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# The Effect of Information Technology, Competence, and Commitment to Service Quality and Implication on Customer Satisfaction

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**Abstract.** The use of information technology to support the various needs and development of organizations, individuals, and companies will undoubtedly bring something positive. With the assistance of information technology, the company's performance will be excellent. Moreover, the excellent performance also necessitates organizational commitment. A strong commitment will enhance the quality of the company's products or services. Hence, improving service quality is the first step toward increasing customer satisfaction. Based on this phenomenon, the independent variables in this study are information technology, competence, and commitment, with service quality representing an independent variable and customer satisfaction representing an intervening variable. The object study of this research is permanent employees at PT. ADM in Tasikmalaya. This research uses quantitative with explanatory research methods. According to the results of a study, information technology (X1), competence (X2), and commitment (X3) all have a significant effect on service quality (Y) and its implications for customer satisfaction (Z).

Keywords: Explanatory research method; Quantitative method; Service quality

# 1. Introduction

Every company must be able to create products and services that can capture consumers' attention as well as their needs and desires, resulting in a mutually beneficial exchange between the consumer and the producer. The potential benefits of information technology will undoubtedly receive widespread public support. Information technology is a set of tools that help you work with information and perform tasks related to information processing (Suharno, 2017; Gureja, 2013; GMAT, 2017; GMAT, 2020, ITL, 2012, Rajaraman, 2018; Ciampa and Reverls, 2012). Moreover, employee performance will be high with the support of information technology. Job performance refers to how individuals perform

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their duties in terms of the expected quantity and quality of their jobs. It has been defined as the overall expected value from employees' behaviors throughout a set period. Employee performance is the result of work in quality and quantity achieved by an employee in carrying out his duties according to his responsibilities (Robbins, 2010; Frick, 2019; Spotts, 2014; Diesselkamp, 2013). Furthermore, with high performance, it can maintain organizational commitment. In organizational commitment, the employee feels attached to the organization, so they go beyond their jobs and put extra effort into the organization's success. Employees will be committed to the organization if they are satisfied with their job. Employers must focus on factors contributing to these attitudes as satisfied and engaged employees majorly contribute to an organization's success (Smith et. al., 2012; Baron et al., 2018, Kossman, 2017; Firth, 2020). A strong commitment will impact the quality of the company's products or services (Naruetharadhol et al., 2021; Fox, 2013; Zuna et al., 2016; Purba, et. al., 2017, Thaithatkul, et. al., 2021). Definitions of service quality revolve around the idea that it is the result of the comparison that customers make between their expectations about service and their perception of the way the service has been performed (Lewis & Booms, 1983; Jongen et. al., 2017). According to (Masudin et al., 2018; Zuna et al., 2016); Johnson, 2017; Mok et al., 2013; Kuri, 2017; Nguyen & Dornberger, 2016; Khosrow-Pour, 2018), customer satisfaction is an attitude that is decided based on the experience gained. Satisfaction is an assessment of the characteristics or features of the product, service, or the product itself, which provides the level of consumer pleasure related to fulfilling consumption needs. Consumer satisfaction can be created through quality, service, and value. In fact, consumer satisfaction is challenging to attain; it necessitates a lengthy process, one of which is providing high-quality service and products to customers. In addition, consumer satisfaction is also influenced by good service quality from producers to consumers. With a growth in sales, the company could win the competition because it can attract consumers' attention to the products offered; this is inextricably linked to a company's marketing activities, including product and service quality. As a result, it is necessary to establish a correlation between information technology, competence, and commitment to service quality and the implications for customer satisfaction.

### 2. Methods

This research is based on previous research, which includes:

1	There is an influence of information technology on service quality.	(Alsaleh & Bageel, 2016); (Andajani & Rahayu, 2019); (Aydinli & Senyurek, 2016); (Herdiyanti et al., 2017); (Freitas & Neto, 2017); (Hizam & Ahmed, 2019); (Lenny & Kridanto, 2019); (Nyameino et al., 2015); (Sembiring & Adi, 2015); (Rajeswaran & Anvekar, 2016).
2	There is an influence	(Afif & Suwandari, 2019); (Al-Ababneh et al., 2018); (Bruce et al., 2019);
	of competence on	(Ghotbabadi et al., 2015); (Hamzah et al., 2019); (Marsudi, 2017); (Pakurár
	service quality.	et al., 2019); (Pasharibu et al., 2018); (Suharno, 2017); (Vikaliana & Evitha,
		2019).
3	There is an influence	(Alsharari et al., 2017); (Esmaeilpour & Ranjbar, 2018); (Hadiwijaya &
	of commitment on	Febrianty, 2019); (Hidayat et al., 2015); (Kungumapriya & Malarmathi,
	service quality.	2018); (Pahi et al., 2017); (Sari et al., 2018); (Setiawan et al., 2020); (Singh,
	1 5	2016); (Sutanto, 2019).
4	There is an influence	(Nushrat & Afroz, 2019); (Elidawati et al., 2018); (Hapsari et al., 2016);
	of service quality on	(Kwok et al., 2016); (Mensah & Mensah, 2018); (Ngo & Nguyen, 2016); (Sri
	customer satisfaction.	& Widowati, 2017); (Theresia & Bangun, 2017); (Kuo & Wu, 2014).

Based on previous research, the following hypotheses are formulated:

Notation	Description
$H_0: \rho y x_1 = \rho y x_2 = \rho y x_3 = 0$	There is no influence of information technology (X1), competence
$H_a$ : There is at least one $\rho y x_i \neq 0$ ;	(X2), and commitment (X3) on service quality (Y) There is an influence of information technology (X1), competence (X2), and commitment (X3) on service quality (Y)
where $i = \rho y x_1, \rho y x_2, \rho y x_3$	

Table 1 Research Hypothesis Result Sub Structure 1

Table 2 Research Hypothesis Result Sub Structure 2

Notation	Description			
$H_0: \rho z y = 0$	There is no influence of service quality (Y) on customer satisfaction (Z)			
$H_a: \rho zy \neq 0$	There is an influence of service quality (Y) on customer satisfaction (Z)			

This study applied a quantitative approach with an explanatory research method. The following diagram depicts the stages of data processing and analysis.



### Figure 1 Framework of Thinking

The target population of this study is permanent employees in PT. ADM located in Tasikmalaya. The path analysis technique was used to see the influence between variables (X1), (X2), (X3), (Y), and (Z). A data quality test is an activity to test the accuracy of the questionnaire as an instrument to measure respondents' perceptions (responses) to the statements contained in the questionnaire.

To assess respondents' perceptions, 3 (three) questionnaire accuracy-testing tools are available: 1). The validity test is declared valid if the correlation coefficient value is more significant than 0.3 (Brannen, 2017). The reliability test is reported reliable if the value of the reliability coefficient is at least 0.7; and 3). The average value for each variable with a standard deviation value is explained by normality testing.

Path analysis is a method used to measure direct and indirect relationships between variables (Avkiran & Ringle, 2018). According to Brannen (2017), analyzing the interval of correlation coefficient requires guidance on interpreting the direct relationship level between variables. 1). 0 - 0,19 is very low; 2) 0,2 - 0,39 is low; and 3). 0,4 - 0,59 is considered middle; 0,6 - 0,79 is considered strong; and 0,8 - 1 is considered extremely strong. A feasibility study is an activity to assess whether the research model meets the goodness of an Econometric Model's criteria for producing the expected model (Supriyadi et al., 2017).

#### 3. Results and Discussion

West Java, as it is well known, consists of 9 cities and 18 districts, and the number of respondents in this research was 201, with 116 (58%) male respondents and 85 (42%) female respondents. This study's respondents were selected from five cities: Bandung, Banjar, Cimahi, Cirebon, and Tasikmalaya, as well as seven regions: Bandung, West Bandung, Ciamis, Cirebon, Garut, Sumedang, and Tasikmalaya. The following characteristics of the 201 respondents were studied in this research: gender, age, last educational level, experience, position, years of service, and expertise. Here are some of the characteristics of this study, among others: 1). By sex is the number of female respondents as many as 106 people (52.74%) more than the number of male respondents as many as 95

people (47.26%); 2). Based on education, 189 high school graduates (94.03%) and S1 graduate graduates were 12 people (5.97%). The results of the data quality test can be seen in the following table.

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Table 3 Value of Validity, Reliability, and Normality Test on Questionnaire Characteristic	Table 3 Value of Validity,	, Reliability, and Norm	ality Test on Ouestio	nnaire Characteristics
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Item	X1	X2	X3	Y	Z	Reference Value
Number of Question	19	37	24	25	31	
Validity Test	0,45	0,46	0,44	0,43	0,43	>0,30
Reliability Test	0,71	0,86	0,75	0,78	0,81	≥ 0,70
Normality Test	0,07	0,08	0,20	0,20	0,20	>0,05

The subsequent step is descriptive analysis research. The table below summarizes respondents' perceptions of information technology variables, competencies, commitment, service quality, and customer satisfaction:

Table 4 Criteria fo	or Achievement of Each	Variable Score
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Variable	Ν	Mean	Std. Dev	Range	Criteria
(X1)	201	3,79	0,33	3,45	4,12
(X2)	201	3,67	0,43	3,23	4,10
(X3)	201	3,75	0,32	3,42	4,06
(Y)	201	3,91	0,28	3,63	4,18
(Z)	201	3,89	0,37	3,51	4,27

The following step after descriptive analysis is verification analysis. The verification analysis is divided into two stages, i.e.

- a. Sub Structure 1
  - 1) Correlation Coefficient

Verification analysis explains the correlation coefficient between variables and the path coefficient of each independent variable on the intervening variable and intervening variable on the dependent variable, as follows: a). the relationship between (X1) and (X2) scores = 0.64 and is interpreted as a strong relationship; b). the relationship between (X1) and (X3) scores = 0.63 and is interpreted as a strong relationship; c). the relationship between (X2) and (X3) scores = 0.80 and is interpreted as a strong relationship.

2) Path Coefficient

The variable (X1), (X2), and (X3) to (Y) are obtained from structural equations calculated with the SPSS application program. F value of 104,595 and F table value of 3,89 ( $\alpha = 95\%$ ) obtained. As a result, Fcount > F Table means that Ho is rejected and Ha is accepted. Partial path coefficient value of a variable (X1) of 0,456, (X2) of 0,215, and (X3) of 0,215 to (Y) was obtained from the structural equation calculated using the SPSS application program.

### b. Sub Structure 2

By using the SPSS application program, the Structural Equation Modeling obtains the path coefficient value of the variable (Y) of 0.900 to (Z). Furthermore, get an R-value of 0.623, indicating that the value of the relationship between service quality and customer satisfaction is 0.623, meaning that the relationship is close. The value of R2 indicates that the (Y) influences the (Z) of 0.814. The remaining 0,186 is caused by other variables, such as job satisfaction, organizational culture, organizational climate, and others. In this study, the path coefficient shows that (X1), (X2), and (X3) have a significant effect on the variable (Y), as well as the variable (Y) has a significant effect on the variable (Z), as shown in the diagram below::

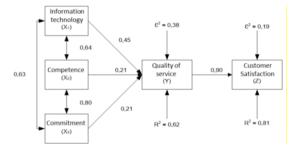


Figure 2 The Effect of (X1), (X2), and (X3) on (Y) and Its Implications on (Z)

It is clear from the illustration on the picture above that:

a. Sub Structure 1

The contribution of the influence of (X1), (X2), and (X3) simultaneously to (Y) of 0,62. The remaining 0.38 is influenced by various factors not discussed in this research, such as discipline, compensation, creativity, and others.

b. Sub Structure 2

The influence of (Y) on (Z) from the achievement of company performance contributed to 0.81. Other factors that can affect the remaining 0.19, which are not examined in this study and are expected to affect customer satisfaction, include job satisfaction, organizational culture, organizational climate, and others.

The following phase is hypothesis testing. To test the effect of the independent variables on the dependent variable simultaneously, the researchers conducted an F test that was calculated using the SPSS Application program.

**Table 5** Simultaneous Research Hypothesis Result

Str	ructural	F count	F table	α	Conclusion
ρι	/X1X2X3	104,5	3,90	0,05	Ha accepted. There is the influence of (X1), (X2), and (X3) on (Y)

To partially test the effect of the independent variable on the dependent variable, the researcher conducted a t-test calculated using the SPSS Application program.

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Structural		Coeff. Path.	t hit	t tbl	ρ	α	Conclusion
	ρyx <sub>1</sub>	0,46	7,63	1,97	0,00	0,05	Ha accepted. There is an influence of (X1) on (Y)
Sub Structure 1	ρyx <sub>2</sub>	0,21	2,75	1,97	0,00	0,05	Ha accepted. There is an influence of (X2) on (Y)
	ρ <b>yx</b> ₃	0,21	2,77	1,97	0,00	0,05	Ha accepted. There is an influence on (X3) on (Y)
Sub Structure 2	ρzy	0,89	28,87	1,97	0,00	0,05	Ha accepted. There is an influence on (Y) on (Z)

**Table 6** Partially Research Hypothesis Result

In the model's feasibility test, researchers conducted a feasibility test using the following model:

a. Theoretical Plausibility

This study is considered appropriate if the result shows a positive sign on the influence of variables of (X1), (X2), and (X3) on variable (Y) and shows positive signs on variable (Z), as shown in the table below:

Table 7 Theoretical Plausibility Test Result

Relationship and Interrelationships Between Variables	Pre-Estimation	Post-Estimation	Suitability
The effect of variables X1, X2, and X3 on the variable Y	+	+	Match/Influence
The effect of variable Y on variable Z	+	+	Match/Influence

b. Because the post-estimation results are the same as the pre-estimation results, this research model conducted with an analytical survey in the West Java region is declared feasible. Accuracy in Parameter Estimation

All independent variables investigated generate values of 0,000 or less than 0,05. As a result, this model is appropriate for research because it fulfills the accuracy in parameter estimation.

c. Explanatory Ability

This study meets the eligibility criteria of a research model if the Standard Error value of the studied variable is less than 0.5 from the path coefficient value. The results of the study can be seen in the table below:

Table 8 Explanatory Ability Test Result

No	Variable	Std. Error	Path Coeff. Value
1	SE (X1)	0,074	< (0,5) x (0,45) = 0,2275
2	SE (X2)	0,047	< (0,5) x (0,21) = 0,106
3	SE (X3)	0,077	< (0,5) x (0,21) = 0,106
4	SE (Y)	0,04	< (0,5) x (0,9) = 0,4495

# d. Forecasting Ability

Based on the data processing results, this research achieved the model's eligibility requirements (the goodness of an econometric); The value of (X1), (X2), and (X3) to (Y) is 62 %, which is greater than 50 %. The value of (Y) to (Z) is 80%, and greater than 50%.

### 6. Conclusions

The results of the hypothesis are as follows: 1). There is a significant influence of information technology, competence and commitment simultaneously on service quality. In this case, the influence of information technology is the more dominant influence on service quality; 2). The quality of service (Y) is influenced by the variables information technology (X1), competence (X2), and commitment (X3) (Y); 3). Service quality (Y) influences customer satisfaction (Z). It means that each study variable has a statistically significant effect. According to the results of this study, information technology has played an important role and contributed to the company. Therefore, companies can fully utilize information technology.

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