Impact of the Four Quality "Training, Service, Information System and Information" on the Use of Information System in an Information-Intensive Sector

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Abstract— **Today, information is crucial and the flow of information is becoming more and more numerous, so their management is delicate, hence the need to use an information system that supports all production systems, and the majority of competitive advantages is achieved through the intelligent use of these information systems. It is in this context of disrupted information that the use of information systems is necessary in organizations, as they have greatly influenced the ways of work and management. For this purpose, they allow easy access to relevant information in quantity and in real time, the rapidity of analyzing this information and the possibilities for dissemination and exchange between the partners, without forgetting the possibilities for storage and archiving in a more secure way than human intervention could. The study examines the impact of quality of training, service quality, information system quality and information quality on the use of an information system. A quantitative study is conducted to test these effects, the findings of this research are mainly comprised by three facts: (1) the use of information systems is obligatory in the context of intensive information. (2) Voluntary or mandatory use status must be specified in the analysis, (3) there is no specific antecedent to the act of use of IS in the retail sector**

Keywords—*Information system quality, information quality, service quality, training quality, use, retail sector*

1. Introduction

The use of IS is increasing year after year, offering great opportunities to gain added value through the exploitation of information resources for major strategic change.

It also capitalizes on the collective knowledge that strongly structures the organization and makes relevant information available in the right place at the right time, except that baseline data must be updated and reliable [1].

The IS is therefore used to optimize resources and processes in order to save time, to decide the most appropriate action at the right time, all with better follow-up. The acquisition of information systems represents a major investment for all companies in the current business environment. However, a poorly chosen information system can become an obstacle to the achievement of business objectives. Thus the results can be disastrous if the systems do not allow the organization to achieve its objectives. Especially when the information system lacks the capacity to collect, store and transfer information that is critical to the company, creating a set of decision-making problems: excessive production costs, dissatisfaction or even loss of customers etc.

Several researchers have developed on the alignment of the information system with the organizational systems that comprise (human resources, work processes, tasks, structure and control systems). Indeed, it seems strange to think that a manager adds functionality to the company's information system without providing the training employees need to use the tool effectively. This is why the deployment of a technology without thinking about how it will actually be used in the company (who and how), will lead to major expenses.

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"The information system, the backbone of the organization ensures the company's responsiveness, becoming more flexible, with good communication with its markets" [2].

Managing an information system in an organization is mainly about aligning it with its strategy, using it as a strengthening tool that accompanies the changes that follow its implementation, so that it will be for companies their decisive competitive advantage.

2.   Literature Review and Hypothesis of study

2.1.   Quality of training

Authors define training as the combination of efforts to transmit IS-related knowledge [3]. Also this researcher [4] was among the first who noticed the problems of use related mainly to the lack of training. After 1989 Davis integrated it into his flagship TAM model as a variable that marks users' perception of the technology used, and this through two dimensions perceived usefulness and perceived ease of use. Based on this model training is a key variable in facilitating the use of technology [5].

Ref. [6] and [7] refers to the test of the relationship between training, acceptance and use of technology, they also considered it as an initial element to the acceptance of technology, a trained user will use the IS with satisfaction [8]. Similarly [9] showed through a causal model how user training affects satisfaction that will subsequently promote collaboration that leads to performance. However, other researchers [10] did not find a direct relationship between training and the use of IS, adds to its authors [6] who confirmed the absence of this relationship.

This training usually provides users with the necessary skills to use an information system to perform their work and daily tasks. In particular, training methods, content, duration of training, user status and personal experience were studied.

The first hypothesis is as follows
Hypothesis 1:
There is a significant, positive relationship between the quality of training and the use of information system.

2.2.   Quality of service

We felt it important to have the variable "quality of service" in our model, as several studies have shown that an information system is no longer just a product, but rather a service provider [11]. This component includes the quality of the user support function such as a support center [12], which is the overall support provided by the service provider. For [13] it characterizes "an overall judgment or attitude regarding the assessment of the level of excellence, superiority or services rendered by the IS Department (ISD) or staff support". Moreover, researchers who argued that quality of service should be added to any IS success model have applied and tested the flagship SERVQUAL measuring instrument [14], [15] and [16].

Several researchers have proposed definitions of quality of service, and this goes back to the 1960s, but there is still a definition considered most appropriate that of Reeves and Bednar (1994). Indeed, this definition is governed by the extent to which a service meets the expectations of customers (users), it is the gap between users' expectations and the perceived assessment of the performance of the service [17]. Similarly [18], point out that the most important element of user satisfaction is the correspondence between user expectations and the actual IT department. In the information systems literature, the quality of service is the correspondence between user expectations and the service provided by the IS being used and service personnel. Thus [19], report studies showing failure rates of information systems as they do not meet users' expectations.

The second hypothesis is as follows
Hypothesis 2:
There is a significant, positive relationship between service quality and the use of information system.

2.3.   Information system quality

In the literature of information systems (IS), quality is a construction often cited as a reference, but relatively poorly defined, For example, for [20] the quality of the system represents the quality of the information processing itself, which is characterised by: the use of state-of-the-art technology, a system offering key functions and functionalities and user-friendly software, easy to learn and easy to manage (IS value).

Another author [21] notes that "the quality of the system concerns the presence of bugs in the system,

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the consistency of the user interface, the ease of use, the quality of documentation and, sometimes, the quality and maintainability of the program code" (p. 246).

Others [22] include in their studies on user satisfaction a variety of dimensions and they equate the quality of the information system with operational measures such as ease of access, flexibility of the system, system flexibility, system reliability, system integration and response time.

Ref. [23] refers two broad categories of attributes of system quality: the characteristics of the system from the point of view of the system designer (called system flexibility) and system features from the end-user's perspective (called system sophistication, which uses modern technology and provides user-friendly interfaces).

Other authors [24] found in their roadmap analysis that the quality of the information system is an important determinant of overall user satisfaction, that system factors can influence the perception and satisfaction of users of information provided by the information system [25].

The quality of the information system is considered by several authors [26], [27] and [28] as an initial and essential history of the success of the information system represented by the use and satisfaction of the user [29]. Its dimensions represent users' perceptions of interaction with the system over time [30]. In this sense, better quality systems should be seen as easier to use and ultimately more useful and usable.

As mentioned [31] when looking at the quality of the system, it is advantageous to think that the information is the product of a system and that system is the information processing system that produces the information [32]. Something which suggests the existence of cross-effects or interaction between the two concepts therefore a poor quality of the IS results in a low quality of information due to irrelevant and incomplete information. In addition, a good quality information system makes it possible to respond quickly and efficiently to users' information needs, leading to relevant and up-to-date information for users, this implies a high quality of information and user satisfaction.

The third hypothesis is as follows
Hypothesis 3:
There is a significant, positive relationship between information system quality and the use of information system.

2.4.   Information quality

Information quality (IQ) has become a key concern in information systems research, as many researchers consider it an important factor in the success of an information system and is a determinant of its usefulness [33]. It is also defined as the extent to which the exchange of information is accurate, timely, complete, relevant and credible reflecting a true picture of the situation [34].

Delone and McLean's study of variables used to measure the success of information systems revealed that IQ is one of the most used variables, given the particularity of the current context, which is characterized by different sources and an increased need for information for users. For [35] good information quality meets the needs of users. Nevertheless [36], highlighted the problem of information quality, the main failure of which is the abundance of irrelevant and incorrect information, this finding was justified by the demands of users who change from day to day [37].

In addition, the quality of the information has been analysed by many researchers in order to identify and classify its dimensions. This researcher [38] defines four dimensions of information quality: accuracy, comprehensiveness, consistency and timeliness.

Also others added other parameters such as accuracy, reliability, format, content, consistency, relevance, clarity and completeness [39], [40] and [41]. Adding to this was the IQ measurement study of [42], which used other dimensions such as internal/external connectivity and frequency of updating information.

The fourth hypothesis is as follows
Hypothesis 4:
There is a significant, positive relationship between information quality and the use of information system.

3.   Methodology

In present research, a quantitative approach was employed, and data was collected by formulating a structured questionnaire.
The sample consisted of 256 users of information system in the retail sector in Morocco. The sample

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selection method is a convenient sampling method.

For data analysis, we used Partial Least Square (PLS).

PLS-SEM, a multivariate statistical technique, which stands for the Partial Least Square Structural Equation Modeling. It observes the multivariate linkage among the study's latent and observed variables. In this study, analysis of research data will be carried out using PLS (SmartPLS version 3.0).

4.   Results

The researcher discussed the PLS-SEM analysis in this section, which includes two approaches.

Measurement Model / Outher Model Test:
The measurement model, also called outer model in the PLS language, represents the linear relationships assumed between the manifest variables, and is carried out in three evaluation stages: the study of the reliability of internal coherence (Cronbach alpha), convergent validity and discriminant validity.

The table below refers to the measurement of the reliability of the items (loading>0.70), the reliability of the constructions (C.R.>0.70), and the extracted mean variance (A.V.E.>0.50).

Table1:   Provides a summary for all the variables in the analysis.

Variables	Items	Cronbach's Alpha	Conclusion
Q. Training	3 Questions	=,771	Reliabel
Q. Service	4 Questions	=,821	Reliabel
Q. Information system	5 Questions	=,891	Reliabel
Q. Information	5 Questions	=,840	Reliabel
Use	3 Questions	=,824	Reliabel

The data collected was subjected to reliability analysis to establish the reliability of the measures. The variables are assessed for reliability using the Cronbach's Alpha in the questionnaires in this study. The value of the reliability coefficient ranges from 0 to 1.

If the coefficient value is close to 1, then the instrument is reliable.

Table2: Results of measurements Model- Convergent validity

	Items	Loading	A.V.R	C.R
Quality of training	TQ1	0,838	0,688	0,869
	TQ2	0,812		
	TQ3	0,838		
Service Quality	SRQ1	0,782	0,650	0,881
	SRQ2	0,772		
	SRQ3	0,874		
	SRQ4	0,794		
Information System Quality	ISQ1	0,840	0,698	0,920
	ISQ2	0,875		
	ISQ3	0,716		
	ISQ4	0,879		
	ISQ5	0,857		
Information Quality	INQ1	0,864	0,612	0,887
	INQ2	0,808		
	INQ3	0,788		
	INQ4	0,719		
	INQ5	0,722		
Use	US1	0,820	0,739	0,895
	US2	0,871		
	US3	0,887		

Confirmatory factor analysis (CFA) for this measurement model was performed.

The result is shown in <Table 2>. Each value of Cronbach's alpha, composite reliability, and average variance extracted (AVE) exceed respectively the recommended value of 0.7, 0.7, and 0.5. All the items and constructed of the model meet the three criteria. The convergent validity is therefore satisfied.

Table3:   Discriminant validity

	TQ	INQ	ISQ	SRQ	USE
TQ1	0.840	0.393	0.538	0.490	0.446
TQ2	0.814	0.346	0.411	0.449	0.302
TQ3	0.834	0.365	0.475	0.530	0.465
INQ1	0.350	0.863	0.410	0.285	0.303
INQ2	0.333	0.809	0.402	0.354	0.298
INQ3	0.393	0.793	0.398	0.286	0.331
INQ4	0.294	0.719	0.366	0.259	0.281
INQ5	0.360	0.717	0.438	0.241	0.327
ISQ1	0.514	0.386	0.843	0.493	0.345
ISQ2	0.465	0.472	0.875	0.466	0.383
ISQ3	0.341	0.458	0.710	0.314	0.225
ISQ4	0.596	0.404	0.880	0.555	0.335
ISQ5	0.456	0.461	0.857	0.456	0.400
SRQ1	0.558	0.394	0.554	0.791	0.413
SRQ2	0.393	0.209	0.405	0.744	0.103
SRQ3	0.449	0.264	0.379	0.887	0.403
SRQ4	0.461	0.256	0.423	0.787	0.278
US1	0.319	0.251	0.255	0.275	0.815
US2	0.425	0.329	0.435	0.383	0.873
US3	0.499	0.417	0.347	0.384	0.889

We find that the factor weight of one dimension on a given construction is greater than all its factor weights on the other built.

Structural Model / Inner Model Test:
The inner model describes the relationship between latent variables based on substantive theory. Inner model testing is done to determine the relationship

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between constructs as hypothesized in this study.

The measurement most commonly used to evaluate the structural model is the coefficient R² of determination (R² or r-squared). This coefficient is a measure of the predictive power of the model and is calculated as a square correlation between the actual and predicted values of a specific endogenous construct. The R² represents the proportion of variation in the dependent variable(s) that can be explained by one or more predictor variables [43]. This is the amount of variance explained of the endogenous latent variables in the structural model.

Ref. [44] refers to the values of R² 0.67, 0.33 and 0.19 in PLS-SEM which can be considered respectively high, moderate and low.

Table4: R-Square

	R-Square
Use	0,295

The R-square value corresponds to a moderate coefficient of determination.

Hypothesis Testing:

For measuring the path-coefficients' size and relationship significance, the PLS-SEM algorithm and bootstrapping method were used, respectively, using Smart-PLS 3.0. The table below shows the statistical summary results to all hypothesis testing.

Table5: The Results of Hypotheses Testing

Hypothesis	βeta Path Coefficient	T-Value	P-Value	Hypothesis Status
H1- Quality of Training-> Use	0,179	2,950	0,003**	**Supported**
H2- Service Quality -> Use	0,107	1,353	0,177	**No Supported**
H3- Information System Quality -> Use	0,081	1,234	0,218	**No Supported**
H4- Information Quality -> Use	0,302	3,609	0,000**	**Supported**

+P<,15 ;*P<,10 ;**P<,05 ;   ***P<,01 / NS : No Supported

The results for H1 show that there is a significant positive relationship between training quality and Use (t = 2,950 p = 0.003). Thus, H1 is accepted.

The results for H2 show that there is no a significant positive relationship between service quality and use (t = 1,353 p = 0.177). Thus, H2 is no accepted.

The results in Table for H3 show that there is no a significant positive relationship between information system quality and use (t = 1,234 p = 0.218). Thus,

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H3 is no accepted.

Lastly, Hypotheses testing for H4 also show that there is significant positive relationship between information quality and use (t =3,609, p = 0.000). Thus, H4 is also supported by the testing.

5.   Discussion

These causal coefficients show that the quality of training has a positive and significant effect on use, which shows that training or its perceived quality plays an important role in the acceptance of new technologies leading to a certain ease of use of the information system.

Today, training is a growing priority in information technology, this has created the challenge for users to keep their skills up to date. Training provides a user with the essential skills to use IS to perform their tasks. The literature has focused on the adequacy of training to the needs of users, a dimension also appreciated by SIL users operating in the Moroccan retail sector.

Researchers go further by suggesting that without proper training, an information system may never be used appropriately or benefit from this technology [45].

The invalidity of the second and the third hypothesis emphasizes the particularity of Moroccan retail sector whose use is "compulsory". The non-confirmation of this research hypothesis may be justified by the status of use "voluntary or mandatory". In our context, it doesn't depend on a specific antecedent, but it is mandatory.

This result is similar to that of the study conducted by [46], this author did not also find a link between quality of service and use with a coefficient of (t= 1.012; p= 0.311). Similarly, Nasiru Yakubu, et al (2018) found in their work on assessing the success of learning systems in Nigeria, a P-value coefficient of 0.576 not statistically significant.

Also the results of other researchers show that the quality of the information system does not significantly influence use [47], [48] and [49]. The non-confirmation of this research hypothesis can be justified as we have already mentioned by the particularity of retail sector, which is characterized by a large quantity of information exchanged, which requires the establishment of an IS for the processing

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and sharing of this information.

Use in this case is mandatory, users do not have the choice to use it or not, it is imposed. Our respondents felt compelled to use the information system, regardless of its quality.

The fourth hypothesis is validated; the quality of the information has a positive and significant effect on the use. For the safety of brands, information becomes a strategic issue, it is considered in several works as the raw material of the economic world to be efficient. Any brand will be better than its competitors especially if it has accurate and correct information, facilitating the control of unexpected variations. In other words, it makes it possible to control the present and to predict the future, by meeting the logistical requirements, namely the cost-quality-time, on which everything depends on information.

The Delone and Mclean study found that the quality of information is one of the most interesting variables tested and most frequently used, given the specificity of the current economic environment, which is characterized by the increased need for information for users.

This result is similar to that of [50], quality of the information positively influences the use with a p-value of 0.001. For [51] information is a motivating factor for using information system.

6.   Conclusion

The result of the research shows that all the constructs, in order of appearance: Quality of training, Service Quality, Information System Quality and Information Quality influence usage behavior in a different way.

After this central construct of the DeLone and McLean model we then move on to the test of another relation forming part of the same model of success in the information system.

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