancy organisation that has products and services within the Energy & Environment and Sustainable Computing sectors. As a non-profit engineering consultancy, Forward Shift Environmental's focus is on the development of cost-effective solutions through a number of measures, such as engineering and educational initiatives that will deliver long-term value to all relevant stakeholders.

The Problem to be Addressed

The traditional techniques of using an office based environment to manage staff from various countries around the world was too costly and ineffective to be considered as a viable option when serving a global marketplace. New low cost techniques required in order to manage international sales and mobilise a global workforce demanded the latest technology available.
The Proposed Solution

Use of the latest project management and client collaboration software using Software as a Service (SaaS) offerings were integrated into all key business activities. Communication was then centralised in virtual environments which were shared between customers and staff located in various countries all over the world.

The development adopted ‘agile’ methodology, whereby iterative, small chunks of work were delivered in two-week increments in cohesion with business owners. The tools that were used are similar to those used for large-scale collaborative projects that have delivered open source projects like – Firefox, Drupal, Wordpress, etc. By implementing these processes and tools, businesses are able to respond quickly to changes that are most likely to produce the best revenue based on market conditions, without the normal exhaustive research, analysis, plan and implement process.

What were the end benefits? (Efficiencies, Productivity, Financial, Cultural or Other)

Adopting the use of SaaS tools to facilitate collaborative environments on-demand has enabled PowerfulCMS to establish a clear value proposition and competitive advantage. Cloud computing and the use of SaaS has enabled PowerfulCMS to offset software capital expenditures with a monthly pay-as-you-go surcharge and in turn has enabled the organisation to embrace a global workforce in order to increase productivity.

Time based efficiencies given the use of a global workforce added another factor, thereby allowing work to be developed continuously around the clock 24x7. In this sense, work would be handed over to the person in the next time-zone as their shift ended. By eliminating the need for any down-time, project assignments could be turned around in much shorter periods of time than was otherwise possible.

Engaging a global workforce has, by nature, enabled PowerfulCMS to become culturally rich. Each employee posts photos and shares family details on their cultures and food with other team members, creating increased awareness, respect and knowledge of different cultures.

Use of SaaS based tools for Project Management, Service Delivery, Service Reporting, Customer Relationship Management and Bug tracking have helped reduced start-up costs, enabled new systems to be trialled quickly, reduced the cost of operations and passed the value back to clients.
Utilising remote work environments has also provided PowerfulCMS with the ability to deliver solutions to customers with reduced embedded carbon natural resources (3,300 kg per project) and emits approximately 25 percent less CO$_2$e (1,500 kg per project) into the atmosphere.

The following Life Cycle Assessment demonstrates that Remote Work consumes roughly 35 percent less natural resources (3,300 kg per project) and emits approximately 25 percent less CO$_2$e (1,500 kg per project) into the atmosphere.

Other benefits include:

- **Improved customer service.** Greater transparency through a shared communication platform has provided customers with an opportunity to gain more ownership of projects and has increased participation in the elicitation of user requirements.

- **Viable global presence.** The use of online collaboration tools has provided the ability to serve a global market place and mobilise a global workforce that would have otherwise not been possible.

- **Improved work-life balance.** The staff associated with PowerfulCMS now enjoy a better quality of life.

Application to Other Businesses (can the same principles be applied to an SME)?

PowerfulCMS has proven the benefits and possibilities of embracing new SaaS technologies to offset software capital expenditures with a monthly pay-as-you-go surcharge, manage cash flow more effectively and increase productivity by mobilising its global workforce. This implementation also clearly demonstrates that Remote Work environments can enable businesses to deliver solutions to customers with reduced carbon emissions. Though this model demands a highly skilled workforce, these principles can be applied to any business that is looking for new ways to increase its value proposition and competitive advantage.

“We had to innovate to find ways to break into a rather saturated market, reduce costs and increase value for our end clients. In doing so I am pleased to find the efforts undertaken positively impact the environment.”

*Joe Matthew, Account Manager, PowerfulCMS*

[www.powerfulcms.com](http://www.powerfulcms.com)
Case Study: Innovation Science – Energy Management (Low Investment Option – Technology Innovation)

Synopsis

Innovation Science was constrained by the existing electricity supply arrangements associated with its leased office space, however, the company implemented practical and cost-effective methods of reducing carbon emission by taking a focus on minimising consumption.

The initiatives were:

1. A 'power-down' policy for all end-user related IT and peripheral equipment (PCs/devices).
2. Programmable shut-down periods for non-critical servers and network infrastructure.
3. The replacement of workstation UPS' with high-end surge protection boards.
4. The implementation of energy efficient lighting.

The reduction in energy consumption was projected to achieve a 5X RoI over five years with the initial outlay of $865 projected to pay itself off in less than 11 months. Actual energy consumption figures over the first few months since implementation confirm these projections.

This achievement clearly demonstrates that an organisation can make a contribution to reducing carbon emissions, even if faced with constraints out of its control. Focusing on working smarter and more efficiently can improve the bottom line and benefit the environment at the same time.

Featured Organisations

Innovation Science is a software and systems engineering company based in Adelaide, South Australia that specialises in scientific research and custom software development for defence and commercial clients.

The Problem to be Addressed

Innovation Science wanted to make a contribution towards reducing carbon emissions by purchasing green energy from renewable sources, but was constrained by existing electricity supply arrangements associated with its leased office space. Without a practical and cost-effective method of turning to green energy, Innovation Science instead turned its focus to minimising the consumption of power.
The Proposed Solution

The following four initiatives were implemented, with the aim to minimise in-house power consumption:

1. A ‘power-down’ policy for all end-user related IT and peripheral equipment (PCs/devices).
2. Programmable shut-down periods for non-critical servers and network infrastructure.
3. The replacement of workstation UPS’ with high-end surge protection boards.
4. The implementation of energy efficient lighting.

Power-down policy for all end-user related IT equipment (PCs/devices)

A company wide policy was adopted where:

- All staff are required to shut down workstations, and turn off screens and direct-attached peripheral equipment when they leave the office for the day.
- Where practical, workstation equipment is to be switched off at the wall socket.
- Ancillary devices (including shredders, microwave oven, etc.) are to remain switched off when not immediately in use.

As a result of the above implementations, stand-by power consumption is minimised for equipment that is under the direct control of individual staff members.

Programmable shut-down periods for non-critical server infrastructure

Innovation Science segregated its existing server and network into two separate environments. All critical components remained operational 24/7, whilst all non-critical components were shut down during out-of-office hours.

Most modern server computers have built-in power management capabilities which simplify the shutdown and startup of these devices. However, peripheral equipment and network switches rarely incorporate power management capabilities. A rack-mount tape drive, for example, was measured at consuming 21W while idle. Further, the stand-by power of server computers in their ‘off’ state was measured at between 4.9W and 6.6W per server. These values seem small, however, they add up surprisingly quickly.

Innovation Science acquired programmable Internet Protocol (IP) addressable power switches in order to remotely control the power for each device in its server room. Non-critical servers were configured to shutdown overnight and the IP power switches were configured to switch off the power supply to these servers, network switches and peripheral devices after graceful server shutdown. Shutdown periods were configured to complement backup regimes, which were also adjusted to maximise the power-off duration of servers. Power to peripheral backup equipment was programmed to be supplied only during scheduled backup periods.

Further power savings were made by programming the IP power switch to turn off a Power over Ethernet (PoE) network switch that was providing power to Voice over IP (VoIP) telephone handsets when the building was unoccupied.

Should access to any of these non-critical devices be required out of hours, each device could be remotely activated by logging into the IP addressable power switch or by running a simple utility application to override the automatic power settings. Further, power to almost every device in the server room was now remotely controllable, thereby allowing power to virtually any device to be cycled from afar if necessary.
The 16 port, 2 channel IP addressable power switch consumes 2.2W plus 0.75W per active output port. This is substantially less than the standby power consumption of devices now controlled by the power switch.

The revised configuration provided the ability to remotely shut-down and power-up non-critical servers and related equipment based on a pre-defined schedule – without needing to access the server room. The scheduling of equipment shut-down periods was carefully integrated with the power-down policy to ensure that business operations were not adversely affected.

**Replace workstation UPS with high-end surge protection boards**

During the end-of-life replacement of the existing Un-interruptible Power Supply (UPS) systems, each workstation UPS was replaced with a high-end surge protection board. The local supply of power had proven very reliable over the past five years and although some surges were experienced, the need for battery backup on workstations was deemed unnecessary. Each UPS was consuming 11W even while not under load, hence, replacing each workstation UPS with a high-end surge protection board provided an acceptable quality of power without the associated power losses.

**Implement energy efficient lighting**

As a result of having assessed alternative technologies (such as LED) to be inappropriate or immature for now, existing 50W halogen light bulbs were also replaced with more energy efficient 35W IRC equivalent bulbs. The replacement bulbs provided the same light output and afforded a modest reduction in overall lighting energy consumption.

All staff were encouraged to switch off lights to any non-public area while unoccupied (this practice was included in the policy change power reduction estimates).

Network Segmentation to reduce power consumption
What were the End Benefits? (Efficiencies, Productivity, Financial, Cultural or Other)

The reduction in energy consumption was projected to achieve a 5X RoI over five years with the initial outlay of $865 projected to pay itself off in less than 11 months. Actual energy consumption figures over the first few months since implementation confirm these projections.

<table>
<thead>
<tr>
<th>Initiative</th>
<th>Power Reduction</th>
<th>Investment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Policy changes</td>
<td>860-1,200 kW/yr</td>
<td>$30 (once-off, review in 2 years)</td>
</tr>
<tr>
<td>Power-down non-critical servers</td>
<td>3.5 MW/yr</td>
<td>$460 (5 year amortisation)</td>
</tr>
<tr>
<td>Workstation surge protection boards</td>
<td>580kW/yr</td>
<td>$300 (5 year amortisation)</td>
</tr>
<tr>
<td>Energy efficient lighting</td>
<td>235kW/yr</td>
<td>$75 (3 year amortisation)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>5.2 – 5.5 MW/yr</strong></td>
<td><strong>$192/yr = ~5X RoI</strong></td>
</tr>
</tbody>
</table>

Application to Other Businesses (can the same principles be applied to an SME)?

The results that Innovation Science has been able to achieve clearly demonstrate that every organisation can make a contribution to reducing carbon emissions, even if they are impacted by constraints out of their control as a result of occupying leased office space. Focusing on working smarter and more efficiently can be seen to directly improve an organisation's bottom line and benefit the environment at the same time.

“An average employee is at work for just 23 percent of a week: Imagine what power could be saved during the other 77 percent”.

*Michael Haddy, Managing Director, Innovation Science Pty Ltd*

www.iscience.com.au
Case Study: Fujitsu – Journey Over Time

Synopsis

Fujitsu’s philosophy is to drive business decisions by taking the stance that environmental preservation is not an additional cost but a corporate value.

From 1970, Fujitsu has demonstrated its ongoing commitment to sustainability by conducting a number of focused environmental protection programs. This was then extended in 1993 to become a more formal environmental program which has involved the following stages:

• **Stage I – II (1993-2000):** Establishing environmental management as a corporate agenda.

• **Stage III (2001-2003):** Embracing recycling, waste minimisation and green procurement.

• **Stage IV (2004-2006):** Transitioning from environmental management to management for a sustainable environment.

• **Stage V (2007-2009):** Becoming more aware of environmental issues and identifying the most suitable approaches to implement.

• **Stage VI (2010->):** Establishing global targets and working towards the 2020 vision.

As a result, all operations throughout Fujitsu have been transformed, thereby delivering both efficiency gains and optimising business processes as a result of re-engineering.

The key areas focused on include: policy, procurement, disposal, infrastructure, energy management, managed services and transformation through efficiency gains and business process re-engineering.

Those principles that Fujitsu follows which can be applied to SMEs are:

• **Reduce the environmental impact throughout the product lifecycle.**

• **Conserve resources to create best-of-breed eco-friendly products.**

• **Reduce risks caused by the use of harmful chemical substances.**

• **Help customers improve environmental efficiency.**

• **Disclose environment-related results and critique for continuous improvement.**

• **Encourage employees to keep in mind the impact of their business activities.**

**Featured Organisations**

**Fujitsu Australia Limited** is a full service provider of information technology and communications solutions. Fujitsu partners with its customers to consult, design, build, operate and support business solutions. From strategic consulting to application and infrastructure solutions and services, Fujitsu has earned a reputation as the single supplier of choice for leading corporate and government organisations.

Fujitsu
The Problem to be Addressed

The challenge of developing an environmentally friendly business is in knowing how to balance environmental considerations with business and economic drivers.

Popular short-term decision making to drive growth and gain market share can compromise the sustainability of business operations in the long-term. Keeping environmental issues in mind at the outset of any decision making process is a discipline that often challenges the status-quo. It requires a strong dedication to carry on and lead the way, even when it is not popular or appears as a disadvantage to competitors.

The Proposed Solution

Fujitsu has always had a long-term view in mind when balancing environmental considerations with both strategic and tactical business decisions. From ‘day one’, back in 1935, the environment was a key part of the philosophy of Fujitsu’s Founder, Manjiro Yoshimura, which led to the Kawasaki Plant being built using a park-style design – at his suggestion.

Since then, this philosophy has continued to drive Fujitsu’s business decisions by taking the stance that environmental preservation is not an additional cost, but a corporate value. As a result, a number of activities across Fujitsu’s business have been completed on a global scale to minimise the impact to the environment. This includes manufacturing operations, professional services, management systems and waste disposal.

From 1970, Fujitsu took this environmentally conscious approach further and demonstrated an ongoing commitment to sustainability by conducting a number of focused environmental protection programs.

Initially focused on implementing environmental controls associated with manufacturing plant operations, these programs quickly spread across the organisation, with the most recent achievement being to assist Fujitsu’s customers achieve a seven million ton reduction in carbon emissions.

The implementation of an environmental management evaluation system in 1993 enabled the adoption of a more methodological approach throughout the organisation. The result was a series of stages that could be defined to both manage the change process and build on the success of each stage.
Fujitsu’s Commitment To Sustainability

- **Stage I – II (1993-2000):** Establishing environmental management as a corporate agenda
- **Stage III (2001-2003):** Embracing recycling, waste minimisation and green procurement
- **Stage IV (2004-2006):** Transitioning from environmental management to management for a sustainable environment
- **Stage V (2007-2009):** Becoming more aware of environmental issues and identifying the most suitable approaches to implement
- **Stage VI (2010-):** Establishing global targets and working towards the 2020 vision

Approach and priorities in formulating the Stage V Fujitsu Group Environmental Program

- **Stage IV Fujitsu Group Environmental Protection Program (fiscal 2004 to fiscal 2006):**
  - Environmentally conscious products and services
  - Reducing our customers’ environmental burdens by providing superlative eco-friendly products and solutions
  - Global warming countermeasures
  - Promotion of energy saving activities throughout the Group

- **Stage V Fujitsu Group Environmental Protection Program (fiscal 2007 to Fiscal 2009):**
  - Basic policies
    - Develop environmental activities in which all employees can play an active role in their daily work
    - Expand the scope of environmental activities to encompass the entire supply chain.
  - Five priority areas
    - Improving the environmental value of product and services
    - Reinforcing risk management
    - Environmental contributions to society
    - Reinforcing governance
    - Global warming countermeasures

- **Medium and long-term social trends:**
  - Responding to global environmental trends
    - Factors that impact management include global warming, energy and resource issues and stronger requirements for social responsibility.
  - From the standpoint of compliance
    - Environmental laws, including laws concerning chemical substances management and product related regulations, are becoming stricter around the world.

Approach to creating the Stage V program – Aiming at further progress beyond the Stage IV program

Approach to creating the Stage V program
Taking into consideration factors that can influence our business in the future.
Local Policy approach

From a local perspective in Australia, it is Fujitsu’s belief that the organisation has an obligation, in all of the communities in which it operates, to contribute to the sustainable growth of society as well as to grow itself. The Fujitsu team do not view environmental protection as a cost, but rather a long-term corporate value.

Fujitsu is committed to providing environmentally friendly products and services to its customers, including the pursuit of sustainable activities across all of its operations. The company leverages technology expertise and creative talents to help promote sustainable development.

Fujitsu pursues sound management and transparency of reporting to gain the trust of its stakeholders. Fujitsu staff maintain strict ethical and legal standards, seek to protect the global environments and respect and protect human rights.

Fujitsu’s Corporate Responsibility (CR) model comprises four dimensions.
Fujitsu’s commitments to each of the four corporate responsibility dimensions include:

| Marketplace          | • Fujitsu will supply sustainable products and services to customers.  
|                      | • Fujitsu will share insights, thought leadership and sustainability learnings with all stakeholders.  
|                      | • Fujitsu will foster the role of sustainability in all dealings with stakeholders.  
|                      | • Fujitsu will work with business partners and suppliers to ensure environmentally friendly products are supplied. |
| Sustainability       | • Fujitsu will actively reduce its impact to the environment, through a sustainability program.  
|                      | • Fujitsu will measure and report its footprint and progress towards targets.  
|                      | • Fujitsu will engage staff members and reward sustainable behaviour. |
| Community            | • Fujitsu will sponsor and support appropriate local community programs.  
|                      | • Fujitsu will contribute to improving society and the environment in which we all live. |
| Workplace            | • Fujitsu will leverage its corporate philosophy (FUJITSU WAY) to maximise Fujitsu’s value and enhance its contributions to society.  
|                      | • Fujitsu will abide by its Code of Conduct.  
|                      | • Fujitsu will improve office facilities and to reduce its impact to the environment.  
|                      | • Fujitsu will support and reward staff members’ sustainability actions. |

What Were the End Benefits? (Efficiencies, Productivity, Financial, Cultural or Other)

Policy/Governance

In 2008, the Fujitsu Group developed a Medium-Term Environmental Vision – ‘Green Policy 2020’ – which aimed to reduce CO₂ emissions by 30 million tons by 2020 through environmental innovation.

Its aim is to support the creation of a prosperous, low-carbon society through leveraging its technologies and know-how to inspire environmental innovation for both business and society in collaboration with customers and partners.

The policy is embodied by the three keywords: Creation, Collaboration, and Change, as illustrated below.
The Fujitsu Group is also a member of both 'Climate Savers' and 'Green Grid', two leading emerging environmental initiatives directed towards achieving long-term sustainable business practices.

In 2007, Fujitsu established a sustainable business unit in Australia which is responsible for driving global initiatives locally and provides specialised environmental consulting services to customers. The Director of Sustainability provides monthly reporting to the CEO and Executive team and has a board approved GreenIT policy and strategy.

"If you really want to understand the benefits and get the most value it needs to come from the top down. It needs to be an IT and a business strategy from the start – a whole-of-business strategy."

Alison O’Flynn, Head of Sustainability, Fujitsu Australia Limited

www.fujitsu.com/au

Procurement

Globally, the Fujitsu Group is helping customers establish:

1. A more sophisticated Environmental Management System (EMS) where suppliers are encouraged to obtain higher levels of EMS accreditation to reinforce their activities for reducing environmental burdens.

2. A Chemical substances Management System (CMS) designed to enhance the management of chemical substances included in products in the supply chain as a whole.

The Fujitsu Group Green procurement direction is part of its comprehensive environmental management system (EMS) and has obtained ISO 14001 certification. The organisation aims to supply products and services with low environmental loads and that do not contain hazardous substances.

Fujitsu has also set forth the Fujitsu Group Green procurement direction in co-operation with its business partners, with the aim of further reducing environmental burdens in the supply chain. The plan is to expand the list of applicable items to encompass all procurement activities. Refer to the Fujitsu Group Sustainability Report 2008 for more details.

In order for this plan to be implemented, Fujitsu requested that all business partners build their own environmental management systems and phase out the use of hazardous substances. Preference is given by Fujitsu to suppliers that:

- Design and build products using environmental friendly processes and raw materials, thereby contributing to reducing electricity consumption and greenhouse gas emissions.
- Offer environmentally friendly packaging to reduce landfill waste.
- Provide more energy-efficient / less-polluting products, again contributing to a reduction in greenhouse emissions.
- Minimise their energy consumption and advertise their environmental impact.
- Offer Product Stewardship (suppliers who take back products after their end-of life) to help reduce landfill waste.
Disposal

In December 1998, Fujitsu became the first company in the industry to establish a recycling system in Japan. The scheme involves the Fujitsu Group collecting waste products from industrial users for disposal and recycling. From its initial beginnings, Fujitsu now offers a certified recycling service and collects waste products from both industrial and individual users.

Fujitsu is a founding member of the Byteback program launched in Victoria. The Byteback program is a free service available to all residents and small business owners in Victoria who want to dispose of unwanted, old and unused computers in a safe and environmentally responsible way.

Fujitsu also encourages customers to take advantage a range of recycling options including:

- Re-sale.
- Refurbishment and re-sale.
- Refurbishment and supply back into the customer's project.
- Donation for charity.
- Safe Recycling, including the removal of data and in accordance with international standards.

Infrastructure

Globally, the Fujitsu Group has developed a super green product certification where a new version of a product has a 25 percent or greater reduction in energy usage over the previous version – achieved by a reduction of size, heating/cooling requirements and environmental impacts. Fujitsu’s target is to have over 50 percent of its products ‘super green’ certified by 2010.

Fujitsu has relocated its Melbourne office to a new six star energy rated building. This offers significant benefits from both an environmental and productivity perspective. By adopting greener technology, the Melbourne office has been able to achieve:

- A lower carbon footprint.
- A reduction in water consumption.
- A more pleasant working environment.

“It is with great pride that we officially open our new office at The Gauge. Our move into this building is a true reflection of our commitment to innovation and sustainability.”

Mr Rod Vawdrey, Chief Executive Officer, Fujitsu Australia Limited

www.fujitsu.com/au

Energy Management

The Fujitsu Group is committed to the establishment of green data centres that operate in a stable manner, contribute towards a better environment and make this contribution visible. As a result, Fujitsu has created a Total Technology Framework for making this a reality, which is based on the following principles:

1. Virtualisation.
2. Efficient energy use.
3. Optimal air conditioning.
4. Clean energy

5. Optimal building design.

6. Dedicated platform for the data centre.

7. Optimal energy linking between facilities.

In Australia, Fujitsu is conducting a data centre Power Usage Effectiveness (PUE) benchmarking program to improve efficiency and reduce greenhouse gas emissions. The organisation has also implemented desktop power settings, combined with a reporting tool that highlights savings made to users for reinforcing cultural change.
Managed Services

The Fujitsu Group is ISO 14001 certified, which flows on to a strong environmental engagement with products, software and services. By providing its customers with environmental solutions and products designed to save energy, Fujitsu can reduce the carbon dioxide that is produced when its products are used by customers.

- Energy saving product designs are achieved through the development of Super Green certifications, resulting in eco-friendly products.
- Customers reduce their environmental footprint through the use of Fujitsu’s environmental IT solutions and product innovation.

For more information click here

Transformation through Efficiency Gains and Business Process Re-engineering

The Fujitsu Group has undertaken a number of transformational initiatives that have collectively resulted in both direct efficiency gains and the re-engineering of business processes.

At a high level, facilities have measured a 10 percent reduction in power consumption, the use of Video Conferencing has resulted in 10 percent less travel and Accounts Payable processing enhancements have achieved a paper reduction of 15 percent.

In Australia, Fujitsu has implemented:

- Managed print services in all offices across Australia, reducing paper consumption by over 1 million sheets in 12 months.
- Limited the number of multi-device devices per floor, requiring a cultural change for the Executive team.
- Video conference facilities to communicate with Japan Head Office.
- Video conference from desktops to facilitated virtual live meetings.

http://www.fujitsu.com/global/about/environment/factories/gwarming/
Application to Other Businesses (can the same principles can be applied to an SME)?

The Fujitsu Group has a strong heritage associated with environmental sustainability that is at the core of its philosophy. The organisation recognises that environmental protection is a vitally important business issue.

By utilising Fujitsu’s technological expertise in the IT industry and creative talents, Fujitsu contributes to the promotion of sustainable development. In addition, while observing all environmental regulations in its business operations, the Fujitsu team actively pursues environmental protection activities.

Those principles followed by Fujitsu that can be applied to SMEs are:

- Reduce the environmental impact throughout the product lifecycle.
- Conserve resources to create best-of-breed eco-friendly products.
- Reduce risks caused by the use of harmful chemical substances.
- Help customers improve environmental efficiency.
- Disclose environment-related results and critique for continuous improvement.
- Encourage employees to keep in mind the impact of their business activities.

Fujitsu also provides professional consulting services to customers to share the knowledge and expertise it has acquired including:

- Providing strategic services at the business layer.
- Providing tools for calculating carbon footprints/benefits at the application layer.
- Providing a GreenIT portfolio at the infrastructure layer (unified communications, virtualisation, datacentre optimisation, energy management and print management).
Case Study: Intel – Sustainable Program Office

Synopsis

At Intel, what began as a grass roots initiative when executives asked the question, ‘What is sustainable IT?’, has become a formalised IT Sustainability Program Office.

Intel’s key aims are to deliver initiatives that focus on strategy development and education, development and delivery of sustainable metrics, drive the sustainable IT project and innovation portfolio, support external events and align eco-technology and corporate affairs.

The key enablers that develop a cohesive, integrated strategy and a sense of urgency are:

• Cultural change, through building a sustainability mindset.

• The development of a sustainability framework for maintaining focus on critical activities.

As a result, Intel has identified the key initiatives that will provide the highest impact in terms of sustainability benefits, cost considerations and potential results.

These include a reduction in energy consumption and increased efficiency of the data centre (technology innovation); incorporating new products and technologies into the office environment to increase productivity and reduce energy consumption (business innovation); and the sharing of experiences with others in order to collaborate and improve results beyond the enterprise.

Establishing an IT Sustainability Program Office provided Intel with the governance structure required to manage and measure efforts across the entire enterprise. It also provided the framework required for Intel to integrate sustainability principles into all the key decision-making processes that created awareness and a sense of urgency within the organisation.

The same principles are just as applicable to SMEs, though they may not be as formally implemented due to the overheads required.

SMEs still need to balance proposed initiatives with pragmatism and corporate goals to ensure that the investment in ‘green’ technologies results in increased efficiency and lower costs.

Featured Organisations

Intel, the world leader in silicon innovation, develops technologies, products and initiatives to continually advance how people work and live. Intel® Software provides technologies, products and services to developers that need to create innovative products and industry-leading software solutions on Intel platforms.

The Problem to be Addressed

The environmental impact of conducting business, especially in the area of IT, continues to receive increased attention on all fronts – from customers and employees to regulators and local communities. In many corporations, environmental considerations have become explicit criteria for making decisions right alongside those criteria associated with financial considerations. Applying an environmental lens to strategic decision making is becoming more commonplace, whereby focusing on the ‘win-win’ benefits is now balanced with what might once have been seen as a competing interests, ie being environmentally friendly.
Despite the fact that many corporations want to be proactive and reduce their impact on the environment, determining the best approach can be challenging. To date, there are few commonly accepted or clearly defined methodologies for making long-term strategic decisions regarding sustainability. As all corporations have financial targets to achieve and shareholders to satisfy, any proposed initiative must be balanced with pragmatism and corporate goals.

**Intel’s Climate Change Timeline**

- 2008 Intel sets a new 2012 climate change and energy conservation goals to drive continuous improvement.
- 2008 Intel becomes the largest corporate purchaser of green power in the U.S. under the U.S. EPA Green Power Partner Program.
- 2007 Intel joins the Chicago Climate Exchange, the only CO₂ emissions trading market in the U.S.
- 2007 Intel co-founds the Climate Savers Computing Initiative.
- 2006 Intel joins the U.S. EPA Climate Leaders Program and commits to reduce global-warming gases 30 percent from 2004 baseline by 2010.
- 2005 CO₂ emissions now regulated at Intel's Ireland site – Intel begins participating in EU trading program.
- 2003 Intel energy conservation goal established: target average 4 percent per year normalised
- 1998 Industry-wide goal set to reduce PFC emissions 10 percent below 1995 baseline by 2010.
- 1996 Intel leads industry agreement on PFC reduction, the first voluntary agreement to reduce global-warming gases.
- 1994 Intel begins public voluntary environmental reporting.

**The Proposed Solution**

Intel IT has long practiced what is now termed sustainability, by investing in and implementing technologies that could result in increased efficiency and lower costs. Early implementation strategies have matured into the sustainability programs that are used today to manage and measure efforts on a holistic basis across the entire enterprise, thereby integrating sound practices, efficient technologies and improved metrics.

**Early Initiatives**

Intel's sustainability initiatives began over a decade ago. Recognising the importance of simply getting started, Intel created its own programs by establishing baselines and metrics for success. Each initiative offered direct benefits to the bottom line, whilst lowering Intel's environmental impact.

**Establishing the IT Sustainability Program Office**

What began as a grass roots initiative when executives asked the question, “What is sustainable IT?” has now become a formalised IT Sustainability Program Office initiative with the following aims:

- Strategy development and education. Develop an IT sustainability strategy and roadmap to educate and provide leadership to the organisations on the principles and importance of sustainable business practices.
- Develop and deliver sustainability metrics. Apply appropriate metrics and communicate sustainability performance while accommodating regional needs.
- Drive the IT project and innovation portfolio. Define and drive an IT sustainability project and innovation portfolio, which includes ‘enabling Intel sustainability’ projects.
• Support external events. Deliver or enable external communications to customers, industry forums and media.

• Platform design team value opportunity input. Share IT key results, ideas and needs relating to sustainability and value-add opportunities with platform design teams.

• Align Eco-Technology and corporate affairs. Drive and influence the partnership between Eco-Technology, Intel Corporate Affairs and IT.

Intel’s Eco-Technology Platform

Intel strives to serve as an environmental role model through its operations, policies and industry collaboration. Intel's Eco-Technology platform encompasses both how products are produced in a sustainable way and what these products deliver, thereby ever-improving energy-efficient performance and contributions to environmental solutions.

As part of overall Intel strategy, various organisations participate in Eco-Technology initiatives and collectively, we are all part of the solution. Within this organisational framework, Intel IT specifically has two roles:

• An active, contributing role in reducing Intel’s environmental impact.

• An innovative, enabling role by providing the information systems to manage and improve Intel’s environmental performance.

Building a Sustainability Mindset

Intel's goal was to develop a cohesive, integrated strategy that created awareness along with a sense of urgency within its organisation and across Intel. Intel management knew they would need to influence corporate culture, including decision making processes and employee involvement in order to be more sustainability-focused and adapt to new thinking and methodologies. The steps taken are shown below.

Establishing a Sustainability Framework

Intel established a sustainability framework as a mechanism for organising sustainability programs and projects and making sure the focus remained on critical activities. The framework guides projects that have an impact on energy efficiency with regard to data centres, office and productivity, business capabilities and IT for buildings.

Sustainability Programs

- Data Centre
- Office & Productivity
- Business Capabilities
- IT for Buildings

Responsible sourcing, reduced consumption and responsible reuse, recycle and disposition

Critical Activities

Compliance: Help ensure data and information meet global regulations and standards
Technology and innovation: Use new technologies to improve Intel® platforms and increase sustainability
Education, communication and decision making: Develop IT sustainability principles
Industry influence: Share best-known methods
Measurements: Establish baselines, metrics and goals for resource management and waste reduction
What were the End Benefits? (Efficiencies, Productivity, Financial, Cultural or Other)

Intel identified and evaluated opportunities across the organisation that would provide the highest impact in terms of:

- Sustainability benefits.
- Cost considerations.
- Potential results.

High Impact: Data Centres

Like many companies, Intel focused first on its data centre environment in order to reduce energy consumption and increase efficiency. As more than half of IT’s direct energy use is related to these facilities, reducing power consumption in all of Intel’s data centres is a key goal. Intel refreshes its servers on a four-year cycle to deliver new, more powerful and more energy efficient systems. Older, obsolete units are then reused, recycled, or judiciously disposed of.

Several pilot projects are underway to enhance data centre power usage effectiveness (PUE) performance. Those projects that are focused on heating, ventilating and air conditioning (HVAC) have already returned outstanding results. Application virtualisation and application end-of-life (EOL) efforts have enabled the organisation to better utilise the assets in its immediate environment and reduce the need for purchases.

High Impact: Productivity

Emphasis was given to mobility and refreshing equipment in Intel's office computing environment, which has increased overall productivity and decreased energy use by incorporating new products and technologies. Reducing the accumulation of personal printers, fax machines and copiers; incorporating double-sided printing; and using digital distribution methods have significantly lowered operating costs and reduced energy consumption. Additionally, implementing virtual conference capabilities and increasing the use of collaboration tools has helped to ‘bring the world closer’, thereby improving communications and reducing the need for local and international travel.

Community Collaboration

Intel IT is also active with its efforts to collaborate and improve results beyond the enterprise. Intel shares its data centre experience directly and Intel IT engagements also provide the opportunity to work with established communities – both onsite and online – in order to exchange techniques and strategies.
Application to Other Businesses (can the same principles can be applied to an SME)?

This is a great example that illustrates just how much can be achieved by an organisation when it becomes an ‘early adopter’ and establishes a leadership position. Establishing an IT Sustainability Program Office provided Intel with the governance structure to manage and measure efforts on a holistic basis across the entire enterprise, thereby integrating sound practices, efficient technologies and improved metrics. It also provided the framework for Intel to integrate sustainability principles into all key decision-making processes that in turn created awareness and a sense of urgency within the organisation.

The same principles, frameworks and approaches adopted by Intel are just as applicable to SMEs, though they may not be as formally implemented due to the overheads required. SMEs will still need to balance proposed initiatives with pragmatism and corporate goals to ensure that any ‘green' technologies in which they invest will result in increased efficiency and lower costs.

Building a Long-term Strategy for IT Sustainability

“Intel IT is engaged in developing a broad, ongoing sustainability strategy to help Intel consume fewer resources and emit less waste. In analysing the business case for IT sustainability, we identified the bottom-line benefits and defined the metrics that enabled us to effectively reduce our environmental footprint. Successful sustainability initiatives are now being incorporated beyond the IT organisation and we will continue to take a structured approach to identifying solutions and instilling long-term sustainability.”

Sally Wellsandt, Sustainability Program Manager, Intel Corporation, April 2009

Steven Snyder, Intel Program Manager, Intel Corporation, April 2009

www.intel.com/au
Case Study: Telstra – Cost Benefit Analysis Calculators (Business Innovation)

Synopsis

In building a roadmap, it is important for an organisation to carefully consider the current situation, the future goals of the organisation and assess what the best opportunities are based on the cost of change to achieve the desired outcomes.

As a part of this process, the cost justification can sometimes be difficult to develop, making it difficult for an effective financial decision to be made due to the lack of confidence and uncertainty in the calculations.

A white paper entitled ‘Using ICT to drive your sustainability strategy’ was developed by Telstra to illustrate new Return on Investment (RoI) tools that can be used by organisations to help them in determining the feasibility of the following four proven ICT technologies:

- Video Conferencing.
- Teleworking.
- Web Contact Centres.
- Fleet and Field Force Management.

The RoI calculator highlights how these four proven ICT technologies can deliver cost savings to organisations, significant environmental benefits and work-life balance benefits to employees. This includes an estimation (based on certain assumptions) of greenhouse gas emission reductions and employee productivity outcomes by assessing the anticipated financial costs and savings to the company by adopting each alternative.

Featured Organisations

Telstra is the only communications company in Australia that can provide customers with a truly integrated telecommunications experience across fixed line, mobiles, broadband (BigPond®), information, transaction and search (Sensis®) and pay TV (FOXTEL).

The Problem to be Addressed

In building a roadmap, it is important for an organisation to carefully consider the current situation, the future goals of the organisation and assess what the best opportunities are based on the cost of change to achieve the desired outcomes.

As a part of this process, the cost justification can sometimes be difficult to develop, making it difficult for an effective financial decision to be made due to the lack of confidence and uncertainty in the calculations.
The Proposed Solution

A white paper entitled ‘Using ICT to drive your sustainability strategy’ was developed by Telstra and WWF to illustrate new Return on Investment (RoI) tools which can be used by organisations to assist them in determining the feasibility of the following four proven ICT technologies:

- Video Conferencing.
- Teleworking.
- Web Contact Centres.
- Fleet and Feld Force Management.

The RoI calculator highlights how these four proven ICT technologies can deliver cost savings to organisations, realise significant environmental benefits and deliver work-life balance benefits to employees. This includes an estimation of greenhouse gas emission reductions and employee productivity outcomes by assessing the financial costs and savings to the company for each alternative. For example:

- **Video Conferencing.** A large company that spends approximately one million dollars in interstate travel a year could save 200 tonnes of CO₂ annually by implementing a high-definition video conferencing service. This service could be paid off as a result of reduced travel expenditure in approximately seven months. In addition, an individual would save travel time which would improve their work-life balance and increase workplace productivity.

- **Teleworking.** An organisation with 1800 employees could reduce net greenhouse gas emissions by approximately 500 tonnes of CO₂ a year by encouraging 200 staff to work remotely from home for three days a week (this includes the CO₂ emissions associated with an employee working from a home office).

- **Web Contact Centres.** A contact centre with 150 employees could avoid approximately 130 tonnes of CO₂ a year by providing 50 employees with access to an online contact centre system from home for three days a week. The ICT investment could be paid off through productivity improvements in around 11 months.

- **Fleet and Field Force Management.** An organisation with a field workforce of 500 employees could avoid approximately 600 tonnes of CO₂ annually by adopting a mobile field force management application on a wireless device. The investment could be paid off through reduced energy expenditure in around six months, providing annual savings of about 10 percent.

**What were the End Benefits? (Efficiencies, Productivity, Financial, Cultural or Other)**

Telstra has already implemented the use of these tools and has successfully achieved sustainable growth through the investment in ICT driven productivity. This is what has been undertaken achieved, according to Telstra:

1. **Video Conferencing.** Telstra invited 100 of its marketing team to a virtual-offsite conference utilising hi-definition (HD) video conferencing. In doing so, the company avoided 54,000 kilometres, or 214 hours of travel and 23 tonnes of CO₂ emissions, whilst saving $20,000 in travel costs. Telstra’s Enterprise & Government team has rolled out a large fleet of HD video conferencing units, which has allowed them to reduce business travel by 30-40 percent in the last financial year.
2. **Teleworking.** If 1,000 Telstra employees work one day a week from home, 850 tonnes of annual CO₂ emissions is saved, which is the equivalent of 165 cars off the road. In addition, each employee would save $400 a year in after tax money by avoiding 74 hours of commuting costs. To encourage the uptake of Teleworking, Telstra has been running ‘Green Days’ each month to encourage its staff to participate in the initiative.

3. **Web Contact Centres** – The Telstra Area General Manager for Western NSW travels regularly between the three Telstra offices – Dubbo, Orange and Bathurst. Prior to Webex and room based conferencing, he was travelling 4-5 days per week, which equated to 70,000 kilometres and 19.8 tonnes of CO₂ emissions each year. Due to the deployment of web contact centres, his travel time has been cut by 60 percent – a reduction of 40,000 kilometres and 660 travelling hours. As a result, fuel usage and carbon emissions have also been drastically reduced.

4. **Fleet and Field Force Management.** Telstra has the largest automotive fleet of its kind in Australia and each year covers 160 million kilometres, manages 7,200 field units and completes 25,000 daily installation and repair tasks. In 2005, Telstra installed GPS systems which linked to a job dispatching system. This improved route efficiency and realised an 8 percent fuel saving due to jobs being allocated to the closest technician and a reduction of on-road time and overall wear-and-tear on fleet vehicles.

**Application to Other Businesses (can the same principles can be applied to an SME)?**

For the typical SME considering the implementation of GreenIT solutions, exploring the feasibility of each of the RoI tools highlighted above is a worthwhile exercise in order to identify how suitable the tools are for their particular organisation. Some solutions may provide better RoI than others due to the nature of your particular business model, with each option needing to be considered individually on its merits. In addition, it is also important to note that no technology can take away the need for the human element. Even in Telstra’s case, the implementation of these each of these technologies was not 100 percent. Instead, each of the technologies were used to abate the emissions associated with low value activities. High value activities associated with key decision making activities were conducted using more traditional methods.

“Sustainability practices are now a critical business issue being driven by a variety of factors including government regulation, corporate social responsibility and increasing economic pressures”.

“Through the new Return on Investment (RoI) tools, organisations can estimate the commercial and environmental savings from investing in four specific ICT solutions. They estimate greenhouse gas emission reductions and employee productivity outcomes by assessing the financial costs and savings to the company for each alternative.”

*Hugh Saddington, General Manager Marketing Strategy and Analytics, Telstra Enterprise and Government*

[www.telstra.com](http://www.telstra.com)
Case Study: PCA People – Green Business Certification Program (Business and Technology Innovation)

Synopsis

PCA People utilised GreenBizCheck’s (http://www.greenbizcheck.com/) certification program to quickly identify the most suitable initiatives it could adopt in order to save money and help the environment. By focusing on quick wins and short-terms initiatives, the initial certification program was completed within eight months.

The main areas covered through GreenBizCheck’s certification checklist include energy conservation; water consumption reduction; waste reduction; transportation and travel; purchasing; supply chain sustainability and carbon calculation as well as subsequent carbon offset purchase.

Recently, a new product, GreenITCheck, which has a specific focus on an organisation’s ICT footprint, was added to the certification checklist.

GreenBizCheck’s practical program helped PCA People quickly implement environmentally responsible business practices. Over an eight month period, PCA People adopted a number of initiatives that provided the following benefits:

• Money was saved as a result of the reduction of energy and water usage minimisation.

• Attracted like-minded eco-savvy customers.

• Attracted and retained staff through the organisation’s commitment to the environment.

• Delivered a tax-deductibility for the certification process.

The certification process is suitable for a wide range of businesses but is mainly focused on assisting SMEs to get a better understanding on what their current environmental footprint is and how this then rates against a number or predetermined criteria. It is relevant to any organisation, both large or small, because it enables you to conduct an assessment on your organisation’s ‘footprint’ using the comprehensive GreenBizCheck checklist.

An organisation is rated on the completion of this checklist and is provided with a certification level based on this rating. There are three distinct levels of certification: Gold, Silver and Bronze. Once you have received the online report you can begin to improve your score by implementing recommended measures. In other words, you can continuously improve your score and your certification level by committing to certain undertakings which are weighted according to the relative environmental impacts of the underlying action. Importantly, the report also provides practical, local suggestions on what you can do to improve your score and certification level. This advice is very useful for SMEs and busy professionals who are time poor. Larger organisations will find the initial checklist and scoring system useful for building a business case for a more detailed assessment or specialised focus.
Featured Organisations

**PCA People** specialises in professional recruitment in Canberra and the wider ACT region. The organisation has been operating in Canberra for 25 years and is proud of the long and successful relationships that have been developed with a wide range of government and private clients who use the company’s services. It is the goal of PCA People to provide clients and candidates with personal, efficient, relevant and professional recruitment and human resource services.

**GreenBizCheck** provides a fast, affordable, world-leading green business certification program scrutinised by universities, environmental agencies, governments and major corporations that is designed to maximise an organisation's green credentials – with a 100 percent money back guarantee.

The Problem to be Addressed

The management of PCA People felt that climate change was one of their most urgent issues and were looking for a way to show customers and staff that they were concerned with climate change and that they were making a real and positive contribution to the environment. Understanding that office buildings produce more carbon dioxide than cars, the PCA People team wanted to know what they could do to reduce their carbon emissions.

The Proposed Solution

PCA People conducted an assessment on the organisation’s ‘footprint’ using the GreenBizCheck comprehensive checklist. On completion of the checklist, the company was rated and provided with a certification level based on this rating.

There are three distinct levels of certification: Gold, Silver and Bronze. When you have received the online report you can begin to improve your score by implementing recommended measures. In other words, you can continuously improve your score and your certification level by committing to certain undertakings which are weighted according to the relative environmental impacts of the underlying action.

Importantly, the report also provides practical, local suggestions regarding what you can do to improve your score and certification level. This advice is very useful for SMEs and busy professionals who are time poor. Larger organisations will find the initial checklist and scoring system useful for building a business case for a more detailed assessment or specialised focus.

GreenBizCheck’s online report allowed PCA People to track progress and measure improvements as they started implementing some of the suggested actions. They were able to continuously improve their score and certification level by committing to certain undertakings which are weighted according to environmental impacts. Importantly, the report also provided relevant suggestions as to how the organisation could do to improve its score and ultimate certification level. Some of the checklists processes undertaken include:

- Energy conservation.
- Water consumption reduction.
- Waste reduction.
- Transportation and travel.
- Purchasing.
- Supply chain sustainability.
- Carbon Calculation plus subsequent carbon offset purchase.
Recently, a new product called GreenITCheck was added to the certification list. GreenITCheck has a specific focus on an organisation’s ICT footprint.

GreenBizCheck was developed as a result of rigorous and detailed research conducted in collaboration with a number of organisations including: the NSW government, NSW Nature Council, World Wildlife Foundation, Australian Rainforest Foundation and Deloitte.

What Were the End Benefits? (Efficiencies, Productivity, Financial, Cultural or Other)

GreenBizCheck’s practical program helped PCA People quickly implement environmentally responsible business practices. Over an eight month period, PCA People adopted a number of initiatives that provided the following benefits:

- Money was saved as a result of the reduction of energy and water usage minimisation.
- Attracting like-minded eco-savvy customers.
- Attracting and retaining staff as a result of their commitment to the environment.
- Delivered a tax-deductibility for the certification process.

Application to Other Businesses (can the same principles be applied to an SME)?

It is relevant to any organisation – both large and small – because it enables organisations to conduct an assessment on their ‘footprint’ using the comprehensive GreenBizCheck checklist.

This advice is very useful for SMEs and busy professionals who are time poor. Larger organisations will find the initial checklist and scoring system useful for building a business case for a more detailed assessment or specialised focus.

“All our ethos at PCA is ‘People First’ and this has been strengthened, internally and externally, throughout the GreenBizCheck certification process. PCA People worked closely with GreenBizCheck to achieve a green business certification. It has fostered a team commitment to future sustainability of our environment and also our business. It is simply wonderful to guide a group of professionals that lead the local industry on sustainability and all work to deliver on our corporate responsibilities.”

Allison Guy-Ritchie, Managing Director, PCA People

www.pcapeople.com
Case Study: Toyota – Developing a GreenIT Roadmap (Business and Technology Innovation)

Synopsis

Toyota wanted to develop IT specific sustainability strategies for its three main Victorian sites in order to ensure that IT contributed to meeting the targets in its five year Environment Plan.

Fujitsu’s framework for enterprise sustainability was used to identify new opportunities and improvements at each of Toyota’s Victorian operations.

Following the completion of a series of milestones, a program of works was developed which consisted of a number of quick wins, short to medium term projects, and long-term projects.

A potential savings of 43 percent on Greenhouse Gases (GHG) and electricity consumption was modelled on the implementation of the quick wins which involved office-based IT equipment initiatives (printer, copier, fax and AV). Further reductions were forecast as being realised with the implementation of stage 2 and 3 initiatives which were planned for the future.

Other key benefits included:

• Clearly defined KPIs for the CIO.

• A realistic program of works that can achieve tangible cost savings and reductions in CO$_2$ emissions.

• The inclusion of externally hosted facilities’ carbon emissions into line-of-sight for reporting on carbon emission targets.

Following a methodological process is essential in order to ensure the successful achievement of project outcomes. Careful consideration needs to be given to each individual business environment so that it can be appropriately assessed and benchmarked against in order to ensure the original benefits are realised. Though smaller organisations will not have the time and money to undertake a scoping exercise as comprehensive as that of Toyota, the principles can still be applied with the details summarised accordingly.

Featured Organisations

Toyota Motor Corporation Australia (Toyota) is one of Toyota Japan’s global manufacturing centres with a long-term commitment to the domestic and export markets.

Fujitsu Australia Limited is a full service provider of information technology and communications solutions. Fujitsu Australia Limited partners with its customers to consult, design, build, operate and support business solutions. From strategic consulting to application and infrastructure solutions and services, Fujitsu has earned a reputation as the single supplier of choice for leading corporate and government organisations.
The Problem to be Addressed

Toyota already had an excellent reputation for its sustainable approach to business. In 2005, Toyota developed a five year Environment Plan which was endorsed at board level with modest and achievable targets. The company was reporting its progress each subsequent year in its annual Sustainability Report.

Having already achieved one of the lowest waste-per-vehicle levels in the world, a new focus was given to see what could be achieved in the corporate environment. Toyota management wanted to develop specific sustainability strategies for IT at its three main Victoria sites in order to ensure that IT contributed to meeting the targets in its five year Environment Plan. The challenge was – how can a sustainable approach to IT contribute to Toyota’s Environmental Plan that both cuts costs and GHG emissions?

The Proposed Solution

Toyota engaged Fujitsu to assist with the assessment of both environmental risks and opportunities within its IT estate. By utilising Fujitsu’s framework for enterprise sustainability, new business opportunities and improvements were identified in Toyota’s current operations through the following deliverables:

1. Statement of intent.
2. Strategy development.
4. Program of works.

This program involved Fujitsu conducting detailed interviews and using assessment tools in order to develop a clear picture of the various strengths and weaknesses of Toyota’s current approach to IT in relation to its environmental impact. From this assessment, Fujitsu worked with Toyota to formulate a Sustainable IT strategy that linked directly to Toyota’s existing strategies and outlined a number of actions, projects and programs that could be implemented to achieve significant cost and greenhouse gas emissions savings.

Statement of intent

The first step was to create a statement of intent, used as a ‘call for action’ by each of the business units within Toyota. Fujitsu helped to identify and classify the risks and opportunities climate change presented to Toyota’s business.

Categories included regulatory, supply chain, product, technology, litigation, reputation and physical risks.

Focus was given to Scope 2 emissions, excluding the Scope 1 emissions that were associated with all manufacturing activities. Outsourced IT facilities were also excluded as these were deemed to fall under the responsibility of the hosting company as a result of NGER legal interpretations.
Strategy Development

Strategy development focused on creating a sustainable approach with incentives for:

• Cleaning up operations (identifying unnecessary equipment through the reduce/reuse/recycle approach).
• Optimising infrastructure (using techniques such as consolidation, virtualisation and power management).
• Managing energy use (optimising the data centre environment, power sources and policies).
• Rationalising procurement and supply.

The program was designed to align with Toyota’s corporate objectives by considering the boundaries and scope of Toyota’s responsibilities, brand strategy, leadership opportunities and shareholder value.

Baseline and energy modelling

The accurate measurement of greenhouse gas emissions was achieved by gaining a concise understanding of Toyota’s direct and indirect emissions and of the full lifecycle of Toyota’s business operations. As a result, Fujitsu delivered an organisational sustainability profile that modelled Toyota’s energy consumption and was calibrated against actual measurements and adjusted accordingly. This included:

• Current baseline.
• Metrics.
• Benchmarks.
• Sustainability targets (in line with strategy).

Program of works

Fujitsu developed a project roadmap and delivery programs prioritised using the Fujitsu IT Value framework. This was based on an integrated set of techniques that systematically identify, evaluate, align and manage value. The initiatives identified were broken up in to the following three stages:

<table>
<thead>
<tr>
<th>Stage</th>
<th>Project Type</th>
<th>Duration</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Quick wins</td>
<td>&lt;12 months</td>
<td>Able to be implemented immediately with minimal cost.</td>
</tr>
<tr>
<td>2</td>
<td>Short to medium term projects</td>
<td>1-2 years</td>
<td>Minimal investigation required to develop the business case.</td>
</tr>
<tr>
<td>3</td>
<td>Long-term projects</td>
<td>&gt; 2 years out</td>
<td>Requires business feasibility to develop a high-level business case to confirm viability.</td>
</tr>
</tbody>
</table>

Project funding was then confirmed and projects implemented using Fujitsu’s transformational model.
What Were the End Benefits? (Efficiencies, Productivity, Financial, Cultural or Other)

A potential saving of 43 percent on GHG and electricity consumption was modelled as a result of the implementation of the quick wins that involved office-based IT equipment initiatives (printer, copier, fax and AV).

Further reductions were forecast to be realised through the implementation of stage 2 and 3 initiatives planned for the future.

Other key benefits included:

• Toyota’s CIO now has clearly defined carbon emission targets and has been given responsibility for the organisation’s electricity bill.

• A program of works has been developed that can achieve the following reductions by the end of fiscal 2010:
  a. GHG emissions from energy consumption 10 percent below the 2008 levels.
  b. Paper consumption 15 percent below the 2008 levels.
  c. GHG emissions from travel 10 percent below the 2008 levels.

• The inclusion of carbon emissions from externally hosted facilities into ‘line-of-sight’ for ‘true’ reporting on carbon emission targets.

Application to Other Businesses (can the same principles be applied to an SME)?

Following a methodological process is essential in order to ensure the achievement of successful project outcomes. Careful consideration must to be given to each individual business environment so that it can be appropriately assessed and the baseline measured to enable the benchmarking of future initiatives to ensure that the original benefits are realised. Though smaller organisations will not have the time and money to undertake a scoping exercise as comprehensive as Toyota, the principles can still be applied with the details summarised accordingly.

“It’s an opportunity for an IT department to move from a more reactive approach. It builds on the business’ existing environmental strategies and also outlines a framework for collecting information on emission and carbon trading.”

James Scott, CIO, Toyota Motor Corporation Australia

www.toyota.com.au
Case Study: Corporate Express – Data Centre Optimisation (Technology Innovation)

Synopsis

Corporate Express, Winner of the 2008 Australian Sustainability Awards, designed and built a highly efficient, next generation data centre facility that provided minimal footprint and maximum flexibility, whilst aligning the design to company CSR strategies.

‘Better than best’ practice Power Usage Effectiveness (PUE) was achieved by leveraging the benefits of first virtualising the existing infrastructure to minimise the requirements of the new data centre facility.

Initial virtualisation activities achieved include:

- A 70-80 percent reduction on data centre space, power, cooling requirements.
- The removal of 184 physical servers.
- The reduction of Total Cost of Operation (TCO) of servers by 40 percent.

The next generation, purpose built data centre achieved:

- A PUE of 1.49 – where 67 percent of all energy is consumed for computer processing.
- Minimal construction costs – approximately halved the construction costs for a TIA-942 Tier III data centre.
- A reduction of $23,000 per year in electricity costs.

Though more suited to larger organisations with a large number of servers, the same principles can be adapted to an organisation of any size in relation to aligning the data centre strategy with corporate sustainability objectives. The larger the data centre, the larger the potential savings that can be achieved.

Featured Organisations

Corporate Express is a supplier of business essentials that operates throughout Australia and New Zealand. It provides business, education and government clients with everything an office requires – from consumables and canteen products through to business furniture, promotional marketing and printed materials and IT and facilities management services.

The Problem to be Addressed

In 2005, the Corporate Express data centre reached maximum capacity for floor space, rack space, power and cooling.

As a result of various acquisitions over the years, the existing infrastructure and system architecture was complex, Disaster Recovery facilities were inadequate and the current data centre strategy was working against ongoing sustainability objectives.
The Proposed Solution

The virtualisation and simplification of the existing data centre addressed the immediate need and provisioned additional capacity to meet the organisation’s needs for the next 18 months. This was later followed by migrating to a new, purpose built, next generation data centre to optimise efficiency gains and provide sufficient capacity development for the next 10-15 years.

Specific initiatives that were undertaken as a part of the initial consolidation phase included:

1. Virtualisation of the environment.
2. Implementation of a Storage Area Network (SAN).
3. Virtualisation of the power environment.
4. Implementation of a tiered storage model.
5. Replicatation of a Disaster Recovery (DR) capability.
6. Implementation of a data de-duplication and archiving.

The second phase was then to develop a new, purpose built, highly energy efficient data centre facility in order to provide both minimal footprint and maximum flexibility whilst aligning the design to company Corporate Social Responsibility (CSR) strategies.

Specific considerations included in the design were the fact that it had to:

- Be built on the premise, only consume what is required and scale when needed.
- Maximise power and cooling efficiency:
  - Fluid dynamics (air flows).
  - Modular blade uninterruptible power supply (UPS) technology.
  - Variable drive computer room air conditioners (CRACS).
- Implement hot/cold aisle return air plenums:
  - Reduce air mixing and permit higher operating temperatures.
  - Floor plenum sealing.
  - Use an anemometer to adjust the air velocity at each individual floor tile in order to ensure that each rack is being cooled optimally and to ensure that the air temperature changes at exactly seven degrees Celsius – to prevent overcooling and wasted energy.
• Minimise air circulation within the cabinets, ie block the area between the front vertical rails and the sides of the cabinet.
• Use filler blanking panels in spare rack units.
• Build virtualisation outcomes into design.

What Were the End Benefits? (Efficiencies, Productivity, Financial, Cultural or Other)

The outcome was a Tier three data centre facility that was designed for minimum 10-15 year lifespan and aligned with company CSR strategies. High energy efficiency was achieved without excessive build costs and it was technically capable of supporting all IT requirements.

By virtualising and then simplifying the existing infrastructure and architecture the following results were achieved:
• 70-80 percent reduction on data centre space, power and cooling.
• 184 physical servers removed.
• 40 percent reduction of servers Total Cost of Ownership (TCO).
• 70 percent improvement in server fleet utilisation.
• Simplified Disaster Recovery (DR) approach and reduced restoration timings.
• A reduction in server build and application load from 60-80 hours to 30-60 minutes.
• A substantial reduction in storage requirements.

The second phase in developing a purpose built, next generation data centre achieved the following results in comparison to the original data centre:
• 29 percent reduction in CO₂ emissions, based on efficient energy usage.
• Reduced CO₂ emissions by 140 tonnes – which is the equivalent of taking 31 cars off the road.
• A reduction of $23,000 per year in electricity costs.
• The all-up virtualisation has saved 667 tonnes CO₂ emissions, equivalent to taking 147 cars off the road.
### Before After

<table>
<thead>
<tr>
<th></th>
<th>Before</th>
<th>After</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical Servers</td>
<td>200</td>
<td>16</td>
</tr>
<tr>
<td>Storage</td>
<td>50 TB DAS</td>
<td>20 TB SAN</td>
</tr>
<tr>
<td>Network</td>
<td>600 ports</td>
<td>64 ports</td>
</tr>
<tr>
<td>Backups</td>
<td>2TB</td>
<td>200GB</td>
</tr>
<tr>
<td>Facilities</td>
<td>20 server racks / 100 KVA power</td>
<td>2 server racks / 10 KVA power</td>
</tr>
</tbody>
</table>

As a result of adopting this two phase approach, Corporate Express also benefited in the following ways:

- Able to remain in data centre for an additional 18 months.
- Allowed for infrastructure strategy to be laid down.
- Set the organisation up to be able to move to a new data centre.

Other benefits include:

- **Better than best practice.** Increased Power Usage Effectiveness (PUE) by 3.1 basis points better than best practice, thereby consuming 67 percent of all energy for computer processing given that best practice is currently 55 percent.

- **Reduced construction costs.** Approximately half of the usual building costs for TIA-942 Tier III data centre.

- **2008 Winner Sustainable Company of the Year.** The corporate sustainability programs delivered and currently in flight, together with the data centre achievement, resulted in Corporate Express winning the 8th Australian Sustainability Awards.

<table>
<thead>
<tr>
<th></th>
<th>Industry Best Practice</th>
<th>Industry Mean</th>
<th>Corporate Express</th>
</tr>
</thead>
<tbody>
<tr>
<td>PUE</td>
<td>1.8</td>
<td>2.1</td>
<td>1.49</td>
</tr>
<tr>
<td>DCIE</td>
<td>55 percent</td>
<td>47 percent</td>
<td>67 percent</td>
</tr>
<tr>
<td>Tier 3 build cost per/sqm</td>
<td>$21,000</td>
<td>$27,890</td>
<td>$11,116</td>
</tr>
</tbody>
</table>

Application to Other Businesses (can the same principles be applied to an SME)?

Though more suited to larger organisations with a large number of servers, the same principles can be adapted to an organisation of any size in relation to aligning the data centre strategy with Corporate Sustainability objectives. The larger the data centre, the higher the potential savings that can be achieved. The data centre is only one area to focus on energy efficiencies – outside the data centre there are a myriad of opportunities to reduce energy, become more efficient and reduce costs. Having a GreenIT plan that addresses all these opportunities is the key to achieving the desired efficiency outcomes.

“A key element in optimising the purpose built data centre was to firstly virtualise the environment. This allowed the new data centre to be built with a much smaller footprint, providing large savings on construction costs. Though great efficiency gains have been achieved, ongoing monitoring and adjustment is still required to ensure the optimisation of the hot/cold aisle configurations, keeping temperature differences between hot/cold aisles exactly seven degrees Celsius. This can be achieved by using an anemometer to adjust the air velocity at each individual floor tile to prevent overheating and wasted energy”

*Mark Jones, Technology Infrastructure Manager, Corporate Express*

www.ce.com.au
Case Study: Jetstar – Virtualisation (Business and Technology Innovation)

Synopsis

Jetstar embarked on a virtualisation program to commoditise all IT operations which was aimed at addressing key market challenges and supporting its aggressive growth strategy.

The technology roadmap used to achieve this was broken up into the following phases: minimise; centralise; radicalise; commoditise; outsource; and utilise Application Service Providers. As a result, Jetstar is the only airline in the world that can access all its back office and business systems from any international check-in counter at all international airports in which the airline operates.

Virtualisation strategies reduced the physical server count by 120 units, reduced 2007/2008 IT costs by 0.82 percent of total revenue and increased the desktop asset life from 3 to 10 years. This represents a gross IT saving for Jetstar of between $805,000 and $1,250,000 per annum and contributed to an annual saving of 87,500 tonnes of CO₂.

Adopting a strategy to virtualise operations is a great way to increase efficiency and productivity so that business goals can be achieved faster, better and cheaper. This approach is more suited to organisations that have larger operations, enabling the cost benefits of virtualising to be achieved. For smaller operations, virtualisation may not be the best option as it may be possible to gain greater efficiency gains by simply upgrading to more energy efficient equipment.

Featured Organisations

Jetstar is a value based carrier network that provides all day, every day low fares with an open approach to air travel. Collectively, the Jetstar Group of airlines operate over 1900 weekly flights to 15 countries, serving in excess of 50 markets across the Asia and Asia Pacific region and employing 7,000 staff across the Asia Pacific region.

VMware is the global leader in virtualisation solutions from the desktop to the data centre. Customers of all sizes rely on VMware to reduce capital and operating expenses, ensure business continuity and strengthen security. VMware services 94 percent of the ASX 100, more than 7,000 customers and more than 1,000 partners in Australia and New Zealand, helping them to reduce their carbon impact and achieve their environmental goals through virtualisation.

The Problem to be Addressed

Jetstar’s key strategic initiative for the next 10 years is growth, which is underpinned by a strong investment in a new fleet by Qantas ($22 billion investment, $15 billion uncommitted A380/ B787).

This expansion put additional strain on the back-office operations, so Jetstar management needed to find new solutions in order that key market challenges could be dealt with including:

- Fuel volatility/depreciation.
- Increasing competition.
- Poor economic conditions.
- Quickly changing market.
- Increasing regulatory pressures.
The Proposed Solution

The decision by Jetstar to commoditise all IT operations was made in order to address these key market challenges and support the organisation’s aggressive growth strategy. The technology roadmap used to achieve this delivery model was to:

1. Minimise.
2. Centralise.
3. Radicalise.
4. Commoditise
5. Outsource.
6. Utilise Application Services Providers.

This resulted in Jetstar implementing a virtualisation program involving:

- Server virtualisation.
- Storage virtualisation.
- Client/PC virtualisation.
- Network virtualisation.
- Application virtualisation.
- Services virtualisation
- Commoditising the delivery of IT and IT services

The following table provides a brief summary of both the IT and Business performance drivers for commoditising IT operations.

<table>
<thead>
<tr>
<th>IT Performance Drivers</th>
<th>Business Performance Drivers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lower IT support costs</td>
<td>Simplify / commoditise processes and assets</td>
</tr>
<tr>
<td>Speed to market</td>
<td>Be adaptable – competitive advantage in business</td>
</tr>
<tr>
<td>Lower cost to introduce technology and exit</td>
<td>Speed, flexibility and scalability</td>
</tr>
<tr>
<td>Improve Service delivery performance</td>
<td>Supply toolkit of connectivity and IT supply options</td>
</tr>
<tr>
<td>Improve security</td>
<td>Choice in dealing with complexity</td>
</tr>
<tr>
<td>Reduce risk</td>
<td></td>
</tr>
<tr>
<td>Delivery of business systems</td>
<td></td>
</tr>
</tbody>
</table>
What Were the End Benefits? (Efficiencies, Productivity, Financial, Cultural or Other)

Jetstar is the only airline in the world that can access all of its back office and business systems from any international check-in counter at any of the international airports in which the airline operates.

In 2007/2008, IT costs represented 0.82 percent of Total Revenue, representing a gross IT saving between $805,000 and $1,250,000 per annum. This contributed to a annual saving of 87,500 tonnes of CO₂.

The virtualisation strategies reduced the physical server count by 120 units. Without this virtualisation strategy, Jetstar would have needed to increase physical server count in order to meet capacity requirements.

For each server removed from the data centre:

- Between $2,500 to $6000 per year for Power and $9,000 for Management and Administration costs were being saved per year.
- Approximately 12.5 Tonnes of CO₂ was being abated per year.

Other benefits have been achieved by virtualisation of the desktop environment. For instance, asset life has increased from 3 to 10 years and power consumption at airports has been reduced by 85 percent. Other savings include: management costs (42 percent); maintenance costs (60 percent); and remote systems management costs (100 percent).

Application to Other Businesses (can the same principles be applied to an SME)?

Adopting a strategy to virtualise operations is a good way in which to increase efficiency and productivity in order that business goals can be achieved faster, better and cheaper. Though mainly suited to larger organisations, there are different solutions available that SMEs can adopt to enable them to virtualise operations, such as SaaS and Cloud Computing.
Jetstar’s Virtualisation projects - in the past and in the future – have a focus on delivering better IT cost models, organisational agility and choice. In addition to virtualising servers and systems and applications, Jetstar has extended the virtual programs through to the end appliances.

1) Jetstar has replaced all PC technology at all Australian domestic Airports and Engineering locations with thin client computers (both lean and green).

2) All offshore contractors access the Jetstar systems via the Virtual office www.jetstar.com/office; Jetstar has no managed IT offshore, this is either built into the agreements that the contractors supply their IT or alternatively such as in Japan, the local office buys for a local store with 3yrs support/3yrs antivirus.

All international common user check-in counters also have full access to the Virtual office, therefore we can run business systems on any of the International the check-in counters that Jetstar operates. Any application we can run in the office we can deploy immediately to any internet location, any third party IT or any common user international airport.

3) The PCs (desktops) in head office are now reaching 5 years of age. Over the next 12 months, Jetstar will look to replace these with thin clients. The objective is to remove the last desktop from the office, the view is if it’s not portable and fixed it should be a lower ‘Total Cost of Ownership’ thin client.

4) Jetstar has developed a software image for engineering technical publications which is a virtual PC on a 16GB memory card, therefore we don’t care what the actual hardware is any more.

This frees us up to buy any brand; therefore, we were able to buy 60 run out Toshiba laptops at $850 ex tax (including operating system licenses). This is less than the company capitalisation threshold, thus laptops are becoming a disposable commodity.

The real systems are actually running on the 16GB SD card, this then lets us buy any commodity without any SOE (Standard Operating Environment) restrictions.

The SD card and VP (virtual players) can loaded into any machine, Apple, Windows, or even a home computer and still run all the engineering manuals and software in isolation and with full compatibility. We plan to ship these to the overseas stations where they can also run on any of the offshore engineering contractors systems. The new virtual systems have been rolled out to Bangkok. The entire Technical Publications current fleet of computers is expected to be completed by end of October.

5) With virtualisation, in the future staff should be able to exercise a preference and select any laptop item that matches their personal tastes or requirements.

Citrix software, one of our suppliers, provides their staff $US2,100 to select their own laptop, some add the extra money required to upscale to a machine that suits their persona needs. The staff member then owns, maintains and looks after the laptop themselves.

However, the real emerging driver is the challenge with GEN-Y and Virtual contractor Teams. Why is it that organisations bring in new staff who have 5+ years on laptops used for their schooling; personal use; and social networking and then when they start give then a inferior, locked down company Laptop.
Aren’t we, in this case, destroying the capability and effectiveness of these new staff. They should be able to bring their own equipment and we just supply the company bits on a 16/32/64/128GB SD memory card, then it is the best of both worlds.

Similarly with Contractors, Jetstar is built on virtual teams they always bring their own laptop equipment, therefore we have wired almost 1/3 of the building with DSL (Broadband), again we should just supply the Jetstar bits on a memory card.

There are challenges, the laptop’s systems would run the personal software, fully open and on the internet. The Jetstar virtual machine would have to successfully co-habitat with this. We would need to replace the Internal Networks with broadband therefore not have a Jetstar in-office networks at all. The virtual machines would then be the only trusted component that would be able via security certificate establishes the Network connections into the Jetstar core systems.

Jetstar has set this as a key project over the next 2 years. The objective is to be able to extend the Engineering Virtual programs so that we can safely and securely run a Jetstar system on any PC/laptop platform with any Operating system from a memory stick or SD card.

How all this then translates into any HR policies still needs to be assessed, in two years a lot of the GEN-Y will prefer to bring their own laptop, and keep all the social networking tools; we need to accept and deal with this. The laptop like mobile phone should be an individual preference. We need to think how we can manage this, contractors may bring their own: Jetstar staff may choose to bring their own - it’s all about offering choice.

For the Jetstar business, Virtualisation is a business enabling technology VMWare been an integral partner in helping us achieve this objective.

Stephen Tame, CIO, General Manager IT, Jetstar Airways

www.jetstar.com.au
Case Study: Intel – Server Hardware Refresh Using Energy Efficient Equipment (Technology Innovation)

Synopsis

Intel consolidated its processing workload by implementing an enterprise-wide strategy designed to accelerate the server refresh cycle, thereby increasing the server performance and energy efficiency in order to reduce cost. This enabled Intel to increase computing capacity without adding extra facilities or dramatically increasing energy consumption.

By adopting a four year refresh cycle for all design computing servers, Intel’s computing capacity increased seven-fold and utilises the same space with less power, thereby providing up to $USD 250 million in projected savings over eight years.

As a result, $USD10.4 million was saved in 2008, avoiding construction costs at four Intel locations, delivering greater energy efficiency and reducing energy consumption.

Adopting a regular hardware refresh cycle is a practical way for both large and small IT operations to increase computing capacity whilst reducing energy consumption. Additional savings can also be achieved through consolidation, though this is more suited to larger operations where high RoI can be achieved due to higher consolidation ratios.

One factor that can influence the decision for smaller organisations to consolidate servers is the capacity for the organisation to provision for future growth. While this can represent a low RoI initially, it can quickly become a favourable option when you factor in the low investment required to provision additional servers.

Featured Organisations

Intel, the world leader in silicon innovation, develops technologies, products and initiatives to continually advance how people work and live. Intel® Software provides technologies, products and services to developers that need to create innovative products and industry-leading software solutions on Intel platforms.
The Problem to be Addressed

Historically, Intel manages IT operational costs by maximising the useful life of each server, keeping them in service well beyond their warranty.

Over time, this resulted in Intel experiencing unnecessary operating costs and data centre expansions due to the inherent inefficiencies associated with the growing number of older servers.

New ways of managing the infrastructure were required by Intel in order to meet the ever-increasing computing requirements, whilst maximising operational efficiency and productivity.

The Proposed Solution

Consolidation of the processing workload was implemented via an enterprise-wide strategy in order to accelerate the server refresh cycle, thereby increasing the server performance and energy efficiency to reduce cost. This enabled Intel to grow computing demands without adding extra facilities or dramatically increase energy consumption.

What were the End Benefits? (Efficiencies, Productivity, Financial, Cultural or Other)

Adopting a four year refresh cycle for all design computing servers enabled up to 7:1 consolidation ratio, providing up to USD 250 million in projected savings over eight years. As a result, USD 10.4 million were saved in 2008, avoiding construction costs at four locations and thereby delivering greater energy efficiency and reducing energy consumption.
Other benefits included:

- **Green computing.** A reduction of energy consumption by up to 700 kilowatts (kW) was estimated for every 500 older servers consolidated, thereby reducing Intel’s carbon footprint.

- **Better capabilities for design engineers.** Increasing the number of newer servers enabled design engineers to become more productive and accelerate chip design as new servers could accommodate the higher computing requirements that were being demanded.

**Application to Other Businesses (can the same principles be applied to an SME)?**

Adopting a regular hardware refresh cycle is a practical way for both large and small IT operations to increase computing capacity whilst reducing energy consumption. Additional savings can also be achieved through consolidation, though this is more suited to larger operations where high RoI can be achieved through higher consolidation ratios.

<table>
<thead>
<tr>
<th>Servers</th>
<th>Consolidation Ratio</th>
<th>RoI</th>
</tr>
</thead>
<tbody>
<tr>
<td>~20</td>
<td>9:1</td>
<td>High</td>
</tr>
<tr>
<td>~2</td>
<td>2:1</td>
<td>Low</td>
</tr>
</tbody>
</table>

One factor that can influence the decision for smaller organisations to consolidate servers relates to the ability to provision for future growth. Though being a low RoI initially, this can quickly become favourable when you factor in the low investment required to provision additional servers.

> “With the introduction of the Intel® Xeon® processor 5500 series-based platforms, the benefits we are seeing from our IT strategy to standardise on higher-end processors for our servers purchases is even more compelling and results in a significantly lower TCO.”

*Diane Bryant, Chief Information Officer, Intel Corporation*

[www.intel.com/au](http://www.intel.com/au)
Case Study: Connex – Carbon Management System (Business Innovation)

Synopsis

Connex’s environmental mandate to use energy and resources wisely was achieved by implementing Prima Consulting’s Sustainability Management solution – Sustainability SCO2record. All relevant data is collected in a centralised database which enables Connex to automatically monitor and assess its carbon emissions.

The cost of carbon has been minimised at four levels:

• Reduced energy consumption bills.
• Reduced administration overheads.
• Compliance with NGER, EREP & GRI legislation.
• A reduction in the number of carbon permits that need to be purchased.

Utilising carbon management software to automate reliable, accurate reporting and financial forecasting is essential to enable organisations to understand the impacts of possible ‘what-if’ scenarios.

It also provides an invaluable resource for the benchmarking of emission reduction initiatives over time, providing tangible results that demonstrate improvements made.

Featured Organisations

Connex is Australia’s largest commuter rail network which operates 331 train fleet, travelling across 15 train lines to provide 12,664 services to the people of Melbourne each week.

Prima Consulting is a professional services company that specialises in Information Management. Prima Consulting provides services to major Australian organisations as well as key government departments.

The Problem to be Addressed

Connex has an environmental mandate to use energy and resources wisely and as such, required a framework to support an ongoing commercial strategy for the integration of Carbon Management. Tracking consumption and emissions obligations under the current National Greenhouse Emission Reporting (NGER) was creating a mass of data entry, with up to 70 percent of Connex’s sustainability department’s time being spent on collating reports. Connex’s obligations include adhering to the Australian Governments green house gas reporting system (OSCAR) and meeting the Victorian Government’s requirements for an Environment and Resource Efficiency Plan (EREP), whilst keeping the long term view of the Global Reporting Initiative (GRI) for Sustainability Reporting.
The Proposed Solution

Connex required the right processes to be implemented in order to capture the relevant data that would enable the monitoring and assessment of its carbon emissions. Prima Consulting’s Sustainability Management solution (Sustainability SC02record) is now used by Connex to collate carbon information from multiple sites in the one central, secure location. An interactive dashboard with embedded capabilities, such as multiple customisable reports, trend lines and predictive modelling is used to provide information and outcomes for various abatement and offsetting initiatives that Connex has in place in order to maximise the return on its ‘carbon dollar’.

The four layers where cost reductions were achieved are:

- Consumption bills.
- Administration overheads.
- Government compliance costs.
- The amount of carbon permits Connex will be required to purchase.

What were the End Benefits? (Efficiencies, Productivity, Financial, Cultural or Other)

Connex achieved the following key benefits from implementing the Sustainability SC02record:

- Reduced energy consumption bills.
- Reduced administration overheads.
- Compliance with NGER, EREP & GRI legislation.
- Reduced the number of carbon permits needing to be purchased.

Other benefits include:

- Underpinning of a Carbon Strategy.
- Financial forecasting and ‘what-if-scenarios’.
- Benchmark emission reduction initiatives.
- Reduced need for consultants.
- Fact based decision support.
Application to Other Businesses (can the same principles be applied to an SME)?

Utilising carbon management software to automate reliable, accurate reporting and financial forecasting is essential for organisations so that they can understand the impacts of possible ‘what-if’ scenarios. It also provide an invaluable resource for the benchmarking of emission reduction initiatives over time, thereby providing tangible results that demonstrate the improvements that have been made. The same principles can be applied to other businesses, including SMEs.

“Without being certain of our baseline carbon footprint, we could only make assumptions on the benefits and savings offset initiatives were having. Now Connex can measure with accuracy and validation previously unavailable to us. The environmental and financial rewards will be felt for years to come”

Richard Mason, Environmental Sustainability Manager, Connex

www.connexmelbourne.com.au
Case Study: BLADE – Integrated Blade & Top of Rack Switches (Technology Innovation)

Synopsis

A major worldwide Financial Services company demanded more computing power from its existing data centre facilities to deliver higher speeds for transactions, with tighter security, whilst reducing their operational costs and carbon emissions. As a result of replacing all existing switches with BLADE’s RackSwitch G8000 1/10Gb aggregation switch units, operating costs were reduced by 80 percent over a three year period, latency was reduced 73 percent and cabling requirements were minimised through the use of consolidated infrastructure.

From a network perspective, it is important to consider the significant benefits that more efficient switching equipment can provide in speed and power usage, as well as in reduced cabling. Bringing the networking back to a rack level will have a positive impact on the overall resource usage in the data centre.

Though this type of technology is mainly suited to large IT operations, it may be relevant to those SMEs that have high processing needs and where there are opportunities to consolidate switching hardware.

Featured Organisations

BLADE is the leading supplier of Gigabit and 10G Ethernet network infrastructure solutions that reside in blade servers and server and storage racks. BLADE’s virtual, cooler and easier RackSwitch family demonstrates Rackonomics – a revolutionary approach for scaling out data centre networks in order to drive down total cost of ownership.

The problems needing to be addressed?

A major worldwide Financial Services company demanded more computing power from its existing data centre facilities to deliver higher speeds for transactions, with tighter security, whilst reducing their operational costs and carbon emissions. New solutions for the existing switching infrastructure were needed so that these demands could be achieved, scaling out data centre networks to drive down total cost of ownership.

The Proposed Solution

Operating 25 data centres worldwide and 18 pods per data centre, existing legacy switches were replaced with high performance BLADE’s RackSwitch G8000 1/10Gb aggregation switch units in each location. Each of BLADE’s integrated blade switches provide network intelligent switching features, simplified cabling, and fewer network ports to purchase, cable up, and manage.

What were the End Benefits? (Efficiencies, Productivity, Financial, Cultural or Other)

By replacing the older external switches with BLADE’s RackSwitch G8000 1/10Gb aggregation switches, overall power costs were reduced by 80 percent over a three year period. In addition, BLADE’s integrated blade switches provide network intelligent switching features that simplify cabling and reduce the number of network ports that need to be managed, thereby providing significant savings in associated cabling costs and annual maintenance contracts.
Comparing the Total Cost of Ownership (TCO), BLADE Switches provided a 75 percent saving as compared with traditional networking solutions.

### TCO with BLADE’s Switches

<table>
<thead>
<tr>
<th>Description</th>
<th>Cost ($USD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Network Power 3 Year – 89,400 BTU per day</td>
<td>$4,238</td>
</tr>
<tr>
<td>Per year HVAC (based on 12 cents per KWH) = $32</td>
<td></td>
</tr>
<tr>
<td>3 Year HVAC Cost with 0 percent growth in cost per BTU = $32 x 3</td>
<td>$96</td>
</tr>
<tr>
<td>Hardware 3 x RackSwitch G8000 48 port</td>
<td>$29,190</td>
</tr>
<tr>
<td>Hardware Copper L2/3 GbESM (36)</td>
<td>$64,800</td>
</tr>
<tr>
<td><strong>Total Cost for 3 Years</strong></td>
<td><strong>$98,324 per pod</strong></td>
</tr>
</tbody>
</table>

### TCO Traditional Networking

<table>
<thead>
<tr>
<th>Description</th>
<th>Cost ($USD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Network Power 3 Year – 294,768 BTU per day</td>
<td>$20,202</td>
</tr>
<tr>
<td>Per year HVAC (based on 12 cents per KWH) = $113</td>
<td></td>
</tr>
<tr>
<td>3 Year HVAC Cost with 0 percent growth in cost per BTU = 3 x 113</td>
<td>$339</td>
</tr>
<tr>
<td>Hardware (2) 6509 with (6) 48 TX</td>
<td>$357,790</td>
</tr>
<tr>
<td>Hardware (36) Copper Pass Through</td>
<td>$25,164</td>
</tr>
<tr>
<td><strong>Total Cost for 3 Years</strong></td>
<td><strong>$403,495 per pod</strong></td>
</tr>
</tbody>
</table>

Application to Other Businesses (can the same principles be applied to an SME)?

For larger IT operations, bringing the networking back to a rack level will have a positive impact on the overall resource usage in the data centre. This can help to increase speed, reduce power usage and reduce cabling. Smaller organisations may also benefit if they have high processing needs and there are opportunities to consolidate switch gear.

“Switching and network equipment makes up a significant part of the powered equipment in a data centre. The impact of cabling also impacts the effectiveness of cooling and airflow strategies in a data centre. Taking a ‘green’ approach to designing and deploying network resources, saves money, improves performance, and reduces carbon emissions. You just need to do the maths!”

*Peter Hall, Vice President & General Manager*

www.bladenetwork.net
Case Study: DELL – Energy Management (Enterprise Solution – Minimum of 200 Desktops – Technology Innovation)

Synopsis

Dell embarked on an energy efficiency program that aimed at conserving energy and cutting expenses by reducing the power used by approximately 50,000 of its computers during non-business hours.

1E’s NightWatchman® and 1E WakeUp® were deployed to the 50,000 client computers that fully integrated with Dell’s corporate Microsoft® Windows Server® and Microsoft Systems Management Server (SMS) environment.

As a result, Dell achieved a 40 percent reduction in energy costs, translating into US$1.8 million in savings per year.

The use of 1E NightWatchman® is a great example of how an organisation can effectively implement energy management practices that reduce energy consumption and operating costs.

Though cost savings are more noticeable for larger corporations, 1E NightWatchman® is just as relevant to smaller organisations with as few as 200 PCs.

Featured Organisations

Dell is a multinational technology corporation that develops, manufactures, sells and supports personal computers and other computer-related products.

1E solutions and services help automate and simplify IT operations and reduce complexity, management cost and power consumption costs. By providing leading-edge solutions with its expertise 1E has earned the trust and confidence of over 15 million licensed users across 1,100 businesses in 42 countries worldwide.

The Problem to be Addressed

Energy conservation is an increasingly important issue for organisations across a wide range of fields. Recent forecasts that indicate that electricity rates will likely rise by almost 20 percent in the next decade have grabbed the attention of corporate managers.

As the cost of energy continues to rise, corporations are increasingly on the lookout for ways to reduce consumption. At the same time, government programs around the world are encouraging and sometimes requiring businesses to reduce energy waste.

To address this issue, Dell embarked on an energy efficiency program that was aimed at conserving energy and cutting expenses by reducing the power used by approximately 50,000 of its computers during non-business hours.
The Proposed Solution

The challenge was to adopt software that integrated with Dell’s corporate Microsoft® Windows Server® and Microsoft Systems Management Server (SMS) environment.

The Dell team chose two applications from industry leader 1E.

1E NightWatchman® software saves files and closes applications and shuts down or places computers into sleep mode in the Microsoft Windows environment, whilst simultaneously preventing data loss and application errors. The software also allows computers to be turned off from a central location, at a specified time, whilst providing extensive reports for management.

1E NightWatchman® works with 1E WakeUp®, which then re-powers computers in synchronisation with Microsoft SCCM / SMS. Administrators are able to re-boot computers from a centralised command so they can deploy security patches or new applications during off-hours.

<table>
<thead>
<tr>
<th>Time</th>
<th>PC power state</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.00am</td>
<td>Power up PC to apply security updates</td>
</tr>
<tr>
<td>4.00am</td>
<td>PC’s powered down</td>
</tr>
<tr>
<td>7.00am – 6.00pm</td>
<td>PC’s powered up – PCs not being used are powered down</td>
</tr>
<tr>
<td>6.00pm – 3.00am</td>
<td>Unused PCs are powered down according to schedule</td>
</tr>
</tbody>
</table>

What were the End Benefits? (Efficiencies, Productivity, Financial, Cultural or Other)

By deploying 1E’s NightWatchman® and 1E WakeUp® applications to its 50,000 client computers, Dell has achieved a 40 percent reduction in energy costs, which translates into US$1.8 million in savings per year.

Energy consumption for Dell’s desktop computers has dropped to 5 watts per hour, down from an average of 89 watts per hour. Power consumption for notebook computers has reduced from a range of 15 to 25 watts per hours to 3 watts per hour.

In addition to delivering significant energy and cost savings, the Dell power management program has achieved its successes without disrupting operations.
Application to Other Businesses (can the same principles be applied to an SME)?

The use of 1E NightWatchman® is a good example of how an organisation can effectively implement energy management practices that reduce energy consumption and operating costs. Though cost savings are more noticeable for larger corporations, 1E NightWatchman® is just as relevant to much smaller organisations that have as few as 200 PCs.

“These are significant cost savings that put us far out in front of regulatory benchmarks and show the rest of the industry what can be achieved. Our energy conservation efforts go beyond allowing Dell to demonstrate its commitment to the environment – they offer a real-world example that empowers our customers to duplicate our success”

Jay Taylor, Senior Engineer Global Strategist, Dell

www.dell.com.au
Case Study: Handset Detection – Cloud Computing (Business Innovation)

Synopsis

Uptime is of paramount importance when providing real time device and carrier information for customising the display of web-based content on mobile devices.

Hosting the Service on the cloud, using a SaaS operating model, provides the necessary high availability and assurance that sudden load spike can be handled seamlessly and gracefully as computing processing is scaled up or down to meet demand.

With Amazon Web Services (AWS), the time to provision additional computing capacity takes minutes, instead of hours or days, depending upon traditional methods used.

Though migrating to AWS increased hosting costs approximately 10 percent, the benefits gained through auto scaling, load balancing and massive flexibility more than made up for the convenience offered.

Enterprise grade virtualisation has been with us for a while now and Cloud Computing is the next step in that direction. Whilst Handset Detection utilises public cloud infrastructure, SMEs can take advantage of virtual private clouds (http://aws.amazon.com/vpc/) to meet business objectives. Though it is not suited to all business applications, careful consideration will need to be given to ensure alignment with business objectives and expectations.

Featured Organisations

Handset Detection allows developers, designers and agencies to work with thousands of mobile devices, easily and effortlessly. Designers and agencies are using this technology for mobile website redirection and mobile analytics, whereas developers tend to use it for mobile device properties. Handset Detection is a self updating, fully redundant, globally accessible web service that contains an up-to-date list of all mobile phones and devices on the planet.

Handset Detection is built around the ‘Software As A Service’ model and is attracting a following in the finance, media, telecommunications and tourism sectors.

The Problem to be Addressed

There are thousands of mobile phone models in use today, with around 120 new phones globally released each month. This creates a tremendous problem for those companies that work with mobile technologies, as all phones are subtly different, e.g. screen sizes, audio capabilities, image types, streaming media, xHTML compliance and operating systems.

Companies deploying mobile Services need to ensure that the offering they release this month will work next month and the month after – without any need for continual adjustments and any sort of onerous ongoing development burden.

Handset Detection cures this problem, by providing real time device and carrier information in order that mobile Services can be dynamically adjusted to individual device requirements, without the need to cater specifically to each device.
The Proposed Solution

Utilising a SaaS based business model means that uptime is paramount. TheService must scale to meet demand, have high availability and offer customers the assurance that if they hit a sudden load spike, then that load can be handled seamlessly and gracefully.

To meet these requirements, Handset Detection turned to Amazon Web Services (AWS). Amazon has range of InfrastructureServices which were initially developed for their own internal needs and are now available to the public.

AWS is a scalable, reliable, distributed computing infrastructure, or ‘cloud’.

Handset Detection uses the following services in two availability zones: Elastic Compute Cloud (EC2) with Elastic Block Store (EBS), Elastic Ip Addresses (EIP), Elastic Load Balancing (ELB) and Auto Scaling (AS) along with Simple StorageService (S3) for storage. Essentially, AWS provides a set of building blocks.

Each building block performs the following roles:

**EC2**  Equates to raw computing power, or server instances used for web or database servers.

**EBS**  Is a disk storage attached to EC2 instances (think of it like virtual hard disks).

**EIP**  Permanent IP addresses (assigned to EC2 instances).

**ELB**  Load balances incoming requests to available EC2 instances in separate availability zones.

**AS**  Auto Scaling monitors each cluster server and starts/stop EC2 instances based on utilisation rules.

**S3**  StorageService that holds virtual server images and application information used by EC2 instances.

What were the End Benefits? (Efficiencies, Productivity, Financial, Cultural or Other)

**Rapid scaling**

The traditional approach is to have excess servers sitting around in case of load spikes. Provisioning and configuring new servers could take 48+ hours, depending on your hosting company. By utilising AWS, the time to provision additional computing capacity is a few minutes. Moreover, AWS monitors live usage and adds or decreases compute capacity as required.
Flexible Resources – hidden bonus and application testing

 traditionally, pre-release test phases require a server test environment as close to the production servers as is possible. In complicated deployments, this can involve multiple dedicated test servers. With most ‘clouds’ you only pay for the time you use, which means that it is easy to spawn five or six new testing instances and be operational.

When testing is finished, the user simply shuts those instances down. This can also be used for load and volume testing.

Other benefits include:

- **Green Computing.** Server utilisation is maximised as the environment automatically scales up or down with demand.

- **Simplicity.** Outsourcing the server environment to a cloud provider has greatly simplified the infrastructure.

Cost Comparison

Calculating the direct costs for Cloud Computing can be challenging, as charging is based on a slightly different set of metrics to the usual metrics used for servers and bandwidth. Amazon has a Monthly Cost Calculator, which can be accessed via http://calculator.s3.amazonaws.com/calc5.html

The migration by Handset Detection to AWS saw costs increase by approximately 10 percent. Though a small amount of raw computing capacity was lost due to the virtualised nature of the cloud, this was offset by the benefits gained through auto scaling, load balancing and massive flexibility.

Application to Other Businesses (can the same principles be applied to an SME)?

Enterprise grade virtualisation has been around for some time and Cloud Computing is the next step in that direction.

Whilst Handset Detection utilises public cloud infrastructure, SMEs can take advantage of virtual private clouds (http://aws.amazon.com/vpc/) to meet business objectives. Though it is not suited to all business applications, careful consideration will need to be given to ensure alignment with business objectives and expectations.

As an example, the AWS infrastructure provides unlimited access to storage and compute capacity. In the simplest sense, this might entail offsite backups to a data silo that never runs out, however, in the most complex case it could be a full migration of all traditional business servers.

It’s important to note that not all clouds are created equal. The AWS cloud is closer to traditional infrastructure than most, which simplifies transition. Other clouds such as Google App Engine (http://code.google.com/appengine/) require applications to be purposely written for their infrastructure.

“AWS allows us to focus our efforts on building great software and not spending time managing infrastructure. It has reduced our time to market, massively increased our service capacity and provided a rock solid foundation for us moving forward.”

Richard Uren, Head of Magic, Handset Detection

http://www.handsetdetection.com
Case Study: Sustainability Victoria – Byteback Australia
(Business Innovation)

Synopsis

Sustainability Victoria launched the Byteback program with the aim of developing a product steward scheme with the IT industry for end-of-life computer equipment. Byteback is being run in conjunction with the Australian Information Industry Association (AIIA) and industry partners Apple, Brother, Canon, Dell, Epson, Fujitsu, Fuji-Xerox, HP, IBM, Lenovo, Lexmark, Officeworks and several local councils in Victoria.

After collection, the computer equipment (eWaste) is transported to a specialised electronic recycling and recovery centres. Equipment is disassembled into separate material streams (plastic, precious metals, batteries, cathode ray tubes, printed circuit boards and insulated wiring) and sent off to various locations around Australia and the world for recovery and recycling. This process ensures that valuable materials and toxic chemicals are kept out of landfill and cannot have a negative impact on the environment.

In over four years, the Byteback program has:

- Collected over 2,000 tonnes of computers and related equipment – this is equivalent to 450 truck-loads or three and a half Olympic swimming pools (full to the brim).
- Established eight permanent collection sites across Victoria.
- Run regional collection events.

Some 97 percent of the waste collected has been recycled, leading to the abatement of 11,500 tonnes of carbon. Importantly, the Byteback initiative has also helped capture critical data that will inform the development of a national regulatory framework.

Featured Organisations

Sustainability Victoria is a government agency, the purpose of which is to illustrate the way in which resources can be used more efficiently, thereby reducing our everyday environmental impacts.

Byteback is a free computer take-back program designed to enable people to responsibly dispose of end-of-life equipment, or equipment that has reached the end of its useful life.

The Problem to be Addressed

There are approximately 14 million computer and related peripherals items in Victorian households, of which just over 10 percent are either not in use or not working and are therefore candidates for recycling.

The only alternative available for the disposal of computer equipment is to add it to landfill. As such, there is a growing concern within the Australian community about the impact of this on the environment, a concern which was felt the strongest amongst householders and small business owners.
The Proposed Solution

Sustainability Victoria developed the ByteBack program in conjunction with the Australian Information Industry Association (AIIA) and founding partners Apple, Canon, Dell, Epson, Fujitsu, Fuji-Xerox, HP, IBM, Lenovo, and Lexmark in response to the mounting concern regarding IT equipment ending up in landfill or being inappropriately disposed through other channels. Byteback was also developed in line with the Victorian Government’s Towards Zero Waste policy.

eWaste collected by Byteback is broadly divided into two groups:

1. Branded.
2. Whitebox (unbranded).

For each of these categories there will be a portion that can be further defined as ‘orphaned’ i.e. a company that no longer operates in Australia and it is therefore problematic to make the brand owner take responsibility for end-of-life recycling.

<table>
<thead>
<tr>
<th>Market segment</th>
<th>Composition</th>
<th>percent of responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Branded</td>
<td>• Companies participating in the Byteback accounting for 45 percent</td>
<td>70 percent or greater</td>
</tr>
<tr>
<td></td>
<td>• Major recognised brands (approx 19) accounting for 28 percent</td>
<td></td>
</tr>
<tr>
<td>Whitebox</td>
<td>About 50 companies are responsible for 80 percent of the eWaste. Therefore the number of companies responsible for whitebox eWaste could be in the thousands.</td>
<td>20 percent or less</td>
</tr>
<tr>
<td>Orphan</td>
<td>Can be prominent brands still operating in the market place e.g. Mitsubishi, Hyundai etc.</td>
<td>10 percent</td>
</tr>
<tr>
<td></td>
<td>Can be wound-up companies e.g. IPEX, Optima etc.</td>
<td></td>
</tr>
</tbody>
</table>

After collection, the computer equipment (eWaste) is transported to a specialised electronic recycling and recovery centres. Equipment is disassembled into separate material streams (plastic, precious metals, batteries, cathode ray tubes, printed circuit boards and insulated wiring) and sent off to various locations around Australia and the world for recovery and recycling. This process ensures that valuable materials and toxic chemicals are kept out of landfill and cannot have a negative impact on the environment.

What Were the End Benefits? (Efficiencies, Productivity, Financial, Cultural or Other)

In just over four years, the Byteback program has:

• Collected over 2000 tonnes of computer and related equipment.
• Established eight collection sites across Victoria.

Some 97 percent of the eWaste collected has been recycled, leading to the abatement of 11,500 tonnes of carbon.
Byteback Disposal Pathways and Recycling Yields.

Importantly, the Byteback initiative has also helped capture critical data that will inform the development of a national regulatory framework.

Findings to date include:

- 42 percent of equipment collected is manufactured by the 11 participating brand owners.
- A further 31 percent of the equipment collected is manufactured by 27 brand owners yet to commit to the scheme.
- Equipment from close to 700 unique brands has been collected.
- 98 percent of equipment collected is six years or older.
- The unit cost of recycling the equipment has steadily decreased, with the prospect of further reductions anticipated.

<table>
<thead>
<tr>
<th>All Sites</th>
<th>1 – 3 Years Old</th>
<th>4 – 6 Years Old</th>
<th>7+ Years Old</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Camberwell</td>
<td>31</td>
<td>1,617</td>
<td>6,609</td>
<td>8,257</td>
</tr>
<tr>
<td>Darebin</td>
<td>–</td>
<td>19</td>
<td>478</td>
<td>497</td>
</tr>
<tr>
<td>Geelong</td>
<td>44</td>
<td>626</td>
<td>2,152</td>
<td>2,822</td>
</tr>
<tr>
<td>Moonee Valley</td>
<td>21</td>
<td>488</td>
<td>2,078</td>
<td>2,587</td>
</tr>
<tr>
<td><strong>Totals per unit</strong></td>
<td><strong>96</strong></td>
<td><strong>2,750</strong></td>
<td><strong>11,317</strong></td>
<td><strong>14163</strong></td>
</tr>
<tr>
<td><strong>Totals per percent</strong></td>
<td><strong>1 percent</strong></td>
<td><strong>19 percent</strong></td>
<td><strong>80 percent</strong></td>
<td><strong>100 percent</strong></td>
</tr>
</tbody>
</table>

Application to Other Businesses (can the same principles be applied to an SME)?

The Byteback program was specifically developed for SMEs and offers the ideal way for SMEs to integrate product stewardship into their procurement and disposal practices for computer and IT equipment. Byteback is a free service and ensures that the recovery of valuable products and materials is maximised and the volume of eWaste going to landfill is minimised.

“The Byteback program creates an economic opportunity to grow the recovery and recycling sectors, as well as diverting valuable resources from going to landfill.”

*Jan Trewhella, Acting CEO, Sustainability Victoria*

Sustainability Victoria
Snapshot: Wal-Mart – Sustainable Product Index (Business Innovation)

On 16 July 2009, Wal-Mart announced plans to develop a worldwide sustainable product index during a meeting with 1,500 of its suppliers, associates and sustainability leaders at its home office – signalling the start of this organisation’s journey towards developing a sustainable supply chain. Wal-Mart’s index will establish a single source of data for evaluating the sustainability of products and is being developed to translate product information into a simple rating for consumers about the sustainability of products. According to Wal-Mart, this will provide customers with a transparent view of the quality and history of products that they don’t have today.

Application to Other Businesses (can the same principles be applied to an SME)?

From an SME perspective, it’s important to be aware of the changes that are happening in the larger organisations with which you are associated. For instance, if you are currently not required to report on any environmental metrics, it will be only a matter of time before you are. Those organisations that leave implementing environmental initiatives to the last minute will lose out to the organisations that have already made significant inroads in this area. A number of simple quick and easy initiatives have are discussed in the GreenIT eBook which organisations can implement today and provide immediate cost savings tomorrow – not doing so will only be to your organisation’s detriment.

“The index will bring about a more transparent supply chain, drive product innovation and, ultimately, provide consumers the information they need to assess the sustainability of products. If we work together, we can create a new retail standard for the 21st century.”

Mike Duke, President and Chief Executive Officer, Wal-Mart Stores, Inc.
Wal-mart Sustainability Milestone Meeting, July 16, 2009
Snapshot: State Government of Victoria – Environmental Selection Criteria for Multi-function Devices (Business Innovation)

Today, Governments are coming on board for the plight to be ‘green’ by introducing new regulations and policies that provide industry with financial signs and mechanisms to encourage the greening of the supply chain. The following is an example of how the Victorian Government specified environmental requirements for Multi-function Devices (MFDs) in a recent tender document.

The Contractor(s) must provide MFDs that:

a. Are Energy Star compliant, with Energy Star capabilities enabled.
b. Have low overall energy consumption in operation as well as standby and sleep modes.
c. Can have all components switched off by the user so that no standby power is being consumed.
d. Have document storage capacity (including the ability to code and store print jobs).
e. Have duplex and page shrinkage (at least two pages to a page) printing and copying capabilities.
f. Are able to use paper with recycled content.
g. Are able to use paper which has previously been printed on one side.
h. Are able to use remanufactured toner cartridges, including third party remanufactured toner cartridges meeting required standards, with no effect on service agreements or warranties.
i. Have low operating noise levels.

The following features are highly desirable:

a. Units containing a percentage of recycled materials, and/or materials which can be recovered, remanufactured or recycled at the end of the unit’s useful life. Contractor(s) are encouraged to provide innovative proposals for the disposal of equipment complying with environmental standards.
b. Packaging should be recyclable or compostable, and should preferably include recycled content. Packaging take-back programs are encouraged.
c. The Victorian Government wishes to eliminate unnecessary packaging associated with MFDs. Preference may be given to an arrangement where, within the first 12 months of the contract, packaging reuse and reduction options, whilst still offering adequate protection to products, will be developed.
d. Details of strategies and policies that manufacturers and/or suppliers have developed or are in the process of developing in the area of extended producer responsibility.
Application to Other Businesses (can the same principles be applied to an SME)?

With the commencement of a national eWaste collection and recycling scheme, Governments should seek to provide preference for companies that engage in community programs. While not specifically stated within this RFT, it could be implied that the last ‘highly desirable’ feature would place a Byteback participant in a more favourable position.

Support by Governments for implementing procurement preferences for brands undertaking environmental and social activities for the broader community have gone largely unnoticed – Byteback being a prime example. This demonstrates the failings of a voluntary eWaste program and the reasons why industry through AIIA is pushing for a mandated participation program with a legislative underpinning.
Case Study: State Government of Victoria – Environmental Selection Criteria for Desktops and Laptops (Business Innovation)

Synopsis

Industry has consistently approached and lobbied the State Government to change its approach towards RFTs for IT equipment on a number of levels. AIIA - with the support of Sustainability Victoria and Multimedia Victoria – suggested to State Government that specific causes on key environmental considerations were included in RFTs. The GSG moved to develop a green purchasing program which focused on incorporating environmental considerations into WoVG procurement documentation.

ECO-Buy assisted the GSG with the development of the green purchasing program, initially targeted for the upcoming Desktop and Notebook Computer Equipment State Purchasing Contract. The aim was to provide environmental specifications for achieving significant environmental benefits associated with procurement activities.

Tender applicants were required to demonstrate their environmental responsibility by providing details about their environmental policy and environmental management system, and to advise on progress if one or both of these initiatives had not been implemented or adopted at the time the tender was released. A response against the Electronic Product Environmental Assessment Tool (EPEAT) criteria was also required to evaluate, compare and select desktop computers, notebooks and monitors based on their environmental attributes.

This is a very effective approach for developing a sustainable supply chain that is suitable for all organisations. It takes a high level view, leveraging well established industry benchmarking programs, which provides an independent evaluation of each supplier’s environmental performance. Over time, this criterion will develop and expand to include new measures, such as Carbon Emissions and will influence smaller organisations to think and act more sustainably, even though the criterion may not be directly relevant to them.

Featured Organisations

The Department of Treasury & Finance (DTF) provides the Victorian Government with economic, financial and resource management policy advice. The Government Services Group (GSG) within DTF contributes to sound financial management of the State’s fiscal resources through better value for money outcomes in Whole of Victorian Government (WoVG) and departmental procurement.

ECO-Buy is an award winning, not-for-profit Centre of Excellence in Environmental Purchasing, which was established to encourage the purchasing of environmentally preferable products and services.

ECO-Buy works with organisations to embed sustainable purchasing practices and attitudes and acknowledges that change happens through people and that in order to facilitate change, people need good information and tools as well as great support and encouragement.
The Problem to be Addressed

Industry has consistently approached and lobbied the State Government to change its approach towards RFTs for IT equipment on a number of levels. AIIA - with the support of Sustainability Victoria and Multimedia Victoria – suggested to State Government that specific causes on key environmental considerations were included in RFTs. The GSG moved to develop a green purchasing program which focused on incorporating environmental considerations into WoVG procurement documentation.

ECO-Buy assisted the GSG with the development of the green purchasing program, initially targeted for the upcoming Desktop and Notebook Computer Equipment State Purchasing Contract. The aim was to provide environmental specifications for achieving significant environmental benefits associated with procurement activities.

The Proposed Solution

The Government Services Group (GSG), in consultation with Department of Sustainability and Environment, reviewed the WoVG Request for Tender (RFT) and Request for Quote (RFQ) Procurement templates and updated them to include stronger environmental criteria.

These templates focused on requesting information regarding a supplier’s current environmental policy and Environmental Management System program with the aim being to make suppliers more accountable for their responsibilities in the area of environmental sustainability.

This in turn led to the creation of a WoVG working group which was tasked with concentrating on core individual departmental RFT and RFQs in order to make them more environmentally focused. The group’s agreed charter was to arrive at a set of environmental criteria that was not too onerous for the overall market, to ensure that all responses were measurable and to hold suppliers to a level of accountability for their responsibilities in this area.

Environmental Sustainability Criteria

The following is an example of an environmental management assessment that has been included in a RFT/RFQ.

The questions are structured in such a way that when it comes to the evaluation process, they allow for a relevant and measurable response and provide significant benefits to the environment whilst at the same time informing and encouraging suppliers to improve their environmental management performance.

<table>
<thead>
<tr>
<th>Sub Criteria</th>
<th>Vendor’s Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Does your organisation have an Environmental Policy?</td>
<td>□ Yes – Attach Copy Go to Question c</td>
</tr>
<tr>
<td></td>
<td>□ No – Go to Question b</td>
</tr>
<tr>
<td>b. If you do not currently have an Environmental Policy, are you in the process of developing one?</td>
<td>□ Yes – Target date for completion _<em><strong><strong><strong>/_</strong></strong></strong></em>/__________ Go Question c</td>
</tr>
<tr>
<td></td>
<td>□ No – Go to Question c</td>
</tr>
<tr>
<td>c. Does your organisation have an Environmental Management System?</td>
<td>□ Yes – Certified (e.g. ISO 14001) Attach Copy Go to Question f</td>
</tr>
<tr>
<td></td>
<td>□ Yes – No Certification (copy to be provided upon request) Go to Question f</td>
</tr>
<tr>
<td></td>
<td>□ No – Go to Question d</td>
</tr>
<tr>
<td>d. If you do not have an Environmental Management System, are you in the process of developing one?</td>
<td>□ Yes – Target date for completion _<em><strong><strong><strong>/_</strong></strong></strong></em>/__________ Go to Question e</td>
</tr>
<tr>
<td></td>
<td>□ No – Go Question e</td>
</tr>
<tr>
<td>Sub Criteria</td>
<td>Vendor’s Response</td>
</tr>
<tr>
<td>------------------------------------------------------------------------------</td>
<td>---------------------------------------------------------------</td>
</tr>
<tr>
<td>e. If you are not in the process of developing an Environmental Policy or Environmental Management System:</td>
<td>Word limit – 100 words</td>
</tr>
<tr>
<td>• what approach are you taking towards environmental issues; and / or</td>
<td></td>
</tr>
<tr>
<td>• provide details on how you are reducing your environmental impact in relation to the objectives of this procurement process?</td>
<td></td>
</tr>
<tr>
<td>f. Has any form of enforcement action relating to the environment been taken against your company in the last 5 years?</td>
<td>Word limit – 100 words</td>
</tr>
</tbody>
</table>

What were the End Benefits? (Efficiencies, Productivity, Financial, Cultura or Other)

Environmental requirements and associated evaluation criteria were developed in consultation with the ECO-BUY Program Manager for the Desktop and Notebook Request For Tender (RFT) documentation created for release to the public. The requirements for tenderers to demonstrate environmental responsibility were strengthened to include more details about their environmental policy and environmental management system and to advise on progress if one or both of these initiatives had not been implemented or adopted at the time the tender was released.

The Desktop and Notebook RFT also requires a response against the Electronic Product Environmental Assessment Tool (EPEAT) criteria which was established internationally to evaluate, compare and select desktop computers, notebooks and monitors based on their environmental attributes. This covers product environmental performance across materials use, end-of-life considerations, energy conservation and packaging.

**Bronze:** Meets all 23 EPEAT required criteria.

**Silver:** Meets all 23 EPEAT required criteria plus at least 50 percent of the optional criteria.

**Gold:** Meets all 23 EPEAT required criteria plus at least 75 percent of the optional criteria.

This has had significant Government-wide on future PC and Notebook purchases from an environmental sustainability perspective. AIIA is continuing discussions with State and Federal Governments on GreenIT to progress this further.

Application to Other Businesses (can the same principles be applied to an SME)?

This is a very effective approach for developing a sustainable supply chain that is suitable for all organisations. It takes a high level view, leveraging well established industry benchmarking programs to provide an independent evaluation of each supplier's environmental performance.

Over time, this criterion can be developed and expanded to include new measures, i.e. carbon emissions etc, and will influence smaller organisations to think and act more sustainably, even though the criterion may not directly relate to them.