ICT Sustainability: The Global Benchmark 2012

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Foreword

Fujitsu's ICT Sustainability: The Global Benchmark 2012 report measures the prevalence and maturity of information and communications technology (ICT) sustainability initiatives being undertaken by organizations around the globe. These initiatives include procurement, disposal, power management, virtualization, consolidation, mobility, data center efficiency, networking, cloud, software design, teleworking, collaboration, business process optimization, carbon and energy management tools for measurement and reporting.

This is the third report in a series that represents the most comprehensive analysis ever undertaken on the relative maturity of ICT Sustainability practices and technologies in a number of major global markets. To gain these insights, we interviewed 1,200 chief information officers (CIOs) and senior managers from eight countries between April and July 2012.

This year's report finds that efforts to improve ICT Sustainability in organizations have reached a plateau. The global ICT Sustainability Index (ITSx) declined slightly in 2012, falling to 53.1 from 54.3 in 2011 and a high of 56.4 in 2010.

There are clear opportunities for enhancing the use of ICT to improve efficiency and significantly reduce costs, though not all companies are taking such steps. More organizations could be actively tracking the energy use associated with their ICT resources. Further, we believe organizations should view ICT-related energy consumption as a strategic measure – one that is managed in real time, and not just as a static number produced on a quarterly or annual basis.

This shift in focus would enable organizations to proactively plan for ICT Sustainability, rather than reactively respond to events. Further, such insights are crucial for promoting the business case underlying greater ICT Sustainability. By having better access to real-time data about ICT energy costs and consumption, organizations can properly evaluate, select, and prioritize critical decisions around ICT Sustainability. If organizations can further enhance their business cases by including traditional financial Metrics – such as the Marginal Abatement Cost Curve (MACC), Net Present Value (NPV), Internal Rate of Return (IRR), and Payback – it will be easier to engage executive teams to act on ICT Sustainability.

By engaging in this process, CIOs can more easily answer questions such as the true costs of running desktop fleets, the potential benefits of moving to the cloud, or the potential impact of a BYOD (Bring Your Own Device) policy. A CIO could use this additional information to formulate effective solutions to reduce energy usage.

Further, by proactively managing their energy consumption, organizations can bridge the divide between the motivations behind ICT Sustainability (alleviating environmental impact) and business outcomes (achieving costs savings and efficiency gains). Improving ICT Sustainability then becomes a smart business decision – one that achieves both environmental and financial goals.

We did find positive signs that more organizations were taking steps to understand and improve their energy use. Twenty-three per cent of respondents accounted for ICT energy costs and consumption in 2012, compared with 14.2% in 2011. We also found that organizations that measured ICT-related energy costs and consumption had a 40% higher ITSx than those that didn't.

My advice to you is simple: don't just measure ICT energy consumption. Understand it, manage it, and set key performance indicators (KPI) that drive organization-wide improvements to the bottom line and ensure a more efficient use of resources.

I hope you will find the findings of this report valuable, and put them to use within your organization.

Alison Rowe, Global Executive Director Sustainability, International Business, Fujitsu

An International Perspective

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Introduction
At a Glance

Fujitsu's research into ICT Sustainability provides a number of valuable insights into the comparative performance of global organizations, and the industry sectors they occupy.

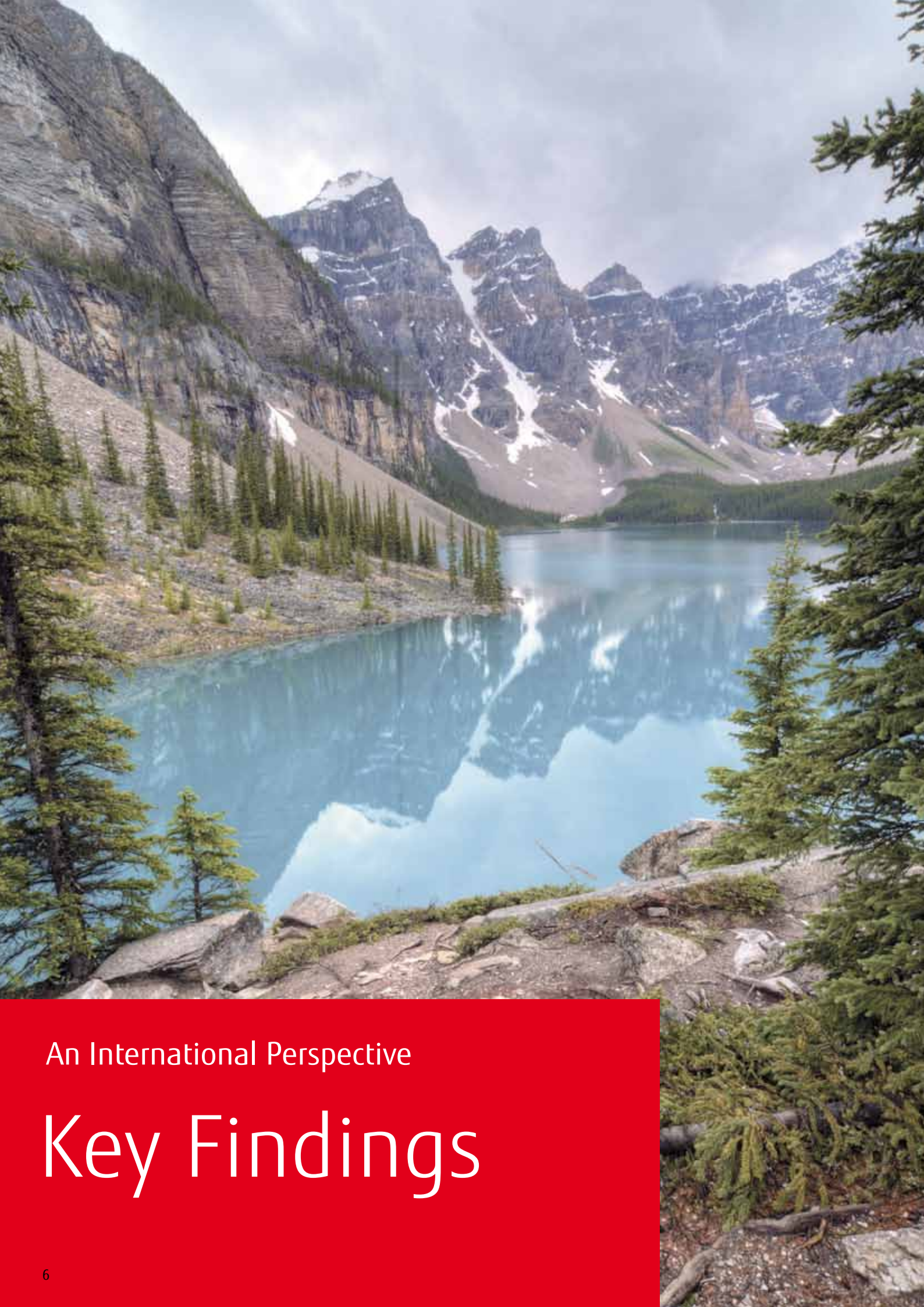
The findings of our research indicate that in 2012, improvements in ICT Sustainability have stalled. We are particularly concerned about the decline in the performance of organizations in a number of areas including Equipment Lifecycle (Lifecycle), End-User Computing (End User), and Enterprise – the areas where organizations can typically make quick improvements. We have seen declines in power management settings of personal computers, in-house investment in data centers, and adherence to standards and policy. Our results indicate that organizations have experimented with initiatives, however trials fail to mature, possibly due to competing priorities, inferior change management practices or the 'champion' leaving. Until there is clear direction, across all sectors, that sustainability is treated as a demonstrable KPI, we expect progress will remain less than impressive.

The United States of America (USA) is the strongest performing country in 2012, with an ITSx of 57.3. The USA Financial Services sector has led the way, with an ITSx of 66.8 – the highest of any sector in any country. The USA tops the ITSx in four of the eight sectors around the world.

The largest increase in an ITSx in any industry globally was in China's Utilities/Construction/Mining industry, which rose by 25.3 to reach 62.2 in 2012.

In Japan, 38.5% of ICT departments were accounting for the cost and consumption of ICT energy in 2012. This was the highest proportion in the world. China showed the largest improvement, with 26% of organizations tracking these measures in 2012, up from 6% on 2011.

53.1	The average ICT Sustainability Index (ITSx) in 2012 for all countries and all sectors.
57.3	ITSx for the USA, the highest of any country.
56.5	ITSx for the Utilities/Construction/Mining sector, the highest of all industries.
66.8	ITSx for USA Financial Services, the highest for any sector in any country.
23.1%	The proportion of ICT departments that include the cost of ICT power consumption in their budget.
67.6	The ITSx for organizations that have responsibility for ICT power bills and consumption.
34.8	The ITSx for organizations that have never thought about their ICT power bills and consumption.



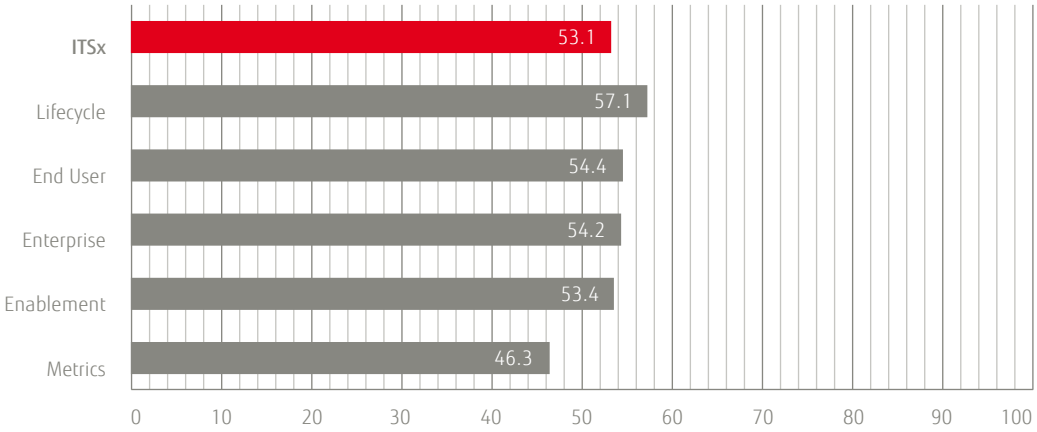
An International Perspective

Key Findings

Key Findings

Key Finding 1: ICT Sustainability has lost traction in the last year

ITSx by Index Component, 2012



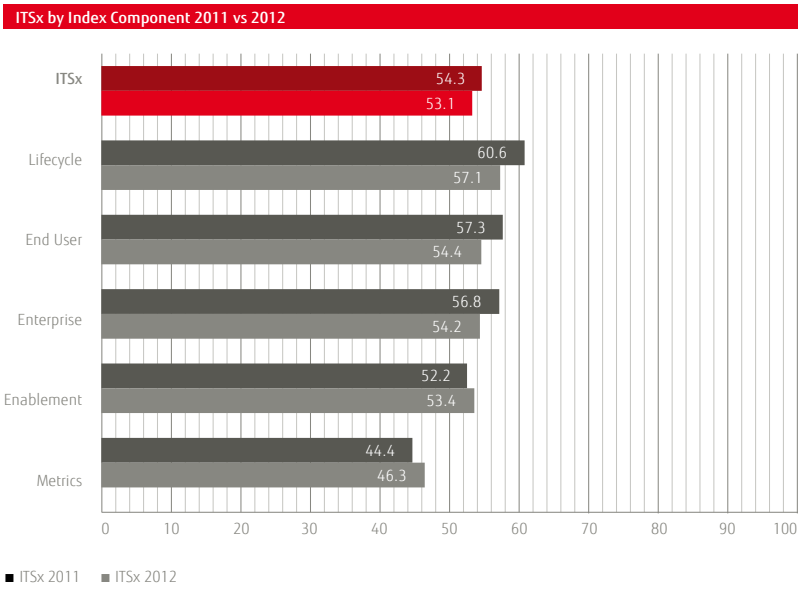
The ICT Sustainability Index (ITSx) across all eight countries measured declined in 2012 to 53.1, down from 54.3 in 2011 and a high of 56.4 in 2010. ITSx declines were evident in all types of organizations, although smaller falls were experienced by organizations of over 1,000 employees. As in 2011, larger organizations performed better than their smaller counterparts. In 2012, organizations with more than 5,000 staff recorded an average ITSx of 61.6, compared with an average of 48.8 for organizations with fewer than 500 people.

The declines were also seen across a number of the components of the ITSx. Lifecycle fell from 60.6 in 2011 to 57.1 in 2012, though this was still the highest single score for a component. We found that organizations' adherence to global green electronic register EPEAT® and energy star ratings fell. The highest Lifecycle component index in any country was in the USA, which recorded an index of 62.0. The End User component fell to 54.4 in 2012, from 57.3 in 2011. The research found noticeable declines in the metering of power usage, the use of power management tools, and the optimization of power management settings. China recorded the highest End User component index of any country, with a score of 60.2.

The Enterprise and Data Center (Enterprise) component was 54.2 in 2012, down from 56.8 in 2011. In particular, we found that organizations' investment in data center infrastructure declined. The USA recorded the highest Enterprise component index of all countries, at 56.8. In contrast, the ICT as a Low-Carbon Enabler (Enablement) component improved in 2012. The Enablement component rose to 53.4 in 2012 from 52.2 in 2011, due to improvements in the development of more effective steps to reduce energy use, use green energy sources, and bolster energy security. The component index for Metrics also increased, rising to 46.3 in 2012 compared to 44.4 in 2011, thanks to improvements in managing the cost and consumption of ICT energy. However, Metrics was the lowest performing component of the ITSx overall.

The three countries that were above the global average of 46.3 for Metrics were Canada (53.1), the USA (52.3), and Japan (50.2). These countries were also above the global average of 23.1% for management of ICT power bills – with Japan recording 38.5%, Canada 27.3%, and the USA 24%.

Key Finding 2: ICT Sustainability gains wider organizational importance



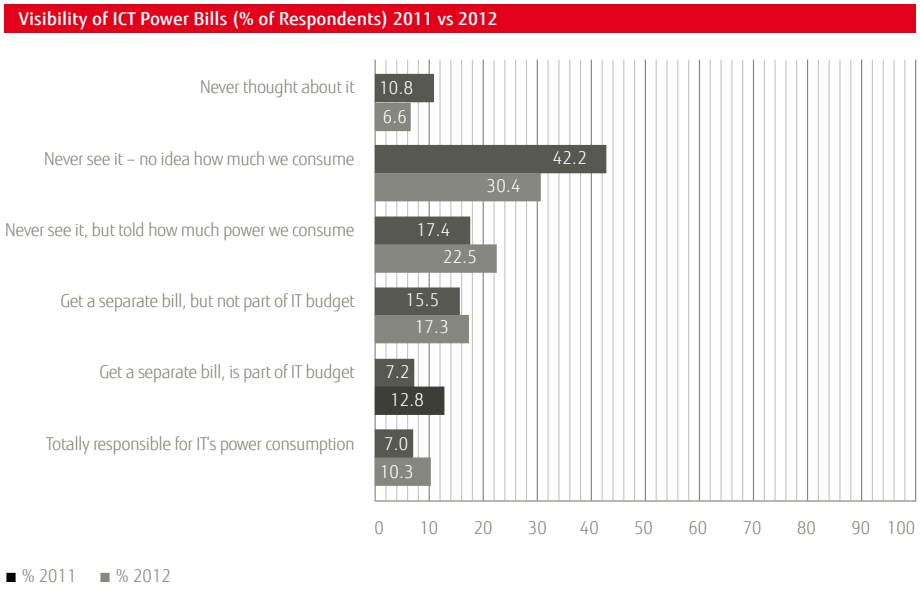
As discussed in Finding 1, the ITSx components that fell in 2012 all focused on operational initiatives relating to Lifecycle, End User, and Enterprise. At the same time, the managerial components of the ITSx, such as Enablement and Metrics, improved over the period. Operational initiatives are typically instigated by ICT departments, while managerial components are often implemented by other divisions.

This is a positive finding, in that it shows sustainability improvements are taking place in areas of organizations that are not run by ICT teams. ICT Sustainability is therefore occurring more broadly across organizations, some of which are improving their own cost-effective management of ICT energy usage. Enablement, in particular, can be divided into the sub-areas of environmental management, energy security, and mobility. The index score for environmental management was 54.8, energy security was 53.8, and mobility was 51.2. All three areas improved in 2012, indicating that organizations are taking more deliberate steps to address these critical areas.

Interestingly, the country scores for environmental management did not correlate with the level of regulations or market forces imposed on organizations. This is evidenced by the USA being the leader in environmental management on 55.6 and Australia on 46.2, despite the presence of higher levels of environmental regulation in Australia. The USA also scored the highest in mobility with 58.4, while the UK was highest in terms of energy security at 63.8.

However, organizations have reduced efforts in areas that have typically been considered 'quick wins' for improving ICT Sustainability. For example, we have seen a 10% reduction in optimizing power management in End User since 2011 and fewer initiatives in energy reduction policy areas. Organizations have also cut their in-house spending on data center initiatives, including upgrading coolers, chillers and measures for monitoring building energy usage. We believe this is a consequence of global financial constraints, and of organizations taking steps to prepare for a transition of key services to the cloud – a move that will require fewer internal physical ICT resources.

Key Finding 3: ICT power consumption is increasingly being included in departmental budgets



The proportion of ICT departments that include the cost of ICT power consumption in their budgets has increased to 23.1% in 2012, from 14.2% in 2011. This is an important finding which shows that more organizations are accounting for the true impact of their ICT operations. This increased focus on measurement may underpin future improvements in ICT Sustainability.

There has been a similar improvement in ICT departments taking control over budgeting and responsibility for power consumption. These steps can only strengthen the business case for ICT Sustainability because it not only outlines the total cost of ICT but also demonstrates the real savings that can be made.

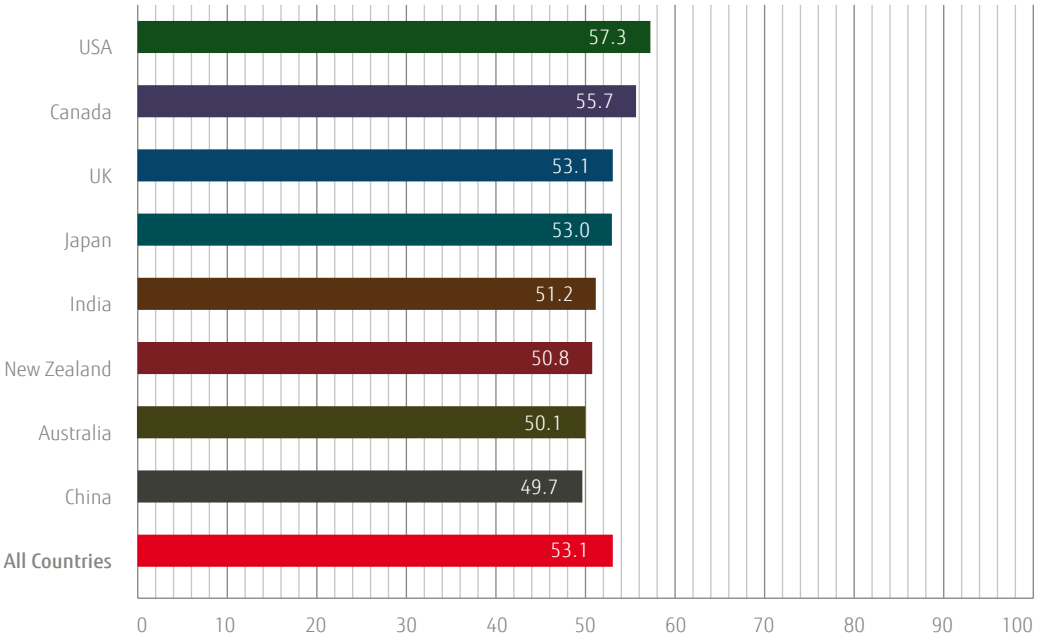
Japan is the clear leader in ICT power and consumption monitoring, with 38.5% of ICT departments taking control of budgeting and managing ICT power consumption. India was second with 30% of ICT departments performing this function, followed by Canada with 27.3%, China with 26%, and the USA with 24%.

However, only 17.7% of ICT departments in the UK had control of budgeting and managing ICT power consumption. Australia (8.7%) and New Zealand (4%) also lagged behind the global average, and all three countries declined in their Metrics scores in 2012 compared with 2011. Organizations are generally becoming more aware of energy consumption linked to ICT functions. The percentage of ICT departments that don't see their own power bill fell sharply to 59.5% in 2012, compared to 70.4% in 2011. Still, with more than half of departments paying little attention to their ICT-related power bills, there is still a long way to go.

We found that organizations that paid closer attention to their ICT power consumption performed more strongly in terms of ICT Sustainability overall. For instance, organizations that had never thought about their ICT power bill had an ITSx of 34.8, while organizations with total responsibility for ICT power consumption recorded an ITSx of 67.6.

Key Finding 4: The USA leads the way on ICT Sustainability

ITSx by Country, 2012



The USA has emerged as the global leader in ICT Sustainability, taking the top spot in 2012 with an ITSx of 57.3, up from third position in 2011 with 56.0. Canada was previously ranked number one, and is the only other country to record a score above the global ITSx in 2012.

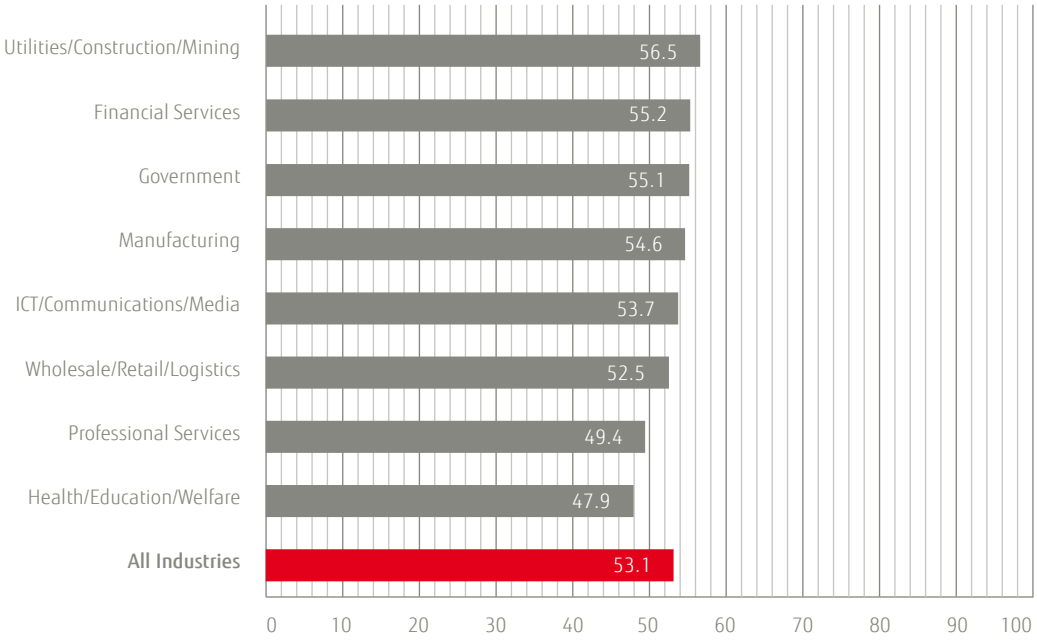
The UK had the largest ITSx decline in 2012 of 5.2 and is now equal to the global ITSx. Japan, a new entrant in the research this year, has debuted in fourth position with an ITSx of 53.0, just below the global ITSx.

Developing countries recorded the largest improvements in ICT Sustainability, possibly due to the rapid deployment of ICT and less legacy ICT infrastructure. China recorded the biggest individual country improvement, up by 3.6 with an ITSx of 49.7 in 2012 compared to 46.1 in 2011. India improved slightly with an ITSx of 51.2 in 2012, up from 50.9 in 2011.

In 2012, Australia dropped to seventh position from fourth with a decline of 2.7 since 2011. Over this period, New Zealand dropped behind India with a decline of 1.1 since 2011.

Key Finding 5: Utilities, Construction and Mining lead the way in ICT Sustainability

ITSx by Industry Sector, 2012



Only three sectors improved their ITSx scores in 2012: Utilities/Construction/Mining, Financial Services, and Manufacturing.

Utilities/Construction/Mining is now the leading industry in terms of ICT Sustainability, rising to first spot in 2012 with an ITSx of 56.5, up from third place and an ITSx of 55.4 in 2011. This sector is typically the most affected by energy and carbon legislation and the improved ITSx score signals that ICT Sustainability initiatives are being implemented across organizations, not just in ICT departments.

Within Financial Services organizations, ICT-related costs make up the largest component of an organization's energy bill. In 2012, Financial Services organizations recorded an ITSx of 55.2, up from 54.4 in 2011. The result pushed the industry from fourth to second place overall.

The Manufacturing industry rose to fourth position in 2012 from eighth position a year earlier. This highlights the impact of the increased use of technology in the production line (including through robotics), as well as a global focus on cost reductions.

The ITSx for Health/Education/Welfare declined to 47.9 in 2012, from 52.5 in 2011. This is an industry where ICT budgets are typically tight and organizations are supported by relatively small ICT departments. Meanwhile, the ICT/Communications/Media industry fell to fifth position in 2012, from first in 2011. The declines in Health/Education/Welfare and ICT/Communications/Media accounted for most of the overall decline in the global ITSx.

ICT Sustainability

A Country Perspective

Country Performance

The USA recorded the highest ITSx in 2012 with a score of 57.3, followed by Canada, the UK, and Japan. The USA ranked highest across the Lifecycle, Enterprise, and Enablement components, and ranked second on End User and Metrics.

The leading countries typically have more consistent results across the index. Japan had the lowest variance in scores across the components with a range of 4.1, followed by Canada (7.7) and the USA (9.7). The UK had a variance of 14.9, while India had a variance of 14.4.

The countries with the lowest ITSx had the highest variation in ITSx scores. For example, China's scores varied by 20.2, skewed by its high score on the End User component. New Zealand's range was 19.8, due to a very low score in Metrics, and Australia had a variation of 16.2, also impacted by a low Metrics score.

Overall Country Comparisons, 2012

By Country	Lifecycle	End User	Enterprise	Enablement	Metrics	ITSx
Australia	52.6	50.7	56.4	50.6	40.2	50.1
Canada	60.8	54.5	54.6	55.3	53.1	55.7
China	53.8	60.2	52.4	40.0	42.3	49.7
India	59.0	48.1	48.9	55.2	44.6	51.2
Japan	54.3	52.8	54.1	53.9	50.2	53.0
New Zealand	58.4	55.4	50.1	51.7	38.6	50.8
UK	57.2	55.5	53.7	57.0	42.3	53.1
USA	62.0	58.4	56.8	57.2	52.3	57.3
All Countries	**57.1**	**54.4**	**54.2**	**53.4**	**46.3**	**53.1**

The following snapshot shows the trends in maturity within each country, compared to 2011.

Country Maturity Trends, 2012

By Country	Lifecycle	End User	Enterprise	Enablement	Metrics	ITSx
Australia	↓	↓	–	↓	↓	↓
Canada	↓	↓	↓	↓	↑	↓
China	↑	↑	↑	↓	↑	↑
India	–	↓	↓	↑	↑	–
Japan	–	–	–	–	–	–
New Zealand	–	↑	↓	↓	↓	–
UK	↓	↓	↓	↓	↓	↓
USA	↓	↑	↑	↑	↑	↑
All Countries	**↓**	**↓**	**↓**	**↑**	**↑**	**↓**

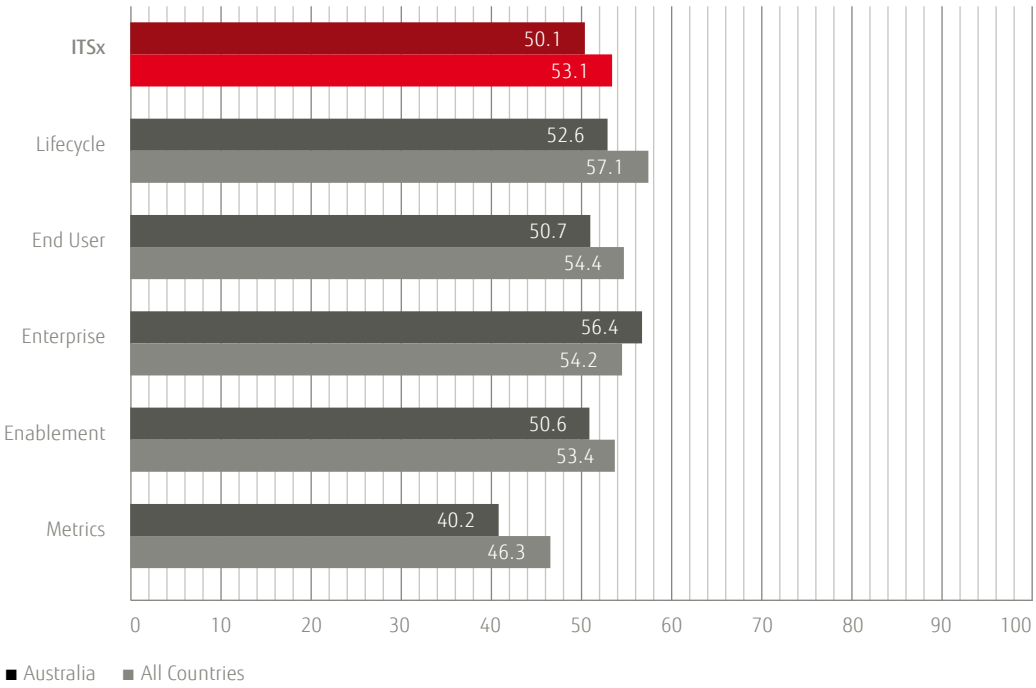
Country Performance
Australia

Highlights

- Improved management of ICT power bills
- Enterprise is the strongest ICT Sustainability performer
- Government sector leads the way in ICT Sustainability

Australia

Australia's ITSx Performance, 2012



Australia's ITSx performance has steadily declined over the past few years. In 2012, Australia recorded an ITSx of 50.1, down from 52.8 in 2011 and 53.9 in 2010.

As a result of its weaker performance, Australia is now ranked seventh out of the eight countries surveyed, down from fourth position a year ago. The country's decline from 2011 to 2012 was the third-largest drop among all countries.

Enterprise was the country's strongest ITSx component, but stayed at a similar level to 2011. Enterprise was 56.4, followed by Lifecycle 52.6, End User 50.7, Enablement 50.6, and Metrics 40.2. The Lifecycle component recorded the largest drop in 2012 – a concerning finding considering the country's advanced legislation for product stewardship and disposal of ICT equipment.

In 2011, less than 1% of Australian organizations budgeted for ICT power bills and took direct responsibility for their energy consumption. In 2012, this rose to 8.7%. While this is a positive sign, Australian organizations still lag well behind the global average of 23.1%. Further, this improvement did not lead to an increase on the Metrics component.

Every industry ITSx score fell in Australia in 2012, compared with 2011. The Professional Services sector recorded the largest decline, dropping to 48.4 in 2012 from 54.8 in 2011. The Financial Services sector's ITSx remained the most stable, declining to 49.0 in 2012 from 50.2 a year earlier.

Government was Australia's best performing sector with an ITSx of 53.7, and was the only sector with a score above the global ITSx of 53.1. However, even the Government sector's ITSx fell in 2012 compared to 2011 (53.7 versus 55.5). Within the Government sector, the strongest component was Enterprise, with a score of 58.3.

ICT/Communications/Media was the second-best performing industry, with an ITSx of 51.8. However, it suffered the second-largest decline. Manufacturing remained the lowest performing sector in Australia in ICT Sustainability.

The highest component within a sector was Enterprise within the Utilities/Construction/Mining sector, with an index score of 62.8. The lowest was Metrics within the Wholesale/Retail/Logistics sector, with an index score of 35.2.

Australia's ITSx Performance by Industry, 2012

	Lifecycle	End User	Enterprise	Enablement	Metrics	ITSx
Government	56.3	54.3	58.3	52.8	46.7	53.7
ICT/Communications/Media	51.1	53.7	59.4	51.8	42.8	51.8
Utilities/Construction/Mining	52.7	46.8	62.8	57.3	37.8	51.5
Wholesale/Retail/Logistics	49.0	52.6	56.6	52.3	35.2	49.2
Financial Services	51.5	52.0	55.4	46.0	39.9	49.0
Health/Education/Welfare	54.3	47.1	55.7	49.7	37.9	48.9
Professional Services	54.1	50.9	51.7	49.5	35.7	48.4
Manufacturing	47.6	44.7	51.7	46.8	39.5	46.0
Australia	**52.6**	**50.7**	**56.4**	**50.6**	**40.2**	**50.1**

Pixel building by Grocon
Melbourne, Australia

Built in 2010, the Pixel building was the first carbon-neutral office building of its type in Australia. Pixel received the world's highest Leadership in Energy and Environmental Design (LEED) rating from the US Green Building Council in March 2012.

"There are over 44,000 buildings in 120 countries around the world that have used the LEED rating system and in scoring 105 out of a possible 110, Pixel has now surpassed all of them," said Grocon Chief Executive Officer, Daniel Grollo.

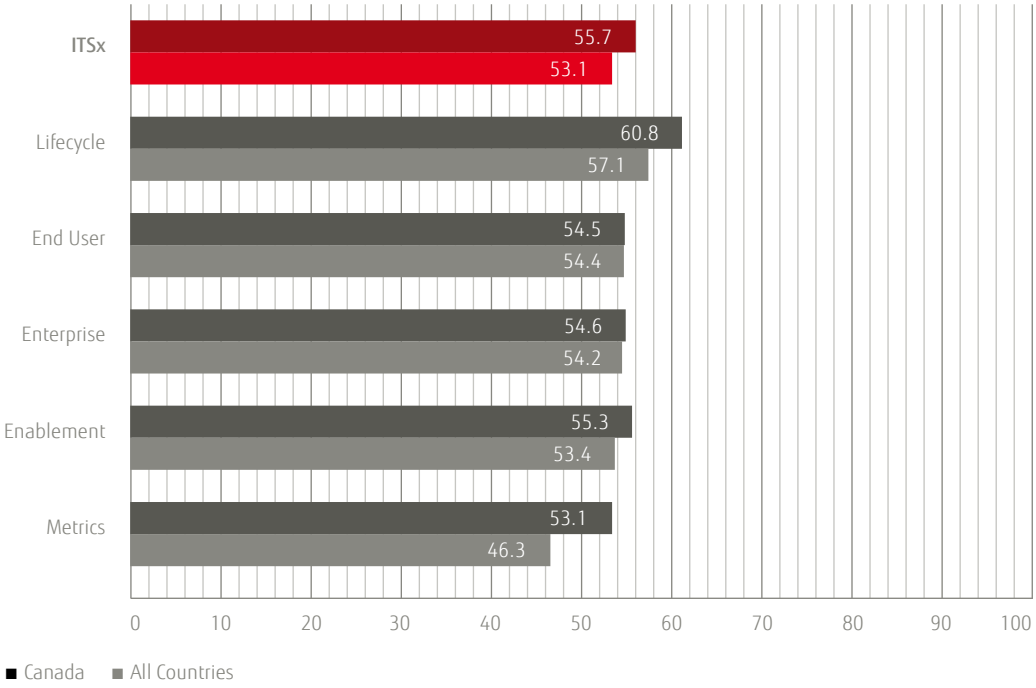
Source: Grocon

Canada

Highlights

- Management of ICT power bills is above the global average
- ICT Sustainability Metrics has improved
- Utilities/Construction/Mining sector leads the way in ICT sustainability

Canada's ITSx Performance, 2012



Canada's ICT Sustainability performance declined in 2012, dropping to second from first of the countries surveyed. While Canada was still above the global ITSx of 53.1 (with an ITSx of 55.7), its year-on-year decline of 4.6 in 2012 was the second greatest of all countries.

The only ITSx component not to decline in 2012 was Metrics, which rose slightly over 2011's figures. Lifecycle was Canada's strongest performer, followed by Enablement, Enterprise, End User, and Metrics.

Improvements in taking control of ICT power bills in Canada underpinned the rise in Metrics. In 2011, 15% of Canadian organizations budgeted for their ICT power bill and actively managed their power consumption. In 2012, this nearly doubled to 27.3%, higher than the global average of 23.1%.

In 2012, End User recorded the largest component index decline of 11.4, after being the top performer just one year earlier. This is a concerning finding as End User is an area where 'quick wins' in improving ICT Sustainability can be achieved.

During 2012, six of Canada's eight sector ITSx scores declined. The largest decline was in Health/Education/Welfare, which fell by 12.0 compared to 2011. This was followed by Professional Services, which dropped 9.8 over the same period. Further significant ITSx declines were recorded by Wholesale/Retail/Logistics (8.2) and ICT/Communications/Media (5.2).

The Utilities/Construction/Mining sector led the way in Canada, with an ITSx of 62.1 in 2012, up from 60.8 in 2011. The best performing component in this sector was End User, with an index of 63.7. This was well above the overall End User index in Canada of 54.5.

Manufacturing lost its 2011 leadership position following an ITSx decline from 64.6 in 2011 to 60.4 in 2012, leaving it in second place. Canada's most improved industry was Government, which saw its ITSx rise by 1.7 over the year and move to third position in 2012 compared to eighth in 2011.

Health/Education/Welfare was the lowest performing industry in 2012, with an ITSx of 47.7. This sector has declined since 2011, when the ITSx was 59.7.

The highest component within an industry was Lifecycle in the Manufacturing sector, with an index score of 68.4. The lowest was Metrics within Professional Services, with an index score of 44.1.

Canada's ITSx Performance by Industry, 2012

	Lifecycle	End User	Enterprise	Enablement	Metrics	ITSx
Utilities/Construction/Mining	62.7	63.7	63.3	59.9	60.7	62.1
Manufacturing	68.4	53.7	56.5	61.8	61.7	60.4
Government	65.2	60.4	56.0	59.5	56.2	59.5
Financial Services	65.4	53.6	53.5	64.7	54.5	58.4
ICT/Communications/Media	57.1	52.7	54.4	52.3	52.6	53.8
Wholesale/Retail/Logistics	57.0	52.8	53.2	50.0	48.6	52.4
Professional Services	58.3	49.7	47.9	51.1	44.1	50.2
Health/Education/Welfare	58.4	43.8	44.9	47.0	44.6	47.7
Canada	**60.8**	**54.5**	**54.6**	**55.3**	**53.1**	**55.7**

Manitoba Hydro Place – A Climate Responsive Design Model

Winnipeg, Canada

Passive design and natural ventilation make Manitoba Hydro Place one of the most energy-efficient office towers in North America.

This has resulted in Manitoba Hydro Place being able to operate at 88 kWh/m2/year.

The average Manitoba office space utilizes 495 kWh/m2/year; when design started in 2005 the average Canadian office space utilized 550 kWh/m2/year.

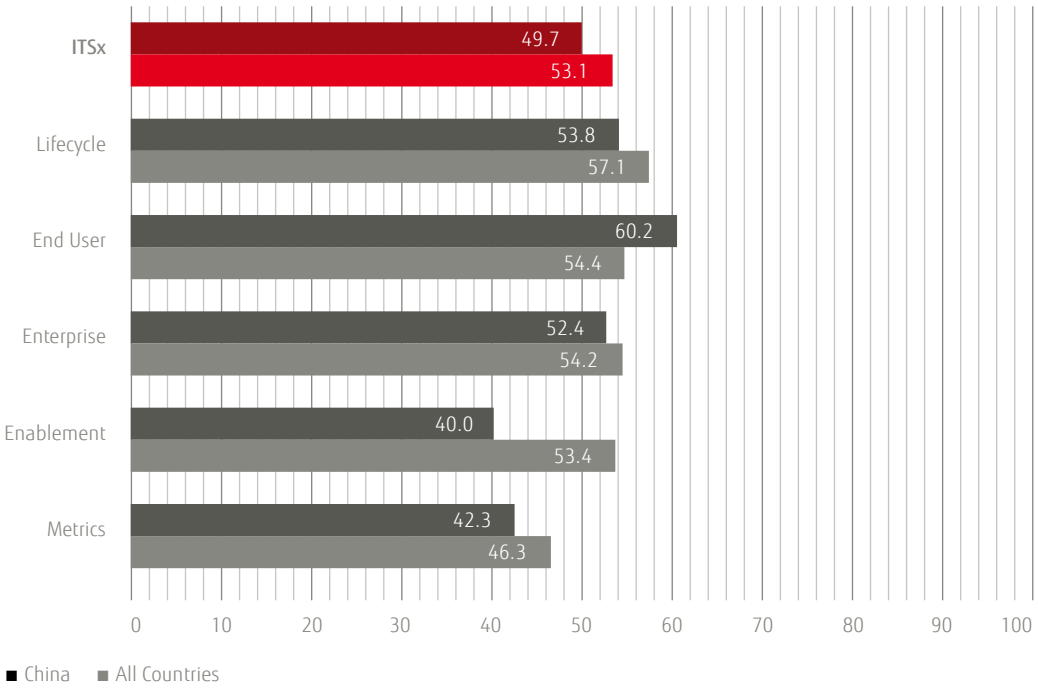
Source: Manitoba Hydro

China

Highlights

- Largest improvement of any country on the ITSx
- Significant improvement in managing ICT power bills
- End User strongest performer in ICT Sustainability
- Utilities/Construction/Mining sector leads the way in ICT Sustainability

China's ITSx Performance, 2012



China recorded the largest improvement of any country on the ITSx in 2012, rising 3.6 to 49.7. While China was still below the international global ITSx of 53.1, it was just 3.4 off the pace compared to 8.0 in 2011. China's eighth position on the global rankings remains unchanged from 2011.

At 60.2, the End User component had the highest ITSx in China in 2012, a substantial increase on its score of 52.0 in 2011. This improvement reflects a strong focus on 'quick wins' in making ICT Sustainability improvements in operational areas. The key for China will be ensuring its ICT Sustainability initiatives are maintained and mature. This is an ongoing challenge, as indicated by the decline in ICT Sustainability initiatives seen in Australia, Canada, India, the UK, and USA.

End User was the only component that ranked above the global component ITSx in 2012. However, all of China's ITSx components rose, with the exception of Enablement, which fell slightly.

We see China's improvements in taking control of its ICT power bills as an outstanding achievement – and one that has boosted the Metrics component. In 2011, fewer than 6% of Chinese ICT departments budgeted for their ICT power bills and actively managed their power consumption. Now, 26% of ICT departments undertake this important task, placing China fourth in the world on this measure.

In terms of sectors, Utilities/Construction/Mining led the way in China with an ITSx of 62.2 – an increase of 25.3 from 2011. The best performing component within Utilities/Construction/Mining was End User, at 73.3. This was well above the End User ITSx in China of 60.2, and the global ITSx for this component of 54.4. Other Chinese industries that improved were Wholesale/Retail/Logistics (up 8.6), Health/Education/Welfare (up 6.3) and Financial Services (up 4.1).

In 2012, China's Government sector lost its leadership position in ICT Sustainability, falling to fourth place out of the country's ITSx components. The significant improvement of the Utilities/Construction/Mining sector saw it rise from eighth in 2011 to first in 2012. The Financial Services and Wholesale/Retail/Logistics sectors occupied third and fourth positions, respectively.

Professional Services was China's lowest performing industry, with an index score of 34.7, which declined by 10.9 from 2011. The lowest component score in China was for Metrics within Professional Services, with an index score of 28.3.

China's ITSx Performance by Industry, 2012

	Lifecycle	End User	Enterprise	Enablement	Metrics	ITSx
Utilities/Construction/Mining	69.5	73.3	69.1	43.6	55.7	62.2
Financial Services	53.5	69.9	57.4	46.5	44.2	54.3
Wholesale/Retail/Logistics	56.7	61.8	56.3	42.1	43.0	52.0
Government	58.1	61.9	53.5	43.6	42.0	51.8
ICT/Communications/Media	51.2	56.4	44.4	36.1	38.0	45.2
Manufacturing	50.4	56.5	46.8	38.8	44.2	47.3
Health/Education/Welfare	45.7	46.1	50.3	38.1	36.9	43.4
Professional Services	34.3	48.9	32.9	29.2	28.3	34.7
China	**53.8**	**60.2**	**52.4**	**40.0**	**42.3**	**49.7**

Dezhou Solar City

Dezhou, China

The Dezhou local government is dedicated to the use of solar energy and the promotion of the solar industry.

A photovoltaic industry is in place, producing many products for different applications. Spectacular research buildings, where "real-life applications" can be seen. Energy conservation is not forgotten with high-tech energy conserving glass also produced.

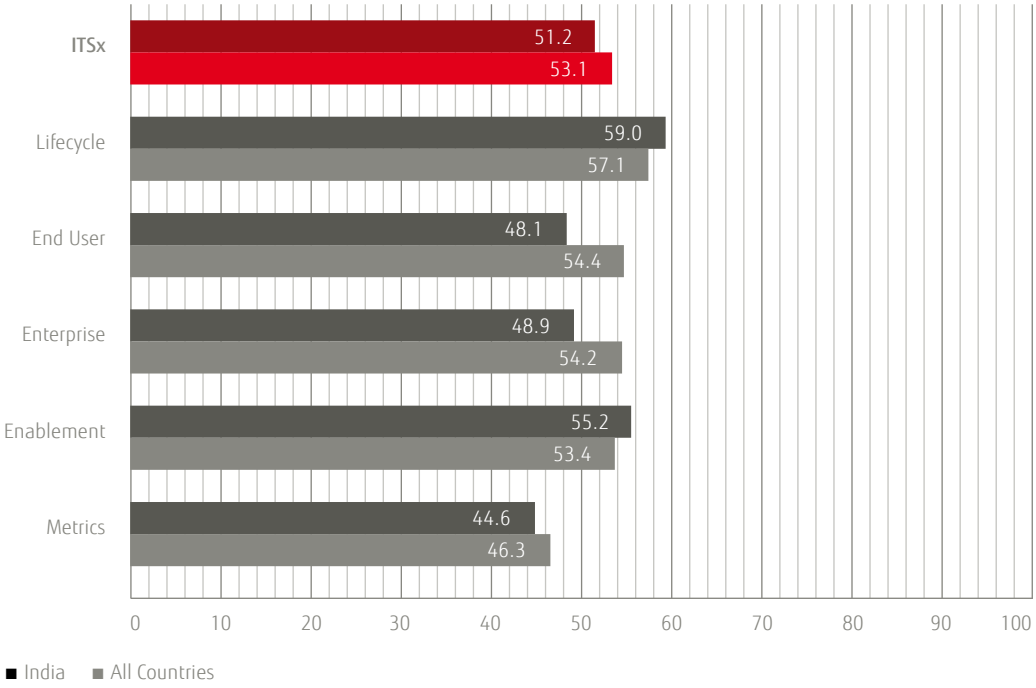
Source: Official Website of International Solar Cities Congress 2010, Dezhou China

India

Highlights

- Ranked second globally in the management of ICT power bills
- Lifecycle component performs the best in ICT Sustainability
- Manufacturing sector leads the way in ICT Sustainability

India's ITSx Performance, 2012



India was one of only three countries to improve its ICT Sustainability performance in 2012. However, with an ITSx of 51.2 in 2012, India is still below the global ITSx of 53.1. India has moved up one spot over the past year to rank fifth among the eight surveyed countries in 2012.

Reflecting our broader research findings, India's operational components declined and its management components improved. Enablement improved by 10.2 in 2012 to reach 55.2 and sit above the global ITSx for this component of 53.4. Metrics also rose; however, End User, Enterprise, and Lifecycle all declined.

Lifecycle remains India's strongest performing component. However, the largest decline of 8.7 in End User is concerning as this is an area where 'quick wins' in terms of ICT Sustainability improvements can be achieved.

Indian ICT departments have made noticeable improvements in managing their ICT power bills. For example, in 2011, 22% of respondents budgeted for their ICT power bill and actively managed their power consumption. In 2012, this figure had increased to 30%, which was above the global average of 23.1% and second only to Japan.

In terms of ICT Sustainability, the Manufacturing sector in India leads the way with an ITSx of 55.3 in 2012 – an increase of 5.4 from 2011. The best performing component within the Manufacturing sector was Lifecycle on 63.5, which is higher than the overall Lifecycle component index score for India (59.0) and the global Lifecycle ITSx of 57.1.

Other Indian sectors that improved over 2012 were Professional Services (up 5.6), Utilities/Construction/Mining (up 5.0), Wholesale/Retail/Logistics (up 4.6) and Financial Services (up 3.6).

Manufacturing's improvement in ICT Sustainability has seen it rise from being the fourth ranked industry sector in 2011 to first in 2012, followed by ICT/Communications/Media (previously ranked first) and Utilities/Construction/Mining. Health/Education/Welfare remains the lowest performing industry in India, and has declined since 2011.

The strongest component within a sector was Lifecycle in Utilities/Construction/Mining and Manufacturing, with an index score of 63.5. The lowest performing component was Metrics within the Health/Education/Welfare sector with an index score of 33.2.

India's ITSx Performance by Industry, 2012

	Lifecycle	End User	Enterprise	Enablement	Metrics	ITSx
Manufacturing	63.5	52.7	48.7	60.1	51.4	55.3
ICT/Communications/Media	60.2	52.7	49.9	61.3	49.5	54.7
Utilities/Construction/Mining	63.5	50.1	53.2	58.8	47.3	54.6
Professional Services	59.9	48.2	50.8	57.3	42.5	51.8
Financial Services	58.2	49.0	49.4	49.2	43.4	49.8
Government	56.6	44.3	49.9	51.0	43.5	49.1
Wholesale/Retail/Logistics	57.6	42.9	45.1	54.1	41.1	48.2
Health/Education/Welfare	47.8	42.0	42.7	40.9	33.2	41.3
India	**59.0**	**48.1**	**48.9**	**55.2**	**44.6**	**51.2**

Lilavati Hospital and Research Centre

Mumbai, India

Lilavati Hospital is one of the largest multispecialty hospitals in India, with state-of-the-art medical and research facilities.

Lilavati Hospital has realized energy savings of 20 to 40 % and cost savings of approximately INR 8.5 lakhs (US$ 17,000) annually, and over a three-year period, this resulted in energy savings of 618,210 kWh and cost savings of more than INR 26 lakhs (US$ 49,000).

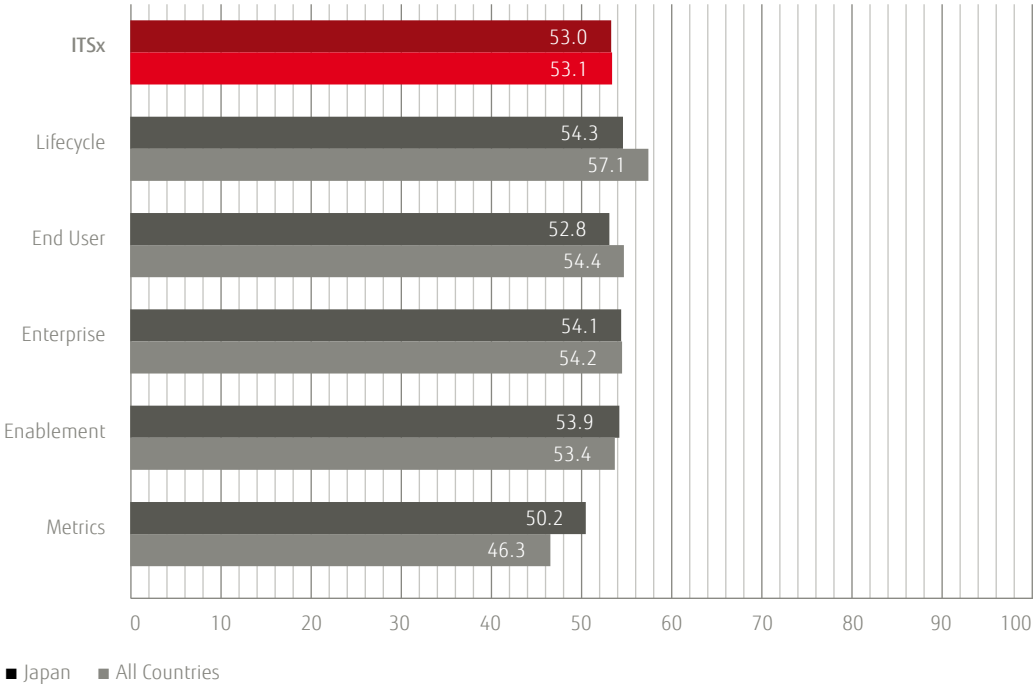
Source: World Resources Institute, 'Powering Up' report

Japan

Highlights

- Leader in management of ICT power bills
- Lifecycle component performs the best in ICT Sustainability
- Manufacturing sector leads the way in ICT Sustainability

Japan's ITSx Performance, 2012



This is the first year Japan has been included in the ICT Sustainability benchmark. With an ITSx of 53.0, Japan sat very close to the global ITSx of 53.1.

Further, in terms of ICT Sustainability components, Japan performed above the global ITSx for the management components of Enablement and Metrics. The country performed below the global ITSx for the operational components of Lifecycle, End User, and Enterprise.

Japan's strongest performing component was Lifecycle with a score of 54.3, reflecting the country's long history of recycling. The lowest performing component was Metrics at 50.2.

According to our research, Japanese organizations are leading the world in their management of ICT power bills. Some 38.5% of Japanese ICT departments budget for their ICT power bills and actively manage their power consumption – well above the global average of 23.1%.

In terms of sectors, Manufacturing led the way in Japan with an ITSx of 58.6. This was the second-highest score in Manufacturing – just behind Canada – and shows the impact of lean manufacturing techniques and the production principles of continuous improvement, which originated in Japan.

Wholesale/Retail/Logistics was Japan's second-highest performing sector on ICT Sustainability, followed by Financial Services. Health/Education/Welfare was the country's lowest performing sector.

The highest component index within an industry was Enablement in Manufacturing with an index score of 60.8, while the lowest was Metrics within Health/Education/Welfare, with an index score of 32.5.

Japan's ITSx Performance by Industry, 2012

	Lifecycle	End User	Enterprise	Enablement	Metrics	ITSx
Manufacturing	59.1	57.7	58.4	60.8	56.7	58.6
Wholesale/Retail/Logistics	58.5	59.4	58.7	58.9	55.4	58.2
Financial Services	56.2	56.0	58.6	54.8	51.7	55.5
ICT/Communications/Media	54.3	53.5	53.6	55.7	53.5	54.1
Professional Services	51.1	46.0	48.2	45.9	42.1	46.7
Utilities/Construction/Mining	45.5	48.8	50.0	48.8	43.0	46.2
Government	50.0	37.8	52.9	40.9	42.8	43.3
Health/Education/Welfare	40.4	38.9	39.8	38.7	32.5	38.0
Japan	**54.3**	**52.8**	**54.1**	**53.9**	**50.2**	**53.0**

Tokyo Skytree

Tokyo, Japan

Tokyo Skytree is the highest broadcast tower in the world. One thousand, nine hundred and ninety-five (1,995) highly energy-efficienct LED lights enable Tokyo Skytree to reduce it's energy consumption by about 43% compared to when it used the existing lights.

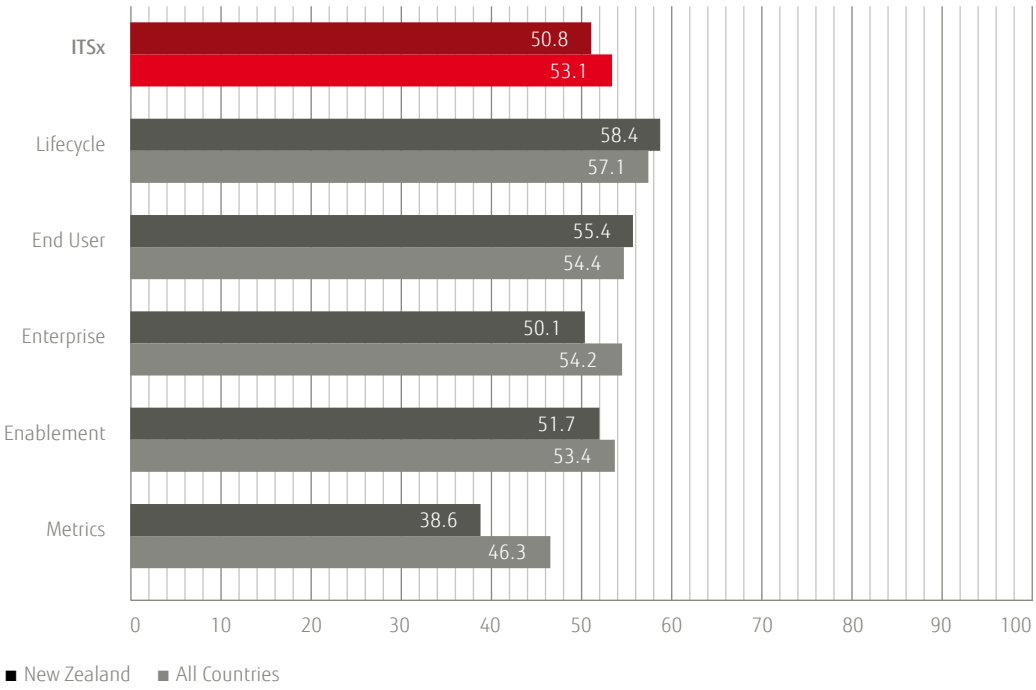
Source: Panasonic LED Project

New Zealand

Highlights

- End User component improves in ICT Sustainability
- Lifecycle is the strongest performing component
- Government sector leads the way in ICT Sustainability

New Zealand's ITSx Performance, 2012



New Zealand's (NZ's) ICT Sustainability declined in 2012, as its ITSx dropped to 50.8 compared to 51.9 in 2011. NZ has fallen to sixth position from fifth in 2011, and has an ITSx below the global ITSx of 53.1.

NZ has a higher proportion of smaller organizations, which typically have lower ITSx scores than large enterprises. However, in contrast to other countries, NZ experienced declines in the management components of ICT Sustainability, and increases in two operational components. Organizations performed strongest in the Lifecycle and End User components, while falls were recorded in Enterprise, Metrics, and Enablement.

The largest ICT Sustainability improvement was in the End User component. An increase of 3.2 reflects a strong focus on 'quick wins' in ICT initiatives. However, the key will be ensuring these initiatives become institutionalized, an area where Australia, Canada, India, the UK, and the USA have struggled.

NZ's lack of improvement in managing ICT power bills is a concern. In 2012, 4% of organizations budgeted for ICT power bills and managed power consumption – the same proportion as in 2011. This was well below the global average of 23.1% and ranked NZ last in this category.

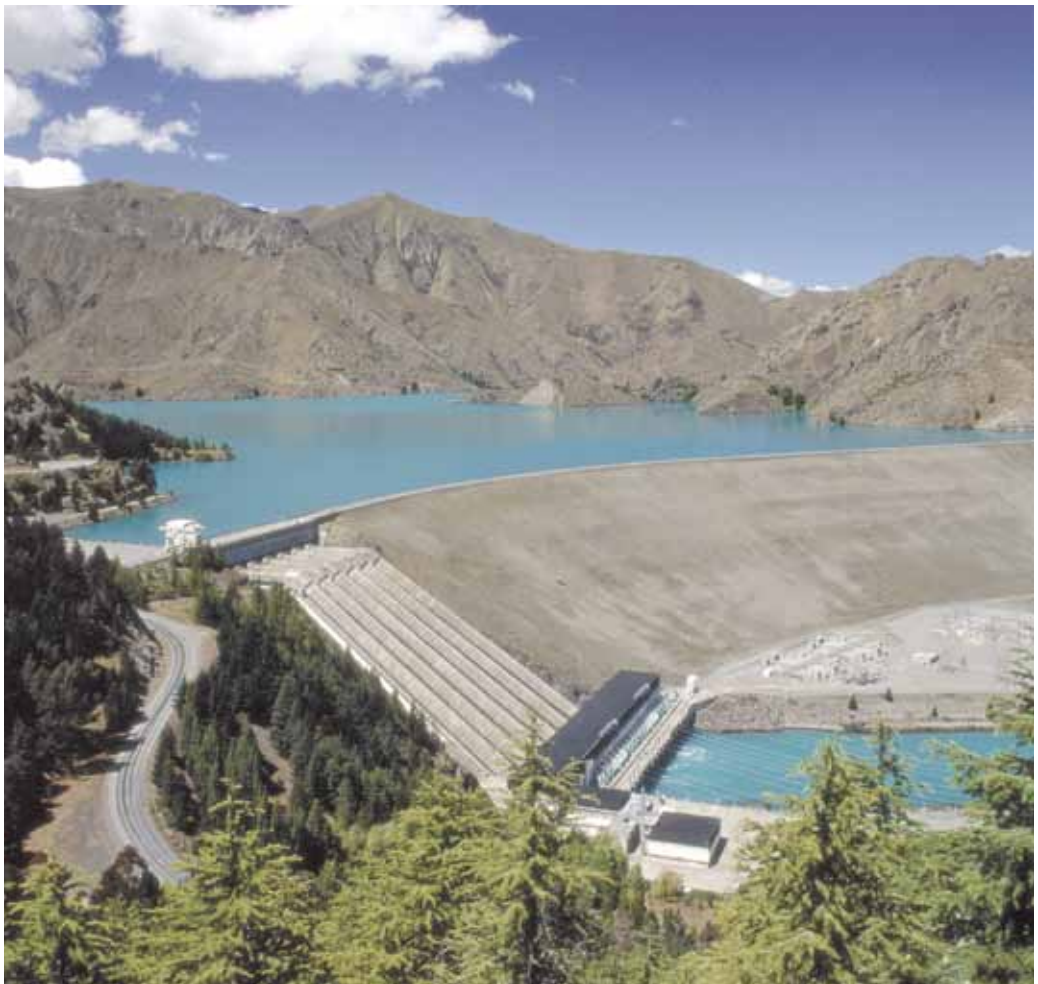
ICT Sustainability declined in five of the eight sectors measured in NZ in 2012, with the most significant drop in Professional Services. The Health/Education/Welfare sector recorded the largest improvement in 2012 over 2011, followed by the Government and Financial Services sectors.

Government is NZ's strongest performing sector in ICT Sustainability, with an ITSx of 60.0 – up from 58.4 in 2011. The best performing component within the Government sector was Lifecycle with an index score of 72.0. Utilities/Construction/Mining was the second-best performing sector, after losing the top spot it held in 2011.

Wholesale/Retail/Logistics was the lowest performing industry with an ITSx of 36.9 in 2012, compared to 39.9 in 2011. The lowest component index within a sector was Metrics in Wholesale/Retail/Logistics with an index score of 24.8.

New Zealand's ITSx Performance by Industry, 2012

	Lifecycle	End User	Enterprise	Enablement	Metrics	ITSx
Government	72.0	63.2	57.3	62.0	45.4	60.0
Utilities/Construction/Mining	57.8	59.9	55.7	65.3	48.1	57.4
Financial Services	59.9	56.4	55.7	56.7	46.9	55.1
Health/Education/Welfare	70.6	74.0	49.7	42.7	35.2	54.5
Manufacturing	52.0	50.9	50.0	56.4	44.6	50.8
ICT/Communications/Media	55.7	47.4	51.1	57.0	37.1	49.7
Professional Services	41.8	42.0	41.1	45.0	32.8	40.5
Wholesale/Retail/Logistics	43.9	38.7	40.3	36.9	24.8	36.9
New Zealand	**58.4**	**55.4**	**50.1**	**51.7**	**38.6**	**50.8**



Benmore Hydro Power Station – Refurbishment Project

North Otago, New Zealand

Replacing the station's turbine runners has helped Benmore produce 2.8% more energy while using the same amount of water. This delivers an additional 70GWh per year, which is enough energy to power 7,000 average New Zealand households, and avoids 14,000 tons of CO_2 emissions.

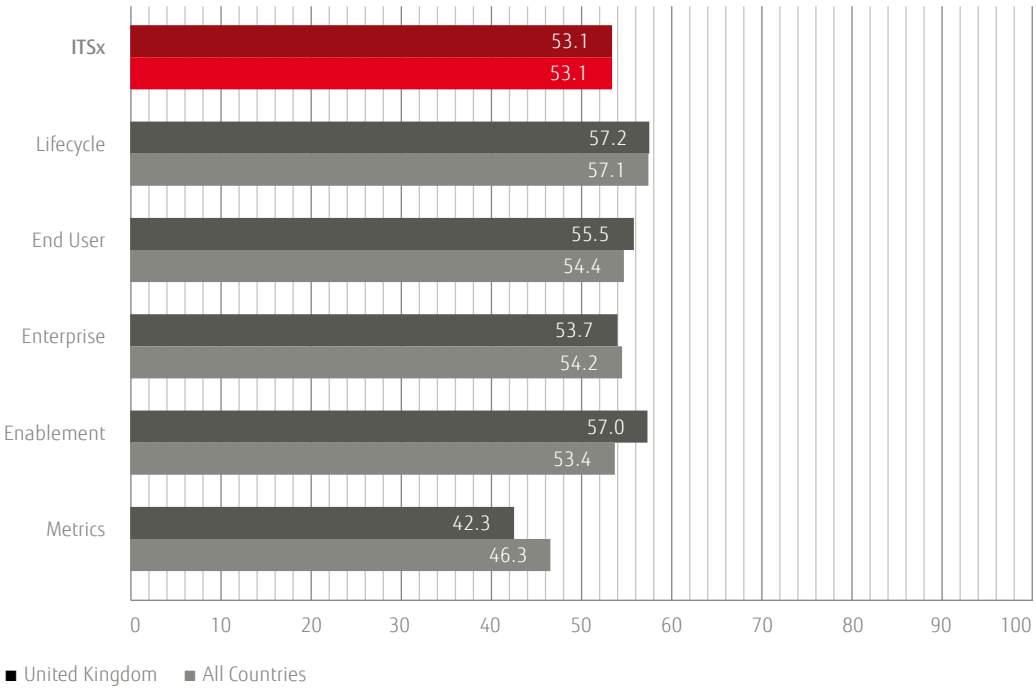
Source: Meridian Energy

United Kingdom

Highlights

- Improved management of ICT power bills
- Government sector leads the way in ICT Sustainability

The UK's ITSx Performance, 2012



The United Kingdom (UK) recorded the largest decline in ICT Sustainability of all countries in 2012, with its ITSx falling from 58.3 in 2011 to 53.1 this year. This performance was equal to the global ITSx and pushed the UK to third in the global rankings, from second in 2011.

Every index score in every industry declined in the UK. The largest component index decline was in Lifecycle, which fell 8.4 over the year to 57.2.

The UK's performance and the static levels of maturity over the past three years are particularly concerning, especially considering the advanced carbon reduction legislation and policies in the UK.

Despite this, there has been an improvement in the ability of UK ICT departments to more effectively manage their ICT-related power bills. In 2011, 15.75% of UK ICT departments budgeted for their ICT power bill and managed power consumption. This rose to 17.7% in 2012, though this was still below the global average of 23.1%, and the improvement had not flowed through to gains in the Metrics component.

The largest UK sector decline in 2012 was in the ICT/Communications/Media sector, where the ITSx fell by 7.6 to 56.0. Manufacturing remained the most stable sector, with only a very small decline to 51.2 from 51.3 in 2011.

The Government sector was the leader in the UK in 2012, even though its ITSx declined to 59.3 from 64.9 in 2011. The best performing component within Government was End User with an ITSx of 63.2. The Utilities/Construction/Mining sector remained in second position on 57.0; however, it also suffered the second-largest decline in 2012 (6.7) compared to 2011.

The Health/Education/Welfare sector was the lowest performing in the UK in 2012, and declined relative to 2011.

The highest component index within a sector was Enablement in the Utilities/Construction/Mining sector with an index score of 65.5. The lowest was Metrics in the Health/Education/Welfare sector with an index score of 37.0.

The UK's ITSx Performance by Industry, 2012

	Lifecycle	End User	Enterprise	Enablement	Metrics	ITSx
Government	60.7	63.2	59.4	62.7	50.2	59.3
Utilities/Construction/Mining	59.7	55.1	59.1	65.5	45.7	57.0
ICT/Communications/Media	57.7	59.3	56.0	59.9	47.1	56.0
Financial Services	59.1	54.5	58.5	57.5	39.7	53.9
Wholesale/Retail/Logistics	60.8	53.7	50.7	60.9	41.1	53.4
Professional Services	56.7	57.9	51.9	57.8	42.3	53.3
Manufacturing	55.7	50.0	53.7	55.7	40.7	51.2
Health/Education/Welfare	54.4	52.6	48.7	50.2	37.0	48.6
United Kingdom	**57.2**	**55.5**	**53.7**	**57.0**	**42.3**	**53.1**

Plas Newydd

Llanfairpwll, Wales

The picture shows tungsten chandelier bulbs being changed at Plas Newydd country house. The National Trust has defied assumptions that historic buildings cannot be retrofitted, and has cut energy use across its Welsh properties by 41% over two years, and reduced CO_2 emission by 46%. One example of its innovation is the use of new-generation LED candle bulbs, which the National Trust helped develop.

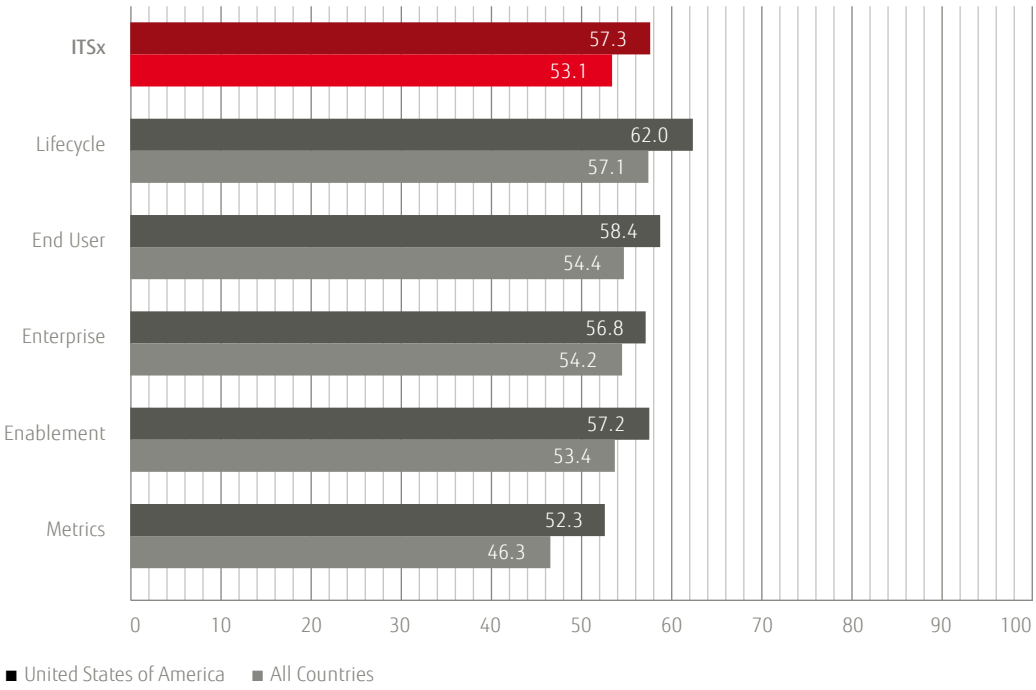
Source: National Trust

United States of America

Highlights

- Leading country in ICT Sustainability
- Lifecycle is the strongest performing component
- Financial Services sector leads the way

The USA's ITSx Performance, 2012



The United States of America (USA) is the leading country in ICT Sustainability performance. After placing third in 2011 with an ITSx of 56.0, the USA increased its ITSx to 57.3 in 2012. This is above the global ITSx of 53.1.

In terms of ITSx components, the USA has improved its performance in Metrics, Enablement, and End User. With an ITSx of 62.0, Lifecycle remained the top performing component among the USA's organizations, despite a slight decline since 2011. The Enterprise component recorded the largest fall, down by 3.2 to 56.8 in 2012 compared to a year earlier.

Despite its strong performance overall, the USA was the only country where ICT departments had not improved their management of ICT power bills. In 2011, 27% of American ICT departments budgeted for their ICT power bill and managed power consumption. In 2012, this fell to 24%, though this figure is still above the global average of 23.1%.

In the USA, five of eight industry sectors improved their ICT Sustainability in 2012. The Financial Services sector's ITSx rose to 66.8 in 2012 from 57.0 in 2011. Financial Services represented the USA's strongest performing sector, and the top components within the sector were Lifecycle, Enterprise, and Enablement. The sector has also rated highly in mobility, energy security and the use of green power.

The Professional Services sector and Government also recorded ICT Sustainability gains. The largest decline was in the Utilities/Construction/Mining sector, which fell to 55.7 in 2012 from 60.3 in 2011. The Utilities/Construction/Mining sector was the leading sector in 2011, but is now ranked sixth.

With an ITSx of 55.1, the Manufacturing sector was the lowest performing USA industry, despite a slight improvement in 2012. However, all USA industries performed above the global ITSx of 53.1.

The strongest performing component index within an industry was Lifecycle in the Financial Services sector with an index score of 72.4, while the lowest was Metrics within the ICT/Communications/Media sector with an index score of 50.8.

The USA's ITSx Performance by Industry, 2012

	Lifecycle	End User	Enterprise	Enablement	Metrics	ITSx
Financial Services	72.4	65.4	68.4	68.1	59.6	66.8
Professional Services	68.9	62.5	54.3	57.7	51.9	59.0
Government	61.7	57.4	62.2	57.0	52.3	58.1
Health/Education/Welfare	58.3	53.1	59.8	57.0	53.9	56.4
ICT/Communications/Media	62.6	56.9	52.6	58.9	50.8	56.4
Utilities/Construction/Mining	57.8	59.9	55.3	54.8	50.9	55.7
Wholesale/Retail/Logistics	59.7	57.8	56.0	53.5	51.1	55.6
Manufacturing	61.4	54.8	52.1	55.2	51.8	55.1
United States of America	**62.0**	**58.4**	**56.8**	**57.2**	**52.3**	**57.3**

Empire State Building
New York, New York

The installation of LED lighting at the Empire State Building will save 75% in annual energy costs. LED lights last three to six times longer than current fixtures, with a return on investment of six years.

The retrofit of the Empire State Building was motivated by the owner's desire to reduce greenhouse gas emissions, to demonstrate how to retrofit large commercial buildings cost effectively, and to show that such work makes good business sense.

Source: esbnyc.com

ICT Sustainability

An Industry Perspective

Industry
Performance

As part of Fujitsu's ICT Sustainability: The Global Benchmark 2012 study, we examined the global industry sectors in ICT Sustainability. Internationally, the Utilities/Construction/Mining sector recorded the highest ITSx score, followed by Financial Services, Government, Manufacturing, and ICT/Communications/Media. These sectors all performed above the global ITSx of 53.1.

The range between the highest and lowest performing industries – as measured by ITSx – was 8.6 in 2012, compared to 7.2 in 2011. This indicates the global performance gap in ICT Sustainability measures between industries is widening.

There were also major variances in ITSx industry performance in respondent countries. For example, Japanese organizations scored the lowest ITSx in seven sectors, while USA organizations scored the highest in five sectors.

Overall, the Manufacturing sector has shown the biggest improvement in ITSx, moving to fourth position in 2012 from eighth in 2011. The largest declines in sector performance were recorded by ICT/Communications/Media and Health/Education/Welfare. These industry indices change significantly within the countries.

ITSx Component by Industry Sector, 2012

	Lifecycle	End User	Enterprise	Enablement	Metrics	ITSx
Financial Services	59.0	56.6	57.8	55.2	47.3	55.2
Government	59.7	56.3	57.4	54.5	48.1	55.1
Health/Education/Welfare	53.6	49.6	49.8	47.7	38.8	47.9
ICT/Communications/Media	57.0	55.4	53.5	55.1	47.8	53.7
Manufacturing	57.6	53.8	54.6	56.3	50.8	54.6
Professional Services	54.9	51.6	49.0	50.2	41.3	49.4
Utilities/Construction/Mining	59.4	58.2	58.9	56.1	50.3	56.5
Wholesale/Retail/Logistics	56.6	54.3	53.8	52.3	45.6	52.5
All Industries	**57.1**	**54.4**	**54.2**	**53.4**	**46.3**	**53.1**

The following snapshot shows the trends in maturity within each industry sector, compared to 2011.

Industry Maturity Trends, 2012

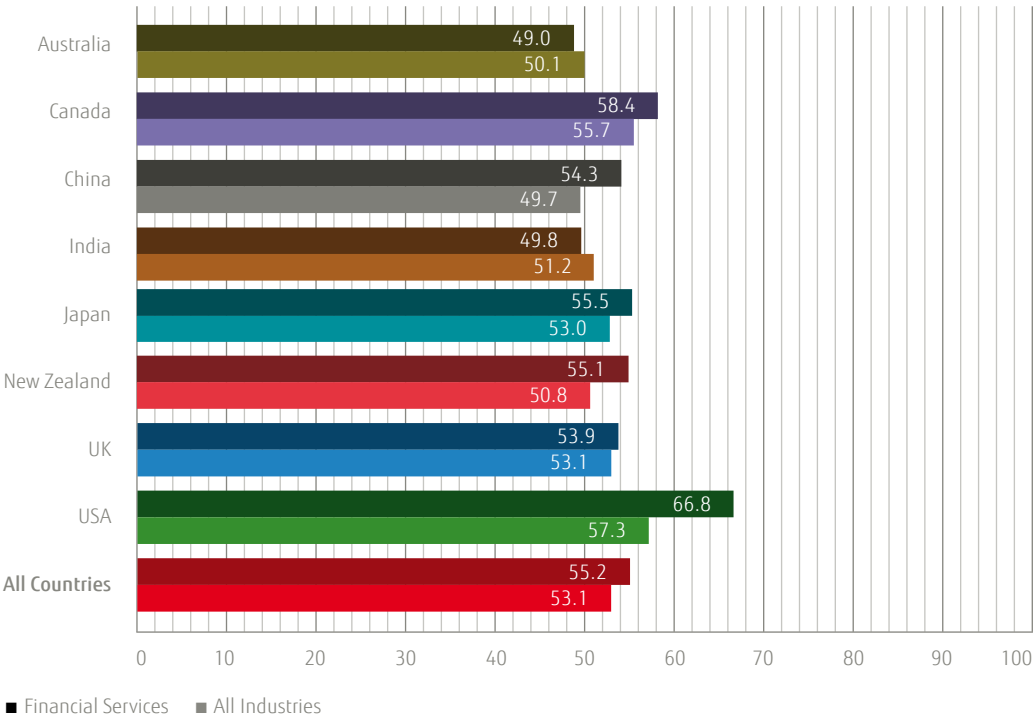
By Industry	Lifecycle	End User	Enterprise	Enablement	Metrics	ITSx
Financial Services	–	–	↑	↑	↑	↑
Government	↓	↓	–	↓	–	↓
Health/Education/Welfare	↓	↓	↓	↑	↑	–
ICT/Communications/Media	↓	↓	↓	–	↑	↓
Manufacturing	↓	↓	–	↑	↑	↑
Professional Services	↓	↓	↓	↑	↓	↓
Utilities/Construction/Mining	↓	–	↑	↑	↑	↑
Wholesale/Retail/Logistics	↓	↓	↓	↑	↑	–
All Industries	**↓**	**↓**	**↓**	**↑**	**↑**	**↓**

Financial Services

Highlights

- USA was the leader in Financial Services
- In six of the eight countries surveyed, the Financial Services sector performed better than the All Industries ITSx

Financial Services Sector ITSx Performance by Country, 2012



The Financial Services sector ITSx improved to 55.2 in 2012 from 54.4 in 2011, due solely to the contribution of American organizations. This performance places the Financial Services sector above the global ITSx of 53.1.

The leaders in ICT sustainability in the Financial Services sector were the USA (ITSx of 66.8) followed by Canada (58.4) and Japan (55.5). In the USA, Financial Services had an ITSx of 66.8 in 2012, an improvement of 9.8 compared to 2011. This figure is well above the All Industry ITSx in the USA of 57.3. Further, in the USA, the Financial Services Enterprise component index contributed greatly to the improved Financial Services ITSx. Across all data center measurements, the USA is 27% higher than the global average.

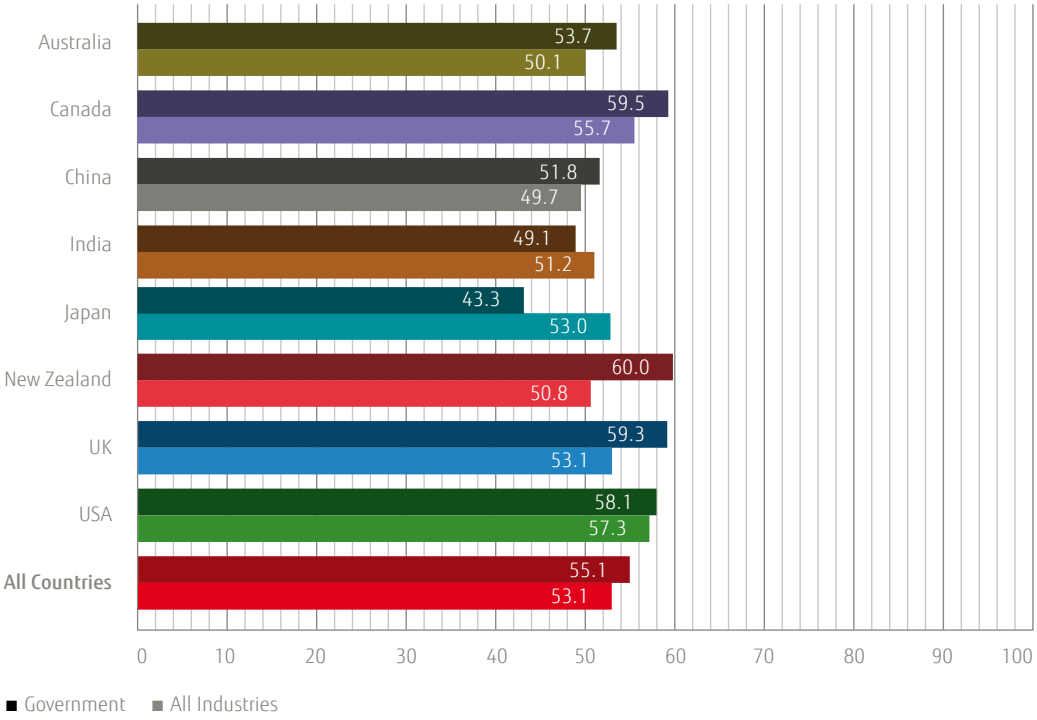
The Financial Services sectors of China, India, and New Zealand recorded growth in ICT Sustainability among their organizations, up by 4.1, 3.6, and 1.0, respectively. The biggest declines in ICT Sustainability in the Financial Services sector were in the UK (down by 5.8), Canada (down by 1.4), and Australia (down by 1.2).

Japan's Financial Services sector had an ITSx of 55.5, similar to the overall Financial Services ITSx. This was above the All Industries ITSx (53.0).

In all countries with the exception of Australia and India, the Financial Services sector outperformed the All Industries ITSx.

Government

Government Sector ITSx Performance by Country, 2012



Highlights

- New Zealand was the leader in Government
- In six of the eight countries surveyed, the Government sector performed better than the All Industries ITSx

The ICT Sustainability of the Government sector declined to 55.1 in 2012 from 55.5 in 2011. However, this sector outperformed the global ITSx of 53.1.

The leaders in ICT sustainability in the Government sector were New Zealand (ITSx of 60.0), followed by Canada (59.5) and the UK (59.3).

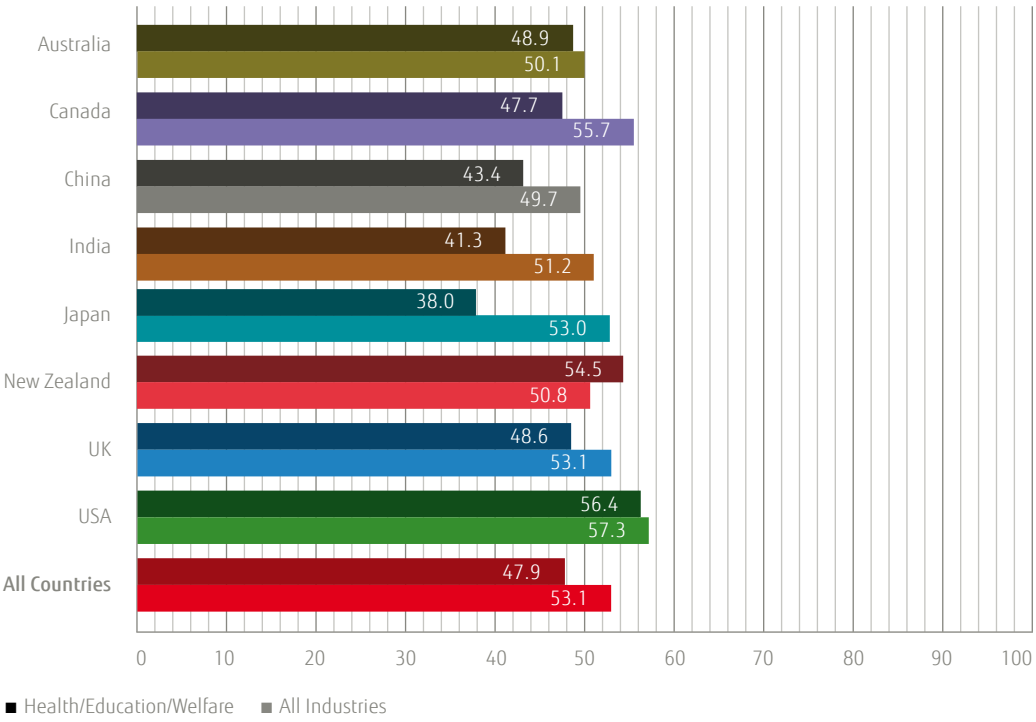
The strongest improvement in Government sector performance was in the USA, where the sector's ITSx rose by 3.7 in 2012 to 58.1. Canada (up by 1.7) and New Zealand (up by 1.6) also experienced improvements. The biggest declines in Government ICT Sustainability took place in the UK (down by 5.6), India (down by 3.1), Australia (down by 2.6), and China (down by 0.4).

With an ITSx of 43.3, Japan scored well below the overall Government ITSx, and below its All Industries ITSx (53.0).

In all countries except for India and Japan, the Government sector's ITSx performed above the All Industries ITSx.

Health/Education/Welfare

Health/Education/Welfare Sector ITSx Performance by Country, 2012



Highlights

- The USA was the leader on Health/Education/Welfare
- Only in New Zealand did the Health/Education/Welfare sector perform better than the All Industries ITSx

The ICT Sustainability of the Health/Education/Welfare sector declined to 47.9 in 2012, from 52.5 in 2011. This places its performance below the global ITSx of 53.1.

One potential factor contributing to this decline is that the Health/Education/Welfare sector typically comprises smaller ICT departments, which generally underperform larger enterprises in sustainability.

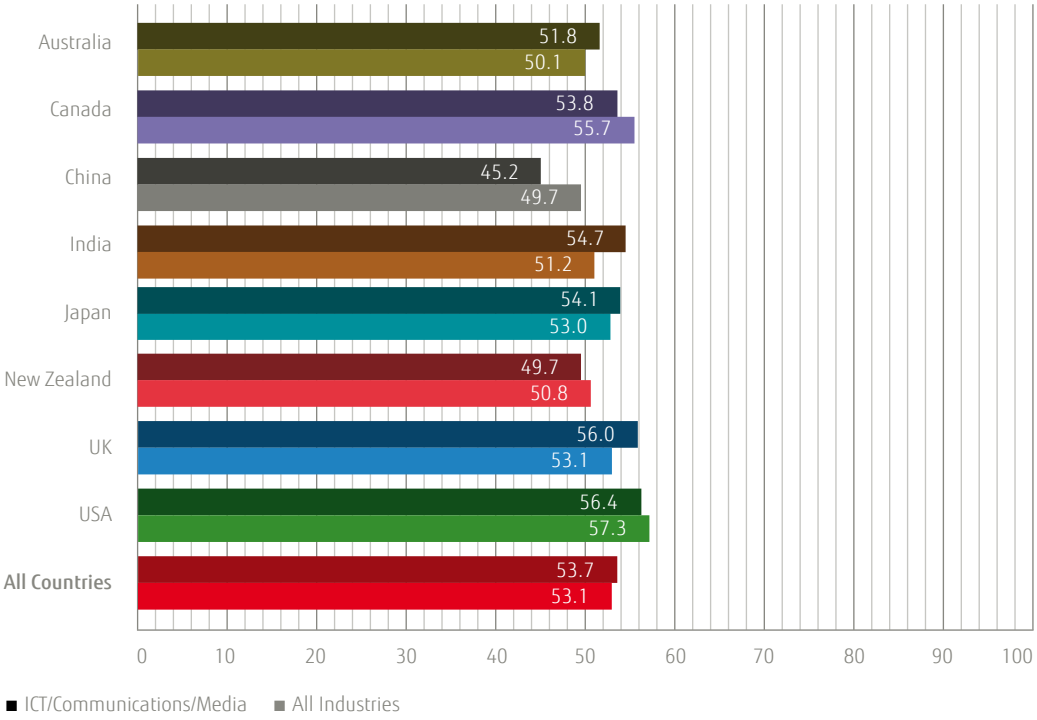
The top performing countries in terms of Health/Education/Welfare sector ICT Sustainability were the USA (ITSx of 56.4), followed by New Zealand (54.5), and Australia (48.9).

China recorded the largest increase in ICT Sustainability in its Health/Education/Welfare sector, with its sector's ITSx rising by 6.3 to 43.4. This was followed by New Zealand (up by 4.6) and the USA (up by 3.1). The biggest declines in ICT Sustainability in the Health/Education/Welfare sector took place in Canada (down by 12.0), the UK (down by 6.3), India (down by 4.0), and Australia (down by 3.7).

With an ITSx of 38.0, Japan scored well below the global Health/Education/Welfare ITSx of 47.9 and its All Industries ITSx of 53.0. India is another country where the sector's performance was below the All Industries ITSx. New Zealand was the only country where the Health/Education/Welfare ITSx (54.5) was higher than the All Industries ITSx (50.8).

ICT/Communications/Media

ICT/Communications/Media Sector ITSx Performance by Country, 2012



Highlights

- The USA was the leader in ICT/Communications/Media
- In four of the eight countries surveyed, the ICT/Communications/Media sector performed above the All Industries ITSx

The ICT Sustainability of the ICT/Communications/Media sector declined to 53.7 in 2012 from 58.4 in 2011. This sector has lost the leadership position it held in 2011, perhaps due to reduced market demand. However, in 2012 it still outperformed the global ITSx of 53.1.

The leaders in ICT Sustainability in the ICT/Communications/Media sector were the USA (ITSx of 56.4), followed by the UK (56.0) and India (54.7).

The sector's ICT Sustainability fell in every country in 2012 compared to 2011. The biggest fall was in the UK (down by 7.6), followed by India (down by 6.6), Canada (down by 5.2), and Australia (down by 4.9).

With an ITSx of 54.1, Japan scored above the ICT/Communications/Media ITSx (53.7) and its All Industries ITSx (53.0).

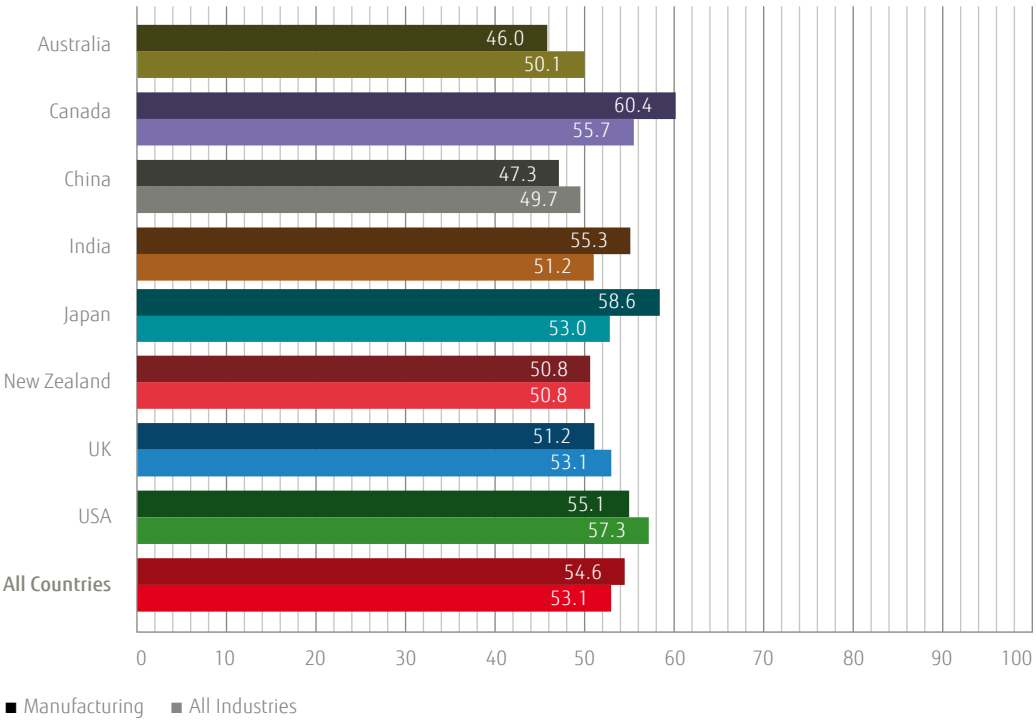
In 2011, the ICT/Communications/Media sector outperformed the All Industries ITSx in every country except Canada. In 2012, this was the situation in only four countries (Australia, India, Japan, and the UK).

Manufacturing

Highlights

- Canada was the leader in Manufacturing
- In three of the eight countries surveyed, Manufacturing performed above the All Industry ITSx

Manufacturing Sector ITSx Performance by Country, 2012



The ICT Sustainability of the Manufacturing sector improved to 54.6 in 2012 from 51.2 in 2011. This sector outperformed the global ITSx of 53.1.

Canada was the leader on ICT Sustainability in the Manufacturing sector, with an ITSx of 60.4 in 2012, followed by Japan (58.6) and India (55.3).

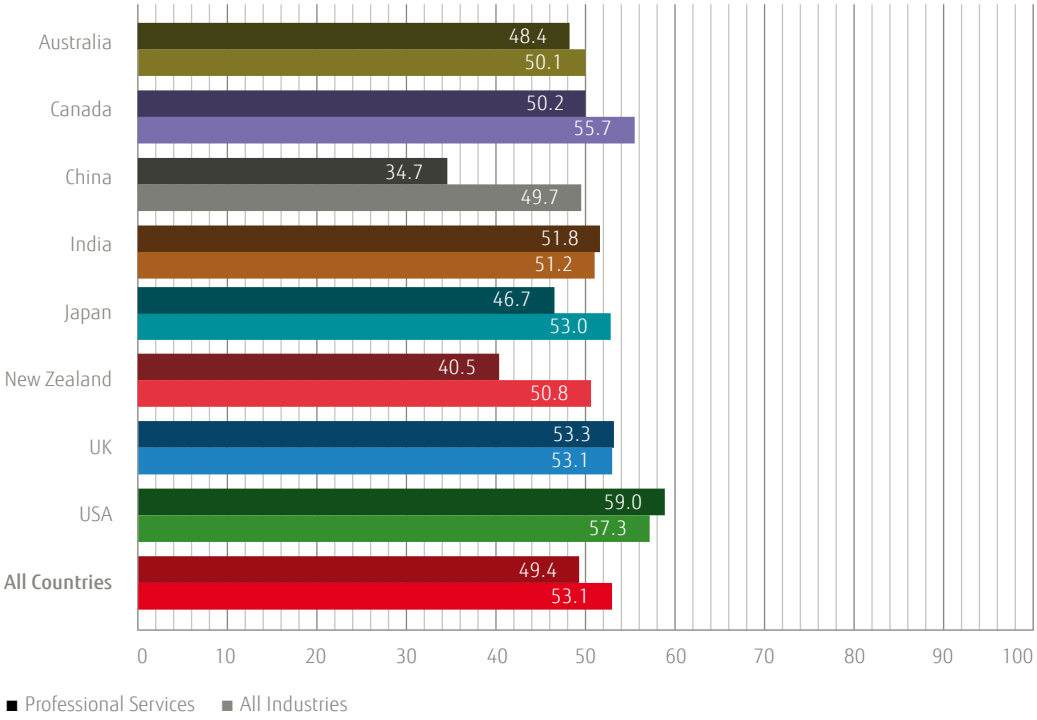
India's Manufacturing sector showed the largest improvement in ICT Sustainability (up by 5.4), while the USA rose by 0.7. Falls in the sector's ICT Sustainability occurred in Canada (down by 4.2), New Zealand (down by 2.4), Australia (down by 1.9), China (down by 0.9), and the UK (down by 0.1).

Japan, with a Manufacturing industry ITSx of 58.6, scored above the overall Manufacturing ITSx of 54.6, and also above its All Industries ITSx of 53.0.

In Canada, India, and Japan, Manufacturing outperformed the All Industries ITSx. The situation was reversed in Australia, China, New Zealand, the UK, and the USA. Further, the performance of the sector varied widely within countries.

Professional Services

Professional Services Sector ITSx Performance by Country, 2012



Highlights

- The USA was the leader in Professional Services
- In three of the eight countries surveyed, the Professional Services sector performed better than the All Industries ITSx

The ICT Sustainability of the Professional Services sector declined to 49.4 in 2012, compared to 53.0 in 2011. This decrease occurred despite the sector having a high proportion of ICT energy in its energy profile.

The leaders in ICT Sustainability within the Professional Services sector were the USA (59.0), followed by the UK (53.3) and India (51.8).

The strongest improvements in the Professional Services ITSx took place in India (up by 5.6) and the USA (up by 3.5). The sector's ICT Sustainability declined in every other country, with falls in China (down by 10.9), Canada (down by 9.9), New Zealand (down by 8.0), and Australia (down by 6.4) among the largest.

With an ITSx of 46.7, Japan scored below the overall Professional Services ITSx and its All Industries ITSx of 53.0.

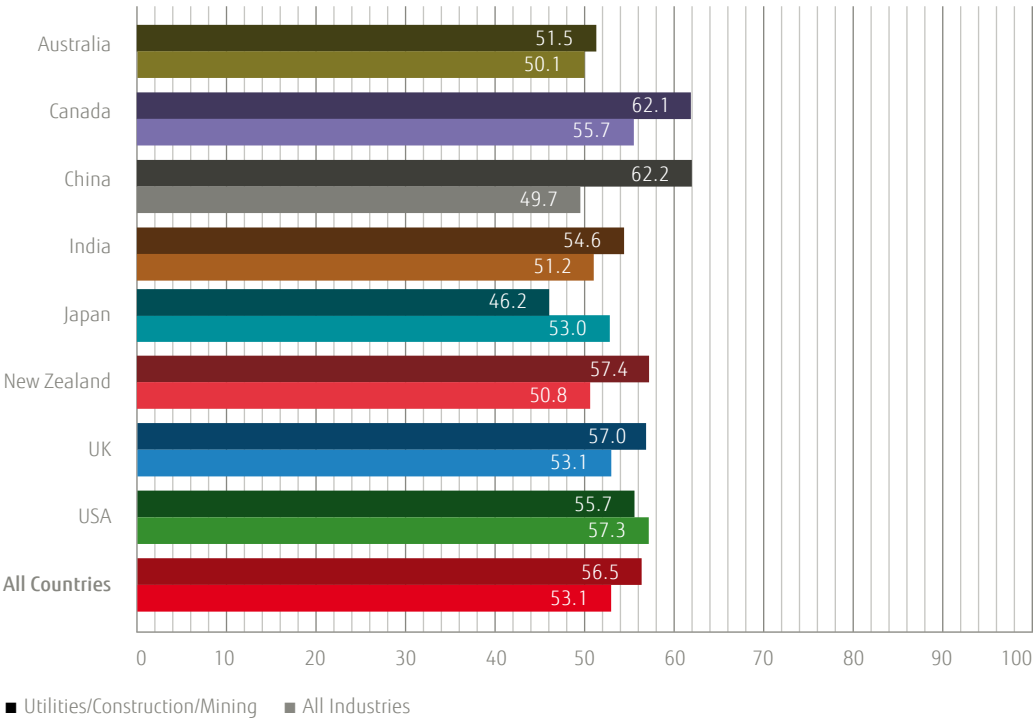
In India, the UK, and the USA, the Professional Services sector performed above their All Industries ITSx; while China, New Zealand, Japan, Canada, and Australia performed below their All Industries ITSx. The variation between China's Professional Services sector and its average of all sectors was the largest among all countries surveyed (15).

Utilities/Construction/Mining

Highlights

- China was the leader in Utilities/Construction/Mining
- In six of the eight countries surveyed, Utilities/Construction/Mining performed better than the All Industries ITSx

Utilities/Construction/Mining Sector ITSx Performance by Country, 2012



The ICT Sustainability of the Utilities/Construction/Mining sector improved to 56.5 in 2012 from 55.4 in 2011. The sector was the leading industry in 2012 with the highest ITSx, but it was also the sector most affected by environmental legislation. In terms of ICT Sustainability initiatives, we have seen an expansion of technology deployment through smart grids, and smart community and precinct projects.

China's Utilities/Construction/Mining sector was the global leader in ICT Sustainability in 2012, rising by 25.3 to 62.2. China's strong performance was closely followed by Canada (62.1) and New Zealand (57.4).

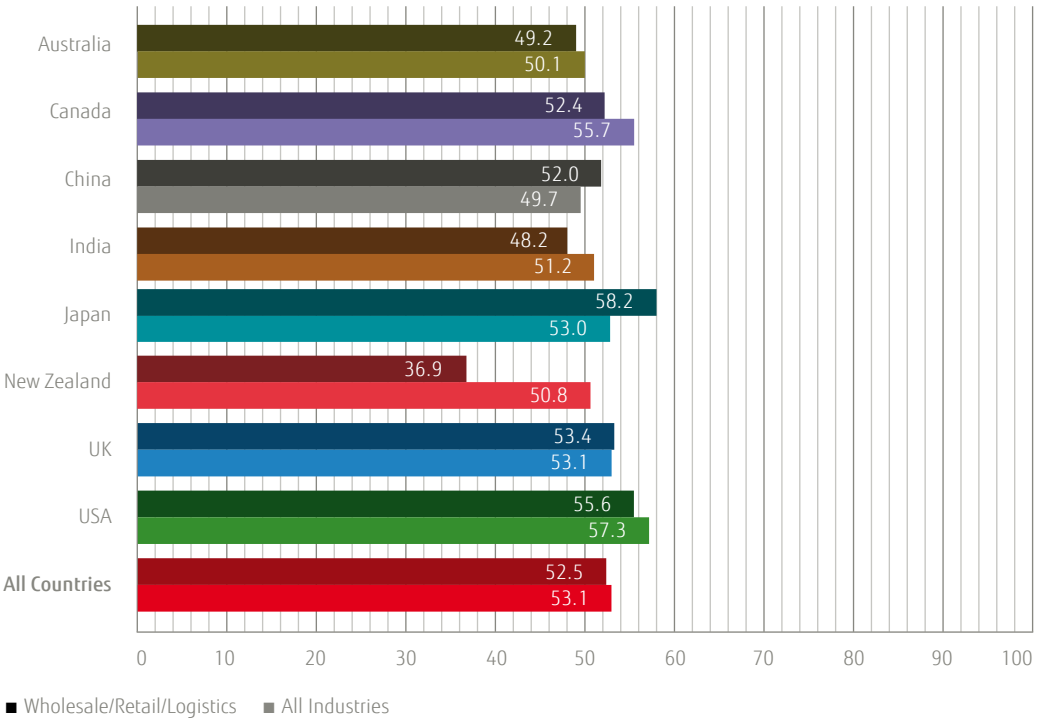
China recorded the strongest improvement in the sector, followed by India (up by 5.0) and Canada (up by 1.3). The UK recorded the largest decline in its Utilities/Construction/Mining sector's ICT Sustainability (down by 6.7), followed by New Zealand (down by 4.8), the USA (down by 4.6) and Australia (down by 3.5).

With an ITSx of 46.2, Japan scored below the overall Utilities/Construction/Mining sector ITSx of 56.5 and its All Industries ITSx of 53.0.

In six of the eight countries surveyed, the Utilities/Construction/Mining sector performed above the All Industries ITSx – with the exception of the USA where performance was slightly below, and Japan where it was 6.8 below.

Wholesale/Retail/Logistics

Wholesale/Retail/Logistics Sector ITSx Performance by Country, 2012



Highlights

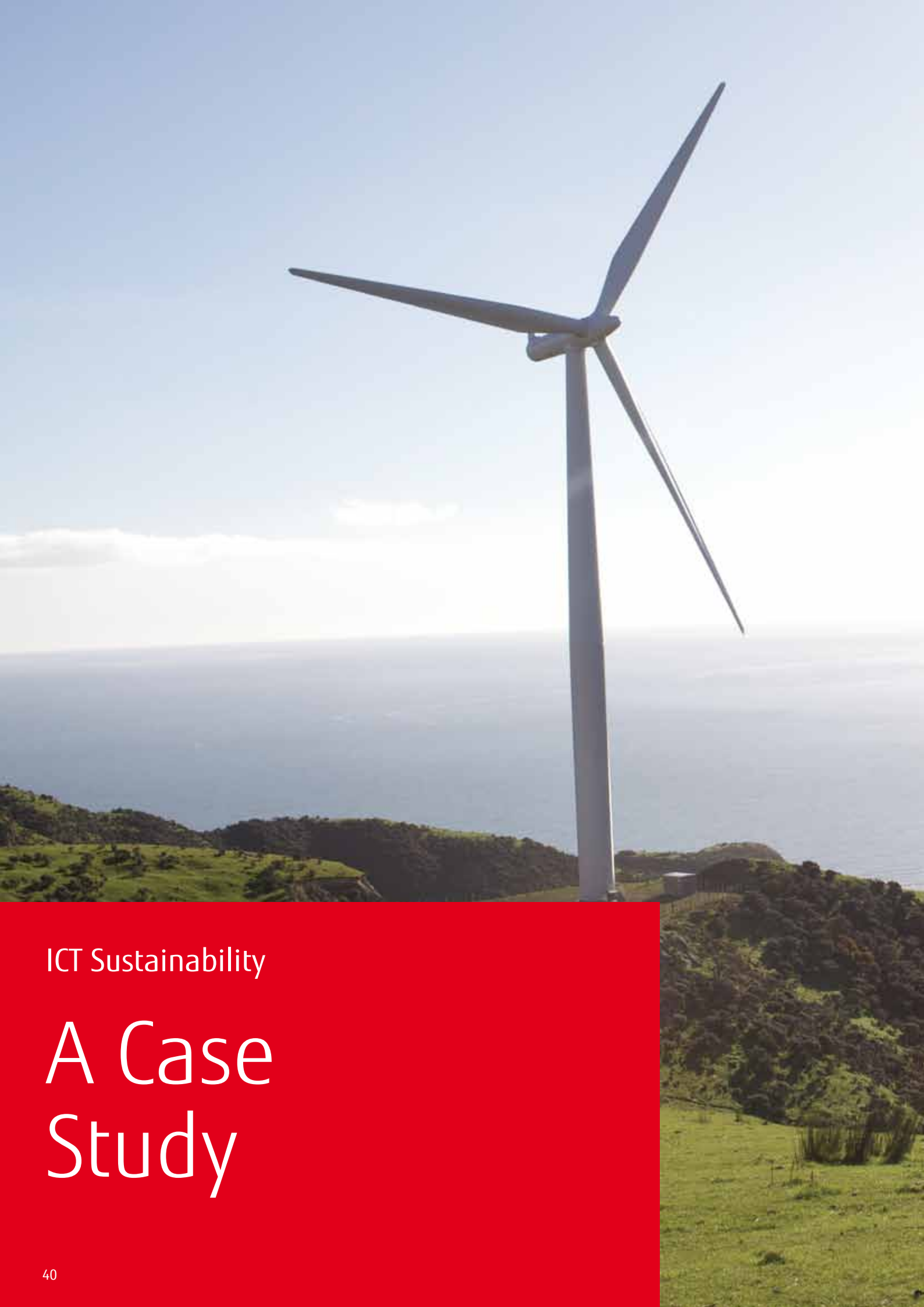
- Japan was the leader in Wholesale/Retail/Logistics
- In three of the eight countries surveyed, the Wholesale/Retail/Logistics sector performed better than the All Industries ITSx

The ICT Sustainability of the Wholesale/Retail/Logistics sector declined to 52.5 in 2012, compared to 53.9 in 2011.

With an ITSx of 58.2, Japan scored above the overall Wholesale/Retail/Logistics sector ITSx of 52.5 and its All Industries ITSx of 53.0. This placed Japan as the top performer in ICT Sustainability in the Wholesale/Retail/Logistics sector, followed by the USA (55.6), the UK (53.4), and Canada (52.4).

China was the only country to record an increase in ICT Sustainability in this sector, with an improvement of 8.6 to 52.0 in 2012. Canada experienced the largest decline in its Wholesale/Retail/Logistics sector ICT Sustainability (down by 8.2), followed by India (down by 4.6), the UK (down by 4.6), New Zealand (down by 3.0), and the USA (down by 2.4).

In Japan, China, and the UK, Wholesale/Retail/Logistics performed above the All Industries ITSx, while Australia, Canada, India, New Zealand, and the USA scored below. New Zealand was most notably below its All Industries ITSx, with a difference of 13.9.



ICT Sustainability

A Case Study

Case Study
Meridian Energy

»The whole Quick Start process gave us real insight into how we could reach beyond our current ICT targets of sustainability. The benchmark report gave us something further to strive for, with clarity on how to get there«

Alison Howard, Sustainability Performance Advisor, Meridian Energy

The Customer

Being a sustainable company that prides itself in delivering 100% renewable energy, the culture and ethos of Meridian Energy is to always look to improve operational efficiency and to truly 'walk the talk'. As an organization they have already achieved remarkable efficiency and savings and ICT was no exception.

The Challenge

Meridian had already implemented a lot of sustainable ICT programs. What could the company do next to achieve global best practice and keep its leadership position as one of New Zealand's most sustainable companies?

The Solution

The Fujitsu Consulting Sustainability team conducted an ICT Sustainability Quick Start Assessment. This is a rapid tool that includes interviews with key stakeholders, and provided a global benchmarking analysis, current ICT sustainability state and a detailed strategy on how to achieve best practice in sustainable ICT.

The Benefit

- Full understanding of whole-of-ICT sustainability
- Benchmarking of Green ICT maturity against peers
- Detailed strategic roadmap and plan on how to achieve global best practice
- User engagement led to the 'buy in' of ICT sustainability
- Established ongoing business support and long-term goodwill with the client

Conclusion

The Quick Start process provided Meridian with a high level of engagement and identified future opportunities to move to stages two and three of the Fujitsu ICT Sustainability Framework, which looks at Strategic Alignment and a full ICT Assessment. With the baseline now well defined, Meridian has the opportunity and roadmap to achieve global best practice that is supported by a strategic plan for continuous improvement.

meridian

Country: New Zealand
Industry: Energy Generation
Founded: 1991
Employees: ~600

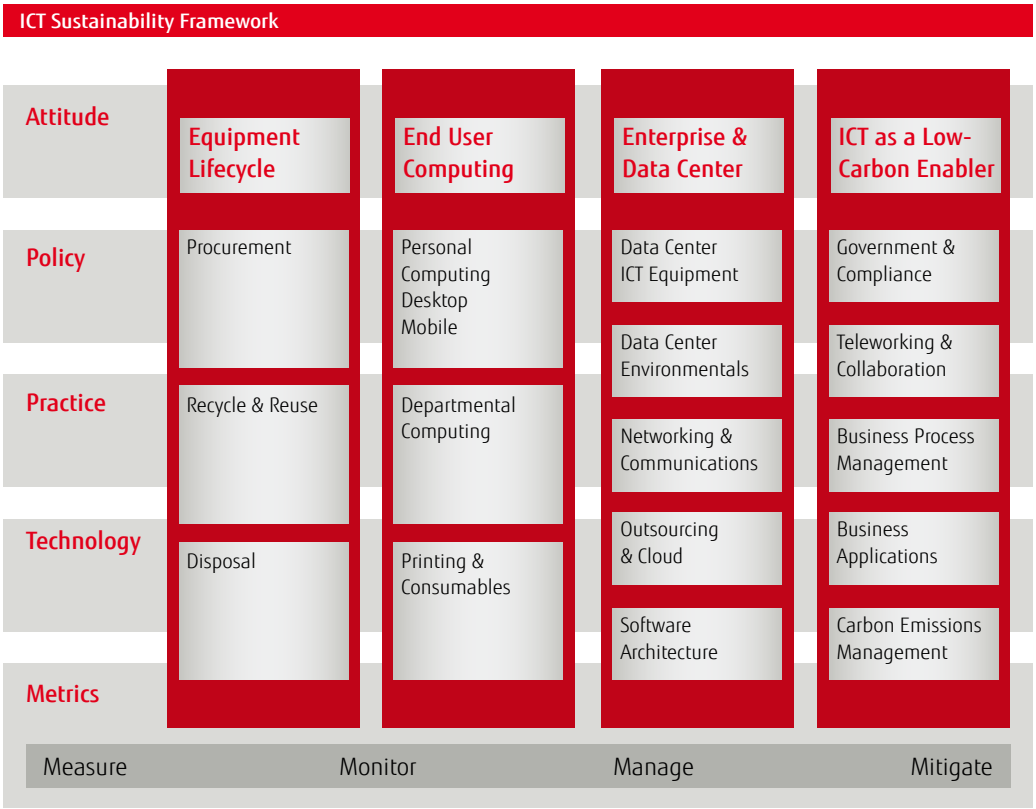
Methodology
The ICT Sustainability Framework

Fujitsu's ICT Sustainability: The Global Benchmark 2012 report uses a methodology developed by Connection Research and RMIT University (based in Melbourne, Australia). Through this research, we have created a standardized ICT Sustainability index for ICT-using organizations across eight sectors in eight different countries.

The unique methodology allows separate indices to be calculated for five key areas of ICT Sustainability:

- Equipment Lifecycle Procurement and Disposal
- End User Computing
- Enterprise and Data Center
- IT as a Low-Carbon Enabler
- Metrics

This overall framework incorporates attitudes, policies, practices, and technology as outlined below.



Once ICT Sustainability is defined in each of the five key areas, it becomes possible to measure each component. This is achieved by using the Capability Maturity Model (CMM), a standardized way of quantifying the maturity of a business process, from 0 (no action being taken at all) to 5 (optimized or best practice in place). Based on the CMM a score of 80 or above in the ITSx is considered best practice.

First developed by Watts Humphrey, founder of the Software Process Program at the Carnegie Mellon Software Engineering Institute, a CMM defines five levels of maturity in the use of any system or technology. The concept of the CMM is often used in the ICT industry to describe the level of implementation of various systems.

The Research Process

A total of 1,200 responses were collected through online surveys or interviews with CIOs and ICT managers from eight countries between April and July 2012. Respondents were asked over 80 questions about their ICT Sustainability policies, behavior, and technologies in each of the five key areas of ICT Sustainability. A breakdown of respondents can be seen in the table below.

The responses were weighted to deliver a score (out of 100) for each of the ICT Sustainability index components (attitude, policy, practice, technology, and metrics). These were then combined to determine the overall ICT Sustainability Index for each organization, ensuring comparisons could be made between respondents.

Respondents by Country and Industry Sector, 2012

	Australia	Canada	China	India	Japan	NZ	UK	USA	Total
Financial Services	27	13	10	10	21	5	18	18	122
Government	41	14	10	9	6	9	14	18	121
Health/Education/Welfare	31	13	10	9	18	9	54	18	162
ICT/Communications/Media	23	28	18	19	20	6	46	35	195
Manufacturing	22	13	10	10	70	6	23	18	172
Professional Services	21	14	9	9	30	5	19	18	125
Utilities/Construction/Mining	15	27	16	17	11	3	14	38	141
Wholesale/Retail/Logistics	20	28	17	17	24	7	12	37	162
Total	**200**	**150**	**100**	**100**	**200**	**50**	**200**	**200**	**1,200**

New Zealand's response base is comparatively low, with a high margin for error in some industry sectors.

Acknowledgements

Fujitsu would like to thank the many people and organizations involved in the production of this report.

We would particularly like to thank the CIOs and senior ICT managers who took the time to respond to our survey. Without their assistance, this research would not have been possible.

We would also like to thank our research partners Connection Research (www.connectionresearch.com.au) for providing research expertise and data analysis.

This report is printed on environmentally responsible paper.

About Fujitsu

Fujitsu is a leading global service provider of business, information, communications and technology solutions. In more than 100 countries around the world, Fujitsu partners with 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 organizations. Fujitsu is a global leader in sustainability, listed on the Dow Jones Sustainability Index since inception, and holds worldwide ISO 14001 certification.

For further information visit www.fujitsu.com/global/solutions/sustainability

About Connection Research

Connection Research is a market research and consultancy company specializing in the analysis of sustainability issues. Services are provided in consumer and community sustainability, ICT Sustainability, building industry and trades, and carbon and compliance. Connection Research undertakes primary research (surveys of users, tradespeople, suppliers, and practitioners), conducts market modeling analyses (combining our primary data with other sources) and consultancy in these fields.

For further information visit www.connectionresearch.com.au

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