

1.5 Green IT - Four Dimensions

Green IT practice translates the green IT strategies, plans, and policies in the day-to-day workings of the organization by using its transformational and operational capabilities. Green IT in practice is based on four distinct yet interrelated dimensions of business: economy (why), technology(what), process (how), and people (who).

1. Economy (Why)

The economic dimension deals with the financial justification for green enterprise transformation. The key practice in this dimension revolves around metrics that enable justification of the investment in green IT initiatives. Following are some of the economic factors appearing in green IT practice:

- ★ **Green ROI metrics justify the business decision to invest in carbon reduction.**

These are measures that reflect the business value emanating from the costs, effort, and risks in undertaking a green enterprise program. For example, the replacement costs of electronic devices is matched against the power and costs saved over the lifetime of those devices.

- ★ **Metrics that demonstrate the net present value (NPV) of the carbon initiative over a three- to five-year period.**

In this period, the carbon economy can be expected to be in full swing, and the carbon reduction investments made today will affect the worth of organizations on the stock exchange then (around 2013-15).

- ★ **Incorporation of intangible and/or otherwise non-carbon measures, such as organizational image, subtle marketing, and motivated HR, in the overall justification for green IT.**

For example, the image of an organization as perceived by its customers (or employees) can be measured through a survey and, then, the same image measured again after the green transformation has taken place. The difference in the two views of the organization by its customers can be made to count toward the economic benefits resulting from green initiatives.

- ★ **The comparison of carbon performance across multiple organizations and industry sectors, especially when businesses are geographically dispersed.**

This comparison facilitates understanding of the economic advantage of green initiatives among competing organizations.

- ★ **The formulation of KPIs (key performance indicators) that provide financial benchmarks indexed to carbon benchmarks.**

For example, a KPI can be “reduction in scope 2 carbon emissions by 10% per year over the next three years” and can be extended and mapped to “reduction in cost of production by three to five percent per year for the next three years.” KPIs not only measure progress in carbon efficiency but also provide an indication of what needs to change.

★ **Carbon trading based on the recording and reporting of emissions.**

This trade in carbon in a carbon economy on carbon stock exchanges will make use of CEMS, enabling it to mature into systems-based automated trades monitored and enforced by law.

2. Technology (What)

The practice of green IT in the technology dimension deals with reduction of emissions from IT equipment, such as monitors, computers, data servers, and network equipments. Examples of the technological dimension of green IT practice include:

- ★ **Sophistication in managing desktops, laptops, and other individual computing devices when not in use.** This includes switching them off when not in use, using a blank screen saver, centralized power management, and use of smart operating systems.
- ★ **Use of smart metering devices** that measure and relay emissions in real time and provide feedback and correction to the equipment.
- ★ **Printer use in an efficient way** through default draft printing, default page cap per user, double-sided printing, distance printing (i.e., not have a printer by the side of the desktop), and recycling of ink cartridges.
- ★ **Virtualization and optimization of data servers and desktop machines.**

- ★ **Use of low-carbon-emitting green monitors and computers instead of the aging and high-power-consuming computers.**
- ★ **Implementing basic to advanced carbon emissions management software² for collection and dissemination of standardized carbon data.**
- ★ **Preferential use of renewal sources of energy such as solar, wind, and nuclear.** This would be based on increased ease in selecting the source of energy and greater transparency in viewing the effect of the choices through sophistication in carbon reporting systems.
- ★ **Environmental intelligence (EI) comprises technologies like data warehouses, analytical tools, and reporting tools.** This EI will combine existing business intelligence systems and organizational processes with the tacit green knowledge people carry.

3. Process (How)

The process dimension of green IT practice deals with the use of IT systems in improving business processes (e.g., supply chains) and use of standards (e.g., ISO14001). The process dimension in the practice of green IT is affected as follows:

- ★ Business optimization processes such as lean or Six Sigma would be also responsible for carbon reduction.
- ★ Modeling and implementation of new green processes.
- ★ Embedding green organizational policies within the systems that support business processes.

- ✱ Collaborative green business processes
- ✱ Processes associated with reuse and recycling of equipment that balance the longevity of the equipment and its ongoing power consumption.
- ✱ Collaborative business processes, based on Web services that enable support and sharing of carbon reduction across multiple organizations.

4. People (Who)

The people dimension of green IT practice deals with the soft, sociological aspects of changes to the organization. Following are some of the areas associated with people that undergo change in a green IT initiative:

- ✱ **Changing customer preferences** with respect to favoring green products and services needs to be considered and incorporated in product and service design, development, and production.
- ✱ **Basic training and creation of awareness of environmental sustainability and green IT** among various groups of people, including employees, customer groups, and suppliers.
- ✱ **Use of social media networks** that generate public opinion, provide carbon-related information, publicize green standards, as well as facilitate “crowd-sourcing” (e.g., a member of the crowd reporting a wastage such as street lights on during the day, an oil spill in the neighborhood, or unethical dumping of batteries or mobile phones).