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A SERVICE-ORIENTED ARCHITECTURE IMPLEMENTATION MODEL WITH COMPARATIVE STUDIES APPROACH: CASE STUDY OF BRANCHES OF QARZ-AL-HASANAH MEHR IRAN AND RESALAT BANKS

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ABSTRACT

Service-Oriented Architecture (SOA) is an appropriate approach for improving agility and increasing system efficiency. With respect to the wide scope of the organizational architecture projects' effects, it is advisable for the organization to be aware of its capability to accept this new approach before executing and carrying out the relevant huge expenses. The correct understanding of organizational readiness is crucial for the proper orientation of efforts and the formulation of appropriate strategies. The main objective of this research was to provide a SOA implementation model with comparative studies approach (A case study: Branches of Qarz-al-Hasaneh Mehr Iran and Resalat Banks). The pattern aimed to introduce the factors by which one could evaluate the readiness of an organization to implement a SOA. In the current research, the predictor variable included the factors relating to the SOA implementation and its components, and the criterion variable was the implementation of the SOA and its components. These factors, all, included the SOA acceptance scope, the servicing architectural maturity levels, SOA governance levels, Structural Health Assessment (SHM), management layers in the application of SOA and the use of middleware. Statistical population of this study was eventually consisted of 194 employees of Iran's Qarz-al-Hasanah Mehr Bank and 536 employees of Qarz-al-Hasanah Resalat Bank. In order to design the pattern, the components and attributes of the factors relating to the implementation of the SOA were extracted through setting up the questionnaire. The results were analyzed using SPSS®23, and AMOS®24 software. The findings of the research indicated that considering the related factors, the presentation of the SOA implementation model was desirable in Qarz al-Hasaneh Mehr Iran and Resalat Bank.

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1. INTRODUCTION

There is a positive relationship between the degree of readiness of the organization and the successful implementation of the desired system; on the other hand, there is also a positive relationship between the successful implementation of the desired system and the acquisition of business values. Thus, organizations not having enough readiness to use the desired systems would not be capable of realizing the real benefits of them and the implementation costs and expenses would be a surplus. Therefore, the rate of return of the capitals of such systems would be really low (Anjainy & Zeki, 2011:3). One of the reasons for the organizations failure is that they do not have sufficient readiness to implement the desired system; therefore, organizational readiness is a prerequisite for the successful implementation of the desired system, because the lack of accurate information on the level of the organization readiness may cause wrong decisions. Organizational readiness is sometimes described as a risk analysis tool and readiness assessment for such technologies would reduce the risk of failure (Anjainy & Zeki, 2011:4). Generally, organization's readiness assessment should answer two questions: what is the current ability of the company or organization in this particular area, and what changes should be made before the start of the relevant plans (Soysa & Nanayakkara, 2006:29).

Having authority over service-oriented architecture (SOA) is a process that ensures the realization of the interests of all stakeholders in information technology and business by planning, funding, and implementing a SOA initiative. It is also a kind of strategic investment in which the institution and its functions in projects are supported in the best possible form (Software AG, 2005). Through examining the levels of governance in the SOA, analysis and assessment of the levels of maturity of this authority and the scope of acceptance of this style of organizational architecture is necessary. Due to the fundamental role of middleware in implementing SOA and the role of structural health assessment of management layers existing in the employment of SOA, a model with the mentioned fundamentals modes and dimensions has been developed that requires a quantitative and qualitative analysis in order to optimize the implementation of this type of construction and organizational architecture. Regarding the indexes and dimensions identified in the application and presentation of the productive model of the implementation of SOA, the analysis of IT-based services organizations seems to be one of the most important pillars in the applied modes of these models (Simonis, 2011).

Banks as the institutions that make the most use of IT resources are not excluded from this rule. The new generation of banking systems, generally known as the full form of core banking, has, benefited from tangible advances in technology as well as business over time, and has built the main axis of its service based on SOA in recent years. The full form of core banking products have changed their new versions with a SOA and featured targeted markets with the service-centric slogans. To this end, in the present research, the dimensions of the implementation of the SOA were identified in order to achieve a model in implementing this kind of organizational structure by combining these indexes productively. According to the assessments, the five main indexes of implementing the structure of SOA include the

acceptance scope of SOA, the maturity level of SOA, the authority levels of SOA, Structural Health Monitoring of management layers in applying SOA and middleware application. Therefore, with respect to this research's objectives, this research had tried to answer the questions:

The first main question: What are the features of the implementation model of SOA in Qarz al-Hasaneh Mehr Iran and Qarz al-Hasaneh Resalat Banks?

The second main question: What is the validity of presenting a model of SOA implementation with the approach of comparative studies (a case study of the Qarz al-Hasaneh Mehr Iran Bank and Qarz al- Hasaneh Resalat Bank)?

Other sub-questions include:

Is there a relationship between the factors relating to the implementation of SOA in Qarz al- Hasaneh Mehr Iran and Qarz al- Hasaneh Resalat Banks?

Is there a difference between the factors relating to the implementation of SOA in Qarz al-Hasaneh Mehr Iran and Qarz al- Hasaneh Resalat Banks?

Is there a difference between the implementation of SOA in Qarz al- Hasaneh Mehr Iran Bank and Qarz al- Hasaneh Resalat Bank?

Is there a difference between the relationship of the factors relating to the implementation of SOA in Qarz al- Hasaneh Mehr Iran Bank and Qarz al- Hasaneh Resalat Bank?

2. LITERATURE REVIEW

Nowadays, the main priorities of organizations to be competitive include increasing the operational efficiency and enhancing the income and production (Setrag, 2006). SOA is a kind of architecture that relies more on the service as the main design. In fact, the key feature of the SOA is combining the business with IT. Hence the processes should be seen from the service-oriented point and they should be supported in the level of management profession (Abdolmenan, 2011). In general, SOA reduces the organizational complexity and improves communication between business and information and also communication technology. These services will be able to change, grow and development at the lowest possible cost with minimal cost. Of course, it should be noted that in this area, the quality of service is also important and the more the quality of a service is, the more the quality of the business increases (Alwadian et al, 2015; Texeria et al, 2015).

Service- oriented architecture specifically focuses on ruling and authority of services (Yashar, 2008) and provides a fundamental framework for achieving a functional and non-functional Interactivity (Yashar, 2009). Authority is a key factor for the success of organization's SOA projects. In the absence of authority, organization cannot fully understand the value of SOA (Mittal, 2006). If the authority of the SOA is successful, the organization can create qualified and secure services, which would increase the efficiency and effectiveness of the organization (Hassanzadeh & Namdaran, 2010:515, 2011:719).

According to Marks, a comprehensive maturity model of SOA has some dimensions like the adoption of SOA and general maturity model of SOA. Adoption model is very useful

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for the assessment of organization's success in the field of understanding and accepting SOA, determining organization's strategic goals and plans, where does the organization stand these days and where is it going to go and when is it going. General model of SOA maturation provides a picture of SOA maturation of organizations based on main needs and requirements of SOA and shows weakness and main gaps which should be considered by organization (Marks, 2008).

If the organization does not know where it stands now, a map could not help it and if the organization does not know its target, it may chose every coming path. Maturation levels usually provide a guideline map for the organization to predict the performance in a domain or set of domains. Regardless of the current levels of maturity, the organization cannot understand and reach the maturity of the service architecture's authority. The first step for authority levels of maturity is assessing the current situation of the organization in various domains of authority. This assessment helps the organizations to identify the main areas on which they need to focus and better prioritize those that need to be improved (Dehghani & Emadi, 2014:264).

Structural Health Monitoring (SHM) of management layers is used to apply SOA in order for analyzing the modals and identifying the damages. There are 8 basic features that are important for SHM including resource optimization, dynamic network mappings, network processing, service quality, heterogeneity, fault tolerance, real world awareness and time overview. SHM automatically recognizes the damage in structure. SOA also provides the flexibility of adding new services at the time of performance. The new services also are added in order to deal with different WSN applications. The SHM application is used to detect and report errors in the transmission and processing of data and also identify reading defective sensors (Yourajsani, et. al., 2017).

3. HYPOTHESES DEVELOPMENT

The middleware also offers similar capabilities for integrating and reusing software components on demands. However, it does not easily support online or on-demand integration. This has been generally targeted as an internal solution instead of having access to desired service. Middleware methods have been used to facilitate the design of services, development and integration of them. The middleware helps to distribute and abstract heterogeneity of infrastructure computing environment and existing services. In addition, it supports non-usable features such as performance, scalability, reliability, availability, usability and ability to manage productivity and security. A number of middleware platforms have been developed to support value-added systems in a variety of areas such as organizational systems, cluster computing, wireless sensor networks, mobile contingency networks and robotics. Mechanisms and methods are often required to reuse the existing methods and software protocols for adding required values. This appropriate approach easily exists in the concept of service-oriented computing (Shabani Sijani & Soleimani Nisiani, 2016:5).

According to the view of the experts` and research's` results, it is expected that the banks

will be informed of their capability to accept this new approach by examining the factors related to SOA implementation in branches of Qarz al-Hasaneh Mehr Iran Bank and Qarz al-Hasaneh Resalat bank through which we can assess the readiness of banks under the study. By providing a pattern of SOA implementation, banks plan to guide their efforts and formulate appropriate strategies. According to the above-mentioned principles, the following hypotheses have been considered and tested to achieve the main and secondary goals of the research:

H1: Presenting a SOA implementation in Qarz al-Hasaneh Mehr Iran bank and Qarz al-Hasaneh Resalat bank.

H1a: There is a significant relationship between implementation in Qarz al-Hasaneh Mehr Iran bank and Qarz al-Hasaneh Resalat bank.

H1a1: There is a significant relationship between adoption of SOA and implementation of SOA in Qarz al-Hasaneh Mehr Iran bank and Qarz al-Hasaneh Resalat bank.

H1a2: There is a significant relationship between maturity level of SOA and implementation of SOA in Qarz al-Hasaneh Mehr Iran bank and Qarz al-Hasaneh Resalat bank.

H1a3: There is a significant relationship between authority level and implementation of SOA in Qarz al-Hasaneh Mehr Iran bank and Qarz al-Hasaneh Resalat bank.

H1a4: There is a significant relationship between structural health monitoring of management layers in applying SOA and implementation of SOA in Qarz al-Hasaneh Mehr Iran bank and Qarz al-Hasaneh Resalat bank.

H1a5: There is a significant relationship between middleware application and implementation of SOA in Qarz al-Hasaneh Mehr Iran bank and Qarz al-Hasaneh Resalat bank.

H2: The validity of presenting SOA implementation with comparative studies approach (case study Qarz al-Hasaneh Mehr Iran bank and Qarz al-Hasaneh Resalat bank) is confirmed.

H2b: There is significant relationship between factors relating to the implementation of SOA and implementation of SOA in Qarz al-Hasaneh Mehr Iran bank and Qarz al-Hasaneh Resalat bank.

H2b1: There is significant difference between the adoption of SOA and implementation of SOA in Qarz al-Hasaneh Mehr Iran bank and Qarz al-Hasaneh Resalat bank.

H2b2: There is significant difference between the maturity level of SOA and implementation of SOA in Qarz al-Hasaneh Mehr Iran bank and Qarz al-Hasaneh Resalat bank.

H2b3: There is significant difference between the authority levels and implementations of SOA in Qarz al-Hasaneh Mehr Iran bank and Qarz al-Hasaneh Resalat bank.

H2b4: There is significant difference between structural health monitoring of management layers in applying SOA and implementation of SOA in Qarz al-Hasaneh Mehr Iran bank and Qarz al-Hasaneh Resalat bank.

H2b5: There is significant difference between middleware applications and

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implementation of SOA in Qarz al-H in Qarz al-Hasaneh Mehr Iran bank and Qarz al-Hasaneh Resalat bank.

The obtained factors in optimal implementation of SOA and 5 identified factors are indicated in Figure 1.



Figure 1: Conceptual model and hypotheses.

4. METHODOLOGY

This is an applied research regarding its objectives and a descriptive correlation one regarding its data collection procedure in which the relationship between variables were analyzed based on the research's goal. To determine the reliability of a preliminary study of the sample population, reliability of the questionnaire of factors related to the service oriented architecture implementation and SOA implementation (Table 1) was calculated using Cronbach's alpha and given that the Cronbach's alpha values were higher than (0.7), the internal reliability of all dimensions was confirmed. The value of this statistics showed that the questionnaire enjoyed high reliability.

Table 1. Reliability of research's dimensions questionnaire

Dimension	Cronbach's alpha	The number of question of each dimension
Adoption area of SOA	0.807	8
Maturity level of SOA	0.925	38
Authority level	0.865	15
Structural health monitoring of management layers in applying SOA Firmware application	0.881 0.800	16 4
The factors related to SOA implementation	0.961	81
SOA implementation	0.933	50

The number (3.00) which showed the moderate level studies has been used to reject or confirm the indexes and if considered index's score was higher than theoretical value (3.00), the proposed index would remain in the model. The results showed that among 128 proposed indexes for the factors relating to SPA implementation, 81 indexes were confirmed by experts and 47 ones were eliminated and all the 50 proposed indexes were confirmed by expert in order to implement SOA.

The statistical population of this research included experts and banking experts and professors in the field of service oriented architecture system, IT management and customer relationship management. The sampling method used in this study was a random-stratified sampling method proportional to the size of society. Considering that structural equation approach and confirmatory factor analysis were used, the sample size was considered to be between 5 and 10 times of the number of questionnaire questions (Westlan, 2010:480).

Considering the probability that some of the completed questionnaires may not be usable, a total of 750 questionnaires were distributed in the desired range. Finally, 730 questionnaires including 194 employees of the Gharz al- Hasaneh Mehr Iran bank and 536 employees of the Bank of Gharz al- Hasaneh Resalat bank were considered as the basis of the analyses of the statistical data. The majority of respondents aged 31 to 35 years with bachelor degree and all were male. In this research, descriptive statistics techniques and inferential statistics were used for obtained data analysis and binomial test was used to reject or confirm the hypotheses. Data was analyzed using software SPSS version 23 and AMOS version 24. The significance level of the present study was considered to be 0.05.

5. FINDINGS

5.1 DESCRIPTION OF THE VARIABLES` DIMENSIONS FACTORS RELATING TO SOA IMPLEMENTATION

The factors relating to SOA implementation variable has been consisted of 81 questions of five options. The descriptive information of the factors relating to the SOA implementation variable included average, standard deviation, minimum and maximum separated to Gharz al- Hasaneh Mehr Iran bank and Gharz al- Hasaneh Resalat Bank which were presented in Table 2.

Table 2. Descriptive statistics of the variables` dimensions of the factors related to SOA implementation among respondents.

Dimension	Organization	Number	Average	Standard deviation	The least	The most
Adoption area of SOA	Qarz al-Hasaneh Mehr Iran Bank	194	485	0.22	3.75	5.00
	Qarz al-Hasaneh Resalat Bank	536	4.76	0.30	2.88	5.00
Maturity level of SOA	Qarz al-Hasaneh Mehr Iran Bank	194	4.75	0.22	4.00	5.00
	Qarz al-Hasaneh Resalat Bank	536	4.71	025	3.89	5.00
Authority level	Qarz al-Hasaneh Mehr Iran Bank	194	4.75	0.23	3.93	5.00
	Qarz al-Hasaneh Resalat Bank	536	4.73	0.28	3.87	5.00
Structural health monitoring of management layers in applying SOA	Qarz al-Hasaneh Mehr Iran Bank	194	4.74	0.27	3.69	5.00
	Qarz al-Hasaneh Resalat Bank	536	4.74	0.27	3.69	5.00
Firmware application	Qarz al-Hasaneh Mehr Iran Bank	194	4.72	0.33	3.50	5.00
	Qarz al-Hasaneh Resalat Bank	536	4.72	0.35	3.50	5.00

Scoring scale of Bazargan et al. (1999:3) which has been presented in Table 3 was used for better interpretation of the mean. According to empirical averages and based on the scale of Bazargan et al. (1999:3)., it could be concluded that the dimensions of adoption areas of SOA, the maturity level of SOA, authority levels, the structural health monitoring of the management layer in the application of SOA and the middleware application in the bank of Gharz al-Hasaneh Mehr Iran bank and Gharz al Hasaneh Resalat bank were at a very high level.

Table 3: Scoring scale (Bazargan et al., 1999).

Very strong	Strong	good	Higher than satisfactory	Satisfactory	marginal	unsatisfactory
4.51-4.99	4.00-4.50	3.61-3.99	3.00-3.60	2.50-2.99	2.49-2.00	Less than 2.00

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5.2 DESCRIPTION OF SOA IMPLEMENTATION VARIABLE

This variable consisted of 50 questions of 5-options. The descriptive information which included average, standard deviation, the least and the most separating to Qarz al-Hasaneh Mehr Iran Bank and Qarz al-Hasaneh Resalat Bank have been presented in Table 4. Scoring scale of Abbas Bazargan et al which has been presented in Table5 was used for better interpretation of the mean (Bazargan et al, 1999:13). According to empirical means (4.76 and 4.73) and based on Bazargan et al. (1999) scale, it could be concluded that SOA implementation variable in the bank of Gharz al-Hasaneh Mehr Iran bank and Gharz al Hasaneh Resalat bank was at a very strong level.

Table 4: Descriptive statistic of SOA implementation variable among respondents

Organization	Number	Average	Standard deviation	The least	The most
Qarz al-Hasaneh Mehr Iran Bank	194	4.76	0.20	4.02	5.00
Qarz al-Hasaneh Resalat Bank	536	4.73	0.23	3.88	5.00

5.3 TESTING THE RESEARCH QUESTIONS

The main question: What are the characteristics of the SOA implementation model in Qarz al-Hasaneh Mehr Iran Bank and Qarz a-Hasaneh Resalat Bank?

The software output showed the appropriateness of research's proposed model so that Root Mean Squares Estimated Error was equal to 0.042, The Normalized Chi-Square Value was equal to 2.618 and Goodness Fit Index was equal to 0.916. Other fit indexes of research's proposed model have been presented in Table 5.

The results of Table 6 showed the positive significant effect of the factors relating to SOA implementation on SOA implementation (0.984) in Qarz al-Hasaneh Mehr Iran Bank and it indicated the positive significant effect of the factors relating to SOA implementation on SOA implementation (0.912) in Qarz al-Hasaneh Resalat Bank.

Table 5. Fitness indexes of the proposed model of study

Index	Acceptable limit	Reported value
Root Mean Squares Estimated Error	Equal or less than 0.08	0.042
Normalized chi-square(CMIN/DF)	Equal or less than 3	2.618
Goodness fit index	Equal or higher than 0.9	0.916
Adjusted goodness	Equal or higher than 0.	0.888
Comparative fit index	Equal or higher than 0.9	0.914
Normalized fit index	Equal or higher than 0.9	
Tucker-Lewis index	Equal or higher than 0.9	0.908
Incremental fit index	Equal or higher than 0.9	0.915

Table 6: The path coefficient and its significance and evaluation of the research's hypothesis in the main path's analysis model

Organization	Hypothesis	Path coefficient	T value	Kind of relation
Qarz al-Hasaneh Mehr Iran Bank	Factors relating to→ architecture Implementation	0.984	7.289**	incremental
Qarz al-Hasaneh Resalat Bank	Factors relating to→ architecture Implementation	0.912	10.801**	incremental

***The value higher than 1096 is significant at 0.05 level, *the value higher than 1.64 is significant at 0.1 level*

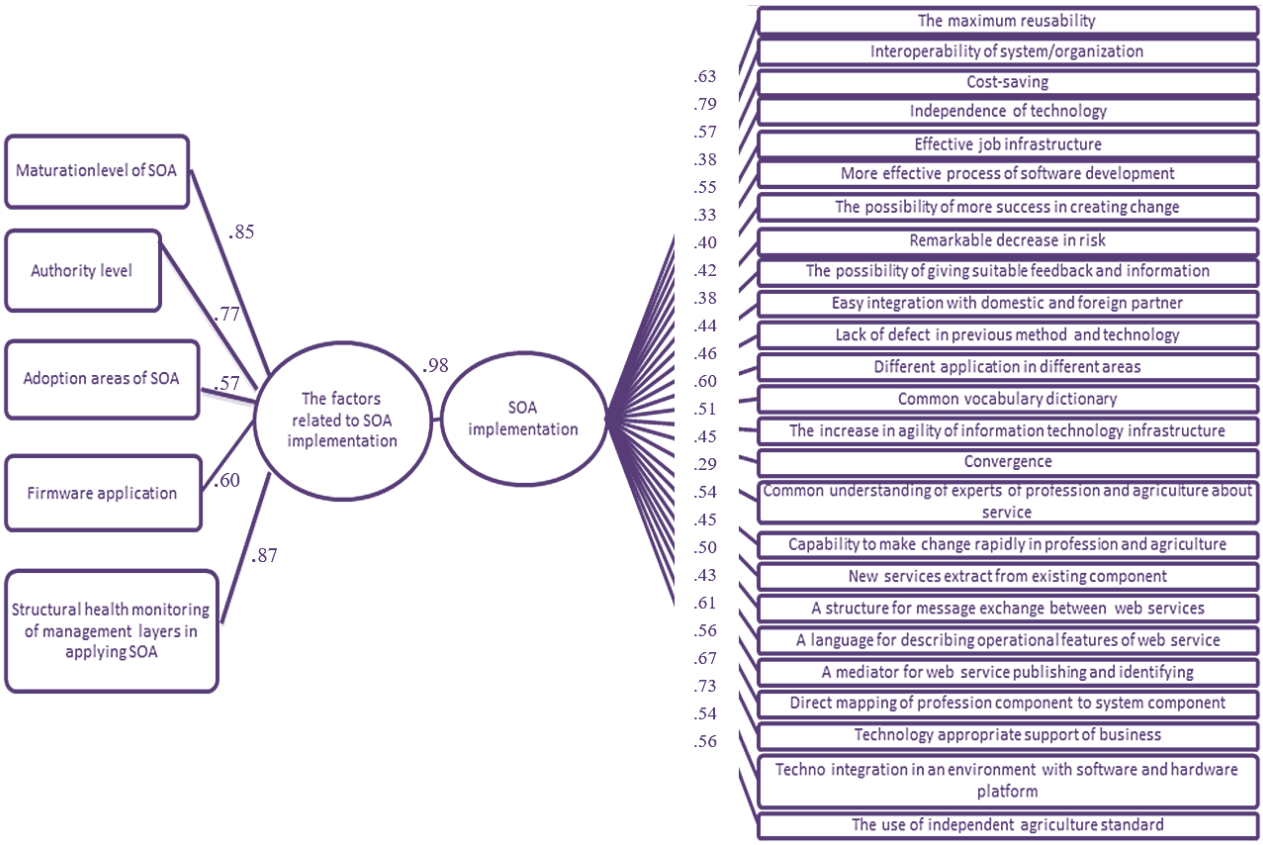


Figure 2. Structural Equation Results for Investigating the Proposed Model of Research (Qarz-al-Hasanah Mehr Iran Bank)

The second main question: How much is the validity of presenting SOA implementation model with comparative studies approach (A case study: Qarz al-Hasaneh Mehr Iran Bank and Qarz al-Hasaneh Resalat Bank)? The conceptual model and the results of testing the hypotheses of the present research were presented to the experts who participated in the design of the model in order to investigate and determine the effectiveness of the research's proposed model and they were asked to whether the proposed model has been effective or not according to conceptual model and the results of the of research's hypotheses test. The results showed that 27 (90%) of experts had confirmed the effectiveness of model (Table 7).

Table 7: Assessing the validity of research's model

Experts' view	Frequency	Frequency percentage
Model verification	27	90.0
Model rejection	3	10.0
Total	30	100.0

The first sub-question: Is there a relationship between the factors relating to SOA implementation in Qarz al-Hasaneh Mehr Iran Bank and Qarz al-Hasaneh Resalat Bank?

The Pearson correlation coefficient has been used to evaluate the relationship between the variables (quantitative and normal data). The results of correlation test showed that there was a significant relationship between the dimensions including adoption areas of SOA, maturity level of SOA, authority levels, Structural health monitoring of management layers in applying SOA and middleware application and SOA implementation in Qarz al-Hasaneh Mehr Iran Bank and Qarz al-Hasaneh Resalat Bank (p-value<0.05).

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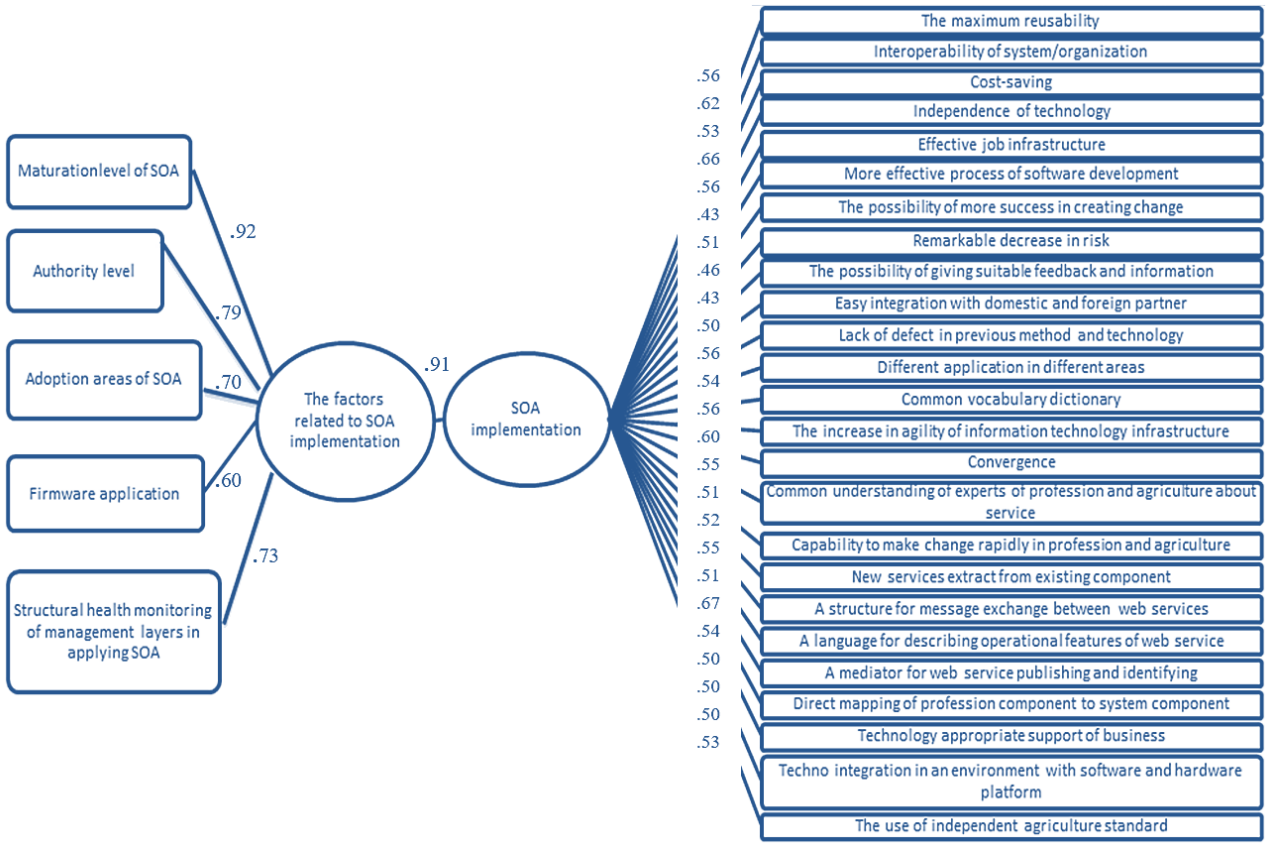


Figure 3: Structural Equation Results for Investigating the Proposed Model of Research (Qarz-al-Hasanah Resalat Bank)

Table 8: Evaluation of the relationship between the dimensions of the factors relating to SOA implementation and SOA implementation

organization	variable	1	2	3	4	5	6
Qarz al-Hasaneh Mehr Iran Bank	1-SOA implementation	1					
	2-Adoption area of SOA	0.522**	1				
	3-Maturity level of SOA	0.795**	0.497	1			
	4-Authority levels	0.687**	0.510	0.675	1		
	5-Structural health monitoring of management layers in applying SOA	0.792**	0.453	0.735	0.663	1	
	6- Firmware application	0.581	0.287	0.445	0.456	0.551	1
organization	variable	1	2	3	4	5	6
Qarz al-Hasaneh Resalat Bank	1-SOA implementation	1					
	2-Adoption area of SOA	0.616**	1				
	3-Maturity level of SOA	0.802**	0.658	1			
	4-Authority levels	0.684**	0.544	0.746	1		
	5-Structural health monitoring of management layers in applying SOA	0.627**	0.505	0.650	0.600	1	
	6- Firmware application	0.547**	0.388	0.536	0.375	0.605	1

*** = Significant at level of 0.01, *= significant at level of 0.05*

Due to the positive correlation coefficients calculated, these relations were of direct (incremental) types. In other words, by increasing each of the dimensions of the factors related to the SOA implementation, SOA implementation variable also increased. According to correlation coefficients calculated, it could be said that the relationship between maturity level of SOA and SOA implementation was strong in Qarz al-Hasaneh Mehr Iran Bank and the relationship between maturity level of SOA and SOA implementation was strong in Qarz al-Hasaneh Resalat Bank, see Table 8.

The second sub-question: Is there a difference between the factors relating to SOA implementation in Qarz al-Hasaneh bank and Qarz al-Hasaneh Resalat bank? Two independent sample t-tests have been used to evaluate this hypothesis. This test was used to compare the average of two independent groups and in the present study; two independent groups included the employees of Qarz al-Hasaneh bank and Qarz al-Hasaneh Resalat bank. This test's defaults consisted of scores distribution normality and homogeneity of variance.

The first default of this test was that the variables follow the normal distribution. The second default was the establishment of homogeneity between variance of groups under study. The results of Table10 showed that the scores' variance of the factors relating to SOA implementation in two groups including Qarz al-Hasaneh bank and Qarz al-Hasaneh Resalat bank were not compatible (p-value). Therefore, the second default has not been considered, however, the use of t-test was appropriate and t statistic has been replaced. The results of Table 9 showed that there was no significant difference between the factors related to SOA implementation in two groups including Qarz al-Hasaneh bank and Qarz al-Hasaneh Resalat bank (p-value>0.05).

Table 9: The results of testing research's question

Homogeneity of variance test		Equality of average test		
Levene test statistic	p-value	T statistic	degree of freedom	p-value
7.929	0.005	1.867	385.851	385.851

The third sub-question: Is there a difference between SOA implementation in Qarz al-Hasaneh Mehr Iran Bank and Qarz al-Hasaneh Resalat Bank? Two independent samples t-test was used in order to test this hypothesis. The first presumption of this test was that the variables follow the normal distribution. This assumption was considered for the SOA implementation variable. The second default was the establishment of variance's homogeneity of groups under study. The results of Table 11 showed that the variance of scores of two groups including Qarz al-Hasaneh Mehr Iran bank and Qarz al-Hasaneh Resalat bank were compatible (p-value>0.05). Therefore, the second default has been also considered. The results of Table 10 showed that there was no significant difference between the SOA implementation variable in Qarz al-Hasaneh Mehr Iran bank and Qarz al-Hasaneh Resalat bank (p-value>0.05).

Table 10. The results of testing research's question

Homogeneity of variance test		Equality of average test		
Levene test statistic	p-value	T statistic	degree of freedom	p-value
4.617	0.032	1.925	387.663	0.055

Table 11: The results of testing research's question

Variable	organization	SOA implementation	F statistic	p-value
The factors related to SOA implementation	Qarz al-Hasaneh Mehr Iran bank	0.865	1.21	0.113
	Qarz al-Hasaneh Resalat Bank	0.827		

The forth sub-question: Is there difference between the factors relating to SOA implementation and SOA implementation in Qarz al-Hasaneh Mehr Iran bank and Qarz al-

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Hasaneh Resalat Bank? Fisher's test was used to test this hypothesis. The results of Table11 showed that there was not a significant difference between the severity of the relationship between the factors related to the implementation of service oriented architecture with the implementation of SOA in Qarz al-Hasaneh Mehr Iran Bank and Qarz al- Hasaneh Resalat Bank.

6. CONCLUSION

The presentation of SOA implementation along with comparative approach (case study: Qarz al-Hasaneh Mehr Iran and Resalat Banks) has been studied in this research. According the main hypothesis, the results showed that the proposed model was appropriate and there was a positive significant relationship between the factors relating to the implementing SOA and SOA implementation in Qarz al-Hasaneh Mehr Iran Bank and there was also a positive significant relationship between the factors relating to the implementation of SOA and SOA in Qarz al-Hasaneh Resalat bank. This means that the level of success of SOA implementation in organization was directly due to the awareness of organization about it. The low cost and time required to evaluate a SOA program, due to well-defined criteria and the precise definition of each activity required in each of the essential components of SOA, could be considered as another advantage of this approach. Logically, the creation of information sharing and sharing experiences and service-oriented knowledge with other business units and IT would lead to improved decision-making in the area of service-orientation. Some items including training, attracting the participation of specialists in the field of service, strengthening communication skills in the project team and the participation teams of different units were suggested in order to promote the understanding, training and empowerment of all members of the organization regarding the service-orientation value.

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