Digital Transformation in Catering Industry: Current Developments and Policy Recommendations

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Abstract: *Macau, China is a Creative City of Gastronomy. The catering industry is an essential industry for the development of the tourism economy and people's consumption. Digital transformation is the key to promoting the high-quality development of the catering industry in Macau, China. The specific performance of the digital transformation of the catering industry in Macau integrates digital application scenarios such as mobile payment, online food takeaway, digital operation and management, and digital marketing methods into the internal processes and sectors of catering enterprises. They are using data elementization as the main driving force to improve the productivity and service quality of catering enterprises. This article uses SPSS statistical software to construct a unary linear regression model, and the analysis concludes that the degree of digitization in the catering industry has a positive correlation effect on the reduction of internal operating costs in catering enterprises. Policy recommendations to promote the digital development of Macau's catering industry were proposed in the study, mainly including the establishment of a favourable business environment and system, strengthening the supervision of data security, enhancing the cultivation of digital talents, and improving relevant digital support policies.*

Keywords: Macau's catering industry, digital transformation, SPSS, linear regression models

1. Introduction

With the development and application of big data, cloud computing, artificial intelligence, digitalization, networking, and intelligence are the primary trend in today's social development. It has penetrated all fields of the business economy. The enterprise management model from the previous industrial era is gradually transforming into the digital management model. The enterprise digital transformation can reduce the costs of manufacturing enterprise by 17.6% and increased revenue by 22.6%, it can reduce the costs of logistics service by 34.2% and increased revenue by 33.6%.[1] The integrated development of the digital economy and the service economy helps the catering industry use digital technology to overcome the shortcomings of low service efficiency, high operating costs and inconsistent dish standardization, and to facilitate the digital transformation and upgrading of the catering industry and the high-quality development of the social economy.

On 1st November 2017, Macau, China was designed as a "Creative City of Gastronomy" by UNESCO (The United Nations Educational, Scientific and Cultural Organization). As a creative city of gastronomy, Macau has a wide range of cuisines, from starred restaurants to street food and gathering cuisines from different countries. According to recently released statistics from the Macau Statistics and Census Service, as of 2022, there were 4,725 catering industry establishments in operation (including restaurants, takeouts and market -cooked food stalls), and practitioners are more than 36,000 people. The revenue of catering industry was MOP$10.3 billion, and the total added value contributed by the catering industry to Macau's economy was MOP$2.84 billion in 2022, [2] making catering industry as one crucial pillar industry in Macau. As the number of mainland tourists visiting Macau continues to rise after the end of the COVID-19 epidemic, the number of mainland tourists was 19,049,147 in 2023, an increase of 270% compared to the 5,105,935 mainland visitors in 2022. The total visitor expenditure (excluding gambling) was MOP $71.25 billion in 2023, of which the catering category accounts for 18.9% of the tourist expenditure structure, that is the tourist expenditure for catering was MOP$13.47 billion. As a tourist city, the diversified development of Macau's catering industry is an indispensable part of promoting the region's tourism economy.[3] According to the latest report of the 53rd "Statistical Report on the Development Status of the Internet in China" published by the China Internet Network Information Center (CNNIC), as of December 2023, the number of users using online payment in China had reached 954 million.[4]

Therefore, facing the considerable mainland consumer groups and resident consumer groups, the digital transformation of Macau's catering industry is an inevitable development trend and opportunity. The connotation of digital transformation of catering enterprises is the process of using the core and innovative elements of digital technology to integrate the production, products, consumption, marketing management, operation management and takeaway platform ecology of catering merchants. Digital technology drives the innovation of catering enterprises' business models and business organizations, [5] improves the marginal efficiency of the catering industry, enhances productivity and upgrades consumer service experience, upgrading consumers' consumption structure. Thus, the digital transformation of the catering industry is of great significance and benefit maximization for Macau's economic development.

2. Current Status of Digital Transformation Development in Macau's Catering Industry

2.1. Popularising the Use of Mobile Payments

In August 2017, the Macau SAR Government and Alibaba Group signed the "Framework Agreement on Strategic Cooperation for Building a Smart City", which aims to promote the construction of a smart city in Macau, China through Alibaba's leading cloud computing, big data application and other related technological capabilities. In the long run, Macau will develop into a smart city that uses digital technology to lead technology and intelligently serves people's livelihoods. Among these, in the sub-project of "Big Data Application Project for Integrated Urban Management and Services", the development of mobile payment technology is undoubtedly the practical project closest to people's lives. Mobile payment is an essential part of Macau's development as an intelligent city. It uses mobile terminals such as mobile phones and handheld PDA terminals as tools to enable consumers to achieve the process of purchasing products or receiving services through mobile communication networks. Currently, the primary providers of mobile payment services are financial institutions and other cooperative institutions offering mobile payments to provide a safe and secure contactless payment experience.[6]

To encourage and promote offline electronic payment among merchants, residents and tourists, the Macau SAR Government implemented the policy of integrated payment to facilitate people and businesses. The Macau SAR Government launched the aggregated payment system "Simple Pay" on 8th February 2020. "Simple Pay" is the Monetary Authority's cooperation with banks and payment institutions that provide local QR code payment services to interconnect their payment systems, allowing catering enterprises and merchants in other industries to use one terminal or one QR code signage that accepts all local QR code payment tools and is compatible with a variety of mobile payments including WeChat Pay, Alipay, Macau Mobile Banking, etc. It solves the problem of catering enterprises placing and operating multiple different terminal devices at the checkout counter to support various electronic payment methods. It simplifies the reconciliation process between catering enterprises and banks and payment institutions, and the management of corporate funds, etc. At the same time, citizens and tourists can also freely choose any QR code payment tool to make payment, which helps enhance the experience of the citizens and tourists in using mobile payment. Local mobile payments in Macau have rapidly become popular and become increasingly convenient. By 2021, 90% of merchants in the retail and catering sectors in Macau had installed mobile payment devices and upgraded the "Simple Pay" system,[7] and benefiting from Macau with the popularization and application of electronic payment, the number of people who have ever used banking services or mobile payment in 2023 will be 449,20, an increase of 17.3% compared to 2022.[8] The number of local mobile payment transactions in Macau reached 30 million in 2023, with a transaction amount of MOP$28.15 billion, an increase of 9% compared to the transaction amount in 2022.[9] The amount of mobile payment transactions have reached another peak, which has a significant impact on the development of Macau's digital economy.

2.2. Food Delivery Platforms Accelerate the Digital Transformation of the Catering Industry

Catering enterprises are gradually increasing their awareness of digital services. Among them, the new online mode of developing customer sources through food delivery platform channels is the most sensitive, accounting for 47.3%.[10] The COVID-19 epidemic that began in 2020 has promoted the development of food delivery platform services, pushing and accelerating more and more catering enterprises to start the process of digital transformation. The business model of integrated online and offline development in the catering industry is becoming more and more popular. The opening of food delivery platforms has had a positive impact on the total sales and takeout sales of catering enterprises, and the total order volume and takeout order volume of catering enterprises have both significantly

increased. Food delivery platform services provide catering enterprises with a new way of operating. By expanding consumers' spending power, they can reduce the cost of delivery services for catering enterprises, which is beneficial to the overall operations of catering enterprises.[11] Nowadays, online food ordering and delivery services have become a general trend in Macau, China. Under the catalysis of the epidemic, the food delivery platform industry is becoming a rigid need for local consumer groups and tourist groups. According to data from the Macau Statistics and Census Service, the number of people purchasing food and beverages via the internet from 2021 to 2023 is 73.3 thousand, 107.2 thousand, and 117.2 thousand, respectively. The development of food delivery platform enterprises has an impact on the promotion role of digital transformation in the catering industry, which is becoming more and more prominent.

In recent years, the development of food delivery platforms in Macau, China has become increasingly mature. Food delivery platforms have enabled catering enterprises to connect with a large number of online consumers, expand their service radius and quickly reflect the effects of increased customer flow and profits. Therefore, so many catering enterprises have entered into food delivery platforms to expand their customer sources. There are currently three major food delivery platforms in Macau, including "Aomi", "mFood" and "Tikbee". In November 2016, the food delivery business of the Aomi App officially launched. By 2023, the cumulative number of Aomi App users had exceeded 5.3 million, with more than 75,000 daily active users. Currently, it cooperates with more than 4,800 catering enterprises, with monthly sales exceeding 105 million, and reaching a market share of 90%,[12] and mFood's food delivery business was also officially launched in 2010. As Macau's food delivery platforms launched one after another, it promotes the intelligent digital upgrade of the catering industry, opening the door to the digital economy for the Macau food delivery market and deriving more new digital marketing forms in the catering industry. To this end, Macau food delivery platforms and catering enterprises should seize the development opportunities of the digital economy, formulate a more effective and win-win platform strategies, and promote the continuous innovation in online and offline integrated commercial business models.

2.3. Policies Drive Digitalization in the Catering Industry

The Institute of Quantitative and Technical Economics of the Chinese Academy of Social Sciences (CASS) conducted research and a survey on the use of digital products by catering enterprises in 2020. The survey results show that catering enterprises are more tend to use digital marketing products based on online ordering, online advertising and promotion, etc. In contrast, the use of digital products such as higher-cost back-end operation systems have a lower usage rate.[13] Macau, China's catering industry has a large proportion of small and medium-sized enterprises. Employees generally rely on labour input, and the overall production efficiency of the industry is not high.

To enhance the competitiveness of the catering industry and support catering enterprises in technological and management reforms, the Macau SAR Government has launched several rounds of the Macau catering industry back-end electronic funding scheme since 2021, which was used to install or upgrade catering back-end electronic systems in the catering industry, such as the takeout order receiving system and intelligent order distribution system that can classify and transmit the information of customers after placing orders online or offline to different food preparation areas, effectively reducing service personnel's errors and increasing the speed and efficiency of meal delivery. Intelligent ordering systems and mobile phone POS machines speed up ordering and reduce the error rate of ordering, the intelligent statement system reduces the workforce required in the checkout process, and the intelligent inventory management system allows purchasing staff to manage store inventory more conveniently and rationally. Moreover, the smart management system can quickly obtain operational data, allowing operators to make quick decisions. The application of a large number of digital systems in the process of catering service can effectively improve and enhance the operational efficiency and service levels of enterprises.

The Macau SAR Government will continue to pay attention to the development of the catering industry, continue to study and launch support measures for the intelligent upgrading of catering enterprises, and formulate directions and strategies for the sustainable development of the catering industry.

2.4. Using New Media for Advertising and Promotion

As online streaming media platforms, social media platforms and short videos become increasingly

mature, consumers' information collection and selection activities are also gradually transferred to mobile terminal platforms. The mutual promotion of consumers' information collection and selection activities not only improves the convenience for consumers to obtain information, but also enriches the channels for information sources.

Under this trend, the active management of new advertising channels and through short videos or online live broadcasts as advertising and marketing methods to attract traffic is also a new competitive advantage for catering enterprises.

For example, the life service platforms represented by "Douyin", "Xiaohongshu" and "Dianping" have become important ways for many consumers to obtain information about life services. More convenient information acquisition channels increase the exposure of various enterprises and accelerate the marketization and scale-up process of unique and more subdivided services.[14]

To continue to optimize the business environment for catering enterprises in Macau, China, the Macau Economic and Technological Development Bureau has cooperated with the regional chambers of commerce to implement the "Distinctive Shops Programme", a total of 212 merchants have recognized as distinctive shops since 2020,[15] including the catering industry and retail enterprises, of which catering enterprises account for the majority. The Macau Economic and Technological Development Bureau has utilized new promotion methods such as short videos and live broadcasts, especially new traffic attraction techniques such as "Internet celebrity live broadcasts" and "Youtubers visiting stores", and conduct soft publicity on new media channels such as mainland short video platforms "Douyin" and lifestyle platforms such as "Xiaohongshu". At the same time, the Macau Economic and Technological Development Bureau has helped speciality catering enterprises to join the mainland's lifestyle consumption platform "Dianping" and use digitalization new media for marketing and promotion, which helped speciality catering enterprises to convert online traffic into offline sales. According to platform data, the exposure of speciality catering enterprises in the first two months of 2023 increased by nearly 50% compared with the same period last year, and the number of shares of speciality catering enterprises also increased by almost 40%.[16] The data shows that online promotions in the past have significantly increased the exposure and popularity of catering enterprises, achieved digital upgrading and transformation, promoted catering enterprises to improve their overall service levels and brand image in the long run, and also brought positive benefits to the promotion of community economy.

2.5. Comprehensive Improvement of Catering Digitization

In the development process of the digital economy, data elements are primary resources and essential production factors. As an essential factor of production, the role of data in creating value has become increasingly prominent. Through the process of value co-creation on digital platforms by stakeholders such as manufacturers or suppliers, customers and digital platform operators, to meet customer needs and achieve collaborative development of business and digitalization. The formation of a data-driven digital business model and digital platform ecosystem has become an essential force for the sustainable development of enterprises and maintaining competitive advantages.[17] Data, as a production factor for the digital transformation of the catering industry, will become an essential force in promoting the digital transformation of the catering industry. As the digital infrastructure of Macau, China's catering industry gradually improves, supply chain digitization, management digitization, marketing digitization and consumption digitization develop rapidly, through the integration of database resources by catering enterprises, platform enterprises, industry associations, etc. Using of big data, artificial intelligence, cloud computing, 5G and other information technologies to analyze and continuously improve big data in the catering industry. It maximizes the reduction of corporate operating costs and enhances enterprise operating efficiency and service quality. On the one hand, data elementization helps catering enterprises provide personalized catering services to consumers. By analyzing the category of dishes, time and other information ordered by customers, data elementization provides solutions for catering enterprises to optimize the meal structure and provide dish recommendations to consumers. It can more efficiently provide menus and restaurant recommendations based on personal taste preferences, and provide two-way personalized and customized services. On the other hand, data elementization offers digital solutions for catering enterprises. Big data services based on catering consumption scene provide catering enterprises with more accurate catering supply solutions. From ingredient procurement, processing processes, customer management to optimizing consumer experience, etc. Digital technologies can provide support and guarantee for the digitalization of the catering industry.

3. Correlation Analysis of the Development of Digital Transformation on Operating Costs in Macau's Catering Industry

3.1. Analytical Principles of a Unary Linear Regression

A unary linear regression is a relatively simple regression model in data analysis that describes the degree of influence of a change in one numerical variable on another numerical variable. The unary linear regression model is expressed in mathematical form as follows:

$$Y = \beta_0 + \beta_1 X + \varepsilon$$

Among them, X represents the controllable independent variable, also known as the explanatory variable. Y represents the dependent variable, also known as the explained variable. β_0 and β_1 are the unknown parameters. ε represents the influence of uncertain random factors on the dependent variable Y, which is called the error term. In general, the random factor ε is unpredictable, and it is usually assumed the mean of ε is 0. Variance of σ^2 is normal distribution and obeys a normal distribution N (0, σ^2) of unobservable random variable.

The function of regression analysis is to estimate the unknown parameters β_0 and β_1 through the sample observation values (X_i, Y_i), and the estimated values express as $\hat{\beta}_0$ and $\hat{\beta}_1$.[18]

3.2. Analysis of the Use of Mobile Payment Tools to Reduce Operating Costs in Catering Enterprises

Mobile payment is one of the important tools for the digital transformation and development of Macau, China's catering industry. The number of mobile payment machines installed by catering enterprises and other service industries can be measured as one of the important indicators for the development of Macau's overall smart city, which also has a certain effect on reducing the operating costs of catering enterprises. Therefore, it is intuitively believed that the use of mobile payment tools by catering enterprises should have a specific relationship with reducing business operating costs.

The data used in this paper are the number of machines and QR code signs that accept mobile payments, the operating costs of catering enterprises and the number of catering enterprises in Macau from 2018 to 2022, as shown in Table 1.

Table 1: Statistics on the number of restaurants using mobile payment systems and operating costs in 2018-2022. [a]

Year	Cumulative number of mobile payment systems used in catering and retail industries [b] (×10K)	Proportion of the number of catering enterprises (%)	Adjusted cumulative number of mobile payment systems used by catering enterprises (×10K) X	Catering enterprises' operating costs [c] (million MOP)	Average operating costs per catering enterprise (million MOP) Y
2018	2.400 [d]	12.7	0.305	3,226	1.423
2019	12.366	12.9	1.601	3,219	1.375
2020	23.487	13.2	3.101	2,754	1.132
2021	33.509	24.5	8.206	3,768	0.780
2022	37.401	23.0	8.600	3,665	0.776

a: Statistical data from the Monetary Authority of Macau and Statistics and Census Service.
b: Including the number of mobile payment machines and QR code signage.
c: Operating costs exclude purchases and employee expenses.
d: Estimated data.

To understand the relationship between the use of mobile payment systems by catering enterprises (X) and their internal operating costs (Y), a scatter plot was drawn using the statistical software SPSS (Statistical Product and Service Solutions), as shown in Figure 1.

From the scatter plot in Figure 1, it can be seen that as more and more catering enterprises use mobile payment systems, there is a significant downward trend in the overall catering industry's internal operating costs. It is initially judged that there is a linear negative correlation between the cumulative number of mobile payment systems used by catering enterprises and internal operating costs.
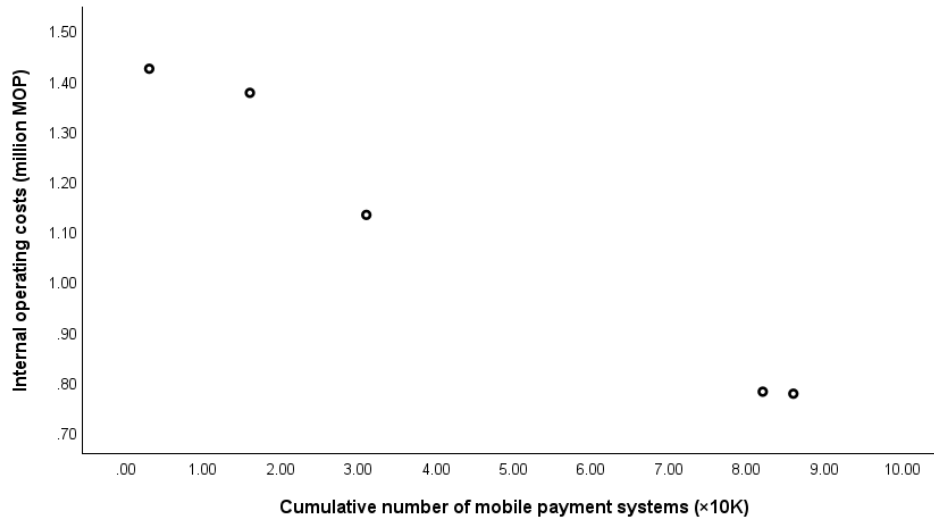
Figure 1: Scatter plot of the relationship between cumulative number of mobile payment systems used by catering enterprises and internal operating costs.

Using SPSS to establish a linear regression model, the linear relationship between the cumulative number of mobile payment systems used in the catering industry and internal operating costs is shown in Table 2.

Table 2: Linear Regression's coefficients.[a]

Model	Unstandardized Coefficients		standardized Coefficients	t	Significance
	B	Standard Error	β (Beta)		
Constant	1.449	.037		38.721	<.001
Cumulative number of mobile payment systems used	-.081	.007	-.990	-11.948	.001

a. Dependent Variable: internal operating costs

The final regression equation obtained according to the analysis results is:

$$Y = 1.449 - 0.081X \qquad (1)$$

3.3. Statistical Tests and Residual Analysis of the Model

(1) Variable significance test (t-test)

To explore the significance of the regression coefficient, a t-test was conducted.[19] It can be seen from Table 2 that P=0.001<0.05, i.e., the independent variable of the cumulative number of mobile payment systems used in the catering industry has a significant effect on the dependent variable of the internal operating costs of the catering enterprise.

(2) The goodness of fit test for regression equations (R-test)

To test the fitting degree of the regression equation to the data, the regression equation was further tested for the goodness of fit. It can be seen from Table 3 that R^2=0.979 and the adjusted R^2=0.973, indicating that 97.3% of the reduction in internal operating costs of catering enterprises is caused by the use of mobile payment systems in the catering industry. The value of R^2 is close to 1, indicating that the regression equation has a better fitting effect.

Table 3: Goodness-of-fit test (R-test).

Model	R	R Square	Adjusted R Square	Standard Error of the Estimate	Durbin-Watson
1	.990	.979	.973	.051614	2.808

(3) Significance test of a regression equation (F-test)

To explore the significance of the regression equation model and whether the linear relationship between the dependent variable and the independent variable in the model is significantly established, the F test was conducted.[19] It can be seen from Table 4 that F=142.765, setting the condition of α=0.05 under the condition of P = 0.001<0.05. At the same time, finding the F distribution table shows that the critical value Fα (1, n-2) is $F_{0.05}(1, 3)$ =10.128. By comparison, we can see that the value of F is much larger than Fα, so the regression equation model has a significant linear relationship.

Table 4: Analysis of variance (ANOVA).[a]

Model	Sum of Squares	Degree of Freedom (df)	Mean Square	F	Significance
Regression	.380	1	.380	142.765	.001[b]
Residual	.008	3	.003		
Total	.388	4			

a. Dependent Variable: internal operating costs
b. Predictors: (constant), cumulative number of mobile payment systems used

(4) Independence test of residuals (Durbin-Watson test)

The Durbin-Watson (DW) statistical method is a method used to test the correlation of residuals in regression analysis. In general, the Durbin-Watson test values distribute between 0 and 4. The closer the value is to 2, the greater the mutual independence. If the value is greater than the upper bound ($d U$), it means that the residuals are independent of each other. And if the value is less than the lower bound ($d L$), it means that there is autocorrelation among the residuals. When there are no more than four independent variables (X) and no less than two statistics, it is certain that the residuals are independent of each other. The calculation results of the DW value in this paper can be seen from Table 3 that DW= 2.808, the independent variable (X) is 1, and the statistics are 5, which meets the statistical criteria, and the residuals are independent of each other.

3.4. Analysis of Model Result

According to the above analysis results, the regression equation finally obtained is:

$$Y = 1.449 - 0.081X \tag{1}$$

From the model results, it can analyze that the number of Macau, China catering enterprises using electronic payment systems has negatively correlated with internal operating costs, indicating that the use of electronic payment systems by catering enterprises can appropriately reduce the internal operating costs of the enterprises. Since catering enterprises use electronic payment systems, they can simplify the reconciliation process between enterprises and financial institutions and reduce the workload of financial personnel in checking restaurant business accounts and entering accounts in banks, reduce related administrative expenses, save time and human resources, and enterprises are better equipped to optimize internal human resources. Therefore, the degree of online digitization of catering enterprises has a positive impact on reducing internal operating costs.

4. Policy Recommendations to Promote the Development of Digital Transformation in Macau's Catering Industry

4.1. Create a Favourable Business Environment and System

Formulating policies to promote the digital development of the catering industry and creating a favourable business environment and system are to enhance the productivity and competitiveness of enterprises in Macau, China. The Macau government authorities continue to study and formulate supporting policies and development plans for the digital transformation of the catering industry, to guide and encourage the continued digital development of catering enterprises. To further comprehensively popularize electronic payment in the future, they should actively communicate with banks and financial institutions to reduce the service charge rate for the use of electronic payment by catering enterprises on time. Regarding the payment service charge rate, the current service charge rate for each electronic payment transaction in Macau is still relatively high (0.8% to 1% service charge for each transaction), and the transaction processing fees still need to be further reduced to establish a healthy development of electronic payment ecosystem.

At the same time, the Macau government authorities should formulate guiding plans for the digital development of food delivery platforms and the catering industry, strengthened the supervision and governance of the food delivery platform industry and food safety standards during delivery. Faced with the complex relationship of interests, cooperative relationships and primary responsibilities between food delivery platforms, delivery riders and catering enterprises, the relevant competent authorities should intensify their innovation and exploration. It is not suitable to deal with them with the traditional norms established in the past. It is necessary to move forward with the times and focus on the digital transformation process. When new issues arise, they should strengthen the exploration of new types of relationships in response to the latest problems, ensure that relevant conflicts are dealt with under the law, establish and improve the guidance and standardization system in the fields related to the digital transformation of the catering industry to provide legal protection for the digital development of the catering industry.

4.2. Strengthen Regulatory Data Security

In the context of the big data era, data is a key production factor of the digital economy and can only generate greater value through aggregation, development and mobility, so while promoting the open sharing of data and information, it is also necessary to improve and strengthen the protection of data privacy to minimize the risks caused by data sharing in Macau, China.

The Macau government should issue relevant policies to define the rights and interests of data resources held by various enterprises in the catering industry, clarify the specific content of the right to have data resources, and speed up legislative work such as data resource dispute resolution, etc. The government should also regulate the use of personal consumption data by relevant financial institutions. It should also improve the data management systems of the catering industry and food delivery platform enterprises, and formulate rules and regulations for the platform enterprises in data transfer, transactions and disposal, to create a standardized and orderly ecosystem of the data elements. In terms of data security, the Macau government should strengthen data security governance in the catering industry, further establish and improve data transaction security standards and security systems in the catering industry, formulate data protection and security management systems, and strengthen privacy and security protection for enterprises and individuals. Moreover, they should improve the data verification and evaluation system to prevent the risk of enterprises' and individuals' essential data being stolen, leaked and destroyed.

4.3. Increase the Cultivation of Digital Talents

The essence of digital transformation is the transformation of enterprises and people. Catering enterprises in Macau, China should strengthen the training of digital technology talents, which will help maintain the digital transformation of the catering industry. For catering enterprises, they can reinforce their digitalization capabilities by cultivating internal skills, enhance the level of personal digitalization fundamentals and the ability to analyze various types of data through courses and training. They can also entrust manufacturers that provide catering management systems to provide professional digital services, which can help improve operating efficiency and reduce fixed capital investment.

The Macau SAR Government should promote a complete digital talent training model, formulate digital talent training targets, and encourage multi-party cooperation among Macau's universities, professional training institutions, food delivery platform enterprises, catering enterprises, etc., to cooperate to build a digital technology talent training base and cultivate digital talents required by the market in terms of curriculum and teaching practice. The government should intensify coordination and docking in preferential policies and supporting measures to support digital talents, to maximize the role of digital talents as innovation elements.

4.4. Improve Relevant Policies to Support Digitization

Under the guidance of China's policies, local governments at all levels have successively issued policies and plans related to the development of the digital economy. Macau, China still lacks a comprehensive policy plan to support the development of the digital economy, and the Macau SAR Government needs to accurately deploy relevant strategies for the digitalization of the catering industry. The Macau government should build and deploy data infrastructure platforms, focus on the construction of new networks and new urban infrastructure, build big data centres, create a basic digital technology ecological environment, accelerate the promotion of digitally empowered catering services, and

strengthen the construction of digital infrastructure in the catering industry. Effectively improve the digital operation capabilities of catering enterprises. The government in Macau should play a coordinating and leadership role to lead the catering industry in the direction of digital transformation, formulate digital transformation strategies, support the digital transformation of catering enterprises, formulate highly preferential, effective and convenient financial support programs, and support the ecosystem environment of catering enterprises relying on digital technology, establish a fundamental business information base for enterprises, and deploy technological applications and platforms. The Macau government continues to strengthen financial policy support. It encourages financial institutions to assist the digital transformation of the catering industry, lower the financing threshold for digital projects in the catering industry, accelerate enterprise development, reduce investment risks and improve the competitiveness of the sector, such as research on Micro Connect. This emerging financial model, namely revenue sharing investment, obtains a certain proportion of the daily income of catering enterprises through the "Daily Revenue Contract" (DRC), and provides financing feasibility to offline enterprises in the catering industry, thus enabling Macau's catering enterprises to access the capital market directly.

5. Conclusion

This article discusses the current development situation of the digital transformation of the catering industry in Macau, China. As an important area for the integrated development of the digital economy and the real economy, the catering industry in Macau has the specific performance of digital transformation, including mobile payment, online takeaway, digital operation and management, digital marketing methods and other digital application scenarios are integrated into all internal processes and links of catering enterprises. Using data elements as the main driving force to improve corporate production efficiency and service quality. In addition, the relevant departments of the Macau government are also actively promoting the digital development of the entire catering industry, providing catering enterprises with back-end electronic subsidy schemes and continuing to improve relevant policies to promote the high-quality development of Macau's catering industry.

In addition, using SPSS statistical software analysis, it is found that the number of electronic payment systems used by Macau, China catering enterprises is negatively correlated with internal operating costs, indicating that the degree of online digitization of catering enterprises has a positive impact on reducing internal operating costs. This article also discusses the development direction of promoting the digital transformation of Macau's catering industry, which requires the establishment of a symbiotic ecology covering the interest relationships of all entities, clarifying the responsibilities of the entities, and establishing a legal system for relevant supervision. To this end, relevant policy recommendations are put forward to promote the digital development of Macau's catering industry, which mainly include creating a favorable business environment and system, strengthening the security of regulatory data, increasing the cultivation of digital talents, and improving relevant supporting policies to support digitalization of catering industry in Macau, China.

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