

## TECHNOLOGY APPLICATION IN THE SUPPLY CHAIN PROCESS OF THE FAST-FOOD RESTAURANT INDUSTRY

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### ABSTRACT

The technology applications such as Bluetooth temperature sensors, optimized schedule makers, digital inventory tracking, tabletop tablets, automated purchasing tool, and virtual reality are those technologies that are widely used in the supply chain process to improve efficiency, reliability, and reducing cost. However, these technologies have shown little attention in the development of improvement in the supply chain process of the restaurant industry. The research is exploratory, where a qualitative approach is appropriate using the in-depth interview was conducted among the restaurant owners in Sungai Petani, Kedah. The study identified company size, cost, and expertise of employees had influenced the technology adoption in the restaurant industry that requires further attention from the relevant authorities involved in the development of the restaurant industry. The finding is critical in supporting the restaurant industry to develop better resilience in this stiff competition business.

**Keywords:** *Supply chain management, Technology application; restaurant industry*

### 1. INTRODUCTION

Restaurants are an institution in nearly every country and every culture in the world. The restaurant is a business establishment that prepares and serves food and drink to customers that, in return, the customers must pay for money on the food and drink. Recently, many restaurant businesses are undergoing significant changes in business operation due to changes in customer behavior that require the restaurant to be more innovative by adopting the technology to increase the operation visibility by automating most of the operational activities that were done manually previously [2].

Keeping up with technology is crucial for the restaurant owner to stay competitive due to the low barrier of entry in this industry. Further, product quality, responsiveness, restaurant condition, and price are no longer significant attributes to differentiate the level of service [1]. Thus, technology application is critical in improving the business process [3] and provides an opportunity for the restaurant operator to enhance the service level to the customers and significantly differentiate their service from the competitor. However, the technology application in the restaurant industry is still in the infant stage and requires further investigation to understand the improvement in this area.

## 2. FACTORS INFLUENCE THE ADOPTION OF TECHNOLOGY APPLICATION IN THE RESTAURANT SUPPLY CHAIN

From the cash register to the kitchen, technology is an integral part of how restaurants operate. Innovators are constantly coming up with new digital solutions to make running a restaurant easier, faster, and more profitable. This technology revolution has turned once imagined solution into food service necessities, entirely transforming the restaurant business. There are five factors cited from previous study that are potentially influence the adoption of technology in the restraint business shown in table 1.

Table 1: Review of previous study

<b>Factor</b>	<b>Author</b>	<b>Description</b>
Organizational size	Varun Grover & Martin D. Goslar (1993)	The larger organizational size has capability to absorbed associated risk with the adoption of the technology.
Organizational performance	Eric Clemons, David Croson, & Bruce W Weber, (1996)	The performance of the restaurant can influence the flexibility of the restaurant to respond to a new technology and adjust the strategies to go along with the competitive practices.
Supply chain partners	Premkumar G, Katikireddy Ramamurthy, & Micheal R Crum (1997)	Is an inter-organizational factor that may influence adoption of the supply chain technology. For these supply chain partners, one firms that will initiates an adoption and force or entices other firms in the supply chain to adopt. When the technology has been adopted, it helps firms to standardize data formats and improve coordination and communication within and between the organizations of the supply chain.
Cost	Bikram Thapa (2014)	Transaction costs will change the way the firm organize their work. Technology in SCM helps in the reduction of cost through the reduction of the paper works, improved billing system, etc making the whole processes involved in SCM cost-effective.
Response time	(Bikram Thapa, 2014)	Technology in SCM helps response time in information acquiring and assessment a way faster than through manual system. So, the use of technology by using in database to track all the information an assess it can improve a better customer service.

## 3. METHODOLOGY.

This study uses a single analytical tool which is a qualitative approach to explore and understand the perspective of the respondent on the subject interest. To provide a comprehensive base for the analysis, this study was done based on the data collected using the in-depth interview. The choice of in-depth interview in this study is appropriate due to the limitation of information available on the subject research. A set of questionnaires was prepared based on the previous study as a guide or the interview session. To comply with the research ethic and to gain quality responses, only the managerial position of the selected fast-food restaurant was interviewed. These respondents have a

different exposure to the supply chain process which enriches the quality of the discussion. Five fast food restaurant which are MacDonal, Starbucks, KFC, Subway and Domino's Pizza restaurant were approached to answer the research question using the in-depth interview. The interview information was then transcribed and analyze used NVIVO Coding software to extract themes from the interview transcript which resulted shown in the following figures.

#### 4. RESULT AND DISCUSSION

The study had found that most respondents are aware of the availability of the technology and its application in their restaurant operation. Many of them have already applied some technology in their business, but only two respondents confirmed that they have an advanced application for online orders at the time of this study. However, the other respondent informed that there was a plan by the HQ to implement the same application soon. The finding also revealed that most of the respondents used the technology to increase the visibility of real-time orders which is the crucial input for sourcing and inventory management. However, only two respondents can explain the various technology application suitable for their operation.

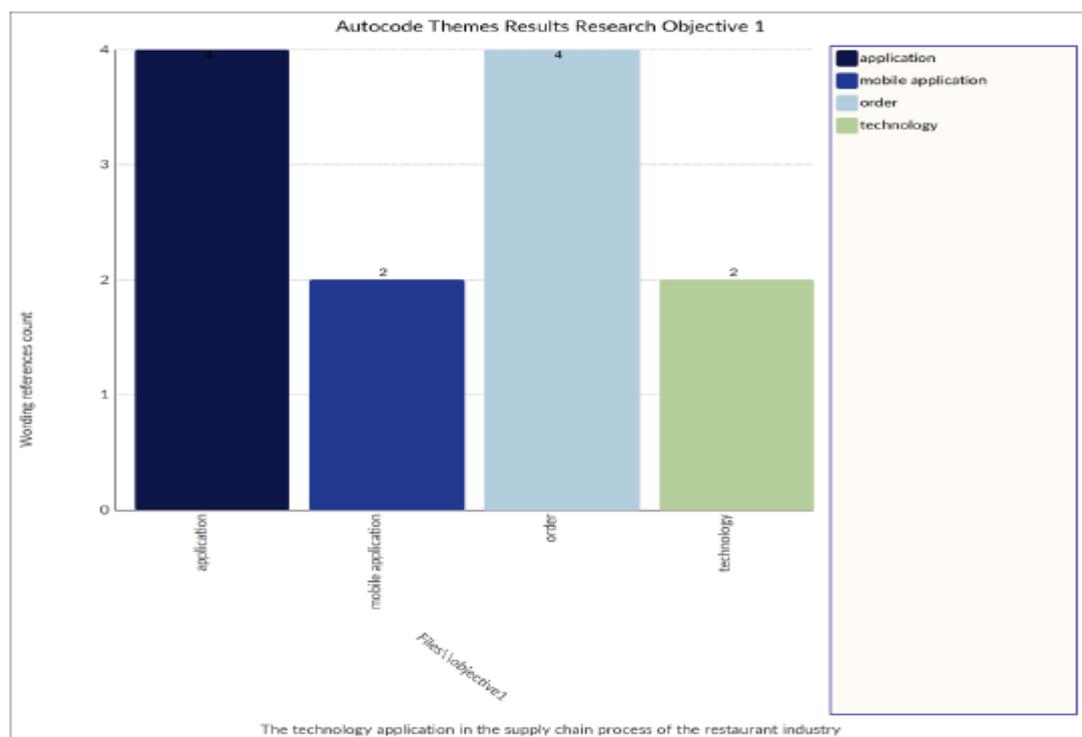


Figure 1: Code Themes Results for Research Objective 1

The study also investigates the barrier of the restaurant to adopt the technology for their business. The identified barrier are process, staff training, and the technology application itself. These barriers are the obstacle to the technology adoption confirmed by most of the respondents. The complex process in the food industry is always a concern among the respondents who expressed less confidence in the suitability of the application in the restaurant business. In addition, ensuring that each employee receives appropriate training to use the application of the technology is also an obstacle in this process. However, the biggest obstacle in the use of technology applications in restaurants is the readiness and knowledge of the applications to their business without inviting the risk of failure.

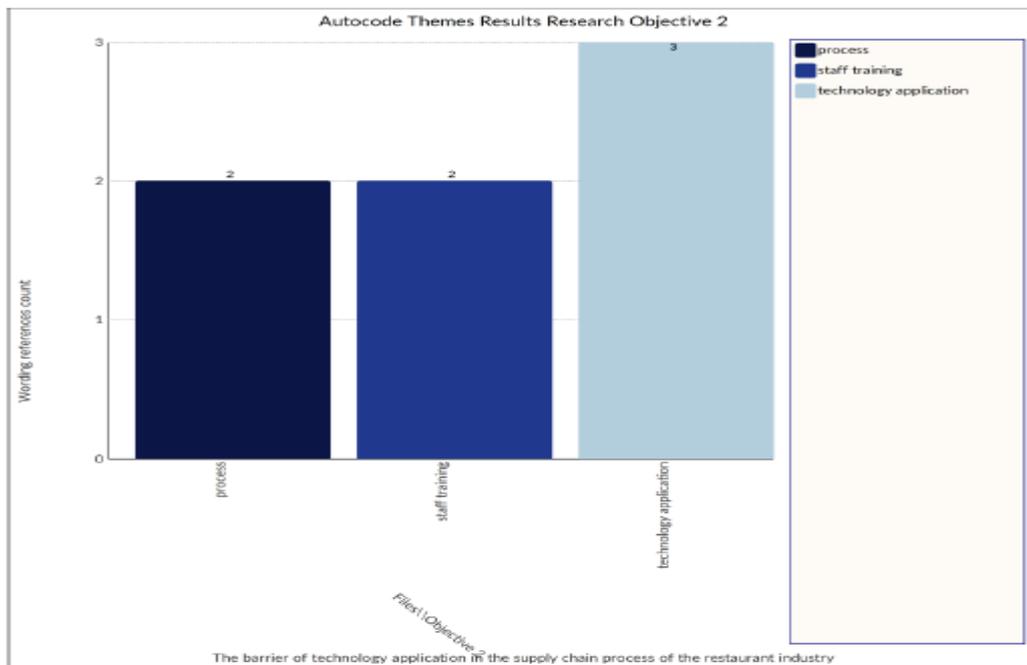


Figure 2: Code Theme result for Research Objective

This study has identified factors to influence the application of technology in the supply chain process of the restaurant industry. Those factors are the business organization, skilled workers, organizational size, costs, and technology applications. Further examination shows that cost and application of technology are the main measuring factors of the decision of the use of application of technology in fast food restaurants. The ability of an organization to grow depends a lot on that organization itself. Dynamic and flexible organizations are easier to adapt to changes in a competitive market. Competitive organizations also often have a lot of capital and employees in them. As noted by [8], organizational size typically has a relationship with their ability to invest in improving the effectiveness and efficiency of their organization. Technology applications also help employees communicate with each other to demonstrate desirable performance in the organization. So, the use of technology applications in their restaurants will help improve the performance and effectiveness of the organization. But the main push for the adoption of technology applications in the fast-food restaurant industry is cost [9]. The use of technology applications in the restaurant industry should back up by skilled workers that are important for operating and managing the system [10].

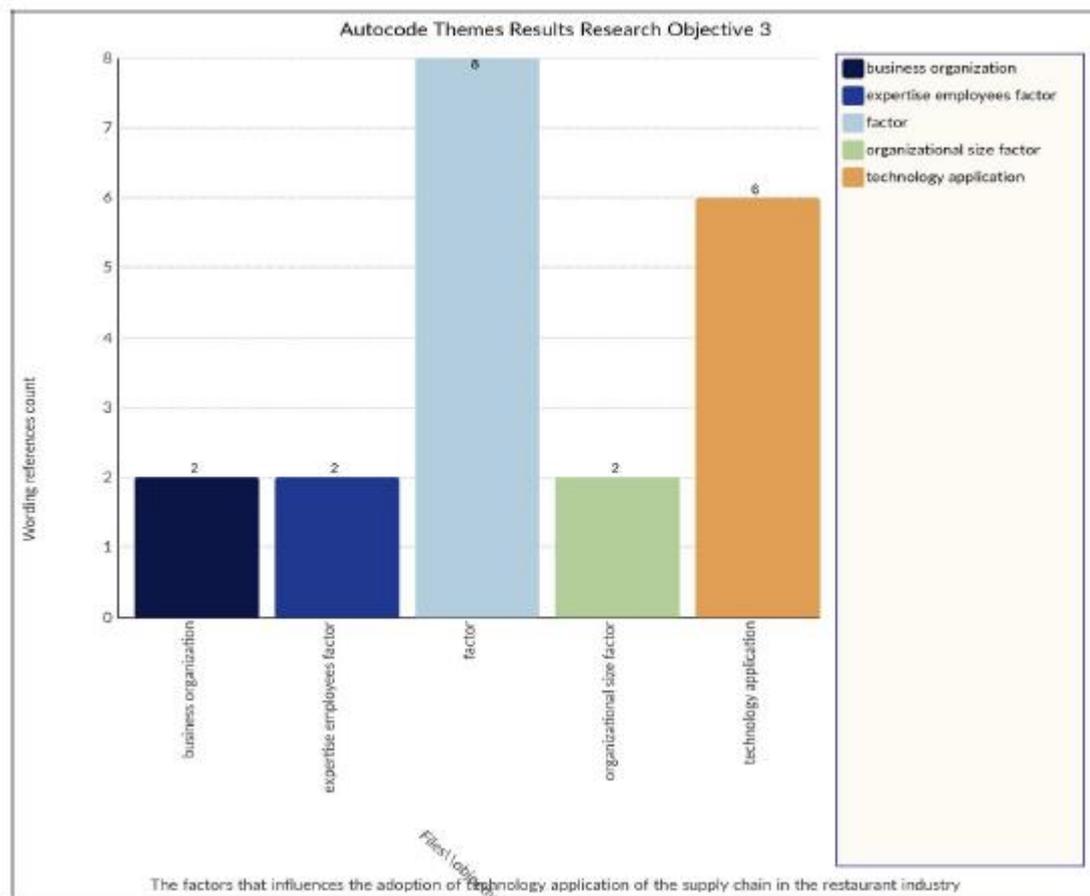


Figure 3: Code Theme for Research Objective 3

## 5.0 CONCLUSION

The technology application as innovation empowering agents in the restaurant industry had proven improved the restaurant operation from ordering to serving which manages to diminish labor and expands effectiveness in its activity. The recommendation of future investigation likewise brings up to help shortcoming which is being recognized well through this exploration. The researcher trusts that this research will be one of the references for future exploration to improve the technology application in the restaurant industry.

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