

## A Collaborative Portal for Multicash Helpdesk

Cristian CIUREA

Economic Informatics Department,  
Academy of Economic Studies, Bucharest, Romania  
cristian.ciurea@ie.ase.ro

**Abstract:** This paper describe a collaborative portal for a bank business process, represented by the electronic payments service. The Multicash system is an client-server application used by many banks in the world for realizing payments online, taking account statements, sending and receiving banking text files. In order to manage the technical support of the Multicash system was realized a collaborative application named Collaborative Multicash Servicedesk.

**Keywords:** collaborative system, collaborative application, portal, multicash helpdesk, customer care.

### 1. Collaborative banking systems

Collaborative systems are an important subject of knowledge-based society and an important part of the human activities is involved in this field. [1]

I am considering the case study of a collaborative banking business process regarding the activation of electronic banking services. In this business process, which is a collaborative work, we found two partners: customer and bank. The bank is represented by four entities or departments, like branch, technical assistance, administration and intervention.

In the considered collaborative banking business process the bank is represented by four entities or departments: branch, technical helpdesk, server administration and intervention.

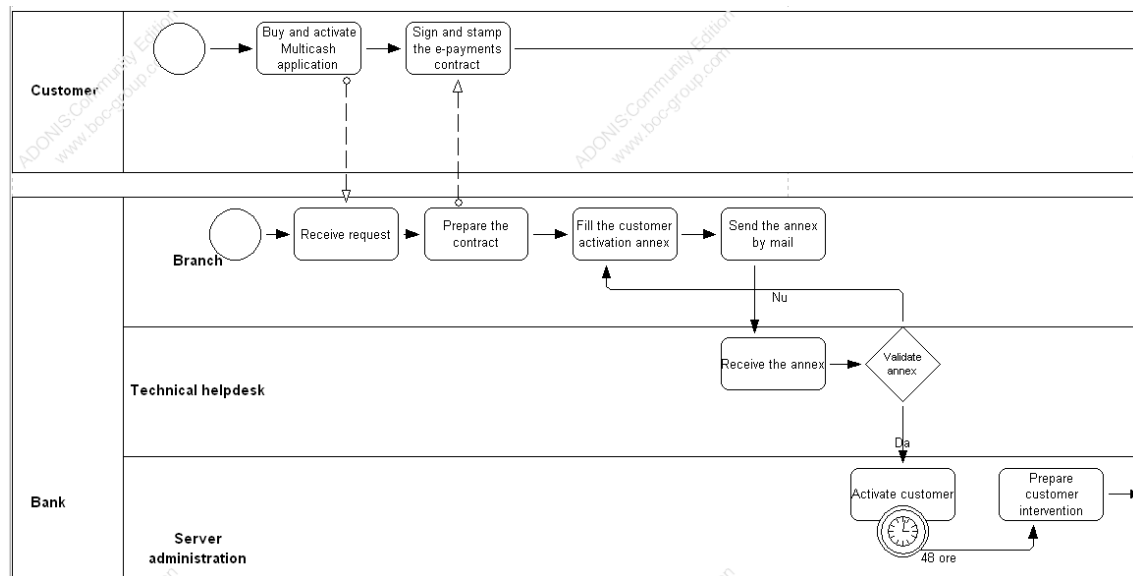


Fig. 1. Collaborative banking business process

In the collaborative banking business process presented in figure 1, the agents customer and bank must cooperate in order to achieve their goals. If the customer want to make electronic payments, he must buy and activate the Multicash application. For doing this, he will sign and stamp an e-payments contract. The bank branch will receive the activation request, will prepare the contract, fill the customer activation annex and send it by mail. The bank technical helpdesk will receive the customer annex, validate it and if everything is good, the bank server administrators will activate the customer and prepare the intervention for installing the application.

This is a collaborative process in which many agents work after strict rules and procedures. If an agent will do a mistake, everything will be destroyed.

The performance criterion specific to the banking system is the profit. As it is higher, the bank shall allow the number of branch expansion and attracting new customers. The market share of the bank and the credits offer varies depending on the profit earned by the bank.

The measures which are taken in a bank in order to maximize profits are much more drastic than the measures that are applied in other companies. These measures aim at: reducing the number of personnel to ensure the correlation between productivity and wages paid to employees, periodic replacement of the bank management in order to increase the performance, and the most expensive and long-term measure, the replacement of the information system.

A banking information system is thus designed to automate a higher set of current bank operations and provide strategic, tactical and operational information necessary in the decision-making process.

The main feature of a modern banking information system is the connectivity level between the factors involved in the banking activity. From this point of view, the banking information systems development suppose the successive or directly implementation of the following types of information systems:

- *banking information systems without connectivity*, which are characterized by the existence of independent computers that run applications specific to certain departments: accounting, credit, etc.; the data transfer between computers is provided, usually through external supports; such information systems are encountered, especially in smaller banking units like branches and subsidiaries;

- *banking information systems with local connectivity*, which are information systems based on local computers networks;

- *banking information systems with global connectivity*, which are information systems based on wide area networks, which connects local networks of the banking units.

Currently, it follows to increase the quality of services offered by the collaborative banking systems, through the introduction of intelligent agents in order to help increasing the performance of these systems. [5]

## **2. Multicash technical helpdesk**

Multicash is a structured software solution that enables for the optimum management of payments and collections. The application is currently used by many corporate customers, thus being intensively tested and improved. The standard software is installed on the computers in the customer office and it enables to do the following operations:

- visualizing daily bank statement with detailed information of transactions, as well as the intermediary bank statement updated around the day on an hourly basis;
- visualising accounts balances hourly updated;

- performing local currency payments: budget, inter and intra-bank transfers;
- performing foreign currency payments in different currencies;
- performing payment orders with multiple authorization and signature levels with automatic checking of limit per each transaction, according to the customer signature card;
- exporting and importing data to/from different accounting systems;
- receiving treasury information, like exchange rates;
- sending and receiving text files [2].

I have been developing a system to support collaborative customer care over the web. This paper focuses on the design of collaborative customer care based on my banking experience doing joint research with several real-world corporate customers.

In figure 2 is presented the first page of the Collaborative Multicash Servicedesk application:

## Collaborative Multicash Servicedesk

**Username:**

**Password:**

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**Fig. 2.** Collaborative Multicash Servicedesk [6]

The Collaborative Multicash Servicedesk application involve three categories of users: customer, bank analyst and administrator. Each user has a different interface depending on its category. The customers have the possibility to post a problem, to view an existing solution from the knowledge database and to view the status of their posted problems. The bank analyst can take a problem posted by a customer and solve it. The administrator has the possibility to generate reports regarding the status of problems solved by each bank analyst.

In the figure 3 is presented a customer form for creating a request in the Collaborative Multicash Servicedesk application:

### Create request

Category:

Subcategory:

Description:

Importance:  High  Medium  Low

Fig. 3. Create request form

In the figure 4 is shown a report containing the number of requests sent, taken and solved by each bank analyst and a graphical representation:

**Number of requests**

Analist:

Sent:

Taken:

Solved:

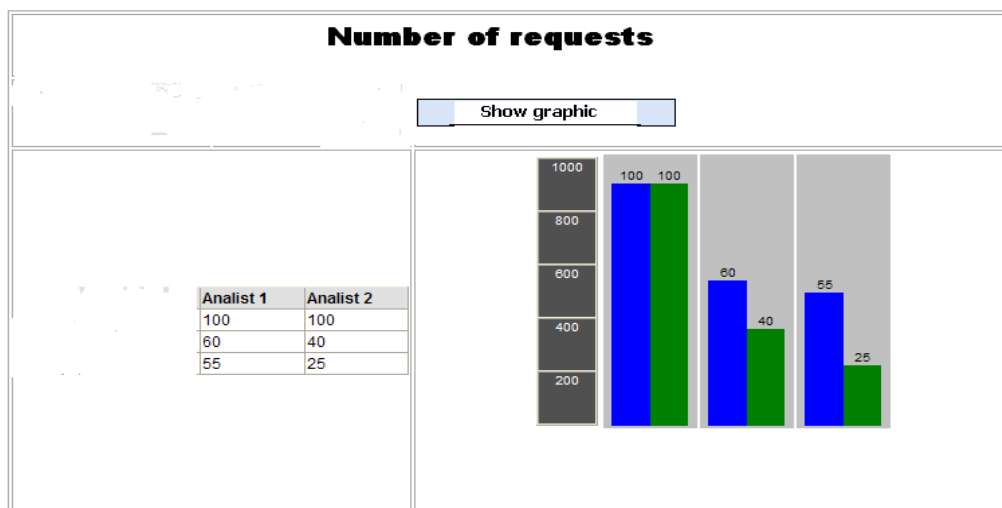


Fig. 4. Report regarding the status of problems solved [6]

The process of determining the criteria for application selection and the discussion evaluating the applications on the criteria produced a more specific set of goals for the technology and project. The vague concept of value was translated into the more specific application selection criteria of increasing sales, market share, customer retention, satisfaction, and CSR productivity. When thinking about the specific candidate bank applications, the team was able to articulate the goals for the use of the technology. These criteria, thus, became business goals for the Collaborative Multicash Servicedesk.

The selected applications include the following:

- *customer acquisition*; the goal was to enhance the self-service function with collaborative assistance on-demand (i.e. *customer support*); collaboration would be used to make the process easier and speedier for the customer, to reduce input errors due to misunderstandings, and to increase the completion rate for the process, thereby increasing market share;
- *determining the pay-back for doing various types of business with the bank*; this consisted of what-if calculations that determined a customer's pay-back for having a mortgage, savings account, loan or other types of relationships with the bank; collaboration would facilitate *sales and marketing* as the CSR discussed the pay-back for different services and products;
- *overview of bank services*; this consisted of pages containing text and graphics information describing the products and services; collaboration would *generate leads* and *open opportunities for cross selling* (i.e. selling a customer who called about one product an additional product);
- *adding billers for electronic bill payment*; with collaboration, customers could view and point to a list of billers while talking to the CSR; without collaboration, customers needed to specify billers in a separate telephone call.

Many of the end-user collaboration features in these applications had been incorporated in the demonstration and the challenge was to implement them in a working system. However, the business team discussions suggested that a number of changes and additions would be needed for the technology, the web pages and the bank work practices in order to meet the bank's business goals for collaborative customer care. [3]

### **3. Evaluating the collaborative applications from a knowledge management perspective**

In the knowledge-based society activities are conducted within the systems. When these systems cooperate in order to achieve their goals, we speak about collaborative systems. Science has great impact on the development of different types of collaborative systems from various activity fields.

The quality characteristics of collaborative systems are as follows:

- the *complexity*, which describe the density of fluxes between the components of the system and their links;
- the *reliability*, determined by analyzing the number of problems solved by the system and the total number of specified problems;
- the *maintainability*, measures the effort needed to make modifications on the collaborative system in order to make it suited for current needs;
- the *usability*, defined by the ability of a system to be useful for his agents or the capability of a system to be used easily;

- the *stability* is the characteristic of a collaborative system to identify and correct weaknesses.

The *complexity* is a measure for the interdependencies between components and their links and also for the diversity of different types of input and output constructions. This characteristic describes the density of fluxes between the components of the system. The complexity of the collaborative applications generates a large number of various components. Based on that, a proper approach of the system quality is to analyze every component separately.

The system *reliability* is determined by analyzing the number of problems solved by the system and the total number of specified problems.

The *maintainability* is a process particular to software products that have a complex development process and that are intended to be used for a long time, meaning more than three years. In this category are included also products like the collaborative systems. Maintainability measures the effort needed to make modifications on the collaborative system in order to make it suited for current needs. This effort can be described as consumed time, number of modules modified, number of added modules and number of deleted modules.

Another quality characteristic is the *usability* of collaborative applications, defined by the ability of an application to be useful for his users. Usability of a collaborative application is reflected through the effective interactions between its agents and the successful achievement of proposed objectives.

A collaborative system is defined through some form of construction like:

$\langle \alpha_1, \alpha_2, \alpha_3, \alpha_4, \alpha_5, \alpha_6, \alpha_7 \rangle$ ,

where:

$\alpha_1$  – activity;

$\alpha_2$  – location;

$\alpha_3$  – resources;

$\alpha_4$  – people;

$\alpha_5$  – energy resources;

$\alpha_6$  – procedures;

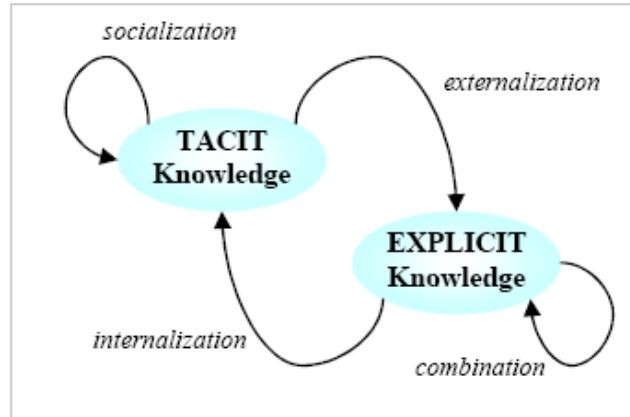
$\alpha_7$  – flows.

Starting from such a construction, the collaborative system *stability* is defined as a relationship between the elements  $\alpha_1, \alpha_2, \alpha_3, \alpha_4, \alpha_5, \alpha_6, \alpha_7$ . [1]

The knowledge in a collaborative application can be explicit or tacit. Explicit knowledge can be expressed in words or numbers and shared in the form of data, scientific formulate, audio, video, etc. Thus, explicit knowledge is easy to share and formalize. On the other hand, tacit knowledge is that which is in people's brains and is more personal and difficult to formalize, being harder to communicate and share with others. [4]

A problem related to knowledge is the transfer, because knowledge should flow in order to generate new knowledge or to be improved. Thus, in [4] is defined a flow of knowledge composed of four steps, shown in figure 5:

- socialization;
- externalization;
- combination;
- internalization.



**Fig. 5.** Steps of knowledge flow [4]

The evaluation of knowledge management has become increasingly important since it promotes strategic organizational learning and generates the capabilities required to meet system expectations. As collaborative tools are nowadays used to transfer and share knowledge, we think that evaluating the collaborative tools that a collaborative application use would help to evaluate, in an indirect way, the knowledge management that a collaborative application has. [4]

In order to measure the degree of knowledge management that a collaborative application has, we define a knowledge management performance indicator, *KMPI*, as follows:

$$KMPI = \frac{KC + KA + KS + KU + KI}{5}$$

where:

- KC* is the knowledge creation in a collaborative application;
- KA* is the knowledge accumulation in a collaborative application;
- KS* is the knowledge sharing in a collaborative application;
- KU* is the knowledge utilization in a collaborative application;
- KI* is the knowledge internalization in a collaborative application.

There are many techniques and approaches to evaluate collaborative applications and different approaches as:

- organizational impact and impact on work practices;
- end product produced through using the software;
- efficiency of task performance using software;
- user satisfaction with the software;
- task support provided by the software;
- specific features of the groupware interface;
- patterns of system use;
- user interaction while using the software.

Some of these proposals contain some factors related to knowledge management but none of them is specifically focused on evaluating it. [4]

## 5. Conclusions

A collaborative portal creates an environment where people can work better together, can share information without the constraints of time and space, being characterized by three

fundamental aspects: joint activities, sharing environment and way of interaction.

The idea of collaborative portals refers to an effective collaborative system in which people and equipment cooperate in order to achieve certain objectives. This is about Human-Human Interaction and Human-Computer Interaction. On-line collaborative applications are accessed by a very large number of unhomogeneous users, which must spend as little time interaction with the application.

With this new technology will develop software applications that will complement the customer, the user becoming part of the system. The Human-Computer interaction is more powerful, the system is more efficient.

### Acknowledgements

This article is a result of the project „Doctoral Program and PhD Students in the education research and innovation triangle”. This project is co funded by European Social Fund through The Sectorial Operational Programme for Human Resources Development 2007-2013, coordinated by The Bucharest Academy of Economic Studies (project no. 7832, “Doctoral Program and PhD Students in the education research and innovation triangle, DOC-ECI”).

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### Author



**Cristian CIUREA** has a background in computer science and is interested in collaborative systems related issues. He has graduated the Faculty of Economic Cybernetics, Statistics and Informatics from the Bucharest Academy of Economic Studies in 2007. He is currently conducting doctoral research in Economic Informatics at the Academy of Economic Studies. Other fields of interest include software metrics, data structures, object oriented programming in C++ and windows applications programming in C#.