

**THE INFLUENCE OF EDUCATION AND TRAINING, USER INVOLVEMENT IN SYSTEM DEVELOPMENT TOWARD ACCOUNTING INFORMATION SYSTEMS PERFORMANCE WITH TOP MANAGEMENT SUPPORT AS INTERVENING VARIABLES  
(CASE STUDY AT DINAS PERTANIAN, PERIKANAN DAN PANGAN, SEMARANG DISTRICT)**

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**Abstract:** This study aims to determine the effect of user education and training, and the application of users in system development on accounting information system performance by supporting top management as an intervening variable. The number of samples in this study was 30 respondents. Sampling using a purposive sampling technique. Validity and reliability tests were used to test research instruments. The classic assumption test uses the normality test, multicollinearity test, and heteroscedasticity test. Testing the hypothesis using the F statistical test and T statistical test. The results showed that user education and training did not affect accounting information system performance, user involvement in system development had an effect on accounting information system performance, top management support had an effect on accounting information system performance, top management support was not able to mediate the significant effect of education and training on accounting information system performance and top management support was not able to mediate the significant influence of user involvement in system development on accounting information system performance.

**Keywords:** Top Management Support, User Education and Training, User Application in System Development.

## **INTRODUCTION**

### **Introduction**

The development of an increasingly advanced era makes us need information technology in all fields. A quality company business strategy is determined by the role of good information technology. Information technology helps company performance to take advantage of the use of computer-based systems so that it is easy to process data and produce reliable data. Companies can operate an Accounting Information System (AIS) without using a computer, but computers play an important role in presenting accurate, precise, and efficient information. Information is data that is processed so that later it can be useful in making appropriate and accurate decisions. This information can later be used by management or interested parties to make decisions to support the company's progress in competing with competitors.

The performance of a company can be increased by using technology to be able to manage information from outside. The performance of the accounting system can be viewed from two things, namely system user satisfaction and system use. Satisfaction with the system users themselves includes how employees feel helped and makes it easier for them to complete their tasks or not. The performance of the accounting information system can be seen from how users

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feel satisfied with the accounting information system itself. While the use of the system is seen from individual behavior in the use of the Accounting Information System (AIS) which brings several benefits in completing their duties. If the user is satisfied, the performance of using the system will increase.

Performance improvement can also be done by holding frequent education and training so that employees can become more familiar with the system. Education and training are an important activity for employees to be able to face the company's future challenges. According to Nasution et al (2019), education and training is a learning process to increase the abilities and skills of a person or group in completing tasks with organized procedures in a short time. The existence of education and training can also increase the ability and knowledge of users to operate the system and make the most of information systems. Education and training can identify users to find out capabilities that can improve user performance. User education and training aim to increase the ability of the accounting information system used, as well as increase user understanding so that they can complete the job properly and optimally.

One of the factors that must also be considered in the accounting information system is user involvement in the development of a useful system to minimize the obstacles that will occur between the system that has been created and its operation. The mental and emotional involvement of employees is also involved in system development and that is the goal of user involvement (Latifah & Abitama, 2021). User involvement in system development can also affect the performance of accounting information systems. If users are directly involved in using the information system, users will better understand what they need in its operation. So that the goal of more frequent user involvement will improve the performance of accounting information systems because it has a relationship between user involvement in information system development and accounting information system performance.

According to Latifah & Abitama (2021), top management support is the involvement of managers in system development and efforts to provide the necessary resources. Top management support is also a very important factor for the performance of accounting information systems. The support in question is about how top management understands accounting information systems and computer systems. Top management support can produce a positive influence on employee performance, they will feel that their work can be appreciated. Top management support can also motivate employees to do better at work, because the greater the support provided, the more the performance of the accounting information system will improve, because there is a positive relationship between top management support in process development and the operation of accounting information systems.

Research conducted by Latifah & Abitama (2021) stated that education and training, user involvement and top management support are important factors in the performance of the Accounting Information System (SIA). Success in using the system also depends on the use of the technology itself Sari (2019), so that if there are training and education activities, user involvement and top management support can be useful for increasing the ability and confidence of each employee and rejecting the anxiety that exists from use of the new system.

Research by Satria & Dewi (2019) states that education and training, user involvement in system development, and top management support have a positive effect on the performance of the Accounting Information System (AIS). Meanwhile, according to research by Dewi & Idawati (2019) it states that the factors that have a positive influence on the performance of the Accounting Information System (SIA), namely top management support and the formalization of information system development. However, according to Alfiani et al (2022) the factors that affect the performance of users of Accounting Information Systems (SIA), namely the quality of information systems, perceived usefulness, quality of information and user satisfaction

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which can have a positive effect on individual performance partially or simultaneously. Furthermore, research by Nindita & N (2022) states that user participation, training and user involvement have a significant effect on the performance of the Accounting Information System (AIS). Meanwhile, according to Suryana's research (2020) user involvement and personal technical skills have a positive effect on the performance of the Accounting Information System (SIA), education and training are not able to strengthen personal technical abilities on the performance of the Accounting Information System (SIA).

Dinas Pertanian, Perikanan dan Pangan, Semarang District is a regional government implementing organization that can serve public needs directly to the community. Dinas Pertanian, Perikanan dan Pangan, Semarang District is an implementing element in the fields of agriculture, fisheries and food. As an organization, the Dinas Pertanian, Perikanan dan Pangan, Semarang District has various functions including carrying out government affairs and services for the general public in the fields of agriculture, fisheries and food, being able to manage the secretariat sector, coordinating the implementation of affairs in the fields of agriculture, fisheries and food, and being able to evaluate supervision and reporting related to agriculture, fisheries and food. In carrying out the functions and duties of the Dinas Pertanian, Perikanan dan Pangan, Semarang District requires employee performance in carrying out their respective duties and functions Dinas Pertanian, Perikanan dan Pangan Kab. Semarang requires maximum employee performance in carrying out their duties and functions so that the required competencies can be increased so that the services that will be provided to the general public are also maximized, which is in accordance with its vision, namely "The Realization of an Independent, Orderly, Prosperous Semarang Regency".

Dinas Pertanian, Perikanan dan Pangan, Semarang District was chosen by researchers to analyze research on system development and performance of Accounting Information Systems (AIS). Based on the results of the author's observations on Sub. Finance Section at the Dinas Pertanian, Perikanan dan Pangan, Semarang District has a deficiency in the performance of accounting information systems due to several factors, namely there are several personnel who are limited in terms of operating computers due to age, so they are less active in the process of operating accounting information systems, most employees do not really understand the system used and sometimes errors occur. Even so, training for users is an effective way for employees to understand accounting information systems, and top management support is also a positive influence on user education and training in system development.

The objectives of this research include: to analyze the effect of education and training on the performance of accounting information systems at the Dinas Pertanian, Perikanan dan Pangan, Semarang District, to analyze the influence of user involvement in system development on the performance of accounting information systems at the Dinas Pertanian, Perikanan dan Pangan, Semarang District, to analyze the influence of top management support on the performance of accounting information systems at the Dinas Pertanian, Perikanan dan Pangan, Semarang District, to analyze the effect of education and training on the performance of accounting information systems with managerial support as an intervening variable at the Dinas Pertanian, Perikanan dan Pangan, Semarang District, to analyze the influence of user involvement in system development on the performance of accounting information systems with managerial support as an intervening variable at the Dinas Pertanian, Perikanan dan Pangan, Semarang District, to analyze the effect of education and training and user involvement in system development simultaneously (together) on the performance of accounting information systems at the Dinas Pertanian, Perikanan dan Pangan, Semarang District.

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## **LITERATURE REVIEW**

### **Accounting information system**

An accounting information system is a way to collect, store and process data to produce information for decision makers, according to Romney & Steinbart (2018). Meanwhile, according to (Azman, 2019) an accounting information system is a report that is collected to contain financial information needed by management to manage the company. According to (Bodnar & Hopwood, 2019), accounting information systems have the goal of processing data from various sources into accounting information that can be used by users to reduce errors when making decisions.

The functions of accounting information systems according to Romney & Steinbart (2018: 11) have a relationship with each other, namely:

1. Collect and store data on activities carried out by the organization, resources, and personnel of an organization.
2. Turning data into information so that management can plan, implement, control and evaluate activities.
3. Provide adequate controls to protect organizational assets and data.

### **Education and Training on Performance Accounting information system**

Education and training is a method for increasing the ability of a person or group to carry out tasks through procedures with a predetermined time Jepriadi (2018) whereas according to Gustiana et al (2022) education and training are processes that companies want for employees to be able to improve attitudes, skills and education of the employee.

According to Mangkunegara (2011) the training indicators are as follows:

1. Instructor  
A given instructor must have skills that qualify for the field and can be competent in education and training.
2. Participants  
Participants who take part in the training must meet the requirements and have high enthusiasm to take part in this training and education.
3. Material  
The material provided must be in accordance with the goals of the company and must be updated so that participants can deal with problems that occur later.
4. Method  
The methods used in this training will be an effective resource for the trainees.
5. Purpose  
The objectives of this training must also be conveyed to the participants so they can understand this training well and the training can be held effectively.
6. Target  
The target of this training must already meet the existing requirements. So that the training can be directed to the right people.

According to Simamora (2010:29), the benefits of education, training and development programs are:

1. Determining an attitude of loyalty and being able to work together for things that can be profitable.
2. Can improve the expertise of employees to be able to continue to grow.
3. Can increase employee job satisfaction.

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### **User Involvement of System Development**

According to (Tiara & Fuadi, 2018) Information systems that can be used are information systems that have been developed by managers. According to (Ramadhan et al., 2021), user involvement is also a process of developing an information system that can affect the quality produced later. The more often users are involved, the performance of the accounting information system will improve. In another sense, user involvement in system development is a process that can affect the quality of the final results later which can improve the performance of accounting information systems (Ramadhan et al., 2021).

According to (Azhar Susanto, 2008:300) stated indicators of user involvement in system development as follows

1. Relationships
2. Insight
3. Responsibility
4. Time
5. User wishes

### **Top Management Support**

Top management support is a high position held by someone with responsibility for decision making (Cahyadi et al., 2020). According to (Ramadhanti, 2019) the form of support provided from top management is through the provision of facilities in the form of providing training and education to system users if problems occur related to the system, so that users can solve these problems in the right way. The amount of top management support will affect the performance of the Accounting Information System (AIS).

(Malay Hasibuan, 2016) found 3 indicators of the form of top management support consisting of:

1. Provide rewards to employees who excel with the aim of making each individual employee proud.
2. Providing facilities that can improve employee performance and smooth tasks is top management support to make employees feel comfortable and enthusiastic about completing their duties.
3. Give attention to each employee so that employees feel more cared for by the leadership and can also improve the performance of the Accounting Information System (AIS).

### **Accounting information system performance**

According to (Syaharman, 2020) Performance is an action that is shown by the general public through the skills they have, while According to (Marya, 2020) defines performance as the achievement of an activity program to fulfill the goals of a company which is channeled through strategic planning.

According to (Hanafiah & Zulvia, 2018) aspects of performance are:

1. User involvement in system development.
2. Personal technical ability.
3. Top management support.
4. System development formalization. Education and training.

According to Bangun (2012: 233-234) indicators performance is as follows:

1. Number of jobs  
Each individual or group can make the number of jobs a standard in work, so that jobs that have standards must be fulfilled by employees who meet the existing requirements.

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2. Quality of work  
The results obtained from each employee in working to achieve goals in work carried out effectively and efficiently.
3. Punctuality  
Every employee has responsibilities towards his work, one of which is that the work done must be completed on time so that they can do other work and time is effective.
4. Presence  
The presence of employees is a major factor in the completion of assigned tasks.
5. Cooperation ability  
The ability of a person or group to complete work together to meet common goals. And this cooperative ability has the benefit of increasing the performance of each employee.

## **RESEARCH HYPOTHESIS**

### **Education and training**

Training is a process of learning a person or group to get certain abilities to achieve the goals of an organization, while education is the process of increasing general knowledge and understanding. Education and training intended so that a person or group can adjust attitudes and knowledge in the development of work demanded by the company and can improve performance. Research by Satria & Dewi (2019) states that education and training, user involvement in system development, and support top management has a positive effect on the performance of accounting information systems. This is supported by research conducted by Nindita & N (2022), which shows that training has a significant effect on system performance accounting information. Based on the description above, the first hypothesis can be proposed that is

**H1: Education and training affect the performance of accounting information systems**

### **User involvement in system development**

User involvement is an information system development process that can affect the quality produced later (Ramadhan et al., 2021). Involvement the user aims to involve the user to test the emotional and mental so that the success of the accounting information system can be realized, in its use it takes experience to produce accurate information. According to Satria & Dewi (2019) user involvement in system development has a positive effect on the performance of the Accounting Information System. Same thing too stated by Wiratmaja & Sari Widhiyani (2022) that user involvement and personal technical skills have a positive effect on information system performance accountancy. Based on the description above, the second hypothesis can be proposed, namely

**H2: User involvement affects the performance of accounting information systems**

### **Top management support**

Top management support according to Ramadhanti (2019) is a form of support provided from top management, namely through the provision of facilities in the form of providing training and education to the system if problems occur related to the system, so that users can solve these problems in the right way. Pratiwiningtyas & Prasetyo (2018) revealed that work motivation and discipline have a significant effect on employee performance. This is supported in Lawita & Hardilawati's research (2019), namely support top management and the formalization of the development of influential information systems on the success of users of accounting information systems. From the description above can the third hypothesis is proposed, namely

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**H3: Top management support affects the performance of accounting information systems**

**The effect of education and training programs on the performance of accounting information systems with top management support as an intervening variable**

**SIA**

Performance appraisal is influenced by several factors such as education and training, user involvement and top management support. These three factors have a strong basis for helping operational managers succeed in implementing accounting information systems. One that influences it is top management support, the higher the support given, the more it supports its subordinates in operating the accounting information system. The support provided is in the form of the involvement of top management in using information systems as a provider of information that can later be used in decision making. Research conducted by Wulandari, A.A.A Putri Syintia. and Juliarsa (2017) state that top management support, user training programs and user involvement in system implementation have a positive effect on AIS performance. From the description above, the fourth hypothesis can be proposed, namely

**H4: Top management support strengthens the effect of education and training programs on the performance of accounting information systems**

**The effect of user involvement in system development on the performance of accounting information systems with top management support as an intervening variable**

The support provided by management in developing the system has a role important in the development stage of the AIS because top management has influence in decision making. The support provided can be in the form of developing a performance measurement system and providing periodic feedback, placing members in jobs according to their abilities, and providing support through training. Such support will have an effect on measuring system performance because management also uses the system in making decisions that will later be determined. Research conducted by Trenida & Dwirandra (2018) states that top management support strengthens the influence of user involvement on AIS performance, while top management support is not able to influence users' ability to AIS performance. From the description above it can be proposed the fifth hypothesis, namely

**H5 : Top management support strengthens the influence of user involvement on the performance of accounting information systems**

**The influence of education and training, user involvement in system development on the performance of accounting information systems**

Information system users have good techniques derived from previous educational and training experiences that can increase satisfaction in using accounting information systems. This causes users to continue to use the accounting information system in completing their tasks, so that this personal technique has a positive influence on the performance of the accounting information system. While user involvement is the process of developing an information system that can affect the quality produced later, the more often users are involved, the performance of the accounting information system will improve. From the description above, the sixth hypothesis can be proposed, namely

**H6: The effect of education and training, user involvement in system development on the performance of accounting information systems affects the performance of accounting information systems**

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**RESEARCH METHODS**

This study uses quantitative methods collected through distributing questionnaires and interviews. The population in this study were all employees at the Dinas Pertanian, Perikanan dan Pangan, Semarang District. While the research sample is 30 employees.

**DATA ANALYSIS METHOD**

The data in the research were analyzed using validity test, reliability test, classical assumption test, path analysis (path analysis), hypothesis test, and Sobel test.

**RESULTS AND DISCUSSION**

**Data Validity and Reliability Test**

According to Sugiyono (2019) the validity test is used to measure whether a questionnaire is valid or not. The reliability test is a way to test a questionnaire whether there are indicators of Ghozali variables or constructs (2018: 45). Based on the results of the validity test, all the answers to the questions stated that  $r_{count} > r_{table}$ , so that it could be declared valid. Based on the reliability test it can be stated that it is reliable because the Cronbach Alpha value is  $> 0.60$ .

**Classic assumption test**

The classic assumption test is whether or not a data is appropriate for use in a study. Tests in this study stated that the data had passed the classical assumption tests including the normality test, multicollinearity test, and heteroscedasticity test.

**Path Analysis**

Path analysis (Path Analysis) is a regression model used to analyze the relationship between one variable and another by mediating the intervening variables Ghozali (2011: 249).

**Table 1  
Path Analysis Result**

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.338 <sup>a</sup>	0.113	0.047	1.395

Source: Primary data processed, 2023

Based on the model summary table above, it shows that the R square is 0.113, which means education and training, user involvement in sustainable system development on accounting information system performance is 11.3%. While the e1 value can be searched by the formula:

$$e1 = \sqrt{1 - R^2}$$

$$e1 = \sqrt{1 - 0,113} = 0,94$$

**Table 2  
Path Analysis Result**



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Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.802 <sup>a</sup>	0.643	0.802	2.472

Source:

processed, 2023

Primary data

Based on the summary model above, it shows that the R Square is 0.643, which means that the contribution of education and training, user involvement in system development and top management support is 64.3%. While the value of e2 can be found by the formula:

$$e2 = \sqrt{1 - R^2}$$

$$e2 = \sqrt{1 - 0,643} = 0,597$$

**Hypothesis testing**

**Table 3  
Hypothesis testing**

Coefficients <sup>a</sup>						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	11.981	5.900		2.028	0.035
	Pendidikan dan pelatihan	-0.131	0.408	-0.015	-0.337	0.738
	Keterlibatan pengguna	1.831	0.454	0.683	4.041	0.000
	Dukungan manajemen puncak	0.731	0.298	0.305	2.457	0.021

Source: Primary data processed, 2023

**Partial Significance Test (t test)**

Based on the table above, it can be done to prove the variable hypothesis as follows:

- Proving the hypothesis of the effect of Education and Training on the performance of accounting information systems. Proof of this hypothesis is done by t test. based on table 4.16. resulting tcount -0.337 < ttable 2.056 with a significance level of 0.738 > 0.05, then Ha is rejected and H0 is accepted. So that education and training have no effect on the performance of accounting information systems.
- Proving the hypothesis of the effect of User Involvement in System Development on the performance of accounting information systems. Proof of this hypothesis is done by t test. based on table 4.16. resulting tcount 4.041 > ttable 2.056 with a significance level of 0.000 < 0.05, then Ha is accepted and H0 is rejected. So that user involvement in System Development affects the performance of accounting information systems.
- Proving the hypothesis of the influence of Top Management Support on the performance of accounting information systems. Proof of this hypothesis is done by t test. based on table 4.16. resulting tcount 2.457 > ttable 2.056 with a significance level of 0.021 < 0.05, then Ha is accepted and H0 is rejected. So that top management support affects the performance of accounting information systems.

**Table 4**

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**F Test Result**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	249.781	2	124.894	17.230	.000 <sup>a</sup>
	Residual	181.711	27	6.730		
	Total	431.500	29			

Source: Primary data processed, 2023

**Simultaneous Significance Test (F Test)**

Proof of the hypothesis was carried out by the F test. Based on table 4.18, the resulting Fcount was 17.230 > Ftable 3.34 or a significance of 0.000 < 0.05. So it can be concluded that the variables of Education and Training, User Involvement in System Development jointly affect the performance of accounting information system performance.

**Determination Coefficient Test (R Test)**

The support of top management is 11.3% while the remaining 88.7% is explained by other variables outside the analyzed regression model.

**Table 5**  
**R Test Result**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.643 <sup>a</sup>	.643	.602	2.472

Source: Primary data processed, 2023

Based on the results of the coefficient of determination above, the magnitude of R Square is 0.643 or 64.3%. The results of this statistical calculation mean that the ability to explain changes between independent variables (top management support, education and training, user involvement) and accounting information system performance is 64.3%, the remaining 35.7% is explained by other variables outside the analyzed regression model.

**Sobel test**

1. The significant effect of education and training on the performance of accounting information systems mediated by top management support.

**Picture 1**  
**Sobel Test Result**

Input:	Test statistic:	Std. Error:	p-value:
a: -0.363	Sobel test: -0.24250817	0.10875686	0.80001441
b: 0.732	Acemian test: 4.22927828	0.20476888	0.82183172
g <sub>0</sub> : 0.216	Goodman test: -0.26177112	0.11267628	0.76041179
h <sub>0</sub> : 0.290	Reset all	Calculate	

Source: Primary data processed, 2023

It is known that the results of the sobel test are -0.242, because the sobel test value obtained is -0.242 smaller than the z table with a significance level of 0.05, which is 1.96, proving that top management support is unable to mediate the significant effect of

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education and training on the performance of accounting information systems.

2. The significant influence of user involvement in System Development on the performance of accounting information systems mediated by top management support.

Picture 2  
Sobel Test Result

Input	Test statistic	Std. Error	p-value
a = 0.421	Sobel test: 1.27655817	0.24677617	0.20161208
b = 0.732	Acnaan test: 1.20809821	0.26482406	0.2278161
A <sub>0</sub> = 0.281	Goodman test: 1.38187217	0.23974803	0.17328017
A <sub>1</sub> = 0.258	Reset all	Calculate	

Source: Primary data processed, 2023

The results of this statistical calculation mean that the ability to explain changes in independent variables (user involvement, education and training) with it is known that the Sobel test result is 1,276, because the Sobel test value obtained is 1,276 which is smaller than the z table with a significance level of 0.05 which is equal to 1.96 then it proves that top management support is not able to mediate the significant influence of user involvement in system development on information system performance accountancy.

## CONCLUSION

Based on the results of the analysis and discussion regarding the effect of education and training, user involvement in system development on the performance of accounting information systems with top management support as an intervening variable in the Dinas Pertanian, Perikanan dan Pangan Kab. Semarang, the following conclusions can be drawn:

1. Education and training have no effect on the performance of accounting information systems at Dinas Pertanian, Perikanan dan Pangan, Semarang District.
2. User involvement in system development affects the performance of the accounting information system at Dinas Pertanian, Perikanan dan Pangan, Semarang District
3. Top management support affects the performance of the accounting information system at Dinas Pertanian, Perikanan dan Pangan, Semarang District.
4. Education and training have no effect on the performance of the accounting information system mediated by top management support at Dinas Pertanian, Perikanan dan Pangan, Semarang District
5. User involvement in system development has no effect on the performance of the accounting information system mediated by top management support at Dinas Pertanian, Perikanan dan Pangan, Semarang District
6. Education and training, user involvement in system development simultaneously (together) influences the performance of the accounting information system at Dinas Pertanian, Perikanan dan Pangan, Semarang District

## RESEARCH LIMITATIONS

In this study there are several limitations, including:

1. The population in this study is limited to Dinas Pertanian, Perikanan dan Pangan Semarang District only, so it cannot be generalized to all employees.
2. There are limitations to the use of variables. The variables used are only education and training, user involvement in system development.

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### **SUGGESTION**

Based on the results obtained from this study, the suggestions for research next, namely:

1. For future researchers, it is expected to be able to expand the population of research objects, not only in government agencies, so that they can get the point of view of the field.
2. Further research can add related independent variables with the performance of accounting information systems, such as development formalization information systems, company size, existence of a system steering board information and location of regional departments.

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