



**ANALYSIS OF THE INFLUENCE OF IoT SERVER ROBOTS,
OPERATIONAL MANAGEMENT SYSTEMS, AND ELECTRIC CAR CAS
ON IMPROVING SERVICE EFFICIENCY IN SHARIA PERSPECTIVE
(Study on El's Coffee Roastery Bandar Lampung)**

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Abstract

This study was conducted to analyze the importance of implementing digital technology in improving service efficiency in the modern café industry, particularly through the use of Internet of Things (IoT)-based service robots, operational management systems, and electric vehicle charging facilities from a Sharia business perspective at El's Coffee Roastery in Bandar Lampung. This study aims to measure and analyze the influence of these three variables on service efficiency improvement. The method used is quantitative research with an associative approach, employing accidental sampling on 97 respondents. Primary data was collected through the distribution of a Likert-scale questionnaire and analyzed using multiple linear regression with the assistance of IBM SPSS 27. The results indicate that, individually, the IoT service robot has a positive and significant effect on service efficiency ($t = 7.397$; sig. 0.000), the operational management system has a positive and significant effect ($t = 6.512$; sig. 0.000), and the electric vehicle charging station also has a positive and significant effect ($t = 2.555$; sig. 0.012). Simultaneously, all three variables have a significant effect on service efficiency ($F = 41.301$; sig. 0.000) with a contribution of 55.7%. A synthesis of the research findings confirms that the integration of modern technology, when



managed professionally, can create services that are effective, efficient, and aligned with the principles of *maslahah*, *amanah*, and *hifz al-bi'ah* in Islamic business. The policy implications of this research encourage business operators to adopt sustainable technological innovations that remain grounded in Islamic values in order to enhance business competitiveness.

Keywords: IoT Service Robots, Operational Management Systems, Electric Vehicle Charging, Service Efficiency

INTRODUCTION

The development of digital technology has driven transformation in the service sector and business operations, including the café and restaurant industry. The use of technologies such as the Internet of Things (IoT), service robotics, and digital-based operational management systems is increasingly being applied to improve the efficiency and quality of services. (Nugraha et al., 2023). Data from the International Federation of Robotics (IFR, 2024) shows that the number of industrial robots operating globally has reached more than 3.9 million units, reflecting the increasing adoption of automation technology in various sectors of the economy.

This transformation also occurred in the coffee industry in Lampung Province. One of the business actors that implements technological innovation is El's Coffee Roastery Bandar Lampung. In addition to acting as a local coffee producer, the company integrates various service support technologies such as IoT Servant Robots, Operational Management Systems, and Electric Car Charging facilities. Based on the company's internal data, the number of customer visits reached 16,573 visitors during the May-November 2025 period, which shows the high need for a service system that is able to maintain speed, accuracy, and service quality consistently.

The application of this technology is expected to improve service efficiency through optimizing operational processes, reducing employee workload, and improving customer experience. However, the effectiveness of technology implementation in improving service efficiency is still influenced by the difference in customer acceptance rates towards the use of technology in the service process.



From an Islamic business perspective, efficiency is not only understood as the ability to achieve optimal results, but must also be aligned with the principles of trust, benefit, and professionalism. This is in line with the words of Allah SWT in Q.S. Al-Qashash [28]: 26:

قَالَتْ إِحْدَاهُمَا يَا أَبَتِ اسْتَأْجِرْهُ إِنَّ خَيْرَ مَنِ اسْتَأْجَرْتَ الْقَوِيُّ الْأَمِينُ

One of the two women said: "O my father, take him as the one who works (for us), for the best man you have taken to work (for us) is a strong and trustworthy man." (Q.S. Al-Qashash [28]: 26)

This verse emphasizes the importance of competence (*al-quwwah*) and amanah (*al-amanah*) in every business activity. This value is relevant to the application of modern technology in business, where technology is expected to be able to improve service quality, operational effectiveness, and provide greater benefits for customers and companies. Thus, service efficiency in the sharia business is not only oriented towards achieving profits, but also on creating benefits and business sustainability.

Previous research has shown that the application of digital technology in the service sector contributes to improving service efficiency. IoT-based waiter robots are proven to improve the speed and accuracy of service. (Nugraha et al., 2023), while operational management systems contribute to increased work effectiveness (S. P. Sari, 2025). In addition, electric vehicle charging facilities increase convenience and customer service value (Han & Shum, 2024), as well as supporting infrastructure for electric vehicles to support service optimization (D. Sari & Mahendra, 2021). (Hidayat et al., 2023) highlighted the role of El's Coffee Roastery in the region's creative economy, but has not examined the integration of technology into service efficiency. It also found that digital technology has an effect on service efficiency, but has not discussed the simultaneous integration of multi-technologies in the perspective of Islamic business. However, research that combines these three technologies in one research model is still limited, so further studies are needed.

Based on these conditions, this study aims to analyze the influence of IoT Servant Robots, Operational Management Systems, and Electric Car Charging facilities on improving service efficiency from a sharia business perspective at El's Coffee Roastery Bandar Lampung. This research is expected to make a theoretical contribution to the development of digital technology studies and Islamic business, as well as practical contributions for business actors in optimizing the application of technology that is efficient, sustainable, and in accordance with Islamic values.



LITERATURE REVIEW

The Resource Based View (RBV) theory introduced by Wernerfelt (1984) and developed by Barney (1991) explains that a company's competitive advantage is determined by its ability to manage internal resources and capabilities effectively. Company resources include assets, knowledge, technology, and organizational capabilities that can improve efficiency and performance (J. Barney, 1991). These resources will be an advantage if they meet the VRIN criteria, namely valuable, rare, inimitable, and non-substitutable (Widagdo et al., 2019).

In RBV, differences in resource management between companies are the main factor in creating efficiency and competitive advantage (J. B. Barney & Hesterly, 2022). As technology develops, the company's resources also include digital technology and supporting infrastructure that contributes to improving the quality of services. (Ahn et al., 2022).

In this study, IoT Servant Robots, Operational Management Systems, and Electric Car Charges are positioned as strategic resources that can improve service efficiency if managed optimally.

RESEARCH METHOD

This type of research is a quantitative research, which is a research method based on the philosophy of positivism to test the relationship between variables through numerical data and statistical analysis. And using an associative approach, an associative approach is an approach that aims to find out the relationship or influence between two or more variables. The sampling technique uses *non-probability sampling* with the *Accidental Sampling* method. The population in this study is all customers of El's Coffee Roastery who have used or seen the services of IoT server robots, operational management systems, and electric car charging. The data used in this study uses primary data obtained through the distribution of a Google Form-based questionnaire, with an assessment method in the form of a Likert scale of 1-5. The sample calculation in this study used the *Lemeshow formula* with the results of 97 respondents. The analysis tool used IBM SPSS version 27 with a significance level of 5% ($\alpha = 0.05$).

RESULTS AND DISCUSSION

Normality Test

The goal is to ascertain the regression model regarding the normal distribution characteristics of both variables, regardless of their distribution



properties. In this case, the Kolmogorov-Smirnov test is used to check whether the data has a normal distribution. The data is considered to have a normal distribution if the significance value obtained > 0.05 in the normality test. The following is a test of the normality of this study.

Normality Test Table.

Unstandardized Residual			
N			97
Normal Parameters ^{a,b}	Red Std. Deviation		.0000000 3.17277162
Most Extreme Differences	Absolute Positive		.046
	Negative		-.036
Test Statistic			.046
Asymp. Sig. (2-tailed) ^c			.200 ^d
Monte Carlo Sig. (2-tailed) ^e	Sig. 99%		.881
	Confidence Interval	Lower Bound	.872
		Upper Bound	.889

Source: IBM SPSS Statistics 27 processed output, 2026

The significance value is $0.200 > 0.05$, based on the *Kolmogorov-Smirnov* normality test, so it can be concluded that the residue distribution is in a normal form.

Heteroscedasticity Test

The heteroscedasticity test was used to assess the presence of imbalances in the variables and to review the consistency of the regression model to the results obtained. The heteroscedasticity analysis in this study used the glycer test. The regression model is considered to have no heteroscedasticity if the significance probability value or sig (2-tailed) is greater than 5%. The results of the heteroscedasticity test with the Glejser method are as follows:

Table of Results of the Glejser Method Heteroscedasticity Test.

Models	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
1. (Constant)	3.342	1.756		1.903	.060



IoT Server Robot	.088	.034	.026	.247	.805
Operational Management System	-.035	.037	-.099	-.951	.344
Electric Car Charging	-.001	.039	.002	.015	.988

a. Dependent Variable: ABS_RES

Source: IBM SPSS Statistics 27 processed output, 2026

This regression model does not show any heteroscedasticity problem, which is evidenced by a significance value of > 0.05 . Based on the table above, the value of sig. (2-tailed) for the IoT Servant Robot variable is 0.805, the Operational Management System variable is 0.344. As for the variable Electric Car Charge of 0.988. Based on the test results, if the significance value is > 0.05 , these variables do not experience symptoms of heteroscedasticity.

The following explanation of the results of the heteroscedasticity test with the Glejser method is as follows:

1. The IoT Servant Robot variable has a regression coefficient value (B) of 0.008 with a t-value of 0.247 and a significance of 0.805. The positive coefficient value shows that the relationship of the IoT Servant Robot to the absolute residue is unidirectional, because the significance value is $0.805 > 0.05$, then the IoT Servant Robot variable does not experience symptoms of heteroscedasticity.
2. The results of the heteroscedasticity test showed that the Operational Management System variable had a regression coefficient value (B) of -0.035 with a t-value of -0.951 and a significance of 0.344. Because the significance value is greater than 0.05, the Operational Management System variable does not show any symptoms of heteroscedasticity, so the homoscedasticity assumption in the regression model has been met.
3. The Electric Car Charge variable has a regression coefficient value (B) of 0.001 with a t-value of 0.015 and a significance value of 0.988. A very small negative coefficient value indicates that the relationship of Electric Car Cas to absolute residues tends to be in the opposite direction, but the effect is very weak. However, the significance value is $0.988 > 0.05$, so the Electric Car Cas variable does not experience symptoms of heteroscedasticity.

Multicollinearity Test

This test is carried out to find out if there is a correlation between independent variables. A good regression model should not show a correlation



between independent variables. A data is said to be free of multicollinearity if the VIF value is < 10 and the *Tolerance* value > 0.10 . The following are the results of the multicollinearity test in this study:

Table of Multicollinearity Test Results.

Models	Unstandardized Coefficients		Standardized Coefficients Beta			Collinearity Statistics	
	B	Std. Error		t	Sig.	Tolerance	VIF
1. (Constant)	.535	2.965		.180	.857		
IoT Server Robot	.427	.058	.511	7.397	.000	.967	1.035
Operational Management System	.402	.062	.445	6.512	.000	.987	1.013
Electric Car Charging	.167	.065	.177	2.555	.012	.962	1.039

a. Dependent Variable:

Source: IBM SPSS Statistics 27 processed output, 2026

Based on the table above, there is no indication of multicollinearity between variables, because the data in the table shows that the VIF value of all variables < 10 . The IoT Server Robot variable has a value of 1.035, the Operational Management System variable has a value of 1.013, and the Electric Car Charge variable has a value of 1.039.

Multiple Linear Regression Analysis

Multiple linear regression analysis is a method used to measure the relationship or influence between one dependent variable and two or more independent variables. The following are the results of the multiple linear regression analysis test:

Multiple Linear Regression Analysis Results

Models	Unstandardized Coefficients		Standardized Coefficients Beta		
	B	Std. Error		t	Sig.
1. (Constant)	.535	2.965		.180	.857
IoT Server Robot	.427	.058	.511	7.397	.000.
Operational Management System	.402	.062	.445	6.512	.000



Electric Car Charging	.167	.065	.177	2.555	.012
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a. Dependent Variable: Improvement of Service Efficiency

Source: IBM SPSS Statistics 27 processed output, 2026

Based on the results of the multiple linear regression test, it can be seen that the constant value is 0.535, the coefficient value of the IoT server robot (X_1) is 0.427, the value of the operational management system coefficient (X_2) is 0.402, and the value of the electric car charge coefficient (X_3) is 0.167. Based on the value of each variable, the regression equation can be obtained as follows:

$$Y = 0.535 (\alpha) - 0.427 (X_1) + 0.402 (X_2) + 0.167 (X_3) + e$$

Based on the regression equation, the results of the multiple linear regression test can be explained as follows:

1. Constant (α) = 0.535 means that if the IoT server robot, operational management system, and electric car charge are zero (0) or fixed, then the value of service efficiency increase is 0.535.
2. $\beta_1 (X_1) = 0.427$ that is, if the IoT Servant Robot variable (X_1) increases by one (1) unit, then the dependent variable (Y) will increase by 0.427, assuming the other variables are constant.
3. $\beta_2 (X_2) = 0.402$ that is, if the variable of the operational management system (X_2) increases by one (1) unit, then the dependent variable (Y) will increase by 0.402, assuming the other variable is constant.
4. $\beta_3 (X_3) = 0.167$ that is, if the variable X_3 increases by one (1) unit, then the dependent variable (Y) will increase by 0.167, assuming the other variable is constant.

Partial Test (t-test)

By comparing significance values, this test determines whether each independent variable has a significant impact on the dependent variable individually. Independent variables are considered to have a significant influence on dependent variables if the value is < 0.05 . Here are the test results:

Table of Partial Test Results (t-test)

Models	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
1. (Constant)	.535	2.965		.180	.857
LoT Server Robot	.427	.058	.511	7.397	.000
Operational Management System	.402	.062	.445	6.512	.000



Electric Car Charging	.167	.065	.177	2.555	.012
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a. Dependent Variable: Increased Service Efficiency

Source: IBM SPSS Statistics 27 processed output, 2026

The t-test is carried out by comparing the significance value of 5% to see that the independent variable is considered to have a significant influence on the dependent variable if the value is < 0.05 . Based on the t-value of the table, the results of the t comparison are calculated as follows:

1. Based on the results of the t-test calculation, it can be determined that the tcal value on the IoT server robot variable (X1) against the variable of increasing service efficiency (Y) has a significant value of $0.000 < 0.05$ which means that H1 is accepted. Therefore, it can be concluded that the IoT server robot variable (X1) has a significant effect on improving service efficiency.
2. Based on the results of the t-test calculation, it can be known that the t-value of the operational management system variable (X2) against the variable of improving service efficiency (Y) has a significant value of $0.000 < 0.05$ which means that H2 is accepted. Therefore, it can be concluded that the variable of the operational management system (X2) has a significant effect on improving service efficiency.
3. Based on the results of the t-test calculation, it can be determined that the tcal value on the electric car charge variable (X3) against the variable of increasing service efficiency (Y) has a significant value of $0.012 < 0.05$ which means that H3 is accepted. Therefore, it can be concluded that the electric car charge variable (X3) has a significant effect on improving service efficiency.

Simultaneous Test (F Test)

If the significance number < 0.05 , then it can be concluded that the independent variables together have a significant influence on the dependent variables. In other words, the changes that occur in independent variables together are able to explain the variations that occur in dependent variables. The results of the analysis are presented as follows:

Simultaneous Test Results (F test)

Models	Sum of Squares	df	Mean Square	F	Sig.
Regression	1287.494	3	429.165	41.301	.000b
Residual	966.382	93	10.391		



Total	2253.876	96			
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a. Dependent Variable: Increased Service Efficiency

b. Predictors: (Constant), Electric Car Charge, IoT Waitress Robot, Operational Management System

Source: IBM SPSS Statistics 27 processed output, 2026

Based on the results of the above analysis, the significance value obtained was $0.000 < 0.05$. Therefore, it can be concluded that the variables of IoT server robots, operational management systems and electric car charges have a significant effect simultaneously on the variables of increasing service efficiency.

Coefficient Determination Test

This test is used to find out how much independent variables explain dependent variables. The following are the results of the determination coefficient test from this study:

Determination Coefficient Test Results

Model Summary ^b				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.756a	.571	.557	3.224

Source: Data processed by the author using SPSS 27

The results of the determination coefficient test showed that the value on the Adjusted R Square was 0.557, this means that 55.7% of the increase in service efficiency at El's Coffee Roastery Bandar Lampung could be influenced by IoT server robots, operational management systems and electric car charges. While the rest ($100\% - 55.7\% = 44.3\%$) may be influenced by other factors. The Standard Error of Estimate (SEE) is 3,224. The smaller the SEE value will make the regression model more accurate in predicting dependent variables.

Subject Synthesis

The Effect of IoT Servant Robots (X1) on Improving Service Efficiency (Y).

This study shows that the IOT Servant Robot (X1) has a regression coefficient value of 0.427 and is marked positive, with a t-count value of $7.397 > t\text{-table of } 1.985$ and a significance value of $0.000 < 0.05$, then H1 is accepted. These results show that IoT Servant Robots have a positive and significant effect on improving service efficiency (Y). This means that the more optimal the use of IoT server robots, the higher the level of service efficiency produced.

These findings are in line with the *Resource Based View* (RBV) Theory proposed by Wernerfelt (1984) and developed by Barney (1991), which explains that technology is a company's strategic resource that can increase



organizational effectiveness and efficiency if managed optimally. In the perspective of RBV, IoT Servant Robots can be categorized as a technology resource because they function to help the service process automatically, increase service speed, reduce operational errors, and increase work productivity. The IoT Waiter Robot implemented at El's Coffee Roastery provides value, as it is able to speed up the order processing process to customers. In addition, the use of waiter robots is still relatively rarely applied to the café industry in Bandar Lampung, so it has *rare* characteristics. This condition shows that IoT Servant Robots are a strategic resource that is able to support the improvement of the company's service efficiency.

The results of this study are in line with several studies (Nugraha et al., 2023) *"Line Follower-Based Food Delivery Robot with TCS3200 Color Sensor and Internet of Things (IoT)"* show The use of IoT-based food delivery robots is able to increase service speed, reduce employee workload, and improve order distribution accuracy. In addition, the research (Martinez & Balaguer, 2021) titled *"Service Robots in Catering Applications: A Review and Future Challenges"* states that The application of service robots is supported by automation technology and *Internet of Things (IoT)* can improve restaurant operational efficiency through accelerating service processes, increasing order delivery accuracy, and optimizing resource use. Furthermore, the research (Iyanda & Azeez, 2024) titled *"A Multilingual Restaurant Serving Robot Request Management System"* shows that The application of IoT in restaurant service systems is able to accelerate the flow of restaurant services, able to speed up the flow of service and reduce order errors.

The Influence of Operational Management System (X2) on Improving Service Efficiency (Y).

Based on the results of statistical tests, the Operational Management System (X2) variable has a positive and significant effect on improving service efficiency (Y). This is evidenced by a t-calculated value of $6,512 > t\text{-table of } 1,985$ and a significant value of $0.000 < 0.05$, then H2 is accepted. This means that the better the operational management system that is implemented, the higher the level of service efficiency produced.

In the perspective of *Resource Based View (RBV)* Theory, the Operational Management System is part of the capabilities of the organization, namely the ability of the company to manage, integrate, and utilize its resources to achieve organizational goals effectively. Barney (1991) explained that organizational capabilities are strategic assets that can create excellence and improve company



performance. A good Operational Management System allows companies to manage service flows in a more structured manner, speed up work processes, improve coordination between departments, and reduce waste of time and resources. These capabilities are an important factor in creating sustainable service efficiency.

The results of this study are in line with the research (S. P. Sari, 2025) titled "Analysis of the Influence of Operational Management Quality on Company Performance" shows that Good operational management quality can improve company performance through a more efficient work management process. In addition, the research (Haryadi et al., 2025) titled "Implementation *Total Quality Management* (TQM) in Improving Operational Performance Efficiency" states that Application *Total Quality Management* (TQM) can improve operational performance efficiency and organizational productivity. And research (Arjun et al., 2025) titled "The Role of Operational, Technology, and Work Process Management in Improving Work Efficiency in the Tekasire Village Office" shows that Operational management supported by technology and structured work processes is able to improve work efficiency and service quality.

The Effect of Electric Car Charge (X3) on Improving Service Efficiency (Y).

Based on the results of statistical tests, the Electric Car Charge variable (X3) has a positive and significant effect on improving service efficiency (Y). This is evidenced by the t-statistical value of 2,555 > of t-table 1,985 and a significant value of $0.012 < 0.05$, then H3 is accepted. This means that the better the provision and management of electric car charging facilities, the higher the level of service efficiency produced.

Based on the Resource Based View (RBV) Theory, Electric Car Charges can be broken down into physical resources, namely the company's physical assets that are able to provide added value to customers. Supporting infrastructure that is unique and relevant to the needs of modern consumers can be a strategic resource that increases a company's competitiveness. In the RBV concept, Electric Car Charges have valuable characteristics, as they provide direct benefits to customers and support the efficiency of time use. In addition, the facility is still relatively limited to the café industry so it has rare elements that can be a differentiator compared to competitors. Therefore, the results of this study support RBV's view that valuable physical resources are able to improve the performance of company services.

These findings are in line with research (Han & Shum, 2024) titled "*Charging during the Stay: The Effects of EV Chargers' Availability*" indicates that



the existence of *Charging Station* It can increase the value of the service felt by customers and extend the duration of the visit, so that the service process becomes more optimal and efficient. As well as research (Sinitsina, 2025) titled "*Leveraging Customer Experience for Competitive Differentiation in EV Charging Services*" stating that the provision of electric car charging facilities is able to improve the customer experience through convenience and ease of access. In addition, this facility also contributes to service efficiency because it allows optimal use of time during the charging process.

The Influence of IoT Servant Robots, Operational Management Systems, and Electric Car Charges on Improving Service Efficiency.

The results of the simultaneous test show that the IoT Service Robot, Operational Management System, and Electric Car Charging together have a significant effect on increasing service efficiency, with a calculated F of 41,301, and a significance of $0.000 < 0.05$, and an Adjusted R Square of 0.557. This means that the three variables explain 55.7% in increasing service efficiency. These results indicate that the research model has a fairly good ability to explain increasing service efficiency through the application of technology and operational systems used by the company.

Based on the Resource Based View (RBV) Theory, Electric Car Charges can be broken down into physical resources, namely the company's physical assets that are able to provide added value to customers. Supporting infrastructure that is unique and relevant to the needs of modern consumers can be a strategic resource that increases a company's competitiveness. In the RBV concept, Electric Car Charges have valuable characteristics, as they provide direct benefits to customers and support the efficiency of time use. In addition, the facility is still relatively limited to the café industry so it has rare elements that can be a differentiator compared to competitors. Therefore, the results of this study support RBV's view that valuable physical resources are able to improve the performance of company services.

These findings are in line with research (Han & Shum, 2024) titled "*Charging during the Stay: The Effects of EV Chargers' Availability*" indicates that the existence of *Charging Station* It can increase the value of the service felt by customers and extend the duration of the visit, so that the service process becomes more optimal and efficient. As well as research (Sinitsina, 2025) titled "*Leveraging Customer Experience for Competitive Differentiation in EV Charging Services*" stating that the provision of electric car charging facilities is able to improve the customer experience through convenience and ease of access. In



addition, this facility also contributes to service efficiency because it allows optimal use of time during the charging process.

The Influence of IoT Servant Robots, Operational Management Systems, and Electric Car Charges on Improving Service Efficiency in Sharia Perspectives.

Based on the results of the study, simultaneously the variables of IoT Servant Robots, Operational Management Systems, and Electric Car Charges have a significant effect on Improving Service Efficiency. These findings show that the integration of various strategic resources owned by the company is able to improve the quality of services effectively and efficiently. From the perspective of *Resource Based View* (RBV), IoT Servers, Operational Management Systems, and Electric Car Charging are the company's strategic resources consisting of technological resources (technology resources), organizational capabilities (organizational capabilities), and physical resources (physical resources). According to Wernerfelt (1984) and Barney (1991), companies that are able to manage and integrate resources that are *valuable, rare, inimitable, and non-substitutable* will be able to improve organizational performance and create sustainable efficiency.

From a sharia perspective, these findings show that the use of technology and a good operational management system is part of efforts to achieve benefits (*maslahah*) in business activities. As theoretically, in Islamic economics, business activities must be based on the principle of *maslahah*, which is to provide the greatest benefit to humans without causing harm. The use of technology such as IoT Server Robots is included in the category of innovations that are allowed as long as they provide benefits, improve service quality, and facilitate customer activities. In the context of RBV, these benefits show that the resources owned by the company have value, because they are able to create convenience, comfort, and efficiency for customers. This is in line with the words of Allah SWT in Q.S Al-A'raf [7] 56:

وَلَا تُفْسِدُوا فِي الْأَرْضِ بَعْدَ إِصْلَاحِهَا وَادْعُوهُ خَوْفًا وَطَمَعًا إِنَّ رَحْمَتَ اللَّهِ قَرِيبٌ مِّنَ الْمُحْسِنِينَ

"And do not make any damage on the earth after Allah has repaired it; and pray to Him with fear and hope. Indeed, Allah's mercy is very near to those who do good." (Q.S. Al-A'raf [7]: 56)

In addition, Islam also teaches the importance of trustworthiness, professionalism (*itqan*), and avoiding waste (*israf*) in every business activity. The use of technology and operational systems is more effective, minimizes errors, and optimizes the use of resources. As Allah SWT says.



إِنَّ الْمُبَذِّرِينَ كَانُوا إِخْوَانَ الشَّيْطَانِ ۖ وَكَانَ الشَّيْطَانُ لِرَبِّهِ كَفُورًا

"Indeed, the spendthrifts are the brothers of Satan and Satan is very disobedient to his Lord." (Q.S. Al-Isra' [17] : 27)

The results of this study show that the integration between IoT Servant Robots, Operational Management Systems, and Electric Car Charges not only improves service efficiency, but also reflects the company's success in managing strategic resources as described in the *Resource Based View* (RBV) Theory. On the other hand, the application of technology is also in line with the principles of sharia business, namely *maslahah*, *amanah*, *itqan*, *hifz al-biah*, and *avoiding israf*. Thus, the technological innovations applied by El's Coffee Roastery can be a means to improve the quality of service while realizing business continuity in accordance with Islamic values.

CONCLUSION

Based on the results of the study on the Analysis of the Influence of IoT Waiter Robots, Operational Management Systems, and Electric Car Charges on Improving Service Efficiency in a Sharia Perspective at El's Coffee Roastery Bandar Lampung, it can be concluded:

IoT Servant Robots have a positive and significant effect on Improving Service Efficiency. This shows that the use of IoT Waiter Robots can help speed up the service process, improve the accuracy of order delivery, and reduce human error. In addition, the application of IoT-based technology also provides a more modern and innovative service experience for customers so as to support the creation of more effective and efficient services.

The Operational Management System has a positive and significant effect on Improving Service Efficiency. This means that the better the management of the operational system, the higher the efficiency of the services produced. A structured Operational System is able to improve coordination, speed up service processes, and minimize errors in operations.

Electric Car Charging has a positive and significant effect on Improving Service Efficiency. This shows that the provision of technology-based support facilities is able to increase customer comfort and optimize service time, thus having an impact on improving service efficiency.

Simultaneously, based on the statistical value of F of 851,468, and the significance level of $0.000 < 0.05$ IoT Servant Robots, Operational Management Systems, and Electric Car Charges together have a significant effect on improving service efficiency. This shows that service efficiency is not only



affected by one factor, but is the result of a combination of technology, operational systems, and supporting facilities. And partially all variables have a significant influence, and simultaneously all three are able to make a meaningful contribution in improving service efficiency.

From a sharia perspective, the application of IoT Robot Waiters, Operational Management Systems, and Electric Car Charging at El's Coffee Roastery Bandar Lampung is in line with Islamic business principles, especially the values of *maslahah* (utility), *amanah* (trust), *'adl* (justice), and *hifzh al-bi'ah* (environmental conservation). The use of modern technology in services can provide convenience, improve service quality, and support operational efficiency while still paying attention to business ethics, usefulness, and not causing waste or losses for other parties.

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