Factors Affecting CRM System Adoption: Evidence from Romanian SMEs

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Abstract
In a broad sense, it includes the activities of the departments of marketing, sales, financial and technical support relative to customers, potential customers, suppliers and partners. It helps companies to maintain and develop customer relationship, improving profitability and streamlining processes eventually. Also, this system has gained the reputation of being a significant business tool and among the first technological contributions of companies in the 21st century. The main objectives of this study are: identifying the most important factors against Customer Relationship Management adoption, the link between them and also discovering the most important demographic or cultural factors that influence the adoption of this type of digitization in Romania. The data collection was done by a quantitative research using the questionnaire method as a survey tool and it was made up of questions measured with Likert scale, containing variables based on the construct's relevance to business process digitization. All hypotheses about the links between the dependent variable and the independent variables are first developed, then tested using reliability, validity and multiple regression tests. It was used a statistical software, analyzing 7 independent variables, as follows: perceived usefulness, knowledge sharing, IT project management, change management, information quality, intention to implement, technology driven strategy. Perceived usefulness will be the dependent variable. Finally, this can be seen also with the help of the Structural Equation Model, after the validity of the model has been verified, to highlight the importance of this system. A significant effect is represented by quality information, perceived ease of use, change management and knowledge sharing on the degree of adoption of this system.

Keywords: Business process digitization, Customer Relationship Management system, SMEs, Romania, Structural Equation Model (SEM).

JEL classification: O32.

1. Introduction
1.1. Customer Relationship Management – reviews in literature

Customer Relationship Management System is a set of strategies, policies and technologies for attracting, retaining and retaining customers. The channels with a significant

role in CRM system adoption are social media ones: customers or potential customers that talk openly about, services or products through it and these channels usage become a necessity to attract and keep such customers (MAROLT, PUCIHAR, & ZIMMERMANN, 2015).

According to Lehmkuhl, people have a different opinion of what CRM is and that's why there isn't any established definition of social CRM (LEHMKUHL & REINHARD, 2013). The most complete social CRM definition was defined by Greenberg as *"a philosophy and a business strategy, supported by a technology platform, business rules, processes and social characteristics, designed to engage the customer in a collaborative conversation in order to provide mutually beneficial value"* (GREENBERG, 2010). Social CRM combines certain traditional consumer-oriented activities with social media applications to engage them in collaborative conversations, for a mutually beneficial value. (TRAINOR, 2012).

Companies should be aware of the opportunities that social media offers, especially for customer service or sales departments, where social media has huge potential. (KIRON, PALMER, PHILLIPS, & BERKMAN, 2013).

Regarding 20/80 Pareto rule, customers are shard in 80% of organization' sale. This may show the lasting relationship with wealthy customers in order to maximize the profit is necessary. CRM is a business strategy focused on client. It increases his satisfaction and loyalty by presenting him the personalized services and some know it as a managerial approach which includes identifying, attracting, developing and maintaining the successful relationship with customer in order to increase profitability (MOZAHEB, ALAMOLHODAEI, & ARDAKANI, 2015).

1.2. Technology Acceptance Model

Venkatesh and Davis gave a final TAM used in information systems research for adopting information systems (BACH, ČELJO, & ZOROJA, 2016). The most significant moderator variables were established as sex and age (IM, HONG, & KANG, 2011).

TAM is a paradigm with a model and theory (TRA based) that helps to study all types of Information System usage. Also, TAM offers some ways to formulate research hypotheses to address and solve them (NEGOVAN, HURBEAN, & DANAIATA, 2011).

Practical theories such as Theory of Reasoned Action (TRA), Theory of Planned Behavior (TPB) and Technology Acceptance Model (TAM) have taken a long time to explain and anticipate acceptance of adoption information systems (MUTHITCHAROEN, PALVIA, & GROVER, 2011). Three major factors proposed for adopting a system are Perceived Usefulness (PU), Perceived Ease of Use (PEoU) and Attention to Use (AU). Two most critical determinants are the perceived usefulness and perceived ease of system usage. Perceived Usefulness and Perceived Ease of Use have an important and direct impact on the technology adoption in general. After the effect of information quality was tested, it was found that it has a positive influence on CRM system adoption. Technology driven strategy is development and usage of technologies introduced in new product or service development and also its integration. Law and Ngai involve supplier inspection, support and user involvement as key factors in digitized projects. Also, it was established that the "right knowledge" to "right person(s)" at the "right time" allows for bigger control on the project. Researchers' findings suggest that communication and training about project communication influences TAM, because of the perceived ease of use and perceived usefulness, which contribute to behavioral intention in using CRM.

On the strength of developed model, this paper aims to verify the following hypotheses:
"H1: Perceived Usefulness of CRM positively influences CRM Implementation.
H2: Perceived Ease of CRM Implementation positively influences it's Implementation.

H3: Perceived Ease of CRM Implementation positively influences Perceived Usefulness of CRM usage.
H4: Information Quality positively influences Perceived Ease of CRM Implementation.
H5: Technology Driven Strategy positively influences Perceived Usefulness of system usage.
H6: Change Management positively influences Project Management in companies.
H7: Knowledge sharing positively influences Project Management in companies.
H8: Project Management positively influences Perceived Ease of CRM Implementation"
(BACH, ČELJO, & ZOROJA, 2016)

2. Methodology

The data collection was carried out in 2 months through a questionnaire with 25 questions and at the end of the session allocated to complete the questionnaire, a total number of 78 respondents were registered. The 5% significance level will be used for testing research proposals. The sample sample consists of small and medium-sized companies, defined as a sample framework. The sample size of 10 companies contains two layers (depending on the size of the company): 5 small companies and 5 medium companies. The survey will be conducted with employees as respondents. The purpose of this research work is to investigate and to understand the facts that affect the customer relationship management system. With this purpose, the following objectives are pursued:

1. Identify the critics who contributed to the acceptance of the use of the Customer Relationship Management system;

2. Identify some of the links in the critical work that contributed to the acceptance of this system;

3. Identify the characteristics of the characteristics (education, age and gender) that influence the scope of the CRM system.

Table 1 shows the questionnaire questions, having the following factors: perceived usefulness of CRM, intention to implement CRM, perceived ease of CRM use, quality information in companies, technology based strategy in companies, IT project management, change management and knowledge sharing in companies (BACH, ČELJO, & ZOROJA, 2016). The questionnaire constructs were made as questions with Likert scale as answer (with values from 1 to 7), which measures the level of agreement of the respondents with specific statements. The questionnaire was constructed in such a way that using the statements validated by other international studies, but adapted to the economic and social environment in Romania. For this, the questions were grouped on these chapters, but randomly placed in the questionnaire.

Table 1. Questions used to construct the questionnaire

Factor	Variable	Item
Perceived Ease of Use	PEoU1	Implementation process of CRM is understandable.
	PEoU2	Company has adequate financial resources for CRM implementation.
	PEoU3	IT department has adequate knowledge for CRM implementation.
	PEoU4	It is easy to integrate CRM with existing solutions.
Perceived Usefulness	PU1	Using CRM improves company performance.
	PU2	Using CRM increases company job productivity.
	PU3	Using CRM improves employee's performance.
Intention to Implement	II1	BI is used in all organizational units, and hierarchical levels.
	II2	Internal (both structured and unstructured) and external data are integrated, and requirements (e.g. data quality) are met.
Technology Driven Strategy	TDS1	Our company can develop technology, designs products based on that technology.
	TDS2	Our company "knows" what is best for the customer.

Factor	Variable	Item
Information Quality	IQ1	Content representation of information in Information System (IS) is logical and clear.
	IQ2	The knowledge or information provided by the IS is available when needed.
	IQ3	The knowledge or information provided by the IS is important and helpful.
IT Project Management	PM1	Information Technology projects are strongly connected with the enterprise strategy.
	PM2	Implementation goals for the IT projects are clearly defined.
Change Management	CM1	If new features of the IS are introduced written procedures on how to do it are available.
	CM2	Coaching or trainings are available when new features of the IS are introduced.
Knowledge Sharing	KS1	Employees are able to share knowledge with other employees.
	KS2	Company has written procedures or guidelines to support knowledge.

Source: (BACH, ČELJO, & ZOROJA, 2016, p. 999)

3. Results and discussion

This study uses multiple regression and correlation analyzes, using IBM SPSS version 20.0. The reason for using the multiple regression test is to investigate the relationship between the independent variables and the dependent variable. Table 2 below shows some of the respondents' profile. Descriptive statistics show a fairly young and well educated population, about 99% of respondents being under the age of forty, while almost 67% of them have at least university studies. In terms of gender, the population is not evenly divided between male and female respondents. The majority of the respondents are from the female category, which are 47 persons (60.3%), and the men the difference of 31 persons (39.7%).

Table 2. Demographic profile of respondents

	Atributes	Frequency	Percentage (%)
Gender	Female	47	60.3
	Male	31	39.7
Age	20-30 years	77	98.7
	31-40 years	0	0
	41-50 years	0	0
	51-60 years	1	1.3
Education level	Postgraduate studies	22	28.2
	University studies	52	66.7
	Others	4	5.1

Cronbach Alpha coefficient is used to study the internal consistency of items in a questionnaire or can be used as a method of item reduction. The not-very-distant values produced here (.910 vs. .915) indicate that the means and variances of the original scales do not differ much and, therefore, standardization does not make a big difference in Alpha. In this case, the Cronbach Alpha value in Table 3 is .910, which indicates a very good value to excellent. Moreover, it indicates a fairly high degree of internal consistency with regard to the specific sample.

Table 3. Cronbach Alpha - Reliability statistics

Cronbach Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.910	.915	20

The table below (Table 4) was used to improve the value of the Alpha coefficient. Analyzing the correlation coefficient, the analyzed factors weren't reduced because this would affect the value of the Cronbach Alpha factor, decreasing. Given that some items values are not very low (> 200), their elimination from the general questionnaire will not be considered. It is also noted that item PU3 has the lowest correlation with the overall score (0.393); its contribution to the overall score is quite small.

Table 4. Validity test – Factors correlation coefficient

	The average scale if the item is deleted	Scale variance if the item is deleted	**Correlation of the total corrected item**	Multiple square correlation	**Cronbach Alpha if item is deleted**
Perceived Ease of Use					
PEoU1	105.4231	174.091	.671	.752	.903
PEoU2	105.9615	177.362	.505	.762	.907
PEoU3	105.9231	174.929	.521	.702	.907
PEoU4	106.0000	180.390	.420	.596	.909
Perceived Usefulness					
PU1	105.1410	181.525	.575	.896	.906
PU2	105.3205	180.480	.568	.903	.906
PU3	105.4744	182.460	.393	.788	.909
Intention to Implement					
II1	106.3590	175.714	.440	.741	.910
II2	106.1026	174.924	.614	.836	.904
Technology Driven Strategy					
TDS1	106.2179	175.004	.449	.686	.910
TDS2	106.2436	180.966	.484	.585	.907
Information Quality					
QI1	105.9231	176.384	.621	.862	.904
QI2	105.7821	173.497	.654	.893	.903
QI3	105.3846	178.707	.649	.760	.905
IT Project Management					
PM1	105.9744	179.012	.530	.659	.906
PM2	105.8974	175.210	.596	.869	.905
Change Management					
CM1	106.0641	173.983	.675	.873	.903
CM2	105.8205	174.019	.588	.897	.905
Knowledge Sharing					
KS1	106.0000	169.247	.669	.924	.903
KS2	106.0256	171.895	.627	.871	.904

A correlation is often called a bivariate correlation to designate a simple correlation between two variables (table 5), as opposed to the relationships between more than two variables, as is often seen in multiple regression analyzes or structural equation modeling. A correlation is also often called Pearson correlation or Pearson r. Karl S. Pearson is credited with the formula from which these correlations are calculated. For example, a high positive relationship existed between IT Project Management and Information Quality (r = .782, Sig = .000). These values indicate a positive relationship between the score on the MP test and the IQ.

Table 5. Pearson Correlation

Factors		PEoU	PU	II	TDS	IQ	PM	CM	KS
PEoU	Pearson	1	.579**	.469**	.604**	.549**	.574	.475**	.540**
	Sig. (2-tailed)		.000	.000	.000	.000	.000	.000	.000
PU	Pearson	.579**	1	.601**	.431**	.494**	.325**	.554	.376**
	Sig. (2-tailed)	.000		.000	.000	.000	.004	.000	.001

Factors		PEoU	PU	II	TDS	IQ	PM	CM	KS
II	Pearson	.469**	.601**	1	.600**	.358**	.344**	.563**	.264*
	Sig. (2-tailed)	.000	.000		.000	.001	.002	.000	.019
TDS	Pearson	.604**	.431**	.600**	1	.396**	.432**	.381**	.295**
	Sig. (2-tailed)	.000	.000	.000		.000	.000	.001	.009
IQ	Pearson	.549**	.494**	.358**	.396**	1	**.669****	.579**	**.782****
	Sig. (2-tailed)	.000	.000	.001	.000		**.000**	.000	**.000**
PM	Pearson	.540**	.376**	.264*	.295**	**.782****	.561**	.549**	1
	Sig. (2-tailed)	.000	.001	.019	.009	**.000**	.000	.000	
CM	Pearson	.574**	.325**	.344**	.432**	**.669****	1**	**.754****	.561**
	Sig. (2-tailed)	.000	.004	.002	.000	**.000**		**.000**	.000
KS	Pearson	.475**	.554**	.563**	.381**	.579**	**.754****	1**	.549**
	Sig. (2-tailed)	.000	.000	.000	.001	.000	**.000**		.000

By using the multiple regression test, Table 6 presents a significant regression model between Perceived Ease of Use, Intention to Implement, Technology-Based Strategy, Information Quality, Project Management, Change Management and Knowledge Sharing. As can be seen, the power of each predictive variable, which suggests the dominance of the largest ones, is on the scale of perceived ease of use (t = 4,087), the quality of information scale (t = 3,076), the scale of implementation intention (t = 1,837) and that of change management (t = - 3,887).

Table 6. Multiple regression test

Factors	Coefficients				
	Non-standardized coefficients		Standardized coefficients		
	B	Standard Error	β	t	Sig.
Constant	2.805	.403		6.968	.000
PEoU	.374	.091	.456	4.087	.000
II	.131	.071	.208	1.837	.070
TDS	-.024	.078	-.033	-.303	**.762**
IQ	.333	.108	.419	3.076	.003
PM	-.169	.095	-.227	-1.774	.080
CM	-.367	.094	-.542	-3.887	.000
KS	.312	.083	.525	3.767	.000

The relationship between each independent variable and "perceived usefulness" will be determined. To test the null hypothesis, this should refer to the statistical value t where the value of "significance" (for the technology-based strategy, Sig = 0.762) reflects that the technology-based strategy has no effect on the perceived usefulness.

The validity of the acceptability model was verified, using the Structural Equation Modeling, adapting the Technological Acceptance Model (TAM) to the questioned sample, shown in Figure 1.
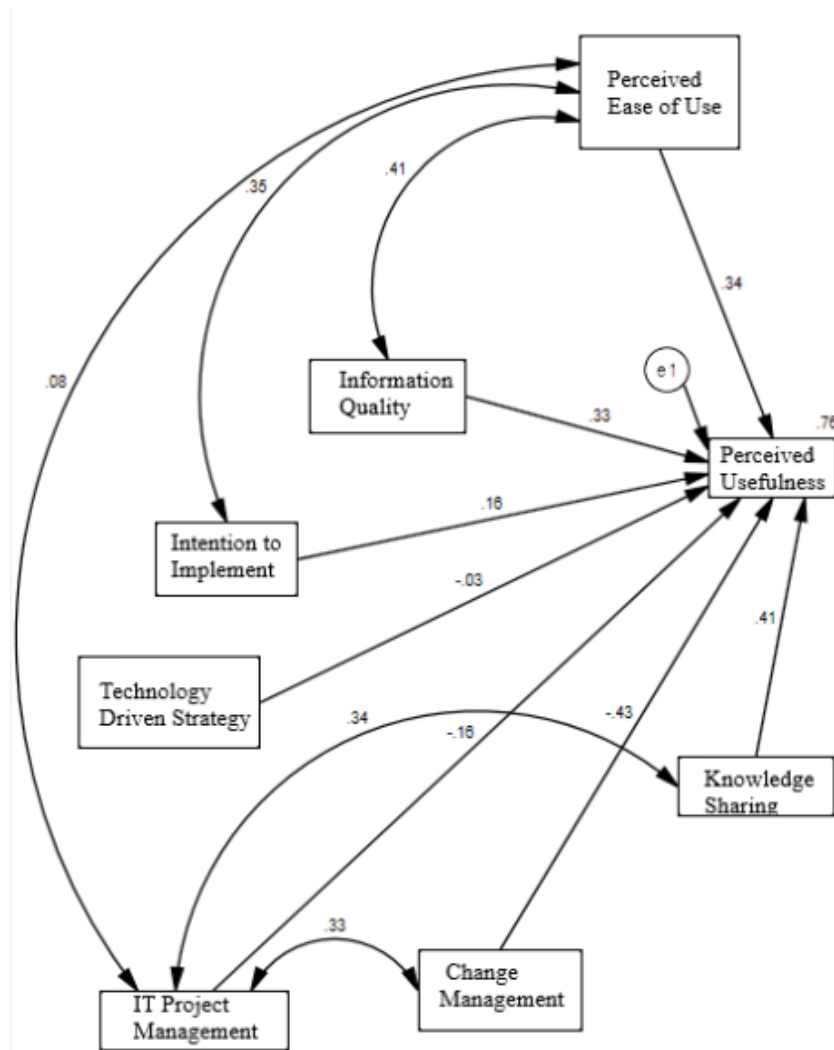
Figure 1. TAM regarding the adoption of CRM in Romanian SMEs resulted from the research

After that, were validated/ invalidated the hypotheses, taking into account the coefficient β and the standard error, analyzed using the SPSS AMOS program, demonstrated in Table 7. Regarding the invalidation of Hypothesis 5, the potential for conflicting orientations and the lack of functional collaboration between marketing and IT can therefore be an important basic reason for the failure to adopt CRM technology. With the increasing adoption of technology to help When addressing marketing needs, it is important to understand the relationship between market and technology orientations within firms.

Knowledge management allows the team to reduce the workload and compress the time needed to plan the project. Furthermore, byword "correct knowledge" regarding "the right person(s)" at the "right time" allows a bigger control on the project through the life cycle of the project by reducing uncertainty.

Table 7. Validation / Invalidation of Hypothesis

Hypotheses	B Coefficient	Standard Error	Validation / Invalidation of Hypothesis
H1: Perceived Usefulness of CRM positively influences CRM Implementation.	.131	.049	VALIDATE
H2: Perceived Ease of CRM Implementation positively influences it's Implementation.	.302	.094	VALIDATE

Hypotheses	B Coefficient	Standard Error	Validation / Invalidation of Hypothesis
H3: Perceived Ease of CRM Implementation positively influences Perceived Usefulness of CRM usage.	.374	.075	VALIDATE
H4: Information Quality positively influences Perceived Ease of CRM Implementation.	.281	.079	VALIDATE
H5: Technology Driven Strategy positively influences Perceived Usefulness of system usage.	**-.024**	**.051**	**INVALIDATE**
H6: Change Management positively influences Project Management in companies.	.282	.097	VALIDATE
H7: Knowledge sharing positively influences Project Management in companies.	.336	.111	VALIDATE
H8: Project Management positively influences Perceived Ease of CRM Implementation.	.053	.056	VALIDATE

4. Conclusion

Referring to respondents profile, the demographic statistics show a relatively young and well educated population, the majority of the respondents (almost 99%) being between 21 and 30 years old. In terms of sex, the majority of respondents are women (60%), while men are in proportion of 40%. Knowledge sharing, technology-based strategy, information quality and change management in companies were added to the technology acceptance model. The research led to the following conclusions:

1. Relationship between information quality, perceived ease of use, change management and knowledge sharing (independent variables) and perceived usefulness (dependent variable) are the "most significant" (Sig = .000).

2. The relationship between technology-based strategy (independent variable) and perceived usefulness (dependent variable) is "least significant" (Sig = .762).

The results of this questionnaire shows that using any digital technologies is perceived as a very important opportunity for future business development but real adoption still faces big challenges. However, another very important aspect is that Romania is at the bottom of the European charts that measure the progress of EU countries towards a digital economy and society.

Compared to regression, the results of multiple and linear regression analyzes recognize that quality information, change management and knowledge sharing significantly predict perceived usefulness. In terms of knowledge sharing, another important organizational factor in IT adoption is the alignment between organizational goals and IT problems. The results found could lead to future implications for IT teams and strategies for CRM system deployments and digitization within enterprises and the end-user perspective on the use of CRMs. For the purpose of developing this system, the research could have implications for future planning and design of some CRM systems solutions.

Software companies selling CRM solutions should also take into account the importance of project management maturity in the targeted companies. Thirdly, the evaluation of the practices of change management and knowledge management would also be recommended before launching the project for the implementation of digitization, more specifically CRM systems.

4.1. Limitations

This study had some limitations, mainly in terms of sampling and technologies examined. The respondents were especially young people whose behavior might differ slightly from the average population. The other limitation was that the Romanian sample contained

many full-time workers. However, many of Romanian students work full time, which makes the two samples compatible. The consumers examined use the system, even if they do not fully accept it. The data were weighted in report to the surveyed population. It is an exploratory research, made in order to discovery the adoption rate of Customer Relationship Management in Romanian SMEs. The research is relevant to understanding the experience of the sample respondents, but is still unrepresentative for CRM users.

Acknowledgments

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