ABSTRACTS

Chapter 1. Knowledge management in enterprises functioning in the new economy. The chapter presents the role and impact of knowledge in the new economy. The foundations of the new economy and the determinants of the new economy are presented. The essence of knowledge based economy and the role of knowledge as the source of market competitive advantage are characterized. Finally, several essential features of knowledge based enterprises functioning in knowledge society are presented. – E Skrzypek.

Chapter 2. Innovativeness as one of the knowledge-based economy pillars. Knowledge is considered nowadays to be a driving force of economy. Building Knowledge-Based Economy means skilfully using this knowledge, often in an innovative way or to develop innovative solutions. Innovativeness is often as well a way for an enterprise to survive and grow within changeable environment. Unfortunately, innovativeness of Poland and Polish enterprises is being evaluated low as the research results confirms. This chapter presents selected issues regarding evaluation of innovativeness for Poland against the background of other European Countries, Polish innovative policy and some analyses of results concerning innovativeness research conducted within the confines of MAYDAY project. – M Grzesiak.

Chapter 3. The approach to information management in small- and medium-sized enterprise. Analysis of development of IT applications in small and medium-sized enterprises reveals significant difficulties with the selection and adjustment of the available IT solutions to real and still changing requirements of management support, particularly in the companies with the non-stream organization of production and services. Those difficulties justify the necessity to search for a new approach to development of IT applications in those organizations. – Z. Gomółka.

Chapter 4. Knowledge outsourcing III. The fluctuation of the knowledge and decision centers. The following issues are presented in the chapter: the determinants of the knowledge outsourcing, the enterprise safety, the tacit structure, the migration of the knowledge and decision centers. – K. Perechuda.

Chapter 5. Implementation of declarative framework for decision support in scheduling problems. Scheduling problems appear frequently at different levels of decisions. They are usually characterized by many types of constraints, which make them unstructured and difficult to solve (NP-complete). Traditional mathematical programming approaches are

deficient because their representation of constraints is artificial (using 0-1 variables). Unlike traditional approaches, constraint logic programming (CLP) provides for a natural representation of heterogeneous constraints. In CLP we state the problem requirements by constraints; we do not need to specify how to meet these requirements. In this chapter we propose a declarative framework for decision support system (DSS) for scheduling problems implemented by CLP and relational SQL database. We illustrate this concept by the implementation of a DSS for scheduling problems with external resources in different production organization environments. – P. Sitek, J. Wikarek, K. Bzdyra.

Chapter 6. Small-size and multi-product production flow planning. The main objective of the small-size and multi-product production flow planning is to provide a prompt service to queries generated by the decision-making process typical for Small and Medium Size Enterprises (SMEs) with multiple production orders. Because the SME's production is driven by orders, i.e., the client specifies a set of orders to be scheduled, the main goal is to develop a decision support system aimed at routine queries concerning for instance a production plan/schedule, maximal profit, resources availability, financial liquidity, production volume, etc. The responses to the requests should be guaranteed and should be available in an on-line mode. The proposed approach, based on a reference model concept, employs the fuzzy logic formalism implemented in Constraints Programming techniques, in particular in the Oz MOZART environment. – I. Bach, W. Muszyński, Z. Banaszak.

Chapter 7. Artificial intelligence methods in prediction of stock index values with usage of newspaper articles. Analysis of various kinds of data is an important part of information and knowledge management in a company. This chapter contains an overview of literature concerning Artificial Intelligence automatic prediction systems applied to prediction of stock index values with usage of numerical time series and newspaper articles. Moreover, an initial approach to implementation of such a system is proposed. – M. Kobos, J. Mańdziuk.

Chapter 8. Information system supporting utilization of knowledge on movement and transport control. The Chapter presents a concept, a design and an implementation of the information system TRANSBAD, developed for collecting and presenting research results and practical solutions in movement and transport control in production systems. The system has been set up as a website using a relational database. The system's structure was based on two main modules: Library and Laboratory. Library module concerns research results conducted in research centers whereas Laboratory includes examples of practical solutions from enterprises. Datasheets Article and Example have been proposed as standardized forms presenting information collected in Library and in Laboratory. The system's functionality has been improved by implementing Search Engine and Connection Mechanism automatically finding connections between articles and examples, based on their similarity. – M. Gadawski, J. Józefczyk, D. Orski.

Chapter 9. The role of modern manager in knowledge management process. In the chapter the role of modern manager in knowledge management process has been presented. The theoretical part is connected with research, which was done in 143 polish medium enterprises from Silesian province. – J.O. Paliszkiewicz.

Chapter 10. Developing an organisational culture supporting knowledge management. The environment in which contemporary enterprises are operating encourages them more and more often to seek competitive advantage in the so-called "soft" management factors, especially knowledge. The efficiency of knowledge management is determined by a variety of factors, one of the most important being IT infrastructure, which allows gathering of and

access to knowledge resources. The key factor, however, is to develop an appropriate organisation culture which encourages employees to generate, extend, use and share knowledge. The process of developing an organisational culture supporting knowledge management is determined mostly by: organisational structure, management style and human resources management system. The research carried out in Zachodniopomorskie Voivodship presents how the analysed companies perceive the relevance of knowledge and organisational culture in the knowledge management process. – K. Gadomska-Lila.

Chapter 11. A method for evaluating organizational structure on the basis of social network analysis. A method for building communication-based organizational social network was proposed. The network's structure reflects information exchange between employees and may be compared with organizational structure defined on the basis of business processes. In the case of differences or inconsistencies a list of changes aiming to improve the effectiveness of organizational structure is generated. A measure for estimating the quality of organizational structure as a whole was also proposed. – K. Juszczyszyn, K. Musiał.

Chapter 12. Developing sets of experience knowledge structure: Toward decisional DNA. In the Chapter knowledge representation was proposed based on Set of Experience integrating variables, functions, constraints and rules. The process of evaluation and unification of a new piece of knowledge being added to Decisional DNA was presented and illustrated with examples. – E. Szczerbicki, C Sanin.

Chapter 13. The language of communication in a multi-agent system for network monitoring. In this work the language of communication used by the multi-agent intrusion detection system is proposed. The agents communicate each other in order to exchange knowledge about the states of monitored nodes or send the requests. In case of anomaly detection in the some nodes the managing agents apply the procedures for determining of the sources attack. Proposed language of communication is compatible with standard ACL and rely on speech act theory. According to this theory some kind of language messages called performatives has been distinguished. Due to the nature of the monitoring system dedicated performatives have been proposed. – A. Prusiewicz.

Chapter 14. A concept study of a multiagent system for maintaining the quality of service in future mobile ad hoc networks. A multiagent system for maintaining the quality of service in future mobile ad hoc networks is proposed. It is assumed that the agents discover temporal and spatial users' activity patterns which are then used in prediction of user demands. A multiagent distributed architecture guarantees flexibility and scalability – A. Grzech, K. Juszczyszyn, G. Kołaczek, A. Prusiewicz.

Chapter 15. Reconstruction of attack propagation tree in multi-agent IDS system. The chapter describes a task of reconstructing an attack propagation tree. For this purpose we present data structures for storing information about communications within network and abnormal security states in network nodes. We propose algorithm that uses gathered information for rediscovering of an attack scenario. Implementation of algorithm in multi-agent IDS system is described. – M. Harańczyk, R. Sawko, G. Skorupa, P. Świątek.

Chapter 16. Data storage management: outline of practical methodology for effectiveness assessment. The chapter discusses the topic of data storage management effectiveness assessment. It reviews the contemporary practice of data storage management, and guidelines for assessing data storage costs and value of information. Its central point is

the description of an effectiveness measure for data storage. Later it discusses the assessment procedure for proper evaluation of this measure. The proposed methodology allows for effectiveness assessment of an entire data storage system, as well as its subsystems; it also allows for a prognosis of effectiveness assessment in near future and an estimation of benefits from technological improvements to the system. The methodology is supported by free software which makes the methodology easy to use. – J. Swacha.

Chapter 17. Applications of rough classification method in e-learning systems In this chapter rough classification problem and some heuristic algorithms for solving this problem are presented. Proposed methods are verified by using statistical tests. The results of these tests allow finding out which algorithm is more effective and should be applied in E-learning systems for redefining the classification criterion for the set of learners. – A. Kozierkiewicz, N.T. Nguyen.

Chapter 18. Description logic as software modeling language. Description logic has been shown as a common language for ontologies appearing in software engineering process that needs support from knowledge engineering. Problems approached are: requirements engineering, high level architectural description, project of system and source-code ontology. There has been shown the use of knowledge reasoners for automatic knowledge discovering and automatic design-constraints verification. There has been shown how to integrate analytics, designer and programmer work, using knowledge reasoning system. – P. Kapłański.

Chapter 19. The concept of IT system for knowledge and experience management. The authors of the chapter describe new concept of IT system for knowledge and experience management. The Case-Based method is presented as a basis for creation of an information system enabling knowledge and personnel's experience management. Additional authors assumed that uncertainly and approximate knowledge is used. – T. Waściński, A. Michalczyk.

Chapter 20. Knowledge acquisition for workflow systems. IT systems for workflows are more and more popular nowadays, they works for automation and improvement of business processes. But those system could be used like source of knowledge and even workflows might be enhanced by decision support system, which could be defined in the same matter as workflow's tools allow to model business processes. This chapter propose a generic decision support solution to support processes flow decisions. – B. Kucharski.

Chapter 21. Knowledge management embedded in software engineering processes. Knowledge is managed, at least informally and unconsciously, in every organization. However, it is not the primary goal of most organizations: the usual primary goal is profit, by producing and successfully selling products. One cannot expect that knowledge management processes will be visible as the separate processes in an organization. Instead, they rather should be expected as hidden (embedded) in core production processes of the organization. The chapter presents process models useful for creating a mapping of the embedded KM in software engineering processes. There are also discussed possible usages of such a mapping. – A. Kowalczyk, E. Szczerbicki.

Chapter 22. E-document technology in the e-administration. The aim of his chapter is to present how the e-document technology solutions can help local governments achieve interoperability among heterogeneous systems. Author characterized the standardization process of the basic elements of this technology. Several examples of the functioning e-documents in administration are presented. – W. Fliegner.

Chapter 23. The application of PHP scripts for information extraction from newspaper announcements. This chapter presents certain results from the application of PHP scripts for the extraction of information from newspaper announcements, and from the moving of this information to the MySQL database. The announcements concern limited liability companies, and are published in the print version of The Business and Court Gazette (Monitor Sądowy i Gospodarczy). Particular fragments of the text can be chosen and moved to the computer database after scanning the announcements and transforming the text into .txt format. Due to this, the whole operation can be carried out automatically and it is possible to avoid the manual introduction of data into database. Afterwards the database may be used to generate different reports. – M Pawlak.

Chapter 24. Knowledge management in an EU project on the example of MAYDAY project. This chapter presents the application of a knowledge management tool – Intranet – in the EU project MAYDAY. There are described the assumptions for the Intranet administration and the elements which should be included in the Intranet for the MAYDAY project. Moreover, the proposed system of Intranet administration is described and evaluated. There are also some problems discussed connected with the Intranet functioning and the ways to overcome them are described. The solution which is the subject of analysis in this chapter may be, after some adjustments, applied in other EU projects of similar characteristics. – M. Zięba.

Chapter 25. Outline of the contemporary trends of the net and their implications for e-business. The information revolution in the 50s of 20th century and the appearence of the information society in the 70s caused new business paradigm focused on the IT usage. Web 2.0 is the nowadays tendency affecting changes in the Net usage that focuses on collaboration and online sharing between users. The trend is connected with some mechanisms as folksonomy, viral advertising and social network services. These ideas lead to rebuilding business relations and reevaluation of competitive advantage sources. – K. Kuczera.

Chapter 26. Providing learning components with learning schemata by means of the UDDI registry. This chapter considers e-learning data access techniques. It shows how UDDI registry works and it describes the concept of learning object which is a basic unit in e-learning. Moreover, it presents the structure of a learning component which is a type of learning object. The vital aspect is that learning component consists of data, metadata and methods. This chapter shows that learning components can be used to form educational data in linear, concentric and spiral learning schema. A concept of component aggregate was introduced in order to satisfy learning schemata requirements. The chapter also shows that information about the availability of learning components can be published by UDDI registry. – A.Ł. Kaczmarek.

Chapter 27. Pomeranian firms and the new technology. This chapter is about of varied aspects of using new technology (computers, Internet, cellular telephony) by pomeranian firms. It presents statistisc, which show it in the contest of state the case for Poland. All informations are leaning on research performed by Institute of Telecommunication in 2005 year in which took part 4563 the business users of Internet from Poland, included 228 from pomerianian voivodeship. – R. Nierebiński, H. Pawlak.

Chapter 28. Linear model approach to the computerization strategy of an organization. The chapter presents problems relating to the selection of computerization strategy for an enterprise, identification of essential aspects of modelling in the enterprise IT system, as well as a generalized linear model of selecting the system and in-formation infrastructure for an enterprise. – J. Wątróbski.

Chapter 29. The analysis of organization models and the choice of information management system for commercial and manufacturing enterprises. In this chapter the analysis of organization solutions in real trade-production enterprises is presented. The models of enterprise functioning have been built. Selected functions have been chosen for IT support. Three information management systems designed by Polish software houses were compared. One of them was chosen as the best one. – P. Figiel, M. Mirski, Ł. Mucha, Z. Nowak.

Chapter 30. Role of project management office in IT project management. Effective IT project management is one of the most important elements which determine project success. However as the projects get bigger and more complicated the project management becomes more and more difficult. That is why project management offices, which are responsible for coordinating and monitoring the project tasks, communication management and project administration are being created. Project management office often fulfils also advisory and training services and implements project realization standards. This chapter concentrates on two fields of the project management office activity: communication management and technology and tools management. Communication managements aspect has been chosen because of the great importance of communication in project realization while technology and tools management seems to be especially interesting in case of IT projects. – K. Muszyńska.

Chapter 31. An intelligent platform for communication and control as well as management of modern companies. The chapter presents a method of creating an interactive and intelligent platform of communication, control and management for modern enterprises. Some critical details of designing such an interactive system, based on relational databases and wireless technologies, as well as its safety and security issues, are explained. – Z. Kowalczuk, J. Wszołek.

Chapter 32. Internet-based polling system as company's competitiveness improvement tool. The chapter describes classical polling methods compared to Internet based polling methods. In this chapter selected project and implementation aspects of developed Internet Based Polling System (IBPS) are presented. Some useful IBPS applications for improvement of company's competitiveness are analysed. – B Marchewka, P. Myszkowski.

Chapter 33. The UML model of an intelligent system for the management of industrial-like processes in real-time. In the chapter the software architecture of an intelligent system for the management of industrial-like processes in real-time is discussed. The main tasks of such system are analysis and recognition of a process pattern (the results of the recognition are to be used to control the process), and self-learning activity, which enables the system automatic gathering new information about the process in order to recognise new process patterns. The object-oriented approach has been applied to design the system, and the Unified Modeling Language has been used for the specification of the software model. The model of the system is based on the syntactic pattern recognition approach with the use of quasi-context sensitive string grammars. In this chapter we present the overview of the model and we discuss its advantages. – J. Jurek.

Chapter 34. Formal foundations of a knowledge management system supporting business process optimization. Formal foundations of a system supporting business process optimization have been defined with the help of a graph grammar formalism. The need of constructing such a system results from a practical experience of the author in modelling and optimization of business processes for complex organizations (Polish Power Grid, ENERGA Energy Concern, Gdańsk Rafinery, Turów Power Plant, etc.). The use of the class of ETPL(k) graph grammars results in good computational properties as well as in adequate descriptive power. – M. Flasiński.

Chapter 35. Examples of tools used for business process modeling. The main aim of this chapter is a presentation of chosen examples of tools used for business process modeling during implementation of ERP system. Those tools are nowadays commonly used for transforming and improving business processes in an organization. The first part of this chapter contains definitions of Information System implementation and process modeling. The second part is concentrated on tools used for business process modeling and as an examples there were chosen the following: ARIS offered by IDS Sheer supporting scenarios for SAP system, Solution Modeler delivered by Matastrom for Oracle J.D. Edwards and IFS Business Modeler designed together with Xdin company for IFS Application. – M. Kotarba.

Chapter 36. A quality model for UML tools. Modeling languages and tools play an important role in software development and maintenance. Since the number of UML tools on the market is growing, there is a need for some quality criteria and methods of their evaluation and comparison. This chapter proposes a quality model which allows for multidimensional viewing of the UML tools. Then, it describes a questionnaire which is helpful in conducting efficient evaluation. And finally, it presents comparison of forty five UML tools based on the evaluation made with the questionnaire and classification of the tools for drawing tools, modeling tools and model-driven engineering tools. – A. Bobkowska, M. Gala, M. Tarasewicz.

Chapter 37. Evaluation of the business processes modeling methods used in enterprises. The process modeling methods which are being applied in organizations are presented in the chapter. The authors evaluated them using multi-criteria decision support method (AHP). – K. Kublicki, A. Sokal.

Chapter 38. Fuzzy logic and logic-algebraic method for constraint programming-driven project prototyping. Project prototyping in Small and Medium Size Enterprises (*SMEs*) requires proper knowledge base (*KB*) representation in order to enable the integration of different types of information, including inaccurate and uncertain data, and linking them relations. The main objective of the prototyping system is to provide a prompt service to queries generated by the decision-making process and regarding standard SME domains, such as financial liquidity, resource availability, production volume, etc. The responses to the requests should be guaranteed and should be available in an on-line mode. The proposed approach employs the Logic-Algebraic Method and fuzzy logic formalism implemented in Constraints Programming techniques, like the Oz MOZART environment. – G. Bocewicz, R. Wójcik, K. Bzdyra.

Chapter 39. Use of analytical and simulation methods for modeling of discrete and stochastic systems. This chapter presents a unified methodology of discrete and stochastic systems optimization. The methodology joins heuristic approach represented by idea of lean management and methods based of formal description of the system. The proposed methodology leads towards wider use of information technology in processes reorganization in frames of lean management. – P. Korytkowski, O. Zaikin, A. Olejnik-Krugły.

Chapter 40. Architecture of distributed system for teletraffic monitoring. A model of computer communication network and monitoring system's quality optimization task were presented. In the proposed and discussed model and optimization tasks some selected parameters describing features of monitored communication network and distributed monitoring systems were taken into account. It was assumed that distinguished subsets of communication network are monitored locally and autonomously. Moreover, it was assumed that the local monitoring systems do not cooperate. Proposed approach was illustrated by simple examples. – A. Grzech, M. Każmierski.

Chapter 41. Needle Desktop Search: A search engine for local internet documents. In this chapter a new desktop search engine called Needle Desktop Search has been presented. The system has some unique features such as on-line index update for given folders, document structuralization to improve information retrieval and API for preparation own applications using system's functions and structures. Information retrieval is efficient and has low data storage demand for system's indexes. – L. Borzemski, P. Miduch.

Chapter 42. An approach to composite web services evaluation for service oriented architectures. OWL-S – a language for Web Service description and composition is briefly presented, then the task of rating complex Web Services is discussed. Afterwards, the use of Subjective Logic – an algebra for assessing trust in information systems – is proposed for expressing and computing the ratings of composite Web Services. – G. Kołaczek, K. Juszczyszyn.

Chapter 43. Methodological converters for the evaluation of internet computer shops' websites. The main objective of this chapter is an analysis of possibilities of conversion from using multidimensional, functional point analysis of websites to Saaty's AHP method. The research is made for selected websites of the computer shops which are most frequently visited by customers. In the beginning of the chapter basic assumptions of method are presented, taking into account conversion to AHP method. Next, step by step, the author shows this method application in the dimensioning of websites as well as implications resulting from this approach. The last part of this chapter contains conclusions related to the analysed approach and claims for further research. – W. Chmielarz.

Chapter 44. Knowledge management in IT project management. Majority of contemporary enterprise IT incentives is performed in the form of projects. Project manager is responsible for hundreds of concurrent tasks in project management. An effective knowledge management system and high performance tools are prerequisites. Chapter presents an L-Timer™ PM system and an L-TimerPowerUser (L-TPU) tool, together fulfilling the goal of effective management through knowledge handling. The L-Timer™ PM system incorporates 18 processes and allocates all tasks to corresponding sub-processes. Rules, defining how to perform each task, are placed within the logical structure leading to a clear deployment. The supportive L-TPU tool illustrates how the knowledge collected before and during the project life-cycle can be effectively allocated, stored, managed, correlated and retrieved. Deployment of both the L-Timer™ and L-TPU systems in governmental and semi-governmental organizations certifies the usefulness of the proposed approach. – B. Lent, M. Pinkowska.

Chapter 45. Studies of the stage of the IT projects realization as the project management adjusting factor. The lack of accessible statistical data, about computer projects being realized in Poland, makes impossible the analysis of the causes of successes and the failure of this projects, and in the result it makes impossible the prognoses and the evaluation of success on the success of a given computer project. To carry on the prognoses for a given computer project it is indispensable to: classify the computer project to a certain group of projects, according to the characteristics of the IT projects which should be worked out. Another necessary element is administering of statistical data which show what are, for given group of projects, chances for success as well as what factors may effect its possible failure. The present work focuses on the study the survey which will enable that classification of projects and the recognition of the factors of success and failure of the given IT project. The survey will be the base for collecting statistical data which will contribute into better estimation of the risk in the project, escape strategy, better management of IT project. – K. Fraczkowski, D. Karwacka.

Chapter 46. Evaluation of information technology as a part of R&D process optimization. The chapter contributes to the discussion on evaluation of information technology in contemporary SW organizations and presents an approach to the issue from Intel Technology Poland's (ITP) perspective. It demonstrates a case study on making such an evaluation a key factor to achieve organizational objectives as rolling-out the quality standards of CMMI at the level 4 and TL 9000 throughout ITP. – R. Królikowski, M. Neyman.

Chapter 47. IT organization transformation modelling. SITAR – the mimplified model. The publication contains the description of the simplified model for organization transformation: SITAR. It describes underlying assumptions, model structure, application developed for modeling and the way it can be used. It summarizes the conclusions of using simplified model that will be used for developing the general model (GITAR). – J. Chabik, C. Orłowski.

Chapter 48. **A proposal of metodology for testing clients requirements against employed information technology.** Many researches on the client's requirements who engage the information technology in the business reveal significant mismatch in client's expectations and technology vendors offerings. The technology users need to know from the outset, whether the technology is capable to fulfill their business needs. To ensure purposefulness of the subject matter, it is planned to explore environment of the information technology being in use in a few selected enterprises where the technologies are significant business support. It is a first step on the way to work out the model of the system for the clients' requirements management in the technology change conditions. – K. Turek, C. Orłowski.

Chapter 49. **Knowledge resources management model in the information technology evaluation environment.** The chapter presents concept of multiagent system for evaluation of information technologies. Such system is being developed in by Information Technology Management Team. The model of knowledge bases required for such system was presented. Such model was verified in environment of IT evaluation applied for supporting information technologies management process. For that purpose 3 experiments were prepared and made which covered standard functionalities assessment, adding new functionalities influence of IT project environment on such evaluation. – T. Sitek, C. Orłowski.

Chapter 50. Ontology management model in an information technology evaluation environment. This chapter presents an early prototype of the ontology built for the purpose of a multi-agent system for the information technology evaluation (MAS_IT). Exemplary IT project management applications are discussed. The main issue stated in the text regards the process of the ontology creation and its further development. As there is no single method (if any) how to manage this process, a knowledge engineer faces certain principal questions during the ontology life-cycle. – A. Czarnecki.

Chapter 51. IT evaluation using a functional prototype of multiagent systems. This chapter considers using multiagents systems for IT tools evaluation, especially the tools for supporting information projects management. Authors focused on evaluation of three popular tools like IBM Rational Method Composer, IBM Rational Unified Process and IBM Rational Portfolio Manager. In this chapter some evaluation criteria are proposed. These criteria are tied with managers' point of view. This chapter contains notes based on proposed criteria too. There are plans of experiment described too. The goal of the experiments is check how can multiagents system generates notes during changing the input criteria. In the end, there is comparative analysis of generated notes. – C. Orłowski, A. Ziółkowski.

Chapter 52. Estimation of the IT technologies, using Mind Map techniques, modeling, and expert estimation. At the beginning, the chapter describes the substance of IT technologies estimation in business. Next it presents the experiment of technology assessment basing on Eclipse environment, carried out by author. The description of experiment includes assumptions, targets related to assessment, experiment processes, as well as experiment results. Next chapter describes the methodology developed by the author. The methodology, can by used for the assessment of any IT technology. Finally, the author speculates about future of this methodology, and possibilities of its further development and improvement. – M. Żylicz.