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JOURNAL OF INFORMATION SYSTEMS & OPERATIONS MANAGEMENT

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(**1**)

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FOREWORD

In 1991 the Romanian-American University was established in Bucharest, Romania, an institution entirely committed to promoting the values of American academic education on the background of the rich traditions of the Romanian education well-known abroad.
The initiator and founder of this university is Professor Ion Smedescu Ph.D., Rector of the Romanian American University, President of the Romanian American Foundation for the Promotion of Education and Culture, active member of the New York Academy of Sciences.
The university comprises six Faculties, whose number of students is more than 15.000:

- The Department of Studies for European Economic Integration;
- The Department of Management - Marketing;
- The Department of Domestic and International Commercial Financial - Banking Relations;
- The Department of Domestic and International Economy of Tourism;
- The Department of Computer Science for Business Managemnent;
- The Law School.
- We also have approximately 2.000 students enrolled in graduate programs. Our main focuses are business and law.

The university has been accredited through Law nr. 274 as of May 15, 2002, and operates as a higher education institution enjoying its full rights, as well as facing its due responsibilities. The university is a statutory warrant for its students, as well as a guarantee of stability, promotion and increased performance of its academic body.
For more information: **www.rau.ro**
Starting with the academic year 2002-2003, the Ministry of Education and Research gave the Romanian-American University from Bucharest the approval to organize Master's Degree programs. There are currently 9 ongoing Master's Degree programs organized by majors and coordinated by the respective departments in the University.

The students enrolled in the Computer Science in Economics MS program present the results of their research activity in the "INFORMATION SYSTEMS & OPERATIONS MANAGEMENT" workshop. Each of the six editions of this workshop, which took place

during the semesters of each academic year, have been honored by students from abroad enrolled in the BRIE MA Program organized by the Academy of Economic Studies and in the "Computer Science" Program organized by the University "Politehnica" Bucharest. The first number of the "JOURNAL OF INFORMATION SYSTEMS & OPERATIONS MANAGEMENT" contains the representative papers selected from the six editions of this workshop.

We express our thanks to participants, to our colleagues from the Romanian- American University, Academy of Economic Studies and University "Politehnica" Bucharest, whose efforts, skills and understanding contributed to the welfare of the workshop. We would also like to thank the authors of these projects for presenting their research. In particular, we thank the chairmen of the different sections for their continuous support, our gratitude to Professor Ion Ivan and Professor Ion Bucur, two of the initiators of this project. We also like to thank our Assistant Professor Gabriel Eugen Garais and Assistant Professor Mariana Coancă for their diligence in preparing the final version of the projects.

Bucharest, July, 2009

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Romanian –American University

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ALIGNMENT OF BUSINESS AND IS/IT STRATEGY AT TELENOR SWEDEN

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Abstract
Neculau, Andrei. Habib, Stephanie. Henriksson, Aron. Magarian Kenaraki, Miganoush Katrin. Liu, Yuanchang. 2009. Alignment of Business and IS/IT Strategy at Telenor Sweden.
Keywords: strategic alignment, IS/IT strategy, business strategy, organizational strategy, case study, Telenor

HOW TO FIGHT AGAINST THE ACTUAL GLOBAL ECONOMIC CRISIS

by *Prof.Eduard RADACEANU, PhD, El.Eng, c.m.of ASTR*
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Abstract . There is presented the methodic connections between some concepts and methods to be used in the management of the global & national crisis and of the sustainable development in Romania, Restructuring / reengineering of the firm as well as the more general problem of technological and managerial evolution by analogy with evolution theory in biology are also presented.

Key words: economic crisis, restructuring, sustainable development, EU funds.

IT GOVERNANCE AND BUSINESS CORPORATE STRATEGY – BASED ON EMBEDDING THE PROGRAM AND PROJECT MANAGEMENT WITH THE IT&C VALUE CHAIN

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Abstract: This paper presents the key concepts related to the current process of IT Governance in modern corporations.

The first part addresses the definitions of IT Governance and its life-cycle model, the covered strategic areas and the effective governance management ways, the IT value management for ensuring value delivery, and the IT value chain based on projects and programs together with the organizational value of the IT&C programs and projects.

The second part deals with the IT value chain based on operations, the strategic-factors of success and the services delivery chain, the value chain management and the contribution measurement to the organizational business, with a final presentation of practical applicability of the mobile value chain to the 3G mobile communication services. Recent IT&C and corporate strategic management field references bring an additional support to the paper value.

TOWARDS ENHANCED E-COLLABORATION IN ACADEMIA A HOLISTIC MODEL FOR DEVELOPMENT OF E-COLLABORATION SOFTWARE

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Abstract

Henriksson, Aron. Neculau, Andrei. 2008. Towards Enhanced E-collaboration in Academia. A Holistic Model for Development E-collaboration Software. The Royal Institute of Technology, Stockholm, Sweden. Information and Communication Technology.

E-collaboration is an inherently complex activity that encompasses many factors that supplement the pivotal technical elements. This paper investigates the various aspects of e-collaboration from an academic viewpoint, and reiterates the call for a holistic approach towards e-collaboration research and development. Moreover, the use of collaboration tools by IT students is surveyed, which substantiates the belief that e-collaboration needs to be further promoted in academia. We present a conceptual model that hopefully can provide some guidance for further research on e-collaboration and development of e-collaboration suites.

Keywords: E-collaboration, Academia, Requirements, Boundaries, Holistic

THE IMPACT OF PROGRAMMING LANGUAGES ON THE SOFTWARE'S SECURITY

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Abstract

Security is usually defined as the ability of a system to protect itself against accidental or deliberate intrusion[1]. Ensuring integrity, confidentiality, availability, and accountability requirements even in the presence of a determined, malicious opponent is essential for computer security. Sensitive data has to be manipulated and consulted by authorized users only (integrity, confidentiality). Furthermore, the system should resist "denial of service" attacks that attempt to render it unusable (availability). Also the system has to ensure the inability to deny the ownership of prior actions (accountability).

In more colorful language, computer security has been described as "programming Satan's computer[3]": the designer must assume that every weakness that can be exploited will be[2].

Security is a characteristic of a complete system, and involves many different topics, both computer-related (hardware, systems, networks, programming, cryptography) and user-related (organizational, social policies and laws)[2]. While system designers typically develop secure systems architectures at higher levels than the programming languages; the principal contribution of programming languages to the security of the whole system is low- and intermediate-level support for high-level abstractions[4].

This paper presents some of the proprieties of programming languages that affect the security of the whole system.

INTEGRATED COMMUNICATION AND TRANSPORTATION EFFICIENCY – SOME STUDY CASES

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Keywords: Public Safety, Maritime Rescue Co-ordination Centre (MRCC), AIS, RIS, Air Traffic Management (ATM), Incident and Operative Scenarios, Operability, Efficiency

Abstract

A critical factor in search, rescue or criminal investigation is time – specifically, the time needed to complete a big number of tasks that occur in any emergency. A critical asset in assisting disaster relief teams and public safety personnel in their mission to save lives and defend property loss is the access to resources data – location of personnel, emergency service resources, streets, buildings. The ability to locate resources, on foot or in vehicles, in relation to the local transportation infrastructure in a specific geographic area need to be considered in a new way of managing emergency situations. The TETRA based systems integrated with a wide range of mapping, tracking, alarming and resource-allocations applications used in conjunction with a dispatcher tool allows operational teams to manage a large ground, water and air-based emergency teams using voice and text communications.

The public safety, maritime (e.g. MRCC, AIS/RIS), air traffic management (civil and military), public transport systems have to be designed in order to cover operational scenarios in which they are interconnected. Like this the best premises for an efficient transportation and emergency relief scenarios implementation are set-up. The challenge is to get the different organisations to agree on the operational scenarios. The technical solutions will support them in these operational scenarios implementation.

This presentation will present two study cases in which different systems are connected in order to support the normal and emergency scenarios of transport on land and waterways.

INITIAL VALUE PROBLEMS FOR NONLINEAR DIFFERENTIAL EQUATIONS SOLVED BY DIFFERENTIAL TRANSFORM METHOD

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ABSTRACT

The notion of differential transform was firstly introduced and applied to electrical circuits by J. Zhou, [4]. In the present paper we apply the differential transform method to solve initial values problems for nonlinear differential equations. This method can be easy implemented on the computer because of the recurrence relation established. The chosen example in this paper is proved to have an exact solution. A Maple program is also included. The nonlinear differential equation solved here for a initial value problem was also solved in the papers [2] and [3] for some boundary value problems.

Keywords: **Nonlinear differential equations, initial value problems, differential transform method.**
2000 Mathematics Subject Classification: **34A25, 65L05**

THE COLLABORATIVE LEARNING SYSTEMS USED AS DECISION SUPPORT SYSTEMS

By
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Abstract

This paper reviews a case study in the use of COST/BENEFIT ANALYSIS in project appraisal which serves to illustrate different aspects of the practical problem (using the CBA/PC package) and the Management Game "MANAGER" that simulate all functions for three to nine companies that find in competition. The COST/BENEFIT ANALYSIS case study and The "MANAGER" game illustrate how case study and management games , that simulate competition between companies, can make an useful Collaborative Learning System and can be use into Master Courses.

Key words: Case Study, Management Games, Collaborative Learning Systems

STANDARDS IN CONTROL AND PROTECTION TEHNOLOGY FOR ELECTRIC POWER SYSTEMS

Daniel COSTIANU[1], Nicoleta ARGHIRA[2],
Ioana FĂGĂRĂȘAN[3], Sergiu St. ILIESCU[4]

Abstract: *The features of the standard IEC 16850 with respect to intelligent applications in substations are summarized. It is shown how modeling of functions independently from its allocation to devices allows optimizing existing applications and opening up for future intelligent applications. The data model provides all information in a substation needed not only for control and protection functions but also about the IEDs and the switchgear configuration.*

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NEW APPLICATIONS OF THE ABEL-LIOUVILLE FORMULA

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Abstract. In a recent paper, [1], 2005, the indefinite integrals of a certain type are calculated using some linear homogeneous differential equations of second order with variable coefficients, associated with the integrals. In some simple cases, like the examples considered in this paper, the linear independent solutions of these differential equations are directly calculated relative to elementary functions. In more difficult cases, the power series method must be used. In such situations, it is advisable to use the algebraic symbolic calculus on computer. Examples of this type will be given in a subsequent paper.

Because the main formula from which the integrals can be calculated is not rigorous proved in [1], we give here a correct proof based on the Abel-Liouville formula for the differential equations of second order. For completeness, we give here the proof for this formula and some of its applications, necessary to our work. Also, we included two examples.

Keywords: **indefinite integrals, second order linear homogeneous differential equations, Abel-Liouville formula**..

A QUICK LOOK AT THE FUTURE OF PROTECTION – NINE GUIDELINES TO FOLLOW

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Romanian-American University

With the worst part of the economic crisis gone – at least I hope so ☺ – we can clearly conclude that, despite the real downturns and dropping revenues all over the IT business environment, the information technology did not stop its progress – quite on the contrary, has even developed and launched new and more advanced solutions within both software and hardware fields.

I think it is enough to mention the hardware specialists of INTEL with their new i7 processors family, a very significant evolution if not quite a real revolution, with the Atom series of processors dedicated to netbooks and MICROSOFT with their newest offerings on the operating systems market: the Windows 7 and Windows 2008 Server, with all their different flavors.

WAYS TO CREATE A GREENER TRAFFIC USING TRAFFIC MANAGEMENT SYSTEMS and RTTI

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Keywords: traffic, B2B services, traveler information, eco-driving, RTTI[5]

1. Abstract

The continuous increase of traffic in major cities led to the mandatory usage of traffic management systems in order to have an organized traffic. There are many levels such systems may be implemented, depending on the traffic volume, starting from the static signaling systems up to management systems based on complex algorithms that consider a series of key factors. But in the recent years two new factors were considered in the process of finding solutions for traffic management: control of the pollution level and energy efficiency. There were some studies that concluded that the two measures which have the greatest impact in pollution reduction are the change in drivers' behavior and the mobility management (in this order) and many European projects tried to integrate the environmental component in the traffic management problem.

[5] Real Time Traffic/Travel Information

DSRC – NEW PRINCIPLES AND IMPLEMENTATIONS IN ITS ROMANIA

Florin GRAFU, Angel CORMOS, Valentin IORDACHE

ABSTRACT

Cities around the world are suffering from severe traffic congestion resulting in economic losses via delayed time, fuel consumption, traffic accidents, air pollution and traffic noise. An efficient wireless technology used in the road-to-vehicle radio communication can help reducing this negative effects and improve traffic parameters. Active **DSRC** is one of the most reliable road-to-vehicle communication methods available in the market today, since it has wide communication area and high-speed communication and is the most suitable for non-stop toll collection system, especially for multi-lane free-flow toll collection system, where vehicles can pass the toll gantry without reducing speed. The Active **DSRC** also supports other **ITS** applications related to road-to-vehicle communication applications that need high speed communication, and can improve public transportation, help to reduce air pollution, NOx and CO2, and road noise via a decline in traffic.

ELECTRONIC BUSINESS

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Key-words: eBusiness, eEconomy, eCommerce, Internet, technology

Abstract:

Electronic Business, commonly referred to as "**eBusiness**" or "**e-Business**", may be defined as the utilization of information and communication technologies (ICT) in support of all the activities of business. Commerce constitutes the exchange of products and services between businesses, groups and individuals and hence can be seen as one of the essential activities of any business. Hence, electronic commerce or eCommerce focuses on the use of ICT to enable the external activities and relationships of the business with individuals, groups and other businesse. Many people only see in eBusiness the selling and marketing of products and services via the Internet. But reality shows that this opinion does not hold any ground. The purpose of this paper is to give an overview about eBusiness including definitions, perceptions and models. The main part of this work addresses the importance of the whole value chain and defined business processes within an organization. Michael E. Porter′ value chain model will be used to provide a general idea about value chains within an organization. The second part brings the "basic" value chain in relation to eBusiness and illustrates the importance of it for companies and organizations.

THE EUROPEAN EMERGENCY NUMBER 112

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Keywords: 112, emergency call, European Union

ABSTRACT

The working of the 112 Emergency Call System is a natural need in a civilized country that has as a main objective to protect its citizens. The single European emergency number 112 was introduced to enable citizens to call the emergency services (such as police, ambulance and fire brigade) by using the same number anywhere in the European Union (EU). This is especially important as European citizens increasingly travel to other EU countries for work, study or leisure. According to EU legislation, Member States must ensure that users of any type of telephone, fixed or mobile are able to call the emergency services free of charge by using the European emergency number 112. This number is now available in all Member States.

POWER PLANTS AUTOMATION AND CONTROL USING PLC TEHNOLOGY

Costianu Daniel Razvan[1], Arghira Nicoleta[2], Ioana Fagarasan[3], Sergiu Stelian Iliescu[4]

***Abstract**: This paper describes the Advanced System Simulator ASIMA that uses a microprocessor for its internal functions. In the existing configuration, a Siemens Simatic S7 300 is used to study different the control functions. The automatic operating of a Conveyor Charging System is illustrated in the paper taking in account the control scheme..*

eCall ROAD MAP IMPLEMENTATION STUDY

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Keywords: eCall, European eCall Implementation Platform, National eCall Implementation

Abstract

eCall is an emergency call either generated manually by vehicle occupants or automatically via activation of in-vehicle sensors when an accident occurs. When activated, the in-vehicle eCall system establishes a 112-voice connection directly with the relevant PSAP (Public Safety Answering Point), which is a public authority or a private eCall centre that operates under the regulation and/or authorisation of a public body.

The Driving Group on eCall is one of the Working Groups established by the European Commission under the eSafety Forum. eSafety is a joint industry/public initiative for improving road safety by using new Information and Communications Technologies. The overall objective is to join forces and build up a European strategy to accelerate the research and development, as well as deployment and use of Intelligent Integrated Safety Systems including Advanced Driver Assistance Systems (ADAS) for increasing road safety in Europe.

The eCall Driving Group released a Memorandum of Understanding (MoU) in August 2004 that calls for stakeholders to actively investigate feasible and sustainable eCall solutions and potential business cases. The MoU lists the necessary arrangements for implementation of the eCall action plan and sets out the measures to be taken by the European Commission, Member States, automotive industry, telecoms and insurance industries.

SMART CARDS - UTILITY, APPLICATIONS AND VULNERABILITIES

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Key words: smart cards, e-payment, vulnerabilities, security

Abstract

The Internet has taken its place beside the telephone and television as an important part of people's lives. Consumers use the Internet to shop, bank and invest online. Most consumers use credit or debit cards to pay for online purchases, but other payment methods, like "e-wallets," are becoming more common. But not all the payments are safe there are a lot of fake sites, hackers, viruses.

MAC OS X VERSION 10.5 “LEOPARD”

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Computer Science - Secure Software Systems

Abstract

Mac OS X version 10.5 “Leopard” is the sixth major release of Mac OS X. This operating system is the successor of Mac OS X v10.4 "Tiger". Leopard was released on 26 October 2007, and is available in two variants:

- a desktop version (for personal computers)
- a server version (Mac OS X Server)

CUSTOMER RELATIONSHIP MANAGEMENT ANALYZE FOR ON-LINE STORE

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Abstract. *Over the past years, the online environment has known a fast development and growth world wide proving its efficiency in various areas and becoming more present in everyday life. A smaller percentage of visits come from web directors, these are seen as databases organized by activity domain. Direct visitors are fewer. That is why search engine optimization (SEO) is the most efficient and less expensive way of promoting a web site. Visitors that are looking for a specific product or service are directed towards the sites that suit the best their wants. This paper is trying to offer a concrete image regarding the optimum mix in e-commerce focusing on the strategy used and on the SEO tools, elements which are very important for e-business to generate traffic and build a suitable Customer Relationship Management(CRM).*

Keywords*: SEO strategy, CRM, e-commerce, traffic, search engine*

CRISIS EFFECTS ON VIRTUAL IT COMPANIES

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Abstract

Financial crisis has influenced all the economies around the world. Looking back, humanity was faced with same situations. To understand the actual situation it is important to study the history of previous crisis situations.

A similar situation happened during the IT crash. Some, even, believe the crash of the dot-com bubble contributed to the actual situation. The biggest capital investment during the bubble years was probably in human capital. The rush for financial success led to a whole generation of young adults immersing themselves in technology.

Nevertheless IT has an important influence on nowadays economy this is the reason of the present study. Here will be presented one of the world largest companies in IT and analyzed using few financial methods (comparative statements, ratio analysis, cash flow analysis).

CHARACTERISTICS AND EVALUATION METHODS OF THE CASE TOOLS

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ABSTRACT

The acronym CASE – Computer **A**ssisted **S**oftware **E**ngineering – is the term used to indicate a collection of methods, tools and processes used in the development of software products with the assistance of the computer.

INTRODUCTION IN RDS SYSTEM

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ABSTRACT

This article aims to give a basic explanation of the process of bringing RDS broadcast traffic information to a new country or area. RDS makes possible to inform drivers, via their navigation systems, about delays, problems or dangerous events on their route and can therefore improve the efficiency and safety of road travel. RDS is an excellent example of ITS (Intelligent Transport Systems and Services) deployment and has been rolled out in many countries worldwide.

Keywords: radio data system, transmission systems, broadcasting

TEN STEPS TO INCREASE THE KNOWLEDGE FOR AN EFFICIENT MANAGEMENT OF THE INTELLECTUAL CAPITAL IN THE ENTERPRISE BUSINESS INTELLIGENCE

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ABSTRACT

In order to develop intelligent business for become competitive, the enterprises must increase the quality and technologic level of products and services conform with applicable codes and standards, to have permanent new products or to make old products bettering, to respect the market rules, the applicable laws and to have a good price politic.
These activities request a large amount of date, information and knowledge collecting from all sources and then transferring at each enterprise level.
This work analyses the state of the art of the knowledge management and it propose a methodological model, based on the occurrence of conversion types of the knowledge to be used during the product development process.

Keywords: Business intelligence, knowledge transfer, knowledge applications, knowledge capitalization, knowledge management.

A COMPARISON OF THE MOST POPULAR ELECTRONIC MICROPAYMENT SYSTEMS

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ABSTRACT: The buying and selling of products or services over electronic systems such as the Internet and other computer networks is known as electronic commerce. In order to reduce the costs of electronic transactions, when one exchanges cheaper goods and services, specific payment protocols must be used. These protocols are actually the foundation for electronic micropayments, which implement simplified and cheaper schemes intended for small value transactions. In this paper we shall present and compare the main characteristics of the most popular micropayment systems used in both face-to-face and remote commerce.

Keywords: e-commerce, micropayment, security, encryption, Chipper, GeldKarte, Mondex, Proton, First Virtual, NetBill, KLELine, Odysseo, MicroMint.

VALIDATING COOPERATIVE SYSTEMS SIMULATION AND REMODELING FOR PUMP COVER DESIGN AND MANUFACTURING IN A VIRTUAL ENTERPRISE

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ABSTRACT

In order to integrate the manufacturing systems in virtual environment some changes must be made in manufacturing systems architecture. To support this environment, the basic infrastructure for the enterprise must to consider two main modules: The Internal Module, that represents the autonomous unit of a particular company and includes the manufacturing system, the complete structure of the company information (databases, information system etc.) and all the decision making processes;

The Cooperation Layer, which contains all the functionality for the interconnection between the company and the whole net/environment.

The aims of this paper are to propose several techniques for manufacturing systems remodeling in order to integrate them in virtual enterprise environment, and to validate those techniques by manufacturing simulation.

The main problem in this integrated environment consists in the management of connections and data exchange between the CAD-CAM-CAE systems.A solution represents a cooperative system for product design and development based on CAD-CAM-CAE techniques.

In this paper we intend to present a case study involving 3 different modules located in different places acting in the same CAD/CAM/CAE project (a pump cover).

Keywords: virtual enterprise, manufacturing systems, remodeling, simulation, cooperative systems