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The use of information technology by restaurants in Joglosemar, the mainstay city of Indonesian culinary

Andi Asrihapsari^{1*}

Doddy Setiawan¹

¹Faculty of Economics and Business, Universitas Sebelas Maret

*andiasrihapsari@staff.uns.ac.id

Abstract

According to the Indonesian Ministry of Tourism, Yogyakarta, Surakarta, Semarang (Joglosemar) are top culinary destinations in Indonesia, with information technology (IT) needed to strengthen its development. Therefore, this study examines IT's adaptation in restaurants owned by micro, small, and medium enterprises (MSMEs) at Joglosemar. This is a descriptive research with data obtained from 200 restaurants each in three cities through questionnaires, interviews, and observation, culminating in 600 restaurants. The result showed that restaurants adopt IT contact (92%), online transportation partner (81%), non-cash cashier payment (66%), IT cashier (61%), Wi-Fi (57%), and large orders-outside restaurant (49%) to improve their performance. This research contributes to providing a current overview of the development of IT restaurants in Indonesia, therefore it is expected to enable the entrepreneur to be more ready to face the business competition in the digital era. This research is limited to Joglosemar, therefore further study needs to investigate other top culinary cities. Secondly, this is a descriptive research on the adoption of IT by restaurants in Joglosemar, therefore further study needs to elaborate on the determinants factors of adoption of IT by restaurants and its effects on performance.

Keyword: Information technology; micro, small, and medium enterprises (MSMEs); non-cash payment; online transportation partner; restaurant.

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INTRODUCTION

The world is currently in the 4.0 industrial revolution era, a combination of automation technology and cyber or internet. According to the Indonesian Ministry of Industry, five manufacturing sectors are the main priority in the development of the initial pilot stage in the implementation of the fourth generation industrial revolution, namely food and beverage, textile and clothing, automotive, electronics, and chemical industries (Indonesian Ministry of Industry, 2018). This revolution is marked by

technology and information that increases the convergent relationship between connectivity, interaction, and human boundaries with machines and other resources (Indonesian Ministry of Industry, 2018).

The implementation of the industrial revolution 4.0 provides benefits that are significantly experienced by business actors, especially those in the food and beverage sector (Simamora, 2018). According to the Indonesian Ministry of Industry (2018), this implementation provides mutual benefits when properly managed appropriately. These benefits include effective management of production planning and lower capital and warehouse costs because the amount of stock stored is following market needs (Simamora, 2018). Furthermore, the application of industry 4.0 is a strategy used to create a Pancasila Economy for equitable development throughout Indonesia and improve community welfare.

The implementation of industry 4.0 is also driven by the Food Service Company Association or APJI, which becomes the key to the sustainable development of the food and beverage (culinary) sector. Akyazi et al. (2020) stated that it provides entrepreneurs with opportunities to develop using information technology. Surakarta city is an example of a region that has started implementing industry 4.0 in the culinary sector by creating the first culinary application, named "Mangan" (Suminar, 2016). The Indonesian government has also shown strong support for culinary development as a tourist destination (Wijaya, 2019).

Many travellers visit culinary delights destinations while in Indonesia (Sanchez-Cañizares & Castillo-Canalejo, 2015). Therefore, the existence of a good culinary destination is also used to promote and support tourism in Indonesia (Daries et al., 2018; Stone et al., 2018; Yousaf & Xiucheng, 2018), and it is one of the reasons tourists tend to revisit the destinations (Stone et al., 2019). There is a positive correlation between tourist satisfaction in accordance with culinary attractions and tourism itself (Widjaja et al., 2020). For the culinary tourism, tourists decide the destination for several reasons, such as wanting to learn and feel authentic flavours (Beltrán et al., 2016), as well as to get new culinary experiences. Tourism is the easiest, fastest, and cheapest way to contribute to foreign exchange and create jobs. Therefore, the commitment of the local government is an important factor in increasing tourism. An example of regions that have started implementing culinary tourism in its development is Bogor city. According to the Head of the Tourism and Culture Office of Bogor city, culinary tourism is a superior program used to attract tourists.

One of the main factors that are looked out for by both foreign and domestic tourists is culinary. Therefore, the Ministry of Tourism has determined three culinary tourism destinations, namely Bali, Bandung, and Joglosemar, located in Yogyakarta, Surakarta, and Semarang, respectively, to increase the number of foreign tourists visiting Indonesia. These destinations are determined based on several criteria, namely the readiness of business actors, growth of businesses, food diversity, and local government commitment (Samparaya, 2018).

The use of technology in company operations is an important factor that needs to be considered by culinary business actors. Moreno and Tejada (2019) stated that information technology (IT) is very important in the hospitality sector. However, several studies related to the use of information technology have been carried out in the hotel

industry, while those in restaurants is still rare. Furthermore, Information Technology plays an important role in increasing the ability of restaurants in responding to market demands (Anenberg & Kung, 2015; Cho et al., 2018), increasing brand awareness (DiPietro et al., 2012), attracting consumers' attention (Chung et al., 2017; Kim et al., 2020; Kwok & Yu, 2013) and identifying the strengths and weaknesses of competitors (Gao et al., 2018). The use of this technology is also in the form of applications on smartphones (Kwon et al., 2013; Neuhofer et al., 2015), which expected to provide more value for restaurants, thereby ensuring that consumers are more interested in buying (Rahman et al., 2020). Therefore, this study investigates the adoption of information technology by restaurants managed by Micro, Small, and Medium Enterprises (MSMEs) in Joglosemar.

Information technology has a major impact on various industries, including hospitality, thereby leading to radical changes in the way the hospitality industry operates (Law et al., 2013). Due to the rapid IT development and the increasing demands of consumers on restaurant quality, the hospitality industry needs to adopt information technology to operate their various fields (Law et al., 2014). The use of IT also covers mobile technology (Law et al., 2018; Lei et al., 2020), such as making payments at restaurants (Ozturk et al., 2017). Subsequently, in-depth academic studies need to be carried out to develop and use IT in the hospitality industry (Moreno & Tejada, 2019).

Melián-González and Bulchand-Gidumal (2016) reported that the use of appropriate technology improves hotel performance. This is in line with the research carried out by Chen et al. (2016), which stated that smartphone applications improve the quality of hotel communication with consumers. Good communication provides input for hotels to build their business to meet consumer demands. Kim et al. (2015) and Tajvidi & Karami (2017) also stated that good management of information on social media improves hotel performance and enhances the quality of the supply chain flow (Jalilvand et al., 2019).

Law et al. (2013; 2014; 2018) reported that information technology plays an important role in the hospitality industry. It improves performance (Chen et al., 2016; Kim et al., 2015; Melián-González & Bulchand-Gidumal, 2016) and creates a positive relationship with achievement in the hospitality industry (Chege et al., 2020). Although several studies have been carried out on the impact of information technology in the hospitality industry, mainly for hotels and tourism, studies on its impact on restaurants are still rare (Moreno & Tejada, 2019).

Moreno and Tejada (2019) carried out a systematic study related to information technology in the restaurant industry, which shows that the impact is still rare. Therefore, they suggested that more in-depth research related to information technology in the culinary industry needs to be conducted for changes in consumer behavior, namely information-seeking behavior on restaurants, and evaluation of buying a product and behavior after purchase. This results in restaurants having to adopt information technology to compete in the business world.

Task and technology are two interacting components, performed by business actors and the technologies used to help carry out their task (Jogiyanto, 2007). Cavusoglu (2019) conducted a study on the use of information technology by restaurants in the USA, which covers the adopted technology in the Front of House (FOH) and Back of House

(BOH). The point of sales (POS) technology, touch screens, gift cards, and payments using credit cards are used in the FOH. Meanwhile, the back of the restaurant (BOH) uses accounting, reporting, inventory software, and intranets. This means that restaurants in the USA have adopted information technology in their operations, including at the front, which is directly facing customers and the back. They have also taken advantage of information technology in the form of websites to show their existence. Daries et al. (2018) stated that there is a link between the managed website's content and its maturity. Furthermore, the research conducted by Kimes and Collier (2014) stated that consumers need the use of information technology for payment methods in restaurants.

Information technology can also be used in mapping business competition. According to Gao et al. (2018), online sources containing reviews of restaurant products and services can be used as a basis to analyze the competitive position on the culinary business map, identify competitors in the business scope, and design strategies to compete. Restaurants can also use the information on social media such as Facebook (Kwok & Yu, 2013) to generate interest and attention from consumers, thereby ensuring that they are interested in buying at restaurants in South Korea (Kim et al., 2020) and improving performance finance (Fernández-Miguélez et al., 2020).

Rahman et al. (2020) carried out a study on the relationship between the use of information and the desire to shop online. It shows that the quality of information produced and its credibility are important factors influencing their online shopping decisions.

METHOD

This is a descriptive research aimed to determine the existence and phenomenon of the information technology adoption for MSME restaurants in Yogyakarta, Surakarta, and Semarang city as Indonesia's flagship culinary destinations according to the Ministry of Tourism in 2018. Data were collected by observation, interviews, and by distributing questionnaires to MSME restaurants in Joglosemar.

The research questionnaire was filled out using the Google Form application with an Android mobile device used to access the link. The procedure in collecting the data consists of three stages. In the first, the restaurant management filled out a research questionnaire. Secondly, an interview was conducted to confirm the answers to the research questionnaire and explore the phenomenon of information technology adoption in the restaurant. Thirdly, an observation on the restaurant's information technology was performed, and a special surveyor questionnaire was filled out to record additional information.

The research samples are the MSME restaurant in Yogyakarta, Surakarta, and Semarang comprising the type of foodservice businesses located in building and serving food and beverages (Central Statistics Agency, 2017). The industry is divided into four groups, namely large, medium, small and home industries with a workforce of 100, 20-99, 5-19, and 1-4 people (Central Statistics Agency, 2017).

This is purposive sampling research, with the sample criteria consisting of restaurants operating in the Joglosemar area, and the MSME category with 1-99 employees, and without branches. Based on those criteria, a comparative analysis was

carried out on the IT development of MSME restaurants per city, namely Yogyakarta (200 restaurants), Surakarta (200 restaurants), Semarang (200 restaurants), and culminating in Joglosemar (600 restaurants).

RESULTS AND DISCUSSION

Result

This study provides a comprehensive overview on the development of information technology (IT) facilities at several restaurants in the cities of Yogyakarta, Surakarta, and Semarang (Joglosemar), namely 1) non-cash payment facilities at the cashier, 2) IT facilities related to order payments with the large number outside restaurants, 3) online transportation partner facilities, 4) cashier IT facilities, 5) restaurant contact IT facilities, 6) others. Based on Figure 1, it is clear that the majority of these restaurants have implemented IT facilities.

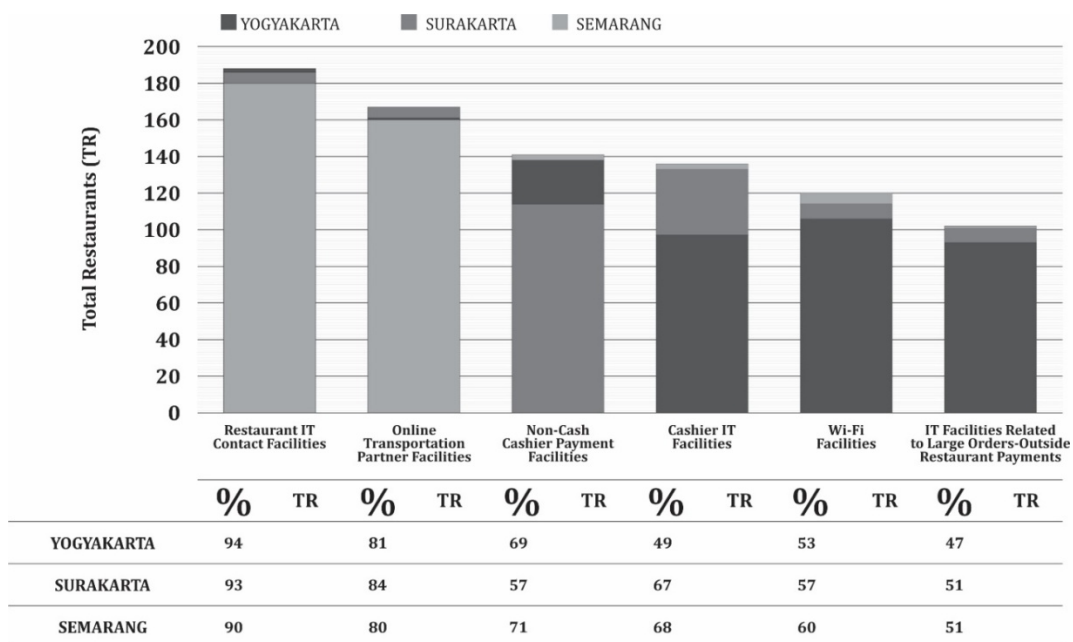


Figure 1

IT Facilities Used by Restaurants-Per City (Yogyakarta, Surakarta, and Semarang)

Figure 2 shows the percentage of information technology used by 600 restaurants located in Joglosemar. It is common for everyone to apply information technology for their personal or business interests in this digital era. The figure shows that the highest and lowest percentages of restaurants that applied information technology in Joglosemar to improve performance are 92% and 49%, respectively.

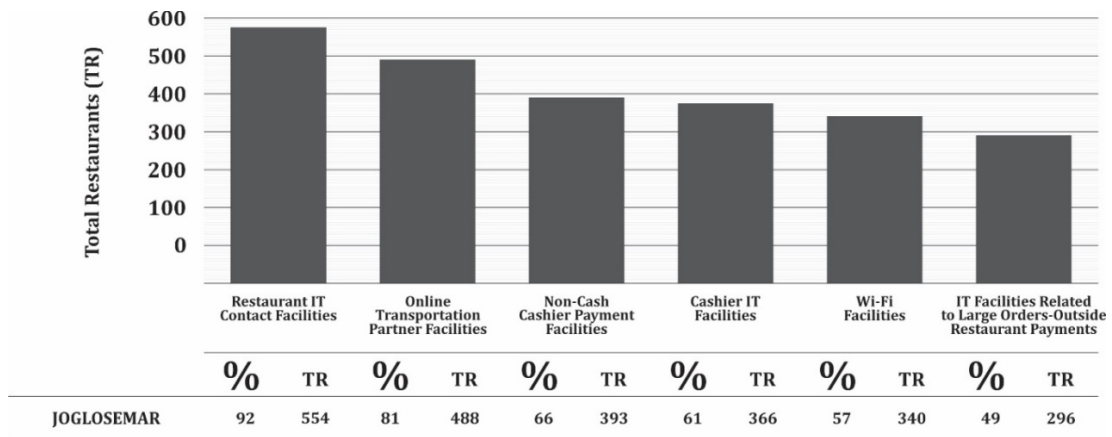


Figure 2

**IT Facilities Used by Restaurants-A Combination of Three Cities (Joglosemar)
Non-cash Payment Facility at Restaurant Cashier**

Figure 3 provides an overview of non-cash payment facilities at the restaurant cashier in Yogyakarta, Surakarta, and Semarang. The questionnaire results on 200 restaurants in each city show that most restaurants provide cashless payment facilities via GOPAY and OVO, which are the highest in each city. GOPAY dominates the cities of Yogyakarta and Semarang, while OVO is the highest in Surakarta. The results show that 55% and 37% of Yogyakarta restaurants provide non-cash payment facilities at the cashier using GOPAY and OVO, respectively. In Semarang, 58% of restaurants provide non-cash payment facilities at the cashier using GOPAY and 29% via OVO. Meanwhile, in Surakarta, 24% of restaurants provide non-cash payment facilities at the cashier via OVO and 20% via GOPAY.

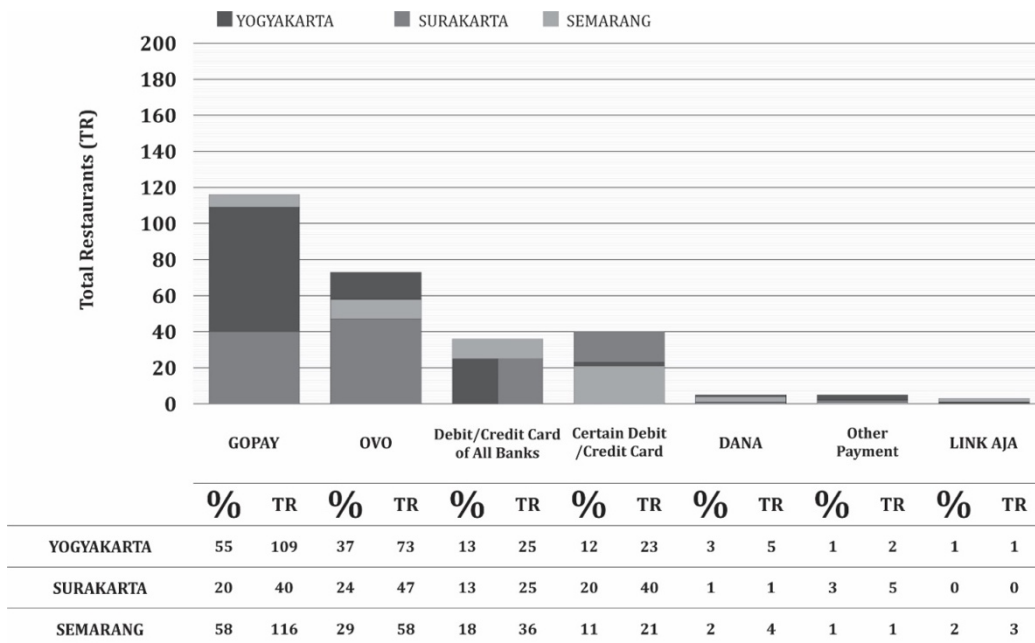


Figure 3

Non-cash Payment Facility at Restaurant Cashier-Per City (Yogyakarta, Surakarta, and Semarang)

Figure 4 shows the non-cash payment facilities in 600 restaurant cashier samples in Joglosemar, with GOPAY and OVO as the highest. Based on this study results, GOPAY dominates the Joglosemar area with 44%, while OVO facilities occupy the second-highest percentage at 30%.

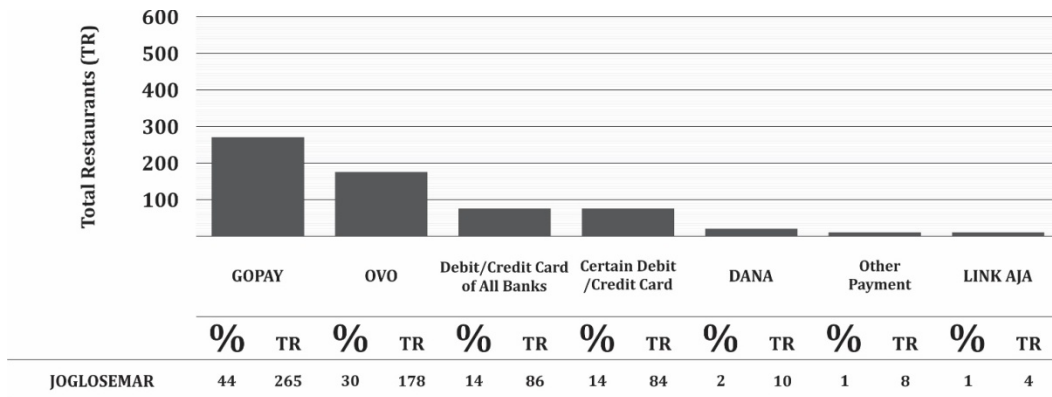


Figure 4

Non-cash Payment Facility at the Restaurant Cashier-A Combination of Three Cities (Joglosemar)

IT facilities related to Payment of Large Orders-Outside of Restaurants

Customers make orders in large quantities-outside the restaurant by coming directly or by contacting them with the need to buy in large quantities due to an event. Figure 5 illustrates the facilities for receiving orders in large quantities-outside the restaurants and in cities of Yogyakarta, Surakarta, and Semarang. This research shows that 85% of restaurants in Surakarta, and 82% in Yogyakarta and Semarang provide the facility to receive large quantities of external orders, while the rest do not serve.

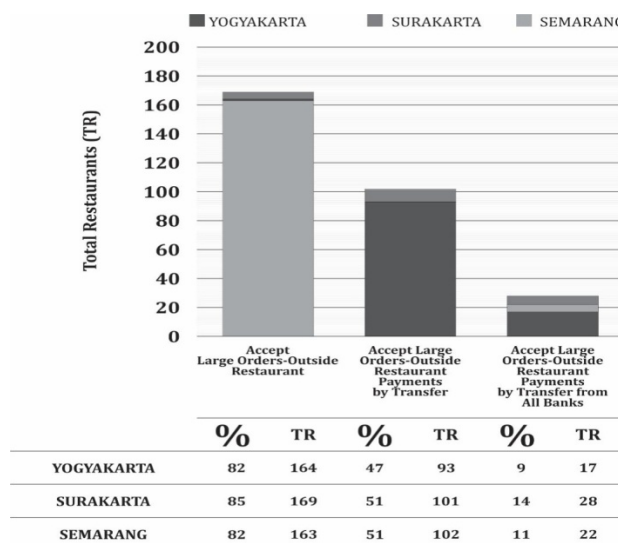


Figure 5

Facilities for Order with Large Quantities-Outside the Restaurants-Per City (Yogyakarta, Surakarta, and Semarang)

Figure 5 above also provides an illustration of IT facilities in the payment of large orders outside the restaurants. The transfer facility makes it easy for consumers to send money irrespective of their location. Therefore, receipt of payment via transfer is essential in the restaurant business. Furthermore, the research shows that 51% of restaurants in Surakarta and Semarang, as well as 47% in Yogyakarta, accept external payment for orders in large quantities via transfers from customers. In contrast, the remaining percentage does not accept. It also provides an overview of payment facilities for large orders-outside restaurants via transfers in Yogyakarta, Surakarta, and Semarang. The transfer of money via bank provides many benefits for banks and customers. Therefore, the study results show that 14%, 11%, and 9% of restaurants in Surakarta, Semarang, and Yogyakarta receive transfers from all banks, while the rest is from certain banks.

Based on Figure 6, regarding the large number of order facilities outside the restaurant at the Joglosemar, it is concluded that the majority have made it easy for their customers to order from menus. Based on the figure above, 83% of the 600 restaurants took external orders. Unfortunately, this convenience is not balanced with the payment facilities because of 49% and 11% of the payment where via transfer and from all banks, respectively.

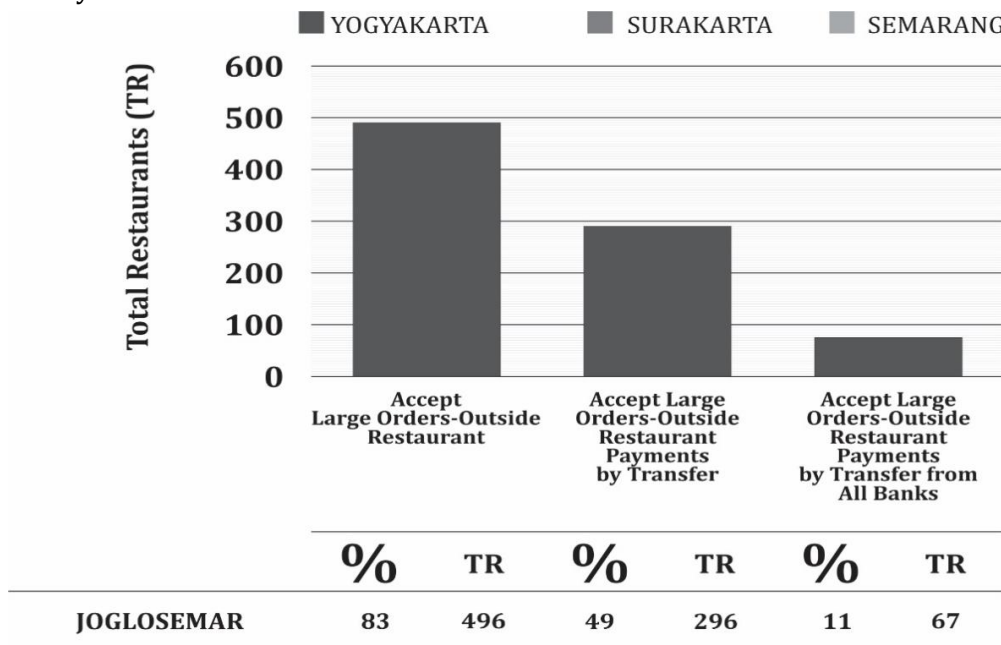


Figure 6

Facilities for Order with Large Quantities-Outside the Restaurants-A Combination of Three Cities (Joglosemar)

Online Transportation Partner Facility in Restaurants

Figure 7 provides an overview of online restaurant transportation partner facilities in Yogyakarta, Surakarta, and Semarang. Restaurants can work with online transportation companies such as Grab and Gojek to provide delivery services. The figure shows that 20% of the restaurants in Yogyakarta and Semarang, and 17% in Surakarta do not cooperate with online transportation.

The results show that 54%, 48%, and 47% of the restaurants in Surakarta, Yogyakarta, and Semarang, have optimized cooperation with two existing online transportation companies, namely, Grab and Gojek.

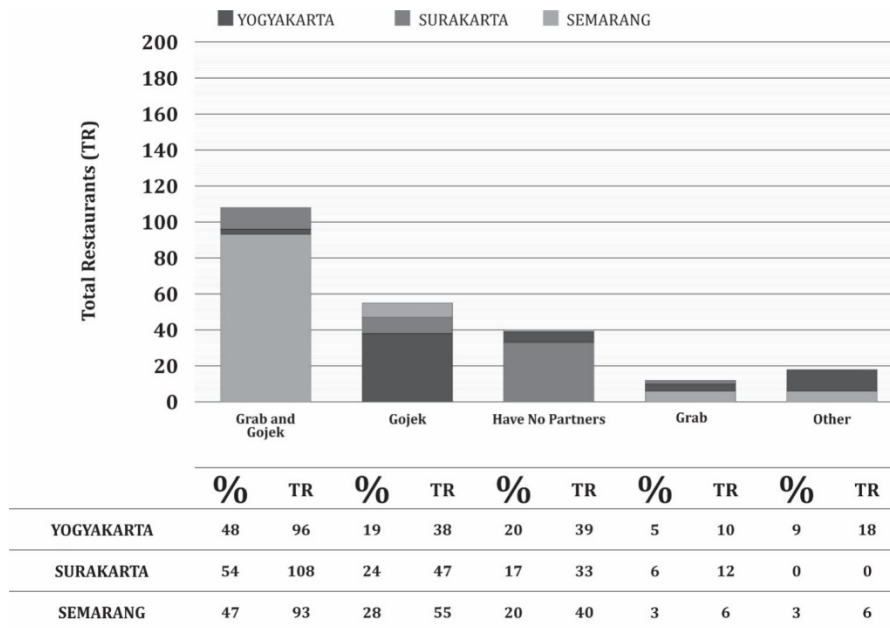


Figure 7

Online Transportation Partner Facility in Restaurant-Per City (Yogyakarta, Surakarta, and Semarang)

Figure 8 shows that restaurants in Joglosemar have collaborated to become partners for the existing online transportation, namely Grab and Gojek. It also shows that 49% of restaurants in Joglosemar have collaborated with Grab and Gojek.

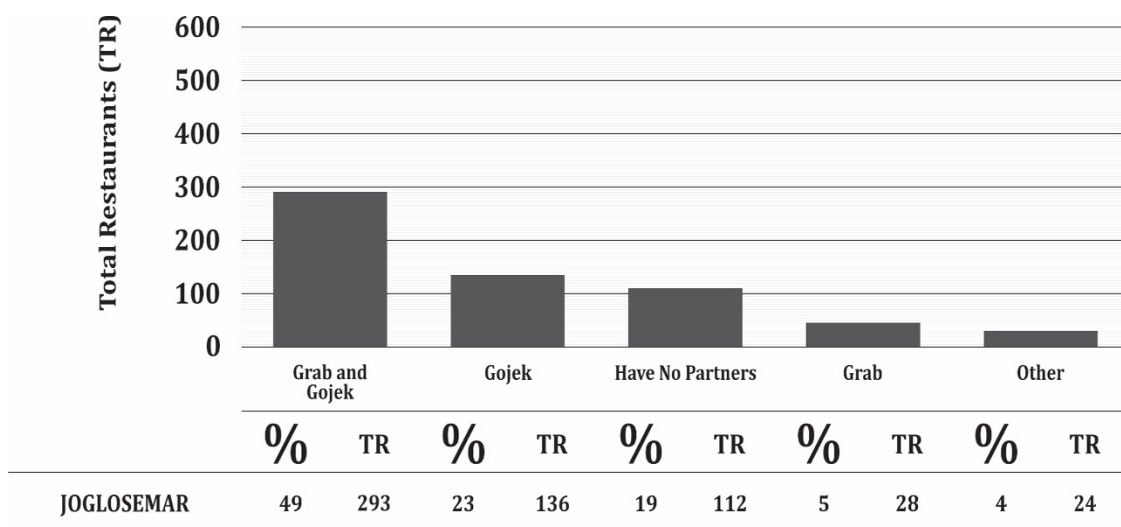


Figure 8

Online Transportation Partner Facility in Restaurant-A Combination of Three Cities (Joglosemar)

IT Cashier Facilities at the Restaurant

The increase in sophisticated technology makes it easier for humans to carry out various activities. However, from the many conveniences offered, there are still restaurants using manual cashiers. Figure 9 shows that 52%, 34%, and 32% of restaurants in Yogyakarta, Surakarta, and Semarang still use manual cashiers, while the rest make use of IT-based cashiers. In Semarang, Surakarta, and Yogyakarta, the use of a cash register is 49%, 26%, and 23%, respectively.

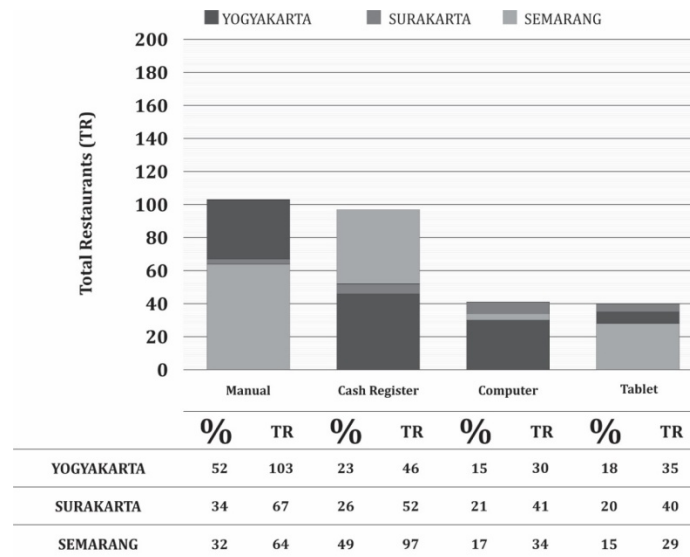


Figure 9

IT Cashier Facilities at the Restaurant-Per City (Yogyakarta, Surakarta, and Semarang)

Figure 10 shows that the IT cashier facility implemented in Joglosemar is in the form of a cash register, followed by computers and tablets. The cash register facility is implemented in 33% of restaurants in Joglosemar, while computers are 18% and tablets 17%. Manual sales recording by cashiers has the largest percentage, which is 39% when compared to IT-based cashier.

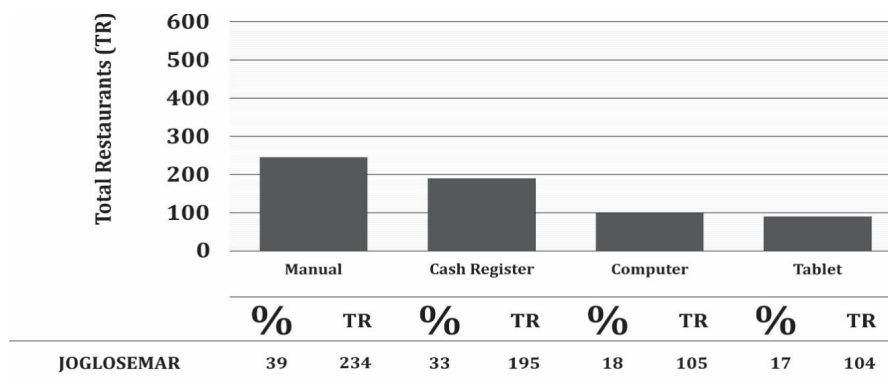


Figure 10

IT Cashier Facilities at the Restaurant-A Combination of Three Cities (Joglosemar)

IT Contact Facilities at the Restaurant

Technological developments also affected communication media between restaurants and their customers. This is because promotional activities are no longer carried out only through TV and radio, with restaurant contacts made through landlines and other methods. Figure 1 showed that more than 90% of restaurants in Yogyakarta, Surakarta, and Semarang use online media, such as Facebook, Twitter, Instagram, Line, WhatsApp (WA), Website, and Email to communicate with customers. Moreover, restaurants also communicate directly with customers via landlines and cellphones.

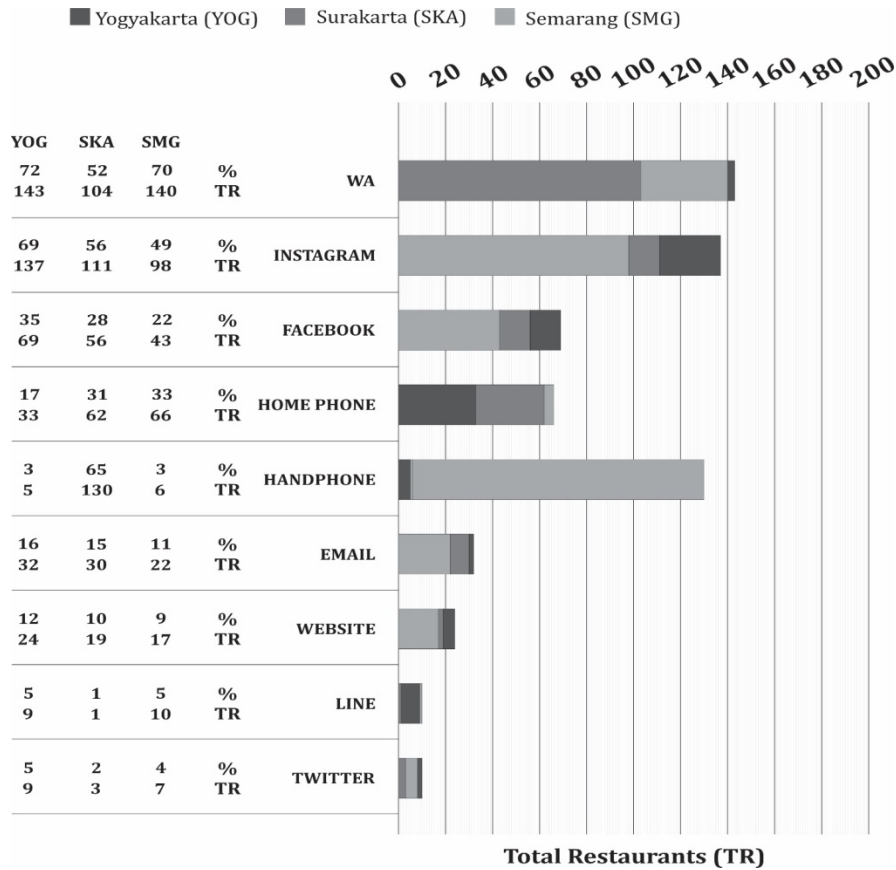


Figure 11
IT Cashier Facilities at the Restaurant-Per City (Yogyakarta, Surakarta, and Semarang)

Figure 11 shows the contact IT facilities used by every 200 restaurants in Yogyakarta, Surakarta, and Semarang. Approximately 72%, 70%, and 52% of restaurants in Yogyakarta, Semarang, and Surakarta use WA as online communication media. While 69%, 56%, and 49% of restaurants in Yogyakarta, Surakarta, and Semarang, respectively, use Instagram. Apart from online media, restaurants also communicate directly with customers via cellphones, with 65% in Surakarta city.

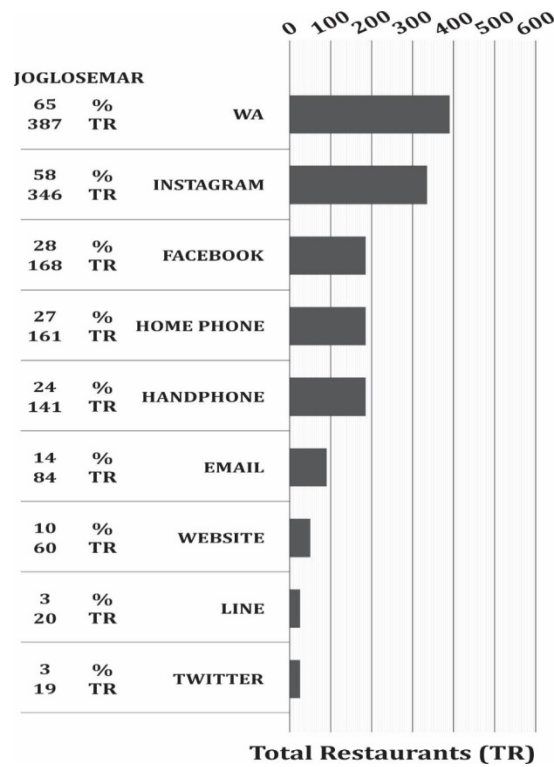


Figure 12

IT Contact Facilities of the Restaurant-A Combination of Three Cities (Joglosemar)

Based on Figure 12 above, it can be concluded that WA and Instagram are the most widely used IT facilities to contact restaurants in Joglosemar with percentages of 65% and 58%.

Other IT Facilities of Restaurants

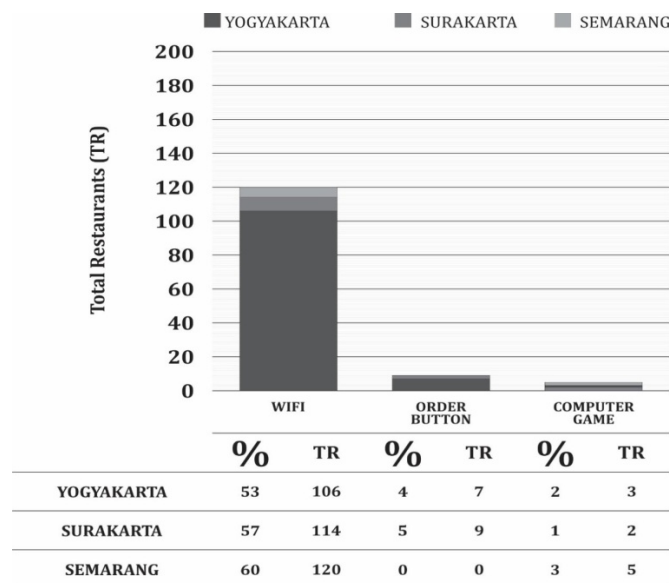


Figure 13

Other IT Facilities of Restaurants-Per City (Yogyakarta, Surakarta, and Semarang)

Figure 13 above is the questionnaire result from 200 restaurants from each city. The results showed that most of the other IT facilities provided by the restaurant were Wi-Fi, while computer facilities in the form of games, order buttons, and others were unavailable. As many as 60%, 57%, and 53% of restaurants in Semarang, Surakarta, and Yogyakarta choose to provide Wi-Fi facilities to attract customers.

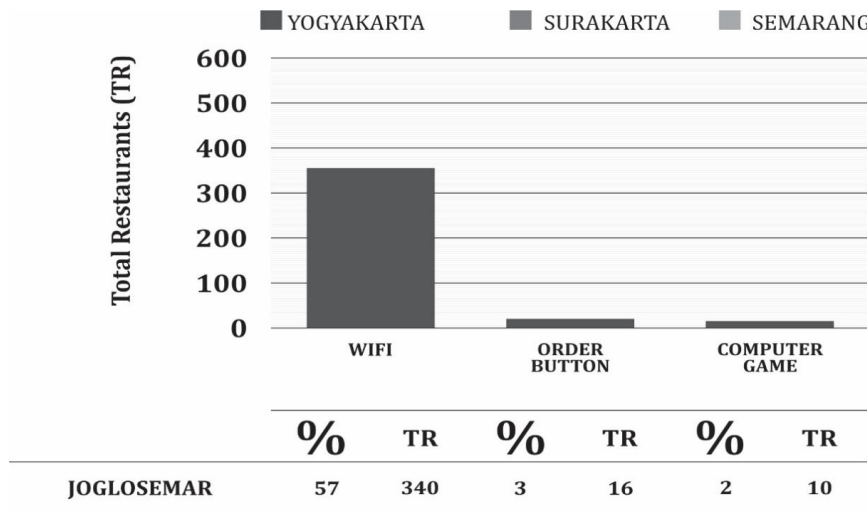


Figure 14

Other IT Facilities of Restaurants-A Combination of Three Cities (Joglosemar)

Figure 14 is obtained from 600 restaurants spread across Joglosemar. It shows that other IT facilities provided are mostly Wi-Fi, with 57% of the total 600 restaurants in Joglosemar.

Discussion

The intense competition in this digital era demands restaurant business players to always be active in following information technology development. Furthermore, the management that is sensitive to restaurant IT developments tends to positively impact the company. The results indicate that IT has been adopted by most restaurants, such as contact IT (92%), online transportation partners (81%), non-cash payments (66%), cashier facilities (61%), Wi-Fi (57%), and payment for large orders outside the restaurant (49%). The results of interviews with MSME restaurant management in Joglosemar showed that IT adoption is carried out to provide convenience and comfort to consumers and enhance restaurant performance. Rahman et al. (2020) stated that restaurants' use of information technology is expected to increase their value and consumers buying interest. IT plays an important role in increasing restaurants' ability to respond to market demands (Anenberg & Kung, 2015; Cho et al., 2018), increase brand awareness (DiPietro et al., 2012), attract consumer attention (Chung et al., 2017; Kim et al., 2020; Kwok & Yu, 2013) and identify the strengths and weaknesses of competitors (Gao et al., 2018).

CONCLUSION

This study explores the development of information technology adoption phenomenon in MSME restaurants in Indonesia in accordance with the digital era. This study indicates that most restaurants have adopted various IT categories, namely, online transportation partners, cashless payments, cashier facilities, Wi-Fi, and payment orders in large quantities outside restaurants. The observations result in several UMKM restaurants in Joglosemar showed that a significant number had a vintage style, although they still applied IT. A vintage impression can be created by choosing colors, selecting materials, and knick-knacks. When a vintage restaurant is run without applying the IT facilities, it tends to experience difficulty in dealing with business competition in this digital age.

Research limitations tend to arise due to time, energy, and research budget. Therefore, this study is limited by two factors. Firstly, the research is limited to Joglosemar, while the mainstay cities of other culinary tourism destinations have not been researched. In 2018, the Ministry of Tourism established three culinary tourism destinations, namely Bali, Bandung, and Joglosemar. These destinations are determined based on business people's readiness criteria, growth, food diversity, and local government commitment (Samparaya, 2018). Therefore, it is very important to map the adoption of restaurant information technology as a form of industrial revolution 4.0 in the three culinary tourism destinations. This mapping serves as strategic information to strengthen restaurant business players' readiness in Indonesia and increase competitiveness in the digital era. Secondly, this study only examines the development of IT adoption for MSME restaurants and has not examined the factors that promote its usage. In-depth studies of restaurant IT are still very rare, and this is in line with the research carried out by Moreno & Tejada (2019), which stated that the discussion of information technology's impact in the hospitality industry is only focused on the scope of hotels and tourism, while the impact on restaurants is still rare.

Based on the above limitations, some suggestions for further research to improve this research are provided. Firstly, studies need to be carried out on other culinary flagship cities, such as Bali and Bandung, to obtain a broader picture of the restaurant IT development from all culinary mainstay cities in Indonesia. Secondly, studies need to be carried out on factors that promote owners to adopt restaurant information technology to enhance their productivity and maximize profits.

REFERENCES

- Akyazi, T., Goti, A., Oyarbide, A., Alberdi, E., & Bayon, F. (2020). A guide for the food industry to meet the future skills requirements emerging with industry 4.0. *Foods*, 9(4), 492.
- Anenberg, E., & Kung, E. (2015). Information technology and product variety in the city: The case of food trucks. *Journal of Urban Economics*, 90, 60-78. doi:<https://doi.org/10.1016/j.jue.2015.09.006>.
- Badan Pusat Statistik. (2017). *Peraturan Kepala Badan Pusat Statistik Nomor 19 Tahun 2017 tentang Klasifikasi Baku Lapangan Usaha Indonesia*. <https://www.bps.go.id/website/fileMenu/Perka-BPS-No-19-Tahun-2017.pdf>.

- Beltrán, J. J., López-Guzmán, T., & Santa-Cruz, F. G. (2016). Gastronomy and tourism: Profile and motivation of international tourism in the city of Córdoba, Spain. *Journal of Culinary Science & Technology*, 14(4), 347-362. doi:10.1080/15428052.2016.1160017.
- Cavusoglu, M. (2019). An analysis of technology applications in the restaurant industry. *Journal of Hospitality and Tourism Technology*, 10(1), 45-72. doi:10.1108/JHTT-12-2017-0141.
- Chege, S. M., Wang, D., & Suntu, S. L. (2020). Impact of information technology innovation on firm performance in Kenya. *Information Technology for Development*, 26(2), 316-345. doi:10.1080/02681102.2019.1573717.
- Chen, M.-M., Murphy, H. C., & Knecht, S. (2016). An importance performance analysis of smartphone applications for hotel chains. *Journal of Hospitality and Tourism Management*, 29, 69-79. doi:https://doi.org/10.1016/j.jhtm.2016.05.001.
- Cho, M., Mark, A. B., Susskind, A., & Giunipero, L. (2018). Restaurant dependence/autonomy in the supply chain and market responsiveness: The moderating roles of information technology adoption and trust. *International Journal of Contemporary Hospitality Management*, 30(9), 2945-2964. doi:10.1108/IJCHM-07-2017-0432
- Chung, N., Song Hyo, G., & Lee, H. (2017). Consumers' impulsive buying behavior of restaurant products in social commerce. *International Journal of Contemporary Hospitality Management*, 29(2), 709-731. doi:10.1108/IJCHM-10-2015-0608
- Daries, N., Cristobal-Fransi, E., Ferrer-Rosell, B., & Marine-Roig, E. (2018). Maturity and development of high-quality restaurant websites: A comparison of Michelin-starred restaurants in France, Italy and Spain. *International Journal of Hospitality Management*, 73, 125-137. doi:https://doi.org/10.1016/j.ijhm.2018.02.007.
- DiPietro, R. B., Crews, T. B., Gustafson, C., & Strick, S. (2012). The use of social networking sites in the restaurant industry: Best practices. *Journal of Foodservice Business Research*, 15(3), 265-284. doi:10.1080/15378020.2012.706193.
- Fernández-Miguélez, S. M., Díaz-Puche, M., Campos-Soria, J. A., & Galán-Valdivieso, F. (2020). The impact of social media on restaurant corporations' financial performance. *Sustainability*, 12(4), 1646.
- Gao, S., Tang, O., Wang, H., & Yin, P. (2018). Identifying competitors through comparative relation mining of online reviews in the restaurant industry. *International Journal of Hospitality Management*, 71, 19-32. doi:https://doi.org/10.1016/j.ijhm.2017.09.004.
- Jalilvand, M. R., Pool, J. K., Khodadadi, M., & Sharifi, M. (2019). Information technology competency and knowledge management in the hospitality industry service supply chain. *Tourism Review*, 74(4), 872-884. doi:10.1108/TR-04-2018-0054.
- Jogiyanto. (2007). *Sistem Informasi Keperilakuan*. Yogyakarta: Penerbit Andi.
- Kementerian Perindustrian Republik Indonesia. (2018a, March 20). *Making Indonesia 4.0: Strategi RI Masuki Revolusi Industri Ke-4*. <http://www.kemenperin.go.id/artikel/%0A18967/Making-Indonesia-4.0:-Strategi-RI-Masuki-Revolusi-Industri-Ke-4?>
- Kementerian Perindustrian Republik Indonesia. (2018b, May 15). *Jadi Prioritas Industri 4.0, Lima Sektor Ini Berkontribusi 60 Persen untuk PDB*. <https://kemenperin.go.id/artikel/19231/Jadi-Prioritas-Indutri-4.0,-Lima-Sektor-Ini-Berkontribusi-60-Persen-untuk-PDB>
- Kim, B., Yoo, M., & Yang, W. (2020). Online engagement among restaurant customers: The importance of enhancing flow for social media users. *Journal of Hospitality & Tourism Research*, 44(2), 252-277. doi:10.1177/1096348019887202.

- Kim, W. G., Lim, H., & Brymer, R. A. (2015). The effectiveness of managing social media on hotel performance. *International Journal of Hospitality Management*, 44, 165-171. doi:<https://doi.org/10.1016/j.ijhm.2014.10.014>.
- Kimes, S., & Collier, J. (2014). Ready and willing: Restaurant customer view of payment technology. *Cornell Hospitality Report*, 14(19), 1-17.
- Kwok, L., & Yu, B. (2013). Spreading social media messages on facebook: An analysis of restaurant business-to-consumer communications. *Cornell Hospitality Quarterly*, 54(1), 84-94. doi:10.1177/1938965512458360.
- Kwon, J. M., Bae, J. i., & Shane, C. B. (2013). Mobile applications in the hospitality industry. *Journal of Hospitality and Tourism Technology*, 4(1), 81-92. doi:10.1108/17579881311302365.
- Law, R., Buhalis, D., & Cobanoglu, C. (2014). Progress on information and communication technologies in hospitality and tourism. *International Journal of Contemporary Hospitality Management*, 26(5), 727-750. doi:10.1108/IJCHM-08-2013-0367.
- Law, R., Chan, I. C. C., & Wang, L. (2018). A comprehensive review of mobile technology use in hospitality and tourism. *Journal of Hospitality Marketing & Management*, 27(6), 626-648. doi:10.1080/19368623.2018.1423251.
- Law, R., Leung, D., Au, N., & Lee, H. A. (2013). Progress and development of information technology in the hospitality industry: Evidence from Cornell Hospitality Quarterly. *Cornell Hospitality Quarterly*, 54(1), 10-24. doi:10.1177/1938965512453199.
- Lei, S. I., Ye, S., Wang, D., & Law, R. (2020). Engaging customers in value co-creation through mobile instant messaging in the tourism and hospitality industry. *Journal of Hospitality & Tourism Research*, 44(2), 229-251. doi:10.1177/1096348019893066.
- Melián-González, S., & Bulchand-Gidumal, J. (2016). A model that connects information technology and hotel performance. *Tourism Management*, 53, 30-37. doi:<https://doi.org/10.1016/j.tourman.2015.09.005>.
- Moreno, P., & Tejada, P. (2019). Reviewing the progress of information and communication technology in the restaurant industry. *Journal of Hospitality and Tourism Technology*, 10(4), 673-688. doi:10.1108/JHTT-07-2018-0072.
- Neuhof, B., Buhalis, D., & Ladkin, A. (2015). Smart technologies for personalized experiences: A case study in the hospitality domain. *Electronic Markets*, 25(3), 243-254. doi:10.1007/s12525-015-0182-1.
- Ozturk, A. B., Bilgihan, A., Salehi-Esfahani, S., & Hua, N. (2017). Understanding the mobile payment technology acceptance based on valence theory: A case of restaurant transactions. *International Journal of Contemporary Hospitality Management*, 29(8), 2027-2049. doi:10.1108/IJCHM-04-2016-0192.
- Rahman, M. S., Hussain, B., Hussain, M., & Hassan, H. (2020). Consumers' online restaurant food purchase intention: Mixed-methods analysis of multiple mediators role. *Journal of International Food & Agribusiness Marketing*, 1-26. doi:10.1080/08974438.2020.1772165.
- Samparaya, C. F. (2018, September 20). *Kemenpar Tetapkan Tiga Destinasi Kuliner Andalan Indonesia*. /read/2018/09/20/083600927/kemenpar-tetapkan-3-destinasi-kuliner-indonesia.
- Sanchez-Cañizares, S., & Castillo-Canalejo, A. M. (2015). A comparative study of tourist attitudes towards culinary tourism in Spain and Slovenia. *British Food Journal*, 117(9), 2387-2411. doi:10.1108/BFJ-01-2015-0008.
- Simamora, N. S. (2018, August 17). *Penerapan Industri 4.0, Sektor Makanan dan Minuman Bakal Tancap Gas*. <https://ekonomi.bisnis.com/read/20180817/257/828974/penerapan-industri-4.0-sektor-makanan-dan-minuman-bakal-tancap-gas>

- Stone, M. J., Migacz, S., & Wolf, E. (2019). Beyond the journey: The lasting impact of culinary tourism activities. *Current Issues in Tourism*, 22(2), 147-152. doi:10.1080/13683500.2018.1427705.
- Stone, M. J., Soulard, J., Migacz, S., & Wolf, E. (2018). Elements of memorable food, drink, and culinary tourism experiences. *Journal of Travel Research*, 57(8), 1121-1132. doi:10.1177/0047287517729758.
- Suminar, A. (2016, August 5). *Berawal dari Tugas Kuliah, Tiga Mahasiswa UNS Ciptakan Aplikasi Kuliner Pertama di Surakarta*. <https://www.goodnewsfromindonesia.id/2016/08/05/berawal-dari-tugas-kuliah-tiga-mahasiswa-uns-ciptakan-aplikasi-kuliner-pertama-di-surakarta>.
- Tajvidi, R., & Karami, A. (2017). The effect of social media on firm performance. *Computers in Human Behavior*, 105174. doi:https://doi.org/10.1016/j.chb.2017.09.026.
- Widjaja, D. C., Jokom, R., Kristanti, M., & Wijaya, S. (2020). Tourist behavioural intentions towards gastronomy destination: evidence from international tourists in Indonesia. *Anatolia*, 31(3), 376-392. doi:10.1080/13032917.2020.1732433.
- Wijaya, S. (2019). Indonesian food culture mapping: a starter contribution to promote Indonesian culinary tourism. *Journal of Ethnic Foods*, 6(1), 9. doi:10.1186/s42779-019-0009-3.
- Yousaf, S., & Xiucheng, F. (2018). Halal culinary and tourism marketing strategies on government websites: A preliminary analysis. *Tourism Management*, 68, 423-443. doi:https://doi.org/10.1016/j.tourman.2018.04.006.

