How to Write and Publish a Scientific Paper: A Closer Look to Eastern European Economics, Business and Management Journals

Mirjana Pejić Bach
Faculty of Business and Economics - Zagreb, University of Zagreb, Croatia

Abstract

Background: Scientific research publishing carries a significant role in the development of the society. Apart from the dissemination of knowledge, there are also motives for publication of scientific research results at the level of individual researchers. Objectives: The goal of the paper is to propose simple, yet highly applicable advice when pursuing the publication of a paper in a scientific journal providing a closer look to economics, business and management journals that focus on Eastern European countries. Methods/Approach: The 4 Cs model of scientific writing and publication is presented, based on four questions: (1) How to pick a topic relevant for publication?; (2) How to select a journal for possible publication?; (3) How to structure the paper in accordance with the IMRAD format?, and (4) How to efficiently write the paper? Results: Step-by-step application of the 4C’s model is presented in the paper with an outlook to economics, business and management journals that focus on Eastern European countries. Conclusions: Publication in a scientific journal is an important venue for scientific researchers. In preparing the presentation of the scientific research results for the publication, number of issues relating content, style, composition and presentation should be taken into account.

Keywords: publication; scientific research; knowledge economy

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Introduction

Science is one of the most important human activities since it results in collective, consistent, structured and reputable knowledge. Publication of scientific research results enables knowledge distribution, development and use. Contemporary scientific research is, in most cases, conducted in the institutional environment of
universities and research institutes (Cooter et al., 1994). Researchers employed at those institutions are faced with the ever-increasing requirements for appointments that are vividly described by the well-known phrase “publish or perish” (De Rand et al., 2005). Where the results of the research are published has become of the highest importance, and in the last few decades journals indexed in Web of Science are widely accepted as a standard (Adam, 2002).

Scientists from Eastern European (EE) countries that research economics, business and management issues face a number of barriers towards publication. First, up to the early 1990s when the perestroika caused the breakup of the former Soviet Union, uprisings in EE countries, and the termination of the Cold War (Brown, 2007), due to the ideological reasons economics, business and management research in communist/socialist societies used to be different from research in capitalist societies. It was difficult for researchers from EE countries to achieve the same level of proficiency as their colleagues from developed countries, due to the diverse institutional milieu of scientific research (Olenik, 2012) and to the fact that authoritarian regimes do not represent enticing surroundings for scientific production (Josephson, 1996). Second, the issue of language is an important barrier for authors from non-English speaking countries, especially in social sciences (Gantman, 2012). Third, future professionals are rarely instructed in scientific writing and manuscript preparation (Keys, 1999). Consequently, only through the painstaking process of trials and errors researchers learn about the following four important issues: (1) the choice of the topic relevant for publication, (2) the choice of the journal for possible publication, (3) the organization of the paper according to the IMRAD format, and (4) writing a highly proficient paper.

The goal of the paper is to propose the framework that could facilitate the process of writing and publishing papers in scientific journals. The paper will also give a brief overview of journals indexed in Web of Science that mostly publish research on EE countries in the fields of economics, business and management.

The 4 Cs of scientific writing and publication

In order to get the results of the scientific research published, they have to be presented in the form of a scientific paper, which requires the skills of scientific writing. Scientific writing is based on the old tradition with its roots in the 17th century when the first scientific paper was published (Larsen et al., 2010), and some authors even consider it a highly demanding craft (Tychinin et al., 2005).

Due to the high standards that are imposed on the journals indexed in Web of Science it is hardly possible that a badly written paper (even a highly relevant one) would be published in such a journal. However, scientific writing is rarely taught, and scientists in most cases have to learn its basic principles in the process of trials and errors.

A vast number of researchers have written on the topic of writing and publishing scientific papers. The search on the topic “how to write a scientific paper” in the Web of Science database [10-08-2012] reveals 292 papers published in 240 journals (e.g. International journal of science education, Research in science education, Science education, Scientometrics, and Journal of research in science teaching) from 47 countries (England, Canada, Spain, the Netherlands, Germany and Italy with more than 10 publications). The authors deal with a number of topics such as what constitutes an interesting research, publication of theoretical papers (Rindova, 2008), qualitative research (Pratt, 2009), and reasons for rejection of papers (Kilduff, 2007; Linton, 2012). In addition, there are also many relevant books also covering the topic (Day, 1998; Hartley, 2008). For the purpose of this paper, a number of such articles
and books have been closely examined, and combined with the author’s personal experiences.

In order to summarize the most important recommendations for tentative authors of papers to be published in scientific refereed journals, we propose the framework that could facilitate the process of writing and the publication of papers entitled “The 4 Cs of scientific writing and publication” (Figure 1). The 4Cs framework is based on the proposition that the following skills are important for successful publication of scientific research: (1) choosing a relevant topic that is explored according to the highest quality standards (Competence), (2) targeting the right journal with the right topic (Course), (3) careful planning of the composition of the paper (Composition), and (4) relating theory to methodology supported by competence in proficiency in writing (Content). The process is iterative and at any moment the author can reconsider the quality of previous steps and make further improvements.

Figure 1: The 4 Cs model of scientific writing and publication

Source: Author’s illustration

The level of scientific writing proficiency determines the category to which the paper belongs (Andonie et al., 2010): (1) Major results: very significant, (2) Good, solid interesting work: a definite contribution, (3) Minor, but a positive contribution to knowledge, (4) Elegant and technically correct but useless, (5) Neither elegant nor useful, but not actually wrong, (6) Wrong and misleading, and (7) So badly written that a technical evaluation is impossible.

Competence: Relevant research question

Asking a relevant scientific question that will be a basis for a further development of goals and determining the hypothesis of the paper is the most important step in scientific writing (Moffin, 2011). There are different paths towards asking relevant questions. An author can read papers on similar topics from quality journals, discuss the topic of the paper with a mentor or a colleague, and present the paper at a conference. A research question has to be appropriate for the targeted journal and interesting to the future readers. During the writing process a relevant research question will be often reformulated.

Choosing a relevant research question is neither subject nor journal specific. However, journals that are locally oriented are more likely to publish a paper that discusses an already familiar topic only in new geographic or industry settings (e.g. Entrepreneurial intentions in Croatian SMEs). On the other hand, A+ journal publish only papers that raise novel questions using cutting-edge statistical and mathematical techniques.
How can authors test whether their research questions are relevant enough to be published in a particular journal? The answer to the question depends on the editor’s decision. Authors could presume the answer to such a question by carefully reading articles from previous journal issues from the past few years, and comparing their research questions with those of other authors. However, the final answer will be given only after the article is sent to a specific journal and the editor’s decision has been received.

**Course: Targeting the right journal**

After the question of the scientific paper is defined, the author should decide on a possible journal for publication. In order to increase the probability of publication it is advisable to select 2 to 3 possible journals for publication taking into account that the paper matches the topic of the journal, the experience of other familiar authors that have already published in the journal, mission statements of the journals, members of the editorial board, and the journal quality. In order to minimize rejections, authors should try to make the quality of the paper correspond the quality of the journal. Best papers should be sent to the journals with a high impact factor. Other worthy journals are a good solution for publication of preliminary research, narrow-topic articles, quick publication, and as a last-resource option if the paper gets rejected in highly-cited journals.

This paper focuses on journals indexed in Web of Science, because publication in such journals is a part of minimal standards in a number of steps during a scientific career, such as the acceptance of a PhD proposal and an advancement in a scientific career (e.g. from an assistant to an assistant professor). In addition, this paper focuses on journals that mostly publish research on EE countries in the field of economics, business and management. These journals are: (1) published locally in some of the EE countries and cover general topics using sample data from regional countries, and (2) published by an established publisher and cover a narrow topic such as transitional or post-communist economies. In order to track those journals, the following steps were conducted. First, journals were tracked by the Journal Citation Report (JCR) and by narrowing the search to the field of economics. Second, journals from EE countries were selected, and that approach revealed 23 journals. Third, Web of Science was searched using the key words “Eastern Europe” and narrowing the search to the field of economics, business and management, whereby only five journals that focus solely on EE countries were selected.

Table 1 presents selected ISI indexed journals that focus on EE countries, with information on the country of publishing, its impact factor in 2011, the number of issues published per year, the number of papers published in 2010, and the percentage of foreign authors. Most of the journals publish papers in English or are multilingual. Only one journal is published in Russian (Actual Problems of Economics).

However, it is important to stress that other journals indexed in Web of Science also publish research results of the authors from EE countries who elaborate on regional topics. A practical approach to targeting a suitable journal in Web of Science is the following. The author should try to search the Web of Science database with the tentative title of the emerging article under the Topic field. After a careful examination of the results, one can track possible journals that publish papers on similar topics, and thus broaden the list of possible journals for publication.
Table 1
Selected Web of Science (core collection) indexed journals that focus on EE countries

<table>
<thead>
<tr>
<th>Name of the journal</th>
<th>Country</th>
<th>Impact factor / 2011</th>
<th>Issues / Year</th>
<th>No of papers in 2010</th>
<th>% of foreign authors in 2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acta Oeconomica</td>
<td>Hungary</td>
<td>0.375</td>
<td>4</td>
<td>16</td>
<td>37.14%</td>
</tr>
<tr>
<td>Actual Problems of Economics</td>
<td>Ukraine</td>
<td>0.039</td>
<td>12</td>
<td>474</td>
<td>54.36%</td>
</tr>
<tr>
<td>Amfiteatru Economic</td>
<td>Romania</td>
<td>0.757</td>
<td>2</td>
<td>51</td>
<td>17.24%</td>
</tr>
<tr>
<td>Argumenta Oeconomica</td>
<td>Poland</td>
<td>0.118</td>
<td>2</td>
<td>18</td>
<td>45.56%</td>
</tr>
<tr>
<td>Baltic Journal of Management</td>
<td>Latvia</td>
<td>0.188</td>
<td>2</td>
<td>8</td>
<td>91.67%</td>
</tr>
<tr>
<td>Communist And Post-Communist Studies</td>
<td>England</td>
<td>0.557</td>
<td>4</td>
<td>33</td>
<td>100%</td>
</tr>
<tr>
<td>Czech Journal of Economics and Finance</td>
<td>Czech Republic</td>
<td>0.346</td>
<td>6</td>
<td>25</td>
<td>66.67%</td>
</tr>
<tr>
<td>E &amp; M Ekonomie a Management</td>
<td>Czech Republic</td>
<td>0.341</td>
<td>4</td>
<td>46</td>
<td>32.26%</td>
</tr>
<tr>
<td>Eastern European Economics</td>
<td>United States</td>
<td>0.333</td>
<td>6</td>
<td>27</td>
<td>78.12%</td>
</tr>
<tr>
<td>Economic Computation and Economic Cybernetics Studies and Research</td>
<td>Romania</td>
<td>0.303</td>
<td>4</td>
<td>59</td>
<td>33.90%</td>
</tr>
<tr>
<td>Economic Research</td>
<td>Croatia</td>
<td>0.193</td>
<td>4</td>
<td>51</td>
<td>24.65%</td>
</tr>
<tr>
<td>Economics of Transition</td>
<td>England</td>
<td>0.679</td>
<td>4</td>
<td>27</td>
<td>92.59%</td>
</tr>
<tr>
<td>Ekonomicky Casopis</td>
<td>Slovakia</td>
<td>0.274</td>
<td>10</td>
<td>55</td>
<td>43.37%</td>
</tr>
<tr>
<td>Ekonomista</td>
<td>Poland</td>
<td>0.141</td>
<td>5</td>
<td>37</td>
<td>10.00%</td>
</tr>
<tr>
<td>Emerging Markets Finance And Trade</td>
<td>United States</td>
<td>0.953</td>
<td>6</td>
<td>53</td>
<td>90.00%</td>
</tr>
<tr>
<td>Emerging Markets Review</td>
<td>Netherlands</td>
<td>1.067</td>
<td>4</td>
<td>20</td>
<td>99.60%</td>
</tr>
<tr>
<td>International Journal of Strategic Property Management</td>
<td>Lithuania</td>
<td>1.620</td>
<td>4</td>
<td>27</td>
<td>80.00%</td>
</tr>
<tr>
<td>Inzinerine-Ekonomika</td>
<td>Lithuania</td>
<td>1468</td>
<td>5</td>
<td>55</td>
<td>30.00%</td>
</tr>
<tr>
<td>Journal of Business Economics and Management</td>
<td>Lithuania</td>
<td>2388</td>
<td>4</td>
<td>34</td>
<td>58.82%</td>
</tr>
<tr>
<td>Panoeconomicus</td>
<td>Serbia</td>
<td>0.396</td>
<td>4</td>
<td>26</td>
<td>63.33%</td>
</tr>
<tr>
<td>Politicka Ekonomie</td>
<td>Czech Republic</td>
<td>0.380</td>
<td>6</td>
<td>42</td>
<td>16.39%</td>
</tr>
<tr>
<td>Post-Communist Economies</td>
<td>England</td>
<td>0.459</td>
<td>4</td>
<td>31</td>
<td>100%</td>
</tr>
<tr>
<td>Prague Economic Papers</td>
<td>Czech Republic</td>
<td>0.256</td>
<td>4</td>
<td>21</td>
<td>41.67%</td>
</tr>
<tr>
<td>Proceedings of Rijeka Faculty of Economics</td>
<td>Croatia</td>
<td>0.400</td>
<td>2</td>
<td>11</td>
<td>74.25%</td>
</tr>
<tr>
<td>Romanian Journal of Economic Forecasting</td>
<td>Romania</td>
<td>0.246</td>
<td>4</td>
<td>72</td>
<td>36.51%</td>
</tr>
<tr>
<td>Technological and Economic Development of Economy</td>
<td>Lithuania</td>
<td>3235</td>
<td>4</td>
<td>46</td>
<td>40.43%</td>
</tr>
<tr>
<td>Transformations in Business and Economics</td>
<td>Lithuania</td>
<td>0.991</td>
<td>3</td>
<td>57</td>
<td>90.00%</td>
</tr>
<tr>
<td>Transylvanian Review of Administrative Sciences</td>
<td>Romania</td>
<td>0.284</td>
<td>3</td>
<td>35</td>
<td>34.21%</td>
</tr>
</tbody>
</table>

Source: Author’s research
An even better approach is to track calls for special issues. Such lists are regularly published on the websites of journals and publishers. Emerald Call for Papers provides comprehensive information on such calls available at: http://www.emeraldinsight.com/authors/writing/calls.htm

The fact that authors from EE countries do not have an access to the Web of Science database presents an important obstacle to publication in Web of Science indexed journals. However, readers without an access to JCR can check the status of a journal by using Thomson Reuters Master Journal List available at http://ip-science.thomsonreuters.com/mjl/.

Composition: IMRAD format
Scientific journals publish different types of scientific papers: case studies, survey reports, theoretical papers, and review papers (Whiteside, 2004). The IMRAD format of the paper (Introduction-Methods-Results-Discussion) could be recommended as a good path regardless of the paper type (Day, 1989), although other compositions such as DSB (Definition, Solution and Benefits) are also possible (Mahrer, 2000). The IMRAD format is based on the four parts of a paper: (1) Introduction (What problem was studied?), (2) Methods (How was the problem studied?), (3) Results (What are the results?), and (4) Discussion (What do the findings mean?). However, it does not imply that the sections of the paper should have those exact names. Whiteside (2004) considers that “a paper is an organized description of hypotheses, data and conclusions, intended to instruct the reader” and emphasizes the importance of using an outline in writing papers. An outline, as a written plan for the organization of the paper, is developed before writing the paper, and it describes the content of the paper usually in a bulleted list before the paper is actually written.

IMRAD formatting of the paper is neither obligatory nor typical only for journals indexed in Web of Science. However, it is one of the most common formats of the scientific papers. Authors should choose such a format of the paper that will make it more likely to be published in a high-standard journal, such as journals indexed in Web of Science.

A possible practical approach is to find a good example of a paper on a similar topic, and examine how the paper is organized. The next step would be to make an outline of the content of the paper in the form of a bullet list of the future paragraphs and even sentences. Only after that step is finalized, authors should start writing, although they shall probably change this outline in the process of writing. Although experienced authors sometimes write paragraphs and combine them later in the paper, a novice writer will probably not yield the best result of that approach.

The following sections will provide novice writers with rather detailed advice on what constitutes a paper that follows the IMRAD format.

The paper title, abstract and keywords
The title of the paper should be understandable and informative, and it should not be too long. Some journals even prescribe the maximum number of words in the title. A practical approach is to examine titles of the papers already published in targeted journals. An abstract could consist of sentences explaining the background, the purpose, results, methods and the conclusion of the paper. Careful selection of keywords is highly important because they are used in a database search, and their good choice increases the probability that other authors will read and hopefully cite the paper.
Introduction
The purpose of the introductory section of the paper is to inform readers why the scientific research has been conducted (Smith, 1998). By reading papers in quality journals one can easily notice that most of the introduction sections consist of four basic paragraphs. The first paragraph usually describes the current knowledge on the topic being researched. The second paragraph sets the direction towards the purpose of the paper by revealing what is important and not yet examined. The third paragraph outlines the purpose of the paper and it briefly states the methodology that has been utilized in the paper. The fourth paragraph usually describes other sections of the paper. A paper introduction should in fact convince the editor and the reader that the paper is worth publishing and reading. An excellent example is written by Radas and Božić (2009).

Authors often decide to add one more section, usually named Literature review or Theoretical background in which they elaborate on the current knowledge on the topic of the paper. Under this section, authors often develop research hypotheses based on the previously published research and give theoretical reasons for them. If research hypotheses cannot be supported within the adequate theoretical framework, they can be reformulated into research propositions, or research goals. Sometimes authors explain hypotheses in the methods section of the paper, which is also acceptable.

Methods
The methods section of the paper describes the process the author carried in order to finish the research. It depends on the research methods applied in the paper, and the two main groups are the quantitative and the qualitative, but they can also be combined together (Creswell, 2008). In practice a wide variety of examples exists. The methods section is not required if the paper is completely theoretical in its nature. A practical approach would be to find several papers with methods similar to the one used in the paper, and then read methods sections very carefully in order to find inspiring and good text examples.

Results
The results section of the paper should just present the facts revealed by the research, and not their interpretation. Data can be presented in tables, figures or graphs, but the textual part of the results should not describe what is obvious from them. The content of this section strongly depends on the methods being used. Again, it is useful to find several papers with methods similar to the one used in the paper, and then examine the content of the results sections in order to find the best practice.

Discussion
The discussion part of the paper is usually one that is hardest to write, and its deficiencies are the most common reason for papers being rejected. This part of the paper should be organised in such a way to enable the author to summarize the findings of the research, compare the results with those from previous research or experience, propose practical implications of the results, explain key limitations of the research, and suggest paths for future research.

Novice authors are advised to write the discussion section in the following paragraphs. The first few paragraphs should summarize the findings of the paper and then compare them with the results of previous studies. This part of the paper often explains whether hypotheses have been rejected or accepted and why. If research goals have been used in the paper, this part of the paper could also be organized around explaining whether they have been met or not. The following few
paragraphs should explain practical and managerial implications of the paper results. The last two paragraphs should be devoted to the limitations that the reader has to take into account while validating the research results, and to the directions that the paper sets for the future research.

Content: Writing skills

Writing skills are attained in a number of ways (e.g. through experiential learning, working in teams with knowledgeable co-authors, getting reviews from peers, and writing reviews). Reading high-quality scientific papers published in targeted journals indexed in Web of Science is of the highest importance. Again, it is useful to find several papers on similar topics and read them carefully.

It is of the greatest importance for inexperienced authors to examine sentence by sentence each part of the paper in order to understand the composition of the paper completely. In best papers, every word is written for a good reason, and there is neither redundant nor lacking information.

Writing a high quality scientific paper also results from an author's capability to appraise and summarize previously published research, and there are several sources that offer relevant instructions on the process and its purpose, also giving examples for practice (Indiana University, 2005). Plagiarism occurrence increased after the invention of the World Wide Web and easy copy-pasting performed using only a few clicks of the mouse (DeVoss et al., 2002). Authors often change a few words and their order, but it is still considered plagiarism even if the source is cited since rewriting other author's words provides nothing new. Plagiarism is considered to be a seriously unethical act, but there are different levels of plagiarism. A number of journals apply software for identification of plagiarized texts (Ledwith et al., 2008), and impose severe actions against authors that have been found submitting a paper with plagiarized text.

Writing is a very slow process that consists of several phases: prewriting (making notes, describing ideas, drawing figures), writing (writing a paragraph by paragraph, skipping from one section to another), revision (reading the written text and correcting errors and illogicalities), editing (checking accuracy and correcting errors), and proofreading (reading the paper again in order to check previously checked errors). One should always write having readers in mind and taking into consideration their level of knowledge of the field and motivation for reading, and should always focus on the purpose of the paper (Stojmenović et al., 2012). After finishing the paper, it is best to leave it for some time and re-read it again. It enables authors to distance themselves from the paper and assess its quality more objectively.

Advice for increasing writing skills could be summarized as follows: (1) read a number of papers and learn to recognize good writing, (2) plan future content of the paper carefully, (3) avoid plagiarism and practice skills of summarizing and critically evaluating others’ work, (4) write with the future reader in mind, and (5) revise, edit and proofread the paper in order to avoid mistakes and illogicalities.

Sending the paper to the journal

Scientific journals usually publish instructions for authors. The paper should be sent to the journal following those instructions closely. It is also a custom to write a kind letter to the editor with the title of the paper and the names of co-authors (if any) that clearly states that the paper is not sent for publication to any other journal. The letter to the journal editor can also contain a brief explanation why the paper is suitable for publication in the particular journal, and what its scientific contribution is.
When the paper is sent to the journal, a decision on its possible publication is given. First, the editor of the paper decides on whether the paper should be sent to the review. Most papers are desk rejected, i.e. editors read the paper and make a decision to refuse the paper without sending it to the reviewer. Otherwise, a limited number of capable reviewers would be burdened even more. Linton (2012) lists 7 groups of reasons why in most cases papers get rejected by the editor: self-identification concerns (e.g. high number of self-citations), reference related (e.g. websites citations, papers in foreign languages, formatting style, partial references), overall style (e.g. using cliché expressions, using undefined acronyms, spelling errors, not following the IMRAD format), figures (e.g. not labelling figures or using too much of them), the objectives of the paper (e.g. not defining the purpose of the paper), method (e.g. biased sample, inadequate methods), contribution (e.g. confirming/denying something that is considered obvious or nobody is interested in). Even if the paper gets rejected by the editor, in most cases, some advice on how to improve the paper will be given.

If the editor of the journal decides to send the paper to the review, the peer-review system is applied, which can be double-blind, single-blind or open. The reviewer’s potential decisions include: accepting the paper as it is (rarely), accepting the paper with minor corrections (sometimes), accepting the paper with major corrections (in most cases), and rejecting the paper. When the reviewer asks for major changes, authors should not give up on improving the paper. The author should try to follow the reviewers’ instructions as close as possible. A good review that proposes a number of changes is an excellent leverage toward improving an author’s scientific skills. A kind letter to the reviewers with explanations of changes in the paper according to their proposals is a good step toward mutual better understanding, and it increases the probability of the final decision to accept the paper.

Conclusion
The message of the paper is that the quality of a scientific paper is a result of the process that consists of reading, researching and writing. All of the three activities are equally important. A scientist has to be able to evaluate the quality of others’ work and use it as a role model for its own research with the goal to eventually become a role model for future generations. Many books present principles of scientific research (e.g. Carey, 2011) which have to be studied and practiced carefully and with diligence. Finally, scientific writing is a discipline with rules originating from the 17th century, and it takes a lot of practice and hard work to master it.

The question of the paper was how to write and publish a paper in a scientific journal. Nevertheless, we would like to conclude the paper with another question: Why publish only in ISI journals with an impact factor? Some authors consider that basing evaluation of the scientific work only on numbers (e.g. impact factors or the number of citations) is a reductionism that is humiliating to science (Wilcox, 2008). Even on the Thomson Reuters’ web site there is a warning on a careful use of the impact factor as a sole measure of scientific productivity. Although there is the debate on whether bibliometric measures, such as the impact factor and the h-index, are sufficient or not, the current practice in the scientific community is focused mainly on ISI journals and the use of bibliometric measures as a basis for evaluations of the scientific research quality. Since publication through new routes such as conference proceedings, open journals and comparable databases (for instance Scopus) is increasing (Larsen et al., 2010), that practice is likely to change in the near
future. However, it is likely that rigour in scientific research and writing will become even more important in the future as a means of increasing quality and reliability of scientific contributions.

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About the authors
Mirjana Pejić Bach is a Full Professor at the Department of Informatics at the Faculty of Economics & Business. She graduated at the Faculty of Economics & Business – Zagreb, where she also received her Ph.D. degree on “System Dynamics Applications in Business Modelling” in 2003. She is the recipient of the Emerald Literati Network Awards for Excellence in 2013. Mirjana was also educated at MIT Sloan School of Management in the field of System Dynamics Modelling. She participates in number of EU FP7 projects, and is an Expert for Horizon 2020. Author can be contacted at mpejic@efzg.hr