

5. Go Green with Information Technology

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Figure 5.1: Green Technology

Abstract:

By and large, the goal of energy management is to produce goods with the least cost and least environment effect. With energy costs rising faster than the rate of inflation, industries have to face the challenge of overcoming the price war. This is possible by having a continuous energy improvement program based on real-time on-line plant data collection, analysis, and interpretation and energy savings implementation in a closed loop. Electronic waste is a broad term used for electronic equipment including power plugs and batteries. This equipment's have become obsolete due to advancement in technology, changes in fashion or due to nearing the end of their useful life. It is one of the rapidly growing environmental problems of the world. To make organizations more productive, there are many factors which are responsible, but, the key factor is none other than Information Technology. Creative IT practices reflect the organizational commitment to change management. In this paper we shall attempt to learn role of IT in energy savings which also lead us to quality.

Keywords:

Consumption, Electronic waste, Energy, Information Technology.

5.1 Introduction:

Consumption of goods and services whether or not within the economic system is of fundamental life-maintaining importance (Figure 5.1). With increasing wealth, however, consumption for most households in the developed world has moved far beyond what almost anyone would define as necessity. On the other hand, this does not mean that individuals and households do not perceive almost all their consumption as necessary.

Gatersleben and Vlek (1998) [2] have, for example shown that once households obtain new possibilities to consume; this consumption quickly becomes a necessity which they are not willing to give up. A family with access to two cars has a higher freedom of movement than a family with only one car. Individuals want their consumption to have no negative effect on the environment. Nobody wants to harm the environment. The degree of environmentally friendliness varies. From an environmental perspective the increasing levels of consumption in general and certain types of consumption in particular pose a problem.

Now increasing attention has been directed towards targeting only the type of consumption, which has the highest environmental impact through changed patterns of consumption. Pattern of consumption means the fraction of consumption expenditures spent on different consumption categories.

A family with children that spends a lot of their total consumption expenditures on housing, food and recreation but little on travel has a different consumption pattern than a household that lives in a small apartment and spends most of their money on travel and uses a large part of their food expenditures on dining out. Let us look at the origin and meaning of the concepts: “green”, “lifestyles” and “consumption pattern”.

5.1.1 Green Consumption and Lifestyles:

The term “Green” has become an established concept and is today widely used as a label for a seemingly diverse set of products, ideas and phenomena: usually for types of consumption and consumption patterns. Examples are to purchase locally produced food, recycling, *etc.* Green is also used as a label for consumers that try to consume in an environmentally conscious manner. The green ideology advocates an economy primarily based on domestic production, a focus on quality of life rather than quantitative growth, local rather than central governance but also global thinking.

The fundamental version of the green ideology is however only in rare cases the ideology of those who consider themselves environmentally friendly. For most “being green” are only one part of their identity and lifestyle and a part, which is given higher or lower priority, depending on what it is set against – Environmental involvement is sensitive to the state of the economy (Bennulf, 1996) [1].

The definition of green is, as a consequence of the focus on the pattern of consumption, further used as a label for consumption patterns that has a low energy. Values, attitudes, knowledge and behavior: what makes or prevents people to change lifestyle, the role of habits and social norm in this process and the responsibility of households versus another actor.

5.1.2 Green Consumption Pattern:

A “functional perspective” refers to a view that is primarily considering consumption as the fulfillment of various types of functions *i.e.* car travel provides the function of transportation; food provides the body with nutrients as well as being a social function and a carrier of tradition.

Indisputably consumption fulfils both basic needs and important functions of various kinds. The effects on the pattern of consumption can be explored in addition to the effects of changes in the level of consumption. Consumption is classified into three major categories: Food, Travel, and Housing.

5.1.3 Green Food Consumption:

Food products when reaching the consumer depend on a large number of activities along the production chain: biological processes (the ability to convert solar energy), production methods (fertilizers, green house or open field), degree of processing, packaging, transportation distances from point of production to the retailer, type and length of storage, *etc.*

Locally produced foods require less energy than imported food only if the conditions for production are similar. If the conditions are similar, transportation in connection with imports adds to the total energy requirements of the product.

Luxury food and junk food are all types of food, which are not necessary from a nutritional point of view but still eaten by most people. However, from an energy intensity perspective luxury food and in some cases junk food does in general have lower than average energy intensities.

For example, the energy intensities for sweets, wine, and coffee have low energy intensities compared with other food products. Thus, from a pure energy intensity perspective the luxury foods are better.

It is observed that costs are reduced when a green food consumption pattern is adopted.

5.1.4 Green Travel:

How to achieve a sustainable transportation system is one of the most challenging questions for researchers and policy makers? Travel is the consumption category that has been, and is, the most common target for environmental policies.

- **Travel Modes:** Car ownership is the most important determinant of distance travelled (Vilhelmson, 1990) [4]. Once a household owns a car, they use it. One could argue that those who buy a car do so because they want to and need to travel by car. There is a notable difference in car access between men and women. The car is very much personal means of transportation and is often connected to one individual within the household, in most cases the man (Vilhelmson, 1990) [4]. Women are to larger extent, passengers and use public transport more frequently than men owing to lack of access to the car. Public transport is assumed to be crucial for reducing car travel (Naturvårdsverket, 1996) [3]. The idea is to provide a low cost and efficient alternative to car usage. Car sharing is, from an environmental perspective, looked upon as an attractive option to car ownership. Car sharing reduces the energy requirements that are connected with the production of cars. Alternatives to private cars are rental cars and taxis. Taxis come with a driver which increases the cost and rental cars are usually not available for less than 24 hours.
- **Information Technology:** Information technology has been considered to have a positive environmental impact by reducing the need for mobility. Studies indicate that the development of information technology increases mobility instead of providing a substitute. Information technology makes it possible to work efficiently together with people regardless of geographic distance but every now and then individuals in these networks need to meet.

5.1.5 Green Housing:

Housing consumption constitutes category which both in terms of expenditures and energy requirements is the highest. Households living in apartments have a very limited ability to influence the technology used to heat the building and its insulation.

The decision of where to live is rarely based on the energy requirements for heating or other energy related questions. Instead, other factors such as place of work, where family and friends live, access to certain types of environments for recreation, and other preferences are more important. Local climate and position of the house in the terrain also affect the energy requirements. The most common recommendations to households for saving energy apply to heating and hot water consumption. A lot of energy is used to heat hot water.

By using new technology in terms of new types of showerheads hot water consumption can be reduced. More efficient equipment reduces the need for electricity. By replacing old fridges, freezers, washing machines, lighting, television, videos, and other goods by new energy efficient types a household can save electricity consumption. The most common type of heating is electricity. Plants and seedlings from greenhouses have very high energy intensities because the greenhouses are heated and are very poorly insulated. Thus, outdoor gardening can be an energy intensive type of recreation.

5.2 Comprehensive Suggestions for A Green Consumption Pattern:

Most suggestions for how to reduce energy requirements involve reduced consumption and, in most cases, also reduced expenditures. Only a few suggestions in scientific literature deal from a household perspective with what a green consumption pattern should look like.

- **Food:** Less greenhouse vegetables, less meat, pulses, shopping using a bicycle, use delivery service, refrigerate/freezer to cellar, more efficient refrigerator/freezer, change from electric to natural gas, wash dishes by hand, less rinsing, more efficient dishwasher.
- **Clothing:** Change from synthetic to cotton, longer wearing shoes (better quality), less frequent washing, more efficient washing machine, more efficient tumble dryer, apply line drying, sharing with other households, lifetime extension of appliances.
- **Housing:** Efficient heating and hot water systems, lower room temperature, efficient lighting, natural floor covering, lifetime extension furniture, less cut flowers as decoration.
- **Other Consumption:** Sharing daily and weekly papers with other households, sharing tools, sharing cars, driving less, sharing caravan, holiday nearby, holiday by train, other accommodation than hotels.

5.3 Conclusions:

Change pattern of consumption is a feasible way of reducing energy requirements. The call is for changed patterns of consumption not changed level of consumption. This is reasonable in the sense that it is more realistic to expect people to be willing to consume in a more responsible way than to reduce their level of consumption. Green travel - reduced car travel, increased car sharing, carpooling (travelling together), smaller and more fuel-efficient cars, increased use of public transport, trains, bicycles, and walking instead of using the car for short distances. Green housing - smaller, well insulated houses, efficient heating systems, renewable energy sources for heating, reduced indoor temperature, energy efficient appliances, reduced consumption of hot water, and reduced consumption of greenhouse grown seedlings, plants, and flowers. Green food consumption - reduced meat consumption, locally produced food (outdoor not greenhouse), seasonal fruits and vegetables, organically grown food, non- or low- processed food, and reduced consumption of junk food.

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