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TOURISM AND E-BUSINESS: THE SEMANTIC PARADIGM AS A PRE-CONDITION FOR SUCCESS

TURIZAM I POSLOVANJE PUTEM WEBA: SEMANTIČKA PARADIGMA KAO PREDUVJET USPJEŠNOSTI

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Abstract

The development of technology in many ways determines the business concepts and way of business processes at all levels of business. Tourism business, today can not be imagined without the integration of Internet and the Web in everyday business practice. Semantic Web (which deals with aspects of the meaning) is an extension of the World Wide Web as seen through the integration of "machine" technology and human intelligence (human brain), and is often described in different ways as a utopian vision, website data-information, or paradigm change in everyday use of web. Modern business via the web starts from the behavioral approach of all involved in the business process, particularly in the area of online promotion, whereby the base of a dynamic web site should be automatism which is based on the results of semantic analysis.Business via the web is increasingly important and dominant in the business. Business "Systems" - companies in the tourism industry must follow modern trends and continuously adopt technological changes from the global context.In this way the positive effect is visible at the web site user side (satisfaction) and on the better business results on the other hand. The main feature of this paper is to present behavioral models in the tourism business through the prism of the Semantic Web paradigm.

Sažetak

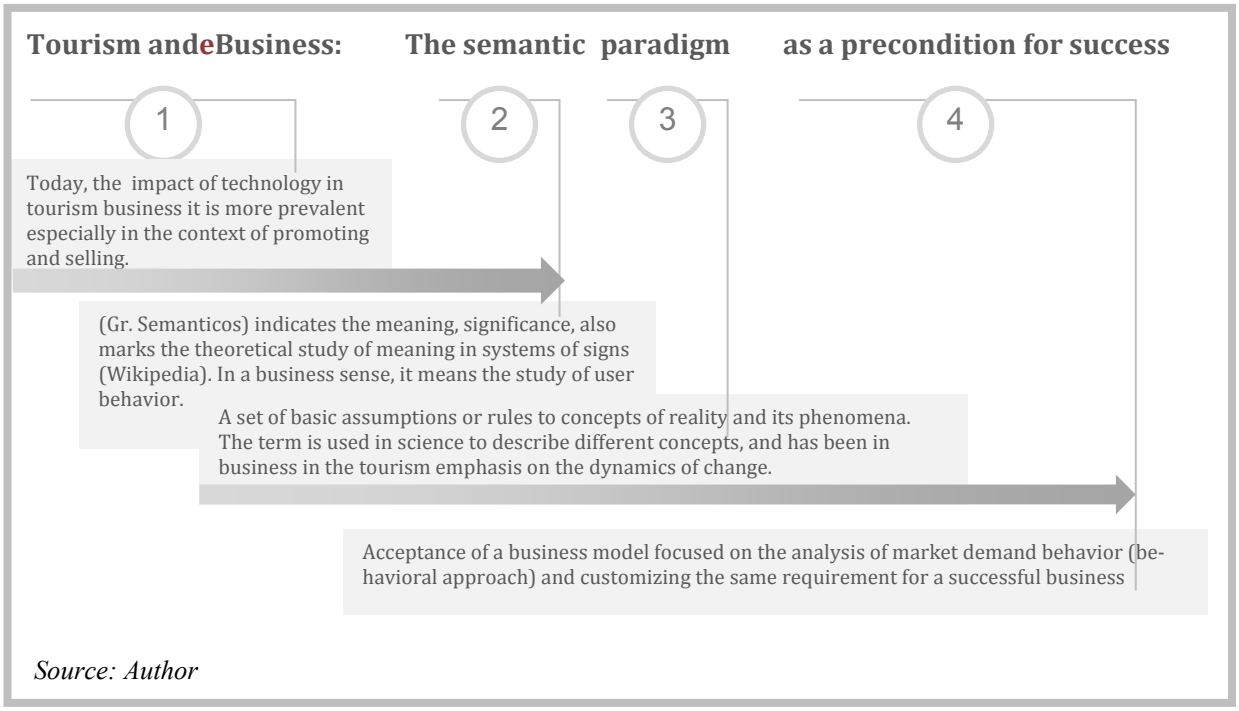
Razvoj tehnologije u mnogočemu determinira poslovne koncepte i način odvijanja poslovnih procesa na svim razinama poslovanja. Poslovanje u turizmu danas se nemože niti zamisliti bez integracije interneta i weba u svakodnevnoj poslovnoj praksi. Semantički web(koji se bavi aspektima značenja) je proširenje World Wide Weba promatrano kroz integraciju "stroja", tehnologije i ljudske inteligencije (ljudskog mozga), a često se opisuje na različite načine kao utopijska vizija, web podatak ili pak promjena paradigme u svakodnevnom korištenju weba. Suvremeno poslovanje putem weba polazi od bihevioralnog pristupa svih involviranih u poslovni proces, posebice u segmentu on line promocije pri čemu bi temelj dinamike određenog web site-a trebao biti automatizam upravljan ponderiranim razultatima semantičke analize.Poslovanje putem weba sve je značajnije i dominantnije u poslovanju. Poslovni subjekti u turizmu moraju se suvremenim trendovima i promijenama stalno prilagođavati kako bi ne samo zadržali konkurentnosti učinkovito pozitivno djelovali na zadovoljstvo korisnika svoga "weba" i na svoje poslovanje uopće, već da bi i opstali. Glavna značajka ovoga rada jest predstavljanje bihevioralnog modela poslovanja u turizmu predstavljenog kroz prizmu semantičkog weba.

INTRODUCTION

For better understanding of issues and research that the authors in this paper carried out at the beginning of the introduction of the paper, will explain the terms of the title of this article and their integrated meaning. **Business "Systems**" - companies in the tourism industry must follow modern trends and continuously adopt technological changes from the global context.The **Semantic Web** is the extension of the World Wide Web that enables people to share content beyond users, the boundaries of applications and websites. It has been described in rather different ways: as a utopic vision, as a web of data, or merely as a **natural paradigm** shift in our daily

use of the Web. Most of all, the Semantic Web has inspired and engaged many people to create innovative semantic way of thinking, logic, technologies and application /**1**/.

Figure 1. Semantic paradigm - Matrix conceptual integration within the B2C business context



Source: Author

After an explanation of the title in the context of all terms in the matrix, below the article stated hypothesis:

HYPOTHESIS: Acceptance of a business model focused on the analysis of market demand behavior (behavioral approach) and the appreciation of the concept of semantic web paradigm approach to the integration of business and technology businesses in the tourism industry (especially hotels) represents the direction of the development of successful business and a better positioning in the market.

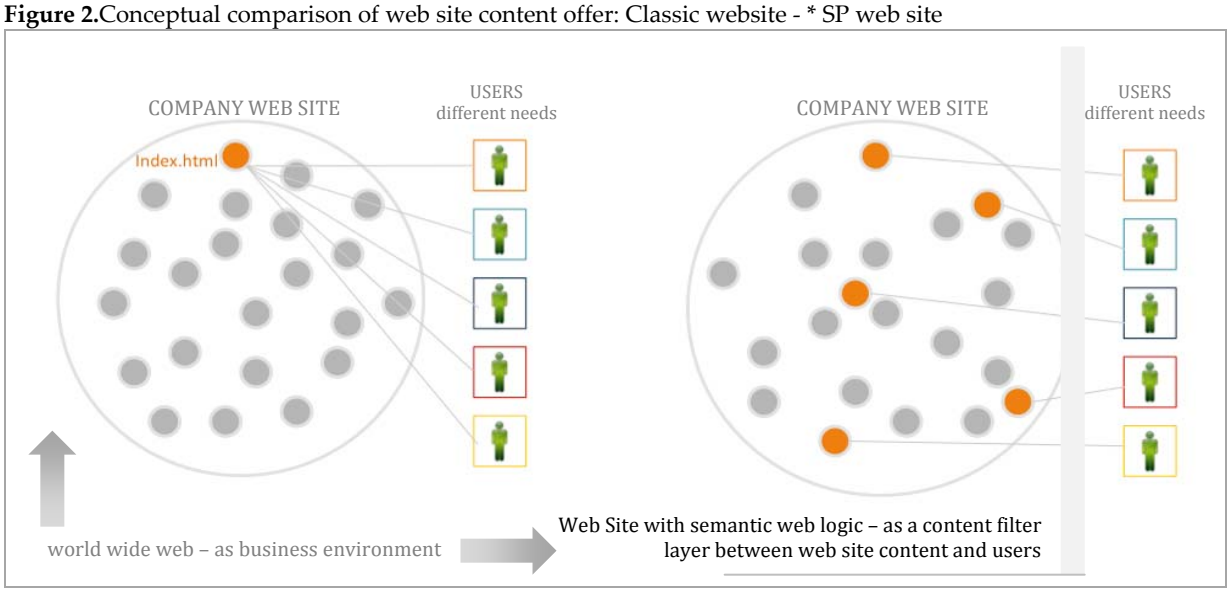
1. E BUSINESS IN TOURISM AND SEMANTIC WEB

Companies that operating in the tourism industry must continually adapt to market demand, which is extremely dynamic. Just to adjust market demand requires entities operating on the market that offers also become dominant dynamic. Constantly changing supply-adjustment is extremely demanding process (especially if there is an intention to adapt the market demand in real time - the semantic paradigm in real time). This process can not be realized without the presence of sophisticated algorithms and modern information and communication technologies.

As the development of technology is extremely dynamic and fast process must be carried out constant research in terms of trends and synchronizing the development of business concepts and integration of new technologies, especially in the context of **B2C transactions via the web**.

In the context of this paper and analysis of the issue of acceptance of the business concept according to the principles of the semantic paradigm as a precondition for success, the emphasis is on web content. Namely, content is what provides offer and demand requires. The question is, how "the offer side" can always know what the demand is constantly searching for and how to constantly adapt and modify its offer on the web.

Figure 2. Conceptual comparison of web site content offer: Classic website - * SP web site



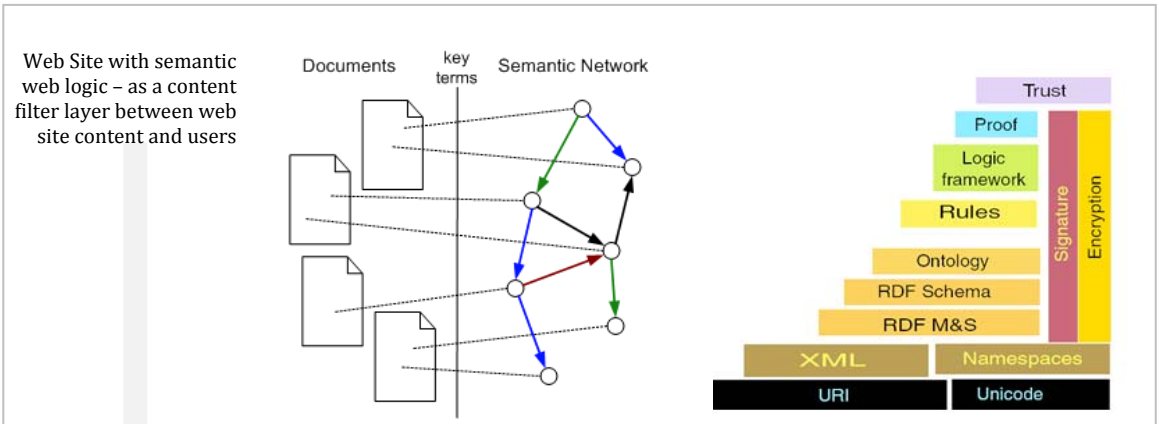
SP – Web Site based on semantic paradigm concept
Source: Authors

What message comes from Figure 2.? Business entities in the tourism and hospitality industry through its websites offer different information (about their products and services) to potential clients. Web site clients are different, and **at one web site in one moment they require different informations**.

Web sites, like the World Wide Web in search-functionally terms have a non-linear character. In terms of information content and the importance of the meaning web sites are hierarchical ranked.

Thus, control of specific web site content can be achieved by **integrating logic and premise of the Semantic Web in the context of business process space between the web site and the web site end user**. But, in this context, as first thing should be understood the dynamic level Web site.

Figure 3. Semantic network – Semantic Web Stack /**2**/



Source:http://rhizomik.net/html/~roberto/thesis/html/SemanticWeb.html#SemanticWebArchitecture, 25.09.2012.g. - authors redesign and customization

2. WEB SITE'S DYNAMIC LEVELS CONCEPTUAL-FUNCTIONAL LEVEL, its determinants, and dynamism

Before the Web site actual production in a digital form web site must be set according to the requirements and criteria of good design. In the design phase of web site, a cooperation of experts of the profession, psychology and computer science is necessary for web site's functionality and effectivenes. In order to achieve this observing the functional aspect of the organizational level, it is very important to plan elements of individual pages, their concept and menus which will determine the speed of the finding of relevant informations. It is very important to define clear and simple navigation through the informational levels and modules.

The user should have the ability to choose content of interest and how to arrive at the contents. Once at the beginning of the process of creating a web site quite difficult to determine which is the best functional and organizational concept that will meet the criteria of the widest range of users and mainly operates on the principle of assessment and experience. But trends are changing habits are changing, technology progresses, so does interest in certain content, ... etc. In this sense, a web site needs to be as dynamic and constantly adapt to changes and demands of the market demand. Activities website users logged in the log file. Data from log files should be properly interpreted, analyzed and ultimately used. The idea is that, by taking advantage of the log files to ensure ongoing program handling functional levels of the organization web site in real time, which of course depends on the intensity of use of the website as a whole. This would be a way to ensure **continuous monitoring** of the modern world trends, we would know much more about the demand in general, and would be much easier to provide a constant adjustment to interest of the **target market**.

3. WEB SITE'S DYNAMIC LEVELS CONTENT LEVEL, its determinants, and dynamism

Planning and defining the level of the web site content, it is also very important and demanding process. Presentation structure in terms of content, it is often given insufficient attention, according to a previously defined and well-established standards of the profession. So, once "performed" gather information, created information modules, defined levels of information and designed a complete web site, usually it was the end of the project of creating a web site. This section discusses how to make substantive sense, the Web site from a static "existence" should take on the characteristics of the dynamic model that continually adjusts to the interests from web environment.Specifically, the overall user activity within a particular web site is monitored in the log file. However, for better use of the data from log files should be considered at the very beginning of the process of making a website. Depending on how the content is determined, defined, grouped and named, in that it will be easier or harder to use the same content later. If the level of Web site content was well planned then the log file can be put to good use for the statistical semantic analysis and direct feedback effect on the web site. A concept that should be achieved at any time at the higher level can satisfy the user's need for the requested information, or to offer him an alternative that will be the same as much as possible to make users happy. Also, it should be achieved that sort of environment in which the user will be able to exercise good judgment and make comparisons in order to make valid decisions.To achieve this it is necessary to introduce some level of standardization of elements of the Web site in order to substantially and informative sense achieve uniformity and comparability. Such an approach allows for better processing log files and qualitative analysis. This would create better conditions for the permanent definition of "priority" of content (ie the perception of information from the current "**top-interest**"), and better manageability ongoing program web site content levels towards a defined time interval.

4. STATIC AND DYNAMIC CHARACTERISTICS OF WEB SITE AS A WHOLE

As already in the previous two titles described a web site as a whole should be as closely as possible **dynamize at the conceptual - functional level and at the contentat level.** In the context of this paper, the term dynamize - means to create such a program supported by a web site, which will quantitatively and qualitatively to be permanently subjected to statistical and semantic analysis and make changes to the website. It can therefore be concluded, once created web site content (according to the concept semantic paradigm approach) should not be created static "complexity" but qualitatively and program supported content and programming web site which is able at any time meets the "top" interest of the intended market.

5. LOG FILE ANALISYS

Basic characteristics of the log files are reflected stochastic and raw record that creates a web server and which contains information about who visited the Web site, when and which page (and within them, and the images that are an integral part) visited / uploaded (see next figure). However, the track log file can be at much higher level analysis, which will be achieved through the

further course of this paper to try to explain and justify.

Figure 4. Stochastic and unprocessed log files record

Source: Author's analysis

Almost every serious web host (provider of web services in a broad sense) provides server logs available to the webmasters of certain Web sites in order to analyze the traffic (or already processed a log file, or statistics).Log files used by a large number of programs for the analysis of traffic, but there are aspects of the analysis of observations of the problem against which the significance of the same be set to a higher level. What does this mean? Log file should be better exploited in terms of its statistical and semantic analysis and provide a software-driven control web site which is not an easy task.In fact, most all of the analysis log file means using one of the existing analytical software (**Webtrends, Webalizer**, ...). Result of such analysis is a everyday detailed graphic and table listing of all what is on the server (Web site) occurs.The digital environment allows the use of new methods for monitoring and analyzing the use of digital resources. With the help of the software can automatically monitor all the activities or transactions are realized with the computer system, server, so. **log file analysis**.Log file as ASCII text files is a computer image of stream-using a web site parts by a number of users. That image is is in any moment is different, which means that the same can be characterized as dynamic.Depending on the size and the "popularity" Web site, that computer image may be with faster or slower dynamic, which of course depends on the number of users who "surf" the web site, the size of the web site, user activity on a web site and conducted user time looking for information on a particular web site.Every activity of each different user is recorded in a log file. Future state records in the log file can not be anticipated in advance, due to the fact that any future user interaction with a Web site can not be predicted.Therefore, it can be argued that the log file is almost **absolutely stochastic**. Also, the records in the log file are not sorted by any kind of pre-defined structure and format and vary from server to server.Record in the log file is highly variable, and are always monitored and stored according to a pre-defined time intervals (hour, day, week, month,...) which is usually determined by the size of web site and intensity of the surfing hrough the web site. To process the above record-data (raw image log files) is necessary to have a program that will recognize the format of the log file, read all the information, structure them and store them in the appropriate database (it is possible to directly enter the "log" in the database). All such collected data are used for further analyssis, turn affected to the web site, according to which the idea of designing and developing a web site on the basis of the **semantic paradigm approach**.

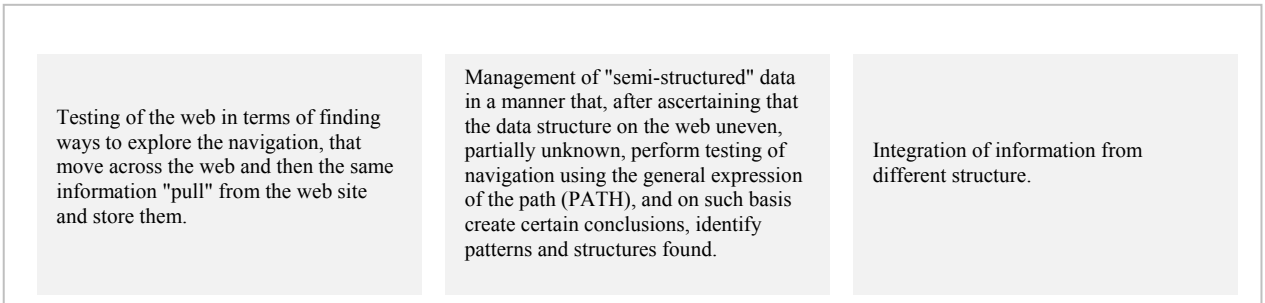
6. FLORID I F-LOGIC

As noted above in order to carry out over the log file quantitative and purposive analysis is necessarily existing "raw" data transform and adapt for the analysis. Transformation and adjustment of data for analysis, preparation and writing analytical algorithm is not so trivial job.Over the Web has provided access to large data sources that are specifically organized as a database. Instead, the information is usually presented as a semi-structured data. Unlike the classical integration of distributed databases, integration of such data creates certain problems such as reorganizing data sources, creating changes in the autonomous sources. **Florid Project** examines the "extraction" (extraction) and merger / integration (integration) of semi-structured data from the Web. Since 1997.to 1999. Florid project has ex-

panded the former able to access the Web. Then was created a methodology for wrapping (wrapping) and integration (integration) HTML page mapping information in an integrated data model (F-Logic), which represents the structure of the data sources and contains application / tier model information. HTML pages are wrapped using the generic rules for common structural funds (ie, lists, tables, highlighted key words). In 2000 Florid has been expanded to **FloXML** with special functionality for managing XML data.**Florid** - (**F**-**Lo**gic **R**easoning **I**n **D**atabases) is a deductive object-oriented database system that uses F-logic as a language for data definition and as a query language (Query Language) /**3**/. The development was supported by the Duetsche Forschungsgemeinschaft (Project La 598/3-2). With the increasing interest in semi-structured data, Florida has been expanded so that it can work with semi-structured data in the context of information integration with the Web. From previous experience with the F-logic and Florida, continued with the research project **LoPiX for XML**. The common opinion that languages supporting deduction and object orientation particularly good for testing / research / querying (querying) on the structure and content of the Web, and to draw conclusions about the structure and content of the web, and to integrate information from heterogeneous sources. From Florid is the application of deductive object-oriented language **F-Logic**, extended in a way to provide a declarative semantics to query / request (querying). This extension allows the extraction and restructuring of information from the Web, and seamless integration with local data. Because it is such functionality integrated into a single declarative language, the development of improved applications based on the Web as an information source is considerably simplified.

The motivation for the research of that, such as Florida project, can be explained through the objectives of the project Florid /**4**/, and they boil down to:

Figure 5. The objectives of the Florid project



Source: Authors vision

In the last decade, interest has increased in the so-called object-oriented approach to databases within the community and among researchers of programming languages. Although object-oriented approach is not the most accurate name, found a lot of concepts that are considered the most significant feature of this approach, such as complex objects, object recognition methods, typing encapsulation (encapsulation typing) and inheritance.One of the most important "driving force" behind the interest in object-oriented languages, databases, is the expectation that can overcome the impedance mismatch between programming languages to write applications and languages for data retrieval. At the same time there has been an increased popularity of different deductive approaches.Since the logic can be used as a machine formalism and data specification language, proponents of deductive programming paradigms, and conclude that this approach also solves the aforementioned problem of discrepancy/inconsistency. However, in the present form both approaches have drawbacks. One of the major problems of object-oriented approach is the lack of logical semantics, which traditionally plays an important role in programming languages, databases. Therefore it can be expected that the larger combine these two paradigms in combination with the development of the semantic paradigm pojdinih websites really pay off in the future.

CONCLUSION

Since the competition is day by day growing and increasingly demanding market demand, in this

article the authors would like to give a certain scientific and practical contribution in terms of permanent analysis of market demand and constant adjustment to the market demands (with dynamic Web site) through the prism of the semantic paradigm through analysis of log files. Log files, the holder of numerous data and indicators, in order to improve the operation of an economic entity must be used in the best possible way. However, this is often not so simple. Specifically, Web sites vary in size, purpose, and the technology used in the creation of web pages that constitute them.Because of this, it is necessary to set up the semantic paradigm and create such an analytical research framework which could be covered by each different web site.

Such access to businesses in the tourism industry particularly faster and better into the global communication and exchange of information through the Internet, which would have significantly contributed to raising the overall performance and competitiveness to a higher level.

Notes

/1/http://semanticweb.org/wiki/Main_Page, 01.10.2012.g

/2/http://rhizomik.net/html/~roberto/thesis/html/SemanticWeb.html#SemanticWebArchitecture, 03.10.2012.

/3/http://www.informatik.unifreiburg.de/~dbis/florid/

/4/Rainer Himmeröder, Paul-Th. Kandzia, Bertram Ludäscher, Wolfgang May, Georg Lausen: "Search, Analysis, and Integration of Web Documents: A Case Study with FLORID "Intl. Workshop on Deductive Databases and Logic Programming (DDLP'98), Manchester, UK, June 20, 1998 . GMD Report 22/1998 , pp. 47-58 - http://www.dbis.informatik.uni-goettingen.de/Publics/98/ddlp-slides.ps