

A contribution to development of methods for E-business and E-commerce

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Abstract—*This paper represents an annotated bibliography of interest for development on new internet-based strategies for efficient company management, effective customer-relationships, development, outsourcing, and negotiation infrastructure in mobile semantic web, with a special emphasis on transitional economies. Each bibliographical unit (a paper) to be presented belongs to the one of the following categories:*

TE (Transition economies)

EB (Electronic business)

MB (Mobile business)

SW (Semantic web)

IS (Internet strategies)

CRM (Customer relationship management)

OS (Outsourcing)

NG (Negotiation)

MM (Marketing methods)

SC (Supply chain) and

MG (Management).

The approaches described in presented papers can serve as justification for the application of a novel approach introduced by this author: iterative gradual refinement based on the back tracking and feedback (IGRBTF). This paper concludes with the essence of the proposed approach, which is the subject of a follow-up paper.

1. INTRODUCTION

The field of interest for this study includes a vast body of knowledge. However, this study includes only the work which is of interest as a justification for a new approach elaborated later on.

Each paper is presented in a uniform way, with approximately one extended sentence, which points to the essence. For easier reading, all relevant references are classified, and listed at the end of this survey.

2. CLASSIFICATION

The basic classification used in this paper is flat, but it can easily be made hierarchical, if so necessary for future research.

Basic classes are defined in the abstract and more precise descriptions are presented next, from a number of various sources. More elaborated descriptions can be found in the open literature.

2.1 .Definition of the TE class

The term "transition economy" has often been used to describe the process of change in economies (such as in Eastern Europe) which are passing from a socialist economic system to a free market system based on private property. Transition economies undergo economic liberalization, letting market forces set prices and lowering trade barriers, macroeconomic stabilization, where immediate high inflation is brought under control, as well as restructuring and privatization, in order to create a financial sector and move from public to private ownership of resources.

2.2 Definition of the EB class

Electronic business (e-business) is any process that a business organization conducts over a computer-mediated network. It does not include only buying and selling, but also servicing customers and collaborating with business partners. Today, this is mostly done using the Web-based technologies.

2.3 Definition of the MB class

Business combines business processes, electronic business, and digital wireless communications (in other words, doing business using wireless services). It also means delivering real-time action and information anytime, anywhere via Web, e-mail, and mobile devices to employees, managers, partners, and customers. Mobile business technology enables you to achieve high organizational agility and deliver data, services, and products to customers wherever they are.

2.4 Definition of the SW class

The Semantic Web is a technology that intends to create a universal medium for information exchange, by putting documents with computer-processable meaning (semantics) on the World Wide Web. The Semantic Web is about two things: common formats for interchange of data (where on the original Web we only had an interchange of documents) and language for recording how the data relates to real world objects. For the semantic web to work in everyday applications computers must have access to structured collections of information

and sets of inference rules that they can use to conduct automated reasoning.

2.5 Definition of the IS class

Internet Strategy presents a comprehensive plan to clearly define one party's goals for its own web site, vision to be transferred to the visitors of the web site, and how the website will achieve the purpose one party has for it. In other words, it is the plan for using the World Wide Web to add long-term value to one's company. Globally, it is a "game" plan that one will use to expand either e-business (enhancing business to business capabilities and transactions over the web) or eCommerce (providing goods and services over the web to one's customers).

2.6 Definition of the CRM class

Customer Relationship Management is a business strategy to identify, cultivate, and maintain long-term profitable customer relationships. It requires developing a method to select your most profitable customer relationships (or those with the most potential) and working to provide those customers with a service that exceeds their expectations. CRM entails all aspects of interaction a company has with its customer, whether it is sales or service related. For example, an enterprise might build a database about its customers that described relationships in sufficient detail so that management, salespeople, people providing service, and perhaps a selected customer can directly access information, match customer needs with product plans and offerings, remind customers of service requirements, know what other products a customer had purchased, and so forth.

2.7 Definition of the OS class

Outsourcing (or contracting out) is often defined as the delegation of non-core operations or jobs from internal production within a business to an external entity (such as a subcontractor) that specializes in that operation. Outsourcing is a business decision that is often made to lower costs or focus on competencies. Basically, it is contracting with organizations outside your country for work that could otherwise be done by employees within your company. Business process outsourcing is the act of giving a third-party the responsibility of running what would otherwise be an internal system or service. Typically, companies that are looking at business process outsourcing are hoping to achieve cost savings by handing the work to a third-party that can take advantage of economies of scale by doing the same work for many companies.

2.8 Definition of the NG class

Negotiation is a business process by which parties involved try to decide upon the issue of each party's contribution to the entire deal. It begins with an overview of the concepts of negotiation in businesses and goes on to different types of negotiation methods and technology's impact upon them. A business negotiation policy is a general guiding principle for achieving a business negotiation goal under some specified conditions. Negotiation process must be moral or ethical, it must respect the inherent worth and dignity of those involved or affected.

2.9 Definition of the MM class

Marketing is the act or process of buying and selling in a market. It is an organizational function and a set of processes for creating, communicating and delivering value to customers, and also for managing customer relationships in ways that bring benefit to the organization and its stakeholders. Marketing can be observed as a tool to help promote economic growth and development in a community.

2.10 Definition of the SC class

A supply chain, logistics network, or supply network is a coordinated system of organizations, people, activities, information and resources involved in moving a product or service in physical or virtual manner from supplier to customer. The primary objective of supply chain management is to fulfil customer demands through the most efficient use of resources, including distribution capacity, inventory, and labour. The supply chain is typically comprised of multiple companies who are increasingly coordinating activities via an extranet.

2.11 Definition of the MG class

Management represents the group of individuals who make decisions about how a business is run, the person or persons who control or direct a business, or other enterprise. Also, it can be the initiation and maintenance of an investment portfolio. Project management is the discipline of organizing and managing resources in such a way that these resources deliver all the work required to complete a project within defined scope, time, and cost constraints. Knowledge Management caters to the critical issues of organizational adoption, survival and competence in face of increasingly discontinuous environmental change.

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In principle many other classifications can be generated. This one includes only the issues of importance for the specific research of the author, related to a newly proposed approach.

3. PRESENTATION

Each one of the above defined classes includes examples, which are presented next (minimum three per class).

3.1. The TE class

The TE class includes 4 papers, and their essence is presented next.

Paper [Guru 2002] investigates and analyses the specific conditions of an economy in transition (Romania), and the appropriate strategies for the implementation and use of e-banking.

Paper [Hadidi 2006] is dealing with the issue of implementing e-finance related initiatives, in order to achieve the United Nations Millennium Goal.

Paper [Vij 2006] focuses on the on the issues and challenges in e-banking, with a special focus on the regulatory and taxation issues.

Paper [Alter 2001] investigates the fundamental concepts in information systems, in the light of different meaning and implications of e-business and questions about the nature of the user in e-business.

3.2. The EB class

The EB class includes 12 papers, and their essence is presented next.

Paper [Tan 2006] analyses and specifies agent security services for as Agentcities banking services.

Paper [Yibin 2003] instigates new challenges in E-banking related to policy implications from the prospective of society, banks, and regulatory authority as well as government.

Paper [Kerem 2006] presents the development of a small and successful example of fast introduction of information and communication technologies in Estonia, in spite of the fact that little more than ten years ago it was a technologically relatively backward Soviet country.

Paper [AL-Taitoon 2004] discusses how a global help desk unit accomplishes help to mobile professionals in a global banking organization. This is achieved through analysis of the call tickets from the global helpdesk tracking system.

Paper [Malhotra 2002] examines the key assumptions of any informatics strategy and demonstrates why they should be considered afresh.

Paper [Ahearne 2006] performs a study within one company and mixes multiple data sources in order to analyse sales person performance.

Paper [Hawkins 2006] deals with e-business from both philosophy and technology aspects.

Paper [Galbraith 2006] examines the valuations of B2B Internet firms, and the issue of post-IP short-term under pricing (not good for profit) and long-term underperformance (also not good for profit).

Paper [Lee 2006] observes e-business like a tool for effective Internet-based computing and communications to execute both front-end and back-end business processes.

Paper [Aissi 2006] proposes a Process Coordination Framework for Web services and outlines the building blocks required for e-business automation.

Paper [Papazogly 2001] promotes a use of new global networking possibilities like sharing sales data, customer buying patterns, and future plans in order to achieve better revenue.

Paper [Geoffrion 2006b] presents the idea to connect operations research with related analytic technologies and information technologies as a vital engine of further development for the digital economy.

3.3. The MB class

The MB class includes 4 papers, and their essence is presented next.

Paper [Ropers 2006] investigates mobile business opportunities to create new revenue streams and enhance customer profitability and retention without breaking a successful e-business strategy.

Paper [Kim 2004] analyses e-business implication of the mobile Internet.

Paper [Camponovo 2006] focuses on the strategic uncertainties in a mobile business, where a large number of actors are trying a number of strategic approaches to position them in the most favourable position in the value system.

Paper [Giaglis 2006] extends the definition of mobile business to include a complementary set of 'micro' applications in indoor environments (such as museums, exhibitions, hypermarkets, and others), where location awareness can become a crucial parameter of value-added service provision.

3.4. The SW class

The SW class includes 4 papers, and their essence is presented next.

Paper [Losada 2005] contains the WSMO descriptions of the Semantic Web Services that will be deployed in the context of the mortgage comparison application.

Paper [Osterwadler 2002] introduced new e-business model ontology in the light that using

the concepts of business models can measure, simulate and learn more about the different aspects of e-business.

Paper [Gordijn 2006] presents a conceptual modelling approach to b-business called e3-value that is designed to help define how economic value is created and exchanged within a network of actors.

Paper [Gisolfi 2001] explores the business impact of web service, how to identify a relevant solution opportunity, and how to evaluate the many vendor strategies building around this technology.

3.5. *The IS class*

The IS class includes 8 papers and their essence is presented next.

Paper [Porter 2006] discusses the strategy used in Internet technology to shift the basis of competition away from quality, features, and service and toward price, making it harder for anyone in their industries to turn a profit.

Paper [Damanpour 2006] analyses cooperation integration dealing with the issues like customer loyalty, profitability, and competition advantage in the domain of e-business.

Paper [Bradshaw 2006] presents extensive research conducted over several years by Ovum researchers posing as customers into customer relationship management, call centre, and e-commerce strategies, and the software required to support them.

Paper [U.S Department of Commerce 2000] analyses issues of dramatic cost reductions in computers, computer components, and communication equipment as an important influence of U.S. economic expansion.

Paper [Gupta 2001] discusses issues in adapting and creating technologies used to design, build and deliver e-business applications.

Paper [Akkermans 2006] analyses information technology as a key strategic factor in industry, not just a tool to increase business-as-usual efficiency.

Paper [Kauffman 2003] presents various phenomena in the field; just as the Internet has changed the way many businesses conduct business, the Internet can also change the way academic researchers gather data.

Paper [Baake 2000] focuses on e-business applications (i.e., IT-applications) based on Internet technologies that support all types of business processes and products of an enterprise.

3.6. *The CRM class*

The CRM class includes 4 papers and their essence is presented next.

Paper [Rygielski 2006] observes (through data mining) the extraction of hidden predictive information from large databases - organizations

can identify valuable customers, predict future behaviours, and enable firms to make proactive, knowledge-driven decisions.

Paper [Massey 2006] describes a 4-year initiative undertaken by IBM to re-engineer its customer relationship management process and capitalize on knowledge-based resources.

Paper [Romano 2002] presents the status and maturity of electronic commerce customer relationship management, an emerging subfield of management information systems. It is investigated through an exhaustive literature review of 369 articles from the first published article in 1984 through conference papers given in 2001 and 2002.

Paper [Grönroos 2006] discusses the nature and sometimes negative consequences of the dominating marketing paradigm of today, marketing mix management, and furthermore discusses how modern research into, for example, industrial marketing and services marketing, as well as customer relationship economics, shows that another approach to marketing is required.

3.7. *The OS class*

The OS class includes 3 papers and their essence is presented next.

Paper [Zeidler 2001] discusses the value of outsourcing in the light that it delivers the best class people, processes and technology under a pricing arrangement those benefits from economies of scale.

Paper [Schubert 2001] analyses the issues in "virtual world," where e-government and e-business are joined and working together.

Paper [Ono 2001] examines outsourcing to test whether productivity-enhancing specialization is facilitated in bigger cities.

3.8. *The NG class*

The NG class includes 3 papers and their essence is presented next.

Paper [Hammer 2000] presents architecture and framework, including negotiation protocol for automated negotiations applying multiple IDEAL (Internet-based Dealmaker for E-business) servers.

Paper [Kumar 2006] explains the commonality in the structure of different price negotiation mechanisms such as fixed price sales, various forms of auctions, and brokerages.

Paper [Beam 2006] provides a definition of automated negotiation within electronic commerce. It outlines two barriers to automated negotiation: the ontology issue and the strategy problem.

3.9. *The MM class*

The MM class includes 3 papers and their

essence is presented next.

Paper [Luo 2001] presents trust production and privacy concerns on the Internet as a framework based on relationship marketing and social exchange theory.

Paper [Barakat 2006] approaches marketing as the business function that identifies customer needs and wants, determines which target markets the organization can serve best, and designs appropriate products, services, and programs to serve these markets (basically it is a tool that guides the entire organization).

Paper [Grönroos 2006] discusses the nature and sometimes negative consequences of the dominating marketing paradigm of today, marketing mix management, and furthermore discusses how modern research into, for example, industrial marketing and services marketing, as well as customer relationship economics, shows that another approach to marketing is required.

3.10. The SC class

The SC class includes 3 papers and their essence is presented next.

Paper [Tatsiopoulos 2006] presents research results in the area of Extended Production Data Management System development, which supports (by the business processes) order management, subcontractor selection, and multi-site/multi-firm production orders release.

Paper [Johnson 2002] examines how the Web is changing supply chain management.

Paper [Chopra 2006] deals with the question of Internet value in a firm, in the light that such a value strongly depends on the firm's industry and firm's strategy that it pursues.

3.11. The MG class

The MG class includes 3 papers and their essence is presented next.

Paper [Phan 2002] presents a study of e-business competitive advantage strategies using the success of Intel as an example.

Paper [Barua 2006] identifies the critical links between e-business drivers, financial indicators, and operational excellence measures.

Paper [Geoffrion 2006 a] analyses the impact of the emerging digital economy on management science research.

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This survey covers a relatively broad list of topics; however, for all the covered topics, one can say that the existence of the Internet and present-day high technology, enables one to create an iterative feedback- based approach to treatment of selected issues in e-business and e-commerce, and wider.

The presented literature shows a drawback of all solutions elaborated in the here before

specified literature. This is the fact that the first step solution, based on the Internet data, is never optimal. One has to do iterative step-by-step refinement, cautiously taking into account the effect of the previous iterations. This is done by connecting feedback and facts. This is especially the case in the countries in transition. This means the solutions from strong economies have to be applied cautiously and taking into considerations feedback facts (culturally and economically specifics make a difference).

In other words, some of the presented approaches include elements of look-ahead and are proactive, but none of them include a solid algorithmic base for iterative refinement based on feed-back. Therefore, there is obviously a room in this field for innovations based on iterative refinement and feedback.

4. ESSENCE OF THE PROPOSED APPROACH

Essence of the proposed new approach can be understood from the title of the approach: Iterative gradual refinement based on the back tracking and feedback (IGRBTF).

One can make a business decision which is believed to be correct (approximately correct), and then one can employ high-tech monitoring tools (including the Internet), to see the effects. If effects (according to the selected performance measure) are showing a positive trend (no matter what is the chosen criterion of positive trend), one can continue with a more detailed model of decision-making. One can proceed (with a constant awareness about feed-back) through the whole business process. A pseudo-code for the IGRBTF may look as follows (subject to improvement in the follow up research):

While the business process is in progress, Do:

- a. Make an appropriate decision
- b. Establish performance monitors
- c. Track the effects of the decision
- d. Create the feed-back analysis, based on output from performance monitors.
- e. Do not stop if results satisfactory, since the environment may change in the near future; do keep informing upstream the decision-making process about the current state-of-the art.

End Do!

This approach ensures that, especially in rapidly changing economies, the decision-making process will become adaptive to the changing's in the environment. This issue is of importance both for established markets, and for markets that are developing.

The follow-up paper develops this pseudo-code into more details and applies the approach to the specific environments of financial auditing, e-government, and digital economy in Serbia.

5. CONCLUSION

This paper first presents a survey of a number of related fields, and tries to extract the essence from a number of relevant references. Then, it presents the findings and proposes a business decision making methodology, applicable to general e-business and e-commerce based on telecommunications, and wider.

Various groups of researchers and practitioners can benefit from this paper. It can serve as a starting point for reading, for those who like to enter the field, and it can also serve as the starting point for research efforts to create new methods based on high-tech tools or the Internet.

The future work implies a more rigorous survey of selected papers, as well as the development of a detailed methodology, based on the pseudocode presented here. Of course, theoretical and empirical evaluation of the proposed methodology has to be completed in the future, too.

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