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# A PROPOSAL FOR SMART RESTAURANT BUSINESS DEVELOPMENT

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## Abstract

The process that starts with the customer entering the restaurant and ends with the account payment refers to the restaurant management process. Various methods have been used in this process until today to increase customer satisfaction and reduce costs. Examples of these systems are the hand terminal of the waiters and the order terminals in the kitchens. It is observed that the new generation technologies that have entered our lives with Industry 4.0 have changed the restaurant business development and management processes. Therefore, the study focused on the potential usage areas of new generation technologies in restaurant business development and management process. In the study, suggestions were proposed about what the customers' expectations from the restaurants will be in the future in terms of the new technologies.

**Keywords:** New Generation Technologies, Smart Restaurant Management, Technology Trends.

## Introduction

Restaurant businesses are one of the sector where competition is most intense in the market due to factors such as rapidly changing fashion, variety of products, changing habits, and increasing business type [1]. In order to provide competitive advantage and to establish good relations with customers, to increase satisfaction, restaurants must serve in a quality and responsive manner [2]. Businesses have started to include information and communication technologies in their management processes in order to respond to changing customer demands, because new generation technologies increase customer satisfaction and shorten the costs and presentation process [3; 4].

In the Industry 4.0 revolution era, where new business technologies and business environments have changed, the use of technology has become more and more mandatory for restaurant businesses. Nowadays, since the use of smart phones has increased rapidly, businesses have started to use smart mobile applications. Because the enterprise can provide easier and faster service with its smart mobile application. New generation technologies such as Beacon, Internet of Things, sensors, 3D screens, kiosks, augmented reality, robots are now taking place in restaurants like smart mobile applications.

As Industry 4.0 technologies developed, studies and practices in this area have started to increase. Studies focuses on mobile applications of hotel chains [5], artificial intelligence issues in tourism industry [6], a mobile tourist guide for Cappadocia [7] and smart tourist card proposals for Antalya destination [8]. It is stated that the near field communication technology (NFC) for hotels in automatic check-in systems has importance. In this context, the aim of the study is to determine potential business development application areas with new generation technologies in restaurants.

### **Current Technology Applications in Restaurants**

Many of today's restaurant systems operate according to the logic of taking orders from customers by using hand terminals by waiters. This system does not contain all of them in terms of waiter-kitchen relations, waiter-customer relations, customer-kitchen relations. Some of the negative aspects of today's restaurant management systems are as follows [9].

- As the waiter orders without contact with the kitchen, disagreements that may occur between the two departments.
- When the waiter goes to the kitchen after receiving the order, both time is lost and the staff experience poor performance.
- Not all processes can be managed from a single point.
- Customers cannot follow the order, see the order amount and add additional notes to the order.
- Waiter-kitchen relations, waiter-customer relations, customer-kitchen relations not all together
- Failure to provide faster feedback using all the elements effectively.

In a study in the literature, the authors tried to create added value by providing technological services and functions for a restaurant in the USA. In the study, the issues of increasing the management performance, increasing the efficiency of the procedures, computerization of the procedures and reducing the operating costs more effectively through restaurant information systems [10].

Another study in the literature has examined in detail how to make the business more efficient and more flexible by using management control systems for a restaurant chain in China. Recycling, internal transparency, global transparency and flexibility, which are the basic principles of management control systems, addressed the things to be done to achieve efficiency and flexibility goals with simultaneous management control systems [11].

Information technologies play an important role in customers' ordering food in restaurants, making food ready and ready for presentation [12]. It is stated that with the inclusion of information and communication technologies in the product and the process, restaurant businesses will be different and strong in the market [13].

'FoodInk', which prepares its products and presentations with 3D printers, is named as the world's first 3D restaurant. 'Inamo' restaurant operated in London has received numerous awards in customer surveys because of its interactive projection supported applications at restaurant dining tables. In these smart tables using interactive projection, customers can play games, learn about the local environment, decorate their tables with pictures and graffiti according to their tastes [14; 15]. Some restaurant establishments integrate augmented reality applications into their menus through QR codes, thus enabling their customers to share their decisions by reading them from their mobile devices' cameras and rating the restaurant [16].

### **Suggestions for the Future of Restaurant Businesses**

Suggestions have been developed by addressing the business changes expected in the next generation technologies in restaurants in terms of purchasing, chefs, service personnel, guests, investors, technical equipment and waste management.

*In terms of purchasing:* Due to the smartness of all devices in the future, all the necessary purchasing materials of the restaurants can be automatically prepared thanks to the recipes uploaded to the system. It will be possible to automatically update the stocks by placing the materials in the

warehouse, or to automatically drop them from the stock by taking them for consumption with RFID technology or barcode of the existing main warehouse. When this consumption reaches a certain level, automatic order will be sent to the relevant supplier and unnecessary product stock can be prevented. It is possible with this technology that the products expiry dates can be automatically control, and the product lost due to deterioration, decay etc. can be prevented.

*In terms of chefs:* With the help of developing cooking technologies and automation, the future cooking units will take the relevant ingredients in the defined order and shape according to recipes and cook them with the necessary sauces and prepare them for presentation. Similar situation is valid for beverages, desired beverages can be prepared automatically by beverage vending machines according to alcoholic and non-alcoholic preference. In addition, the step-by-step visual preparation can now be done thanks to robots that imitate the human arm very well, and products can be prepared as if they were removed from the hands of a master bartender or chef.

*In terms of service personnel:* Waiters will have the opportunity to see past experiences and previous services about customers served by smartphones and smart software used in the restaurant. For instance; personalized services such as “is your steak undercooked as usual?” questions which will surprise the guest will be provided with big data. As soon as the guest arrives at the restaurant, it will be possible to convey the table he/she likes to sit before, the meals and drinks he likes and the more detailed personal information about the guest to the waiter.

*In terms of guests:* The guests who come to eat in the restaurant will be able to see the dishes they will order in 3D with the advanced hologram technology. Guests can see the most realistic images of dishes with the applications installed on their smart phones with augmented reality and QR codes added to the menus. In addition, it will be possible for the restaurant guests to see the ratings and comments on dishes before ordering them.

*In terms of investor:* It will be possible to provide maximum benefits in terms of material usage and personnel efficiency with smart phones and automation systems. Robotic technologies can be used in all stages from the order of the product to the cooking and even serving. In this way, profit maximization targeted by the investor will be possible. Restaurants will have advantages such as product standardization, taste guarantee, and correct portioning with the automation

*In terms of technical equipment:* It will be possible to identify the identity of the guests who come to the restaurant with facial recognition technology quickly and access personal information. In this way, it can be provided to meet the name of the guest. In addition, advanced sensors and special detectors will be able to control and report all kinds of quality and standardization of the product, both during storage, preparation and presentation. Dining tables will not only be a table where food is eaten, but will turn into a digital screen. Necessary orders and related menu information or distracting children near guests can be shared on this screen.

*In terms of waste management:* The use of smart devices will bring smart consumption, so that minimum food waste will be created thanks to the robots used from product supply to preparation. In addition, since these food and beverage products are prepared with robots, the energy amount used during cooking and the consumption during storage and post-production storage will be exactly as it should be. In this way, deterioration and rotting can be prevented due to the wrong storage temperature. In addition, it will be possible to provide products from the warehouse according to the expiration date with the smart software systems.

## **Conclusion**

The new generation technologies that steer the Industry 4.0 revolution have entered our daily lives quickly. Consumers now demand that these technologies be used in the industries. In this context, the service sector, which adapts rapidly to new technologies, has started to use new generation technologies. Due to the increasing competition in restaurants sector, new generation technologies have started to be used. In the study, suggestions about the potential of usage new generation technologies in restaurants have been proposed. In the next studies, the intention to use new generation technologies of both employees and customers can be measured with a survey.

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## ОСОБЕННОСТИ РАЗВИТИЯ РЕСТОРАННОГО БИЗНЕСА В РОССИИ: ФАКТЫ И ПЕРСПЕКТИВЫ

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