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Food Industry: An Introduction

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ABSTRACT

The food industry comprises a complex network of activities related to the supply, consumption, and catering of food products and services. It plays a significant role in the economic development of any nation. It is one of the world's most dynamic economic sectors. This paper provides a brief introduction to food industry

KEYWORDS: *food industry*

INTRODUCTION

Food is an essential part of our lives. The food industry is the basic and important to every nation. It is one of the seventeen national critical sectors of US economy. It plays a crucial role in public health, food safety, food security, social development, and nutrition. Product quality, health, and sanitation issues are major concerns in the food industry. Figure 1 shows the double pyramid which suggests a virtuous model to promote sustainable food choices for health and the environment [1].

The food industry covers diverse activities including food supply, production, harvesting, processing, packaging, transportation, distribution, consumption, and disposal. The development of the food industry began in the early 1900s.

The most lucrative areas of food industry are meat processing, vegetable and fruit processing, confectionery, dairy, sausages, wine, and bakery. The food industry is dominated by multinational corporations such as Krafts Foods, Cadbury, Heinz, Nestlé, Food World, DuPont, McDonalds, Pizza Hut, and KFC.

COMPONENTS OF FOOD INDUSTRY

The food industry in its entirety is not one industry but a collection of several types of industry producing a diverse range of food products. It covers farming, food production, food processing, preservation, packaging, distribution, retail, and catering. The food industry comprises comprise of the following components [2].

- **Agriculture:** This is the process of producing food, feed, fiber ,and other desired products. It includes crop farming, livestock raising, and fish farming. It also entails manufacturing of farm equipment, fertilizers, farm machinery and hybrid seeds to facilitate agricultural production.
- **Food Processing:** The majority of agricultural products is seasonal and perishable. Food processing is used to transform raw ingredients into marketable food products. It makes some food available all year round. Packaging protects food from the surrounding, extends food shelf life, and increases the quality of food.
- **Food Distribution:** This includes transporting, storing, and marketing food products to consumers. The food industry needs a transportation network to connect its numerous parts. Figure 2 shows how local foods can reduce transportation distances [3]. A wholesaler would purchase local produce and distribute it to a range of customers and clients.
- **Regulation:** There are regulations on food production and distribution to ensure quality and safety. These are restrictions imposed by government authority. There are some regulatory requirements that a food business must meet in order to operate. FDA is responsible for enforcing food laws and regulations.
- **Financial Services:** These include insurance and credit to facilitate food production and distribution. Insurance policies cover costly business disruptions commonly seen in the industry. Food accounting professionals work closely with all aspects of food industry to evaluate ideas and opportunities.
- **Research & Development:** Research on any aspect of food industry produces relevant information about that sector. The food serving sector has the largest potential of research and development. Research reflections may be on factors influencing consumer behavior, customers' buying choices, formation of attitude, and opinions. Companies need to have a deep understanding of how consumers behave [4].
- **Marketing:** Marketing is the primary vehicle for promoting information about food. Food marketing describes any form of advertising used to promote the purchase and/or consumption of a food or beverage. It

can influence food behaviors by moderating socio cultural elements of the food environment

FOOD INDUSTRY TECHNOLOGIES

Modern food industry uses a wide variety of sophisticated technologies. Agricultural machinery (such as tractor) has practically eliminated human labor in many areas of production. Robots have the potential to transform food processing, food handling, food packaging, and food serving. They have incredibly increased the productivity as compared to the manual production [5]. A typical example of how automation is used in food industry is shown in Figure 3 [6]. Block chain can be used to see where delays and waste occur in the supply chain for food products. Microwave heating or infra-red energy from a hot surface is widely used in food preparation. Evaporators are used in a number of food processing industries.

Metabolic engineering has been used for the production of carotenoids by different yeast cells. Ultrasound is another technique which offers the potential of non-invasive, hygienic measurement for the food industry. Nanotechnology has been used in food processing, food packaging, and food preservation. It has the potential to revolutionize agriculture and food systems [7]. Ozone has been used to disinfect water for various purposes such as drinking and swimming pools. Enzymes, the natural catalysts for chemical reactions, are produced by all living cells. They are used in food processing and the food industry,

Computer simulation is used in R&D in the food industry. It plays a key role in solving complex operational problems. For example, through the use of simulation, production and service aspects of Pizza Hut restaurant and delivery unit operations can be examined [8]. Computer networks (such as the Internet) provide the support infrastructure to allow global movement of food. The food industry is getting into the e-commerce game slowly. As consumers are shifting to a preference for online shopping, the food industry are finding ways to adopt e-commerce as part of their marketing strategies.

CHALLENGES

The food industry faces several challenges. Various areas of the industry have been criticized and the food industry works hard to discredit its critics. Challenges associated with the current food system such as climate change, pollution, manure disposal, soil and water damage, deforestation, environmental degradation, and strain on natural resources are forcing every country to create a more sustainable food system.

The food industry needs to deal with new legislation and increased regulation on environmental issues. The excessive use of fertilizers, pesticides, and food additives may adversely affect the environment and human health. Compliance with regulatory standards is an issue for many food manufacturers. As public shifts toward a greener planet, the food industry should implement green policies.

Bringing to market new products in a timely manner is difficult for many food companies. The process of creating new, relevant products and moving them through R&D, testing, and marketing to retail takes time. Consumers' tastes are fickle and targeting them is increasingly more crucial [9]. A big challenge facing the food is transparency. Consumers are reading the back of packages now more ever. They want to know what ingredients are going into their products. Their interest for transparency continues to hold food companies accountable. They are becoming more educated on the benefits of healthier choices [10].

Enterprises in the food industry are operating in a highly competitive, global environment and they must constantly engage in product development. They are in a state of change driven by cost of operations. This change is heading for automation solutions that can enable the industry to become more lean and agile [11].

The food industry is widely known as having strong economic and political power. It is creative in both its technological innovation and desire to satisfy the requirements of consumers, health professionals, and its critics. It is striving to economically and efficiently produce high quality products. It has also begun to take responsibility for healthy eating issues.

CONCLUSION

Food industry plays an important role in providing food for human consumption. It satisfies community needs with respect to availability, distribution and quality of food.

It is one of the world's most dynamic economic sectors as it changes rapidly. Most problems in the food industry can be solved with technology. More information about food industry can be obtained from the books in [12-15] and also from the journal: *British Food Journal* and *Food Industry Review*

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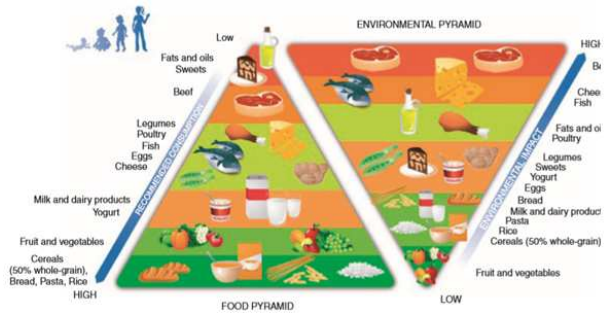

Figure 1 The double pyramid suggest a virtuous model to promote sustainable food choices for health and the environment [1].

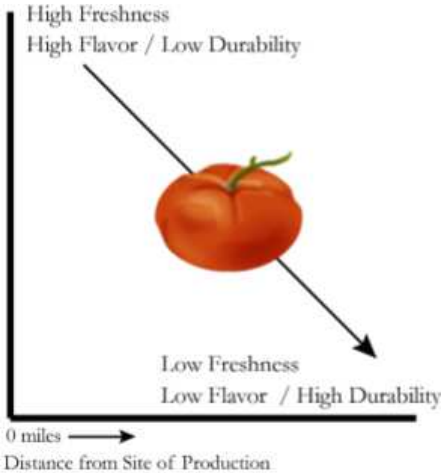

Figure 2 Distribution matrix [3].

Figure 3 Automation in food industry [6].