

## The Moderating Effect of Integration between ERP and CRM Systems on Organizational Performance

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### ABSTRACT

This research aimed at examining the moderating effect of system integration between Enterprise Resources Planning (ERP) system and organizational performance and between Customer Relationship Management (CRM) system and organizational performance in Jordanian automobile companies. The population of this research consisted of all ERP and CRM users in the targeted companies. The sample of the study was selected using the purposive sampling technique. Furthermore, descriptive and analytical approaches have been used and data was collected through a survey questionnaire that was designed in accordance with the research variables. The research hypotheses were tested using several descriptive and analytical tests, including simple regression and interactive linear regression using the Statistical Package for the Social Sciences (SPSS) software. The results of this research revealed that there was a statistically significant effect of ERP system implementation, CRM system implementation and system integration on the organizational performance in Jordanian automobile companies. In addition, there was a moderating effect (but not statistically significant) of system integration between ERP and CRM systems on organizational performance. Several recommendations were outlined, including that Jordanian automobile companies need to further enhance the implementation of ERP and CRM systems and most importantly to integrate the information of both system types in a way that increases organizational performance.

**Keywords:** ERP systems, CRM systems, System integration, Organizational performance, Automobile companies, Jordan.

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## الأثر المعدل لتكامل الأنظمة بين نظامي تخطيط المنظمة وإدارة علاقات العملاء في الأداء التنظيمي

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### ملخص

هدفت هذه الدراسة الى اختبار الأثر المعدل لتكامل الأنظمة بين نظامي تخطيط موارد المنظمة (ERP) وإدارة خدمة العملاء (CRM) في الأداء التنظيمي في شركات بيع السيارات الأردنية. تكون مجتمع الدراسة من جميع مستخدمي نظامي تخطيط المنظمة وإدارة خدمة العملاء في الشركات المستهدفة في الدراسة من مختلف الأقسام. وتم اختيار عينة من مجتمع الدراسة باستخدام تقنية العينة الهادفة. ولتحقيق أهداف الدراسة، تم استخدام المنهج الوصفي التحليلي، وتم جمع البيانات عن طريق استبانة صممت بناءً على متغيرات الدراسة. تم اختبار فرضيات الدراسة باستخدام عدد من الاختبارات الوصفية والتحليلية تضمنت الانحدار البسيط والانحدار الخطي التفاعلي باستخدام الحزمة الإحصائية للعلوم الاجتماعية (Statistical Package for Social Sciences-SPSS). كشفت نتائج الدراسة وجود أثر ذي دلالة إحصائية لكل من تطبيق أنظمة إدارة تخطيط المنظمة وتطبيق أنظمة إدارة علاقات العملاء وتكامل الأنظمة في الأداء التنظيمي في شركات السيارات الأردنية، بالإضافة إلى وجود أثر إيجابي غير دالٍ إحصائياً للأثر المعدل لتكامل الأنظمة في كل من تطبيق نظام تخطيط المنظمة وتطبيق نظام إدارة علاقات العملاء. العديد من التوصيات تم اقتراحها في هذه الدراسة، ومنها أن شركات السيارات الأردنية تحتاج إلى تعزيز تطبيق نظامي تخطيط موارد المنظمة وإدارة علاقات العملاء. والأهم أن تدمج النظامين بطريقة تؤثر بشكل إيجابي في الأداء التنظيمي.

الكلمات الدالة: نظام تخطيط موارد المنظمة (ERP)، نظام إدارة علاقات العملاء (CRM)، تكامل الأنظمة، الأداء التنظيمي، شركات بيع السيارات، الأردن.

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## INTRODUCTION

In recent years, business organizations around the world are searching for a new modern way of production and operation, as a result of extra pressure on them coming from competition and rapid technological advances. Organizations tend to increase investment in information technology as a tool to protect their market position and gain competitive advantage (Almahmid & Al-Kasasbeh, 2018). Many companies adopted Enterprise Resource Planning (ERP) Systems to recognize business practices and enhance business processes among the organization (Lemonakis *et al.*, 2018). Enhancing such business processes needs better information flow from all functional areas and better access to the requested data from a central database related to a single software system (Barth & Koch, 2019). Since 1990 till now, ERP systems are considered as the most important revolution in Information Technology (IT). The main role of ERP is information sharing among the whole organization, business planning and decision making. ERP uses computer technology to link different function areas together, such as human resources, manufacturing and production, marketing and sales, account and finance, operations inventory, control and supply chain. However, the implementation of the ERP system is costly, because it requires complex processes and social interaction between departments and organizations (Ravasan *et al.*, 2018; Almahmid & Al-Kasasbeh, 2018).

In Jordan, the automobile sector operates in a very competitive and turbulent business environment. Automobile companies need to adopt a suitable strategy for performance improvement. They are orientated to improve customer satisfaction and profitability by implementing a suitable CRM strategy (Abdul *et al.*, 2013). The number of companies that adopt a customer relationship management CRM system or think of adopting it has increased rapidly in the past few years, both locally and globally, to improve

performance, make better decisions, increase capabilities and shift from product-centric to customer-centric approach (Oztays *et al.*, 2011). CRM system's main function is to integrate marketing strategies with information technology in order to enhance the customer value by integrating cross-functional processes among the organization (Soltani *et al.*, 2018).

The implementation of CRM systems is considered an easy and not uncostly process. The information generated from CRM systems can be used in ERP systems and across the extended enterprise, allowing firms to build more interactive relationships with their customers at a very low cost (Bukhari & Kazi, 2016).

ERP systems involve the internal parts of the business organization, whereas CRM systems involve its external parts (Bukhari & Kazi, 2016). Day after day, business organizations realized that customers' information coming from the CRM system is very important to compete and survive. Therefore, CRM and ERP systems are critical to organizational performance (Zerbino *et al.*, 2018).

### Research Importance

This research is considered one of the first attempts in Jordan to investigate the integration between ERP and CRM systems and examine the impact of such integration on organizational performance. Previous studies did not incorporate the integration element into consideration and rather studied the impact of each type of system separately on type of organizational performance. This in turn may alter the implementation of ERP and CRM systems in automobile companies into a new way that helps maximize profits and achieve customer acquisition and retention.

### **Research Problem, Aim and Objectives**

According to the researchers' knowledge, the automobile companies in Jordan have implemented ERP and CRM systems in their structure in a way that is different from the recent trends in ERP and CRM system implementation. Consequently, there is a need to investigate the impact of system integration between CRM and ERP implementation on organizational performance.

The overall aim of this research is to examine the moderating effect of system integration between ERP and CRM systems on organizational performance in Jordanian automobile companies. To achieve this aim, objectives were outlined as follows:

- Investigating the importance of ERP and CRM system implementation in organizational performance in the automobile sector in Jordan.
- Examining the moderating role of ERP and CRM system integration and its effect on organizational performance.
- Introducing a proposed research model that leads to better understanding of such relationships and further enhances the way automobile companies implement their ERP and CRM systems.

### **Literature Review and Related Studies**

#### **ERP Systems**

An ERP system can be defined as a business solution that is composed of a software package that integrates the business processes in a holistic approach (Ehie & Madisen, 2005). ERP systems assist in the essential capabilities of business enterprises by integrating key management and enterprise capabilities and providing an appropriate view of what occurs in business functional areas of operation (i.e., sales marketing, manufacturing, supply chain, human resources, financial area and many others) (Bruck, 2012; Oghazi, 2018). The main purpose of the ERP system is to combine a huge variety of information concerning the

organization's resources in order to create synergies with organization partners, meet consumer needs and wants and enhance operational overall performance (Neubert *et al.*, 2018).

The reason for implementing an ERP system and the potential benefits of it vary from one organization to another. The benefits can be tangible or intangible. An ERP system has numerous benefits, like normalization of the company's techniques, integration of facilities and information, computerization of trading approaches, growing flexibility, reducing the number of employees and strengthening globalization (Gupta *et al.*, 2018).

#### **CRM Systems**

Stone and Woodcock (2001) have defined CRM as the methodologies, technologies and e-commerce capabilities used to manage customer relationships. The CRM system is concerned with defining, attracting and handling of profitable customers (Hobby, 1999). CRM is a technique to build a loyal customer by aligning the organization's strategies with its business processes (Rigby, 2002). Ramani and Kumar (2008) mentioned that a CRM system includes all the techniques used to gain, construct and maintain an ongoing relationship with customers *via* differential and tailor-made treatment of individual customers based totally on their possible responses to alternative marketing programs, so that the contribution of every customer to the overall profitability of the company is maximized (Tetteh, 2014).

Successful implementation of a CRM system requires redesigning the business processes and the organizational structure to facilitate the communication process between the functional areas (Liu, 2007).

### System Integration

An organization that lacks integration is frequently associated with separate departments that have very little coordination with each other (Mostaghel *et al.*, 2015). In this regard, information is an essential tool of success and motion throughout a corporation, so that it obtains better coordination (Levi, 2003). Markus (2000) defined system integration as the unification of a company's information systems and databases to improve the process flow and focus on customer services. Integrated systems increase the business process information flow, which assists in the administration of decision making.

Wang *et al.* (2012) divided the information system (IS) integration into three levels:

- Integration at the physical level (which means the interconnection of devices such as networks of machines).
- Integration at the application level (which deals with database systems and software application in heterogeneous computing environments).
- Integration at the business level (which is responsible for monitoring, managing and controlling the business processes).

### Organizational Performance

Nowadays, the aggressive business environment requires corporations to perform better than the competitors in any industry. The primary mission of an organization's structure must serve the external and internal environment, which inspires employees to work very hard and coordinate their efforts to ensure a higher degree of overall

organizational performance (George, 2012).

Organizational performance describes how successfully a group of people with a specific purpose can perform tasks and functions (Koohang *et al.*, 2017; Al-Manaseer *et al.*, 2019). According to the theory of organization, efficiency and effectiveness may be measures of organizational performance. Effectiveness is the degree to which preferred organizational goals are achieved, whereas efficiency is the proportion of inputs of organizational resources that is used to achieve outcomes (Soltani *et al.*, 2018). There are many different ways to measure organizational performance. Junior (2014) developed a summary of measurement models and techniques which are: management by objectives, Keys of Performance Indicators (KPIs), Balanced Scorecard (BSC), three levels of performance and performance Prism. This research adopts the balanced scorecard variables to measure organizational performance, including learning and growth performance, customer performance, financial performance and internal process performance.

### Study Model

Based on the above discussed literature and related studies, the research model and hypotheses were devised. Figure 1 shows the two sets of variables: the independent variables (ERP system and CRM system implementation) and the dependent variable (organizational performance) which has four sub-variables.

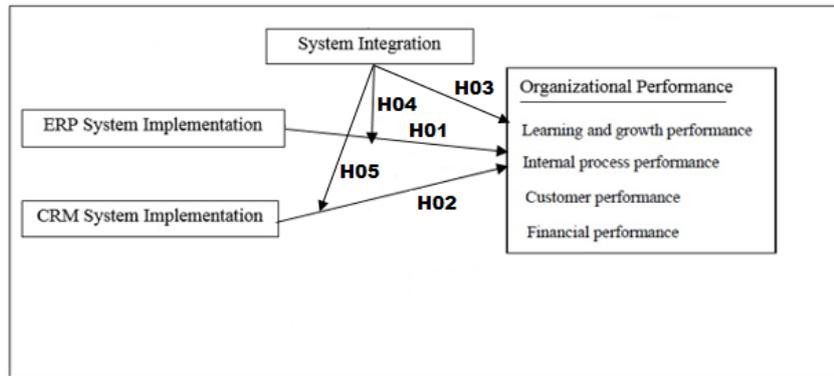


Figure (1): The study model (adapted from Ruivo *et al.* (2017))

This subsequently led to the formulation of the following hypotheses:

- H01:** There is no effect of ERP system implementation on organizational performance in Jordanian automobile companies.
- H02:** There is no effect of CRM system implementation on organizational performance in Jordanian automobile companies.
- H03:** There is no effect of system integration on organizational performance in Jordanian automobile companies.
- H04:** System integration does not moderate the effect of ERP system implementation on organizational performance in Jordanian automobile companies.
- H05:** System integration does not moderate the effect of CRM system implementation on organizational performance in Jordanian automobile companies.

### Research Methodology

To achieve the research objectives, the descriptive analytical approach was used to collect and analyze the primary data. This approach gives better description of the characteristics of study variables and allows better reaching of large populations. The data in this research can be divided into two main categories. The primary data which

were collected *via* a questionnaire, while the secondary data (from books, journals, theses, published articles and related studies) was used to develop the theoretical framework, carry out the literature review and aid in the design of the questionnaire.

### Study Population and Sample

The population of this study consisted of all systems' users in Jordanian automobile companies that have implemented both ERP and CRM systems. Based on the General Association for Automobile Dealers and Traders in Jordan (2018), the total number of automobile companies registered in the association was 31 companies. These companies have an authorization from the Vehicles Manufacturing Company to distribute its products in Jordan and provide both sales and after-sale services to customers. The researchers focused on the companies, because they follow the manufacturing company's standards and requirements. The purposive sample consisted of the systems' users of 20 companies that implement both ERP and CRM systems. 192 respondents answered the questionnaire. The demographic variables are summarized in Table 1.

**Table1. The demographic variables of the study sample**

No.	Variable	Category	Frequency	Percent (%)
1	Gender	Female	46	24.0
		Male	146	76.0
2	Age	Less than 25 years	10	5.2
		25-35 years	102	53.1
		36-45 years	63	32.8
		More than 45 years	17	8.9
3	Education Level	Tawjihi or less	7	3.64
		Diploma	36	18.8
		Bachelor	137	71.35
		Graduated Studies	12	6.25
4	Current Position	General Manager	10	5.2
		Unit Manager	37	19.3
		Department Manager	43	22.4
		Employee	102	53.1
5	Experience	Less than 5 years	38	19.8
		5-10 years	64	33.3
		11-15 years	43	22.4
		More than 15 years	47	24.5
6	Organization Age	Less than 5 years	25	13.0
		5 to 10 years	28	14.6
		11 to 15 years	30	15.6
		More than 15 years	109	56.8
7	ERP System Vendor	SAP	23	12.0
		Oracle	67	34.9
		Microsoft	20	10.4
		Others	82	42.7
8	CRM System Vendor	Sales Force	30	15.62
		Oracle	69	35.94
		SAP	16	8.34
		Others	77	40.1
9	Years Since ERP Implementation	Less than 5 years	61	31.8
		5 to 10 years	93	48.4
		11 to 15 years	15	7.8
		More than 15 years	23	12.0
10	Years Since ERP and CRM Integration	Less than 5 years	85	44.3
		5 to 10 years	86	44.8
		11 to 15 years	6	3.1
		More than 15 years	15	7.8

### Validity and Reliability

#### Face Validity

To test the questionnaire validity and clarity, a group of academic reviewers from different universities in Jordan performed a subjective and qualitative assessment to check

whether the questions were designed correctly to measure the research variables.

#### Construct Validity

To assess construct validity, KMO (Kaiser-Meyer-

Olkin) test and Bartlett's test were performed using the SPSS program to measure how the study data is suited to the factor analysis. This was achieved by measuring the adequacy of the sample for each variable and for the complete model. The KMO value was 0.910 at a significance level of the Bartlett's test of 0.000, which is smaller than the significance level of 0.05, meaning that the data is suitable and valid for factor analysis.

**Reliability**

To check the internal consistency of the questionnaire,

data reliability analysis was applied. The level of Cronbach's alpha ( $\alpha$ ) was based on Nunnally (1978). Cronbach's alpha ( $\alpha$ ) should have values of 0.70 or higher. Table 2 shows that the overall Cronbach's alpha ( $\alpha$ ) was (0.958). The highest level of Cronbach's alpha ( $\alpha$ ) was for organizational performance (0.933), while the lowest level of Cronbach's alpha ( $\alpha$ ) was for system integration (0.868). Comparing these results with Nunnally (1978) ( $\alpha \geq 0.7$ ), the data is considered reliable.

**Table 2. Cronbach's alpha measurement**

No.	Variable	Cronbach's alpha ( $\alpha$ )
1	ERP System Implementation	0.871
2	CRM System Implementation	0.871
3	System Integration	0.868
4	Organizational Performance	0.933
5	Overall	0.958

Then, statistical analysis was performed on the sample's responses in order to get a clear image towards each variable and each question in the questionnaire. For this purpose, means and standard deviations were estimated for every variable in the study model of the study and for each question.

The mean, according to Sekaran and Bougie (2013), is the measure that helps get a complete image of the central tendency of the respondents' answers. Measurement of data distribution, how much it's close to or far from the mean is called the standard deviation, where a high value of standard deviation means that the data is far from the mean, while a low value means that the data is close to it (Mason *et al.*, 1999). After the estimation of means and standard

deviations, the degree of agreement for each questioning and the ranking of answers were established based on a five-point Likert scale, where degrees of agreement level were classified based on the range of data. The range is divided by the number of levels used in the scale, where:

Range = (the highest point of Likert scale – the lowest point of Likert scale);  $(5-1) / 5 = 0.8$ . So, the mean interval (1-1.80) is considered to be very low, (1.81-2.60) low, (2.61-3.40) moderate, (3.41-4.20) high and (4.21-5) very high.

The overall means and standard deviations for the study variables are summarized in Table 3.

**Table 3. Means and standard deviations for the answers**

Item	Mean	Std. Deviation	Level of Agreement
ERP System Implementation	4.37	0.4678	Very High
CRM System Implementation	4.171	0.813	High
System Integration	4.170	0.54339	High
Organizational Performance	4.099	0.725	High

In Table 3, it is shown that the highest agreement level went to the ERP system implementation variable's questions with a mean of 4.37, whereas the lowest agreement level went to the organizational performance variable's questions with a mean of 4.09.

### Testing of Hypotheses

Testing of the research hypotheses was conducted to check whether the assumptions of the hypotheses are acceptable and reasonable or not (Lind, Marchal & Wathen, 2012). This research employed the null hypothesis H<sub>0</sub>, which supposed that there was no effect between the independent variables (ERP system implementation and CRM system implementation) and the dependent variable (organizational performance). To test the hypotheses of the study, SPSS was used to test H<sub>01</sub>, H<sub>02</sub> and H<sub>03</sub> using linear regression analysis. In addition, interactive linear regression was used to test H<sub>04</sub> and H<sub>05</sub>. The choice of these tests was based on Sekaran & Bougie (2013).

### Normal Distribution

To test the normality of the collected data, skewness-kurtosis and Kolmogorov-Smirnov tests were performed. According to George, D. and Mallery, P. (2005), data is considered normally distributed if:

- The values of skewness are between -1 to +1.
- The value of kurtosis is between -3 to +3.
- Sig. value  $0 > .05$ .

The test results showed that the values of skewness were (-0.126 - 0.175), kurtosis were (-0.655 - 0.349) and sig. was 0.068. Based on these results, the data collected is normally distributed.

### Multicollinearity Test

The purpose of this test is to check whether the variables of the study are independent or not. Multicollinearity test includes tolerance and Variance Inflation Rate (VIF). The optimal values of VIF must be less than 10 and the tolerance values higher be higher than 0.05. Table 4 shows that the variables are independent and multicollinearity does not exist.

**Table 4. Variance inflation factors (VIFs)**

Variable	Collinearity Statistics	
	Tolerance	VIF
ERP System Implementation	0.473	2.114
CRM System Implementation	0.409	2.444
System Integration	0.394	2.538
Organizational Performance	0.563	1.776

To test H01, H02 and H03, a linear regression test via SPSS was conducted.

**H01: There is no effect of ERP system implementation**

**on organizational performance in Jordanian automobile companies.**

**Table 5. Linear regression test results of ERP implementation and organizational performance**

DV	IV	Beta	T	F	R	R <sup>2</sup>	Sig.
Organizational performance	ERP system implementation	0.746	13.722	188.287	0.706	0.498	0.000

From the test results in Table 5, the value of R square is 0.498, which means that ERP system implantation can explain 49.8 % of the changes in organizational performance. The value of F=188.2871 at 0.000, which is statistically significant at the level less or equal to (0.05). The effect of ERP system implementation on organizational performance is significant. In this case, the null hypothesis is rejected and the alternative hypothesis is accepted: “there is an effect of ERP system implementation on organizational performance in Jordanian automobile companies”.

Earlier research showed that the ERP system can create a tangible firm performance (Zhu Xu & Dedrick, 2003) which can be measured traditionally by return on assets ROA and net profit margin (Nicolaou & Bhattacharya, 2008). On the other hand, the ERP system has a significant impact on the organization’s intangible performance, top management, employees and customers.

The ERP system enhances internal processes in several

ways, like improving the quality and availability of information with high speed (Ranganathan & Brown, 2006), improving communication and coordination among the organization departments, differentiation within departments, process integration, user satisfaction and reducing customers’ complaints (George *et al.*, 2009). ERP increases top management control and supports employees’ learning and growth. With ERP system, employees’ problem-solving ability and quality were improved and the intention to learn was increased. ERP system also improved customer satisfaction by increasing the understanding and awareness of customer needs and wants, which let the business organization obtain new customers and retain old ones (George *et al.*, 2009).

**H02: There is no effect of CRM system implementation on organizational performance in Jordanian automobile companies.**

**Table 6. Linear regression test results of CRM implementation on organizational performance**

DV	IV	Beta	t	F	R	R <sup>2</sup>	Sig.
Organizational performance	CRM system implementation	0.477	8.548	73.061	0.527	0.278	0.000

As shown in Table 6, the value of R is 0.527 and R square is 0.278, which means that CRM system implementation can explain 27.8 % of the changes in organizational performance. The value of F is 73.061 at 0.000, which is statistically significant at the level less or equal to (0.05). In this case, the null hypothesis is rejected and the alternative hypothesis is accepted: “there is an effect of CRM system implementation on organizational performance in Jordanian automobile companies”.

The study results showed that CRM system implementation has a statistically significant impact on organizational performance, so that it can be concluded that Jordanian automobile companies must pay more attention to the roles that the CRM system plays in the organization (Awwad & Al-Adaileh, 2012). It is considered as a complementary information system solution to the ERP

system extending its value, because the ERP system deals with the internal parts of the organization, such as product offering, production scheduling and process fulfillment (Chen & Hitt, 2002). CRM system deals with the external parts and allows the business organization to build an interactive relationship with customers in order to understand their needs and wants, permitting organizations to create competitive advantages so that they can survive and compete with others in the market (Awwad & Al-Adaileh, 2012).

**H03: There is no effect of system integration on organizational performance in Jordanian automobile companies.**

**Table 7. Linear regression test results of system integration on organizational performance**

DV	IV	Beta	t	F	R	R <sup>2</sup>	Sig.
Organizational performance	System integration	0.658	12.052	145.257	0.658	0.433	0.000

As shown in Table 7, the value of R is 0.658 and R square is 0.433, which means that system integration can explain 43.3% of the changes in organizational performance. The value of F is 145.257 at 0.000, which is statistically significant at the level less or equal to (0.05). In this case, the effect is significant and the null hypothesis is rejected whereas the alternative hypothesis was accepted “there is an effect of system integration on organizational performance in Jordanian automobile companies”. System integration between the two systems allows organizations to communicate effectively with their customers and processes (Rai *et al.*, 2006). It increases interdepartmental communication, facilitates the spread of market intelligence

among the organization’s departments and improves the responsiveness of the organization to the market demand (Liu, 2013). So, it can be concluded that system integration is a key element that represents how business processes can be digitized using the information technology (IT) to generate value (Liu, 2013).

**H04: System integration does not moderate the effect of ERP system implementation on organizational performance in Jordanian automobile companies.**

To test hypotheses H04 and H05, linear regression of centralized means was used.

**Table 8. Linear regression test results of ERP system implementation interaction and organizational performance**

DV	MOD V	IV	Beta	t	F	R	R <sup>2</sup>	Sig.
Organizational performance	System integration	ERP system	0.028	1.165	79.537	0.748	0.559	0.246

As shown in Table 8, the value of R is 0.748 and R square is 0.559, which can explain 55.9 % of the effect on organizational performance. The value of F is 79.537 at 0.246, which is statistically insignificant at the level less or equal to (0.05). In this case, the effect is not significant and the null hypothesis is accepted, stating that there is no moderation effect of system integration on the relation

between ERP system implementation and organizational performance.

**H05: The system integration does not moderate the effect of CRM system implementation on organizational performance in Jordanian automobile companies.**

**Table 9. Linear regression test results of CRM system implementation interaction and organizational performance**

DV	MOD V	IV	Beta	t	F	R	R <sup>2</sup>	Sig.
Organizational performance	System integration	CRM system	0.019	0.736	49.048	0.663	0.439	0.463

As shown in Table 9, the value of R is 0.663 and R square is 0.439, which can explain 43.9% of the effect on organizational performance. The value of F is 49.048 at 0.463, which is statistically insignificant at the level less or equal to (0.05). In this case, the effect is not significant and the null hypothesis is accepted, stating that there is no moderation effect of system integration on the relationship between CRM system implementation and organizational performance. The study results showed that the system integration moderation effect is statistically insignificant due to the following reasons. First: (IT) integration occurs at two levels which are system integration and process integration, so that the moderation effect is expected to appear at the next level of integration after using the

information in business processes. Second: this effect leads us to examine it as a mediation effect, not a moderation effect; so recommended to build a model to study this effect.

Results showed a positive and statistically significant effect of ERP system implementation, CRM system implementation and system integration on organizational performance of Jordanian automobile companies.

**Conclusion and Recommendations**

This research focused on examining the effect of ERP system implementation and CRM system implementation on organizational performance in

Jordanian automobile companies and examining the moderating effect of system integration on organizational performance. According to the results, it was evident that the ERP system is considered one of the most important assets in business organizations. An ERP system handles the core processes to ensure that processes are implemented in a correct way by understanding the requirements and specialty of each organization, which creates competitive advantages and firm values (Ruivo *et al.*, 2017). Earlier research discussed that ERP systems can create a tangible firm performance (Zhu, Xu & Dedrick, 2003). This could be measured traditionally by return on assets (ROA) and net profit margin (Nicolaou & Bhattacharya, 2008). On the other hand, ERP systems have a significant impact on organizations' intangible performance, top management, employees and customers.

The research results also showed that CRM systems have a statistically significant impact on organizational performance. It was evident that Jordanian automobile companies must pay more attention to the roles played by CRM systems in these companies.

The study results also showed that there is a statistically significant impact of system integration on organizational performance, which allows organizations to communicate effectively with their customers and processes. Liu (2013) concluded that system integration is a key element that

represents how business processes could be digitized using information technology (IT) to generate value.

The researchers recommend automobile companies in Jordan to continue investing in implementing both ERP and CRM systems in order to create competitive organizations. It is also recommended that top management of Jordanian automobile companies recognize the importance of integration between ERP and CRM systems, which has a significant effect on the quality of information, response time, customers' satisfaction, users' satisfaction and eventually the overall value of the entire organization.

### Future Research

Based on the results, discussion and conclusions of this research, it is highly recommended to apply the presented model in other sectors in Jordan, such as hospitals, hotels and educational institutions that wish to create, acquire and sustain competitive advantages. Applying this model in these sectors may increase the understanding of how such organizations should use their information systems optimally, which will lead to an overarching use of systems and thus to an increase in organizational performance.

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