

The study on Analysis of factors of restaurant start-ups using big data

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Abstract

The restaurant industry is an industry with low entry barriers, and furthermore, it is an indispensable industry in life. However, for the restaurant industry, it is necessary to start a business considering many factors. In particular, the comparative group for each restaurant industry is different, and the commercial area analysis should be analyzed differently. Moreover, counseling for restaurant start-ups is still sticking to how to start a restaurant by meeting with each franchise supervisor or counselor. Therefore, a restaurant start-up chatbot is needed for prospective restaurant founders, and a food tech chatbot is needed to collect basic data.

Therefore, in this study, factors for restaurant start-ups were divided into youth, preliminary start-ups, menus, taste, and food. In the case of restaurant start-ups with low entry barriers, it was confirmed as the most preferred start-up by young people. However, indiscriminate restaurant start-ups not only increase the closing rate but also have a significant impact on household debt, so accurate consulting should be used to lower the closing rate and increase the success rate. Furthermore, theories and measures for food technologies such as chatbots should be further developed to obtain accurate information on franchise start-ups.

Keywords: Food-Tech, Restaurant, Start-up, Bigdata, Start-up factors

1. Introduction

The restaurant industry is an industry with low entry barriers, and furthermore, it is an indispensable industry in life. However, for the restaurant industry, it is necessary to start a business considering many factors. In particular, the comparative group for each restaurant industry is different, and the commercial area analysis should be analyzed differently. And many things vary depending on whether you are going to start a private restaurant or start a private restaurant through a franchise. This paper aims to confirm how the impact on restaurant start-ups is considered for prospective restaurant start-ups. There are many restaurant start-up tools,

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but prospective restaurant start-ups are wasting time and money for start-ups by confusing factors to consider. Therefore, we would like to check the factors of restaurant start-ups in big data and deliver accurate information to prospective restaurant start-ups.

2. Experiments

2.1 Food Tech

The concept of start-up is defined in various ways. Timmons (1990) defined it as a "human value creation activity that creates new things that have not existed before" as three start-up factors: opportunity recognition, resource desire, and founder. In other words, the act of acquiring an existing business and the start-up should be distinguished from the start-up. Start-up is the act of establishing a system or organization that uses capital to produce goods and services set in business ideas and plans. (Park Choong-yeop) By laying the foundation for a business, a business idea and business goal was established. It is to establish a new company that has never existed before, to establish a system that allows founders to organize ideas to gain profits, to produce goods or services with management resources such as manpower and capital at appropriate opportunities, and to establish a company.

According to domestic research, start-ups are a process of creating and seeking opportunities through review of existing industries, challenging new fields, creating value and cash flow over a long period of time, expressing vision and passion with risk and will, and systematically combining raw materials, people, spaces, and machinery to make money. Drucker defined a start-up as an innovative act that has the ability to generate new profits and puts all existing resources.

2. Big Data

McKinsey, a global consulting firm, defined big data as "a dataset scale that goes beyond the ability to collect, store, manage, and analyze data from typical database management tools." IDC (IDC: Industrial Development Corporation, 2011) defined the task of performing data processing with "next-generation technologies and architectures designed to extract value from a wide variety of large-scale data at low cost and support ultra-fast collection, discovery, collection, and analysis of data." [9] Since then, big data has been defined as 3V (Variety, Velocity, Volume) as a property that processes large amounts of data quickly, with tens of terabytes or tens of petabytes or more.[10] In recent years, whether the collected data has a value to analyze or whether there is a characteristic of visualizing and presenting processed valuable information to consider data quality. Among them, it is important that big data has not existed until now, but as technologies for handling many different types of data have developed, structured, semi-structured, and unstructured data can now be different, resulting in new values from the numerous scattered data.[11]

3. Results

This paper aims to analyze keywords for restaurant start-ups using social media big data Textom to identify recent trends and perceptions of consumers and trends in restaurant start-ups. It is collected from Facebook linked to major social media such as Naver, Daum, and Google's additional services such as cafes, blogs, and Knowledgein. Keywords that appear together as keywords for restaurant start-ups are collected and frequency analysis is conducted through the frequency of appearance. Words such as conjunctions have been deleted.[6] To analyze consumer perceptions in more depth and detail, we apply CONCOR analysis that distinguishes structural equivalence based on correlations between keywords.[7] Through this, related attributes form similar

clusters between keywords, and the meaning and characteristics of the clusters are explained. In this paper, key keywords are derived based on words derived through the data purification process and the relationship between them is analyzed by collecting data from SNS except for the "restaurant start-up" keyword.[8]

4. Discussion

1) Big Data Analysis of "Restaurant Start-ups"

Big data analysis of restaurant start-ups was conducted by analyzing restaurant start-ups as central words. Moreover, due to COVID-19, the collection period was set from 2020 to 2023. The figure 1. below shows the number of collections within the collection period.

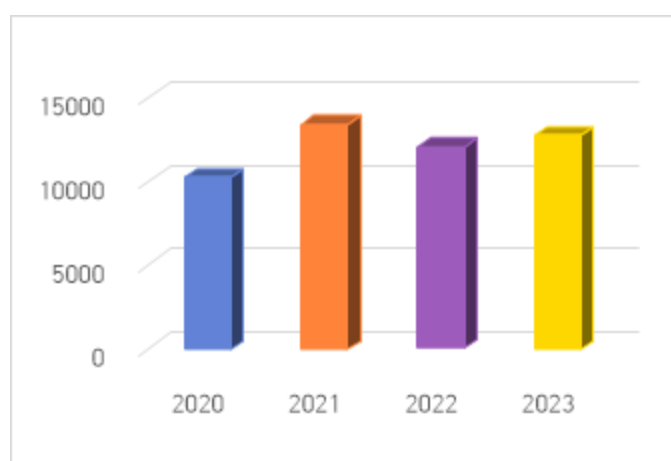


Figure 1. Number of collections within the collection period

When analyzing restaurant start-ups as a central word, there were 1,0301 cases in 2020. The number was 1,3428 in 2021, 1,2029 in 2022, and 12,901 in 2023. Due to COVID-19, awareness of restaurant start-ups decreased in 2020, and restaurant start-ups were prevalent in 2021 due to restaurant start-ups and shared kitchens, but in 2022, the number of collections of restaurant start-ups decreased as COVID-19 spread again. In 2023, it was found that the number of collections increased as the awareness of restaurant start-ups increased as the Corona gradually decreased. Next, the top 30 words were analyzed to analyze the factors for constructing the chatbot. The table 1. below is the top 30 words.

Table 1. top 30 words

Ranking	Word	Freq.	Ranking	Word	Freq.
1	Startups	33645	16	Dining Room	1697
2	Eat out	24231	17	Scene	1675
3	Menu	9049	18	Success	1643
4	Cooking	6445	19	Foody	1527
5	Youth	5802	20	Delivery	1507
6	Cook	3896	21	Planning	1468
7	Kitchen	3826	22	Product	1431

8	Preliminary	3544	23	Tradition	1386
9	Education	3480	24	Space	1311
10	Franchise	2459	25	Covid-19	1296
11	Food	1973	26	Café	1271
12	Maeketing	1930	27	Market	1249
13	Brand	1852	28	Recipe	1231
14	Sale	1741	29	Item	1152
15	Major	1721	30	Finger food	1146

When analyzing the top 30 words, it was confirmed that the number of users who can use food technology increased as the 5th-ranked youth increased their awareness of restaurant start-ups. The No. 10 franchise was identified as a word for most prospective restaurant start-ups to start franchises that are well known to the public rather than individual restaurant start-ups. And the 13th-ranked brand also confirmed in the same context. It was confirmed that the 20th place delivery company also prefers industries that deliver a lot depending on the industry.

5. Conclusion

In the restaurant industry, food technology that combines eating out and IT is developing through IT development along with the development of the fourth industry. Food tech, which is famous in the restaurant industry, is combining food technologies such as robot arms that make coffee for one-person restaurant start-ups with eating out devices that incorporate AI such as serving robots. However, with the development of food technology, devices incorporating AI are developing, but food technology for restaurant start-ups is still insufficient. Moreover, counseling for restaurant start-ups is still sticking to how to start a restaurant by meeting with each franchise supervisor or counselor. Therefore, a restaurant start-up chatbot is needed for prospective restaurant founders, and a food tech chatbot is needed to collect basic data.

Therefore, in this study, factors for restaurant start-ups were divided into youth, preliminary start-ups, menus, taste, and food. In the case of restaurant start-ups with low entry barriers, it was confirmed as the most preferred start-up by young people. However, indiscriminate restaurant start-ups not only increase the closing rate but also have a significant impact on household debt, so accurate consulting should be used to lower the closing rate and increase the success rate. Furthermore, theories and measures for food technologies such as chatbots should be further developed to obtain accurate information on franchise start-ups.

Through this study, I think that the restaurant start-up chatbot will be able to convey accurate information and increase the success rate of restaurant start-ups as young people are increasingly willing to start restaurants.

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