

# 2.1 Achieving a Green Business through ICT

## Concepts Covered

- Green Business
- Smart Motor Systems [CC:Manufacturing]
- Smart Logistics [CC:Transport]
- Smart Buildings [CC:Building]
- Smart Grids [CC:Power]

## Green Business

A "green business" is understood as an organization that uses renewable resources and carries out its firm activities with compliance to environmental laws and regulations, and minimizes unnecessary use of resources such as energy and water while aiming for waste reduction. In essence, a "green business" is to be environmentally sustainable and socially responsible.

### 2.1.1 ICT in Manufacturing Sector

#### Smart Motor Systems

Motor systems are devices that convert electricity into mechanical power. Electric motors consume around 60% of the total electricity supplied to industries in the world. Examples of motor systems include transformers used in compressors and pumps and those embedded in disk drives of computer equipments. Motor systems are mandatory to drive the Manufacturing sector and as this sector expands, so will the demand for energy. However, ordinary motors often operate at full capacity no matter how much their load is, thus resulting in energy inefficiencies.

A **smart motor system** is one that can be controlled to adjust its power usage to a required output. This is usually achieved through a variable speed drive (VSD) and an intelligent motor controller (a piece of hardware that controls the VSD). Smart motor systems will thus reduce the inefficiencies brought by the redundant usage of power and energy.

#### How ICT can help:

1. Currently, there is a lack of information regarding energy usage in motor systems. Thus, ICT can be used to monitor the use of energy and provide relevant data to businesses in order for firms to transform their manufacturing systems into one that is energy and cost-saving. This is useful for firms to set standards for motor system efficiency.

##### ICT Applications and Services involved:

- Chips and controllers for VSD intelligence
- Digital meters and components for real time information
- Database collection of energy audits integrated with business software
- Central collection of real time energy data
- Interface with monitoring agencies

2. ICT can also optimize the design of motor systems as well as manufacturing factories and processes.

##### ICT Applications and Services involved:

- Simulation of systems by plant designers and operators
- Manufacturing process design technology
- Wired/wireless communications between VSD and central control system
- Wired/wireless communications between VSD and rest of the plant
- Software to analyse and optimise design of motor and industrial systems

<b>1.</b>	<b>Climate Change</b>
1.1	Definition
1.2	Causes
	1.2.1 Natural Factors
	1.2.2 Human Factors
1.3	Impacts of Climate Change
<b>2.</b>	<b>ICT as a Solution to Climate Change</b>
2.1	Achieving a Green Business through ICT
	2.1.1 ICT in Manufacturing Sector
	2.1.2 ICT in Transport Sector
	2.1.3 ICT in Building Sector
	2.1.4 ICT in Power Sector
	2.1.5 Case Studies
2.2	Role of the Internet in Promoting Green Awareness
	2.2.1 Government Websites
	2.2.2 Other Internet Mediums
2.3	Other Spinoffs from the Advancement in ICT
	2.3.1 Change in Working Styles
	2.3.2 Change in Lifestyles
	2.3.3 Change in Teaching and Learning Styles
<b>3.</b>	<b>Limitations of ICT in Fighting Climate Change</b>
3.1	Freedom of Expression
3.2	ICT's Two-fold Role
3.3	Inability of ICT to stand as an Independent Solution
<b>4.</b>	<b>Ongoing Research and Development of ICT in fighting Climate Change</b>
4.1	Symposium
4.2	Conference Talk
4.3	Progress
<b>5.</b>	<b>Quotes on ICT and Climate Change</b>
5.1	Quotes
<b>6.</b>	<b>References</b>

## References

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