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Innovation in food service technology and its strategic role

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Abstract

Innovation in food service technology offers differentiation and cost leadership in strategic terms. The majority of food service businesses do not have research and development laboratories. At present, the innovations in equipment design and layout, packaging and service techniques are of a defensive or reactive nature. Examples of defensive innovation include faster and better preparation methods, improved temperature control, even heating, energy and labour savings, less waste, better sanitation, faster service and flexibility. In contrast, developments in offensive or pro-active innovation, which can radically change current practices, are rare. Novel food service processes can evolve as a result of adoption of technological breakthroughs in "high tech" fields of the economy. This justifies investments in offensive research and highlights the importance of technical competencies for a food service professional.

Keywords: Food services; Innovation; Technology; Equipment design; Packaging

1. Introduction

Food services generate the turnover of about $360 billion (US dollars) per year in the United States (Simpson and Carevic, 2004), the global figure is $1.3 trillion (US dollars) (Webber, 2004). The dual nature of food service operations incorporating manufacturing and service commands a variety of disciplines underpinning research and innovation in this field. The front-of-house operations can be analysed from the five-aspect viewpoint: the room, the meeting, the product, the atmosphere and the management control system. It is

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informed by ethnology, sociology, anthropology, business economics, nutrition, domestic science and public health; all of these elements constitute a new discipline called Culinary Art and Meal Science (Gustafsson, 2004). It supports art, creative thinking and handicraft in delivering an extraordinary aesthetic experience. The importance of the three main consumer-focused factors of food quality (meal context, expectations and eating location) was demonstrated experimentally by the significant difference in sensory evaluation scores for the same food items in different dining settings (Meiselman, 2003).

Consumer behaviour aspects and marketing research are dominating academic literature in food service management. The back-of-house operations informed by natural science, disciplines like engineering (physics and mathematics), food science (biology, microbiology and chemistry) and operations management (Rodgers, 2005), on the other hand, are often overlooked. The only technology covered extensively in tertiary hospitality curricula is "soft" information technology. Currently, there is a dearth of analysis of developments and topology of "hard technologies" related to equipment design and packaging.

Food production, the only manufacturing function in the hospitality sector (Jones and Lockwood, 2002), is increasing in volumes and becoming more technical (Meiselman and Edwards, 2001). Alfa Flight Services (in-flight caterer based in the UK, Europe, North America, Australia and India), for example, produce 60 million meals per year. A typical modern cruise ship, such as Disney Magic (Disney Cruise Line), would have the staff of over 120 chefs preparing about 10,000 meals per day (Anon., 2004b). Institutions such as educational/health/aged care and corrective facilities, on the other hand, cannot sustain so many cooks and rely heavily on technology to enable labour efficient centralised food production (New South Wales Health Department, 1996; New South Wales Health Department, 2005). At Omeida, a central production unit of the New York State Office of General Services that supplies 70 prisons, 14 staff members produce 198,000 meals per shift to meet the budget of $2.10 (US dollars) per inmate per day (New York State Department of Correctional Services, 2003). Thus, in large volume operations, innovations in "hard" technologies offer improved solutions in order to meet consumer needs, which are typically identified by researchers in the meal science.

This paper describes possible pathways for adoption of technological developments in other "high tech" branches of economy to food services and articulates directions of strategic innovation. Two stances in innovation—offensive based on revolutionary breakthroughs and defensive based on gradual evolutionary improvements—are identified. The paper concludes that offensive inventions can lift the industry's performance.

2. Pathways in innovation

In organisational terms, innovation involves the management of ideas, the provision of funding and implementation. In manufacturing, the separation of "the laboratory", (research and development department), and the rest of the organisation has three potential problems. First, the laboratory may ignore ideas arising in operating units; second, the organisation can be too engrossed with the current consumer needs that it does not appreciate far-reaching solutions suggested by the laboratory and third, the laboratory may not know the level of technical competency of the operating units in terms of their capability to implement the invention (Christiansen, 2000).

In food services, the majority of which are small businesses in comparison to food manufacturing, there are no research and development laboratories as such. The exception