University with mobile approach ICT

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Abstract

This article deals with application of mobile model simulation created in project GACR 402/08/1046. Company models with mobile oriented architecture. The outputs of this GACR are theoretical models that describe the design of mobile applications in the process. The mobile information processes include a group of coherent parts and their interactions. Mobile technology is currently ahead of developments in the implementation of new management methods and process architecture with elements of mobility. The conclusion of this research is applied into the university environment. Simulation models are created in the multi-agent environment. Any participant of simulation is represented by agents. The comparison of these theoretical models with practical models helps to solve the concept of optimal model simulations. These simulation models can be used for verification of implementing ICT mobile approach before being set up. Using of methods (for example comparison of theoretical models and functional verified practical models) is also described in the article. The identification of input parameters for the simulation environment enables exploration of various integration alternatives of outputs.

Keywords: Mobile approach, m-learning, organizational change, ICT

1. Introduction

The aim of this simulation is to allow experimentation with the obtained models. Simulation eliminates the shortcomings of analytical methods but need more time (build model, model testing, planning and execution of experiments) and preparation of input data. Compared to standard analytical procedures has simulation less extreme conditions and restrictions which can overcome. One of the other reasons for using simulation in practice is the expensiveness sharp implement. For the base simulation is used the obtaining model for the transitive from static to mobile solution from different planes mostly technical, organizational, operational and economic-financial. As already mentioned in the abstract model based on multi-year research project, conducted structured interview of selected organization and other research which dealt with case studies.

2. Questionnaire survey

In the research project called Organization model with mobile-oriented architecture (IČ 402/08/1046 Grant Agency of the Czech Republic was created a questionnaire survey to identify the current status of the use of mobile

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device and the most frequently used source of mobile innovation in organizations. In addition to the identification and segmentation of the respondents watched the currently using selected group equipment of mobile technology and mapping the potential for possible use. The sampling unit is an organization established to Czech Republic, the size was not defined, the basic sample of 100 respondents and electronic inquiries it was able to find resolution 97 correct completed questionnaires. The results of survey show increasingly greater weight to the so-called mobile information systems created by relative connected components groups. These components collect informatics and manage processes, store and distribute information using mobile information and communication technologies. Analysis of output of research indicates that final user are interested in a significant extent on the possibility of the involvement of mobile device into information system of organizations or the possibility of implementation processes with the support of these technologies. It is a clear trend towards the fact that more and more processes can be into the near future mobilized. However, it is important to mention the fact that mobile solution may affect processes completely or partially. (Slabý, Kozel, Mohelská, 2010, p.63)

The investigation found that concern about the use of mobile technology is largely in terms of safety. The speed of technology development and the requirements for good connectivity and functionality collide with major threats and risks and the unavailability of services through an unplanned disclosure of confidential information through the use of digital identities. They can be attacked by both central and devolved infrastructure provider network and services but also their own terminal equipment. This equipment in terms of today show low levels of protection or a unknown level user. It may be noted that currently exist for mobile communication equipment and terminal facilities a significant threat limiting their participation in the information system.

3. Securing the transmission channel

All user/process identification and his authentication secured remote/local access to local data sources, active content management. Identification and fix of possible vulnerabilities and protection from parallel read, forgery, delay and deletion must be done to ensure the security of mobile access. For all these measures is appropriate to take into account the additional cost, the configuration statement and the additional costs of operating, expansion or troubleshooting. (T. Doseděl, 2004, p. 32)

In some cases may using of significant security elements on no optimally configured device cause end user comfort limitation. It is therefore an important aspect of the organization to ensure safe transmission of the communication channel and method for security policy of organization.

4. Management of innovation

The main project management and task management is to achieve the highest level of competitiveness of the organization. Current clients are thinking in this article that students need comfort and so much more if is the sight of school technical. Student in selecting university is not decided solely on its own merits and according to the reputation of the school, but also what the school offers technical support. It may be noted that most schools use a system of information, but usually not the rule already provide connectivity to such a remote information system. The implementation of mobile access should not be overlooked security of usefulness and effectiveness of the innovation. A prerequisite for achieving these objectives is the identification and optimization of inputs for the appropriate output, security personnel, material, financial and information resources and knowledge of methods and forms of interaction between the organization and its surroundings (Čech, Bureš, 2009, p.116).

The sources of mobile innovation are people, hardware and software implemented into the existing corporate information system and adequate terminal facilities. The designed simulation is based on Table 1, where is neatly summarized by a simple model of transition to a mobile solution. Economic evaluation and development budget should be envisaged and a preliminary valuation of investment returns, monitor cash flow, Budgetary backup to protect against risks (Hynek, Janeček, 2009, p.196).
Table 1. Simple model of transition

I. Phase – Introductory study

| Analysis of the initial situation | Defining the plan (vision, trends, status, estimates of its own forces, the requirements of cooperating objects), the target organization and strategic benefits, identification of necessary data, analysis of the current situation in stock and compare companies. |
| Analysis of structure | Defining a hierarchical abstraction. |
| Analysis of processes | Defining model situations in the organization, key, strategic processes and the basic elements to capture all the elements in the structural and procedural model representation of relationships, prototyping a new process, different viewpoints and analysis of the status and future developments with regard to maintaining the integrity of security and utility values. |
| Analysis of requirements and constraints | Defining the requirements of cooperating objects and determination of conditions of limited economic, technological, and operational security. |
| SWOT analysis | Defining SWOT analysis ICT/IS |
| Analysis of human and system resources | Defining the IS infrastructure, integration trends, the flow of information, verification of constrictor. |
| Analysis of competition | Defining the market potential and identifying environmental trends. |
| Analysis of risk | Defining the risk connecting with implementation mobile ICT may arise from a crisis plan. |
| Recommendation | Objective consideration the effects: procedural, organizational, personal, financial and technical. |

II. Phase – Preparatory phase

| Design of alternatives of technical solutions | Defining the basic parameters, criteria, cost, communication channels and security, etc. Evaluation and selection of the best option. |
| Cost-benefit analysis | Defining the flow, ratios between the costs and benefits. |
| Security analysis | Defining weaknesses, deficiencies, determine the next direction of building the information security organization. |

III. Phase – Deployment

| Schedule | Defining the steps and activities. |

IV. Phase – Evaluation phase

| Retrospective assessment | Traffic monitoring, evaluation indicators, quantitative and qualitative monitoring and financial evaluation of investment evaluation process of implementation. |

5. Simulation

Simulation was created in NetLogo 4.1.2 (http://ccl.northwestern.edu/netlogo) This simulation shows possible allocation of customers. Distribution of customers is based on preset of simulation made by user. There are a lot of changeable parameters of company.
There are three customizable companies. Each company’s parameters are loaded from sliders and then is company created. Customers are distributed based on chosen size of company. If customer belongs to company, he has same color and location near that company.

Applicability of mobile technologies is counted based on figures (shown in Table 1) and results are shown in monitors. If applicability exceeds limit 65% there are new possible customers who could go to company if company will use new mobile technologies. These customers have white color.

Different presets of simulation could be tried and effect of possible application of mobile technologies can be watched.

6. Conclusion

Mobile solution is mostly focused on each of the selected activities. More courageously conceived conversion may lead to more pronounced effects on the overall process more efficient and this transformation together with the transformation of the organization to service-oriented architecture.

References