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ADAPTATION PROBLEMS OF COMPUTER CONTROL MANAGEMENT SYSTEMS ADAPTATION FOR MOBILE TRADING

124 «System Analysis»

Abstract
diploma work for obtaining an educational degree "Master"

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The work was done at the Department of Computer Science Ternopil Ivan Puluj National Technical University Ministry of Education and Science of Ukraine

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GENERAL CHARACTERISTIC OF THE THESIS

Actuality of the thesis lies in the fact that This work is expected to provide a good insight into the successful supply chain of Dell on the one hand, and demonstrate whether knowledge-based techniques can provide good analysis of business and supply chain strategies in general on the other hand.

The goal of the work: is to is to have an insight into Dell's supply chain strategies. The secondary objectives include: i) the development of a BPM for Dell that illustrates its SC strategies, ii) the creation of a workflow engine for BPM simulation that is business context sensitive, and iii) the simulation of the developed BPM using the workflow engine for further analysis of Dell's strategies.

Object, methods and sources of research. We have decided to simulate two of Dell's processes, "Buy standard item to order" (process 2) and "Sell directly to large business and public sector customers" (process 4.2). These processes have been chosen because of their close relation with Dell's basic supply chain strategies, thus direct sales and build-to-order. The simulation consists of two steps: The first one is the specification and representation of the involved processes and junctions, of the initial world state and the events' list. The second is the actual execution with the help of the workflow engine, and the related results.

Scientific novelty of the obtained results: this project's motivation comes from the increasing importance of Supply Chain Management and the interest in the successful case of Dell on the one hand, and the need for a relevant analysis of a lower-level, on the other hand. We have tackled this problem by developing a business process model that illustrates Dell's supply chain strategies, and which is strategic and business goal-oriented.

Thesis tasks:
  – Identify the problems in mobile trading;
  – Investigate the effectiveness of mobile trading;
  – give recommendations to improving the mobile trading;
  – carry out a feasibility study on the decisions taken;
  – perform additional sections on occupational safety, emergency and environmental safety.

The practical significance. The results of the work can be used to improve the mobile trading process for any company if needed.

Thesis approbation. The results of work were reported on VI scientific and technical conference "Information models, systems and technologies" Ternopil, December 12-13, 2018

The structure of the thesis. The work consists of an explanatory note and graphic part. The settlement and explanatory note consists of an introduction, 8 parts, conclusions, a list of references and appendices. Scope of work: settlement and explanatory note - 126 pages of A4 format.

MAIN CONTENT OF THE THESIS

In introduction the analysis of the relevance of the topic and research tasks was carried out.

In the first section describes the scientific and technical problem.

In the second section dell's business process model was investigated.

In the third section logical representation of mobile trading was developed.

Fourth section is devoted to experimental research efficiency of mobile trading process.

Fifth section is devoted to investigate evaluation of fficiency mobile trading process.

Sixth section the issues of organization of production were considered and calculations of technical and economic efficiency of design decisions were made..

Seventh section the issue of the safety of life during the implementation of the results of work and safety in emergency situations was worked out..

Eighth section the issues of ecology and environmental protection during the implementation of the results of work were considered.

In general conclusions about the thesis the received technical decisions are given and organizational and technical measures which provide fulfillment of the given task are offered.

CONCLUSIONS

This project's motivation comes from the increasing importance of Supply Chain Management and the interest in the successful case of Dell on the one hand, and the need for a relevant analysis of a lower-level, on the other hand. We have tackled this problem by developing a business process model that illustrates Dell's supply chain strategies, and which is strategic and business goal-oriented. In order to make this BPM executable, we have designed and implemented a workflow engine that simulates BPM execution and calculates the related total time and cost. Furthermore, we have simulated two processes of the developed BPM and we have conducted experiments for their improvement and for their comparison with according processes of a traditional computer company.

In general the project was completed successfully. The developed BPM for Dell was evaluated as correct, and it was found to cover most of the interesting points of Dell's supply chain strategies, and to correspond to reality. We also believe that it manages to provide an insight into Dell's supply chain strategies avoiding a too abstract and high-level approach, even though in some cases more depth of detail would be helpful. As far as the workflow engine is concerned, it serves its mission and objectives, as addressed in 4.1.1, and it provides us with a correct and accurate BPM simulation, given that the relevant assumptions are respected.

The experiments of Chapter 5 involved the simulation of two SCM-relevant processes of Dell's BPM with our workflow engine, under the assumption of relevant execution time and cost for each process part. These assumed time and cost values were based on our knowledge of general practices in the business world and on the literature that covers Dell's SC strategies, and we regard them as assumptions of medium strength.

Therefore, the conclusions of experiment 2, which involves the comparison of Dell with a traditional computer company, are based on the assumed time and cost values, and hence they are not regarded as completely reliable. We would rather suggest that one should look upon the second experiment as a good framework for comparison of different SC strategies. On the other hand, the results of the first experiment are reliable (i.e. that we cannot improve the two processes by transforming a sequenced pat of them into parallel).

LIST OF PAPERS PUBLISHED BY THE AUTHOR OF THESIS

1. Jindu Jude O. Adaptation problems of computer control management systems adaptation for mobile trading / O. Jindu Jude, R. Zolotyi // Materials of VI scientific and technical conference "Information models, systems and technologies", December 12-13, 2018. — P. 23. — (information systems and technologies).

ANNOTATION

This project's motivation comes from the increasing importance of Supply Chain Management and the interest in the successful case of Dell on the one hand, and the need for a relevant analysis of a lower-level, on the other hand. We have tackled this problem by developing a business process model that illustrates Dell's supply chain strategies, and which is strategic and business goal-oriented. In order to make this BPM executable, we have designed and implemented a workflow engine that simulates BPM execution and calculates the related total time and cost. Furthermore, we have simulated two processes of the developed BPM and we have conducted experiments for their improvement and for their comparison with according processes of a traditional computer company.

Key words: EFFICIENCY, RESEARCH, MOBILE TRADING.