FACTORS AFFECTING ERP ACCEPTANCE TOWARDS IMPROVED FINANCIAL PERFORMANCE OF SAUDI ARABIA LISTED FIRMS

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ABSTRACT: *The main purpose of this study is to investigate the effects of user training and education and perceived usefulness on the ERP systems acceptance and the contribution of the ERP systems towards the improved financial performance of Saudi firms. The survey is conducted with the ERP users, which are working in the Saudi based companies. The ERP users which are selected for the survey having been using the ERP modules for various tasks including finance and accounting, material management, human resource management, quality management and sales and distribution. The research findings show that training and perceived usefulness both have a positive relation with the acceptance of the ERP systems.*

KEYWORDS: *ERP, Perceived Usefulness, Financial performance, PLS*

INTRODUCTION

There are number of studies which have been conducted in order to identify the appropriate use of the ERP systems and the ways in which the companies accept them (Al-Mashari and Okazawa, 2006). The acceptance process is mainly focused on the various needs of the users. However, it is important to identify the return on investments which are made in order to introduce ERP systems within the organisation (Akkermans and Van Helden, 2002). The majority of the studies related to ERP systems are focused on discussing the needs of the users. However, the link between the acceptance of the ERP systems and financial performance of the firms is not very well researched (Aiken, 2002). It is a fact that the basic purpose of introducing the ERP systems within the organisation is to improve the overall performance of the firm, which also results in improved business profitability (Al-Mashari and Zairi, 2003). Therefore, it is important to identify that whether the organisation is successful in gaining financial returns from the implementation of the ERP systems or not (Allen and Havenhand, 2002). This research paper helps to identify the link between the issues which are faced by the user with the financial performance of the company during the acceptance and implementation of the ERP systems.

This research paper emphasize on the ERP acceptance that is also helpful in discussing the tangible

and intangible benefits of the ERP systems for the organisation. The business managers nowadays need to identify the strategic benefits of introducing the ERP systems as it is helpful in convincing the investors to make investments in the ERP systems (Adam and O'Doherty, 2000). The technology acceptance model helps to identify that why introduction of the new technologies such as ERP systems is crucial for the business success of the firm (Ash and Burn, 2003). There is no other opinion on the fact that implementation of new technologies enable the companies to improve their overall financial performance and provide better returns to the shareholders or investors (Al-Mashari and and Zairi, 2003). This also results in satisfaction of the shareholders of the company (Wee, 2000). Therefore, it can be stated that the financial needs of the firm needs to be considered before introducing new technologies (Ash and Burn, 2003). This research aims to enhance the understanding of the various literatures that have been written on ERP acceptance and it also helps to identify the link between ERP acceptance and financial performance of the company. An important aim of this research study is to analyse the need of implementation of ERP systems in the Saudi organisations and its impact on the financial results of the companies. This is a major gap in the research area and this article will attempt to bridge this gap. The next section of this research paper presents the theoretical background and the literature review with hypothesis. The methodology has been presented in the section three of this article and section four presents the brief analysis. In the last section of the article, the discussion of the key findings has been made and final conclusion has been presented.

THEORETICAL FRAME WORK AND LITERATURE REVIEW

Technology Acceptance Model

There are numerous academic literatures (Wieder and Ossimitz, 2006) which shows that acceptance of new technology by the organisations is based on the theory of technology acceptance model (TAM) (Brown and Vessey, 2003). The technology acceptance model helps to discuss the perceived usefulness of information and communication technology and the major determinants of the use of new systems (Bajwa and Mooney, 2004). This shows that acceptance of new technology main depends upon the usefulness of the new technology, ease of use and user acceptance (Bingi and Godla, 1999). If the users of the system are conformable with the new technology then they are more likely to utilize it (Wah, 2000). However, it seems that very limited attention has been given by the researchers and scholars in order to identify the factors that can create an influence on the perceived usefulness and the ease of use of the technology based systems (Bernroider and Koch, 2001).

The intended use of information technology needs be considered by the organisations before making investments in the IT systems because it enables them to identify that whether the IT based systems can contribute to the business success of the firm or not (Brehm and Markus, 2001). The

technology acceptance model helps to explain the theory of reasoned actions (Bingi and Godla, 1999). This model explains that the diffusion of system depends upon the requirements of the users (Wei, 2008). Therefore, the implementation of the new systems within the organisation is based on the acceptance of change (Bingi and Godla, 1999). The acceptance process has various stages which are focused on ensuring that implementation of the new system can become the full part of the organisational environment (Boersma and Kingma, 2005). The acceptance of the new technologies is important for the organisations in the modern business era as they are helpful in improving the overall performance of the firms (Berchet and Habchi, 2005). This also helps to implement the change management processes in a successful manner (Velcu, 2010).

LITERATURE REVIEW

There are numerous studies that have been conducted by well known scholars and researchers in order to discuss the use of enterprise resource planning systems within the organisational settings (Botta-Genoulaz and Millet, 2005). The majority of the studies reflect that ERP systems refers to software based applications that are helpful in managing the resources of the organisation in an efficient manner which ultimately result in improved business performance (Bradley, 2008). Research shows that in majority of the cases, the implementation of change process within the organisation also led to the implementation of ERP systems as they are helpful in achieving the desired objectives of the change management process (Buckhout and Nemec, 1999). However, it is essential to identify the ways and methods through which ERP systems are adopted by the organisations as implementation of the ERP systems requires significant amount of investments and the organisations expect a return in the form of improved business performance (Cotteleer and Bendoly, 2006). If the overall business performance of the firm is not improved with the help of ERP systems then it could result in waste of the investments of the company (Umble and Umble, 2003).

According to Chen and Jih (2008), the implementation of ERP systems is also critical as the modern world organisations seek to achieve a strategic competitive advantage over their industry rivals, therefore, it is essential to ensure that implementation of the ERP systems is carried out in an effective manner. The improved financial outcomes which can be generated with the help of the implementation of the ERP systems is considered as one of the most important benefit that motivates the organisations to make investments in the ERP systems (Deep and Burns, 2008). This reflects that financial factors are more likely to increase the acceptance of the ERP systems within the organisation (Dai, 2008). However, it is also important to identify the other factors which require the organisation to introduce ERP systems (Esteves, 2009). The review of the literature helps to explain the different factors that increase the importance of implementing the ERP systems within the organisation (Dillard and Yuthas, 2006).

Hypothesis development

ERP user Training and Education

The acceptance of new technologies within the organisation also determines the implementation of the ERP systems within the firm (Everdingen and Waarts, 2000). The companies in which new technologies are easily accepted can also ensure the effective implementation of ERP systems (Uwizeyemungu and Raymond, 2010). The benefits which the users can achieve from the implementation of ERP systems also depend upon the training and education of the users regarding the ERP systems (Federici, 2009). However, it is also important for the management of the firm to arrange the training and development programs that are helpful in enhancing the understanding of the users regarding the usage of ERP systems (Fub and Strahringer, 2007). The training and education of the users will enable them to achieve the desired objectives of the ERP systems (Finney and Corbett, 2007). The managers are required to establish the learning and training sessions in order to improve training to the users to effectively use the ERP systems (Glover and Romney, 1999). The web based training is considered to be very effective in order to improve the cognitive process of the users (Granlund and Malmi, 2002).

There are many studies (Somers and Nelson, 2001) which reflect that training element is very crucial in order to ensure the effective usage of the information systems and successful implementation of the ERP systems within the firm (Grabski and Leech, 2007). However, the budgets of the organisations or financial constraints are also important because the organisations with lower budgets are not able to effectively implement the information systems (Huang and Lin, 2004). The financial constraints also don't allow the organisations to provide appropriate training to the employees which are essential to use the information systems in an effective manner (Huin, 2004). The organizations with low budgets are very less likely to arrange the training programs on regular basis in order to provide training to the staff members (Soja and Paliwoda-Pękosz, 2009). However, the organisations can also use innovative training methods which could include web based training in order to provide appropriate training to the employees (Holland and Gibson, 1999). The education level of the users within the firm also helps to determine that whether they will be able to implement the ERP systems effectively or not (Hong and Kim, 2002). Rosario (2000) while highlighting the importance of training and development stated that training enables the employees to use the information systems such as ERP systems in an effective manner which impact the overall performance of the firm positively. This also creates a significant influence on the success or failure of the information systems (Hakkinen and Hilmola, 2008).

Hypotheses 1: ERP User training and education is positively affects ERP perceived Usefulness
Hypotheses 2: ERP User training and education is positively affects ERP Acceptance

ERP Perceived Usefulness

According to Hunton and Reck (2003), perceived usefulness is the perception of the individuals which helps to determine that whether a particular system is useful for them or not. The organisations need to create awareness among the employees that the use of ERP systems can be helpful in improving their overall performance at the workplace (Hitt and Zhou, 2002). The employees working within the firm are more likely to accept the ERP system when they believe that implementation of the ERP systems is beneficial for them (Jones and Ryan, 2006). Although, the implementation of the ERP system is beneficial for the firm but the leadership of the organisation can communicate to the employees that improved performance of the company is also beneficial for the employees in the long run (Kallunki and Silvola, 2011). The implementation of the ERP systems increases the financial performance of the firm which enables the management to provide appropriate returns to the employees (Themistocleous and Paul, 2001). Majed (2000) believes that perceptions of the employees regarding the usefulness of the systems influence their attitude and behavior which significantly affect the implementation of the ERP systems. Langenwalter (2000) has identified some factors which can create an impact on the implementation of the ERP systems which could include education level, perceived usefulness and subjective norms.

Hypotheses 3: ERP Perceived Usefulness is positively affects ERP Acceptance

ERP Acceptance and Improved Financial Performance

During the last few years, the use of the ERP systems has been increased in the different countries of the world and one of the main reasons behind this is its impacts the overall performance of the firm in a positive manner (Kang and Yang, 2008). The organisations which are not ensuring the effective use of ERP systems and similar technologies might not be able to survive in the competitive business environments (Finney and Corbett, 2007). Sumner (2000) believes that implementation of ERP systems help to minimize the risk element from the organizational projects. Therefore, it is essential to introduce the ERP systems within the firm and the employees need to be encouraged so that they accept the ERP systems within the firm (Mabert and Venkataramanan, 2003). The positive response from the employees enables the organisations to successfully implement technology based business systems within the firm (Majed and Mohamed, 2003). It is a fact that when the employees are not accepting the new technology then it could result in failure of the ERP system which also result in waste of the important organisational resources (Mabert and Venkataramanan, 2003).

The impact of ERP systems on the financial performance of the organisations has been studied in this article. There is no second opinion on the fact that ERP systems help to manage the capital flow of the organisation and it also result in effective financial management (Mandal and Gunasekaran, 2003). The expected financial benefits through the implementation of the ERP

systems also enable the managers to justify the investments which are made on the ERP systems (Nah and Kuang, 2001). However, it is essential that once the ERP systems are introduced with the organisation then they should be effectively implemented in order to achieve the required results (Nicolaou and Bajor, 2004). Oliver (1999) believes that perceived benefits of the ERP systems mainly determines that whether the organisation should introduce the ERP systems within the organisation or not.

Hypotheses 4: ERP Acceptance is positively affects improved financial performance
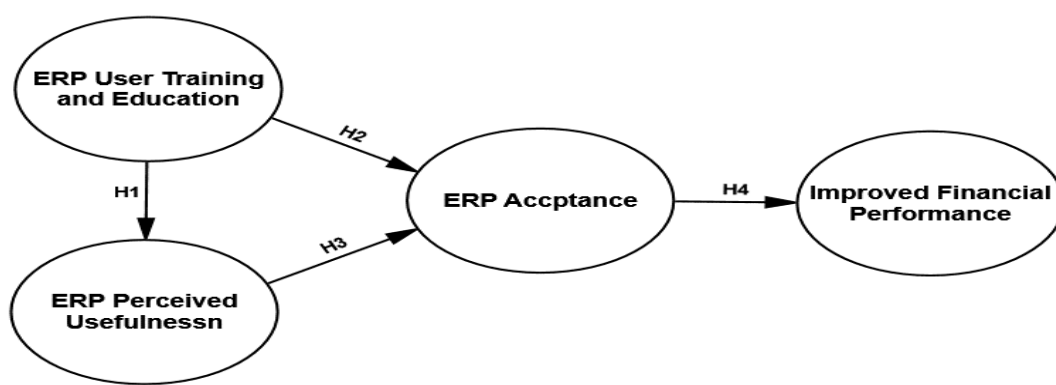
Figure 1 ERP Acceptance Model

METHODOLOGY

Sample and procedure

The methodology that is adopted for this particular research is the survey method and the survey is conducted with the ERP users, which are working in the Saudi companies. The ERP users which were selected for the survey having been using the ERP modules for various tasks including finance and accounting, material management, human resource management, quality management and sales and distribution. They are also using the different ERP software brands including Oracle, JDA, SAP and Microsoft Dynamics, etc. Both English and Arabic versions of questionnaires were prepared and handed over to the employees as the survey was conducted with the employees who are working in Saudi Arabia and some of them might not be able to understand English effectively. This was helpful in ensuring that all the participants of the survey can effectively understand the questions of the survey and provide appropriate responses against the questions of the survey. The expert of the Arabic language also examined the Arabic version of the questionnaire in order to avoid any mistake.

Data Collection

The questionnaires were handed over to the participants both face to face and I have also sent the questionnaires through email to some of the research participants. The employees of those organisations were contacted which are already using the ERP systems or interested in introducing the ERP systems. We have contacted those employees who are working in the telecommunication, manufacturing, petroleum and the banking industries. We have contacted the top management of the organisations in order to get an approval to distribute the questionnaires and conduct the survey with the employees. We have also used some personal resources in order to get approval from the top management to conduct the survey. The reason behind this is without the approval of the management of the organization, the survey cannot be conducted with the employees. The total 1500 questionnaire were handed over to the participants and approximately 526 employees have filled the questionnaire and sent me back. Some of the participants of the survey have not sent back the questionnaire and some have sent incomplete questionnaires so the total number of questionnaires, which were complete and available for data analysis, was 526. The responses received against these questionnaires were used in order to analyse the research data and generate the study outcomes. Table 1 presents the demographic characteristics of the survey subjects.

Table 1demographic characteristics of the survey

ERP Participants	Category	Percentage (%)
Gender	Male	82.9
	Female	17.1
Education	High-School	6.5
	Bachelor	67.7
	Master's	22.4
	PhD	3.4
Experience	<5	15.8
	5 – 10	73.4
	>10	10.8
Job Level		13.3
	Top	36.7
	Mid	50
	Supervisory	

Table 1 shows that vast majority of respondents who have participated in the survey are and very females have participated in the survey. Approximately 82.9% of participants were male and only 17.1% of the females have participated in the survey. This also helps to understand that females are usually lesser in numbers especially when it comes to professional business organisations of

the Saudi Arabia. Therefore, for this particular survey, the male participants were more in numbers. An important reason behind this is Saudi society does not allow the woman to make their careers and work in the professional business organisations. The analysis of the sample also shows that majority of the respondents (67.7%) have completed their Bachelor degree, 22.4% of the participants were Master Degree holders and then 6.5% of the participants have only finished High school. There were also 3.4% of the participants who were PHD holders.   The Table 1 also shows that approximately 73.4% of the respondents had an experience "5 – 10" years, about 15.8% of research participants had an experience between "less than Concerning the job level of respondents, 50% of the respondents have the supervisory level working experience. Approximately 36.7% of the participants have middle level management experience and 13.3% of the respondents have top level of management experience. There were also 10.8% of the respondents who had an experience more than ten years.

Data Analysis and Hypothesis testing
Structural Equation Modeling
The Smart PLS virgin 3 has been used for data analysis in order to analyse the measurement quality and the path model for hypothesis testing. The measurement model has been used in order to ensure the internal consistency reliability and validity and of the measurements. After this, the structural model has been analysed in order to test the research hypotheses and the overall quality of the structural model.

Quality of Measurement Model
In order to analyse the measurement model, the researchers are usually analyzing the convergent validity and internal consistency reliability. The average variance extracted (AVE) is usually checked in order to analyse the convergent validity. AVE was calculated by averaging the percentage of variance extracted of each construct from its indicators, and it is reported that average variance extracted should be 0.5 or greater to suggest adequate convergent validity. The Table 2 shows that except perceived organisational learning culture all the other constructs are greater than 0.9. Discriminant validity helps to explain that how the measures of the different model construct are unique (Pairat and Jungthirapanich, 2005). There are mainly two methods that can be used in order to assess discriminant validity.   In this paper, we test the discriminant validity by comparing the square root of the average variance extracted (AVE) of each construct and this construct's correlation with other constructs. Discriminant validity is supported if the square root of the constructs' AVE is greater than the correlations of the construct with all other constructs. As shown in Table 3, the diagonal values are AVEs of each construct, which suggest good discriminant validity. In addition, Table 4 provides the cross loadings of the items on all latent variable, also indicating good discriminant validity.

Table 2 Measurement Quality Indicators

Latent verbal	Items	Loadings	Cronbach's Alpha	Composite Reliability	(AVE)
ERP User training and education (TE)	TE1	0.822	0.900	0.921	0.625
	TE2	0.785			
	TE3	0.836			
	TE4	0.778			
	TE5	0.745			
	TE6	0.812			
	TE7	0.753			
ERP preserved usefulness (EPU)	PUS1	0.882	0.935	0.947	0.693
	PUS2	0.873			
	PUS3	0.882			
	PUS4	0.641			
	PUS5	0.795			
	PUS6	0.831			
	PUS7	0.837			
	PUS8	0.893			
ERP Acceptance (ERPA)	ERPA1	0.848	0.940	0.952	0.768
	ERPA2	0.884			
	ERPA3	0.904			
	ERPA4	0.906			
	ERPA5	0.873			
	ERPA6	0.843			
Intention to improved financial performance (IFP)	IFP1	0.979	0.980	0.985	0.927
	IFP2	0.970			
	IFP3	0.960			
	IFP4	0.948			
	IFP5	0.957			

Table 3 Discriminant validity

	ERP Acceptance (ERPA)	Intention to improved financial performance (IFP)	ERP preserved usefulness (EPU)	ERP User training and education (TE))
ERP Acceptance (ERPA)	**0.877**			
Intention to improved financial performance (IFP)	0.794	**0.963**		
ERP preserved usefulness (EPU)	0.813	0.722	**0.833**	
ERP User training and education (TE)	0.369	0.323	0.325	**0.791**

Table 4 CROSS LOADINGS OF EACH CONSTRUCT

Items	ERP Acceptance (ERPA)	Intention to improved Financial Performance (IFP)	ERP preserved Usefulness (EPU)	ERP User Training and Education (TE))
ERPA1	**0.848**	0.825	0.714	0.325
ERPA2	**0.884**	0.762	0.708	0.354
ERPA3	**0.904**	0.701	0.706	0.321
ERPA4	**0.906**	0.629	0.709	0.336
ERPA5	**0.873**	0.664	0.764	0.308
ERPA6	**0.843**	0.559	0.669	0.294
IFP1	0.756	**0.979**	0.691	0.314
IFP2	0.758	**0.970**	0.683	0.325
IFP3	0.779	**0.960**	0.710	0.308
IFP4	0.777	**0.948**	0.713	0.299
IFP5	0.752	**0.957**	0.681	0.309
PUS1	0.700	0.680	**0.882**	0.322
PUS2	0.731	0.639	**0.873**	0.278
PUS3	0.688	0.646	**0.882**	0.286
PUS4	0.563	0.405	**0.641**	0.223
PUS5	0.611	0.578	**0.795**	0.277
PUS6	0.722	0.642	**0.831**	0.279
PUS7	0.677	0.531	**0.837**	0.226

PUS8	0.703	0.653	**0.893**	0.264
TE1	0.287	0.261	0.262	**0.822**
TE2	0.252	0.222	0.217	**0.785**
TE3	0.305	0.249	0.276	**0.836**
TE4	0.265	0.243	0.255	**0.778**
TE5	0.262	0.240	0.224	**0.745**
TE6	0.299	0.242	0.249	**0.812**
TE7	0.352	0.313	0.296	**0.753**

Structural model

Follow the structural model, some data about the path coefficients (P), T-values (T), P-values (P) and squared R (R2) are identified in details. Path coefficients ((β): discusses about the dependent and independent variables and the associated relationships between them. Since a Path coefficient can be identified based on the correlation, it is standardized while a path regression coefficient cannot be considered standardized. T-Value: the path significance can be determined via t-tests values by employing the boot strapping method. Generally, the acceptable value for T-values larger than two means significant level. P-value: The P-value can be considered as a quantitative measure of the numerical importance of testing a hypothesis. Furthermore, regarding the studies conducted formerly, P-value < 0.05 implies the significance of the related hypothesis. Squared R (R^2): The R^2 shows the expected effect of the model of dependent variables through estimating the percentage of a construct's variance in the model.

As shown in the table, the result of this study confirm H1 to H4 hypotheses are accepted at P<0.001.

Hypotheses	Causal path	Path Coefficient	T-Value	P-Value	Remark
H1	ERP User training and education is positively affects ERP perceived Usefulness	0.325	7.549	0.000*	Supported
H2	ERP User training and education is positively affects ERP Acceptance	0.118	3.993	0.000*	Supported
H3	ERP Perceived Usefulness is positively affects ERP Acceptance	0.775	41.038	0.000*	Supported
H4	ERP Acceptance is positively affects improved financial performance	0.794	51.938	0.000*	Supported
*significant at the 0.001 level		**significant at the 0.01 level		***significant at the 0.05 level	

DISCUSSION

Theoretical Implications

This study is mainly focused on discussing the role of ERP systems in achieving greater financial performance of the company. It also discusses the importance of education and training which needs to be given to the users of ERP systems so that they can effectively use the ERP systems and perceived usefulness of the ERP systems will increase. The analysis of the data reflects that the employees which are more educated are more likely to shows a positive response towards the implementation of the ERP systems. The data analysis shows that training and perceived usefulness both have a positive relation with the acceptance of the ERP systems. Therefore, it is very important for the companies to provide training and education to their employees in order to develop their positive perceptions regarding the ERP systems. This means that by creating positive perceptions of the employees regarding the use of ERP systems and by providing necessary training to the staff members working within the firm, the organisations can increase the acceptance of the ERP systems (Quiescenti and and Perrone, 2006).

The data analysis also shows that the organisations can significantly improve their business performance by using the ERP systems which is more likely to create a positive impact on the overall financial performance of the company. However, it is very important that the organisations must be capable of using the ERP systems in an effective manner and necessary steps must be taken by the management of the firm in order to ensure the effective implementation of the ERP systems (Rom and Rohde, 2007). The employees must have the necessary.

Practical Implications

This study also provides some important guidance in order to manage the ERP systems in an effective manner and to increase its acceptance in the post implementation stages of the life cycle. In order to ensure the acceptance of the ERP systems, it is the responsibility of the managers to motivate the employees and communicate them the benefits of using the ERP systems (Roztocki and Weistroffer, 2008). The managers can communicate to the employees that the implementation of the ERP systems is not only beneficial for the organisation but it is more likely to generate several benefits for the employees working within the firm (Scott and Vessey, 2000). This could include improved skills of the employees and their improved performance which enable them to get more number of rewards from the firm.

The training programs can be arranged on regular basis in order to update the skills of the employees which is helpful for them to use the ERP systems in a more effective manner and encounter the difficulties or challenges that are faced by them while using the ERP systems

(Siriginidi, 2000). It is a fact that use of ERP systems is not very easy for the employees in majority of the cases and it is essential for the staff members to have necessary skills to use the ERP systems effectively (Shang and Seddon, 2002). The managers can also set up the financial performance objectives that can be achieved through the training and development of the employees and the implementation of the ERP systems (Soh and Tay, 2000). This help to ensure that desired level of financial results can be achieved by the organisations through the ERP system (Shanks and Seddon, 2000). However, it also depends upon the management of the organization that how it is guiding the employees to use the ERP systems in an effective manner (Shanks and Seddon, 2000).

CONCLUSIONS

By concluding above sections of this research paper, it can be stated that ERP systems can contribute significantly in order to improve the financial performance of the firm. It is also concluded that training and education of the users is essential to ensure that can use the ERP systems in an effective manner. The research model has been developed in this paper in the context of the ERP system acceptance. With the help of the research data which is generated through the survey and the structural equation modeling, the hypotheses have been tested which explains that how training and education and the perceived usefulness can improve the ERP acceptance within the organisation. This is also supported by the empirical data. However, there are also few limitations of this study which includes the survey is only conducted with the employees who are currently working in Saudi Arabia. In order to validate the research results, the survey also needs to be conducted with the employees who are working in the other countries. This helps to get different versions of the employees which are living in other parts of the world. The future studies can also consider the other factors that can influence the implementation of the ERP systems. It is not necessary that only training and education is the only that can create an influence on the users regarding the effective use of the ERP systems.

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