

## Summary Report: Low-Carbon and Environmental Leadership in the ICT Industry by Gartner and WWF, 2010

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The information and communication technology (ICT) industry and its individual providers are at an important juncture. Are they really going to commit themselves to the necessary investments to develop low-carbon and environmental solutions during a period when, with some exceptions (such as energy-efficient ICT equipment, intelligent buildings and smart grids), the markets for any such solutions are at best emerging? We look at which providers are placing their bets and developing the capabilities that will make them effective innovation partners for enterprises and give them platforms for leadership in a low-carbon and more sustainable economy.

### Key Findings

- During 2009 and 2010, there has been rapid progress in the maturity of ICT vendors in terms of their internal environmental programs and in terms of the development of a set of low-carbon market offerings. The dominance of talking in 2008 has evolved into a lot more action in 2010 in terms of suitable products, services development and policy-related activity.
- We now have a clear group of market makers (BT, IBM, Cisco, Ericsson, HP, Fujitsu and SAP) that we believe are beginning to build distinguishing capabilities.
- The 2008 leaders, such as IBM, BT, Ericsson, Fujitsu and HP, have maintained their relatively strong positions with good, well-rounded low-carbon and environmental programs, improving their own internal performance, and developing market-facing solutions ranging from more-energy-efficient ICT equipment and mobile phone networks, through logistics and transportation, to solutions that enable smart grids.
- Aside from the important task of making ICT equipment more energy efficient, and a couple of particularly hot areas such as smart grids, developing solutions for a low-carbon economy is definitely not yet "core business."
- With a couple of exceptions, the industry is hobbled by the short-term incremental sustainability-related goals that it is setting for itself, rather than setting more-challenging, longer-term goals that could result in transformative solutions.
- There are limited signs of disruptive innovation, and more of a focus on incrementalism.
- The industry is fearful of committing its weight to influencing national and international climate change and sustainability policy; rather, it is standing on the sidelines as a cheerleader.

- The industry no longer predominantly sees climate change and sustainability as a risk, but sees it as an emerging opportunity.
- Service and software providers have improved their positions from 2008, but remain relatively immature in terms of their internal programs and their market offerings. SAP would stand out as a relatively strong performer with big improvements in its internal programs, transparency, product development and road map.
- Management of the environmental performance of the supply chain remains an area of significant differentiation, demanding much higher standards from everyone if the ICT industry is to credibly defend its position as a climate leader.
- ICT providers in Asia (not Japan) are still lagging overall, but we have seen some dramatic improvements, and we would anticipate that continuing.
- IT organizations still need to pay close attention to the balanced nature of the programs from IT providers, covering all areas of influence from direct, indirect and policy issues. We still see plenty of examples of providers with significant gaps in their programs.
- Interindustry partnerships are starting to emerge, particularly from the leaders. For example, IBM and Johnson Controls developing intelligent building solutions. These partnerships are a very significant and important step in the ability of ICTs to develop commercially viable solutions for a low-carbon economy.
- While the recent Global e-Sustainability Initiative (GeSI) and Boston Consulting Group (BCG) report outlining a high-level methodology for measuring the enabling effects of ICT related to the climate is a good step forward, the industry has so far only made a limited attempt at measuring the environmental benefits of its solutions, and has made no attempt at all to understand their systemic and rebound impacts. (That is, the indirect and frequently unforeseen change in behaviors, consumption patterns and so on, resulting from the introduction of new technologies, policy measures, etc.)
- The industry continues to bask in the afterglow of the Smart 2020 report ([www.smart2020.org](http://www.smart2020.org)), when it should really be moving that thinking forward at a much faster pace.

## Recommendations

In choosing a long-term supplier and partner, look for systemic capabilities, and look for suppliers for which low-carbon and sustainability-related solutions are part of their core business. Failure to do so could result in choosing providers with insufficient executive commitment and capabilities to meet the enterprise's immediate and future requirements.

Strong internal environmental programs are no guarantee of strong low-carbon product and service offerings; however, weak internal programs usually mean weak product offerings. So look for ICT providers with strong programs and an established track record of good performance.

Look for transparency. As a starting point, look for ICT providers with clear, specific policy statements focused on material issues that then link to a set of key performance indicators (KPIs) with short- and long-term goals covering the whole of their operations. Favor providers systematically tackling their global operations in an integrated way. Good examples are IBM, Fujitsu, BT, HP and Dell. Assume providers with only country-level KPIs and case examples are immature.

Use this assessment to help you make choices about which providers will make appropriate strategic partners and suppliers of ICT equipment, services and solutions.

Use the issues we have identified and areas we have focused on to inform your own assessments of other ICT providers, and to help improve your own understanding of the issues.

The assessment can also be used to stimulate and inform an ongoing dialogue with your providers to help drive further improvement in their environmental performance.

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## ANALYSIS

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### Introduction

In our first assessment of ICT providers' low-carbon and environmental activities in 2008, we made the observation that climate change represented one of the most significant strategic discontinuities to face most enterprises. That remains true today. In 2008, climate change had just emerged as a mainstream business issue. It was an area that everyone was talking about, and there was not a day without a new climate headline in the world's newspapers. Enterprises were beginning to consider the implications of climate change in terms of managing their supply chains. Two years later, we look at a very different world. Climate has been recognized as a strategic discontinuity by senior executives in enterprises and by policymakers in the international community.

It remains an area where things are happening fast, even if progress on national and international climate regulations is, at best, fitful. This has resulted in continued uncertainty and risk for organizations in most sectors, which, in turn, is resulting in a lack of action and appropriate investment by all but a select and innovative few. Some of the ICT providers in this study will most certainly move to a leadership position in a year or two as new strategies are executed.

However, despite the recognition among senior executives specifically that climate and change and sustainability are factors that will have profound impacts on their organizations, most of those same organizations are doing relatively little. Despite the rhetoric and media attention, most are still treating this as a brand-image issue, rather than an issue of efficiency and opportunity. As such, it often remains in the quiet backwaters of a communications team, rather than impacting core strategy. Some are simply passing the pressure down the supply chain. There are a small but increasing number of enterprises treating this as an opportunity to drive efficiency programs. But even there, it is usually about tactical programs chasing low-hanging fruit, with a focus on incremental improvements.

The reality of the need for radical rethinking, the important role of ICT and the need to identify low-carbon innovation partners has not occurred to most, today. However, we fully anticipate this will be changing. The ICT industry itself is actually doing much better than most other sectors. Like all industries, it has its leaders in sustainable practices, and it has some that have a long way to catch up, as can be seen in the results of this assessment. But we are at a very interesting point in the development of the role of ICTs in a low-carbon economy. We have a group of market makers, and a group of market followers. However, at this stage, even the market makers have not really taken the issues associated with climate change and sustainability into the core of their businesses and strategies. There appears to be a fear of commitment on behalf of many of them. It is real progress to see the leaders dealing with this as an opportunity now, but they continue to do that within the mind-set of incremental improvement and "short-termism." The leading ICT providers see this as being about value creation, rather than simply an issue of risk management or brand protection. So, for most, it is no longer a task just for their public relations and brand management teams.

Two years ago, the climate solution perspective was very new, where an organization's low-carbon performance incorporates the reductions it can contribute to society through the enabling nature of the application of its goods and services. For an ICT provider, some of the most common solutions that most people are familiar with include virtual meetings, teleworking, smart grid, e-readers and e-health. Today, policymakers and customers are increasingly focused on solutions, nongovernmental organizations (NGOs) are now focused more on the companies that provide low-carbon solutions, and investors have begun to ask questions about ways that companies help society to reduce emissions (for example, the Carbon Disclosure Project

[\[www.cdproject.net\]](http://www.cdproject.net) introduced this after the last Gartner-World Wide Fund for Nature in Sweden (WWF) study). Standards for calculating savings from solutions are in the very early stages of being explored by the Global Reporting Initiative (GRI), Greenhouse Gas (GHG) Protocol, ICTs, GeSI and the International Telecommunication Union (ITU).

The ICT sector has been leading this solution approach to a large degree, and many ICT providers have released reports addressing the issue. We are only just beginning to see reports based on actual reductions from services that are delivered, not just macroeconomic studies about future potentials.

It is striking that, while many of the leading ICT providers have a good understanding of their Scope 1 and Scope 2 GHG emissions, none has a comprehensive overview of much of their Scope 3 emissions, and neither do they have an idea about the reductions to which they have contributed. Companies in Japan seem to be in the forefront in this field, but in the European Union (EU) and the U.S., many companies are still only referencing macroeconomic studies such as the Smart 2020 report — a report that only presents a linear assessment. It does not include a more transformative shift that will deliver the reductions now believed by the scientific community to be required to avoid dangerous climate change.

To capture the rapid change in the world and how the ICT sector is responding to this change, we have used a refined version of the original 2008 assessment. This new framework allows for a clearer distinction between the traditional focus of internal and direct product/service emissions, and the more recent focus on the enabling solutions that deliver benefits to the wider society.

This report will give you an understanding of the low-carbon and environmental leaders in the ICT industry, the collective position of the ICT industry and the new roles in relation to climate solutions that are emerging. Some companies have so far moved in a direction that focuses on the traditional first-order direct emissions of ICT itself (sometimes referred to as "the greening or transformation of IT"). This might be because this represents their core businesses, as we see with hardware and ICT infrastructure service providers such as Dell and Lenovo. Sometimes, it is because they are relatively immature in responding to the needs of a low-carbon and more sustainable economy, such as CSC, and is true for some of the companies not responding to this assessment. Some ICT providers are moving rapidly into the area of second-order impacts of ICT (often referred to as the "greening or transformation by IT") where the environmental benefit is derived from the application of ICT, such as Accenture, Tata Consultancy Services (TCS) and China Mobile. Others are already providing a number of solutions in the area, such as Cisco, HP, Alcatel-Lucent and Deutsche Telekom. Some are thought leaders that not only provide solutions but also help move the intellectual work forward, such as IBM, Ericsson and Fujitsu.

The assessment has been a joint effort by Gartner and WWF Sweden. It provides an insight into where the ICT industry and selected individual ICT technology and service providers are in terms of responding to the risks and opportunities of climate change. It looks at some broad environmental issues, but has a strong focus on issues related to climate change.

The assessment is aimed at informing a range of interested stakeholders, including CIOs, those involved in technology and service procurement decisions, enterprises' sustainability officers, national and international policymakers, and those responsible for the corporate and product/service low-carbon strategies of ICT providers.

## **The Low-Carbon Economy**

Today, most large enterprises and an increasing number of midsize enterprises have some sort of climate policy, but most of these policies focus on incremental reductions in existing systems. The need for more-transformative solutions is still very seldom part of the strategies. In national

and international policy discussions, most industry groups are arguing for business as usual with some marginal changes.

During the past two years, there has also been a rapid growth in the use of "offsets" that could be a significant competition for transformative ICT solutions (that is, instead of investing in videoconferencing and remote collaboration technologies, organizations are buying offsets for their flights or other aspects of their operations). The most significant savings from ICT solutions — those that can help deliver a zero-carbon economy, rather than simply incremental improvements to current systems — are those that require policymakers and businesses to rethink their current way of doing business. Perhaps instead of a focus on incremental improvements in fuel efficiency in cars, an integrated system with electric cars, a recharging services infrastructure and renewable energy could achieve the levels of transformative reduction that are required.

With an increasing number of studies and policymakers talking of a need to keep the average global temperature increase below 1.5-degrees centigrade by 2050, the need for transformative solutions has become more of a mainstream issue. Two years ago, 20% reductions were discussed in the EU as a possibility, and a 50% reduction by 2050. Now, the leading countries in Europe (Germany, the U.K. and France) have declared that they want a 30% reduction target by 2020 and that 80% to 95% reductions are needed by 2050. At the same time, targets have been formulated in emerging countries to support a low-carbon economy.

There remains a substantial gap between much of the political rhetoric and the practical realities of regulation. The lack of any progress coming out of the UN Climate Change Convention in Copenhagen is symptomatic of the gap. However, the political pressure to act continues to mount.

## **ICT and Climate Change**

The role of ICT as a threshold technology with the potential to rapidly change the whole structure of society and reshape the way we organize our economy, in much the same manner as did inventions such as the internal combustion engine of the last century, is more important now than ever.

ICT's growth has already had and continues to have a major impact on how we live, work, spend our leisure time and even think. These characteristics make ICT a critical consideration if we want to shift toward a sustainable low-carbon society.

The fact that we have seen e-reading take off during the past two years, mobile applications become a new way of generating support and action, buildings that produce more energy than they use have become a practical reality, electric cars and systems to deal with charging become a priority for many cities, and information about the impact from food indicates how fast transformative ICT solutions can move from idea to a commercial scale. However, it is interesting to note, and see as a warning sign, that much of this is due to activities outside the major ICT companies.

It is the view of the WWF, the UN and a significant number of world leaders that one of the world's most pressing challenges — climate change and the need to radically reduce GHG emissions globally while continuing to enable economic development, both in Organisation for Economic Co-operation and Development (OECD) countries and in emerging economies and poor countries — requires innovative action, including ICT.

Although significant opportunity exists for ICT products and services to enable climate change mitigation, and despite the progress of the past two years, the opportunity remains far from realizing its potential. With climate change now being one of the top issues at global,

intergovernmental levels, a better understanding and demonstration of the role of ICT is urgently required. This is especially true because ICT as a solution to mitigate climate change and enable a low-carbon economy is one of the areas that is being discussed in preparation for the climate summit (COP16) in Mexico. Many different groups arranging events and writing policy papers related to COP16 now have a special track with ICT solutions.

## ICT Providers and Climate Change

On the technology and service provider side, an increasing number of ICT providers now have low-carbon solutions that are offered to customers; some even have basic tools to estimate the savings from these solutions. Instead of a risk issue, the need for reduced emissions is seen as a business opportunity among a rapidly growing group of ICT companies.

As we have seen from the respondents to this assessment, the majority of the business initiatives seem to focus on theoretical savings and associated methodology development, rather than actual savings and concrete policy suggestions.

Enterprises in high-carbon sectors — such as transportation, energy and construction — have, in some cases, actually backtracked and returned to traditional extraction and high-carbon business models. The financial crisis contributed to this because it came at a time before concrete low-carbon strategies existed.

Still, there is an agreement that a shift is needed, which will result in significant revenue flow to those ICT companies that can provide low-carbon solutions.

Compared with two years ago, the world is a little more polarized with regard to views on climate change, and while the rhetoric is similar with regard to the need for GHG reductions, the actual national strategies are developing in different directions.

The rapid change in society, the growing gap between ICT providers, and the increasing divergence between rhetoric and actual investments make it more important than ever to understand which providers are innovators and leaders in the ICT sector and to understand in which areas they are focused.

## Terminology

Throughout the assessment, we distinguish between two aspects of ICT's role in a low-carbon and more environmentally sustainable economy:

- The first relates to ICT's own impact (that is, the direct first-order impacts related to the manufacture, distribution, delivery, use and disposition of physical ICT assets and ICT-related services). Therefore, more-energy-efficient servers, PCs, a more-energy-efficient outsourced service, and so on fit into this category. In the media, this is frequently referred to as "green IT," sometimes "greening or transformation of IT." We have coined the term to refer to this as "the 2%," since Gartner's estimate is that ICT itself accounts for around 2% of GHG emissions (everything else obviously accounting for 98%). We will refer to this throughout the report as "transformation of IT," or, where appropriate, "the 2%."
- The second refers to the second-order impacts with ICT's enabling role, and benefits resulting from the application of ICT in other sectors of the economy. So use of ICT-enabled services such as videoconferencing and remote collaboration to reduce travel, use of ICT to increase the energy efficiency of a building's heating, lighting, air-conditioning, etc., fits into this category. This is frequently referred to as "greening or transformation by IT." We have coined the term "the 98%" to refer to the potential ICT has to help reduce emissions by providing solutions in other areas (for example,

transportation, buildings and consumption/dematerialization). Throughout the report, we will refer to this as "transformation by IT," or "the 98%" where appropriate.

## Objectives

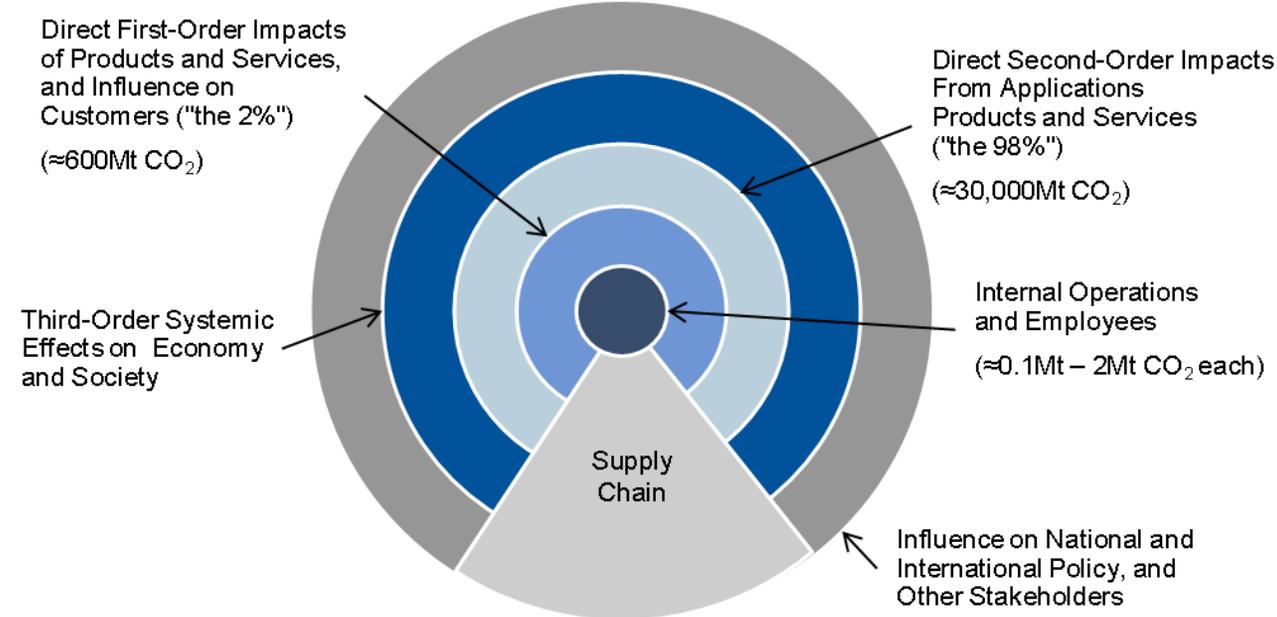
Climate change and the broader issue of environmental sustainability will represent a strategic discontinuity to most economies, and to most public- and private-sector organizations. As such, there are a wide range of stakeholders in and around the ICT industry that want to understand how the ICT industry and individual vendors are responding to those risks and opportunities. The objective of this assessment is to provide such insight by analyzing the systemic issues behind what we believe it will take to be a leader in a low-carbon economy. In doing so, we intend to help public- and private-sector organizations identify the suppliers and partners that will serve them well in the long term, as they prepare to enter the low-carbon economy.

To truly understand the performance of an ICT provider in the environmental and low-carbon space, we believe it is critical to understand four aspects of the programs and activities of ICT providers:

1. How they manage the environmental aspects of their internal operations and look to influence their employees
2. How they manage the environmental aspects of their supply chains
3. The extent to which sustainability and the opportunities presented by low-carbon solutions are integrated into core business strategies and are, in turn, reflected in actual solutions offered, as well as the efforts they make to inform their customers
4. The nature and extent of how they are attempting to influence industry, national and international standards, guidelines and policies to support low-carbon development

To achieve that, the assessment framework asks questions related to each of the domains identified in Figure 1.

**Figure 1. An ICT Provider's Domains of Impact**



Source: Gartner (October 2010)

To understand the relative importance and, therefore, the materiality of these areas, it is important to appreciate the orders of magnitude of each. The GHG emissions from internal operations for a singular typical ICT provider is in the range of 0.1 million to 2 million metric tons (Mt) a year. The emissions associated with the collective ICT product use annually is around 600 Mt. Global GHG emissions across all sectors of the economy are around 30,000 Mt. So while there is often a tendency to focus on the internal operations of ICT providers, relative to the bigger picture it is more important to look at ICT's role in tackling the 600 Mt, and obviously even more so the 30,000 Mt.

There are an increasing number of environmental assessments and awards that look at different aspects of a corporation's sustainability performance, each with varying goals and methodologies, but most focus on the internal operations, and some also the supply chain. They tend to consider management of the environmental risks, rather than the capability to exploit the opportunities, and the extent to which these are impacting the organization's core business. Our assessment looks at all aspects covered by Figure 1. We look at the systemic issues behind good performance, by which we mean the extent to which the policy, governance, processes, practices, targets, etc. are geared toward producing good environmental and low-carbon outcomes. We look at both the risk management and the extent to which the providers offer low-carbon solutions as part of a core business strategy. Additionally, it examines how they exploit the new and emerging opportunities, as well as how they are helping to shape the markets of tomorrow. As such, we think it provides a well-rounded assessment of which providers are well-positioned to exploit the opportunities of a low-carbon economy, and which ones will make for good potential suppliers and partners.

## Framework Overview

The framework used to assess the IT product and service providers is split into six sections, each scored independently. Each looks at different aspects of the provider's environmental and low-carbon strategies and programs, collectively providing a very broad and deep analysis of their performances in this space. We do not look at particular technologies or products; rather, we look at the systemic issues that will result in long-term leadership for a low-carbon and more sustainable economy.

As described here, we are looking at several aspects of an IT provider's performance. These can be broadly categorized as an internal and an external view:

- Their internal operations and their supply chains
- Their approaches to developing the low-carbon solution market and the development of products and services that will help their customers reduce their emissions or increase their energy efficiency

## Internal-Focused Sections

Each of these three main sections is a single-dimensional assessment, with an individual score for the whole section.

### Environmental Basics

These assess whether the company has undertaken some of the basics to understand and tackle the environmental impacts of their internal business operations and gain insight into the maturity of their capabilities here. Throughout the framework, the scoring does reward providers that have been managing the environmental effects for longer, which reflects the maturity of their processes, systems and, to some extent, their culture.

A high score tells you that the provider has a broad-based, comprehensive and mature environmental program, with appropriate governance to address the environmental aspects of its business activities.

A low score tells you that there may be some holes in its program or governance, or that it has not been addressing some or all the environmental aspects of its operations for very long.

### **Supply Chain Basics**

These assess whether the company has undertaken some of the basics in managing the environmental standards and risks associated with the physical supply chain as well as the service value chain. However, the significance of the supply chain score varies and needs consideration in the context of the provider concerned. Hardware and telecommunications providers have extensive supply chains and you would expect them to score well. On the other hand, software companies have a more-limited supply chain and less influence over that supply chain, so while there are certainly many things they can and should be paying more attention to, it is unreasonable to expect them to have the same level of detailed controls as the hardware companies. However, we use the same framework and score them all the same way. It is reasonable to compare two similar providers in the same sector, but pointless to compare a software or services provider against a hardware or telecommunications provider.

A high score tells you that a provider has high levels of visibility and assurance that the environmental aspects of its supply chain are being managed appropriately, that it is demanding high standards from its supply chain and that it is going beyond its Tier 1 suppliers where appropriate (Tier 1 being direct suppliers, Tier 2 being the suppliers of its suppliers).

Providers that have extensive supply chains, namely those that make hardware and telecommunications, should be expected to score well here. A low score for one of these providers tells you that it doesn't have the level of visibility and assurance that it could, and that it may not be demanding the highest levels of performance from suppliers across a range of environmental performance criteria. A low score does not mean the supply chain has a poor environmental performance, simply that management of the supply chain is not ensuring the highest levels of performance and/or improvement.

### **Carbon Basics**

These assess the extent to which the provider has undertaken some of the basic steps to formulate and execute an effective climate change strategy related to its internal business operations.

A high score tells you that it has a comprehensive and mature carbon reduction strategy and appropriate governance.

A low score tells you that there are gaps in its carbon reduction program and that the program is not very mature at this stage.

### **External-Focused Sections**

Each of these sections is split into two subsections. This is one of the main changes from the assessment we completed in 2008. We have split these externally focused sections to separate out activities and solutions oriented toward:

- Improving an ICT provider's own environmental and carbon performance (activities, capabilities, solutions that will improve the energy efficiency or life cycle footprint of the IT products or services themselves). Therefore, more-energy-efficient servers, PCs, etc., fit into this subsection.

- Applications of ICT that improve the energy efficiency, carbon efficiency or footprint of consumers, organizations or the wider economy.

For each of these sections, there are two independent scores. The purpose in doing this split is to help identify those providers focused on solutions aimed at increasing the energy and carbon efficiency of IT itself, and those more focused on other areas of enterprise or economic activity where ICT can make a difference.

### **Carbon Communications**

These assess the communications-related activities of a provider in terms of supporting initiatives that will increase energy efficiency or reduce carbon emissions. This includes disclosing a provider's own GHG reduction targets, its contribution to relevant industry or national bodies, and the measures it takes to inform stakeholders about the issues of climate change and the role of ICT, etc.

Some of this kind of activity is highly visible to a wide spectrum of stakeholders; however, much of it is substantially less visible, but can be very important and influential work.

A high score tells you that the provider is very engaged in influencing a wide range of stakeholders, it is making a good effort to bring about change, there is some evidence of a coherent and comprehensive communications strategy, and it is involved in appropriate industry and cross-industry associations that are driving positive change that should result in greater energy and carbon efficiency.

A low score tells you the provider has either not really engaged in the issue, is at an early stage of maturity, lacks any kind of coherent communications strategy or has significant holes in its communications.

### **Carbon Delivery Today**

We do not look at specific services, product families or products in this assessment. Rather, we look at the systemic issues behind the development of low-carbon and more-sustainable products and services by looking at areas such as strategy, organizational approach, practices, governance and procedures that go with developing and delivering energy and carbon efficiency solutions.

A high score tells you a provider is well-positioned to deliver energy-efficient and carbon reduction solutions today, and that it has a well-rounded approach to delivering such solutions.

A low score tells you that, while a provider may have some specific solutions that deliver energy and/or carbon efficiencies, it doesn't have a balanced and well-rounded strategy and program that will systematically deliver such solutions.

### **Carbon Delivery Tomorrow**

Again, we do not look at specific products, services or technologies. Rather, we look at the systemic issues most likely to result in leadership here. We look at how ICT providers are investing to develop low-carbon solutions for the future, as well as how active they are in shaping the future agenda by influencing standards, guidelines, national and international policy, etc.

A high score tells you that the provider is well-positioned to develop energy-efficient and/or low-carbon solutions, as well as engaged in a broader program of driving change toward a low-carbon economy.

## Method

### Invited Participants

Twenty-eight providers were selected in 4Q09 by Gartner and WWF to participate in the assessment. They were chosen from hardware, software, services and telecommunications based on their size within the markets they serve, and to be a geographically dispersed blend of market-leading technology and service providers in the hardware, services and/or software sectors. Geographically, they are from North America, Europe, China, Japan, Taiwan and India. The goal being to give a picture across a broad spectrum of the ICT industry.

The providers invited to participate are listed in Table 1.

**Table 1. ICT Providers Invited to Participate in Assessment**

<b>Company</b>
Accenture
Acer
Alcatel-Lucent
AT&T
British Telecom (BT)
Capgemini
China Mobile
Cisco Systems
CSC
Dell
Deutsche Telekom
Ericsson
Fujitsu
Google
HP
IBM
Infor (see Note 1)
Lenovo
Microsoft
Nokia
NTT Communications
Oracle
SAP
Sun Microsystems*
TCS
Verizon
Wipro

<b>Company</b>
Xerox
* Sun Microsystems was invited to participate prior to the closure of its acquisition by Oracle. It was assessed as the organizational entity that was Sun Microsystems. Oracle was invited to participate as an independent organization and declined.

Source: Gartner (October 2010)

With the exception of EDS (now part of HP's response) and Nortel, we reinvited all those that we invited in 2008. We also invited an additional six ICT providers to participate:

- Alcatel-Lucent
- Capgemini
- CSC
- Infor
- NTT
- Xerox

## Assessment Instrument

The assessment instrument consisted of 113 main questions organized in the six sections of the framework. The instrument was sent to each organization, and completion was overseen by a senior executive — in most cases, with direct responsibility for environmental programs and/or product and service development. Although we entered into an extensive dialogue with each respondent individually, and went through several rounds of clarifications and, where necessary, sought further detail or explanation from the respondents, we assumed that the responses were accurate and have not audited the responses; thus, we recognize that there is a possibility of inaccurate responses that could distort our results.

The instrument had to be very selective in the areas it looked at, even 113 questions are insufficient to cover everything. The questions were developed to touch on the most important elements that we felt would be central to a systemic capability in low-carbon and environmental performance, and be symptomatic of what is going on across the wider organization, as well as to identify differentiation between providers. The questions also looked for evidence of historical data to give a better indication of how long the respondent had been managing the issue.

It is important to note that all the information was volunteered by the respondents with their full and active support, and is the only information used in the analyses. The bulk of the information was collected in 4Q09, with additional information, clarifications and selective updates as appropriate, and ongoing discussions continuing as part of an iterative process through the first two quarters of 2010.

## Scoring

The scoring process was a joint effort of Gartner and WWF. The scoring recognizes longevity and past performance in that there are points awarded to organizations that have been managing and improving their environmental activities within their core business for a longer period of time.

The scoring is also strongly focused on what has actually been done, rather than intentions and aspirations. Each section or subsection is scored as a percentage. With only a few exceptions, the questions are the same for a software, hardware or services company. There is no attempt to adjust or weight the scores based on the risks or opportunities of the sector. So, for example, the environmental issues and risks in the supply chain of a hardware manufacturer are significantly higher than those of a pure software company — but both are scored equally. However, our comments and analysis reflect that obvious difference.

## Interpreting the Results

Participation in the assessment in and of itself is a very important sign, and we give credit to those organizations that chose to participate and did respond. Even those with a weak set of scores are sufficiently aware and concerned to have taken the considerable time and effort to engage in the extensive response process. We have again been impressed by the openness and level of engagement in this process by all the respondents.

Use the results to compare an individual provider's progress and commitment to reducing the environmental impact of its business operations, supply chain, products and services, and for identifying potential technology and services providers in the development of low-carbon business processes and solutions.

In any section of the assessment, it is fair to compare and contrast similar organizations — that is, organizations in the same sector, such as hardware, services or software. The assessment framework was consistent for all ICT sectors and was designed to mostly avoid sector-specific issues, providing a basis for cross-sector comparisons. However, care needs to be taken in doing so. It is important to consider the nature of the provider's activities in terms of its environmental aspects to contextualize any such comparisons — particularly on supply chain basics. It is very important that hardware and telecommunications providers manage the environmental performance of their supply chains closely. However, while software or services providers clearly have responsibilities toward managing the environmental performance of their supply chains, and certainly most of them could significantly improve their existing positions, the reality is that their influence over those supply chains and the environmental aspects of their Tier 1 suppliers are less than that of the hardware providers. For this reason, we removed the respondents with limited supply chains from the supply chain ranking in the tables below.

We have treated large, complex providers like HP, IBM and Fujitsu as single organizations, giving them one score, despite this effectively masking some of the differences we know exist between their internal sectors and geographies.

We would encourage enterprises to take the time to understand and consider the whole assessment in the round. However, some enterprises may consider some aspects of the assessment framework to be of more direct relevance to their needs, in which case focusing on those areas is a perfectly reasonable thing to do. We adapted this assessment in particular to more clearly distinguish performance related to the "transformation of IT" versus the "transformation by IT." Because of the nature and scope of their businesses, some providers such as IBM, HP and Fujitsu have performed well across all aspects of the framework. Others, such as Dell and Lenovo, for example, are focusing more on the "transformation of IT." This is a perfectly legitimate thing to do, so poor performance in one of the externally facing sections of the framework should not necessarily reflect poorly on the provider.

Increasingly, enterprises want to include environmental and climate change performance criteria as part of their decision making in choosing strategic suppliers and partners. This framework provides an objective assessment of the providers that can be used to help inform that decision. It

gives real insight into which providers are strategically engaging with tackling the risks and opportunities associated with climate change.

We would encourage you to use the results to start a discussion with your providers about their strengths, challenges and opportunities to improve.

## Interpreting Nonresponses

Transparency in this area is important, and it is therefore disappointing that nine of the 28 invited providers (see Table 2) chose not to participate. Our analysis of them is based on their publicly available information, on the interactions we have had with them outside of this assessment and on feedback from their clients.

**Table 2. Nonresponding Invited ICT Providers**

Company
Acer
AT&T
Capgemini
China Mobile
Google
Infor
Nokia
NTT
Oracle

Source: Gartner (October 2010)

**Nokia** is the world's largest and most successful mobile handset vendor, and also has a significant presence in the cellular network equipment market. Nokia would likely have scored well on the internal parts of the assessment, as it did in 2008, where we considered it among the leaders in the industry. Similarly, it has done good work around energy efficiency of its equipment and devices, meaning we would have anticipated that it would score well in our "transformation of IT" sections. Now, Nokia is moving into a new market — mobile content and services. This area offers significant potential for the development of low-carbon solutions. However, we have seen little innovation from Nokia in the area of "transformation by IT." Nokia Siemens Networks has been developing smart-grid-related solutions.

**Google** is another company that would likely have scored well in some areas, as it did in 2008 — particularly in the "transformation of IT," an area where Google has done much to improve the energy efficiency of ICT itself by leveraging its strong internal capabilities built on driving efficiency. Google has made a public commitment to carbon neutrality and has made investments in renewable capacity (see "Google's Approach to Wind Power Won't Work for Everyone"). The company has started to explore opportunities that touch on the "transformation by IT" area with its PowerMeter offering. However, Google's low-carbon solutions do not appear to be a factor in the core of its business. The philanthropic arm of Google, Google.org, has some very interesting ideas around potentially disruptive innovations, such as [RE<C](#) and [RechargeIT](#), but as yet does not appear to be delivering anything substantial. Beyond data center energy efficiency, it is difficult to discern any Google strategic focus on developing low-carbon solutions. Google's lack of transparency with regard to its GHG emissions, energy consumption, etc., adds to the overall opaqueness of what it is doing and its overall performance.

**NTT** has some very interesting projects, for example [www.ntt-review.jp/archive/ntttechnical.php?contents=ntr200703018.pdf](http://www.ntt-review.jp/archive/ntttechnical.php?contents=ntr200703018.pdf), and has made a positive contribution to the ITU's Focus Group on ICT and Climate Change.

**China Mobile** has been a leader within China in deploying energy-efficient technologies for its network, and has also engaged in some interesting projects, for example [www.wwfchina.org/english/downloads/ClimateChange/China\\_Mobile\\_English%20summary.pdf](http://www.wwfchina.org/english/downloads/ClimateChange/China_Mobile_English%20summary.pdf). However, it is hard to assess how serious these projects are and what direction they are moving in. We have not seen much leadership from China Mobile, particularly in the area of "transformation by IT."

**Acer, AT&T** and **Oracle** declined to participate in 2008 as well. It is our opinion that they are relatively immature in most aspects of the areas covered by this assessment. Oracle has shown much more engagement in the operational and product issues related to sustainability in 2010, but it is in the early days of that endeavor. AT&T has made a reasonable start in addressing its energy efficiency and GHG emissions, but has a long way to go.

**Infor** and **Capgemini** were new invitees. Both have some strong product and service offerings in the areas covered by this assessment. However, it is our opinion that across the various dimensions of this assessment they are immature or have significant gaps in their programs.

## Comparisons to the 2008 Results

We have extended and changed the shape of the assessment framework compared to 2008, in particular to give a distinction between those providers focusing on ICT itself (often referred to as "green IT" or the "greening of IT") and those focused on the applications of ICT to improve the energy and carbon efficiency of the wider enterprise and, indeed, the wider economy (often referred to as "greening by IT"). We've also added some additional questions and raised the bar in terms of what we are looking for. As such, direct comparisons are difficult to make.

## Results

### Scores

Figure 2 contains assessment scores by company.

**Figure 2. Company Assessment Scores**

	Environmental Basics	Supply Chain Basics	Carbon Basics	Carbon Communications		Carbon Delivery Today		Carbon Delivery Tomorrow	
				Transformation of IT (The "2%")	Transformation by ICT (The "98%")	Transformation of IT (The "2%")	Transformation by ICT (the "98%")	Transformation of IT (the "2%")	Transformation by ICT (the "98%")
Accenture	38%	17%	43%	33%	64%	63%	52%	32%	70%
Alcatel-Lucent	58%	44%	83%	73%	92%	78%	46%	84%	75%
British Telecom	79%	55%	88%	87%	96%	54%	54%	62%	95%
CSC	40%	11%	50%	53%	28%	58%	46%	42%	35%
Cisco Systems	69%	54%	81%	97%	96%	69%	65%	70%	73%
Dell	71%	27%	81%	93%	80%	59%	14%	54%	35%
Deutsche Telekom	59%	38%	70%	63%	56%	55%	41%	48%	45%
Ericsson	79%	50%	79%	77%	92%	74%	44%	76%	85%
Fujitsu	90%	50%	93%	97%	76%	69%	67%	92%	75%
HP	84%	74%	77%	97%	88%	68%	55%	84%	75%
IBM	86%	72%	80%	87%	80%	73%	81%	85%	80%
Lenovo	61%	43%	46%	47%	16%	49%	0%	54%	13%
Microsoft	39%	37%	65%	70%	68%	45%	27%	58%	55%
SAP	39%	26%	72%	43%	96%	67%	52%	48%	73%
Sun Microsystems	58%	49%	66%	83%	48%	64%	11%	78%	23%
TCS	57%	12%	59%	27%	16%	30%	22%	26%	35%
Verizon	27%	5%	40%	37%	64%	15%	22%	32%	35%
Wipro	65%	13%	69%	50%	60%	36%	40%	64%	65%
Xerox	77%	24%	58%	67%	64%	73%	43%	72%	25%
<b>Average</b>	<b>62%</b>	<b>37%</b>	<b>68%</b>	<b>67%</b>	<b>67%</b>	<b>58%</b>	<b>41%</b>	<b>61%</b>	<b>56%</b>

Source: Gartner (October 2010)

## Performance

Figure 3 contains company performance rankings.

**Figure 3. Company Performance Rankings**

Rank	All-around Performance	Transformation by IT	Transformation of IT	Internal Environmental Performance	Supply Chain
1	IBM	British Telecom	Fujitsu	Fujitsu	HP
2	Fujitsu	IBM	HP	British Telecom	IBM
3	HP	Cisco	IBM	IBM	British Telecom
4	Cisco Systems	Ericsson	Cisco Systems	HP	Cisco Systems
5	British Telecom	SAP	Alcatel-Lucent	Ericsson	Ericsson
6	Ericsson	HP	Ericsson	Dell	Fujitsu
7	Alcatel-Lucent	Fujitsu	Sun Microsystems	Cisco	Sun Microsystems
8	SAP	Alcatel-Lucent	Xerox	Alcatel-Lucent	Alcatel-Lucent
9	Dell	Accenture	Dell	Xerox	Lenovo
10	Xerox	Wipro	British Telecom	Wipro	Deutsche Telekom
11	Sun Microsystems	Microsoft	Microsoft	Deutsche Telekom	Microsoft
12	Deutsche Telekom	Deutsche Telekom	Deutsche Telekom	Sun Microsystems	Dell
13	Microsoft	Xerox	SAP	TCS	Xerox
14	Wipro	Dell	CSC	SAP	Wipro
15	Accenture	Verizon	Wipro	Lenovo	Verizon
16	CSC	CSC	Lenovo	Microsoft	
17	Lenovo	Sun Microsystems	Accenture	CSC	
18	TCS	TCS	Verizon	Accenture	
19	Verizon	Lenovo	TCS	Verizon	

Source: Gartner (October 2010)

Figure 4 contains individual section rankings.

**Figure 4. Individual Section Rankings**

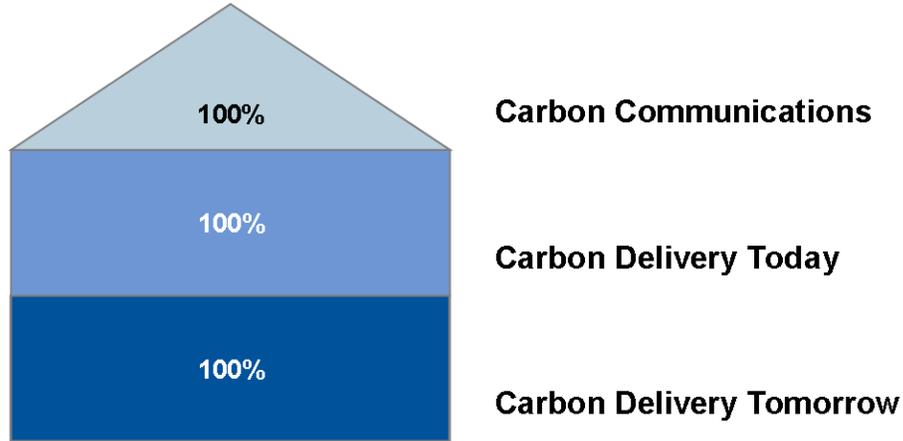
Rank	Environmental Basics	Carbon Basics	Carbon Communications		Carbon Delivery Today		Carbon Delivery Tomorrow	
			Transformation of IT	Transformation by IT	Transformation of IT	Transformation by IT	Transformation of IT	Transformation by IT
1	Fujitsu	Fujitsu	Cisco, Fujitsu, HP	BT, Cisco, SAP	Alcatel-Lucent	IBM	Fujitsu	British Telecom
2	IBM	British Telecom	-	-	Ericsson	Fujitsu	IBM	Ericsson
3	HP	Alcatel-Lucent	-	-	IBM, Xerox	Cisco	Alcatel-Lucent, HP	IBM
4	British Telecom, Ericsson	Cisco Systems, Dell	Dell	Alcatel-Lucent, Ericsson	-	HP	-	Alcatel-Lucent, Fujitsu, HP
5	-	-	British Telecom, IBM	-	Cisco Systems, Fujitsu	British Telecom	Sun Microsystems	-
6	Xerox	IBM	-	HP	-	Accenture, SAP	Ericsson	-
7	Dell	Ericsson	Sun Microsystems	Dell, IBM	HP	-	Xerox	Cisco, SAP
8	Cisco	HP	Ericsson	-	SAP	Alcatel-Lucent, CSC	Cisco	-
9	Wipro	SAP	Alcatel-Lucent	Fujitsu	Sun Microsystems	-	Wipro	Accenture
10	Lenovo	Deutsche Telekom	Microsoft	Microsoft	Accenture	Ericsson	British Telecom	Wipro
11	Deutsche Telekom	Wipro	Xerox	Accenture, Verizon, Xerox	Dell	Xerox	Microsoft	Microsoft
12	Alcatel-Lucent, Sun Microsystems	Sun Microsystems	Deutsche Telekom	-	CSC	Deutsche Telekom	Dell, Lenovo	Deutsche Telekom
13	-	Microsoft	CSC	-	Deutsche Telekom	Wipro	-	CSC, Dell, Verizon, TCS
14	TCS	TCS	Wipro	Wipro	British Telecom	Microsoft	Deutsche Telekom, SAP	-
15	CSC	Xerox	Lenovo	Deutsche Telekom	Lenovo	TCS, Verizon	-	-
16	Microsoft	CSC	SAP	Sun Microsystems	Microsoft	-	CSC	-
17	SAP	Lenovo	Verizon	CSC	Wipro	Dell	Accenture, Verizon	Xerox
18	Accenture	Accenture	Accenture	Lenovo, TCS	TCS	Sun Microsystems	-	Sun Microsystems
19	Verizon	Verizon	TCS	-	Verizon	Lenovo	TCS	Lenovo

Source: Gartner (October 2010)

## The Carbon Houses

We are using a "house" metaphor to show the relative performance in the key areas of the assessment — transformation of and by IT. The house is used to provide the visual comparison, with each segment of each house scaled according to the score in that section for any one provider. As such, each respondent has two houses, the "2% house" representing transformation of IT, and the "98% house" representing transformation by IT. Figure 5 provides the color key used in the houses.

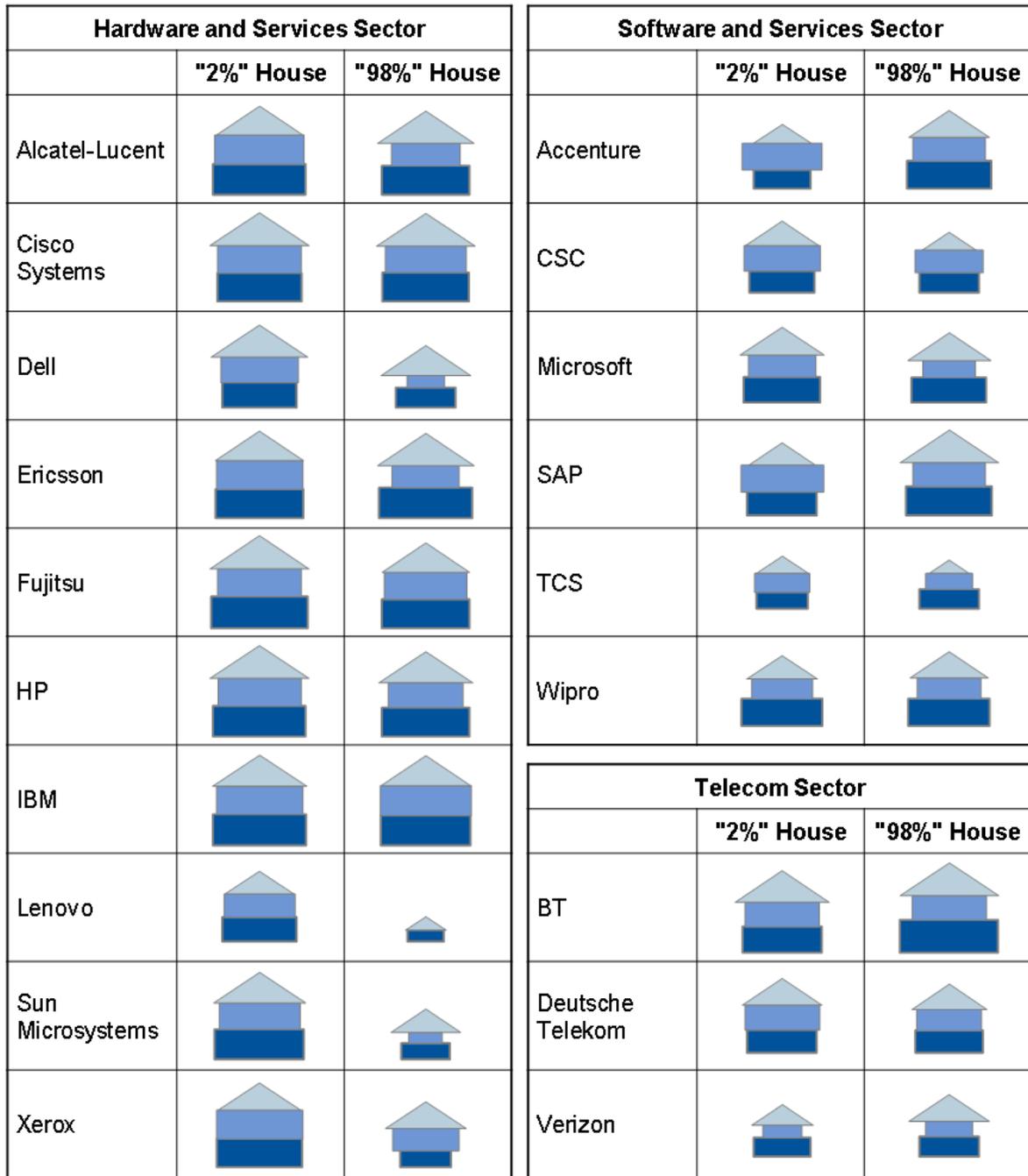
**Figure 5. Color Key to the Carbon Houses**



Source: Gartner (October 2010)

Figure 6 shows at a glance the emphasis within each of the providers' strategies.

Figure 6. Emphasis of Providers at a Glance



Source: Gartner (October 2010)

### Nonrespondents

As previously stated, these providers were invited to participate, but chose not to do so:

- Acer
- AT&T
- Capgemini
- China Mobile
- Google
- Infor
- Nokia
- NTT
- Oracle

### **Noteworthy Performers Since the 2008 Assessment**

The good news is that we don't see any company going backward. However, there is clearly a group that is on the move and a group that seems to be "treading water." It is important to note that this area is moving fast, with rapidly changing expectations from customers, policymakers and other stakeholders. Therefore, relatively small improvement might be seen as a slide backward.

The assessment shows impressive progress since the relatively poor 2008 by Cisco and Wipro across all aspects of the assessment. Both companies have put significant effort into getting their internal programs on track and, to varying degrees, formulating clearer product and service strategies, with both getting much greater senior executive support. Similarly, SAP has made significant progress in most areas, putting much more executive weight behind all aspects of its program. IBM, BT and Fujitsu have continued to hold a strong position in all areas of the assessment; however, IBM has improved significantly in the area of transformation by IT. HP continues to make progress in all areas, particularly in the transformation of IT, but relatively slowly on the transformation by IT, with significant under-resourcing in some areas such as its City 2.0 vision.

Those providers that seem to be treading water relative to the rest of the field include Verizon and Lenovo. Microsoft was making slow progress from a relatively weak starting point, but has picked the pace up more recently. Dell has made progress on its internal operations, maintained a strong position on communications, and limited progress elsewhere.

We are concerned about the potential direction that the business unit that was Sun Microsystems might take under the management of Oracle. Sun Microsystems scored reasonably well across the internal categories and for its work on energy-efficient equipment and data centers. Energy efficiency in equipment, in management of that equipment and in the data centers will remain a key priority for Oracle for sure. But, beyond energy efficiency, Oracle — as a software company — would not have strong capabilities in several of the areas we looked at in this assessment, which would be important for a hardware provider. It has shown relatively little engagement during the past few years, and Oracle has lost some of the leadership team that led this effort within Sun Microsystems.

## **Summarized Key Findings**

In 2006, very few companies in the ICT industry understood or perceived the opportunities of the low-carbon economy and the need to get much smarter about energy efficiency. When we

completed our first assessment in 2008, the awareness was certainly there, but strategies — where that existed at all — were very patchy.

It's a different picture in 2010. The issue and potential opportunities are understood by the participants. The communications are much stronger, and most ICT providers are now at the very least saying more or less the right things. Some providers have senior executive support, are getting a strategy together and aligning resources. Some, such as BT, Cisco, IBM, Ericsson, Alcatel-Lucent and Deutsche Telekom are, to varying degrees, aligning their national policy-related work with market offerings. It remains a work in progress, and the concrete deliverables are often of an ad hoc nature. We now have a number of ICT providers with an actual low-carbon portfolio and a readiness to move from an incremental contribution into the center stage when it comes to providing society with low-carbon solutions — IBM, BT, Fujitsu, Ericsson and SAP.

## **Product and Service Offerings**

Most IT providers, and particularly those in the top half of the "carbon delivery today" rankings, have created much clearer and distinct product and service offerings in the area of energy efficiency and low-carbon offerings. Those offerings are obviously diverse — from a more-energy-efficient device through energy, carbon or sustainability management consulting, to smart grid and intelligent building technologies. The portfolios are much more likely to be clearly identified on the providers' websites and sales collateral, and their sales teams much more likely to be familiar with them.

However, there is much less evidence of them managing those products and services as an integrated portfolio, or analyzing the market opportunities associated with them. Energy-efficient ICT equipment is in a much better position, but even here there is significant room for greater focus. The leaders in "carbon delivery today" are usually doing this much after aligning resources behind the offerings. Alcatel-Lucent, Ericsson, IBM, Xerox, Fujitsu, Cisco Systems, HP, BT and SAP are good examples.

But overall, this reflects the immaturity and relatively modest size of these markets for all the providers.

## **Short-Term Goals Dominate**

Across all aspects of the framework, ICT providers have short-term ambitions and goals.

An exception is Fujitsu, which is the only ICT provider to set a long-term context to its initiatives, wanting to be "climate positive" — to help reduce GHG emissions in society through low-carbon IT solutions ("the 98%") rather than its own emissions. Fujitsu has set itself a carbon-reduction goal in terms of its impact on its customers (versus a target related to its own emissions). Fujitsu's Stage VI Environmental Protection Program and associated targets is very impressive and an approach worthy of consideration by many others in the industry.

The "short-termism" of the industry is the result of many factors, not least of which is concern about publicly committing to something that it may struggle to achieve. It is not unique to the ICT industry, and in fairness to the ICT industry, it has done more than most other sectors. However, it also reflects the tentative way in which the industry is addressing the issues of climate change and contextualizes some of the talking we see from the industry. It is not to suggest the industry should not, and is not, pursuing the opportunities presented to it by, for example, the stimulus packages. The companies are, and they should.

One challenge with this short-termism is that the sector often focuses on incremental gains in high-carbon sectors — improving efficiency in the oil and coal sector, providing logistic systems for fossil car fleets, etc. — that can result in a high-carbon lock-in. Besides contributing to higher

emissions than scientists, policymakers and many customers are aiming for, it also keeps new, more-transformative solutions out of the market. The latter is not only a problem for credibility; it also risks turning ICT companies into part of the problem, not the solution. The need for deeper reductions is seen as important.

## **Transformation of IT — Core Business for Hardware, but Not for Software and Services**

As the market now demands, hardware vendors are very focused on the energy efficiency of their equipment. Some, like HP, have publicly set specific targets — to reduce the energy consumption and associated GHG emissions of all its products to 40% less than 2005 levels by year-end 2011. Similarly, Ericsson and Fujitsu have set public and ambitious targets. Alcatel-Lucent founded the Green Touch Initiative, setting ambitious longer-term targets for energy efficiency. It would be good to see performance against these kinds of targets independently verified, but such public targets do demonstrate a commitment. While we are comfortable that most other ICT companies have internal processes to drive improvements in energy efficiency, they are frequently very short-term goals, or relatively modest related to eco-label compliance, for example. The industry needs more public and longer-term commitments with independent verification.

Very few vendors are thinking about dematerialization in any real systematic way. Xerox is one of the few exceptions, with, for example, its reuse of parts. Fujitsu is assessing dematerialization as part of its criteria for "super green" products — those select products intended to achieve high environmental performance. Alcatel-Lucent has a similar approach. HP, follows suit with its skinless Proliant servers and reusing plastics from its ink cartridges. IBM has been systematically increasing its use of recycled plastic resins for 15 years. Some companies, like Dell and Lenovo, are making serious attempts to dematerialize packaging. Virtualization and small-form-factor products, such as netbooks; all-in-one integrated products, such as multifunction devices; and electronic software delivery are obviously good examples that many will cite, but these reflect the movement of the market rather than any systematic approach to dematerialization.

Almost no provider is making any serious effort to extend the life of equipment beyond the basics one would expect of improving reliability and quality. Most cite improved upgradability, but there is no evidence to suggest any of these limited activities have an impact on the practical longevity of the equipment. The only exception we found was Xerox's approach to remanufacturing. The vendors will always argue the need to keep innovating and improving performance (including energy efficiency) and, of course, there is some merit in that argument. But with the management of e-waste rapidly turning into a substantial global challenge and with the growth of emerging markets, the industry needs to be giving much more serious thought to dematerialization and longevity.

Managed print services, such as those pioneered by Xerox, is a good early example of the efficiencies that can be gained by transitioning from owning assets to accessing the utility (value) of the asset through a service. The emergence of cloud computing offers the potential for massive improvements in asset utilization and efficiency. Despite the potential for cloud computing, particularly public cloud, to be a lower-carbon solution, few of the respondents positioned it as such.

## **Transformation by IT — Great Progress for the Leaders, but Not Yet Core Business**

Since 4Q08 when we completed our last assessment, collectively the ICT industry has unquestionably upped its game in terms of addressing the risks and opportunities of a low-carbon economy. During the six months that it took us to conduct the assessment we saw significant

change, with providers like TCS taking some big steps forward in creating a product and service road map and aligning some resources against it.

There is no doubt that the leaders in the carbon delivery sections such as IBM, Fujitsu, HP, BT, Ericsson and Cisco Systems have begun to build structural capabilities, governance, and organizational resources behind addressing the opportunities of a low-carbon economy.

However, their commitment still falls short of this being core business. That's due to a lack of spending on low-carbon and sustainability-related solutions by the public and private sectors, with some notable exceptions such as in the area of smart grids and increasingly intelligent buildings. IBM is probably the closest to making this a core part of the business. There is also a lack of real leadership in the sector when it comes to creating markets. The ICT sector has been quite conservative in its approach so far and built on incremental changes in existing technologies and capacity.

Two years ago, the low-carbon solution development areas for the vendors were dominated by small teams, lacking any senior management engagement and often engaged in "skunkworks" programs (projects without significant resourcing nor senior management support or awareness), all desperately seeking resources and attention. For the top performers, that has definitely changed. Most of the better performers such as IBM, SAP, and Cisco Systems, and even some of the late starters like Wipro and more recently TCS, now have some kind of business development governance structure overseeing and coordinating their efforts. As noted, while there is still a tendency toward short-termism, simply doing what clients ask for, the leaders in the space have moved substantially beyond the skunkworks project. Even if it remains a fringe area, it is mostly not a backwater any longer, though we still see it in the lower-performing organizations.

The lack of investment in low-carbon solutions by enterprises keeps this potential market as a peripheral, but promising area inside the leading ICT providers. There is a chicken-and-egg situation here to some extent; ICT providers are not investing substantially in these solution areas because there is a limited market.

## **Lack of Disruptive Innovation**

There is no doubt that relative to 2008 we are seeing more development from the leaders. In 2008, there was much more focus on "repackaging" existing solutions and capabilities in the context of a low-carbon market. In the current assessment, we were surprised at the shortage of details on potential disruptive innovation. The majority of responses, particularly in "transformation of ICT" focused on the incremental improvements, and "client driven" developments. Giving customers what they ask for is paramount for any commercial organization, but if the ICT industry is to deliver on its promise of making a significant contribution to enabling a transformation to a low-carbon economy, it will require substantially more than marginal incrementalism.

In this assessment, we have obviously focused on the big providers in the ICT industry. The nature of such organizations is that they are often slow to innovate, tending toward more conservative and incremental "innovation." They often look to an acquisition strategy to keep them at the forefront of developments. We would anticipate the same in the transformation by IT area in particular. There are certainly disruptive innovations occurring, a good example would be the lighting solutions offered by the startup Digital Lumens, which combine light-emitting diode (LED), networking and context-aware energy management software technologies into a solution that offers the potential for up to 90% efficiency improvements.

The fact that three of the leading electric car providers — BYD, Better Place and Tesla — all have a strong connection in some way to the ICT industry is just one example of the potential the

sector has (BYD was a battery provider for laptops, Better Place was started by Shai Agassi from SAP, and Tesla was financed to a large degree by ICT money). The way Amazon, Sony and now Apple have moved into e-readers is also an interesting example of how the ICT sector could help reduce emissions with more-transformative solutions. There needs to be similar disruptive initiatives in other areas — virtual meeting companies taking on the airline industry, providers of teleworking infrastructure and services challenging the way cars are used, net energy producing buildings that are built around renewable energy, changes in healthcare systems built around the capabilities that ICT provide, and food systems that are sustainable. In all these areas there is activity among many of the ICT companies, but very few ambitious and transformative initiatives can be seen. That is primarily due to lack of resources and sufficient priority given to the need for such solutions, which, in turn, is certainly due to a very finite number of customers making investments in these areas.

### **Lack of Any Substantive Analysis of the Environmental Benefits Realized From Implemented ICT-Enabled Solutions**

Outside of presales energy efficiency calculators and piecemeal marketing-led case studies usually done on a microscale using inconsistent and unclear methodologies, there has been little effort to assess the actual environmental benefits derived from ICT-enabled solutions. That is not to suggest such benefits don't exist. It's just that the vendors are only applying the level of rigor and consistency to the subsequent analysis sufficient for marketing purposes. Given the context in which the industry is placing these solutions, it is important for enterprise and public policy stakeholders to understand and have assurance about the claimed benefits. Surprisingly, many of the ICT providers used an industry-generated report, Smart 2020, as their main reference for analytical work. Smart 2020 was an excellent report and a landmark for the industry, but it is based on linear models that ignore most of the transformative potential from the sector, is now a few years old and was never independent. Ensuring the production of independent studies is important and will hopefully be supported by the ICT sector.

Attempts to measure and quantify the ongoing benefits derived from both transformation of and by IT are very patchy. Notably, however, Fujitsu has set itself a goal of reducing global GHG emissions by a total of more than 15 million metric tons between fiscal 2009 and fiscal 2012. Additionally, it has set a goal of reducing emissions in Japan by 30 million metric tons annually by 2020. To put that in context, Fujitsu's own emissions (Scope 1 and Scope 2) in 2008 were just short of 1.7 million metric tons. So while the target for 2012 is a modest goal relative to ICT's proclaimed potential (estimated by various bodies including The Climate Group and Japan's Ministry of Economy, Trade and Industry) to be roughly in a 1:7 ratio, it is at least a goal.

We also found no evidence of any attempt by any ICT providers to understand the systemic and rebound effects of ICT-enabled solutions, by which we mean trying to understand the indirect and frequently unforeseen change in behaviors, consumption patterns, etc., resulting from the introduction of a new technology, policy measure and so on. As an example, when flexible working is introduced, the effect can be that people move to a nicer place to live further away from the office, buy a bigger house or add an extension to the existing house — all great benefits, but potentially diminishing the estimated environmental benefits, or worse, increasing the net impact. Nor have the providers completed any assessment of solutions that contribute to increased emissions. While this came as no surprise, it is disappointing. It tells us that the industry has been dealing with this issue of achieving real transition to a low-carbon economy on a somewhat superficial level. Again no surprise, but it has important implications for policymakers and any very large enterprise that needs to go beyond direct effects and needs to understand the more-macrolevel effects. For them, there will be a need to conduct or fund additional analysis and research to get that bigger picture of how these solutions affect systems and behaviors.

However, there are some indications of change. The recent GeSI and BCG report proposing a framework for measuring the enablement effect of ICT is a good step forward, which should form a foundation for the subsequent measurement work that needs to be done. If widely adopted, credibly applied and used in combination with independent verification of demonstrable benefits being delivered, this should prove a valuable contribution. Similarly, the ITU's current Study Group 5 on "Environment and Climate Change" is working on a methodology for measurement.

## **GHG Reduction Programs Are Based on What's Cost-Effective**

Every commercial organization is rightly going to carefully analyze its carbon position, look at optimal ways to mitigate that position and come to a decision about what is commercially sensible. However, it is also reasonable to expect that, when organizations set GHG reduction targets, they take into consideration the overall targets being described by policy groups and the climate science community. That is particularly true if those same organizations are professing a leadership position or making a lot of noise about their climate change strategies.

Unsurprisingly, the majority of ICT vendors are setting GHG-reduction goals based on what they believe they can achieve in a cost-effective way. There were a few that we believe have gone the extra mile and are taking greater account of the wider context in setting their targets. Those were Alcatel-Lucent, BT, Fujitsu, Wipro, and to a certain extent Dell and Deutsche Telekom.

## **Supply Chain Management Is Getting More Directive and Demanding**

Management of the environmental performance of the supply chain is incredibly important for hardware and telecommunications service providers in particular. The supply chain is where most of the environmental aspects and impacts exist. So when one looks at the environmental performance of the big, well-known ICT providers, one is simply looking at the tip of the iceberg. Service and software providers have supply chains like any other organization, and they need to pay a lot more attention to the environmental impacts of those supply chains than they do today. However, relative to the hardware and telecommunications providers, they do not need to apply the same levels of control.

Managing the environmental risks associated with the supply chain is hard, complex, potentially costly and — until recently — largely invisible to most of an ICT provider's stakeholders (even assuming they cared). As such, we see quite large differences in the approach of ICT providers. This area is a key point of differentiation, and one that the stakeholders of ICT providers should pay particularly close attention to.

In 2008, we noted that management of the ICT supply chain was focused on Tier 1 suppliers (direct suppliers), rarely went to Tier 2 (suppliers of the Tier 1 suppliers) and never beyond. Suppliers were expected to perform to certain high-level principles and standards, and were usually required to have an environmental management system in place. Historically, these rarely dug deeper to the practices of the suppliers. There were very few ICT providers assessing the climate change programs of suppliers as a part of contract adjudication, and rarely were they looking for environmental performance targets.

In this latest assessment, we see many more directive behaviors from the top performers — seeking environmental performance data and targets from principal suppliers and, in some cases, all suppliers. We also see limited evidence of the leaders going beyond Tier 2, with the EICC/GeSI Extractive Industries initiative ([www.eicc.info](http://www.eicc.info)). However, most of them stop short of including the appropriateness and efficacy of a GHG reduction program as part of the contract adjudication criteria. As indicated by several participants, we fully expect many of the leaders in supply chain management to get much more demanding of their supply chains, not just around the issue of transparency, but specifically working with suppliers to drive down their emissions.

Supply chain management remains the area of widest performance variation, even when we exclude the ICT providers with less influence over their supply chains.

If the ICT industry is to make a significant improvement in its overall environmental footprint, the supply chain is critical. Achieving such improvement requires the combination of good supply chain management from an environmental perspective, a life cycle perspective on product and service design, and continually working with suppliers or potential suppliers to identify opportunities for improved environmental performance through changes to processes, materials, product design and transportation. If the sector wants to be taken seriously as a "solution" to the climate and environmental sustainability issues we face, then improved performance here is important.

## **Good Improvements in Communications and Transparency**

All aspects of communications have improved compared to what we saw in 2008:

- Much more extensive, joined-up, consistent communications, and much more connected with corporate and product strategy
- Wider engagement with ICT industry bodies that are attempting to achieve some level of change
- Better engagement with bodies outside of ICT from the leaders in the carbon communications category, such as BT

However, there remains room for improvement by many here. More marketing campaigns with environmental sustainability, energy efficiency and low-carbon solutions are a key part. Cisco, BT, SAP, IBM, HP, Dell and Ericsson are all putting together strong communications programs.

This also includes transparency of environmental performance — with much better reporting of environmental KPIs, even if there still remains a lot of room for improvement. More-extensive independent verification of these would be an improvement.

Most are now reporting at least one aspect of their Scope 3 GHG emissions — mostly business travel. But the leaders are going further on their Scope 3 emissions, including Alcatel-Lucent, BT, Ericsson, Fujitsu, HP, IBM, SAP, Sun Microsystems and Wipro. The ability to accurately report Scope 3 emissions beyond business travel is a good indicator of maturity in a carbon-reduction program.

The UN Climate Summit in Copenhagen at the end of 2009 (COP15) clearly showed that there was no collective voice from the ICT sector. The sector was almost totally ignored during the preparation for the World Business Summit for Climate Change, and no clear message was delivered during COP15 in Copenhagen. The need for a global voice in key areas, as well as collaboration with companies in sectors that need ICT solutions to increase energy efficiency and reduce GHG emissions, will be key to ensure more than incremental uptake of low-carbon ICT-enabled solutions.

We've seen relatively little innovation in terms of embracing social media to engage with stakeholders. Most of the communications are very traditional, and clearly under the control of people in gray suits. We feel there is a lot of opportunity for engaging with stakeholders in much more creative ways.

## **ICT Industry's Fear of Commitment: Changing the Rules of the Game — ICT Policy and Strategic Interventions**

NGOs have been applying pressure on the ICT industry as a potential "winner" in a low-carbon economy, to play a much more proactive and engaged role in influencing national and international policymakers. While this is a legitimate role for ICT providers, the big players in the ICT industry are conscious of having a fine line to tread, since they have big and influential customers in carbon-intensive industries that might see themselves as potential "losers" in a low-carbon economy. It is important that enterprises and other stakeholders decide for themselves the level and nature of the engagement in public policy issues that they expect from ICT providers; however, in the assessment we have looked at aspects of that engagement. Responding to climate change remains a nascent area, where policymakers really don't have the information or experience they need to make informed decisions. ICT industry involvement is important and justified in helping those policymakers to understand the potential role of ICT. We look for direct and indirect involvement through the auspices of industry bodies. Many of the participants in this assessment are very wary of publicly expressing any opinion that could be seen by those groups as being to their detriment. Our opinion is that most of the larger ICT providers are in this position, but those that scored relatively poorly in aspects of public policy engagement such as IBM, SAP, Fujitsu, Verizon, TCS and Wipro are most struggling with that balancing act.

The industry has somewhat of a dilemma. With its market offerings, it finds itself being caught in that frustrating period that occurs in all transformational change — which we refer to as the "Trough of Disillusionment" in the context of Gartner Hype Cycles (see "Understanding Gartner's Hype Cycles, 2010"). It's that uncomfortable period when the rhetoric and hype stop, and delivery needs to start happening. However, as we have mentioned previously with some exceptions, there is limited investment in low-carbon solutions at the moment. ICT vendors individually and collectively are taking a very tentative approach, not wanting to be seen to be using national policy-related influence to push hard for the policy and regulatory change necessary for the transition to a low-carbon economy. Obviously, the industry has finite influence, but it cannot bemoan the lack of investment, while at the same time sitting on the sidelines as a cheerleader.

ICT providers should also establish contacts on a higher and more strategic level in other sectors if they want to contribute to a more significant shift in society, and benefit from the ensuing commercial opportunities.

ICT providers must do much better in identifying national and international policy processes where there is scope for increased application and support for low-carbon ICT solutions, and very importantly understand how to deliver appropriate input to the processes. There have been some improvements with companies like Cisco Systems, IBM, Ericsson and Fujitsu engaging in a strategic way in processes that actually control resources that can be invested in low-carbon ICT solutions. But most of the policy work is still a constant repetition of macroeconomic messages about ICT's potential benefits, but not in a format that policymakers can use.

Enterprises and stakeholders interested in those providers that are playing a leading role in driving change should look at high performers in carbon communications and carbon delivery tomorrow, specifically on the "Transformation by IT" subsections.

### **Partnerships Are Emerging**

The nature of many of the potential solutions involving ICT is that they are very interdisciplinary, requiring partnerships between ICT providers and other sectors. It is a very positive sign that we are now seeing those partnerships emerging and developing, particularly around smart grid, intelligent buildings, healthcare, transportation and more recently smart city infrastructures. A

vibrant network of partnerships in this area is a healthy sign of an organization more likely to be successful. ICT providers that we believe are particularly effective here are Cisco, Alcatel-Lucent and IBM. IBM's Green Sigma Coalition is an attempt to tackle this issue head on. Worthy of mention are HP, Ericsson, Fujitsu and Accenture.

## **Life Cycle Assessments**

A life cycle assessment (LCA) is a systematic procedure for measuring the material and energy inputs, outputs, and associated environmental impacts throughout the life cycle of a product or service. It provides important insight into where a product's and service's environmental impact could be improved, and where in the value chain that needs to happen. The challenge of an LCA is that it is costly for complex products such as ICT equipment. However, we believe that selective use of LCAs will meaningfully and productively inform product design and life cycle management.

In the 2008 assessment, only Fujitsu, Ericsson and Nokia were actively engaged in LCA work. In 2010, while the scope and depth of the LCA work is mostly narrow in terms of the products being looked at, there are a number of additional technology providers now actively involved in LCA, including Alcatel-Lucent, Cisco Systems, HP, Xerox and, to a more limited extent, Sun Microsystems.

## **Improved Environmental Policies Linked to a Set of Targets and KPIs**

Historically, corporate environmental policies are all too frequently written by someone in the corporate communications team to give the impression of saying a lot, but in reality being very bland and noncommittal. A good environmental policy statement should acknowledge the specific environmental aspects of the organization and set out its principles, and then these should link to a set of targets and KPIs that show performance and progress in those areas.

Bland environmental statements with no specific short- and long-term targets and publicly reported KPIs are a sure sign of immaturity in management of the organization's environmental issues, or a reluctance of senior management to commit to performance improvements or concern about being transparent.

In the assessment completed this year we have seen a significant improvement, with much more publicly available performance data and targets across a wider range of environmental aspects. BT, IBM, HP, SAP, Fujitsu, Xerox and Wipro all have excellent or good examples. Cisco and Accenture are acceptable, but need strengthening with clear linkage to publicly available targets and KPIs. Providers that remained more challenged include Microsoft, Verizon and CSC.

We asked if IT providers were applying any specific and established environmental principles, such as the precautionary principle, cradle to cradle, Natural Steps Four Systems Conditions, climate positive, etc. The answer was an almost universal "No." Microsoft claims to be applying the precautionary principle on the basis of its commitment to remove polyvinyl chloride (PVC) and brominated flame retardants (BFRs) from its hardware, although this seems a somewhat selective application of the principle (for further information on toxic policies, see "The Greenpeace Greener Electronics Guide"). Ericsson has embedded LCAs as a design principle.

## **Is There "Life" After Smart 2020?**

The Smart 2020 report ([www.smart2020.org](http://www.smart2020.org)) was a landmark because it played a key role in informing national and international policymakers about the potential role of ICT in tackling climate change. It also strongly influenced many players in the ICT industry itself, and was a catalyst for many senior management teams to start giving this opportunity more-serious consideration. Useful output from that initiative continues, with national appendixes being

produced. In September 2010, GeSI and BCG produced a framework for measuring the enablement effect of ICT, which, as we have observed, is a vitally missing piece. If the framework is applied credibly and the results independently verified this will be a valuable step down the road of building demonstrable evidence of ICT's potential.

Almost all the vendors in this assessment claim to have made a major contribution to that report, all looking for a halo effect through claiming a contribution. In reality, very few of them actually made any kind of important contribution. But with only a few exceptions such as IBM, Fujitsu, HP, Cisco Systems, Ericsson and BT, most ICT providers seem to have been resting on their laurels in terms of moving that original thinking forward. The recently published GeSI framework and the pending output from the ITU's current Study Group 5 on "Environment and Climate Change" are steps forward, but the pace of this progress is very slow.

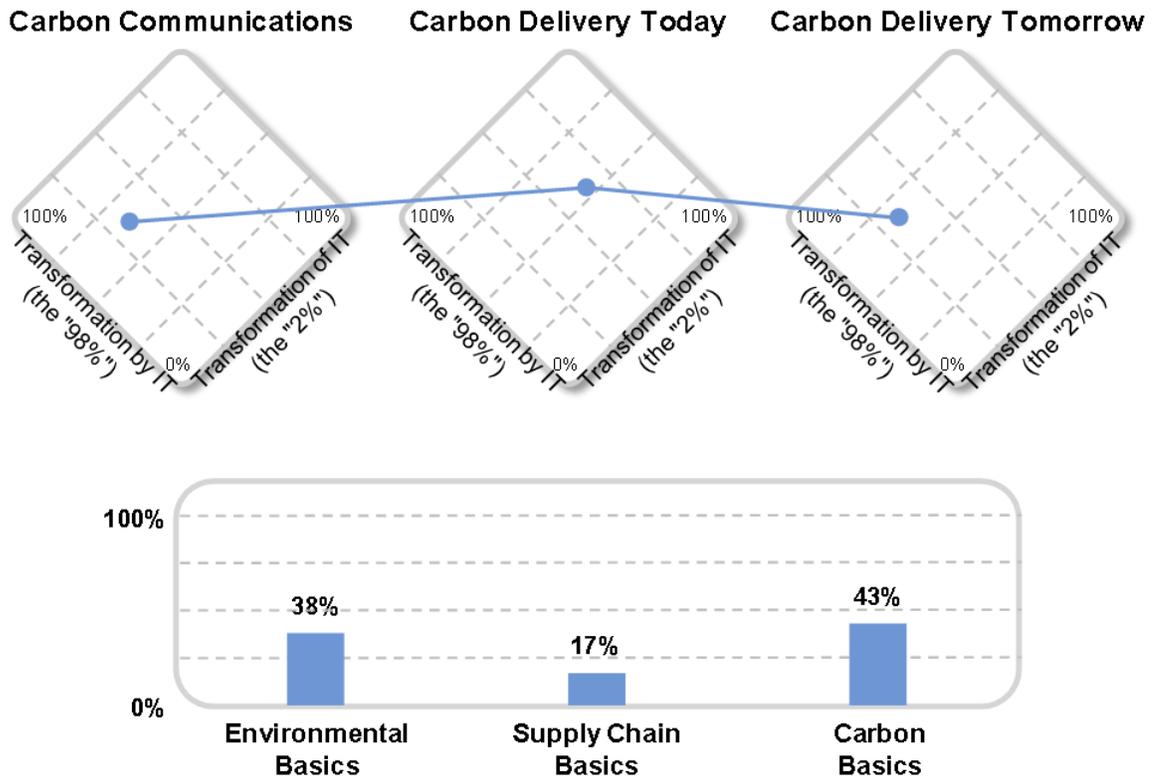
Smart 2020 was important, but it is time to move that thinking forward much more rapidly.

## **Results of Individual Providers**

### **Accenture**

Accenture (see Figure 7) declined to take part in the 2008 assessment, so it was good to have it participate in the assessment we completed this year. It clearly made significant progress during the past two years, making good efforts to address the performance related to its internal operations, with some good approaches to employee engagement in particular. Its toolkits to help project teams reduce their emissions are very interesting — their effectiveness will show in their ability to reduce the travel intensity of their activities. Accenture had to start from basics, and still keep relevant environmental KPIs for internal management purposes only, rather than making them more widely available, so there's still some way to go. But having created a specific Sustainability Practice, it is starting to build a promising portfolio of offerings addressing both the transformation of and the transformation by IT.

**Figure 7. Accenture Assessment Results**

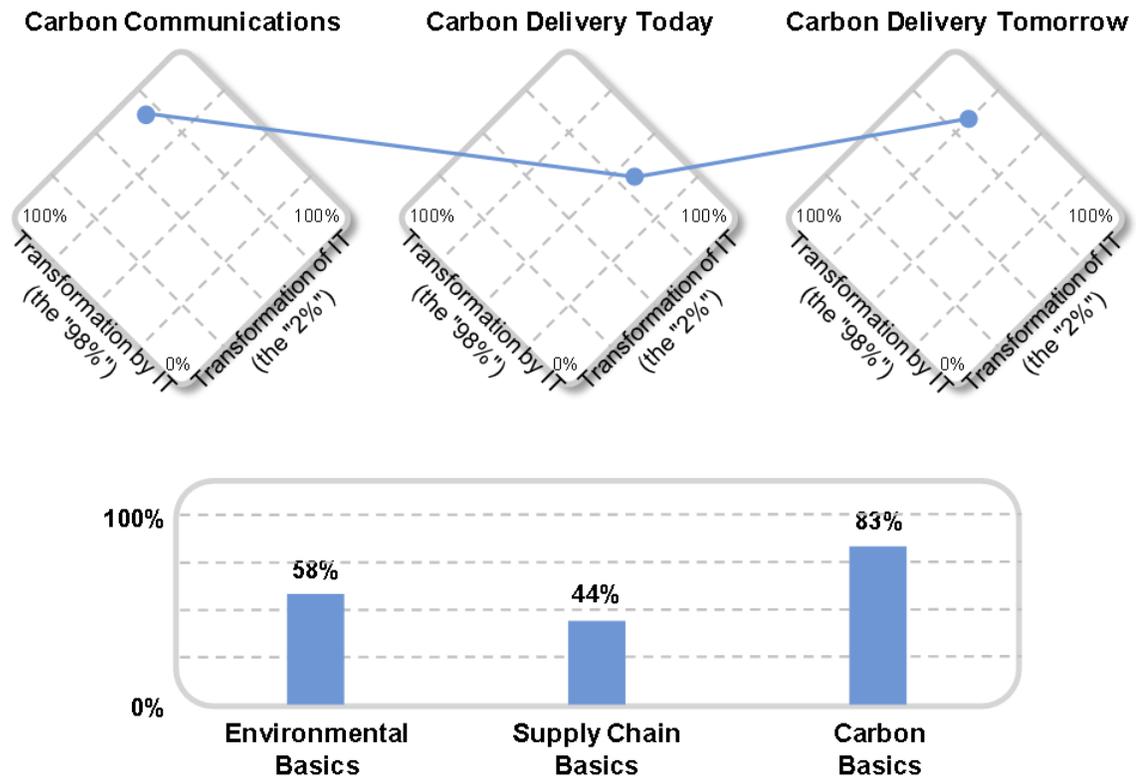


Source: Gartner (October 2010)

## Alcatel-Lucent

This was first year of participation for Alcatel-Lucent (see Figure 8). It had a good all-around performance. It has a particularly strong internal climate change program, with, for example, well-thought-through short- and long-term GHG-emission reduction targets. Very good measures have been taken to improve the performance of its products, with, for example, a good approach to training product designers, energy efficiency and dematerialization. There are some aspirational ambitions for telecom network energy efficiency. There is room for improvement in some aspects of its internal environmental management and in the supply chain, and it is just starting to get going on employee engagement programs.

**Figure 8. Alcatel-Lucent Assessment Results**

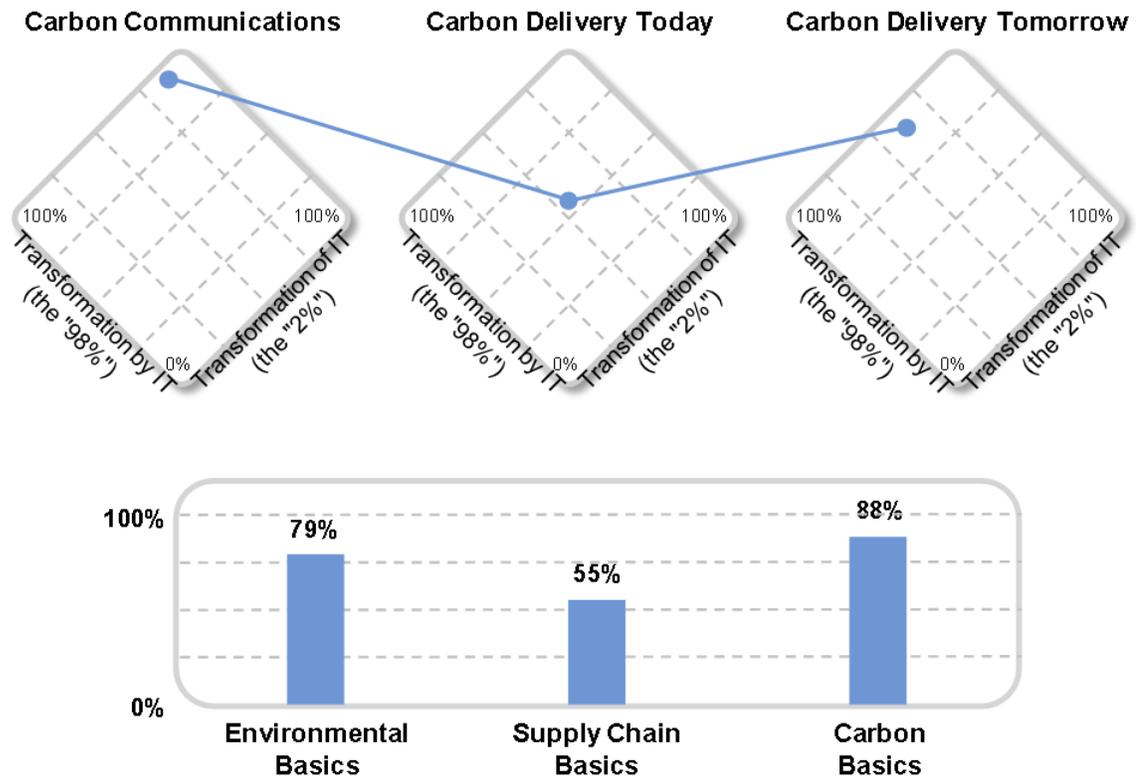


Source: Gartner (October 2010)

## British Telecom

BT (see Figure 9) has had a long and distinguished record of leadership in addressing sustainability and climate change, and is trying to leverage that capability in combination with its core business activities. It had a very good all-around performance, although with most players in the industry starting to improve performance and particularly communications, BT will need to work hard to keep itself distinguished. It had excellent performance in some areas of communications, as well as in product and service development. Its challenge will be marketing these capabilities and turning this strong capability into revenue.

**Figure 9. BT Assessment Results**

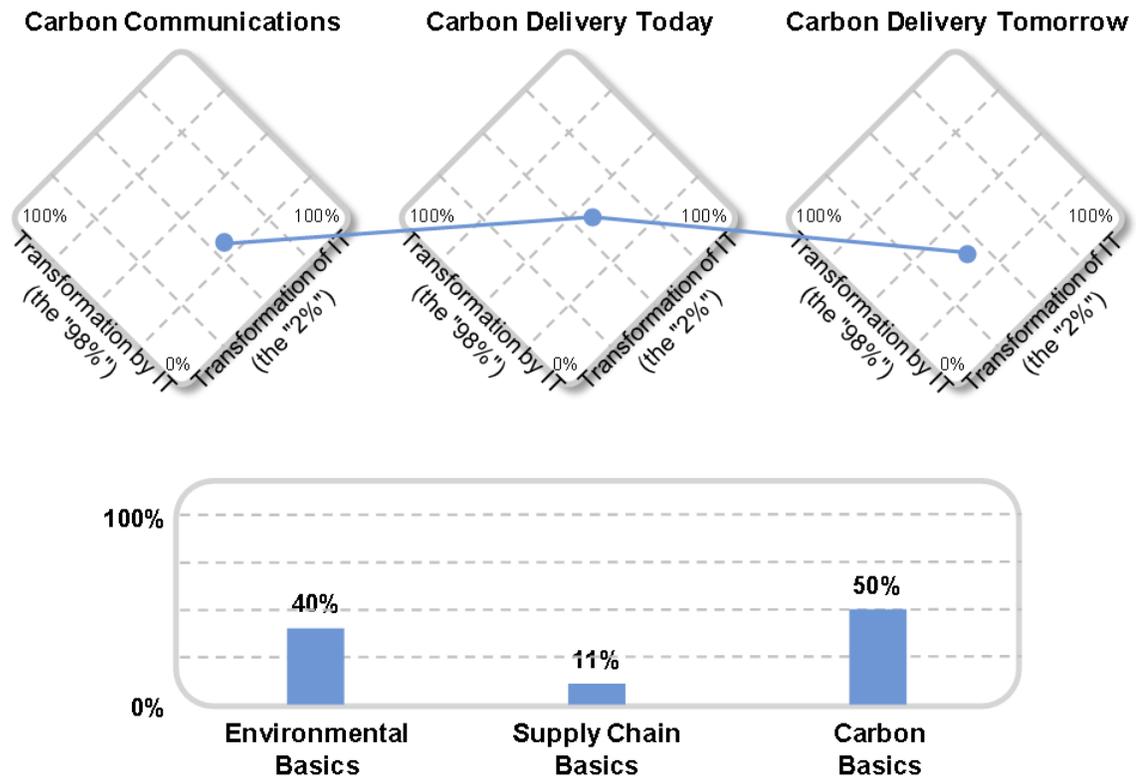


Source: Gartner (October 2010)

## CSC

This was the first year of participation for CSC (see Figure 10). Suffering the pains of immaturity in this area, with patchy and variable performance both on internal and on market-facing programs. It lacks an integrated approach across the corporation, but has some high points in its U.K. and Australia operations. As it works on its management reporting and staff education, we would anticipate it delivering further improvements in transparency and performance. It is beginning to pull together and strengthen its solutions in the transformation of and by IT areas, and continues its focus on energy efficiency in the ICT infrastructure.

**Figure 10. CSC Assessment Results**

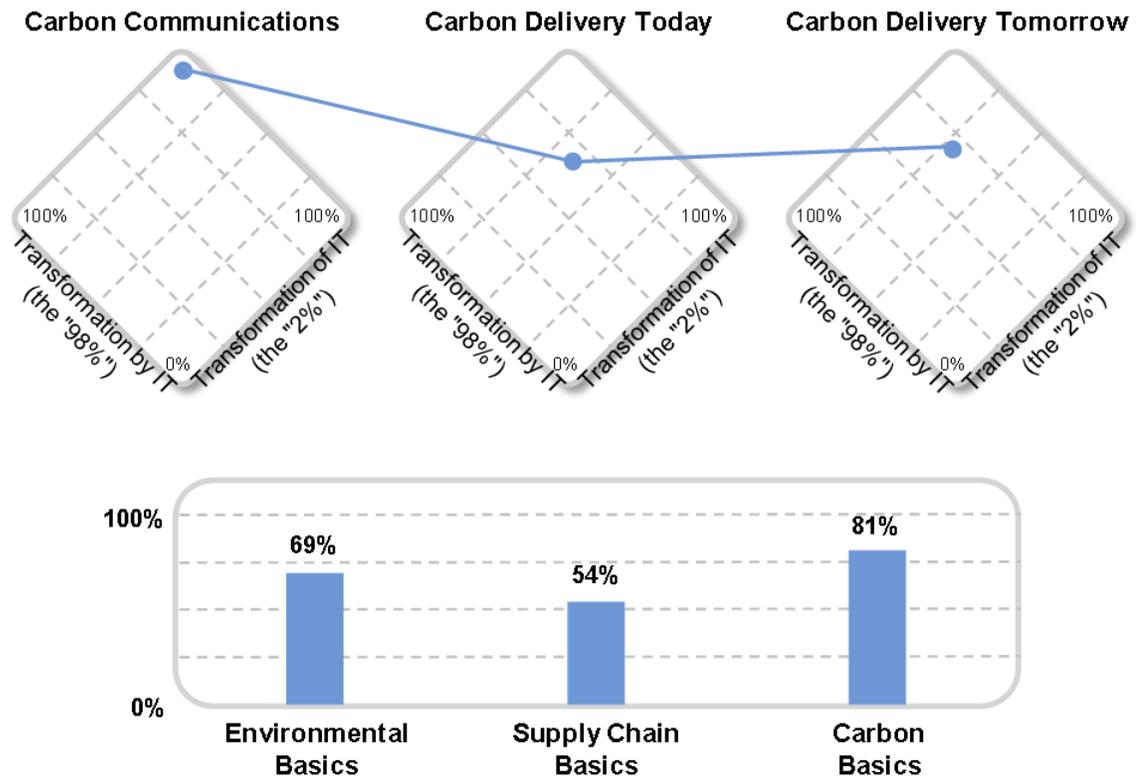


Source: Gartner (October 2010)

## Cisco Systems

There were big improvements all-around for Cisco (see Figure 11), filling many of the gaps in its performance and building a more coherent strategy. Its internal performance was weak in 2008, but has improved substantially in this assessment. More by good luck than good planning, Cisco found itself in reasonably strong position with regard to carbon delivery in 2008. During the intervening period, it has built significantly on that strength. It has begun to build structural capabilities and governance and has put organizational resources behind addressing the opportunities of a low-carbon economy.

**Figure 11. Cisco Systems Assessment Results**

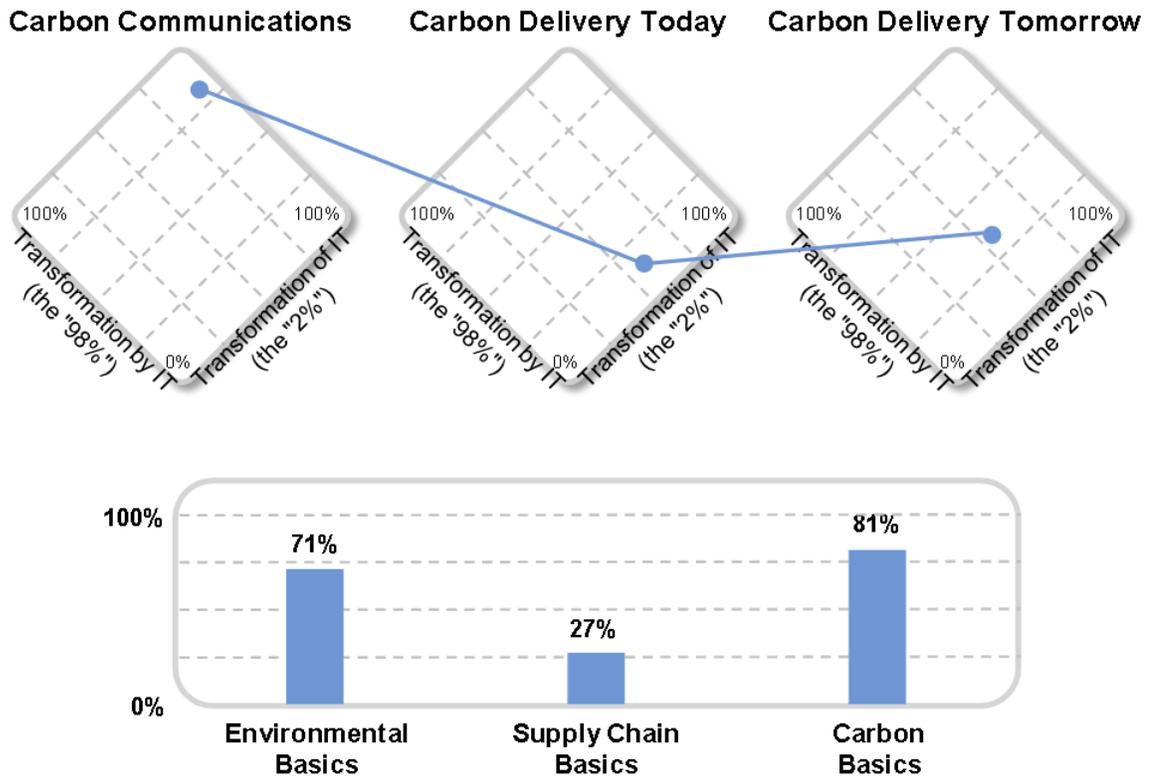


Source: Gartner (October 2010)

## Dell

Dell (see Figure 12) has strong communications and very good internal programs that have been strengthened further. It is focused on "the 2%" in terms of its product and service offerings, as was the case in 2008. Its performance in supply chain management is behind others in the industry. There was no significant change in other areas covered by this assessment since 2008.

Figure 12. Dell Assessment Results

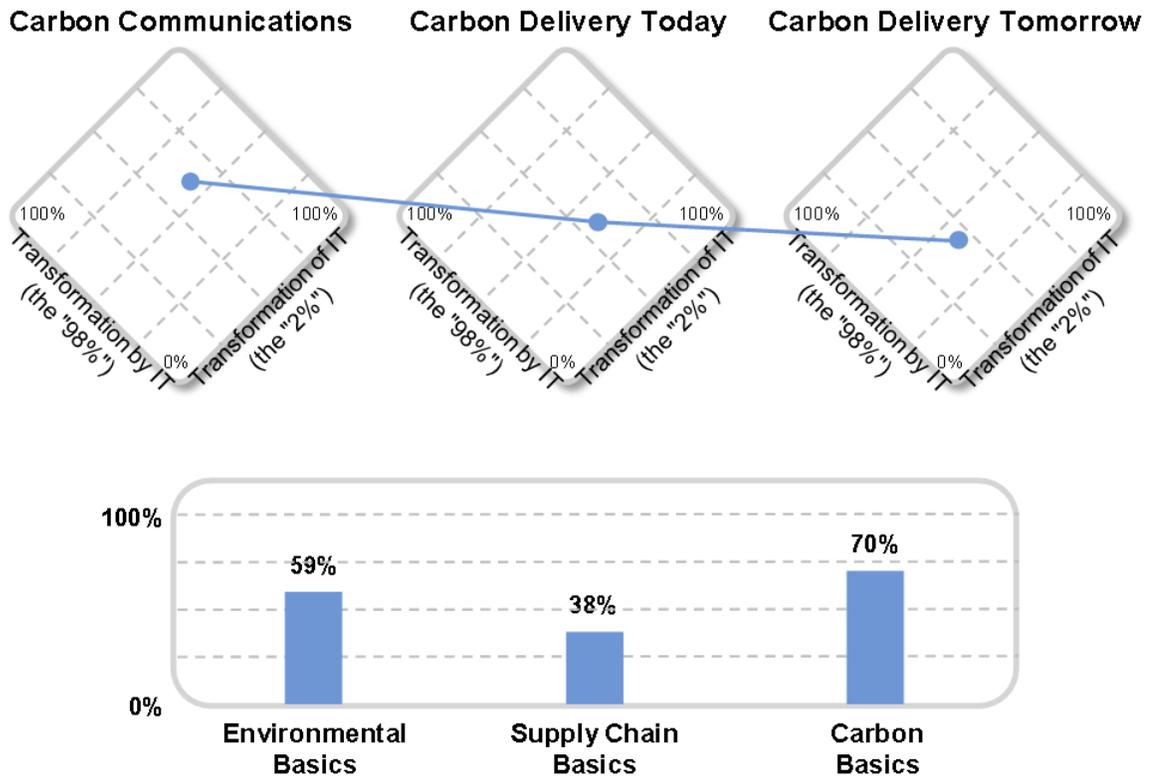


Source: Gartner (October 2010)

### Deutsche Telekom

This was the first year of participation for Deutsche Telekom (see Figure 13); it declined to participate in 2008. It has a reasonably strong internal climate change program. There is room for improvement in other parts of its internal programs. It has a good idea about what the opportunities are and what it needs to do to address those opportunities; however, it is behind the leaders — BT, IBM, HP and Cisco Systems — in terms of aligning the organization's resources behind these opportunities.

Figure 13. Deutsche Telekom Assessment Results

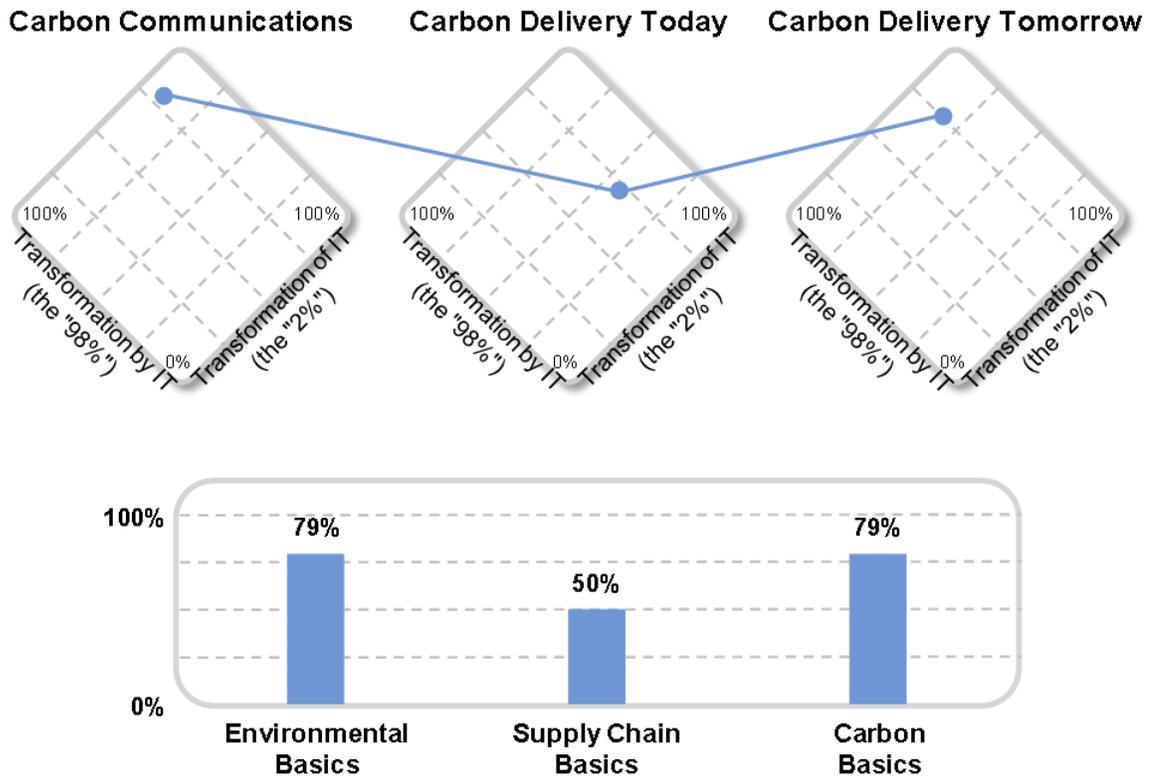


Source: Gartner (October 2010)

## Ericsson

A strong all-around performance helped Ericsson (see Figure 14) to continue to build on its strong position from 2008. It has done some excellent work in "transformation by IT," where, for example, it has been a leader in life cycle assessments. Ericsson has done more than most ICT providers to develop a portfolio of solutions on the "transformation by IT," and it has made some attempt at measuring the benefits in a structured way.

Figure 14. Ericsson Assessment Results

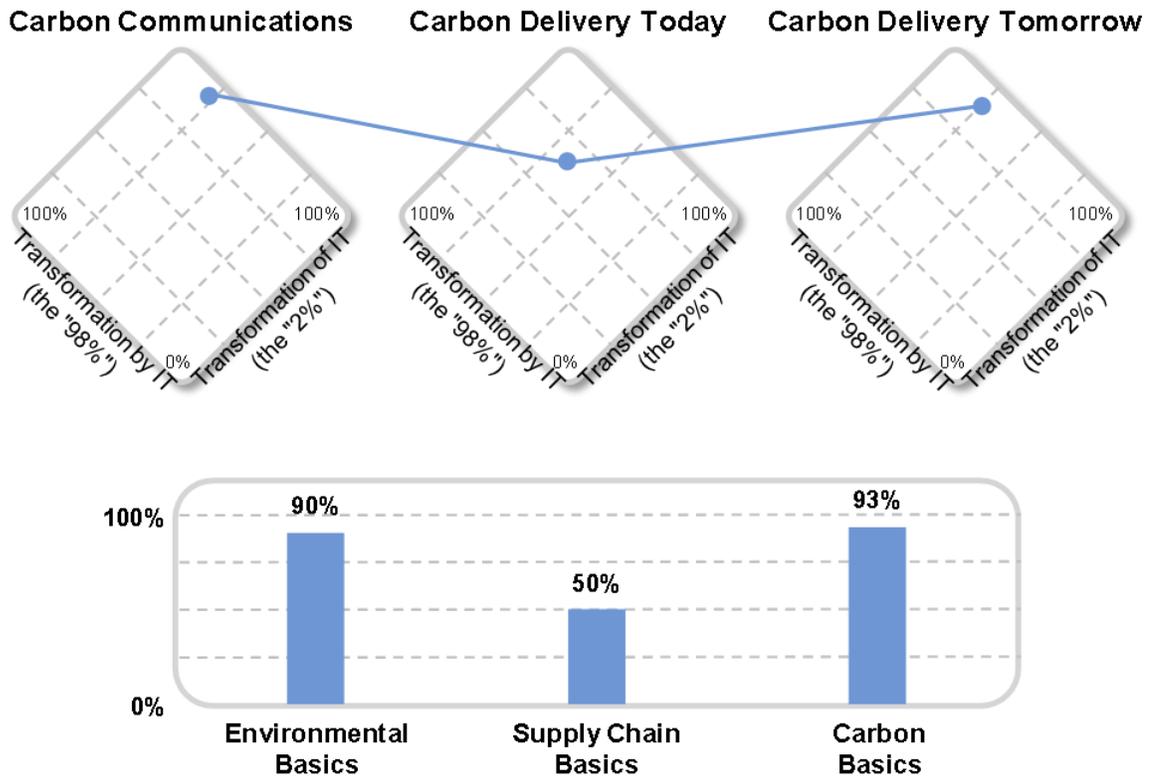


Source: Gartner (October 2010)

## Fujitsu

Fujitsu (see Figure 15) turned in an excellent all-around performance. There is room for improvement in supply chain management relative to some of the leaders, such as HP and IBM. Fujitsu is one of the few ICT vendors that is setting long-term goals. Additionally, it is very impressively setting specific goals to be climate positive. It has the basis of an impressive portfolio of solutions in the area of "transformation by IT," but almost all are exclusively developed and aimed at the Japan market. Fujitsu has declared its intention to rectify that, but we are less sure of its ability to execute on that intention.

**Figure 15. Fujitsu Assessment Results**

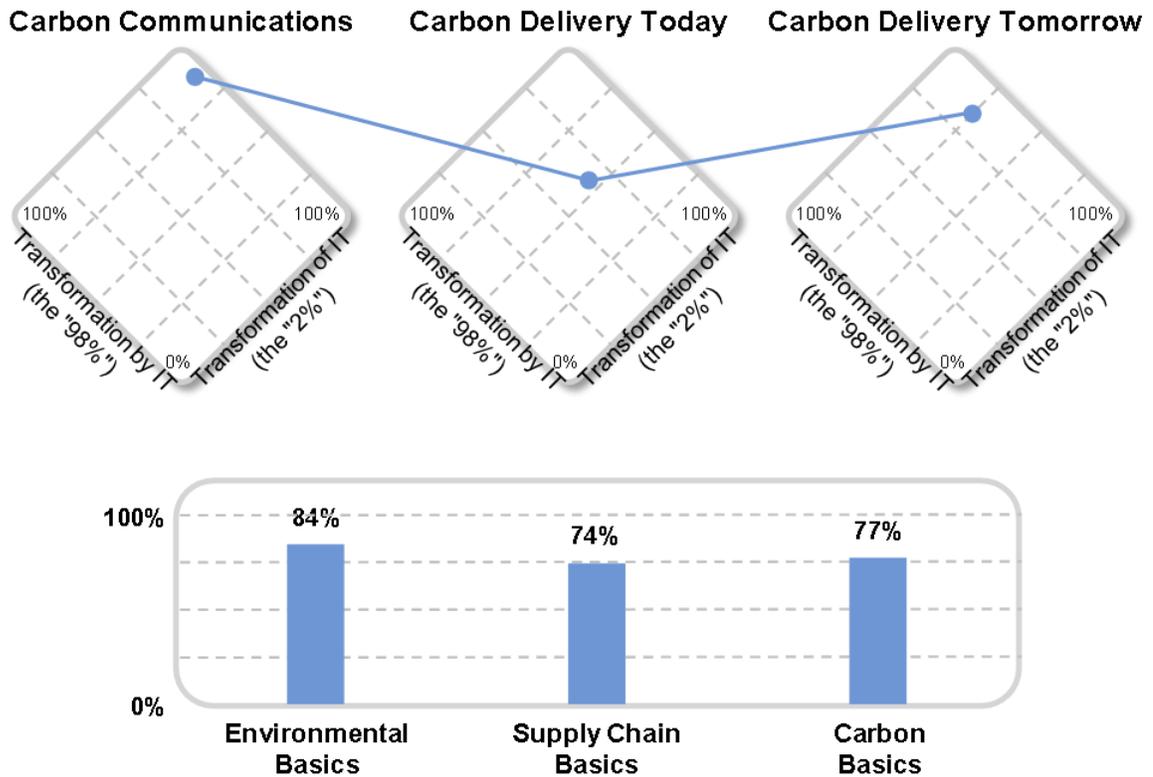


Source: Gartner (October 2010)

## HP

A very strong all-around performance was turned in by HP (see Figure 16). It was particularly strong in supply chain management, which is a real test of commitment. It had excellent performance in "transformation of IT," but lost some ground in "transformation by IT." It needs to remain focused on bringing what were previously EDS operations up to the same standards as those achieved by HP. There are plenty of people in HP with a lot of good ideas; however, the challenge in the "98%" area is commercializing those ideas and getting senior management to back them.

Figure 16. HP Assessment Results

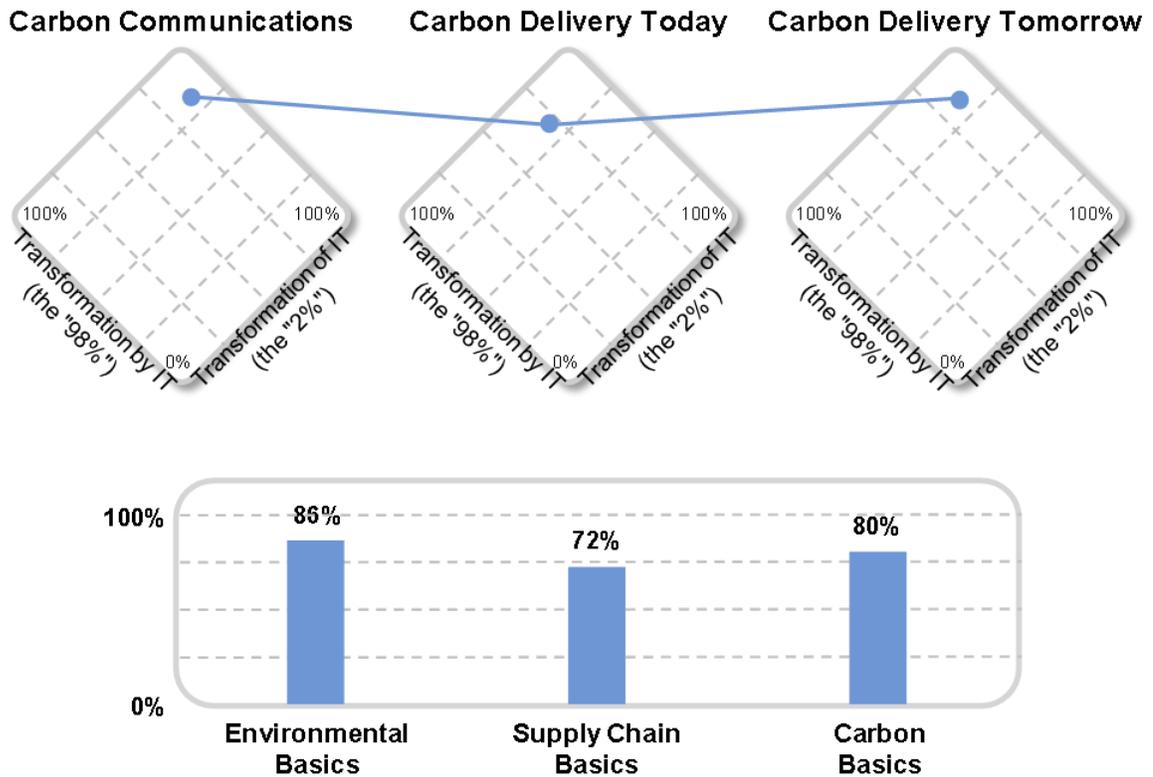


Source: Gartner (October 2010)

## IBM

An excellent all-around performance by IBM (see Figure 17). There was a big improvement in the area of "transformation by IT" from 2008. IBM is one of the very few ICT providers that is starting to show signs of facet influencing core strategy and getting the necessary resources behind it. IBM has some areas of weakness, such as some long-term targets that contrast with Fujitsu's approach.

Figure 17. IBM Assessment Results

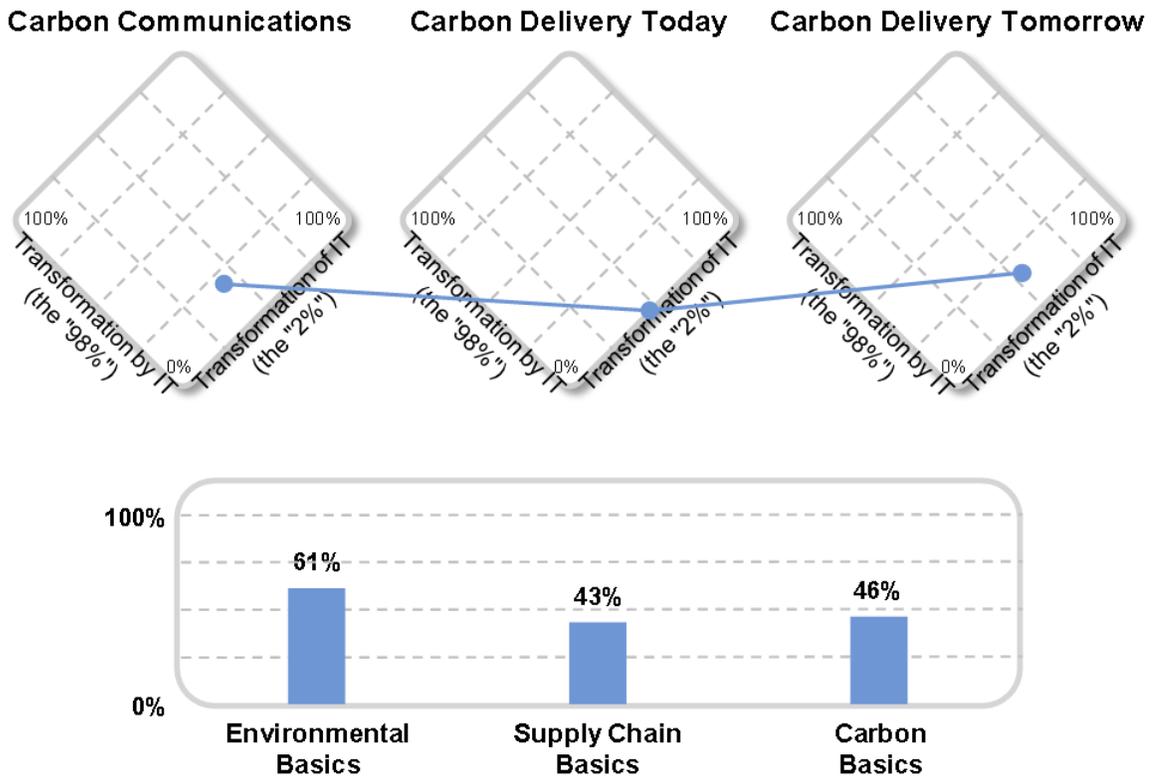


Source: Gartner (October 2010)

## Lenovo

While we saw some improvements and increased focus from Lenovo (see Figure 18), the company seems to have been treating this area tactically. Environmental and supply chain basics are adequate; however, its internal climate-change program is weak relative to most. Lenovo very recently set some short- and long-term targets related to its internal climate-change program that suggests it is beginning to engage more seriously. Its focus is very much on "the 2%," which is to be expected, and its performance in that category is adequate, but certainly well short of leadership.

**Figure 18. Lenovo Assessment Results**

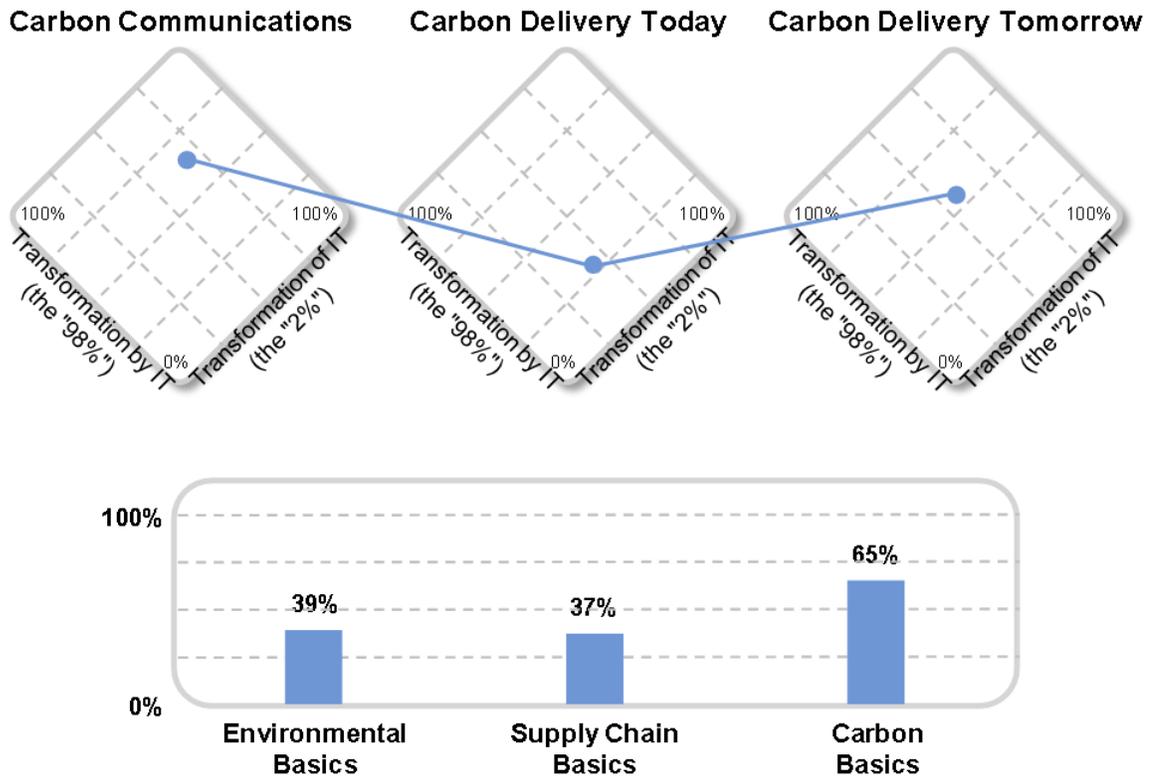


Source: Gartner (October 2010)

## Microsoft

Microsoft (see Figure 19) has some interesting projects, and there is no doubt that during the past two years the company has substantially improved its performance — we would anticipate steady, ongoing improvement. On "the 2%" side, it has made some good efforts and improvements, which are reflected in Windows 7. However, its overall performance in most categories is weak. This is certainly not an area that is influencing Microsoft's core business or strategy in a material way.

**Figure 19. Microsoft Assessment Results**

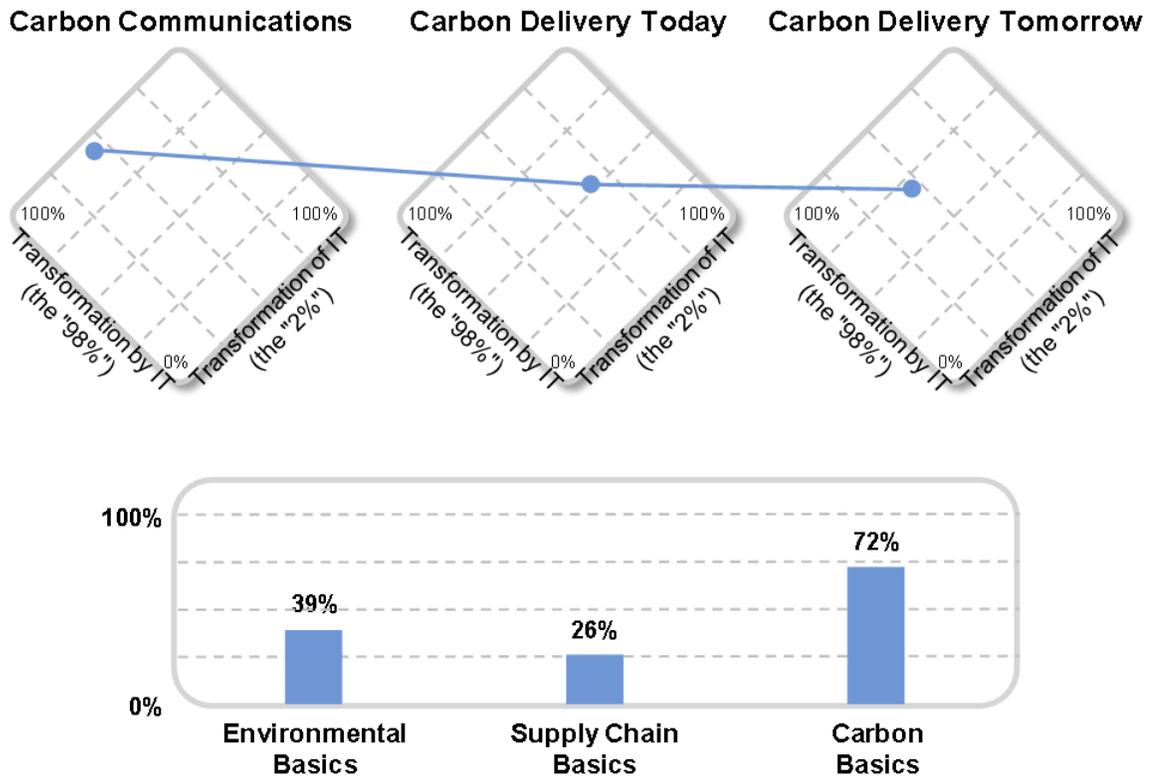


Source: Gartner (October 2010)

## SAP

SAP had a good all-around performance (see Figure 20), which is a substantial improvement on where it was in all areas in 2008. That improvement includes attention to the performance of its internal operations, as well as its products and services. SAP is doing substantially better than any of the other big software and services organizations. It has put sustainability at the heart of its communications during the past 18 months. Relative to any of the other big software houses, it has put communications closer to its core strategy. Its sustainability map is excellent, laying out the sustainability space from its perspective. SAP's sustainability plan is supported by existing applications, new products and acquisitions (Clear Standards and TechniData) during the past 15 months. Product portfolios and customers remain focused on environmental, health and safety (EH&S) compliance and reporting.

Figure 20. SAP Assessment Results

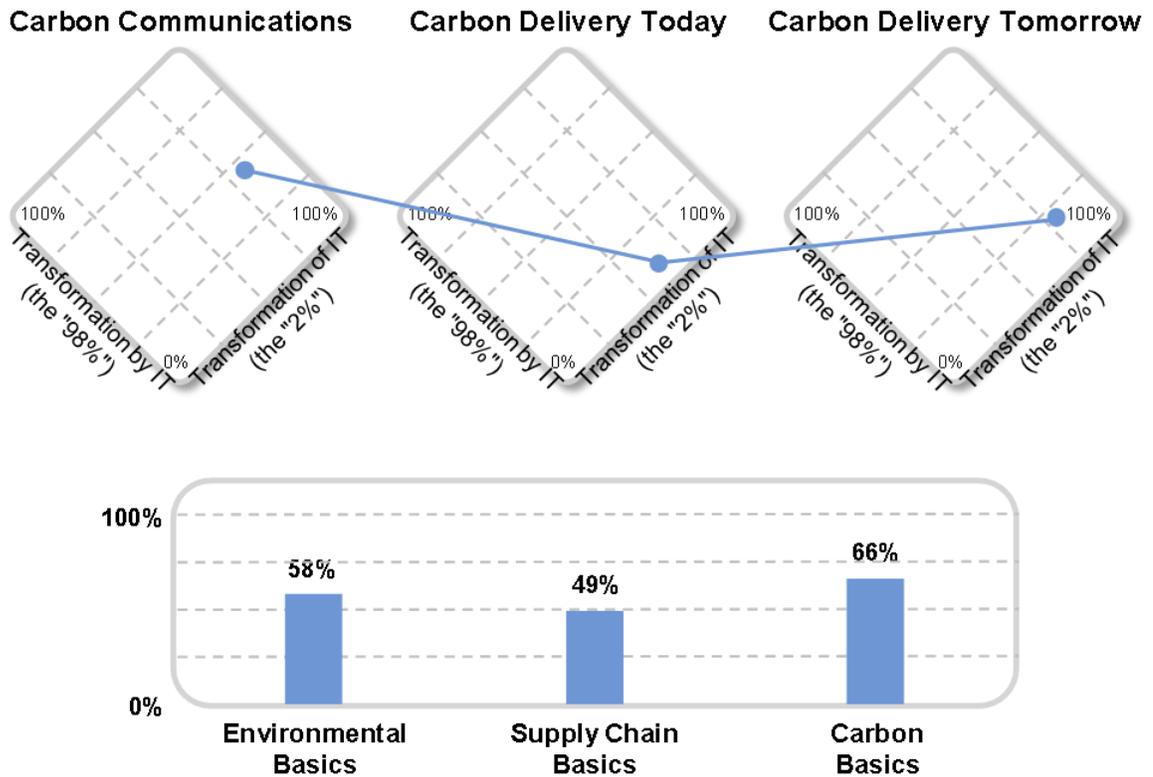


Source: Gartner (October 2010)

## Sun Microsystems

The assessment of Sun was initiated prior to its acquisition by Oracle was completed, so our analysis relates to the operations that were Sun Microsystems (see Figure 21) and not those of Oracle. Sun is a first-time participant, having declined to participate in 2008. While Sun has focused primarily on "the 2%" by developing energy-efficient devices, it rounded that off by making significant improvements in its own operations and that of its supply chain. Sun doesn't lead in any categories, and obviously has room for improvement. We are concerned about the direction the business unit that was Sun Microsystems might take as part of Oracle. Sun scored reasonably well across the internal categories and for its work on energy-efficient equipment and data centers. Energy efficiency in equipment, in management of that equipment and in the data centers will remain a key priority for Oracle for sure. But, beyond energy efficiency, Oracle as a software company would not have strong capabilities in several of the areas we looked at in this assessment that would be important for a hardware provider. It has shown relatively little engagement in sustainability during the past few years. Additionally, Oracle has lost some of the leadership team that led this effort at Sun.

**Figure 21. Sun Microsystems Assessment Results**

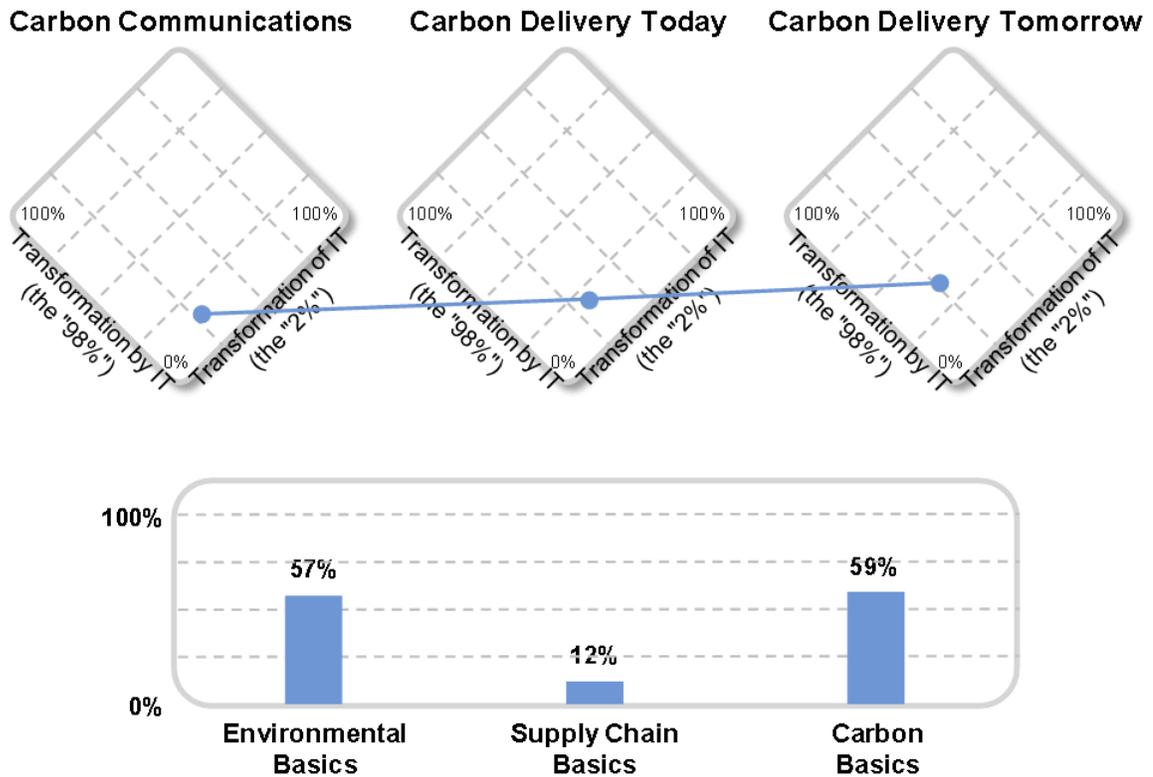


Source: Gartner (October 2010)

### Tata Consultancy Services

The performance of TCS (see Figure 22) across all areas of the assessment was relatively weak, but as we were progressing through the assessment process, we witnessed rapid changes occurring. It has now created an Eco Sustainability Unit focused on developing solutions in the area, and it has put together a compelling road map for internal and external matters. We would anticipate TCS strengthening its position considerably during 2011.

Figure 22. Tata Consultancy Services Assessment Results

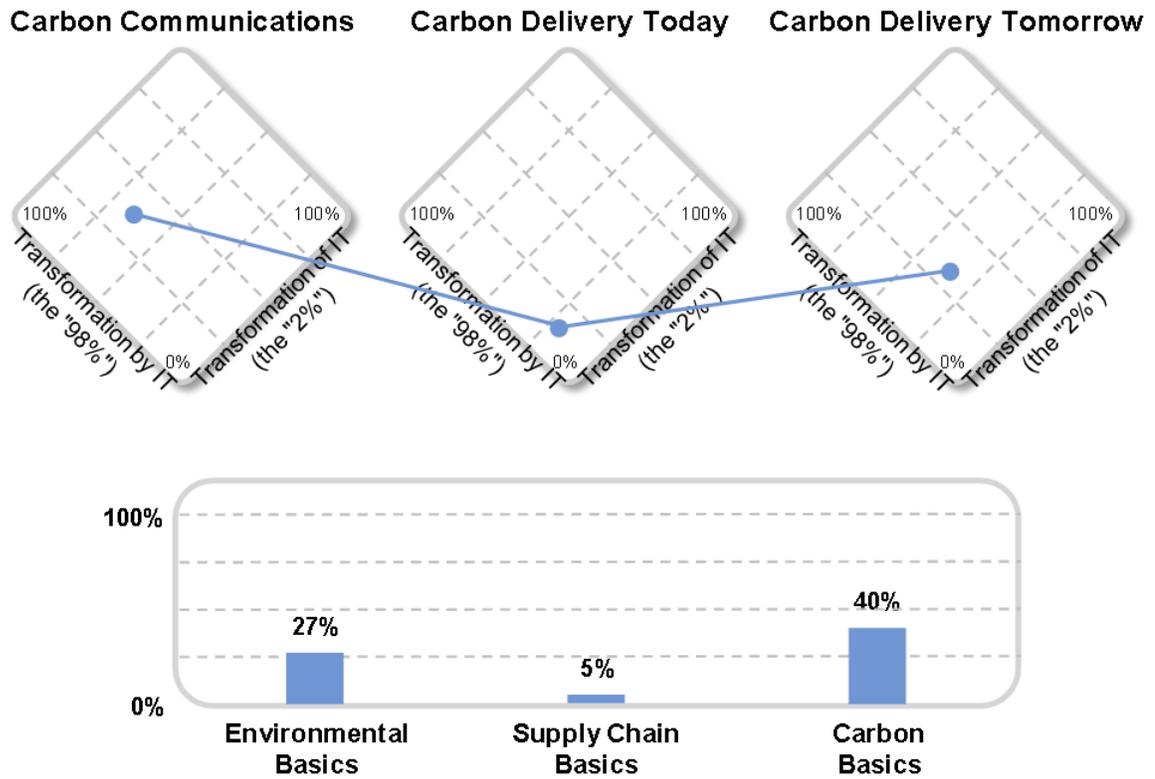


Source: Gartner (October 2010)

## Verizon

Verizon (see Figure 23) performed poorly across most categories of the assessment. It has shown improvement relative to its performance in 2008, but nothing significant. Verizon certainly has people in the organization that understand the issues and opportunities, but the organization is not lining up resources behind them. This area is treated tactically at best.

**Figure 23. Verizon Assessment Results**

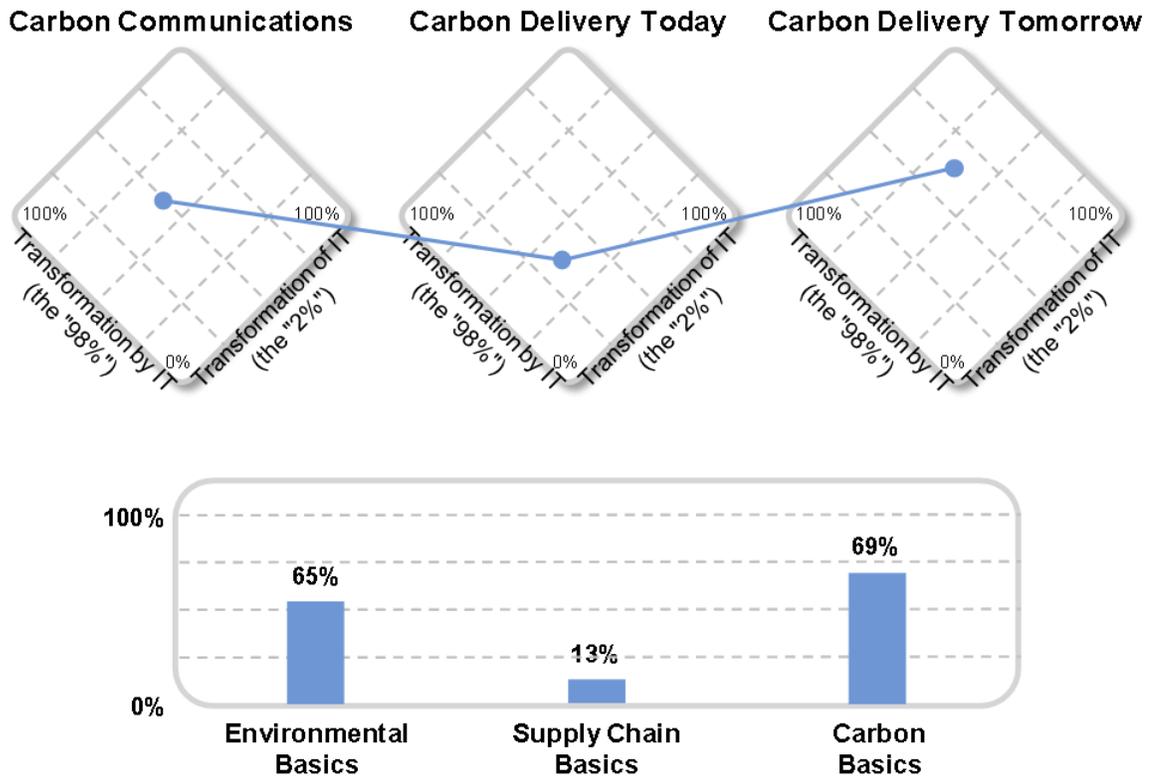


Source: Gartner (October 2010)

## Wipro

Wipro (see Figure 24) has shown great progress relative to its position in 2008. It has moved from one of the poorer performers, to a middle of the table position, which — given that most participants have also upped their game — is an impressive achievement. Wipro still has room for significant improvement, particularly in its supply chain management, but we believe Wipro is one to watch for rapid progress.

**Figure 24. Wipro Assessment Results**

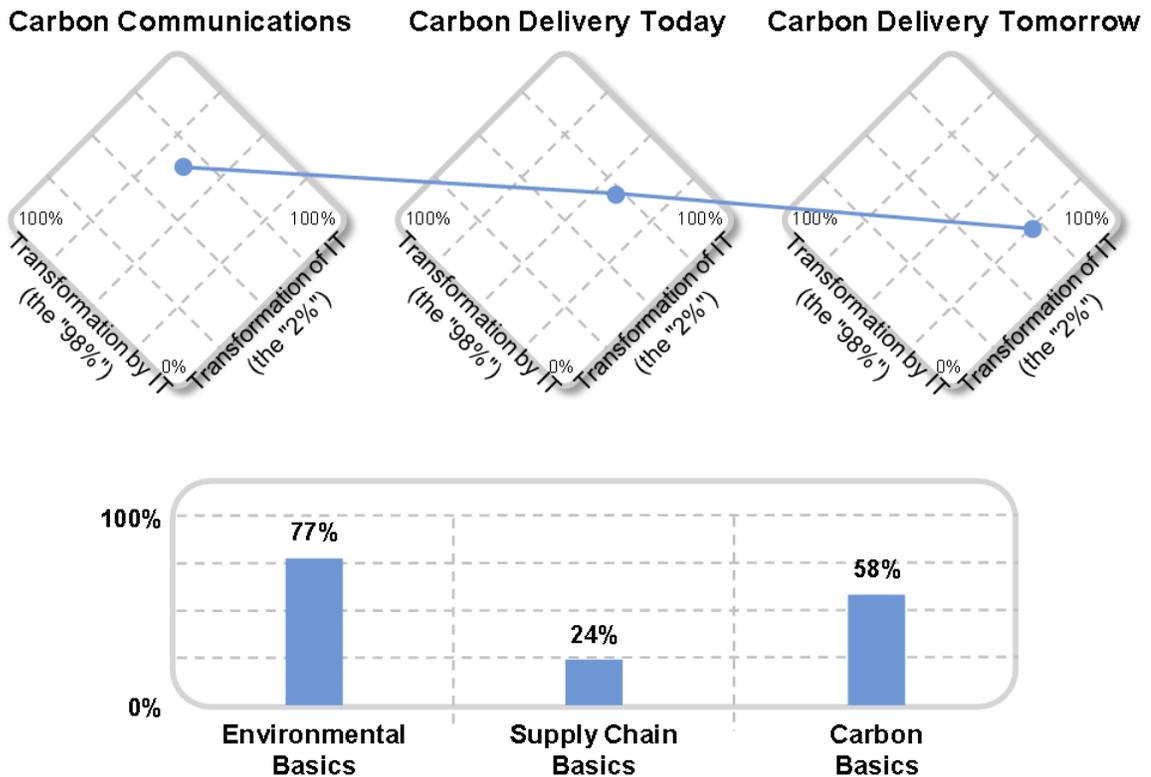


Source: Gartner (October 2010)

## Xerox

Xerox (see Figure 25) has a long history of innovation around the environmental performance of its products. It scored very well in most aspects of its internal program, although the climate-change program was not as compelling as others in the industry. Likewise, the work on those aspects of the supply chain that we looked at was well short of the leaders in the area. Xerox is one of the leaders in the areas related to ICT's own impacts, including areas of energy efficiency and some very innovative work around remanufacture, reuse and recycling.

**Figure 25. Xerox Assessment Results**



Source: Gartner (October 2010)

*Dennis Pamlin, until recently, was a global policy advisor at WWF Sweden. He is now an independent ICT expert.*

## RECOMMENDED READING

"Assessment of Global Low-Carbon and Environmental Leadership in the ICT Sector, by Gartner and WWF"

"Toolkit for IT Executives: 2009 Gartner-WWF Low-Carbon and Environmental Assessment Framework"

[Outline for the first global IT strategy for CO2 reductions](#)

[A five-step plan for a low-carbon urban development](#)

[The world's first global market survey on low-carbon IT](#)

## Note 1

### Infor Disclaimer

We believe that Infor currently carries at least \$4.5 billion in debt, used primarily to fund acquisitions (Infor has indicated that this figure is materially overstated, but has not provided additional information). This is a highly leveraged company by enterprise application software vendor standards. Gartner suggests that users bear this in mind in discussions with Infor, and

seek assurance that the company has the wherewithal to execute on the components of its strategy that are relevant to users' specific strategic requirements.

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