

1) What is the role of smart meters in Environmental Intelligence?

Smart meters and intelligent grid can significantly benefit the environment by reducing consumption of fossil fuel resources, thereby reducing emission of greenhouse gases (GHG) and other air pollutants. Environmental benefits can be achieved in three ways:

1. Reducing electricity consumption and increasing transmission and distribution efficiency

Studies suggest that given the ability to monitor their energy use more frequently in greater detail, many consumers may begin turning off unneeded appliances, change to more efficient lighting, adjust thermostats and make other energy-saving changes. If consumers conserve energy, less power may need to be produced. Reduced emissions from potentially decreased power generation could translate into better air quality.

2. Reducing utility's vehicular needs

Smart meters will also reduce the consumption of resources and associated emission of greenhouse gases and other pollutants associated with performing basic utility services such as connections, disconnections, and meter readings, which can be conducted remotely for consumers with smart meters without sending out a truck. As of October 2010 for example, CenterPoint Energy has avoided over 300,000 "truck rolls" by completing service orders electronically.

3. Promoting distributed and renewable energy production and plug-in hybrid electric vehicles

Finally, smart grid will create a platform that will promote the development and deployment of technologies for increasing distributed generation (DG) and energy storage capacity, such as wind and solar generation, and plug-in hybrid electric vehicles (PHEVs). Smart meters measure surplus electricity generated as well as electricity delivered, eliminating the need for installation of expensive specialized DG metering. Distributed generation can help reduce the need for new fossil-fuel-generated capacity and therefore benefit the environment. The smart grid will also include technologies that facilitate the use of PHEVs, thereby reducing the consumer's reliance on gasoline and diesel-fueled vehicles.

2) How can Cloud computing help reduce carbon emissions?

- Cloud computing is helping reduce the amount of carbon dioxide emissions, potentially preventing more than 1 billion metric tons of CO₂ from 2021 through 2024, according to a [forecast](#) from International Data Corp.
- According to the market research firm, a key factor in the reduction of CO₂ emissions has been the aggregation of discrete enterprise data centers to larger-scale facilities that can more efficiently manage power capacity, optimize cooling, leverage the most power-efficient servers and increase

server utilization rates. The savings vary by region and country, IDC said, with the opportunities for greatest gains in areas currently using coal for power generation, like the Asia-Pacific region.

- Besides shifting to cleaner power sources, reducing wasted energy also plays a critical role. Cloud data centers optimize the physical environment to cut the amount of energy spent to cool the environment. “The goal of an efficient datacenter is to have more energy spent on running the IT equipment than cooling the environment where the equipment resides,” IDC said. Shifting workloads to locations that take advantage of renewable power sources such as wind and solar can also help lower CO2 emissions

3) Discuss in detail the role of green mobile.

4) What is the impact of the data center aspect of Green IT strategies on carbon reduction?

- It's these environmental issues that are a huge challenge for the data center industry. After all, our world is increasingly dependent on powerful data centers to support the cloud, but at the same time, we are facing an unprecedented environmental crisis caused in no small part by a heavy reliance on fossil fuels.
- Experts estimate that data centers can use as much as 400 terawatt-hours (TWh) globally, which is about 2% of the worldwide electricity demand. This generates a substantial amount of greenhouse gases: some estimates say that data centers account for as much as 3% of global carbon emissions, which is roughly equal to the output of the global airline industry.
- How is it possible to reconcile these two seemingly opposing challenges? The good news is that there are several ways to

make data centers more environmentally friendly, and it goes far beyond looking for alternative sources of energy. The key is to focus on the ways that they are built and operate.

- There is a significant push to make data centers more environmentally friendly in how they operate, and in the materials and techniques used to construct them. Some of the largest companies building these facilities have pledged to be carbon-neutral in both how they power and build their facilities. Not only are they using carbon offsets to reduce their current footprints, but they are also working on ways to reduce all greenhouse gas emissions (GHG) in the future.

5) What is Green BPM? Discuss the role Green BPM plays in the reduction of an organizational carbon footprint

To adopt Green BPM is to analyze business processes with the goal of making them more sustainable. Therefore, we can say that Green BPM seeks to:

- Verify the resources and supplies being used in each activity, and analyze how they may be harming the environment; and
- Analyze the activities of a process to evaluate how each of them can be improved in terms of sustainability.

Although the concept of Green BPM is not so recent, for many it may be something new. However, if we think that when modeling a process we detail activities, responsible parties, and necessary supplies, we will see that it is almost impossible to have any process that does not interact with environmental, social, or economic sustainability.

What is the role of Green BPM in reduction of carbon print.

The most significant benefit is precisely having a company that not only uses nice words to say how concerned it is about the environment, but which, above all, does its part. This can result in more trust among employees, investors, customers, and

other interested parties, increased credibility, attraction and retention of employees, increased brand recognition, and so on.

These would be good reasons to bring this green consciousness into your processes, but we can go further. For example, by focusing on reducing energy and water consumption, reducing waste, the company reduces significant costs.

There is also gain in agility and productivity. To limit the environmental impact on processes you may find that you can automate some activities. To illustrate this, instead of needing someone to print out a document to be signed and then send it via a courier service, you can have a [Document Management](#) solution so that the entire workflow is carried out electronically.

Besides eliminating the need for logistics (eliminating CO2 emissions), do you realize that it speeds up the process? This is a very simple example to show how adopting Green BPM can make your company much more agile and productive.

- 6) What are the characteristics of a process and how do they apply to a green process?
- 7) What is the relevance of process modeling in Green BPR? What techniques you would use to undertake green process modeling?
- 8) What are the advantages of Cloud computing in the context of Green IT? What are the challenges and risks associated with Cloud computing in the same context?
- 9) Explain the various types of Green architectures within the enterprise, such as information architecture and solutions architecture
- 10) Describe the importance of GEA in an organization transformation to a green organization

11) What is a Green ICT information portal? Discuss the important elements of the inputs and outputs of a green portal.

12) What comprises green contents? What are the sources and the users of green contents?