Customer Relationship Management Enhancement Using Informative Distributed Information Systems

Navid HashemiTaba and Ahdieh Sadat Khatavakhotan

Abstract—**Distributed teams play a significant role in Customer Relationship management. Using high-tech tools, especially for making intelligent connectivity between teams and team members is essential decision in current era. Using appropriate connecting tools is a critical issue to support team connectivity. Based on variety of available tools, Selecting, customizing, and developing a set of connecting tools are complicated issue. This paper provides some important criteria for choosing distributed information systems to support customer relationship management approaches. Easy to use, hard to misuse, reliable, maintainable, and reasonable price could be assumed as most important criteria for such information systems, which are described in this article. System Integration as a product of using appropriate tools within suitable approach is discussed.**

Index Terms—**Connectivity, connecting tools criteria customer relationship management (CRM), distributed team**

I. INTRODUCTION

From Customer Relationship Managerial (CRM) perspective, choosing an appropriate tool for distributed teams is as important as distribution of jobs and data [1]. Leede et al. [2] have mentioned important factors in the formation of virtual teams such as team characteristics, communication patterns, and information sharing and processing. Although many researchers have worked on some aspects of connectivity tools, there are no integrated known applicable criteria as an applicable guideline in the real world.

It is crystal clear that each of choosing tools factors indicates a criterion for choosing tools, which can satisfy that factor. Distributed systems share some tasks. As Tavana and Kennedy [3] say," the utilized tools must satisfy the minimum criteria otherwise they will not be fruitful and will be a threat by themselves that can be called disorganization."

II. FIVE APPLICABLE CRITERIA FOR DISTRIBUTED TEAM CONNECTING TOOLS (DTCT)

Using the professional high-skilled distributed teams facilitates CRM approaches. The features of TDCT criteria usually have root in the nature of teams. Connection between

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the members of a large team following the tracks of smugglers has been made via wireless and embedded boards. Each of them must apply a certain encryption mechanism to hide itself. It is disclosed and millions of dollars will be wasted. It is different from having connection with teams in a building which can even be done through manual forms. Fig. 1 shows the proposed CRM-related criteria for any connecting tools using for distributed teams connectivity.
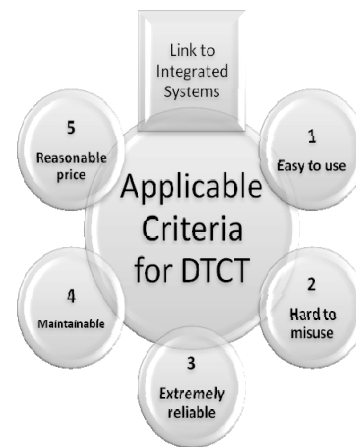

Fig. 1.Five Applicable CRM-Related Criteria for DTCT.

A. Easy to use

An important feature that these tools must have is ease of use. It is neither deniable nor merely a criterion. Sometimes they seem simple but they lower the efficiency. So it is important to reach a trade-off among criteria. Another important factor is that how much a user can increase the efficiency of a tool through his expertise in using two similar tools. Therefore, individuals' attitude is only one principle in utilizing easy to use tools [4]. (See fig. 2)
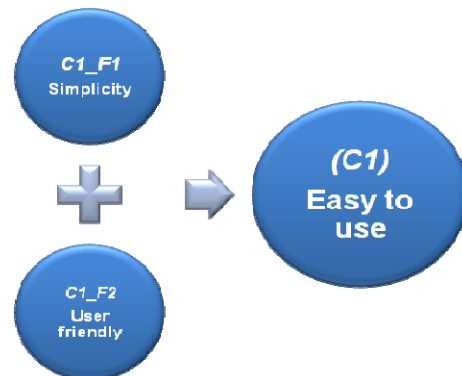

Fig. 2.Main features of easy to use criteria

B. Hard to misuse

As much as making connection among the members of a team is vital, being hacked, cross link, leakage of information is harmful to the team and its productivity, quality, and

security [5]. It is said to be an appropriate tool which can keep the system safe from abuses whether from inside or outside the team, at different layers of security [6]. (See fig. 3)
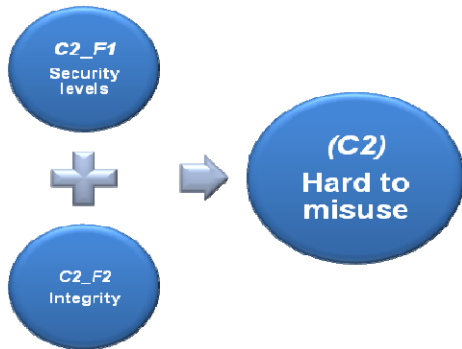

Fig. 3.Main features of hard to misuse criteria

C. Extremely reliable

Reliability means that the system is always error free. Various situations such as supported protocols, and software response time, etc. must be clearly defined. It must also be certain that no error happens in such situations [7]. (See fig. 4)
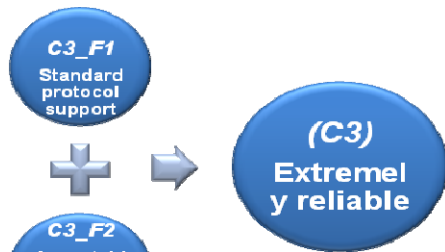

Fig. 4.Main features of reliability criteria

D. Maintainable

A tool must be capable of being easily removed of problems. The modified versions must be easily at hand and customized. Otherwise, it is not reliable. Only one error in only one team is likely to happen and it is not unlikely to use modern technologies. (See fig. 5)
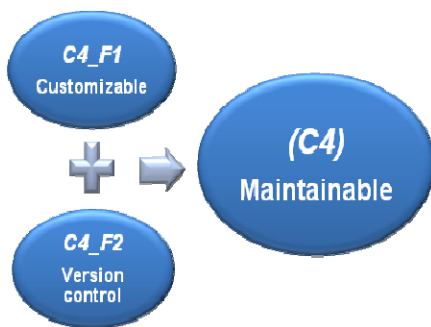

Fig. 5.Main features of maintainability criteria

E. Reasonable price

It must be economical. There is a price to any tool. If the connection tool is so expensive that the project will not be economical to be done, it can have an overhead, which exceeds the performance. Modern budgeting issues usually indicate the reasonable price and cost of a tool [8]. (See fig.
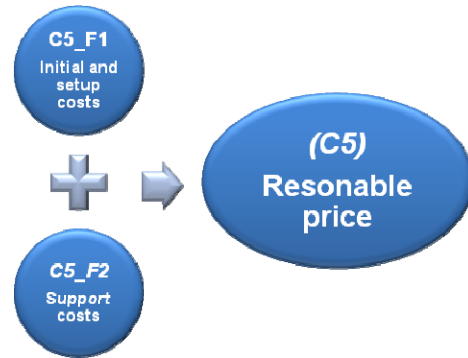
6)

Fig. 6.Main features of price affordability

III. LINK TO INTEGERATED SYSTEM

Fig. 6 provides a pictorial view of aforementioned criteria in form of cause and effect fishbone diagram. Apart from the type of the tool which is used in connecting distributed teams, added knowledge must be used in an integrated intelligent environment [9].When classes of each knowledge or experience are known, then the inconsistency will be minimized. Appropriate coding is another tool. If team members are aware of the process in the team, they can regularly correct themselves. Therefore, appropriate tool is only one factor. Protocol, appropriate charter, and loyalty to them and advanced culture are among others [10].Providing a trade-off between aforementioned criteria is a critical issue that likely provides the system more integrated.
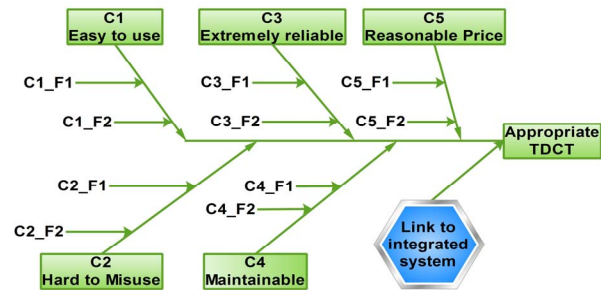

Fig. 7.Fishbone diagram for TDCT five criteria and their sub-fields

IV. CRM INFORMATION SYSTEM

Information system of the CRM is not only a service tool or a data base or reporting system. Reference [11] shows strong insight into developing information systems can guarantee their stability. If the viewpoint towards information system of the CRM is a strategic one, then it can act a total system, i.e. it can not only improve processes collaboratively with other departments, but also feed other management systems such as budgeting, financial, and even MIS systems.

V. CRM SECURITY

Data security is CRM could be assumed as most important criteria for facilitating the organizational performance. Information systems are no longer ornamental or even a tool

in their users' hands, but are an inseparable part of their organizations and are thus required [12]. Defining and using appropriate principles, rules, policies, and procedures assists is a strong start point to make the private data secure. The point is a bad rule has two advantages: 1) there will be no worse rule, 2) abiding by rules will be institutionalized, and when the rule is modified then the organization will improve.

Although many believe that you never regret what you have never had [13], but the fact is this is not true about CRM information systems. Lack of a weak system is better than its existence. Because in the former case intelligent and experienced personnel can manually handle the issues, but in the latter the users will be misled and it will finally lead to the failure of the whole organization. Nobody will claim responsibility of such failure [14].

VI. CRM SYSTEMS FAILURES AND SOLUTIONS

Failure of the CRM system of the department is resulted from external and internal factors. Each intensifies the other [12]. To remove such problems, they must be fully detected and classified. To remove the problem, its root must be remedied not its cause. So the proposed solutions must uproot the problems.

A. Redefining processes and measurement

Reference [15] shows deescalating processes is by itself a process which should frequently be done. Problems in giving an exact definition of the problems shall grow bigger. A correct definition can be a remedy. In each customer service department there are several processes defined such as customer registration, taking promotions add and drop the customer profiles, being temporarily transferred to other branches, and lunch to feedback process, and some other more technical ones such as customise service improvement plan. At first glance it seems that some of these processes must be redefined and some others separated. For example pre-registration process is linked to the customer procedure. Systems usually fail due to ignorance reasons. Departments must always be aware of the existing situation. To that end, firstly some metrics must be defined followed by correct measurements.

B. Collaboration with other departments

The most important feature of modern CRM information system is being integrated and distributed. Distribution is a feature, which can itself turn into an Achilles heel [16]. Improvement of CRM information system of the organization means its being integrated with other IS. Departments, as independent managerial cells, are responsible for specialized issues which sometimes take place without the education department being informed. An integrated information system with a common data base can impose controls which lead in collaboration along with independence. Therefore, collaborative projects can be performed with departments. Without collaboration creative management aiming at developing distributed systems will not be possible [17].

C. Access to qualitative methods through quantitative solutions

Managers usually express qualitative objectives, such issues as customer satisfaction, improving productivity, precision, required speed, and safety [16]. It is intermediate level managers and experts who should translate such qualitative words into practical measurable actions. Information systems of the CRM department can summarize data and act as a self- instrument. This is an important feature which reveals the problems of a system. Such information can helpother departments and experts make changes to obtain the quantitative objectives and accordingly the qualitative ones. Being performed systematically and consistently, these changes can guarantee the future quality of the system [18].

D. Time management as an efficient solution

Time measurement is all about checking the mean of standard time against real time, and finding the root causes of wastes of time. Information system of the CRM department takes care of all student affairs as well. One probable solution is to apply time measurement project on key activities to check the mean of standard time and seek the waste of time. An information system equipped with time measurement tools can target permanent improvement; what is aimed in Sigma 6 [12]. The important point is the individuals in charge must be technically and culturally trained. Trained people can both take part in time measurement process and improve their responsibilities. Naturally, the required information can be obtained from integrated information systems [17].

VII. CRM AND DECISION SUPPORT SYSTEM

Customer Relationship Management (CRM) shows the customer behavior and satisfies the Key Performance Indicators (KPI) in a large organization. Using a Decision Support System (DSS) or a set of such an intelligent information systems can help us to consider a huge factors in every decision making case [18]. Scholars emphasized that CRM has same priority as a DSS in a large information system. Researches show that integration between information system components make an information system "viable", "evolutionary" and "autonomous". Connecting a Web to DSS and CRM tools will provide a powerful environment that making decision is more reliable in it [19].

VIII. CONCLUSION

Ignoring appropriate tools in making continuous connection among distributed teams will practically turn the opportunity economy of time and costs into the threat chaos in CRM systems. As the IT processes are increasing, it is recommended that we express features and criteria in choosing appropriate tools in any connection or support rather than define and recommend a certain tool. Such criteria can provide appropriate tools and minimize the use of already existing ones.

Important criteria in tools of connecting distributed teams can be discussed in different classes. The most important one

is its security, efficiency, speed, and finally high reliability. Yet if they are not applicable appropriately, they will be of no practical use. Therefore the objectives will be in blatant conflict. Approaching an objective will lead to discarding others. Through principle criteria a tradeoff among the objectives can be achieved. It should be noted that tradeoff is different from balance, i.e. some will be overlooked in favor of some others. Designing a comprehensive solution, which can consistently check the used or recommended tools through the said criteria, will be the action plan for observing the said criteria.

REFERENCES

[1] Ballantyne, A., Trenwith, L., Zubrinich, S., &Corlis, M. (2010). 'I feel less lonely': what older people say about participating in a social networking website. *Quality in Ageing & Older Adults*, 11(3), 25-35.

[2] Leede, J., Kraan, K., den Hengst, M., & van Hooff, M. (2008, January). Conditions for innovation behaviour of virtual team members: a 'high-road' for internationally dispersed virtual teams. *Journal of eWorking*, 2(1), 22-46.

[3] Tavana, M., & Kennedy, D. (2006, March). N-SITE:: A Distributed Consensus Building and Negotiation Support System. *International Journal of Information Technology & Decision Making*, 5(1), 123-154.

[4] Whitworth, B., &Zaic, M. (2003, September). The WOSP Model: Balanced Information System Design and Evaluation. *Communications of AIS*, 2003(12), 258-282.

[5] Peter Wood. (2004). Web application hacking: exposing your backend. *The British Journal of Administrative Management,*28-29.

[6] Popa, M. (2009, March). Detection of the Security Vulnerabilities in Web Applications. *Informatica Economica*, 13(1), 127-136.

[7] Hertel, G., Konradt, U., & Voss, K. (2006, December). Competencies for virtual teamwork: Development and validation of a web-based selection tool for members of distributed teams. *European Journal of Work & Organizational Psychology*, 15(4), 477-504. doi:10.1080/13594320600908187

[8] Margaria, T. (2005, May). Web services-based tool-integration in the ETI platform. *Software & Systems Modeling*, 4(2), 141-156.

[9] Dameri, R. (2009, April). Improving the Benefits of IT Compliance Using Enterprise Management Information Systems. *Electronic Journal of Information Systems Evaluation*, 12(1), 27-38.

[10] Klauß, T. (2008, May). Knowledge Management in Cross-Organizational Networks as Illustrated by One of the Largest European ICT Associations A Case Study of the METORA Project of the Federal Ministry of Economics and Technology (BMWi). *Proceedings of World Academy of Science: Engineering & Technology*, 29, 235-240.

[11] Lee, A.S. and R.L. Baskerville (2003) "Generalizing Generalizability in Information Systems Research," Information Systems Research (14) 3, pp. 221-243.

[12] Zhang, W., & Xu, X.. (2008). Six Sigma and Information Systems Project Management: A Revised Theoretical Model. *Project Management Journal, 39*(3), 59-74.

[13] Helga Drummond. (2005). What we never have, we never miss? Decision error and the risks of premature termination. *Journal of Information Technology, 20*(3), 170-176.

[14] Park, C., Im, G., & Keil, M.. (2008). Overcoming the Mum Effect in IT Project Reporting: Impacts of Fault Responsibility and Time Urgency*. *Journal of the Association for Information Systems, 9*(7), 409-431.

[15] Mähring, M., Keil, M., Mathiassen, L., & Pries-Heje, J.. (2008). Making IT Project De-Escalation Happen: An Exploration into Key Roles *. *Journal of the Association for Information Systems, 9*(8), 462-496.

[16] Turban, E., Leidner, D., McLean, E., Wetherbe J. (2007). Information Technology for Management: Transforming Organizations in the Digital Economy, (5th ed.). San Francisco: Wiley.

[17] Johnson, W., & Filippini, R.. (2009). INTERNAL VS. EXTERNAL COLLABORATION: WHAT WORKS. *Research Technology Management, 52*(3), 15-17.

[18] Moya, M.. (2007). Model for the Selection of Predictive Maintenance Techniques. *INFOR, 45*(2), 83-94.

[19] Furner, C., Mason, R., Mehta, N., Munyon, T., & Zinko, R.. (2009). Cultural Determinants of Leaning Effectiveness from Knowledge Management Systems: A Multinational Investigation. *Journal of Global Information Technology Management, 12*(1), 30-51.

[20] Misdolea, R. (2010). Decision Support System and Customer Relationship Management as Components of the Cybernetic System Enterprise. *Informatica Economica, 14*(1), 201-207.