Strategic assessment of factors that create a resistance to change during the implementation of Enterprise Resource Planning (ERP) systems. The case of Lebanese organizations

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RESEARCH ARTICLE

Strategic Assessment of Factors that Create a Resistance to Change During the Implementation of Enterprise Resource Planning (ERP) Systems. The Case of Lebanese Organizations

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Abstract

Resistance to change can be found in all organizations, but it is almost always an essential measure to be considered and analyzed in detail, so it will be relevant to demonstrate what are the main causes to resist the change during the implementation of a new Enterprise Resource Planning (ERP) system in order to avoid it and find optimal solutions for it. We will be comparing our study to several previous studies that have been conducted in different countries such as Yemen and Malaysia. Our study roughly employs the same factors utilized in these previous studies. Our objective will also be to determine whether or not the results are similar to that in Lebanon. For our research, and in order to answer our research questions and test our hypothesis, we will use the following strategies and methodologies: quantitative, deductive, positivist, and using a survey of 100 respondents. This study will aid us in determining the main causes of user resistance to change which are lack of education and training. As a result, this will lead to an increase in usability issues, therefore pushing the users to double their efforts to control the system, and lowering their expectations towards the newly implemented ERP system. This research study was undertaken in Lebanon in approximately 10 different companies that have been using the same software. The ERP providers are limited in the Lebanese market and can be bilateral. The results in deducing that the problem might be originated from the provider's side and the trainers who failed to transfer the information properly to users. Communication will be a key factor in ensuring employee satisfaction while using the newly implemented system. In addition, communication between manager and employees/trainers needs to be maintained. The communication between the management, workforce, provider and management, trainers and management, trainer and employees, are of an essential importance and can reduce the intensity of difficulties, complications and the resistance to change leading to reduction in costs and an increase in performance.

Keywords: ERP System, User -resistance to change, Job content, User expectations, Increased efforts, Technology, User involvement, Development process

1. Introduction

Based on previously conducted research which has been done to understand the factors that were unsuccessful, ERP implementation has a very high percentage of failure. The main purpose of this project is to allow ERP system users to provide suggestions and evaluations of the system which will ensure the continuity of the business. In any new innovative execution, one of the issues that should be highlighted is the resistance to change. Numerous implementations have failed because of strong resistance from the end users. Thus, the aim of this project is to explore user resistant issues in the post ERP implementation phase under which dimensions are the ones that lead to user resistance.

ERP is linked to a few stages to which the last advancement of its performance refers to the Post Implementation Step. The Post Implementation Step of ERP conspires thought which is extremely critical for ERP performance in addition to the real examination of plan which starts while a user begins working on the system. Conflict to variation, user beliefs, user ages, and the user training are the main reasons why users resist the change after the application of ERP system. To have a successful project management, users should be given responsibilities related to this project. The Human Resources department should be involved and active in the training in order to help the project management by reducing the resistance to change. The current literature indicates that person resistance is one of the biggest challenges in large-scale information systems implementations such as ERP systems, in agencies around the world.

In this study we tackled the main causes of resistance to change during the implementation of a New ERP System. In the first part, we defined our hypothesis, variables, populations and factors. The descriptive statistics were analyzed then the main results were explained in order to discuss the results and the hypothesis. Chapter five reflects upon the conclusions and recommendations, and where the findings were discussed in order to extract the main results. At the end of this chapter a recommendation was written in order help the project managers and trainers avoid the resistance to change.

2. Literature review

International and global competition have forced firms all over the world and more precisely in the Middle East region to search for manufacturing alternatives and process to increase the level of efficiency so that they could compete locally and internationally (Nassereddine & Wehbe, 2018). The resistive attitude of consumers is an important issue that is essentially faced by the senior administrative team, which plays a crucial role in the deployment and execution process of the Information System. This issue occurs frequently during Enterprise Resource Planning project execution, which leads to failure in the aftermath of the implementation process of the ERP outlining all the different components generating consumer resistance in Computer-Based Technology and data systems. This resistance could be active or passive and constitutes a defense mechanism to the change presented through the complexity of the system. «Innate resistance to change, lack of involvement in the implementation process, lack of management support, negative

technical pleasant which makes the device appear 'unfriendly', and the interplay of the designers and users». On the other hand, the assessment of the success of the Information System has been under the research radar for more than 30 years. Enzweiler Group highlights two factors that are essential for a successful ERP project execution. Goals represent a measuring tool to assess the software put into action as well as the process enhancement and users' progress, the latter being defined as the person's acquired set of competencies. For instance, the ability to master the usage of configuration instruments of the ERP system. Financial allocations directed at hiring candidate users and at external suppliers to boost the implementation would be effective for the assessment of an internal budget setting objective. Successful ERP implementation is measured in function of the obtained deviation from the expected end product of the project, similar to cost overrun, schedule overrun, and any deficit in the rendition of the system or non-fulfillment of the goals envisioned. What has been useful was scouting all rationales that we will make use of to employ and develop the ERP system because it is difficult to predict the final results. Another procedure of ERP systems success is the monitoring of the degree of satisfaction of employees. In their studies, by Powers and Dickson, Holsapple, Wang, and Wei in 2005, customers' satisfaction constitutes a primary factor of successful information management systems measurement. In fact, this instrument measures End −Users Computing Satisfaction, also called EUCS via the use of 12 satisfactory items. By only measuring the successful management information system, it has been proven to be theoretical because of components like unsubstantial costs which are hard to convert into financial equations. -User agreement to satisfaction terms & conditions. The main purpose of this study is to explore and analyze all factors which represent the causes through which users would be more inclined to oppose and resist any new implementation of ERP systems at the heat of private companies in Lebanon. Enterprise Resource Planning systems, also known as ERP systems are software applications that contain many components we call « modules». ERP systems can be particularly built in order to specifically match companies and organizations' needs (Zahrawai, et Al, 2019). As of 1990, this software was particularly popular and effective in place of classical systems in big international companies. In fact, ERP systems merge a multitude of business strategies, which helps companies in achieving higher levels of productivity. In addition, Davenport declares that embracing these

systems constitutes an important key to the ongoing development in the usage of data technology in the 1990s. But in order to play such an important role, companies have to ensure the correct implementation of the ERP systems, as well as presenting an effective, continuous follow-up, and control of its operational performance. An essential factor of ERP systems is their capacity to cater to all companies' divisions. As a matter of fact, in terms of practicality, users from different units can benefit from the system's shared database for different ends. It is also important to mention that ERP systems present automated software that helps in generating reports from all divisions in synchronization. Nowadays, these systems arise as fundamental systems in the business world, organizing all. Below is a brief overview of ERP systems' progression over the years. This is when the software known as MRP was innovated. In 1972, SAP was founded in Germany which stood for « Systems, Applications & Products in Data Processing». Meanwhile, financial institutions were developing their own software as well. SAP developed an accounting system in 1973. This increased the capacity of the software and added more processes in manufacturing. It described software such as MRP and MRP II and other software with other functions that have to do with the company's « back office » such as engineering, finance, accounting, HR, and project management. In the mid-nineties, ERP software became available from SAP, Oracle, JD Edwards, and Baan, and had to do with the core functionality of companies. In 1996, NetSuite came up with an ERP system that was functional on multiple business functions and was delivered via the internet. PeopleSoft software was used by more than 50% of the HR market. SAP was the fourth largest software supplier worldwide and the largest inter-enterprise software company worldwide. SAP had more than 20 thousand employees in over 50 countries, and more than 2800 of Baan's enterprise software was created in over 4700 sites in the world. This is when the Gartner Group described ERP II which was internet-enabled software that allowed real-time access to ERP solutions. It was also described as integrating systems outside of the business and providing management and functionality in those areas as well, such as supply chain management, CRM, and business intelligence. In 2001, 9/11 happened and a demand for new ERP systems occurred. In 2002, most ERP systems were improved and became « Internet Enabled » which enabled customers worldwide to have access to the supplier's ERP system. It allowed systems to communicate together, and after 2005 the trend went towards cloud systems and the use of traditional servers went down.

User resistance can turn the ERP implementation into a mess and a big failure for the organization. «When project completion is imminent and the reality of new work practices becomes apparent, users begin to evaluate the new system more closely and raise significant issues, often leading to consumer resistance and the need for post-implementation modifications». In 2001, Aladwani stated that a hostile mentality from potential users who resist the ERP implementation process even though he listed the extensive advantages of the ERP systems. Nasirin et al. recognized in 2005 that user resistance starts with change, and they further noticed that the involvement of the customer in the implementation will create problems for the users. Resistance of users can make any successful implementation fail. When corporations decide to segment out older systems in the company and implement new systems, the top managements are the decision-makers, and the users will have a resistance to the system implemented. Work by Jiang et al., in 2000 dictates that many points of view can be adopted to understand user resistance with multiple techniques to promote acceptance to the system. The factors that affect the resistance are mainly usefulness, ease of use, expectations, the magnitude of change, equity perceptions, and employee behaviors in the implementation process. The changes in the system can be very distinguishing and will most certainly make the users behave differently. The unwillingness to use a new system or technology might be the reason why the resistance is triggered as well. Another cause for resistance is the fear of automation which is perceived negatively. To resolve the issue of user resistance, ERP consultants should transfer the knowledge together with the implementation of the systems, and set up a comprehensive training program that would help the user adapt.

An analysis needs to be done on the response of users to adequately put in place a training program that is delivered adaptively. «ERP education to place more emphasis on Change Management, organizational and employee resistance, and performance incentive schemes». Changes in the ERP systems will directly affect and shape how users accomplish their daily routine tasks within the corporation, and this will disrupt the expectations for the future which could be seen as a loss of control (Zabukovšek et al., 2022). Resistance is a recurrent behavior experienced by users whenever a new technology or information system is implemented. Why they resist and what causes such resistance is the primary

subject of our research. Resistance is visible to users in many different ways. End users who are humans within the company show this resistance, and only the users can make an implemented change succeed, fail or neutralize technical systems. As per definition, active resistance is the form of resistance through which customers present clear criticism concerning the changes performed, therefore creating opposition towards all-new modifications in the new system. Active resistance mostly surfaces in specific societies and is due to cultural factors, which makes it a rarity. Passive resistance is difficult to observe because it is a rather discrete form of resistance; usually difficult to detect in the first stages of system implementation. Users might show support and assistance for the modifications but their resistance will start to show as soon as the system's implementation becomes real. These resistance forms share a common source, the user's reaction facing the new systems. The motive pushing the users to show resistance after the implementation of the new ERP system is still under research. Researchers are working on detecting the types of resistance user that might show post-implementation through supportive theoretical frameworks (Slimani and Moumen, 2021). This is why encountering resistance from the end-users will cause issues and complicate the management's work. As a matter of fact, some researchers believe that end user resistance is a behavior classified as practical, beneficial, and professional in regards to technological modifications, whereas other researchers assert that user resistance is detrimental and that it needs to be suppressed. However, it is apparent that all causes leading to resistance come from varied sources and lack correspondence and consistency. Resistance is the reaction to changes in displacement of data and neutralizing the engrossment of power in the company's structures. In the Post-Implementation phase of ERP systems, companies often face resistance from users which proves difficulties to solve it, since the reasons exist are still under many theories. In order to avoid user resistance, it is important to understand the causes and help users adapt and accept the technological changes. Krasner noted these issues before going live, and it is interesting to note that the most dominant obstacle among the three is users' obstacles with 62% of problems coming from them. During ERP implementation, business operations and strategies alongside IT issues seem to be the obstacles that affect the implementation the least. Critical Success factors are abundant during ERP systems implementation, but the most common factor is that user resistance still appears even after

going live, and it is mostly inducting ERP system failures. Problems like the learning curve of users arise in the phase post-implementation.

Fig. 1 shows that around 62% of obstacles encountered before going live are related to people with change management being the most frequent issue, while 16% are associated with process and only 12% are associated with technology. We will be tackling the major factors that lead users to show resistance in this section: Firstly, it is believed that people naturally show resistance facing changes. Secondly, it is also believed that the issue starts with the system being complex. Thirdly, according to the «interaction principle», resistance is a direct consequence of the relation between the customer and the implemented system. In literature, user resistance has been described as the most frequent problem as users tend to fight changes. "All this will definitely evoke resistance from the employees and this has to be managed effectively before, during and after the implementation of the ERP package." The reaction of users following the implementation tends to be bad as their emotions to systems get them to resist. "Resistance to change is traditionally one of the widely used concepts in the change management literature".In 2002, Motwani discusses how management change is a key issue that directly impacts ERP implementation, which will eventually create resistance from users. Most employees did not understand the need for change from the legacy system. In 1991, Joshi stated that identifying advantages and losses should be the modifications made to the implementation. "An organization that already uses a cross-functional structure might still face resistance as it is forced to change its businesses processes in accordance with the ones embedded in the ERP modules to be implemented".

Joshi also mentioned the different factors related to users in terms of response, which could be acceptance, satisfaction and resistance. An increase in outputs and a decrease of inputs are related to user acceptance and satisfaction. Change, in today's business world, is an everyday part of organizational dynamics, and resistance from users can cripple the corporation. To better understand the meaning of organizational resistance, it is critical to see how different authors described it. Ansoff described in 1990 that resistance is a phenomenon which can affect the natural change process, either by delaying or slowing down the beginning, complicating, or blocking its implementation, and potentially increasing its costs. In 1999, Dent and Goldberg stated that employees aren't really resistant to change. They tend to be resistant to the loss of status, pay, and comfort. Influenced by the
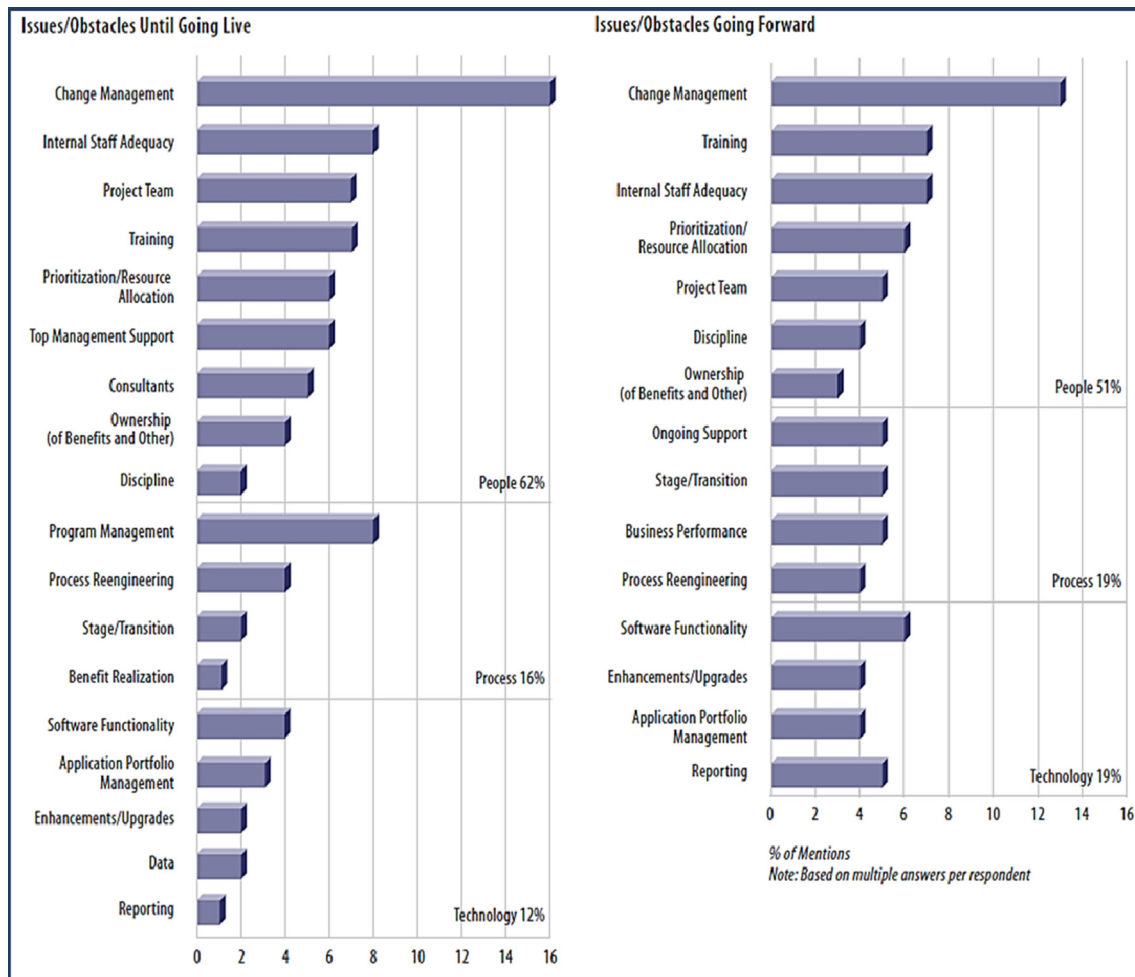
Fig. 1. Bar charts determining the percentage of mention of issues and obstacles by users before going-live and after going-live in Deloitte (1999).(Source: MZ Aslam - Business Process Management Journal - lup.lub.lu.se).

change do not have a clear explanation of the nature of change. Employees have a feeling of strong forces preventing them from changing. Employees feel pressured to make changes happen rather than having a say in the nature and process of change. In an MRP study in 1990, Cooper and Zmud described that the lack of MRP understanding had an effect on holding back MRP combination in the work environment and the task fit for MRP. According to Hong and Kim in 2020, ERP implementation had an effect on the majority of the company's features and affected users directly. That same study claimed that ERP implementation led to involuntary modifications and useful resources. ERP implementation often causes concealed and unconcealed opponents within the enterprise. Thus, less resistance can be a factor to measure the implementation success. To make an ERP implementation easier, enterprises must try to include all the influenced employees and have them accept the new changes and competency

enough to control any resistance to these changes. Employees shall discover ease of use and different advantages of the system in addition to having a higher expectation from ERP system. "There are indications that the user's expectations for the system were different to the actual features of the implemented system." "Topi state" "A commonly expressed perception was that this specific ERP system used to be a very complex one to understand and use for a massive portion of the users." While this perception might have been partially based on these users' computer anxiety, it clearly shows that system characteristics at least contributed to their perplexity. The users, who are expecting a lower workload and an easier routine after the ERP implementation will be, with no doubt, disappointed since sometimes the ERP system is a complicated system for the user. Previous testing showed that the main reason that causes user resistance is the education and training system, as it

is a highly stated problem. Nikolaou stated that the end consumers' approval is only achievable if they acknowledge the whole system efficiencies through the entire training administered. ERP system application shifted from being an on-going plan to a merely IS project according to top management. Nah et al. relates the success for ERP systems with the assistance of best performed training, copiously the collapse of the system is related to the inadequate training given. The users could trust the practice of the system if using the adequate training programs. Due to the poor quality of training provided by the consultants and insufficient education delivered by the top management and project team, users were not given a clear idea of the nature and use of the ERP system. They did not understand the rationale for implementing the ERP system or the process of implementation. "Thus, they were not prepared for the implementation, and had high resistance to change which led to political problems, poor quality of BPR, and a resistance to using the system". Trained customers minimize the chances to bend and develop a sort of resistance related to the postponed formation and education. The consumer resistance is connected to any problem in the system encountered by the users, presenting the importance of training the post-application phase. The customers don't deliver help in accomplishing the transaction to function. The inability to find the correct way to fulfill the transaction will lead to the employee's annoyance and distrust in the system. In 2005, Topi claimed that receiving reviews in desired formats is crucial for their everyday use. Users want reviews in certain formats that are no longer provided to them integrated in the system, so they are forced to create these reviews for their usage. Another critical matter is user training; since lack of it should be recognized and the adequate training should be identified and delivered. Usually, resistances to technology and usability problems are caused by problems in relation with user interface, navigation, reviews, and information load. These are requested from the user to dive deep into these matters. User formation Nikolau, Chang, Fryling, Wong et al., Nah et al. The early involvement of employee in the design can decrease his resistance of change as well as massive top-down and cross-functional communication. In 2000, we recommend that support from organization like help desk, online user manual, etc. Is also essential to help users and control organizational change. These tools have the capacity to decrease the resistance to change through the analysis conducted on failed ERP implementation. It was demonstrated that end user resistance was the most common and important obstacle that faced implementers. Nevertheless, if correct management procedures and measures are taken, end user resistance could be controlled while making sure to obtain Critical Success Factors that could help in the ERP implementation. So in this study, we have reviewed some major components leading to user resistance, specifically from the people's viewpoint, in order to ensure a successful implementation of an ERP system. This concludes the fact that user's resistance to new ERP systems remain a complicated eventuality. It is by the means of studies that have been conducted in Yemen and Malaysia and backed with articles and publications from MIS and IS journals that we were able to convene major factors that will lead to ERP user resistance. The research in Yemen has shown that adaptation, training of future users' personnel, system navigation, and customer's expectations were the most common causes of user resistance facing new ERP system implementation: personnel training, second, resistance to change, third, customer's expectation and fourth system navigation. Through our study, we will be taking usage of the variables such as age, gender, and educational level to support our research statistically, while also examining the factors that lead to user resistance in order to determine which factors are mostly responsible of user resistance, to see whether it matches what has been shown in the two previous studies that the main factor has been the gap in the educational system. Therefore, in this study, our objective will be to establish the main reasons that prod users show resistance to the changes that occur in light of new ERP systems in Lebanon, conducive of preventing resistance. This study will also help us to discover whether cultural ties have a role to play in the factor's order list, if it is crucial to the change in the causes of resistance strength or not.

3. Pocedures and methodology

This study aims to identify user resistance factors in ERP post implementations and the influence between the factors toward user resistance proceeded by presenting recommendations and guideline to organizations to avoid user resistance in ERP system after go-live. To achieve the objective of this study, a quantitative research methodology was used. In this study we will determine whether the cause of resistance change is the employee itself or the lack of information provided to him during the pre-implementation and implementation phases. Also, we will be comparing our research to other studies from Yemen and Malaysia in which we found that the main cause of resistance change is the lack of

information and training. Resistance to change is positively and highly related to lack of information in pre-implementation phase. The Hypothesis to be listed and tested is: Resistance to change is positively and highly related to lack of information in pre-implementation phase. Our objective is to target the population working in Lebanese enterprises, and performing on ERP system. To be eligible to undertake the questionnaire, company employees are required to be employed in the company before, during and after the implementation of the ERP system. In our case it will be homogenous since we are studying the resistance to change on the macro-level. In the actual business dynamics, implementing a new ERP system or replacing an old one might be fundamental to growing your business, it might as well be perceived as an opportunity for users, instead of constituting a threat. Hence, the questionnaire used in this study consists of 24 questions that aim to answering whether the eight factors we have chosen present change as an opportunity or as a threat for the companies. All questions concerning the factor "change in job" aim to help us determine how the implementation affects the user's daily tasks and the employee's skills, whether there will be an increase or a decrease in workload. Aslam showed in his study that lack of training is the most relevant reason behind user resistance to ERP implementation in Yemen. In their thesis, Sayeed Haider, Salih,Ab Razak Che Hussin and Halina Mohamed Dahlan, concluded that in Malaysia, the "Usability Issues and Resistance to technology" is the most important factor due to the fundamental role technology plays as part of our daily personal and professional lives nowadays. Also, the factor "increased efforts" demonstrates all efforts inputted by employees through time to master the newly implemented system. The factors "Lack of user involvement in the development process "and "Lack of communication between top-management and end users" show the crucial role played by communication, concerning the process and new implemented system, between top management and the employees. " The last factor, "resistance due to change" "demonstrates employees' contentment concerning the new tasks and technology. These factors are the keys to understanding the causes behind resistance to change. The next step requires us to examine its implication using collected data. The deductive approach is mainly associated to scientific investigations, as the researchers have the studied previous works, examined existing theories in relation to the focal point of the research in order to test the hypothesis concerning the topic of the research. This study roughly employs the same factors utilized in these previous studies, our objective will also be to find whether or not the results are similar in Lebanon. Due to the fact that we are using a deductive approach, the methodology will be one of the main judgment pillars that will value our research. This kind of method is used in order to assemble specific data related to answering questions which are related to the factors of the research. This will direct us towards forming a conclusion directly attached to these factors and the association kindling them together. These conclusions are the stepping stone that will guide us through the creation of a hypothesis concerning the initial issues related to resistance to change. Part of the employees is selected from the company where we currently work, as we are implementing a new ERP system, while the rest are selected from several other companies where, per our previous job, we had already implemented a new ERP system. The next step is to generate a questionnaire and circulate it among employees in Lebanese companies which implemented ERP systems, under the condition that they have been working in these companies before, during and after the implementation phase. In order to investigate this research, questionnaire has been used to gain information from ERP users was conducted at many Lebanese companies via online form, a copy of the questionnaire has been sent to 135 respondents of the company only 113 forms have been received. From the above table, there are eight factors identified in this study, which are labeled as user resistance factors in ERP post implementation, they are as follows:

1 -Resistance due to change
2 -Change in Job content
3 -User Expectations
4 -Increased efforts
5 -Lack of Education and User training
6 -Usability issues and resistance to technology
7 -Lack of user involvement in the development process
8 -Lack of communication between top-management and end users

These eight factors have been appointed due to the fact that they are part of the user's viewpoint on ERP post-implementation resistance factors. This led to disregarding factors such as poor experience on previous legacy system, gender, user age, level of education, different assessment as well as lack of organization support for the sole purpose that these are factors representing the technical or organizational scope of the study, thus, not our point of interest. Therefore, in this study, we are

going to analyze 100 surveys from 135 distributed. Those 100 questionnaires were fully answered.Prior to the data analysis phase, it is required that we calculate the Cronbach alpha so that we may ensure that our items have a relatively high internal consistency. Cronbach's alpha is a measure of scale reliability; it serves to determine how close a group of items are related and represent a cluster or factor (see Table 1).

In the following pages, we are going to observe the different variable characteristics of the employees that responded by completing this questionnaire, like their gender, their age and their level of education (see Tables 2−12).

4. Findings

In the previous section, we have determined the procedure and methodology we will be following to complete our study. After getting answers to our questionnaire on « Survey Monkey», we will collect the data and import it into SPSS. According to the results, over 61% of the employees acknowledge that lack of education and training is one of the main factors leading to user resistance and failure of new ERP system implementation. Other factors also help us determine whether or not the employee agrees upon which factor the main cause of resistance to change is.5.91% of this variation is caused by other factors. 27.75% of the variation in the data is caused by other factors. Other factors leading to the variation could be «loss of status » as stated by Keen in 1981, what Hussain and Hussain in 1984 suggested « interpersonal relationship altered», or « change in decision-making approach and loss of power » as Smith and McKean said in 1992. The resistance to change in ERP implementations is, as previously mentioned, affected by more than eight factors. However, in this study, we will only take into consideration the factors compatible to the ones of the studies in Yemen and Malaysia, as our aim is to compare the results at the end of the chapter. We will be using Pearson's Correlation coefficient in our research study to evaluate the impact between the different factors of this research model. We will

Table 1. Reliability statistics.

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items
.861	.862

N.B.: A reliability coefficient is considered "acceptable" (in the majority of social sciences research conditions) when it is of 0.70 or higher.
As our Cronbach alpha is equal to 0.861, which is > 0.7, we can proceed.

Table 2. Gender statistic.

	Gender	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male (1)	65	65.0	65.0	65.0
	Female (2)	35	35.0	35.0	100.0
	Total	100	100.0	100.0	

We can notice that 65% of people who filled correctly the survey are of male gender, while the remaining 35% are of female gender.

observe which contains the eight factors stored in decreasing order, according to the mean associated to each of our eight factors. As previously mentioned, the following table gives the list of critical factors affecting the resistance to change in Yemen and Malaysia (see Table 13).

The following figure shows statistical and analytical results testing the hypothesis we have presented in our paper. This graph is extracted from the Malaysian study according to which we can analyze the same hypothesis separately (see Fig. 2).

As the results show in the previous module, it is seen that the correlation is the strongest between the two factors « lack of user education and training» and «usability issue and resistance to technology», where r is equal to 0.97. This high correlation explains how much the bad training will

Table 3. Age statistic.

	Age	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	18−24	11	11.0	11.0	11.0
	25−34	41	41.0	41.0	52.0
	35−44	29	29.0	29.0	81.0
	45−54	12	12.0	12.0	93.0
	55−64	7	7.0	7.0	100.0
	Total	100	100.0	100.0	

The majority of employees are between ages 25 and 34 (41%).
A small amount of the population is of ages between 55 and 64 (7%).
11% of the population is of ages between 18 and 24.
29% are between 35 and 44 and 12% of employee aged between 45 and 54.

Table 4. Education level statistic.

	Education Level	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	School Degree	14	14.0	14.0	14.0
	Bachelor Degree	70	70.0	70.0	84.0
	Master Degree	16	16.0	16.0	100.0
	Total	100	100.0	100.0	

70% of employees hold a bachelor degree, while 16% are Master degree graduates and only 14% did not attend any higher education institution. In the table below we analyzed the employee's answers of the survey; moreover, we analyzed each factor separately.

Table 5. Frequency distribution for factor Change in job content.

Factor 1: Change in Job Content										
Change in job contain	S. Disagree		Disagree		Neutral		Agree		S. Agree	
	F	P%	F	P%	F	P%	F	P%	F	P%
1	6	6	26	26	31	31	31	31	6	6
2	2	2	33	33	19	19	38	38	8	8
3	7	7	21	21	29	29	35	35	8	8
Total	15	5	80	26.66667	79	26.33333	104	34.66667	22	7.333333

In above table, 42% of employees agreed that the change in job content may increase the resistance of change, while31.67% disagreed and 26.67% showed neutrality.

Table 6. Frequency distribution for factor User Expectation.

Factor 2: User Expectation										
User expectation	S. Disagree		Disagree		Neutral		Agree		S. Agree	
	F	P%	F	P%	F	P%	F	P%	F	P%
4	21	21	27	27	16	16	24	24	12	12
5	12	12	28	28	24	24	28	28	8	8
6	18	18	26	26	23	23	27	27	6	6
Total	51	17	81	27	63	21	79	26.33333	26	8.666667

In this, 44% of employees disagreed that their expectations are the main reason of resistance to change.; However, 35% agreed and 21% are neutral towards their expectation.

Table 7. Frequency distribution for Lack of user education and training.

Factor 3: Lack of User Education and Training										
Lack of user education and training	S. Disagree		Disagree		Neutral		Agree		S. Agree	
	F	P%	F	P%	F	P%	F	P%	F	P%
7	4	4	26	26	7	7	37	37	26	26
8	6	6	25	25	9	9	35	35	25	25
9	6	6	27	27	7	7	34	34	26	26
Total	16	5.33333	78	26	23	7.66667	106	35.3333	77	25.6667

In the table above, 61% agreed that the lack of education and training for end users is main reason that leads to the resistance of change. In addition, 31.33% disagreed, while 7.67% remained neutral.

Table 8. Frequency distribution for Usability Issues and Resistance to technology.

Factor 4: Usability Issues and Resistance to Technology										
Usability Issues and Resistance to Technology	S. Disagree		Disagree		Neutral		Agree		S. Agree	
	F	P%	F	P%	F	P%	F	P%	F	P%
10	13	13	35	35	16	16	22	22	14	14
11	6	6	37	37	16	16	23	23	18	18
12	9	9	36	36	14	14	27	27	14	14
Total	28	9.333333	108	36	46	15.33333	72	24	46	15.33333

In this table, 45.33% disagreed that the main reason to struggle is the resistance to technology; however, 39.33% agreed and 15.33% showed neutrality.

increase user resistance to change. The second strongest correlation exists between « lack of user involvement in development process» and «user expectations». The previous results lead us to formulate the following eight points:

1st point: the "lack of user education and training" induce "usability issues and resistance to technology".

The analysis of the relation of the two factors "lack of education and training" and "usability issues and resistance to technology" shows that there is a strong correlation between them (R = 0.97). This result was obtained due to the fact that 61% of the responses were in agreement towards the question stating that the users did not get proper training during ERP pre-implementation phase, but got

Table 9. Frequency distribution for factor Increased efforts.

Factor 5: Increased Efforts										
Increased efforts	S. Disagree		Disagree		Neutral		Agree		S. Agree	
	F	P%	F	P%	F	P%	F	P%	F	P%
13	11	11	23	23	30	30	26	26	10	10
14	4	4	29	29	22	22	36	36	9	9
15	11	11	25	25	16	16	36	36	12	12
Total	26	8.666667	77	25.66667	68	22.66667	98	32.66667	31	10.33333

In this table, we can perceive that 43% resist the change to avoid increasing their efforts, while 34.33% disagreed the increasing efforts leading to resistance, moreover 22.67% showed neutrality.

Table 10. Frequency distribution for lack of user involvement in the development process.

Factor 6: Lack of User Involvement in the Development Process										
Lack of user involvement in the development process	S. Disagree		Disagree		Neutral		Agree		S. Agree	
	F	P%	F	P%	F	P%	F	P%	F	P%
16	12	12	31	31	8	8	35	35	14	14
17	13	13	31	31	7	7	35	35	14	14
18	10	10	28	28	11	11	41	41	10	10
Total	35	11.66667	90	30	26	8.666667	111	37	38	12.66667

In this table, 49.67% approve that resisting change is the result of the lack of involvement in the development process. On the other hand, 41.67% disagreed and 8.67% showed neutrality towards the lack of users' involvement.

Table 11. Frequency distribution for factor Lack of communication between top-management and end users.

Factor 7: Lack of Communication between Top-Management and End Users										
Lack of communication between top-management and end users	S. Disagree		Disagree		Neutral		Agree		S. Agree	
	F	P%	F	P%	F	P%	F	P%	F	P%
19	8	8	23	23	28	28	25	25	16	16
20	2	2	26	26	26	26	34	34	12	12
21	5	5	21	21	25	25	31	31	18	18
Total	15	5	70	23.33333	79	26.33333	90	30	46	15.33333

In this table we can find that 45.33% of employees resist change due to the lack of communication between employees and the management. This is the result of not comprehending the purpose of the new system and its new features. Moreover, 28.33% disagreed that the main reason is the lack of communication while 26.34% showed neutrality.

Table 12. Frequency distribution for Resistance factor due to change.

Factor 8: Resistance Due To Change										
Resistance due to change	S. Disagree		Disagree		Neutral		Agree		S. Agree	
	F	P%	F	P%	F	P%	F	P%	F	P%
22	11	11	28	28	18	18	35	35	8	8
23	14	14	21	21	18	18	35	35	12	12
24	6	6	30	30	18	18	30	30	16	16
Total	31	10.33333	79	26.33333	54	18	100	33.33333	36	12

In the above table, 45.33% agreed that they resist the change because they are not fond to this modification in the job tasks. However, 36.66% disagreed and only 18% showed neutrality. This chapter will assist in answering the questions we have concerning the main reasons that push users to resist change during the implementation of a new ERP system. After analyzing the questionnaire, we performed a case by case study, in order to study each factor on its own enabling us to identify the reasons behind the workforce approval and disapproval. Moreover, we can analyze the frequency distribution for each factor. This frequency allows us to combine these factors together in proper way in order to interpret the results and perform the analysis I the following chapter. Therefore, in this chapter we can conclude that in factors 1, 2, 5 and 7, more than 20% of employees are neutral, they consider that those factors are negligible for themselves. In all factors, we can notice that the majority of the employees agree with the factors more than disagreement or neutrality. Both factors 3 and 6 have 50% or more of the employee's approval. The factor which is the least agreed with is factor 1 and the factor most employees disapprove with is factor 6.In the next chapter, we will find the «Compare Means » for our 8 factors, and based on the results we will use the correlation method in order to confirm our hypothesis. Hence, we have to study based on the mean the correlation between specific factors, where we will find many points in order to define our main hypothesis. According to the result, we will be able to interpret if the resistance to change is highly positively related to lack of information in pre-implementation phase, and if not, we will determine what are the main factors that led to struggle of change when implementing a new ERP system.

Table 13. User resistance factors in post ERP implementation ordered by their mean.

Rank	Factors	Means
1	Change in Job Content	3.51
2	Lack of User Involvement in the Development Process	3.37
3	Resistance Due to Change	3.22
4	Increased Efforts	3.19
5	User Expectation	3.17
6	Usability Issues and Resistance to Technology	3.15
7	Lack of User Education and Training	3.11
8	Lack of Communication between Top-Management and End Users	3.09

training during post-implementation phase. Therefore, this endorses the hypothesis in our research that suggests the absence of user education and training for new ERP implemented systems may induce usability issues as well as resistance to technology.

2nd point: "Change in job content" leads to "usability issues and resistance to technology".

Thorough interpretation of the empirical data shows that there exists a strong correlation between the two factors "change in job content" and "usability issues and resistance to technology" (R = 0.86). In fact, most the users' responses to the questionnaire implicated that the newly implemented system required them to develop new skills in order to properly use the technology, which has also modified their jobs by adding tasks to their assigned amount of work.

3rd point: "change in job content" induces "increased efforts".

Through analysis, we have found the correlation between the two factors "change in job content" and "increased efforts" to reflect a strong relation (=0.85). As a direct consequence of change in the job description and tasks, the users will be faced with an expanded assigned amount of work, and this will leave them regretful and unhappy towards the ERP implementation. A majority of the responses of users denounced having to put in extra working hours and having to work while feeling constrained or under a lot of pressure.

4th point: "Lack of communication between top management and end users" has a negative impact on "user expectations".

Analysis of the relationship between these two factors proves to be equal to (0.88). This proves that there is a strong correlation between "lack of communication between top management and end users" and "user expectations".

Communication is an essential factor if you want to reach success and make sure all employee's expectations match realistically the end product, but it is due to the absence of proper communication between the users and their superiors that expectations are unmatched and therefore, resistance rises among users.

5th point: "lack of user involvement in the development process" induce negative impact on "user expectations".
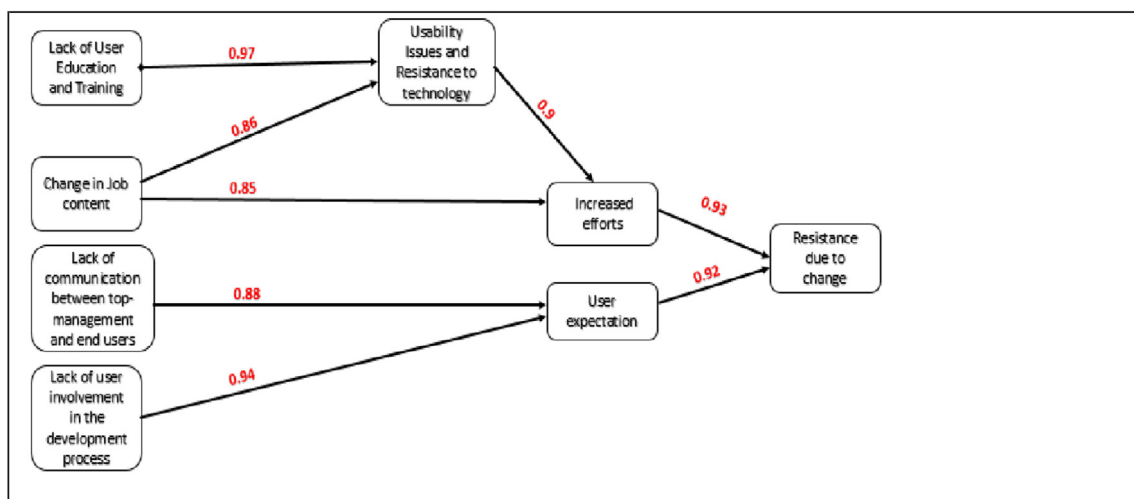

Fig. 2. Module of user resistance in post ERP implementation and the influence percentage between factors.

There exists a very strong correlation between both factors "lack of user involvement in the development process" and "user expectations" as shown in the data analysis (=0.94). Through the extracted data, we have been able to see that the results determine that 49.67% of the users have answered using "agree" or "strongly agree" to the questions that stated that they found they were not included in the decision making concerning choosing the ERP package or adopting the ERP system. Therefore, a company has to count on their employees' usage of the new system after going live, but it will have to include the users in the decision making either during the determining phase of the company's need for ERP system (1) or through the users' assistance in the ERP system implementation (2).

6th point: "Usability issues and resistance to technology" generates "increased effort".

The analysis of the relation showed a very strong correlation (0.90) between the two factors "Usability issues and resistance to technology" and "increased effort". The newly implemented ERP system usually induces technical changes, which makes it hard for users to easily adapt to this new technology. Out of the responses collected, 45.33% of the users answered "agree" with the statement that they encounter usability issues in carrying out transactions, collecting data and navigation. As the tasks increase, like data entry load, report transfer or transactions completion, user efforts also have to increase. Day to day usage of the ERP systems include issues that force employees to increase their efforts in order to solve them.

7th point: "increased efforts" triggers "resistance due to change"

There is a very strong correlation between both factors "Increased efforts" and "resistance due to change" as determined by the relation analysis (0.93). 43% of the users agree to have "increased effort" while 34.33% disagreed. In comparison, 36.66% of respondents answered that they disagreed with the statement of "resistance due to change", which points out that the users are overall pleased with the changes made in the company on the business level and work procedure levels since using the new ERP system is seen as a change in their job and social structures as well as given them responsibilities and power.

8th point: "user expectation" generates "resistance due to change".

There is a very tight correlation (0.92) between the two factors "user expectation" and "resistance due to change" according to the relationship analysis.

Data collection shows that most of the users chose the option "disagree" when answering the question stating that they were pleased by the implementation of the ERP system as of technical factors such as the user interface, security, ease of access and centralization degree. Users did not expect the system to turn out so complex, therefore, it is the user's expectations that are directly creating resistance. After analyzing the various previous points, we will notice that the principal reason of resistance to change usually starts when employees begin dreading change.

Resistance to change is positively and eminently associated to lack of information in the ERP pre-implementation phase. After detailed examination of the data collected, we analyzed the factors we found using the correlation method appertaining to the analysis process of factors from the studies that have been conducted in Malaysia. This leads us the accept the hypothesis of our research suggesting that it is the lack of user education and training concerning the ERP system that might lead to usability issues as well as resistance to technology. The analysis of the empirical data has permitted us to demonstrate that the lack of training in post-implementation stage led to complications in the user's usage of the ERP system interface. In conclusion, through this chapter we were able to collect and analyze our data by using a correlation method which is similar to a process of correlation used in another previous study which was conducted in Malaysia. We employed the correlation method on sets limited to two factors each, which led us to formulating eight sub-hypotheses issued from the correlation between two factors respectively. The absence of communication between the users and their superiors can be remedied to by providing proper training, whereas the trainee or implementer is catering to all demands of the customer and is responsible in giving the manager's point of view to the company. Therefore, we will not be refuting our principal hypothesis, we confirm it as resistance to change is positively and eminently associated to lack of information in the ERP pre-implementation phase. We now know that lack of education and training will induce usability issues and resistance to technology, which will also multiply user efforts in sustaining the newly implemented system thus, these increased efforts will lead to user resistance facing this change. In comparison, our hypothesis shows the same results as the one in the study that has been conducted in Yemen, but it also shows different results than the study conducted in Malaysia as the main factors causing resistance to change has proved to be «usability issues and resistance to technology» caused by

either « lack of education and training » or « change in job content » or others like « change in user interface ».

5. Conclusions and recommendations

Subsequently, we have reached a conclusion that resistance to change is positively and eminently associated to lack of information in the ERP pre-implementation phase. In this section, we will be exposing the detailed conclusion we have reached with our study in order to propose recommendations that will help reduce the factors which are at the origin of user resistance. We will also be discussing the obstacles faced in the study as well as the steps that have to be taken in order to soften the ERP system implementation by reducing user resistance. When there is a gap in the training and education, users are supposed to be getting before and during implementation process, it is expected it will induce usability issues and resistance to technology. This will also propel users into increasing their efforts to be able to master the newly implemented system, therefore leading to increased user resistance. We then confirm our hypothesis, we do not reject it. It is accepted that resistance to change is positively and eminently related to lack of information in the pre-implementation phase. We were able to conclude that the results of our study and hypothesis match the ones from the study conducted in Yemen, which states that lack of education and training is the main cause behind user resistance. In comparison, our hypothesis and results contrasted the ones from the study in Malaysia stated that the main reason behind user resistance to change was the usability issues and resistance to technology either from change in job content or from lack of education and training or even change in user interface. Our study research has been conducted in Lebanon on approximately 10 different companies that have been using the same software. This leads us to believe that the issue might be from the provider or from the trainers that fail to properly convey the information to users. We have received 100 correctly filled questionnaires whereas the Lebanese companies market holds more than 100 000 ERP system users. In our study, we aim to present managers and trainees with solutions that will ensure a smooth and successful implementation. In accordance to the results of our study, lack of education and training is the main reason behind user resistance to change, with lack of communication between top management and the users as a factor with high impact as well. Communication is a key factor in ensuring that employees feel satisfied while using the newly implemented system, therefore communication between manager and employees and managers and trainers need to be maintained. To summarize our study, once we have analyzed the collected data, we conclude that the lack of education and training is the principal factor which generates user resistance to change. So we will be stating some recommendations that will be helping companies in need to a new ERP system implementation in order to facilitate the whole process from the start. As stated previously, communication plays an essential role in regards of all other factors, because it can help avert issues like misunderstandings and false perceptions. Therefore, in order to remedy the misunderstandings, proper training and education should be provided. Users who do perceive the system negatively coupled with a strong attitude are more susceptible to show higher resistance. Our study supplies a starting point for future examination about user resistance. A research trail we could follow would be the development of a prototype of user resistance according to the principal factors leading to it. This would also help determine and study the causes that are the leading cause for resistance behavior. Also, incorporating questions regarding the psychological level, like for example user motivation which plays a leading role in pushing the user towards resistance. Finally, it would be important to expand the number of users the questionnaire reaches in order the increase the accuracy and perception of the study. Adding new variables can lead to a new result that leads for resistance to change. We can also add some new hypotheses and new research question about how and why the user resist the change when implementing a new ERP system in order to better understand the causes and how they can be altered into avoiding this user resistance.

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