

Factors Influencing Success of SAP Implementation for Enterprise Resource Planning (ERP) from Perspective of SAP Operators during COVID-19 Crisis in Bangkok

ปัจจัยที่มีผลต่อความสำเร็จในการใช้ระบบ SAP ต่อระบบการวางแผนทรัพยากรองค์กร (ERP) ในมุมมองของผู้ปฏิบัติงานระบบ SAP ช่วงสถานการณ์วิกฤติ COVID-19 ในเขตกรุงเทพมหานคร

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Abstract

This research aims to study factors influencing success of SAP implementation for Enterprise Resource Planning (ERP) from perspective of SAP operators during COVID-19 crisis in Bangkok. The researcher collected data and conducted an analysis using surveys with a sample group comprising both public and private sector SAP operators. General data was analyzed using statistical methods, including frequency and percentage analysis. Additionally, the study analyzed factors affecting success of SAP implementation through Multiple Regression Analysis. The study revealed that major participants were male, with most respondents coming from real estate and construction business sectors. The highest age group was 41 years old and above. Most respondents held a bachelor's degree as their highest education level and had been employed for more than 3 years. Job positions varied, but primary operators received SAP system implementation training and expressed a high level of satisfaction across various aspects, including organizational support, system quality, adaptability, and overall satisfaction with success of SAP operators. However, there were some aspects with moderate satisfaction ratings in providing SAP training, conducting performance evaluations, consultancy, and enhancing knowledge of SAP implementation, including sub-modules and interconnected databases indicating potential areas for improvement. Data analysis and inferential statistics showed that larger organizations express higher satisfaction with implementation success measurement compared to smaller ones. Furthermore, factors such as system quality and adaptability, as well as adjustments made during COVID-19 crisis, are related to success of SAP operators within perspective of SAP operators in Bangkok metropolitan area.

Keywords: Factors Influencing, SAP, ERP, COVID-19 Crisis

บทคัดย่อ

งานวิจัยนี้มีวัตถุประสงค์เพื่อศึกษาปัจจัยที่มีผลต่อความสำเร็จในการใช้ระบบ SAP ต่อระบบการวางแผนทรัพยากรองค์กร (ERP) ในมุมมองของผู้ปฏิบัติงานระบบ SAP ช่วงสถานการณ์วิกฤติ COVID-19 ในเขตกรุงเทพมหานคร ผู้วิจัยรวบรวมข้อมูลและวิเคราะห์โดยใช้แบบสำรวจกับกลุ่มตัวอย่างที่ประกอบด้วย ผู้ประกอบการที่ใช้ SAP ทั้งภาครัฐและเอกชน วิเคราะห์ข้อมูลทั่วไปโดยใช้วิธีทางสถิติในรูปแบบการวิเคราะห์ความถี่และร้อยละ นอกจากนี้ การศึกษายังได้วิเคราะห์ปัจจัยที่ส่งผลต่อความสำเร็จของผู้ปฏิบัติงาน SAP ผ่านการวิเคราะห์ Multiple Regression ผลการศึกษาพบว่า ผู้ตอบแบบสอบถามส่วนใหญ่เป็นผู้ชายจากภาคธุรกิจสังหาริมทรัพย์ อายุสูงสุดคือ 41 ปีขึ้นไป มีวุฒิการศึกษาสูงสุดในระดับปริญญาตรี ทำงานมากกว่า 3 ปี ตำแหน่งงานแตกต่างกันไป ผู้ปฏิบัติงาน

หลักจะได้รับการฝึกอบรมการใช้งานระบบ SAP และแสดงความพึงพอใจในระดับสูงในด้านต่าง ๆ รวมถึงการสนับสนุนจากองค์กร คุณภาพระบบ ความสามารถในการปรับตัว และความพึงพอใจโดยรวมกับความสำเร็จของผู้ปฏิบัติงาน SAP อย่างไรก็ตามมีบางแง่มุมที่มีคะแนนความพึงพอใจปานกลางกับการประเมินประสิทธิภาพการทำงาน การให้คำปรึกษา และเพิ่มความรู้เกี่ยวกับการใช้งาน SAP รวมถึงโมดูลย่อย (Sub-Module) และฐานข้อมูลที่เชื่อมต่อกันซึ่งควรที่ต้องให้ความสำคัญ การวิเคราะห์ข้อมูลเชิงอนุमानโดยการทดสอบสหสัมพันธ์การถดถอยพหุคูณ(Multiple Regression Analysis) แสดงให้เห็นว่า องค์กรขนาดใหญ่มีความพึงพอใจต่อการวัดผลความสำเร็จมากกว่าเมื่อเปรียบเทียบกับองค์กรขนาดเล็ก นอกจากนี้ ปัจจัยต่าง ๆ เช่น คุณภาพระบบและความสามารถในการปรับตัว ตลอดจนการปรับเปลี่ยนที่เกิดขึ้นในช่วงวิกฤตโควิด-19 ล้วนเกี่ยวข้องกับความสำเร็จของผู้ให้บริการ SAP ในมุมมองของผู้ปฏิบัติงานระบบ SAP ช่วงสถานการณ์วิกฤติ COVID-19 ในเขตกรุงเทพมหานคร

คำสำคัญ: อิทธิพล ระบบ SAP ระบบ ERP สถานการณ์วิกฤติ COVID-19

1. Introduction

1.1 Rationale of the Study

Current world has undergone changes in data processing and management. Information management technology has been developed to be modern, efficient, and adaptable to a constantly changing environment. With each department having work processes that generate various pieces of data, passing information from one department to another leads to a considerable amount of different or duplicate data. Thus, integrating data from each department requires clear work processes. To address this, software has been utilized to control and manage data, preventing duplication, and ensuring speed and clarity for effective organizational management. This software is known as Enterprise Resource Planning (ERP).

ERP is a system that connects various departments within an organization, including planning, production, sales, human resources, and finance. It integrates core business processes, such as hiring, production, sales, accounting, and personnel management, in real-time. This system benefits various business organizations, both in the public and private sectors, as it allows for the daily calculation of closing costs and profits and losses. Consequently, many organizations are interested in using software packages, with ERP-SAP being the most widely chosen package. (Bingi, P.; Sharma, M. K. & Godla, J. K., 1999)

Businesses implement the SAP system to enhance financial and accounting operations and improve information management efficiency, accuracy, and reliability. However, SAP system implementation may come with challenges due to its complexity and cost. Therefore, proper preparation, especially in terms of personnel training and compatibility with the organization's work system, is crucial for successful implementation.

To help businesses manage data efficiently and achieve successful SAP implementation, many companies seek consultation from ERP consultants/implementers. SAP accounting software is a popular choice among businesses in Thailand, especially those dealing with a vast amount of commercial information.

It is evident that the successful implementation of SAP software in organizations has both success and failure stories in installation and usage. The human factor plays a significant role in this, and effective preparation is essential to achieving organizational objectives, particularly in terms of personnel understanding and compliance with the designed work system. (Jiraporn Rueangthong, 2019)

Therefore, the researcher aims to study the factors affecting the successful of SAP implementation for Enterprise Resource Planning (ERP) from the perspective of SAP operators during the COVID-19 crisis situation in Bangkok. The study aims to aid job management and improve accounting information linkage between different departments.

1.2 Objectives

1) To investigate the personal characteristics of operators that influence the success of SAP implementation in the Enterprise Resource Planning (ERP) system from the perspective of SAP operators during the COVID-19 crisis.

2) To explore the organizational characteristics that affect the success of SAP implementation in the Enterprise Resource Planning (ERP) system from the perspective of SAP operators during the COVID-19 crisis.

3) To assess the satisfaction levels of operators regarding factors related to operators, advisory factors, system quality, organizational adaptation, and personnel adaptation in Enterprise Resource Planning (ERP) during the COVID-19 crisis situation.

1.3 Hypothesis

1: Organizational Data Influence

Hypothesis: Variations in organizational data, including characteristics of the organization, the number of SAP operators, and the use of different SAP Sub-Module modules, lead to differing opinions on the success of SAP implementation in ERP systems from the perspective of SAP operators during the COVID-19 crisis.

2: Operator Satisfaction Influence

Hypothesis: Differences in operator satisfaction, encompassing aspects related to the organization, operators themselves, consultants, system quality, and adaptability to the COVID-19 crisis situation, result in diverse opinions regarding the success of SAP implementation in ERP systems from the viewpoint of SAP operators during the COVID-19 crisis.

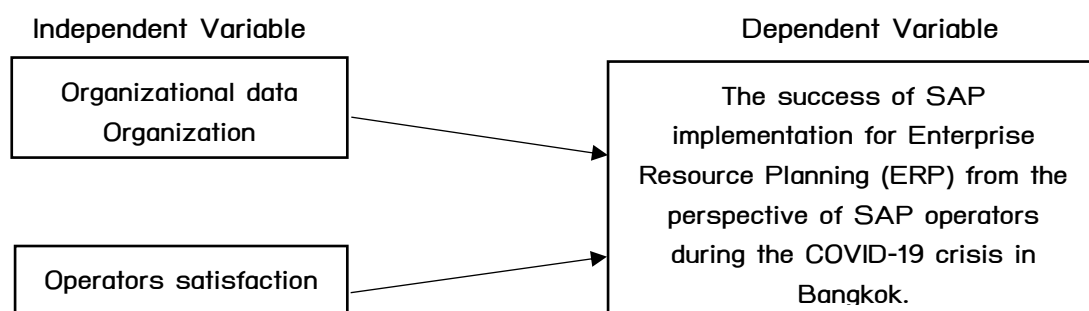


Figure 1: Conceptual Framework

2. Research Methodology

This study focuses on examining the factors influencing the success of SAP implementation for Enterprise Resource Planning (ERP) from the perspective of SAP operators in Bangkok during the COVID-19 crisis.

2.1 The population used in the research.

Data collection for the study was conducted through a questionnaire distributed among SAP operators from both public and private sectors. A total of 145 completed questionnaires were received, which were then analyzed using the SPSS statistical analysis program. Descriptive

statistics, including frequency and percentage, were used to analyze general information about the respondents.

2.2 Research Method

To assess the factors affecting the success of SAP implementation from the perspective of SAP operators during the COVID-19 crisis in Bangkok, Multiple Regression Analysis was employed to test the research hypothesis. The findings of the analysis can be summarized as follows:

2.2.1 The sampling method involves the Convenience Sampling

Data is collected from SAP operators in the Bangkok Metropolitan Region who are willing and convenient to provide information.

The researcher used a questionnaire as a tool, divided into 5 sections as follows:

2.2.2 The process of creating research tools

The researcher used a questionnaire as a research tool, dividing it into 5 sections as follows:

Section 1: Personal Information of the Respondents This section includes a multiple-choice questionnaire with 7 items, covering gender, age, education level, years of experience with SAP software, current job position in the organization, roles and responsibilities when using SAP software, and whether they have received training in SAP software. Each question falls into different data measurement types.

Section 2: Organization Information of the Respondents This section consists of multiple-choice questions with 3 items, including the type of organization (private sector, business sector, or government sector), the number of operators, and whether the organization currently uses all modules of SAP. Each question falls into different data measurement types as.

Section 3: Factors Affecting Satisfaction with SAP implementation for Enterprise Resource Planning (ERP), this section consists of 29 questions

Section 4: Factors Contributing to Success in SAP implementation for Enterprise Resource Planning (ERP).

Section 3,4 presented in a questionnaire format with a Rating Scale assigning weights to the satisfaction 5- levels Likert's scale as follows:

- 5: Very Satisfied
- 4: Satisfied
- 3: Neutral
- 2: Dissatisfied
- 1: Very Dissatisfied

The scoring scale is distributed as 5, 4, 3, 2, 1. This is an Interval Scale measurement. The researchers applied the average criteria from Kamaruddeen et al. (2012).

Criteria for interpreting factors related to organizational utility:

- Average score of 4.50 - 5.00: Indicates a very high level of satisfaction.
- Average score of 3.50 - 4.49: Indicates a high level of satisfaction.
- Average score of 2.50 - 3.49: Indicates a moderate level of satisfaction.
- Average score of 1.50 - 2.49: Indicates a low level of satisfaction.
- Average score of 1.00 - 1.49: Indicates the lowest level of satisfaction.

Section 5: Additional questions related to other comments and further suggestions with open ended question

2.2.3 Descriptive statistics are used to describe the characteristics of a sample group. This includes percentage, mean (average), and standard deviation.

For instance, it can describe personal information such as gender, age, education level, duration of SAP Implementation, current job position, and SAP training.

2.2.4 Inferential Statistics:

1) Independent t-test:

This is used to compare the means of two sample groups, such as gender and whether respondents have received SAP B1 training.

2) One-Way Analysis of Variance (ANOVA):

ANOVA tests differences among the means of multiple sample groups. It's used for variables like age, education, duration of using SAP B1, and job roles.

The F-test is used when the variances in each group are equal.

If the statistical test shows significant differences, post hoc tests like Fisher's Least Significant Difference (LSD) or Dunnett's T3 are employed to determine which pairs differ significantly.

3) Multiple Regression Analysis:

Multiple regression analysis examines the relationship between dependent variables and independent variables, assuming a linear relationship.

In this context, it would be used to analyze factors affecting success in using SAP for data management during the COVID-19 crisis in Bangkok.

3. Research Results

Table 1: Frequency and Percentage of Organizational Data

Organizational Data	Frequency (N)	Percentage (%)
Organization Type		
Agriculture and Food Industry	6	4.1
Consumer and Retail Group	10	6.9
Financial Services Group	6	4.1
Industrial Products Group	19	13.1
Real Estate and Construction Group	39	26.9
Resource Group	2	1.4
Service Industry Group	3	2.1
Technology Group	7	4.8
Government Sector	5	3.4
State-Owned Enterprise	2	1.4
State-Supervised University	31	21.4
Other	15	10.3
Total	145	100.0
Number of Operators for SAP implementation		
Less than 20 people	39	26.9
20-50 people	33	22.8
51-70 people	8	5.5

Organizational Data	Frequency (N)	Percentage (%)
71 people and above	65	44.8
Total	145	100.0
SAP implementation for Sub-modules		
complete	50	34.5
Incomplete	95	65.5
Total	145	100.0

From Table 1, The analysis of organizational data from the questionnaire respondents revealed that the majority of respondents were from the real estate and construction business sectors 26.9%, followed by state- supervised universities 21.4%, with these two sectors having the highest representation in the study. Most organizations with SAP operators were categorized as having 71 or more employees, indicating larger organizations with significant SAP system usage. However, not all organizations utilized every sub-module of the SAP system; there were instances of partial usage of modules 65.5%.

Table 2: Average and Standard Deviation of Factors Affecting Operators Satisfaction

Items	\bar{x}	S.D.	Satisfaction Levels
1) Organizational characteristics	3.73	0.778	High Level
2) Operators	3.50	0.680	High Level
3) Consultants	3.56	0.879	High Level
4) System quality	3.64	0.751	High Level
5) Organizational and personnel adaptation to the COVID-19 situation	3.62	0.669	High Level
Average	3.62	0.669	High Level

From table 2: In conclusion, based on average values and standard deviations for satisfaction levels, SAP system practitioners responding to the questionnaire, mostly during the COVID-19 crisis in Bangkok, express high overall satisfaction with an average of 3.62, This includes satisfaction with Organizational characteristics, System quality , Organizational and personnel adaptation to the COVID-19 situation Operators, Consultants, and Operators, with respective averages of 3.73 , 3.64, 3.62, 3.56, 3.50 to the COVID-19 situation, resulting in an impressive overall satisfaction level of 3.62.

Table 3: Mean and Standard Deviation of Satisfaction Levels Regarding Factors Affecting Success in SAP implementation for the Enterprise Resource Planning (ERP) from the perspective of SAP operators during the COVID-19 crisis.

Items	\bar{x}	S.D.	Satisfaction Levels
1) Operators Success	3.69	0.874	High Level
2) Organizational Success	3.60	0.881	High Level
Average	3.67	0.842	High Level

From Table 3, the average and standard deviation of opinion levels regarding success factors of SAP implementation in the Enterprise Resource Planning (ERP) system from the perspective of SAP operators during the COVID-19 crisis, show that the majority are generally satisfied, with an overall average of 3.67. It can be categorized as follows:

Operators Success: Overall, SAP system practitioners responding to the questionnaire express high satisfaction with the success of using SAP for data integration management (ERP) during the COVID-19 crisis in Bangkok. The average satisfaction level is 3.69.

Organizational Success: For organizational success in using the SAP system, practitioners in the questionnaire express high satisfaction, with an average of 3.60.

Hypothesis 1: Organizational Data Influence

Hypothesis testing to analyze Variable in organizational data, organization characteristics, number of SAP operators, and Sub-module Usage, lead to differing opinions on the success of SAP implementation in ERP systems from the perspective of SAP operators during the COVID-19 crisis.

Table 4: Differences in SAP Implementation Success for ERP Management during the COVID-19 Crisis in Bangkok, Stratified by Organizational characteristics Using F-test:

SAP Implementation Success for ERP	Source of Variance	SS	df	MS	F-Ratio	Sig.
Operators Success	Between Groups	4.053	2	2.026	2.718	0.069
	Within Groups	105.885	142	0.746		
	Total	109.938	144			
Organizational Success	Between Groups	4.283	2	2.142	2.829	0.062
	Within Groups	107.491	142	0.757		
	Total	111.775	144			
Overall Success	Between Groups	4.115	2	2.057	2.983	0.054
	Within Groups	97.927	142	0.742		
	Total	102.042	144			

From Table 4, the F-test examines differences in opinions on SAP Implementation success for ERP management during the COVID-19 crisis in Bangkok. The Sig. values for Operators success, organizational success, and overall success are 0.069, 0.062, and 0.054, respectively. These values are greater than 0.05, suggesting acceptance of the null hypothesis (H0) and rejection of the alternative hypothesis (H1). Thus, the opinions of SAP operators with different organizational characteristics are not statistically different at the 0.05 significance level.

Table 5: Differences in SAP Implementation Success for ERP Management during the COVID-19 Crisis in Bangkok, stratified by the Number of SAP Operations, Using F-test:

SAP Implementation Success for ERP	Source of Variance	SS	df	MS	F-Ratio	Sig.
Operators Success	Between Groups	9.751	2	4.875	6.910**	0.001
	Within Groups	100.187	142	0.706		
	Total	109.938	144			

SAP Implementation Success for ERP	Source of Variance	SS	df	MS	F-Ratio	Sig.
Organizational Success	Between Groups	10.475	2	5.238	7.342**	0.001
	Within Groups	101.300	142	0.713		
	Total	111.775	144			
Overall Success	Between Groups	9.914	2	4.957	7.640**	0.001
	Within Groups	92.128	142	0.649		
	Total	102.042	144			

Note: **Significant at the 0.01 level

From Table 5, examining differences in SAP Implementation Success for ERP management during the COVID-19 crisis in Bangkok, stratified by the number of SAP Operators, using F-test:

For Operators Success, organizational success, and overall success, the Sig. values are 0.001. This is less than 0.01, leading to the rejection of the null hypothesis (H0) and acceptance of the alternative hypothesis (H1). The conclusion is that SAP Operators, with varying numbers, have statistically significant differences in opinions on SAP success for ERP data management during the COVID-19 crisis in Bangkok.

LSD Statistic Test.

To examines the variance of opinion levels on success for ERP management during the COVID-19 crisis in Bangkok based on the number of SAP operators in each group, utilizing the Levene Statistic Test. In summary, indicates significant statistical differences in perceptions of SAP system success among users based on the number of employees using SAP. Specifically, organizations with fewer than 20 SAP operators differ significantly from those with 20-25 users and 51-70/71 or more operators during the COVID-19 crisis. Similar findings are observed, highlighting significant differences in operators success perceptions between organizations with fewer than 20 SAP operators and those with 20-25 operators and 51-70 / 71 or more operators. No significant differences were found for other pairs at the 0.05 significance level.

Table 6: Differences in SAP Implementation Success for ERP Management in the View of SAP operators during the COVID-19 crisis in Bangkok, Stratified by Sub-module Usage, Using Independent Samples T-test:

SAP Implementation Success for ERP	Sub-module Usage	t-test for Equality of Means					
		n	\bar{x}	S.D.	t	df	Sig. (2-tailed)
Operators Success	Complete	50	3.78	0.977	0.827	143	0.410
	Incomplete	95	3.65	0.816			
Organizational Success	Complete	50	3.76	0.855	1.548	143	0.124
	Incomplete	95	3.52	0.888			
Overall Success	Complete	50	3.77	0.928	1.065	143	0.289
	Incomplete	95	3.61	0.792			

From Table 6, comparing SAP Implementation Success for ERP management in the View of SAP operators during the COVID-19 crisis in Bangkok, stratified by submodule usage, using Independent Samples T-test: For Operators Success, organizational success, and overall success, the Sig. (2-tailed) values are 0.410, 0.124, and 0.289, respectively. These are all greater than 0.05, indicating acceptance of the null hypothesis (H0) and rejection of the alternative hypothesis (H1). This suggests that SAP Implementation with different sub-module usage do not have significantly different opinions on SAP success for ERP management during the COVID-19 crisis in Bangkok, both overall and in terms of user and organizational success.

Hypothesis 2: Operator Satisfaction Influence

Hypothesis testing to analyze the differences in operators satisfaction, encompassing aspects related to the organization, operators themselves, consultants, system quality, and adaptability to the COVID-19 crisis situation, result in diverse opinions regarding the success of SAP implementation in ERP systems from the viewpoint of SAP operators during the COVID-19 crisis.

Table 7: Multiple Regression Analysis Results for SAP Operators Satisfaction Impact the success of SAP implementation for the Enterprise Resource Planning (ERP) from the perspective of SAP operators during the COVID-19 crisis Overall.

Source of Variation	SS	df	MS	F	Sig.
Regression	82.616	5	16.523	118.229**	0.000
Residual	19.426	139	0.140		
total	102.042	144			

Note: **Significant at the 0.01 level

From Table 7: The Multiple Regression Analysis results a significant impact of SAP Operators satisfaction on SAP implementation for the Enterprise Resource Planning (ERP) from the perspective of SAP operators during the COVID-19 crisis Overall (Sig. = 0.000**). This suggests that satisfaction variables collectively influence the success of SAP implementation.

Table 8: Multiple Regression Analysis Coefficients for SAP Operators Satisfaction Impact the success of SAP Implementation for Enterprise Resource Planning (ERP) from perspective of SAP operators during the COVID-19 crisis Overall.

Variable	Unstandardized (B)	SE	Standardized (β)	t	Sig.
Constant	-0.115	0.189		-0.606	0.546
Organizational (X1)	-0.023	0.057	-0.021	-0.398	0.691
Operators (X2)	0.049	0.062	0.040	0.797	0.427
Consultant (X3)	0.072	0.064	0.075	1.123	0.263
System Quality (X4)	0.582	0.069	0.519	8.406**	0.000
Adaptability (X5)	0.359	0.047	0.394	7.626**	0.000
R = 0.900		Adjusted R² = 0.803			
R² = 0.810		SE = 0.374			

Note: **Significant at the 0.01 level

From Table 8, it is evident that the variables predicting success in using the SAP Operators Satisfaction Impact the success of SAP Implementation for Enterprise Resource Planning (ERP) from perspective of SAP operators during the COVID-19 crisis Overall are primarily the system quality (X4) and the organizational adaptation to the COVID-19 situation (X5), respectively. Both variables collectively contribute to the success of implementing the SAP system for resource management (ERP) in the context of SAP system operators in Bangkok during the COVID-19 crisis (Yi) with an adjusted R-square (R²) of 80.30%.The researcher has formulated the predictive equation for success in using the SAP system as follows: This equation serves as a reliable predictor for the success of utilizing the SAP system for ERP from the perspective of SAP system operators during the challenging circumstances of the COVID-19 crisis in Bangkok.

Table 9: Multiple Regression Analysis of SAP Implementation Satisfaction on Operators Success during COVID-19 Crisis in Bangkok

Source of Variation	SS	df	MS	F	Sig.
Regression	89.726	5	17.945	123.408**	0.000
Residual	20.212	139	0.145		
total	109.938	144			

Note: **Significant at the 0.01 level.

From Table 10, the analysis of simple linear regression on the success of SAP Implementation Satisfaction on Operators Success during COVID-19 Crisis in Bangkok indicates a significant relationship (Sig. = 0.000 < 0.01) between SAP Operators satisfaction and SAP Implementation Success, rejecting the null hypothesis (H₀) in favor of the alternative hypothesis (H₁). This suggests that Operators satisfaction significantly influences the success of SAP Implementation for the Enterprise Resource Planning (ERP) from the perspective of SAP operators during the COVID-19 crisis.

Table 10: Multiple Regression Analysis of SAP Operators Satisfaction on Operators Success during COVID-19 Crisis in Bangkok

Variable	Unstandardized (B)	SE	Standardized (β)	t	Sig.
Constant	-0.203	0.193		-1.050	0.296
Organization (X1)	-0.018	0.058	-0.016	-0.305	0.761
Operators (X2)	0.031	0.063	0.024	0.498	0.619
Consultant (X3)	0.047	0.066	0.047	0.715	0.476
System Quality (X4)	0.575	0.071	0.494	8.140**	0.000
Adaptability to Crisis (X5)	0.433	0.048	0.458	9.017**	0.000
R = 0.903		Adjusted R² = 0.810			
R² = 0.816		SE = 0.381			

Note: **Significant at the 0.01 level.

From Table 11, the multiple regression analysis reveals that variables significantly associated with the success of SAP Implementation during the COVID-19 crisis are System Quality (X4) and Adaptability to Crisis (X5) with standardized coefficients of 0.494 and 0.458, respectively. The adjusted R-squared is 81.0%, indicating that these variables collectively explain 81.0% of the variance in SAP Operators success with SAP Implementation during the crisis.

The regression equation for predicting user success (Y_i) is:

$$(Y_i) = (0.203) + 0.575(X_4) + 0.433(X_5)$$

In summary, user satisfaction with System Quality and Adaptability to Crisis significantly influences the success of SAP Implementation for the Enterprise Resource Planning (ERP) during the COVID-19 crisis in Bangkok,

Table 11: Multiple Regression Analysis of Operators Satisfaction on organizational success during COVID-19 Crisis in Bangkok

Source of Variation	SS	df	MS	F	Sig.
Regression	67.660	5	13.532	42.623**	0.000
Residual	44.115	139	0.317		
total	111.775	144			

Note: **Significant at the 0.01 level.

Table 11 displays the results of a multiple regression analysis examining the linear relationship between operators satisfaction and the success of organizational for Enterprise Resource Planning (ERP) from perspective of SAP operators during the COVID-19 crisis. The statistically significant result (Sig. = 0.000, ** at the 0.01 level) rejects the null hypothesis (H_0) and accepts the alternate hypothesis (H_1), indicating that Operators satisfaction affects the success of organizational for Enterprise Resource Planning (ERP) from perspective of SAP operators during the COVID-19 crisis

Table 12 Multiple Regression Analysis of SAP Operators Satisfaction on organizational Success during COVID-19 Crisis in Bangkok

Variable	Unstandardized (B)	SE	Standardized (β)	t	Sig.
Constant	0.120	0.285		0.421	0.675
Organization (X1)	-0.036	0.086	-0.032	-0.418	0.677
Operators (X2)	0.097	0.093	0.075	1.040	0.300
Consultant (X3)	0.140	0.097	0.139	1.442	0.152
System Quality (X4)	0.601	0.104	0.512	5.760**	0.000
Adaptability (X5)	0.162	0.071	0.170	2.279*	0.024
R = 0.775		Adjusted R² = 0.591			
R² = 0.605		SE = 0.381			

** Note: *Significance at 0.01, Significance at 0.05

The analysis reveals that variables positively correlated with the success of organizational (Y_i) include System Quality (X_4) and Adaptability to the COVID-19 situation (X_5) at statistical significance levels of 0.01. The adjusted R Square (R^2) indicates that these factors collectively explain 59.10% of the success in organizational for Enterprise Resource Planning (ERP) from the perspective of SAP operators. The regression equation for predicting success is as follows:

In summary, the study concludes that variables positively influencing the success of organizational (Y_i) are System Quality (X_4) and Adaptability to the COVID-19 situation (X_5). These factors, when considered alongside other unchanged factors, significantly contribute to the success of organizations in SAP Implantation during the COVID-19 crisis in Bangkok from the perspective of SAP system users.

4. Conclusion and Discussion

4.1 Conclusion

1) To identify the factors influencing satisfaction and success in using SAP systems for Enterprise Resource Planning (ERP) management. The researcher recognized the importance of data management in the era known as Digital Disruption, where businesses that effectively manage data can adapt quickly to rapid changes (Business Transformation), particularly during the period when this study was conducted, which coincided with the COVID-19 crisis, a global pandemic. Those businesses that can adapt to changes quickly are more likely to survive compared to those that adapt slowly

2) To benefit interested parties and serve as a guide for achieving success in using the SAP system by highlighting various factors.

3) To raise awareness among various organizations and help them understand the importance of keeping up with new technologies and utilizing them for organizational benefits.

4) To contribute to the ongoing development of the country.

4.2 Discussion

Factors Influencing the success of SAP implementation towards Enterprise Resource Planning (ERP) from the perspective of SAP operators, as measured by the research findings, indicate that larger organizations, defined by having more than 51 operators in SAP system, have a stronger correlation with success in SAP implementation for Enterprise Resource Planning (ERP) compared to smaller organizations. This aligns with the insights from Innovisor Tech Ltd. (n.d.) an IT technology company specializing in software design and development at the organizational level. They stated that regardless of the business size, whether small or large, implementing an ERP system improves operational efficiency. It allows organizations to select flexible ERP systems that can be tailored to the specific needs and requirements of the business.

The quality of the SAP system, which includes the following factors: SAP system has user-friendly and fast usability, the ability to customize functions and reports according to the organization's needs, data processing capabilities in the overall context, data security capabilities for the organization, is correlated with the success of using the SAP system for Enterprise Resource Planning (ERP). However, there were some aspects with moderate satisfaction ratings with providing SAP training, conducting performance evaluations, consultancy, and enhancing knowledge of SAP implementation, including sub-modules and interconnected databases, indicating potential areas for improvement. This aligns with the insights from a study by Anyarat

Thanapaisarnkij (2009) on factors leading to the success of implementing SAP systems in a government agency. The study's perspective from the service provider and system installation department found that factors contributing to the success of SAP system implementation in each department of the service provider and system installation department align with the overall picture. These factors include SAP system consultants, project management, and user training.

The relationship regarding adaptation to the COVID-19 situation, which includes organizations having progressive work patterns, the ability to work remotely, good database connectivity for remote work and monitoring, effective adaptation to COVID-19 through remote work (Work From Home), organizations working on the Cloud being able to access data easily and maintaining collaboration even without physical presence, and having unlimited and secure systems for utilizing data for sales, production, and delivery planning. Organizations working on the Cloud can access data easily and without limitations, have secure systems, and can utilize data for planning sales, production, and delivery. Access to data from both the public and private sectors (Big Data) supports organizational planning and creates connectivity in the digital world. SAP systems play a supportive role in an organization's operations and are correlated with the success of using SAP systems for Enterprise Resource Planning (ERP)). This contrasts with the research by Siridetch Kamsuphom et al. (2018), which emphasized that organizational factors also significantly contribute to the success of implementing the SAP FI module for accounting.

4.3 Suggestions from this Research

1) Focus on factors influencing satisfaction and success in using the SAP system for Enterprise Resource Planning (ERP) due to its significance in the Digital Disruption era. Rapid adaptability during the COVID-19 crisis is crucial for business survival.

2) Emphasize the significance of leveraging new technologies for organizational benefit and staying adaptable to rapid changes in the business

3) Utilize the research findings as a guideline for successful SAP system operations.

4) Consider how the findings can contribute to the country's further development.

5) Develop a modern report format for increasing convenience and quicker access to information.

Overall, this research provides valuable feedback for enhancing the SAP system's utilization, addressing various challenges and limitations faced by operator, and contributing to organizational development.

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