JOURNAL
OF BUSINESS
MANAGEMENT

ISSUE 15

RISEBA

BANKU AUGSTSKOLA

BA SCHOOL OF
BUSINESS AND FINANCE

The editorial board

Foreword

The instability of the entire socioeconomic system is growing. This situation demands from organizations quick and accurate managerial decisions which take into account changes in the external environment and utilise new possibilities.

Rapid changes on the macro and micro level need proactive measures; for instance, organizations must think about connecting business decisions and business cycles (the topic of one of the journal articles in this issue).

Top management team diversity in these conditions has become more important.

The topic of alumni knowledge management is important for organizations and a sustainable higher education system.

One of the papers (theoretical) is devoted to different trends in strategic management (research based on keyword analysis).

All this and other problems are discussed in papers included in JBM Issue No. 15.

All the papers were double-blind peer reviewed. Following the necessary corrections and additions resulting from the review process, 5 accepted papers were included in the issue.

The Journal of Business Management has been indexed in COPERNICUS since 2017 and in EBSCO since 2008.

Next year issues will be devoted to foreseeing challenges and opportunities for organizations on the macro and micro level.

Vulfs Kozlinskis, Prof. Emeritus, Dr.habil.oec.
Chief editor

Content

Trends in strategic management – Do different keyword analysis approaches induce different results?

MARIUS SCHONBERGER
PIERRE G. KELLER
FREDERIC MAFFEI

ABSTRACT

Purpose. The purpose of this paper is to examine the field of strategic management (SM), both in its original concepts and in the future direction of this discipline. The aims, thus, are to determine how the SM discipline has evolved and to identify current trends in this field. Therefore, articles published in leading scientific journals in the field of SM between 2012 and 2017 were considered and analysed in detail using bibliometric methods.

Design/methodology/approach. This study combines quantitative research based on three different and independent approaches, considering keyword analysis especially. The question arises if different approaches, in particular using different databases, time ranges and journals, either lead to identical results or to differences regarding the trends detected in the SM field.

Findings. Although three different approaches were used, similar results could be achieved. The overall result is that current research in the SM field is focused on the performance of companies, the development of capabilities, and possibilities to drive innovations to remain competitive.

Originality/value. This study gives an overview of the current trends in the field of SM; thus, it helps to illustrate the state of the art of research in this discipline. Therefore, a common understanding of current trends in SM in recent years has been generated, which enables researchers to position their future research efforts. This also provides insights into how the field might change in the future. Furthermore, the paper shows how different methodological approaches in the design of keyword analysis (journal selection, time frame, database) can influence the results.

Keywords: Strategic management, keyword analysis, literature review, trends.

INTRODUCTION

In times of increasingly volatile business environments, where uncertainty is present through rapid and unpredictable changes, a reactionary strategy is nearly impossible to maintain (Ahmadi and Firozabadi, 2014; Bratianu, 2015; Wilbon, 2015). Instead, creating a competitive advantage and delivering sustained value for customers is of the highest importance for companies (Shaffer and Dalton, 2014; Bratianu, 2015; Whitney, 2017). In a knowledge-based society, the transfer of knowledge into success factors can lead to this (sustainable) competitive advantage, whereas SM represents a critical element of organizations' success (Falk et al., 2015; Tuncay, 2015; Wilbon, 2015).

Strategic management represents an academic field whose consensual meaning might be expected to be fragile or even lacking (Ramos-Rodrígues and Ruíz-Navarro, 2004; Pinillos, 2011; Guerras-Martín, Madhok and Montoro-SAnchez, 2014). Due to the rapid change and increasing competition around the globe, SM has begun to gain importance (Tuncay, 2015). Its subjects of interest overlap with several other scientific fields, including economics, sociology, marketing, finance and psychology (Hambrick, 2004; Nag, Hambrick and Chen, 2007). Synergies resulting from this interdisciplinarity make SM a fast-moving and modern scientific research field.

The present study is the combined result of three fully individual studies on the investigation of current trends within the field of SM. The task for each of the three authors was the evaluation of hot topics in current SM research. Within this task, the authors used different quantitative methods and worked on their own. Therefore, the question arises as to how different research methods (especially the usage of different journal databases) result in possibly different trends. In order to answer this question, each study is based on a different bibliometric analysis approach showing current trends in the field of SM. Within these analyses, keywords mentioned in articles of scientific SM journals between 2012 and 2017 were identified, compared and analysed. Therefore, the following research questions are to be answered within the scope of this researc:

1. How is the field of SM developing?
2. What are the latest trends in the field of SM? Does the usage of different databases and periods of time within bibliographic analysis result in different trends?
3. Which key intentions lead to the emergence of the current hot topics?

This research is structured as follows: in section two, the term "strategic management" is defined on the one hand and the related work according to the research topic is described on the other hand. In section three, the methodologies of the three different research approaches are explained. The findings are compared and discussed in section four. Finally, this research concludes with research limitations and an outlook on further research activities in section five.

STRATEGIC MANAGEMENT: INTRODUCTION AND RELATED WORK

In order to understand the latest research topics of SM research, it is important to provide a brief description of the term "strategic management" as well as a short overview of its historical development. SM is a relatively young academic discipline whose origins date back to the early 1960s (Furrer, Thomas and Goussevskaia, 2008; Nerur, Rasheed and Natarajan, 2008; Guerras-Martín, Madhok and Montoro-SAnchez, 2014). The roots of SM can mainly be traced to the research contributions of Alfred Chandler (1962), Igor Ansoff (1965) and Kenneth Andrews (1971). Since then, SM has steadily evolved over the past fifty years into a mature field, while simultaneously expanding its range of research topics and research methods (Guerras-Martín, Madhok and Montoro-SAnchez, 2014).

The increasing number of researchers and contributions in the field of SM has led to a lack of a clear and universal definition of the term "strategic management" (Etter and Palmer, 1995; Nag, Hambrick and Chen, 2007). However, the following definitions will help to capture the essence of SM: David (2011:6) defined SM as "the art and science of formulating, implementing, and evaluating cross-functional decisions that enable an organization to achieve its objectives." According to Johnson, Scholes and Whittington (2008:12), "strategic management "includes understanding the strategic position of an organization, making strategic choices for the future and managing strategy in action." However, these different definitions imply that SM aims at the integration of operational tasks and activities (e.g. finance and accounting, research and development, and marketing) to achieve organizational success (David, 2011).

Currently, SM is one of the most prominent and relevant areas in the management field. It constitutes a set of management actions that enable managers to keep their company aligned with its environment and on the correct path of development, thereby bringing about the achievement of its objectives and its mission (Jones, 1981; Morris, 1992). In addition, the importance of SM can easily be shown by its presence in various scientific fields, like social sciences, technology, finance, psychology, and arts (Guerras-Martín, Madhok and Montoro-SAnchez, 2014; Schoemaker and Tetlock, 2017). Furthermore, SM has been a very important catchphrase in most European higher education reforms (Degn, 2015). Apart from that, the importance of SM becomes even clearer through the variety of high-ranked journals according to the ABS academic journal guide (2015; see Table 1).

Table 1

Variety and ranking of journals focussing on strategic management
(authors' own elaboration)

Journal	Ranking
Strategic Management Journal	4*
Global Strategy Journal	3
Long Range Planning	3
Strategic Organization	3

Advances in Strategic Management	2
Business Strategy and the Environment	2
Journal of Economics and Management Strategy	2
Strategic Change	2
Technology Analysis and Strategic Management	2

Based on the methods of Mikelsone and Liela (2015), the literature review focused on the following databases: Google Scholar, EBSCO Academic Search, Scopus, ScienceDirect, Sage Journals and Directory of Open Access Journals. Apart from that, the following keywords were used to search through these databases: strategic management, strategic management research, strategic management journal, bibliometric analysis, bibliometrics, co-citation analysis, co-word analysis and co-authorship-analysis. Finally, for the collection of other relevant literature, the bibliographies of the results already determined were analysed. Below, the contents of the literature reviews identified, as shown in

Table 2, are briefly summarised:

Table 2

Related work focusing on the evolution and trends of strategic management by using bibliometric methods
(authors' own elaboration)

Author(s)	Year	Methodology	Research topic	Focused journal(s)
Ferreira, Fernandes and Ratten	2016	Co-citation analysis	Most relevant approaches and new theoretical perspectives on strategic management theory	Extant literature from 1971 to 2014
Koseoglu	2016	Co-authorship analysis	Intellectual structure and evolution of author collaborations from articles published in the SMJ	SMJ
Nerur, Rasheed and Pandey	2015	Log-multiplicative model, pathfinder analysis, entropy analysis	Knowledge flows to and from the SMJ	SMJ
Tan and Ding	2015	Co-word analysis, co-citation analysis	Frontier and evolution of strategic management theory	SMJ
Pilkington and Lawton	2014	Co-citation analysis	Epistemological and methodological approaches to strategic management	AMJ, AMR, ASQ, ASM, BJM, JEMS, JM, JMS, LRP, SMJ
Vogel and Guttel	2013	Bibliographic coupling	Dynamic capability view in strategic management	Extant literature from 1994 to 2011

Ronda-Pupo and Guerras-Martín	2010	Co-authorship analysis	Dynamics of the scientific community network	SMJ
Nerur, Rasheed and Natarajan	2008	Author co-citation analysis	Intellectual structure of strategic management	SMJ
Furrer, Thomas and Goussevskaia	2008	Co-word analysis Co-authorship analysis	Structure and evolution of strategic management	AMJ, AMR, ASQ, SMJ
Ramos-Rodrígues and Ruíz-Navarro	2004	Co-citation analysis	Intellectual structure of strategic management	SMJ

Legend: Academy of Management Journal (AMJ), Academy of Management Review (AMR), Administrative Science Quarterly (ASQ), Advances in Strategic Management (ASM), British Journal of Management (BJM), Journal of Economics and Management Strategy (JEMS), Journal of Management (JM), Journal of Management Studies (JMS), Long Range Planning (LRP), Strategic Management Journal (SMJ).

The findings of the literature research indicate that there have been many attempts to systematically analyse the domain of the SM field in recent years (e.g. Ronda-Pupo and Guerras-Martín, 2010; Nerur, Rasheed and Pandey, 2015; Ferreira, Fernandes and Ratten, 2016), tracing its historical structure and evolution (e.g. Furrer, Thomas and Goussevskaia, 2008; Tan and Ding, 2015), assigning its intellectual structure (e.g. Ramos-Rodrígues and Ruíz-Navarro, 2004; Nerur, Rasheed and Natarajan, 2008; Koseoglu, 2016), and assessing its strengths and weaknesses (e.g. Vogel and Guttel, 2013). Furthermore, it is apparent that the authors mainly analysed articles from the Strategic Management Journal. This is because the Strategic Management Journal enjoys a reputation as a leader among various management magazines and is highly regarded by researchers in the field (Ramos-Rodrígues and Ruíz-Navarro, 2004; Koseoglu, 2016). It can also be inferred from the research that scholars within the field of SM believe that sufficient research has accumulated to define the boundaries of their field, map its intellectual domain and justify such analyses (Nerur, Rasheed and Natarajan, 2008). The overall result of the literature research is based on the fact that bibliometric methods have the advantages of quantification and objectivity and thus are able to supplement and validate expert judgments by experienced researchers in the field (Furrer, Thomas and Goussevskaia, 2008; Nerur, Rasheed and Natarajan, 2008).

RESEARCH METHODOLOGY

As shown in section 2, the use of bibliometric methods and techniques is a widespread and accepted way to quantitatively assess the literature on a scientific field. Therefore, using a bibliometric method for an investigation of current trends in the field of SM, as in the work of Furrer, Thomas and Goussevskaia (2008) and Tan and Ding (2015), appears to be justified.

However, the related work shows a noticeable limitation: Most research has

used only one research methodology in combination with one single journal in order to explain both the evolution and current trends of the SM field (e.g. Ronda-Pupo and Guerras-Martín, 2010; Nerur, Rasheed and Pandey, 2015; Koseoglu, 2016). Therefore, the question arises whether these research contributions reflect reliable and validated results. In order to avoid this limitation and due to the fact that SM is an ambiguous and highly contestable field, this research is based on three different approaches and a diverse set of scientific journals for identifying and assessing current trends in the field of SM. In this vein, the following criteria describe the overall research objectives to be achieved by the literature research and, further, serve to differentiate this research from previous scientific work.

First, the literature review should provide an overview of the content-thematic orientation of the literature. The aim of this research is, on the one hand, to identify relevant literature on current trends in the SM field and, on the other hand, to compare and analyse the keywords of the scientific papers identified within the selected management journals. Second, while most of the existent research is based on the investigation of the intellectual structure and evolution of SM (see

Table 2), this paper focuses on the latest trends in the field. Therefore, it lacks observing and evaluating approaches, methods, or techniques of SM on a micro level (e.g. Vogel and Guttel, 2013; Pilkington and Lawton, 2014) or macro level (Nerur, Rasheed and Natarajan, 2008; Ronda-Pupo and Guerras-Martín, 2010). Finally, while most bibliometric analyses use the author (e.g. Nerur, Rasheed and Natarajan, 2008) or the publication (e.g. Ramos-Rodrígues and Ruíz-Navarro, 2004) as the basic unit, the following work refers to the number and frequency of keywords mentioned in a given period of time. The various approaches are explained in more detail in the following sections and are summarized in Table 3.

Table 3

Characterization of the various research approaches
(authors' own elaboration).

Characteristics	Research Approach A	Research Approach B	Research Approach C
Focused years	2012 to 2016	2014 to 2017	2014 to 2017
Focused database(s)	Scopus, Emerald Insight	EBSCO, Scopus, Academic OneFile	Scopus
Focused journal(s)	SMJ, ASMJ, JSM	No focus	SMJ
Total number of articles	914	670	574
Total number of considered keywords	150	276	158

RESEARCH APPROACH A

The literature research was limited to the investigation of articles within the Strategic Management Journal, the Academy of Strategic Management Journal and the Journal of Strategy and Management for several reasons. Firstly, these journals, especially the Strategic Management Journal, are the best or leading journals in the field of SM (Ramos-Rodrígues and Ruíz-Navarro, 2004; Furrer, Thomas and Goussevskaia, 2008; Koseoglu, 2016). Secondly, articles published in scientific journals are considered to be certified knowledge, as these articles have to go through a review process (Ramos-Rodrígues and Ruíz-Navarro, 2004; Koseoglu, 2016). Thirdly, while it is acknowledged that books or dissertations also influence scholarly thinking, academic journals are generally regarded as the dominant communication platform for researchers (Beckendorff and Zehrer, 2013).

Following the work of Tan and Ding (2015), whose co-word and co-citation analysis refers to the years 2001 to 2012, the focus of the present study is the investigation of published articles in the aforementioned journals in the period of 2012 to 2016. The articles of the Strategic Management Journal and the Academy of Strategic Management Journal were selected by using Scopus, while the articles of the Journal of Strategy and Management were selected by using Emerald Insight. As a result, a total of 911 articles were identified and selected. The name of the author, the title of the article, the year, volume and issue of the journal, the page start and page end of the article, and the author's keywords were inserted into a Microsoft Excel spreadsheet. The transfer of the articles from the Scopus database was made by exporting the data to a text file and importing this file into Excel. The transfer of the articles from the Emerald Insight database was done manually.

As the data retrieved from the bibliographic sources normally contains errors, e.g. misspellings in the author's name, in the journal title, or in the reference list, a content analysis could not be applied directly and manual data processing of the data retrieved was necessary (Cobo et al., 2011; Beckendorff and Zehrer, 2013; Koseoglu, 2016). Therefore, to improve the quality of the data and thus obtain better results in the content analysis, the data were checked and cleaned manually by adding information to incomplete or wrong original datasets in a second step, e.g., if the author's name was incomplete or the number of pages of the article was wrong. Finally, the keywords identified were inserted into an Excel spreadsheet. Based on the total absolute frequencies of the keywords, a ranking was derived in order to obtain an accurate trend and thus a meaningful result of the analysis (see Appendix 2).

Within the literature research, a total amount of 914 articles and 4132 keywords (with duplicates) were identified.

Table 4

Output per journal per year
(authors' own elaboration)

Year	Academy of Strategic Management Journal	Journal of Strategy and Management	Strategic Management Journal	Total
2012	18	22	82	**122**
2013	15	23	91	**129**
2014	18	24	124	**166**
2015	29	22	124	**175**
2016	109	25	188	**322**
Total	**189**	**116**	**609**	**914**

Table 4 gives an overview of the output per journal per year. It is apparent that the number of articles in the Academy of Strategic Management Journal increased significantly in 2016, while the number of articles in the Strategic Management Journal increased steadily, except for the years 2014 and 2015. In comparison, the number of articles in the Journal of Strategy and Management has consistently remained between 22 and 25 per year. To analyse the content of the articles, a list of the top 50 keywords mentioned by the authors was developed for each journal (see Appendix 1). This list was necessary due to the fact that over 56% of the total 4132 keywords identified are idiosyncratic, meaning that they were only used once, and the consideration of all would reduce the reliability of the keyword analysis (Furrer, Thomas and Goussevskaia, 2008). Therefore, as to determining a first general trend, only the 50 most frequently mentioned keywords listed in the journals' articles are considered and evaluated, which corresponds to a total of 150 keywords and thus 3.6% of all keywords identified.

As the summation of the frequencies of keywords mentioned would lead to a distortion of the result, matching keywords were evaluated based on their relative frequency. For example, the keyword "leadership" was mentioned twice in the Academy of Strategic Management Journal and seven times in the Journal of Strategy and Management. The keyword "resource-based view" was mentioned three times in the Journal of Strategy and Management and 26 times in the Strategic Management Journal. If now only the sum of the frequency of the mentions were decisive for the ranking, the keyword "resource-based view" would be placed before "leadership". However, the rank among the keywords of the respective journal would not be considered here. Therefore, the relative frequency of the keywords is used for the basis of the evaluation. As a result, 19 keywords could be determined as the most common among the 150 keywords (see Figure 1). A complete overview of the evaluation of the 150 keywords is given in Appendix 1

Limiting the scope to 150 out of 4132 keywords leads to the fact that some keywords mentioned between 2012 and 2016 are not considered, as they were not among the top 50 keywords. Although the keywords shown in Figure 1 offer a first general trend, they lead to a false result due to the limitation to only 150 keywords. Therefore, this restriction was

removed in a further step; all keywords were taken into account. Again, based on the 19 keywords identified (see Figure 1), the frequency of the mentions and the relative frequency were determined. The results are shown in

Figure **2** and limited to the years 2012, 2014 and 2016 for a better overview. Nevertheless, the absolute and relative frequencies refer to the complete period of time. A complete overview of the keywords per journal and per year is given in Appendix 2.

The result of the co-word analysis is as follows (see

Figure **2**): "innovation" is the most frequent keyword with 48 mentions, followed by "resource-based view" (32), "firm performance" (28), "corporate governance" (25), "corporate social responsibility" (24) and "performance" (24). The five most frequent keywords include 19.8% of the occurrences; the top ten include 27.4%. Overall, the 19 keywords account for 38.4% of the total number of keywords. Due to the fact that companies must demonstrate timely responsiveness and rapid and flexible product innovation in order to obtain a competitive advantage (Teece, Pisano and Shuen, 1997), it is not surprising that most of the articles mentioned the keyword "innovation". Furthermore, Teece, Pisano and Shuen (1997) criticised that researchers in the field of SM need to join forces with researchers in the field of innovation and development if they want to solve the riddles that lie behind corporate and national competitive advantage. Twenty years later, it seems that this criticism has been appreciated. The fact that "firm performance" and "performance" are placed high up in the list is also not surprising, as it is an important goal of the company strategy to enable a company to improve or maintain its performance (Furrer, Thomas and Goussevskaia, 2008).

Top matching keywords		
Nr.	Keyword	Total RF
1	Innovation	0,02644
2	Firm performance	0,01801
3	Corporate social responsibility	0,01514
4	Leadership	0,01434
5	Management	0,01432
6	Resource-based view	0,01338
7	Performance	0,01285
8	Corporate strategy	0,01247
9	Corporate governance	0,01159
10	Competitive advantage	0,01013
11	Human capital	0,00939
12	Entrepreneurship	0,00812
13	Acquisition	0,00801
14	Dynamic capabilities	0,00725
15	Decision making	0,00725
16	Mergers and acquisition	0,00725
17	Alliances	0,00683
18	Learning	0,00574
19	Balanced scorecard	0,00490

Figure 1. Overview of matched and ranked keywords from the top 150 keywords of the journals (authors' own elaboration). (RF = relative frequency).

No.	Keyword	2012						2014						2016						Total 2012-2016		
		ASMJ		JSM		SMJ		ASMJ		JSM		SMJ		ASMJ		JSM		SMJ				
		AM	Per	AM	Per	AM	Per	AM	Per	AM	Per	AM	Per	AM	Per	AM	Per	AM	Per	AM	Per	Rank
1	Innovation	0	0,0	1	4,5	9	11,0	1	5,6	1	4,2	9	7,3	1	0,9	1	4,0	10	5,3	48	5,3	1
2	Firm performance	0	0,0	0	0,0	3	3,7	1	5,6	0	0,0	3	2,4	1	0,9	2	8,0	9	4,8	28	3,1	3
3	Corporate social responsibility	0	0,0	0	0,0	2	2,4	1	5,6	1	4,2	3	2,4	1	0,9	0	0,0	7	3,7	24	2,6	5
4	Leadership	1	5,6	1	4,5	0	0,0	1	5,6	1	4,2	1	0,8	0	0,0	0	0,0	0	0,0	11	1,2	16
5	Management	0	0,0	1	4,5	0	0,0	0	0,0	0	0,0	0	0,0	6	5,5	0	0,0	0	0,0	8	0,9	18
6	Resource-based view	0	0,0	0	0,0	2	2,4	0	0,0	2	8,3	4	3,2	1	0,9	2	8,0	5	2,7	32	3,5	2
7	Performance	0	0,0	0	0,0	4	4,9	0	0,0	2	8,3	5	4,0	0	0,0	2	8,0	4	2,1	24	2,6	5
8	Corporate strategy	0	0,0	3	13,6	1	1,2	0	0,0	0	0,0	2	1,6	0	0,0	0	0,0	3	1,6	16	1,8	9
9	Corporate governance	0	0,0	0	0,0	2	2,4	0	0,0	0	0,0	4	3,2	2	1,8	0	0,0	8	4,3	25	2,7	4
10	Competitive advantage	0	0,0	1	4,5	2	2,4	0	0,0	0	0,0	3	2,4	0	0,0	1	4,0	2	1,1	16	1,8	9
11	Human capital	0	0,0	0	0,0	0	0,0	0	0,0	0	0,0	1	0,8	3	2,8	0	0,0	2	1,1	14	1,5	12
12	Entrepreneurship	0	0,0	0	0,0	6	7,3	0	0,0	0	0,0	3	2,4	0	0,0	1	4,0	3	1,6	17	1,9	8
13	Acquisition	0	0,0	0	0,0	4	4,9	0	0,0	0	0,0	4	3,2	1	0,9	0	0,0	5	2,7	19	2,1	7
14	Dynamic capabilities	0	0,0	1	4,5	2	2,4	0	0,0	1	4,2	1	0,8	1	0,9	1	4,0	2	1,1	12	1,3	15
15	Decision making	0	0,0	1	4,5	2	2,4	0	0,0	0	0,0	2	1,6	0	0,0	0	0,0	2	1,1	14	1,5	12
16	Mergers and acquisition	0	0,0	2	9,1	0	0,0	0	0,0	1	4,2	3	2,4	0	0,0	0	0,0	2	1,1	13	1,4	14
17	Alliances	0	0,0	0	0,0	2	2,4	1	5,6	0	0,0	3	2,4	1	0,9	0	0,0	5	2,7	16	1,8	9
18	Learning	0	0,0	0	0,0	0	0,0	0	0,0	1	4,2	1	0,8	0	0,0	1	4,0	3	1,6	11	1,2	16
19	Balanced scorecard	0	0,0	1	4,5	0	0,0	0	0,0	0	0,0	0	0,0	1	0,9	1	4,0	0	0,0	3	0,3	19
	Number of articles	18		22		82		18		24		124		109		25		188		914		

Legend:
ASMJ   Academy of Strategic Management Journal   AM   Amount
JSM   Journal of Strategy and Management   Per   Percentage
SMJ   Strategic Management Journal

Figure 2. Overview of the keywords per journal for the years 2012, 2014 and 2016 and in total (authors' own elaboration).

RESEARCH APPROACH B

Using the EBSCO database, the development of SM for the last 50 years was explored, looking at the amount of papers in subfields of SM and the ratio of these amounts in comparison with the total paper amount in SM research. Therefore, clustering hot topics in different time ranges was possible, as was the depiction of these subfields' development with regard to how unimportant or important they became in the time range observed. Then, Scopus was used as a kind of reasonability by looking at the amount of all papers in SM subjects within the same time range. The same procedure was done with Academic OneFile, with the difference of a time range of 2014 to 2017 in order to get a closer look at current research topics. Here, the actual keyword analysis took place. The top five subjects regarding the amount of papers from 2014 to 2017 were chosen as an additional filter in the search mask before every single paper of the respective five subjects was investigated for keywords. As a not inconsiderable amount of these papers did not have keywords (even if only papers from academic journals with a full text were chosen), in some cases, keywords generated through the titles have also been added.

The literature research was linked to the keyword analysis. As the focus was on the state of the art in SM, the selection of the papers was predominantly done within the publication years of 2014 to 2017, which was beneficial for the exploration of current research subfields. Finally, the approach of such a segmentation in different subjects of SM is recommended and further applied by several researchers (Ronda-Pupo, 2015; Zupic and Cater, 2015).

Even if it is clearly explained in the introduction that SM is an important research topic, the amount of research papers in this field is stagnating or even declining, taking into account the results from Scopus.
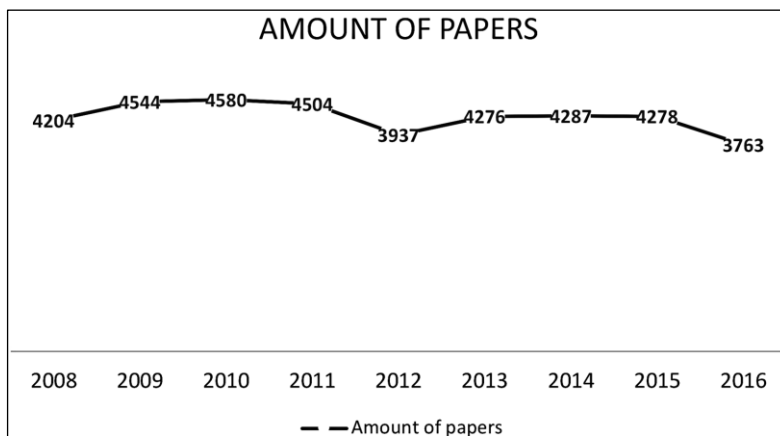
Figure 3. Development of the amount of papers concerning strategic management (authors' own elaboration).

As is observable, no major differences occurred in the ten years considered. Nevertheless, it seems – in this case – that research on SM is stagnating or

even decreasing. Comparing the periods of 2008-2011 and 2012-2015, the total amount of papers decreased from 17,832 to 16,778. In 2016, the annual amount of papers was the lowest within the time frame considered.

Taking a closer look at the most important subjects of strategic management in the last 50 years, *strategic planning* generated the highest amount of research papers (25,829 papers) in Scopus. The authors who made the most contributions in total were D. J. Ketchen (49 papers), R. Phaal (44 papers) and A. D. Smith (42 papers). Looking to the development of keywords concerning SM, EBSCO was then used to vary more between the research bases. The result of a clustering in different time frames is portrayed in Table 5.

Taking these results into account, the above-mentioned declining number of research papers is somehow neglected; within the time range of 2012-2017, 15,692 papers were published. From 2007 to 2017, the number was 27,282, which is – logically – 11,590 papers from 2007 to 2011. Looking at the subjects of SM, *strategic planning* is in first place in all time ranges. However, the ratio that takes into account the total number of papers is declining. Besides *strategic planning*, other subjects like *higher education*, *decision-making*, *research* and *United States* constitute the top five keywords within SM in the time range of 2012 to 2017. In particular, the importance of *research* rose, considering its rising ratio. In contrast, *information resources management*, *personnel management* and *competition* decreased drastically.

Table 5

**Development of strategic management subfields
(authors' own elaboration).**

Ebsco	1967-2017		1997-2017		2007-2017		2012-2017	
Subject	amount	ratio	amount	ratio	amount	ratio	amount	ratio
Strategic planning	4177	10,37%	3889	10,51%	2740	10,04%	1304	8,31%
higher education	1161	2,88%	1013	2,74%	711	2,61%	389	2,48%
united states	980	2,43%	842	2,28%	562	2,06%	205	1,31%
decision making	725	1,80%	654	1,77%	490	1,80%	261	1,66%
management	563	1,40%	502	1,36%	234	0,86%	102	0,65%
business planning	547	1,36%	511	1,38%	277	1,02%	85	0,54%
industrial management	542	1,35%	492	1,33%	257	0,94%	68	0,43%
case studies	531	1,32%	500	1,35%	408	1,50%	186	1,19%
knowledge management	517	1,28%	512	1,38%	377	1,38%	153	0,98%
leadership	512	1,27%	482	1,30%	371	1,36%	200	1,27%
information technology	460	1,14%	423	1,14%	251	0,92%	91	0,58%
great britain	435	1,08%	404	1,09%	248	0,91%	128	0,82%
information resources management	424	1,05%	390	1,05%	258	0,95%	26	0,17%
personnel management	417	1,04%	365	0,99%	202	0,74%	8	0,05%
competition	415	1,03%	378	1,02%	246	0,90%	55	0,35%
organizational change	348	0,86%	300	0,81%	209	0,77%	109	0,69%
research	303	0,75%	297	0,80%	226	0,83%	212	1,35%
china	294	0,73%	292	0,79%	247	0,91%	133	0,85%
australia	225	0,56%	225	0,61%	171	0,63%	83	0,53%
executives	223	0,55%	218	0,59%	120	0,44%	63	0,40%

executives	223	0,55%	218	0,59%	120	0,44%	63	0,40%
organizational effectiveness	213	0,53%	197	0,53%	122	0,45%	54	0,34%
qualitative research	193	0,48%	193	0,52%	187	0,69%	142	0,90%
stakeholders	192	0,48%	187	0,51%	165	0,60%	101	0,64%
surveys	184	0,46%	171	0,46%	135	0,49%	76	0,48%
total	**40288**	**100%**	**36986**	**100%**	**27282**	**100%**	**15692**	**100%**

In order to detect the latest trends in SM research, Academic OneFile was used. Therefore, the search mask was limited as follows: the basic search was "strategic management"

- only full texts from academic journals were chosen
- the time range was 1 January 2014 to 6 May 2017 (the day when the analysis started)
- the five subjects with the highest amount of papers (*strategic planning*, *entrepreneurship*, *decision-making*, *knowledge management* and *business logistics*) were filtered out separately
- all papers within the five subjects were explored with regard to their keywords

In order to get an overview of the latest trends, the amount of papers from the above-mentioned subjects of SM from 2014 to 2017 were compared to their total paper amount. Through this approach, it was possible to see how many of the papers were developed in recent years, which is an indicator of the current trends, topicality and maturity of the subjects. The results are summarized in the following table:

Table 6

Hot topics in strategic management and maturity of subjects
(authors' own elaboration)

Subject	total amount	2014 - 2017	ratio 2014 - 2017
Strategic planning	1251	158	12.63%
Entrepreneurship	888	157	17.68%
Decision-making	685	124	18.10%
Knowledge management	581	119	20.48%
Business logistics	494	112	22.67%

As is observable, *strategic planning* is – again – the most important subject in SM; it generates the highest results both in the total amount of papers and in the amount of papers from 2014 to 2017. However, *strategic planning* is a subject characterized by high maturity, as its ratio of papers from 2014 to 2017 in comparison with the total amount is only 12.63%. *Business logistics*, in comparison, is obviously a younger research subject, as it has a ratio which is nearly doubled. Therefore, it is imaginable that *strategic planning* could lose its number one position in some years.

As a result of the keyword analysis in the five subjects of SM described above, 276 keywords were found after investigating 670 papers. As a high number of keywords was only used once, twice or three times, only the top 40 keywords are shown in the table. *Performance* (64) represents with great distance the most used keyword, followed by *supply chain management* (38) and *innovation* (33). Interestingly, *performance* does not play any role within *decision-making*, which has – in contrast to the other subjects – no dominantly used keyword, as the most frequently used keywords *decision support* and *simulation* were only used six times. *Business logistics*, in contrast, is strongly dominated by *supply chain management* (29 times in the 112 detected papers on the subject,

which is the highest ratio found) and *performance*. *Entrepreneurship* has three main keywords, namely *entrepreneurial orientation*, *performance* and *innovation*, just like the subject *knowledge management*, which combines high amounts of *performance*, *information technology* and *knowledge sharing*.

The most traditional subject, which is *strategic planning*, combines several frequently used keywords like *performance*, *organization*, *sustainable development* and *leadership*; therefore, it is not dominated like most of the other subjects, which may be the result of its high maturity. In order to summarize the insights received in the hot topics of SM, a table portraying the results of the keyword analysis is included in Appendix 4.

RESEARCH APPROACH C

Using the web service provided by EBSCO, Scopus Databases were given as the best choice regarding the following criteria: how database providers reflect full-text content information (title name, ISSN, etc.) in their published title lists, understanding "actual" versus "intended" content, the importance of "active" over "halted" coverage, the availability of unique content in each resource considered and the significance of human interaction/oversight at every level of the comparison process.

Research was limited to the investigation of articles within Scopus and the Strategic Management Journal for several reasons. Firstly, the Strategic Management Journal is the best of the leading journals in the field of SM (Ramos-Rodrígues and Ruíz-Navarro, 2004; Furrer, Thomas and Goussevskaia, 2008). Secondly, articles published in scientific journals and included in Scopus Databases are considered to be certified

knowledge, because of the selection made by a strong review process (Ramos-Rodrígues and Ruíz-Navarro, 2004). Finally, the present research is concerned only with scientific journals in the field of SM, while other papers have chosen a broader base of literature (Furrer, Thomas and Goussevskaia, 2008).

Analysis was structured as follows: definition of request, data collection, filters application and enumeration of collected data with synthesis. Data collection concerned a three-year period and was about SM and how it is most often evoked in the relevant professional sources. It can be transposed into Scopus Query Language as:

KEY ("strategic management") AND PUBYEAR > 2013 AND (LIMIT-TO (SUBJAREA , "BUSI") OR LIMIT-TO (SUBJAREA , "SOCI") OR LIMIT-TO (SUBJAREA , "ECON") OR LIMIT-TO (SUBJAREA , "DECI")).

The variables are: BUSI: business, management and accounting, SOCI: social sciences, ECON: economics, econometrics and finance, DECI: decision sciences.

The exported file contained 574 records whose format was *"authors; title; year; source title; volume; issue; cited by; link; author keywords; indexed keywords; document type; EID"*. In order to purify and homogenize the data, filters were applied to this collection of 574 records about author keywords (468 records), indexed keywords (180 records) and a combination of author and indexed keywords (74 records). Data collection showed a growing trend in terms of number of published articles: 154 in 2014, 178 in 2015, and 184 in 2016. There were 158 keywords, of which 32 keywords are representative (principle of normal distribution law and Pareto) (Appendix 5). Through successive regressions and compilations, the following ranking of the ten most representative keywords was generated.

Table 7

Top ten keywords based on 574 articles for 2014-2017
(authors' own elaboration)

Rank	Keywords	Frequency
1	Firm performance	2.96%
2	Innovation	2.79%
3	Corporate social responsibility	1.92%
4	Management	1.74%
5	Leadership	1.57%
6	Corporate strategy	1.39%
7	Resource-based view	1.39%
8	Performance	1.22%
9	Competitive advantage	1.22%
10	Corporate governance	1.05%

The table above briefly summarises the hot subjects in SM. Innovation and managerial innovation, corporate social responsibility, firm performance, leadership, and management are the subjects most present in Scopus Databases in the subject of SM, which shows the importance given to the performance of companies, the development of capabilities, and competitiveness through innovation (technical innovation and management innovation). In what follows, the development of the most important research fields of SM will be explained in more detail.

Firm Performance

The performance of organizations has been, over the last twenty years, the subject of recurrent debates, given its polysemic nature and the difficulties associated with its measures. These debates have been fuelled by the questioning of the strictly financial logic of performance that has led researchers to change managers. De Vaujany, Hussenot and Chanlat (2016) have identified the extent of this evolution in the theory of organizations from four new turning points – practical, material, process and societal – in which the concept of performance is extended to a "global performance" (Capron and Quairel, 2006; Jany-Catrice, 2013). Popularized since its first experiments in 2000, the concept of global performance is now supported by several

authors, such as Whittington (2012), who stressed that financial performance is only one aspect of organizational performance (Capron and Quairel-Lanoizelee, 2015). In the SM literature, "global performance" is used by companies to assess the implementation of sustainable strategies and to report their societal responsibilities to various stakeholders (Renaud and Berland, 2007). Revisiting the performance of organizations according to the three dimensions of sustainable development responds to major social, economic and environmental developments, including rising unemployment, the diminishing role of the welfare state, and climate change. This renewed approach to performance raises the question of value creation models (Johnson et al., 2011; Berger-Douce, 2015): is it merely a question of amending the model of shareholder value, taking advantage of business case approaches or of inventing a new model of value?

The literature on overall performance is structured around two main trends: corporate social performance (CSP) and stakeholder theory (Freeman, 1984). The current CSP refers to a multidimensional approach to performance, such as the aggregation of economic, social and environmental performance, the reference model of which is Wood (1991). Due to the difficulties in operationalizing CSP, a stakeholder theory emerged around a definition of performance centred on stakeholder satisfaction (Acquier and Aggeri, 2008; Harrison and Wicks, 2013). Mason and Simmons (2014) proposed combining these two approaches in an integrative model of overall performance assessment in terms of efficiency, effectiveness, equity, environmental impact and reputation. This model has recently been used to model the overall performance of the mountain station (Bourgel, 2016). Other tracks are under

construction, such as the development of environmental accounting (Richard, 2012), the integration of territories into the accounting of performance (Pige, 2015), and the use of dynamic capacity theory (Arend, 2014; Haas, 2016). The dynamics of performance, as a result, cannot ignore performance as a process. From this point of view, acting collectively determines a collective performance that goes beyond the mere juxtaposition of individual performances. In addition, the questions of governance or managerial innovations to be implemented arise in the context of a revisited performance (Martinet, 2008; Robertson, Blevins and Duffy, 2013) in both large and small firms (Berger-Douce, 2014).

Innovation and Management Innovation

Management innovation (MI) is considered as a central explanatory factor for the performance of companies and the source of a sustainable competitive advantage (Hamel, 2006, 2009; Mol and Birkinshaw, 2009) or as an independent phenomenon (Evangelista and Vezzani, 2010; Mol and Birkinshaw, 2012; Battisti, Colombo and Rabbiosi, 2015). However, the literature on MI, also referred to as "administrative innovation" (Daft, 1978), "innovation management" (Birkinshaw, Hamel and Mol, 2008), and "organizational innovation" (OECD, 2005; Damanpour and Aravind, 2012), is still stammering or embryonic (Damanpour and Aravind, 2012; Volberda et al., 2013). Despite a renewed academic interest in this particular type of innovation since the seminal article by Birkinshaw et al. (2008), MI remains underexplored both conceptually and empirically, particularly in relation to technological innovation. While many journals have contributed in part to this gap, much remains to be done to arrive at a true theory of organizational innovation (Damanpour and Aravind,

2012). Birkinshaw et al. (2008:829) propose a definition of MI, widely used in research (Volberda et al., 2013) and understood as the "generation and implementation of a management practice, process, structure, or technique that is new to the state of the art and is intended to further organizational goals". The reasons for the emergence or the generation of an MI remain relatively vague. They rely heavily on a rational view that organizations facing a problem want to improve their performance and thus decide to innovate (Birkinshaw, Hamel and Mol, 2008). MI is presented as a lever for the performance of the organization given its complementarity with technological innovation (Evangelista and Vezzani 2010; Mol and Birkinshaw, 2012; Battisti, Colombo and Rabbiosi, 2015) or as an independent phenomenon (Mol and Birkinshaw, 2009). In this context, it seems legitimate and necessary to question the conditions under which MI is a factor of performance. If Toyotism, lean management, problem solving by employees, and divisional or matrix structures are among the most remarkable and cited MIs (Hamel, 2006), new management practices to encourage creativity, intrapreneurship, flexibility, transversality, and collective intelligence are emerging and are today given as MIs of the future (Dufour and Andiappan, 2013; Le Roy, Robertson and Giuliani, 2013). What are the conditions necessary for these MIs to contribute to the performance of companies? But beyond this central issue, other reflections can also be carried out around the following questions: What are the human stakes of these MIs? What is the influence of the individual characteristics of decision-makers or other internal and external actors in the emergence and adoption of these MIs? How do these IMs make sense within organizations?

Corporate Social Responsibility and the Collaborative Economy

Enterprises can integrate social promises into their business model: building a social bond, prolonging the life of objects, promoting recycling, or promoting access to products and services by breaking rents from large companies. Nevertheless, it is necessary to distinguish promises, discourses and impacts (Demailly et al., 2016). Impact analysis is complex, taking into account the "rebound effects" associated with the use of money generated or saved by the exchange or resale of objects (Demailly and Novel, 2014) and the impact, often neglected, on analyses or information systems. On the other hand, the economics of collaborative platforms are being developed through organizational and contractual arrangements that generate much criticism and controversy about social responsibility (Slee, 2017). This criticism points to the role of these platforms in the individualization of work and the questioning of wage-earning, transfers of responsibility from platforms to contributors, social protection issues for self-entrepreneurs, and disproportionate appropriation of value for capitalist purposes only. The French legislature, for instance, has anticipated the scale of the changes under way since it has incorporated into the recent labour law a special mechanism to promote the social responsibility of organizations in the collaborative economy. Numerous approaches are thus being taken to promote a better integration of the expectations of the multiple stakeholders who revolve around the platforms of the collaborative economy and are impacted by their activities. Alongside the legal path, some are exploring alternative modes of governance, exploring platform co-operation (Scholz and Schneider, 2017) as a potential leverage of platforms for their

members, and allow us to ask several questions. Which policy strategies are implemented by the platforms and their stakeholders in terms of CSR or sustainable development? What are the stakes in governance and the inclusion of stakeholders in defining the strategic orientations of collaborative organizations? How to analyse platform accountability dynamics? What is the real impact of the "reformist" values promoted by certain collaborative initiatives on governance and the structuring of business models? How to measure the sustainability of collaborative initiatives?

Leadership and Management

Many authors in management research agree that we are experiencing a change of paradigm in management. Clarke and Clegg (2000) emphasize the criticality of learning capacities in the context of significant changes in the environment. The capacity for learning becomes the most critical managing attribute, enabling managers to adapt quickly to the unknown. "The knowledge-based economy in which creativity, intelligence and ideas are the cornerstone of sustainable business" (Clarke and Clegg, 2000:45). International conferences invite researchers in management and organization to consider ways of modifying their perspectives and research practices in order to foster reflexivity in organizations and to promote the adaptation of individuals and organizations in "uncertain times" (Egos,

2014). In the same vein, the multicultural, global, heterogeneous, virtual, connected world in which students evolve (Steyaert, Beyes and Parker, 2016) invites us to rethink, review and re-evaluate pedagogical practices and to reinvent management education. Mutations linked to the widespread dissemination of knowledge lead us to question the scope (and relevance) of education in management and invite us to engage in a pedagogical innovation approach (Antonacopoulou, 2010). Innovative pedagogical approaches developed in recent years include art-based methods, such as creative writing, theatre, contemporary art, circus arts, design methods, simulations and games (role playing, building, serious). What are these methods? What effect(s) can be expected? How are they different or how do they differ? What are the objectives of training or acquiring this knowledge? What, in other words, would be the philosophy of knowledge that underlies these approaches? How does this type of method fit into management programmes (initial training, MBA, DBA, PHD, etc.)? Rousseau (2012) reminds us that innovative pedagogies affect the institutional framework in which they intervene and lead to changes in programmes and courses. How can our structures and educational institutions support this type of approach? For what purposes? What resources do they have to carry and disseminate these educational innovations?

DISCUSSION AND CONCLUSION

Although the findings of the three research approaches do not agree significantly, similarities can be identified: keywords such as "firm performance", "innovation", "leadership", "decision-making", and "competitive advantage" are among the results of the literature

research. Furthermore, it can be shown that the different approaches are valid; thus, the findings of the literature research represent real current trends in the field. Regarding the second research question, it can be stated that the usage of different databases within bibliographic analysis

does result in different trends; however, these trends are partly similar and lead to identical conclusions regarding current developments in the SM field.

The results of this analysis are partly consistent with the results of the study by Furrer, Thomas and Goussevskaia (2008). For example, the keyword "performance" is also among the top three keywords identified, and other matches can be found, such as "alliances", "innovation", "entrepreneurship" or "leadership" (ibid, 2008). Furthermore, Fuller et al. (2008) expected more publications on capabilities, alliances, competitions and innovation in the near future. According to the results of this study and defining the keyword "resource-based view" as a generic term for capabilities (ibid, 2008), these expectations were met. However, it seems as if there is a shift away from research aimed at traditional management or strategy methods to research that is directed towards methods for guiding firms to corporate goals or strategies. Therefore, keywords in the present study that imply articles on traditional management methods, such as "management", "entrepreneurship" or "leadership", are only partially within the top stated keywords, while such keywords in the research of Furrer, Thomas and Goussevskaia (2008) were among the top five.

The main purpose of this research was to examine the field of SM, both in its original concepts and in the future of this discipline. Therefore, data were gathered from articles published in leading scientific journals between 2012 and 2017 using three fully individual approaches. These data were used to gain insights into current trends and hot topics in the field of SM. By using bibliometric methods within this keyword analysis in the framework of the last five years of publications in top SM journals, the main research directions

could be identified in the field. The overall result of the present study showed that current research in the field of SM is focused on the performance of companies, the development of capabilities, and possibilities to drive innovations to remain competitive. In addition, methods and procedures are explored on how companies can operate and achieve their corporate goals and strategies. There could be various reasons for this trend in the SM field. One reason could be the increasing globalization that is changing the competitive landscape in which entrepreneurs compete (Cheng, Filzah and Hoe, 2011). Apart from that, expanding digitalization is also a possible reason for other changes in the field of SM, as business and production processes can be controlled and optimized more efficiently and flexibly by means of digital systems (Aichele and Schonberger, 2017). Similarly, further research approaches may result from the increasing distribution and acceptance of almost omnipresent communication devices and communication possibilities. Another reason for a rise in research on corporate social responsibility could be the demographic change and thus the need to explore entrepreneurial opportunities to meet the needs of older people (Kohlbacher, Herstatt and Levsen, 2015).

In conclusion, the results of this study provide significant contributions to SM, general management, and organizational literature in several ways and represent the first published attempt to explore the current trends among keywords in the SM field via three different approaches using bibliometric methods. Based on the fact that the results of this study are similar to the results of the study by Furrer, Thomas and Goussevskaia (2008), it can be concluded that, although the results of the latter emerged from an analysis of a different data set, this similarity strongly supports

the validity of the results of this research. Moreover, the findings of this study should contribute to theoretical development in the field of SM. In particular, graduate students and junior researchers often have difficulties in identifying the main research topics in a scientific field (Koseoglu, 2016). Finally, since SM is a practice-centred field (Bromiley and Rau, 2014), the findings may also help CEOs and managers in formulating and implementing strategies in their organizations. Thus, SM researchers as well as practitioners can benefit from the results of this research paper.

LIMITATION AND OUTLOOK

This research has several minor and major limitations. One of the main drawbacks of the research design relates to the selection of scientific journals, which is also the major limitation of related work focusing on trends in SM using bibliometric analysis (see Table 2). By selecting only three journals within Approach A (SMJ, ASMJ, JSM) and only a single journal within Approach C (SMJ), this study limits the scope of its findings, since the articles reviewed represent only a fraction of all SM research. It is possible that significant changes in the trends and rankings mentioned in this study could appear if SM articles from a wider range of journals were included. However, the authors of this paper are reasonably confident that the literature analysed represents the major research efforts made in the SM discipline. The main reason for this assumption is, on the one hand, the character of the Strategic Management Journal as a top-tier journal in the business and management realms, and, on the other hand, the fact that publication in this journal "is a significant accomplishment for authors from many disciplines related to SM" (Koseoglu, 2016: 166). Apart from that, Approach B did not focus on specific journals and revealed results going in the same direction as Approach A and Approach C at the same time, increasing the overall study result's reliability for trends in SM.

However, all existing databases should be used as an evaluation of the research questions for a fully representative result. Not surprisingly, such an effort cannot be made easily. Therefore, databases with somewhat distinguishable focusses were chosen in terms of heterogeneity. However, the restriction of the database to articles from the last five years could have led to a distortion of the result due to rapid developments and changes in the field of SM. The restriction to articles from the past two or three years could have led to other results. Although a time limitation could possibly prevent the identification of older relevant sources of literature (Schonberger et al., 2014), an examination of the current literature was aspired to within this study. Nevertheless, all databases include different research areas like biology, education, social sciences or arts, whereas the interdisciplinary field of SM was investigated from different points of view.

Regarding Approach A, the selection of the top 150 keywords from the journals was based simply on the frequency of their mentions. A more validated approach would have been to get an analysis and evaluation of this selection by experts from the field, as Furrer, Thomas and Goussevskaia (2008) did within their research. Regarding Approach B, even if the amount of detected papers (670) is high enough for an appropriate keyword analysis, there is some potential left. A larger sample, enriched through expansion to different databases, would be

very beneficial for a more validated and accurate result. Then the analysis would have better potential for correlations of keywords or subjects. Taking into account that all keywords have to be noted by hand using *Excel*, as the filter function does not work within a separate detection of different subjects, the workload would increase dramatically.

Another major drawback comes from the use of bibliometric analysis. A report from the International Mathematical Union warns against the widespread practice of inadmissible conclusions from bibliometric data. For small magazines, the impact factor fluctuates strongly from year to year. Furthermore, the quality of a magazine cannot necessarily be inferred from the quality of an article (Adler, Ewing and Taylor, 2008). Therefore, the results of the present study do not claim to be exhaustive.

Finally, this work provides several connecting factors for further research work. Looking into the future, several authors highlighted the special role of (strategic) business education in the time of the knowledge economy as well as rapid and unpredictable changes in the business environment (e. g. Bratianu, 2015; Degn, 2015; White et al., 2016). In particular, the interdisciplinary approach in business education is missing, which is unbeneficial with regard to the high amount of research fields combined with SM (David, David and David, 2016). In the context of this dynamic business environment, several authors refer to the rising importance of the *strategic management society* (Løwendahl and Revang, 2008; Kunc and Morecroft, 2010; Ronda-Pupo, 2015). Thus, other promising research fields are just at the start of shaping the research field of SM. Similar to the work of Ramos-Rodrígues and Ruíz-Navarro (2004) as well as Furrer, Thomas and Goussevskaia (2008), the results of this study should help SM researchers to understand in which direction the field is moving and which research gaps exist. This will enable researchers to position their future research efforts. Due to the rapid developments and changes in the SM field, as mentioned before, a re-verification of the results presented within this research becomes necessary.

REFERENCES

1. Acquier, A. and Aggeri, F. (2008). Une genealogie de la pensee manageriale sur la RSE. Revue Francaise de Gestion. Vol. 11, No. 180, pp. 131-157.
2. Adler, R., Ewing, J., and Taylor, P. (2008). Citation Statistics. A report from the International Mathematical Union (IMU) in cooperation with the International Council of Industrial and Applied Mathematics (ICIAM) and the Institute of Mathematical Statistics (IMS), Joint Committee on Quantitative Assessment of Research.
3. Ahmadi, S. M. A. and Firozabadi, K. J. (2014). Planning macro strategies using fuzzy expert system in Iranian railways company, Advances in Environmental Biology, pp. 190-196.
4. Aichele, C. and Schonberger, M. (2017). Die Digitalisierung der Energiewirtschaft: Potenziale und Herausforderungen der IKT-Branche fur Utility 4.0, in Doleski, O. (Ed.), Herausforderung Utility 4.0. Wie sich die Energiewirtschaft im Zeitalter der Digitalisierung verändert, Springer, Wiesbaden, pp. 503-530.
5. Andrews, K. R. (1971). The Concept of Corporate Strategy. Dow-Jones Irwin, Homewood.
6. Ansoff, H. I. (1965). Corporate Strategy: An Analytical Approach to Business Policy for Growth and Expansion. McGraw-Hill, New York.

7.   Antonacopoulou, E. P. (2010). Making the Business School More 'Critical': Reflexive Critique Based on Phronesis as a Foundation for Impact. British Journal of Management, Vol. 21, No. s1, pp. 6-25.

8.   Arend, R. J. (2014). Social and Environmental Performance at SMEs: Considering Motivations, Capabilities, and Instrumentalism", Journal of Business Ethics, Vol. 125, No. 4, pp. 541-561.

9.   Battisti, G., Colombo, M. G. and Rabbiosi, L. (2015). Simultaneous versus sequential complementarity in the adoption of technological and organizational innovations: the case of innovations in the design sphere. Industrial and Corporate Change. Vol. 24, No. 2, pp. 345-382.

10. Beckendorff, P. and Zehrer, A. (2013). A network analysis of tourism research. Annals of Tourism Research. Vol. 43, pp. 121-149.

11. Berger-Douce, S. (2014). Capacite dynamique d'innovation responsable et performance globale: Etude longitudinale dans une PME industrielle. Revue Interdisciplinaire Management, Homme(s) and Entreprise, Vol. 3, No. 12, pp. 10-28.

12. Berger-Douce, S. (2015). La performance par l'innovation responsible. Entreprendre and Innover. Vol. 24, No. 1, pp. 37-44.

13. Birkinshaw, J., Hamel, G. and Mol, M. J. (2008). Management Innovation. Academy of Management Review. Vol. 33, No. 4, pp. 825-845.

14. Bourgel, B. (2016). Performance globale de la station de montagne: un essai de modelisation. In Actes de la XXVe Conference Internationale de Management Strategique in Hammamet, Tunisia, 2016, pp. 1-25.

15. Bratianu, C. (2015). Developing strategic thinking in business education. Management Dynamics in the Knowledge Economy, Vol. 3, No. 3, pp. 409-429.

16. Bromiley, P. and Rau, D. (2014). Towards a practice-based view of strategy. Strategic Management Journal, Vol. 35, No. 8, pp. 1249-1256.

17. Capron, M. and F. Quairel (2006). Evaluer les strategies de developpement durable des entreprises: l'utopie mobilisatrice de la performance globale. Revue de l'Organisation Responsable, Vol. 1, pp. 5-17.

18. Capron, M. and F. Quairel-Lanoizelee (2015). L'entreprise dans la societe - Une question politique. La Decouverte, Paris.

19. Chandler, A. D. (1962). Strategy and Structure. Chapters in the History of the Industrial Enterprise. Cambridge: The M.I.T Press.

20. Cheng, W. H., Filzah, M. I. and Hoe, C. H. (2011). Globalization and Application of Strategic Management Model and Theories to Entrepreneurs in a Turbulent Economy. Chinese Business Review, Vol. 10, No. 6, pp. 429-437.

21. Clarke, T. and Clegg, S. (2000). Management paradigms for the new millennium. International Journal of Management Reviews, Vol. 2, No. 1, pp. 45-64.

22. Cobo, M. J., Lopez- Herrera, A. G., Herrera-Viedma, E. and Herrera, F. (2011). Science mapping software tools: Review, analysis, and cooperative study among tools. Journal of the American Society for Information Science and Technology, Vol. 62, No. 7, pp. 1382-1402.

23. Daft, R. L. (1978) "A Dual-Core Model of Organizational Innovation", The Academy of Management Journal, Vol. 21, No. 2, pp. 193-210.

24. Damanpour, F. and Aravind, D. (2012). Managerial Innovation: Conceptions, Processes, and Antecedents. Management and Organization Review, Vol. 8, No. 2, pp. 423-454.

25. David, F. R. (2011). Strategic Management: Concepts and Cases. 13th edition, Prentice Hall, New Jersey.

26. David, F. R., David, M. E. and David, F. R. (2016). How important is finance coverage in strategic management? A content analysis of textbooks. International Journal of Management and Human Resources, Vol. 4, No. 1, pp. 64-78.

27. De Vaujany, F. X., Hussenot, A. and Chanlat, J. F. (2016). Theories des Organisations - Nouveaux tournants. Economica, Paris.

28. Degn, L. (2015). Sensemaking, sensegiving and strategic management in Danish higher education. Higher Education, Vol. 69, No. 6, pp. 901-913.

29. Demailly, D., Carbone V., Acquier A., Masse D., Roux D., Borel S., Benoit-Moreau F., Guillard V., Parguel B., Berlingen F., Cappello M., de Grave A. and Tincq B. (2016). L'economie collaborative, reservoir d'innovations pour le developpement durable. Working paper, Synthese du projet PICO, Paris, France, June 2016.

30. Demailly, D. and Novel, A. S. (2014). The sharing economy: make it sustainable. Studies, Vol. 3, No. 14, pp. 14-30.

31. Dufour L. and Andiappan M. (2013). Les innovations en management des ressources humaines. In Jaouen, A. and Le Roy, F. (Eds.), L'Innovation Manageriale, Dunod, Paris, pp. 143-159.

32. Egos (2014). Reimagining, Rethinking, Reshaping: Organizational Scholarship in Unsettled Times. 30th Annual EGOS Colloquium 2014.

33. Etter, B. and Palmer, M. (1995). Police leadership in Australasia. The Federation Press, Sydney.

34. Evangelista, R. and Vezzani, A. (2010). The economic impact of technological and organizational innovations. A firm-level analysis. Research Policy, Vol. 39, No. 10, pp. 1253-1263.

35. Falk, N. L., Garrison, K. F., Jr., Brown, M.-M., Pintz, C. and Bocchino, J. (2015). Strategic planning and doctor of nursing practice education: developing today's and tomorrow's leaders. Nursing Economics, Vol. 33, No. 5, pp. 246-254.

36. Ferreira, J. J. M., Fernandes, C. I. and Ratten, V. (2016). A co-citation bibliometric analysis of strategic management research. Scientometrics, Vol. 109, No. 1, pp. 1-32.

37. Freeman, R. E. (1984). Strategic Management: A Stakeholder's Approach. Pitman Ballinger, Boston.

38. Furrer, O., Thomas, H. and Goussevskaia, A. (2008). The structure and evolution of the strategic management field: A content analysis of 26 years of strategic management research. International Journal of Management Reviews, Vol. 10, No. 1, pp. 1-23.

39. Guerras-Martín, L. A., Madhok, A. and Montoro-SAnchez, A. (2014). The evolution of strategic management research: Recent trends and current directions. BRQ Business Research Quarterly, Vol. 17, No. 2, pp. 69-76.

40. Haas, A. (2016). Capacites dynamiques et approches pratiques. In De Vaujany, F. X., Hussenot, A. and Chanlat, J. F. (Eds.), Theorie des Organisations. Nouveaux tournants, Economica, Paris, pp. 113-134.

41. Hambrick, D. C. (2004). The disintegration of strategic management: It's time to consolidate our gains. Strategic Organization, Vol. 2, No. 1, pp. 91-98.

42. Hamel, G. (2006). The Why, What, and How of Managerial Innovation. Harvard Business Review, Vol. 84, No. 2, pp. 72-84.

43. Hamel, G. (2009). Managerial Innovation. Leadership Excellence, Vol. 26, No. 5.

44. Harrison, J. S. And Wicks, A. C. (2013). Stakeholder Theory, Value and Firm Performance. Business Ethics Quarterly, Vol. 23, No. 1, pp. 97-124.

45. Hill, C. W. L. and Jones, G. R. (2010). Strategic Management Theory: An Integrated Approach. 9th edition, South-Western, Cengage Learning, Mason.

46. Jany-Catrice, F. (2013). Performance globale. In Postel, N. and Sobel, R. (Eds.), Dictionnaire critique de la RSE. Presses Universitaires du Septentrion, Villeneuve d'Ascq, pp. 364-367.

47. Johnson, G., Scholes, K. and Whittington, R. (2008). Exploring Corporate Strategy. Text and Cases. 8th edition, Prentice Hall, Harlow.

48. Johnson, G., Whittington, R., Scholes, K. and Frery, F. (2011). Strategique. Pearson, Paris.

49. Kohlbacher, F., Herstatt, C. and Levsen, N. (2015). Golden opportunities for silver innovation: how demographic changes give rise to entrepreneurial opportunities to meet the needs of older people. Technovation, Vol. 39, pp. 73-82.

50. Koseoglu, M. A. (2016). Growth and structure of authorship and co-authorship network in the strategic management realm: Evidence from the Strategic Management Journal. Business Research Quarterly, Vol. 19, No. 3, pp. 153-170.

51. Kunc, M. and Morecroft J. (2010). Managerial decision-making and firm performance under a resource-based paradigm. Strategic Management Journal, Vol. 31, No. 11, pp. 1164-1182.

52. Le Roy, F., Robertson, P. L. and Giuliani, P. (2013). L'innovation manageriale. Genealogie, defis et perspectives. Revue Francaise de Gestion, Vol. 6, No. 235, pp. 77-90.

53. Løwendahl, B. and Revang, O. (2008). Challenges to Existing Strategy Theory in a Postindustrial Society. Strategic Management Journal, Vol. 19, No. 8, pp. 755-773.

54. Martinet, A. C. (2008). Gouvernance et management strategique. Revue Francaise de Gestion, Vol. 3, No. 183, pp. 95-110.

55. Mason, C. and J. Simmons (2014). Embedding Corporate Social Responsibility in Corporate Governance. Journal of Business Ethics, Vol. 119, No. 1, pp. 77-86.

56. Mikelsone, E. and Liela, E. (2015). Literature review of idea management: Focuses and gaps. Journal of Business Management, Vol. 9, pp. 107-121.

57. Mol, M. J. and Birkinshaw, J. (2009). The sources of Managerial Innovation: When firms introduce new management practices. Journal of Business Research, Vol. 62, No. 12, pp. 1269-1280.

58. Mol, M. J. and Birkinshaw, J. (2012). Relating Managerial Innovation to product and process innovation: private rents versus public gains. In Pitsis, T. S., Simpson, A. and Dehlin, E. (Eds.), Handbook of Organizational and Managerial Innovation, Edward Elgar Publishing, Cheltenham and Northampton, pp. 13-35.

59. Nag, R., Hambrick, D. C. and Chen, M. J. (2007). What is strategic management, really? Inductive derivation of a consensus definition of the field. Strategic Management Journal, Vol. 28, No. 9, pp. 935-955.

60. Nerur, S. P., Rasheed, A. A. and Natarajan, V. (2008). The intellectual structure of the strategic management field: An author co-citation analysis. Strategic Management Journal, Vol. 29, No. 3, pp. 319-336.

61. Nerur, S. P., Rasheed, A. A. and Pandey, A. (2015). Citation footprints on the sands of time: An analysis of idea migrations in strategic management. Strategic Management Journal, Vol. 37, No. 6, pp. 1065-1084.

62. OECD (2005). La mesure des activites scientifiques et technologiques: principes directeurs proposes pour le recueil et l'interpretation des donnees sur l'innovation technologique. OECD Publishing, Paris.

63. Pige, B. (2015). La representation comptable de la performance en question. Prospective et strategie, Vol. 6, pp. 7-14.

64. Pilkington, A. and Lawton, T. C. (2014). Divided by a common language? Transnational insights into epistemological and methodological approaches to strategic management research in English-speaking countries. Long Range Planning, Vol. 47, No. 5, pp. 299-311.

65. Pinillos, M. J. (2011). The intellectual structure of entrepreneurial motivation: A citation/cocitation analysis. China-USA Business Review, Vol. 10, No. 4, pp. 285-297.

66. Ramos-Rodrígues, A-R. and Ruíz-Navarro, J. (2004). Changes in the intellectual structure of strategic management research: A bibliometric study of the Strategic Management Journal, 1980-2000. Strategic Management Journal, Vol. 25, No. 10, pp. 981-1004.

67. Renaud, A. and Berland, N. (2007). Mesure de la performance globale des entreprises. In Actes du Congres annuel de l'Association Francaise de Comptabilite, Poitiers, France, 2007.

68. Richard, J. (2012). Comptabilite et developpement durable. Economica, Paris.

69. Robertson, C. J., Blevins, D. P. and Duffy, T. (2013). A five-year review, update, and assessment of ethics and governance in Strategic Management Journal. Journal of Business Ethics, Vol. 117, No. 1, pp. 85-91.

70. Ronda-Pupo, G. A. (2015). Growth and consolidation of strategic management research: insights for the future development of strategic management. Academy of Strategic Management Journal, Vol. 14, No. 2, pp. 155-169.

71. Ronda-Pupo, G. A. and Guerras-Martín, L. A. (2010). Dynamics of the scientific community network within the strategic management field through the Strategic Management Journal 1980–2009: the role of cooperation. Scientometrics, Vol. 85, No. 3, pp. 821-848.
72. Rousseau, D. (2012). Designing a Better Business School: Channelling Herbert Simon, Addressing the Critics, and Developing Actionable Knowledge for Professionalizing Managers. Journal of Management Studies, Vol. 49, No. 3, pp. 600-618.
73. Schoemaker, P. J. H. and Tetlock, P. E. (2017). Building a More Intelligent Enterprise. MIT Sloan Management Review, Vol. 58, No. 3, pp. 27-37.
74. Scholz, T. and Schneider, N. (2017). Ours to hack and to own: The rise of platform cooperativism, a new vision for the future of work and a fairer internet. OR books, New York and London.
75. Schonberger, M., Kleinert, T., Dumont, T., Fettke, P. and Loos, P. (2014). Softwareauswahl in kleinen und mittelständischen Unternehmen. Gegenuberstellung und Bewertung von Vorgehensmodellen zur Auswahl betrieblicher Anwendungssoftware. In Kundisch, D., Suhl, L., and Beckmann, L. (Eds.), Multikonferenz Wirtschaftsinformatik - MKWI 2014, Paderborn, Germany, pp. 1979-1992.
76. Steyaert, C., Beyes, T. and Parker, M. (2016). The Routledge companion to reinventing management education. Routledge, London and New York.
77. Shaffer, K. J. and Dalton, P. M. (2014). The connection between training, electronic ordering, strategic alliances and supply chain procurement efficiency: an empirical study. International Journal of Business, Marketing, and Decision Sciences, Vol. 7, No. 1, pp. 59-78.
78. Slee, T. (2017). What's yours is mine: Against the Sharing Economy. Scribe Publications, New York.
79. Swayne, L. E., Duncan, W. J. and Ginter, P. M. (2008). Strategic Management of Health Care Organizations. 6th edition, John Wiley and Sons, Chichester.
80. Szulanski, G. (1996). Exploring internal stickiness: impediments to the transfer of best practice within the firm. Strategic Management Journal, Vol. 17, No. 2, pp. 21-43.
81. Tan, L. and Ding, J. (2015). The frontier and evolution of the strategic management theory: A scientometric analysis of Strategic Management Journal, 2001-2012. Nankai Business Review International, Vol. 6, No. 1, pp. 20-41.
82. Teece, D. J., Pisano, G. and Shuen, A. (1997). Dynamic Capabilities and Strategic Management. Strategic Management Journal, Vol. 18, No. 7, pp. 509-533.
83. Tuncay, M. (2015). SWOT Analysis in Strategic Management and a Sample Application in Public. International Research Journal of York University, Vol. 2, No. 3, pp. 276-301.
84. Vogel, R. and Guttel, W. H. (2013). The dynamic capability view in strategic management: A bibliometric review. International Journal of Management Reviews, Vol. 15, No. 4, pp. 426-446.
85. Volberda, H. W., Van Den Bosch, F. A. J. and Heij, C. V. (2013). Managerial Innovation: Management as Fertile Ground for Innovation. European Management Review, Vol. 10, No. 1, pp. 1-15.
86. White, G. O., III, Guldiken, O., Hemphill, T. A., He, W. and Khoobdeh, M. S. (2016). Trends in international strategic management research from 2000 to 2013: text mining and bibliometric analyses. Management International Review, Vol. 56, No. 1, pp. 35-65.
87. Whitney, D. (2017). CMAs: partners in value creation: innovation is key to a company's success, and CMAs play several roles to enable it. Strategic Finance, Vol. 98, No. 7, pp. 21-22.
88. Whittington, R. (2012). Big Strategy / Small Strategy. Strategic Organization, Vol. 10, No. 3, pp. 263-268.
89. Wilbon, A. D. (2015). Technology strategy and organizational learning: applying population ecology to understanding the influence on firm survival. Academy of Strategic Management Journal, Vol. 14, No. 2, pp. 221-236.

90. Wood, D. J. (1991). Corporate Social Performance Revisited. Academy of Management Review, Vol. 16, No. 4, pp. 691-718.
91. Zupic, I. and Cater, T. (2015). Bibliometric Methods in Management and Organization. Organizational Research Methods, Vol. 18, No. 3, pp. 429-472.

APPENDIX

Appendix 1

Overview of the top 150 keywords within the journals (authors' own elaboration).

Academy of Strategic Management Journal

Keyword	Am	Per	RF
Management	6	1,13	0,01130
Brand image	4	0,75	0,00753
Corporate social responsibility	3	0,56	0,00565
Firm performance	3	0,56	0,00565
Human capital	3	0,56	0,00565
Tourism	3	0,56	0,00565
Alliance formation	2	0,38	0,00377
Alliances	2	0,38	0,00377
Biotechnologies	2	0,38	0,00377
Business environment	2	0,38	0,00377
Commercialization	2	0,38	0,00377
Company performance	2	0,38	0,00377
Corporate governance	2	0,38	0,00377
Culture	2	0,38	0,00377
Economic policy	2	0,38	0,00377
Entrepreneurial orientation	2	0,38	0,00377
Financial performance	2	0,38	0,00377
Financial stability	2	0,38	0,00377
Information system	2	0,38	0,00377
Innovation	2	0,38	0,00377
Job Satisfaction	2	0,38	0,00377
Leader-member exchange	2	0,38	0,00377
Leadership	2	0,38	0,00377
Market capitalization	2	0,38	0,00377
Open systems	2	0,38	0,00377
Pharmaceutical industry	2	0,38	0,00377
Social media	2	0,38	0,00377
Turnover	2	0,38	0,00377
SP's strategic leadership model	1	0,19	0,00188
Academicians	1	0,19	0,00188
Accounting	1	0,19	0,00188
Accounting policies	1	0,19	0,00188
Accross culture	1	0,19	0,00188
Acquisition	1	0,19	0,00188
Action plans	1	0,19	0,00188
Activity-based costing	1	0,19	0,00188
Added value	1	0,19	0,00188
Amortized transaction cost	1	0,19	0,00188
An integrated assessment of transport infrastructure	1	0,19	0,00188
Analytic hierarchy chart	1	0,19	0,00188
Anti-corruption	1	0,19	0,00188
Anti-corruption legislation	1	0,19	0,00188
Anti-corruption policy	1	0,19	0,00188
Antipatern	1	0,19	0,00188
ASEAN banking integration framework	1	0,19	0,00188
ASEAN economic community	1	0,19	0,00188
Asian option	1	0,19	0,00188
Audit of information technology	1	0,19	0,00188
Aviation	1	0,19	0,00188
Balanced scorecard	1	0,19	0,00188
Total keywords in Journal	**531**	**100**	**1,00000**

Journal of Strategy and Management

Keyword	Am	Per	RF
Strategy	14	2,11	0,02115
Strategic management	9	1,36	0,01360
Leadership	7	1,06	0,01057
Corporate strategy	6	0,91	0,00906
Innovation	6	0,91	0,00906
Business model	5	0,76	0,00755
Competitive advantage	4	0,60	0,00604
Performance	4	0,60	0,00604
SMEs	4	0,60	0,00604
Strategic planning	4	0,60	0,00604
Strategic thinking	4	0,60	0,00604
Mergers and acquisition	3	0,45	0,00453
Business development	3	0,45	0,00453
Collaboration	3	0,45	0,00453
Decision making	3	0,45	0,00453
Dynamic capabilities	3	0,45	0,00453
Firm performance	3	0,45	0,00453
High-performance organizations	3	0,45	0,00453
Knowledge management	3	0,45	0,00453
Middle East	3	0,45	0,00453
Multinational companies	3	0,45	0,00453
Organizations	3	0,45	0,00453
Partnerships	3	0,45	0,00453
Resource-based view	3	0,45	0,00453
Scenario planning	3	0,45	0,00453
Strategic change	3	0,45	0,00453
Strategic leadership	3	0,45	0,00453
Strategy execution	3	0,45	0,00453
Strategy implementation	3	0,45	0,00453
Balanced scorecard	2	0,30	0,00302
Business model innovation	2	0,30	0,00302
Case study	2	0,30	0,00302
Change management	2	0,30	0,00302
Coopetition	2	0,30	0,00302
Corporate political strategy	2	0,30	0,00302
Corporate social responsibility	2	0,30	0,00302
Creativity	2	0,30	0,00302
Cross-border mergers and acquisitions	2	0,30	0,00302
Entrepreneurship	2	0,30	0,00302
France	2	0,30	0,00302
Germany	2	0,30	0,00302
International Business	2	0,30	0,00302
International investments	2	0,30	0,00302
Internationalization	2	0,30	0,00302
Joint ventures	2	0,30	0,00302
Learning	2	0,30	0,00302
Lobbying	2	0,30	0,00302
Management	2	0,30	0,00302
Organizational decline	2	0,30	0,00302
Organizational slack	2	0,30	0,00302
Total keywords in Journal	**662**	**100**	**1,00000**

Strategic Management Journal

Keyword	Am	Per	RF
Innovation	40	1,36	0,01361
Resource-based view	26	0,88	0,00885
Corporate governance	23	0,78	0,00783
Firm performance	22	0,75	0,00749
Performance	20	0,68	0,00681
Corporate social responsibility	19	0,65	0,00646
Acquisition	18	0,61	0,00612
Agency theory	18	0,61	0,00612
Organizational learning	18	0,61	0,00612
Entrepreneurship	15	0,51	0,00510
China	13	0,44	0,00442
Replication	13	0,44	0,00442
Competitive advantage	12	0,41	0,00408
Human capital	11	0,37	0,00374
Upper echelons	11	0,37	0,00374
Value creation	11	0,37	0,00374
Capabilities	10	0,34	0,00340
Complexity	10	0,34	0,00340
Corporate strategy	10	0,34	0,00340
Absorptive capacity	9	0,31	0,00306
Alliances	9	0,31	0,00306
Industry evolution	9	0,31	0,00306
Institutional theory	9	0,31	0,00306
Patents	9	0,31	0,00306
Board of directors	8	0,27	0,00272
Corporate social performance	8	0,27	0,00272
Decision making	8	0,27	0,00272
Dynamic capabilities	8	0,27	0,00272
Emerging economies	8	0,27	0,00272
Endogeneity	8	0,27	0,00272
Exploration	8	0,27	0,00272
Growth	8	0,27	0,00272
Learning	8	0,27	0,00272
Mergers and acquisition	8	0,27	0,00272
Outsourcing	8	0,27	0,00272
Real options	8	0,27	0,00272
Stakeholder theory	8	0,27	0,00272
Top management teams	8	0,27	0,00272
Uncertainty	8	0,27	0,00272
Adaptation	7	0,24	0,00238
CEO compensation	7	0,24	0,00238
CEOs	7	0,24	0,00238
Competition	7	0,24	0,00238
Competitive dynamics	7	0,24	0,00238
Complementary assets	7	0,24	0,00238
Diversification	7	0,24	0,00238
Foreign direct investment	7	0,24	0,00238
Knowledge-based view	7	0,24	0,00238
Simulation	7	0,24	0,00238
Stakeholders	7	0,24	0,00238
Total keywords in Journal	**2939**	**100**	**1,00000**

Top matching keywords

Nr.	Keyword	Total RF
1	Innovation	0,02644
2	Firm performance	0,01801
3	Corporate social responsibility	0,01514
4	Leadership	0,01434
5	Management	0,01432
6	Resource-based view	0,01338
7	Performance	0,01285
8	Corporate strategy	0,01247
9	Corporate governance	0,01159
10	Competitive advantage	0,01013
11	Human capital	0,00939
12	Entrepreneurship	0,00812
13	Acquisition	0,00801
14	Dynamic capabilities	0,00725
15	Decision making	0,00725
16	Mergers and acquisition	0,00725
17	Alliances	0,00683
18	Learning	0,00574
19	Balanced scorecard	0,00490

Legend:
Am   Amount
Per   Percentage
RF   Relative Frequency
[shaded]   Matching Keyword

Appendix 2

Overview of the keywords per journal per year (authors' own elaboration).

No.	Keyword	2012 ASMJ AM	2012 ASMJ Per	2012 JSM AM	2012 JSM Per	2012 SMJ AM	2012 SMJ Per	2013 ASMJ AM	2013 ASMJ Per	2013 JSM AM	2013 JSM Per	2013 SMJ AM	2013 SMJ Per	2014 ASMJ AM	2014 ASMJ Per	2014 JSM AM	2014 JSM Per	2014 SMJ AM	2014 SMJ Per	2015 ASMJ AM	2015 ASMJ Per	2015 JSM AM	2015 JSM Per	2015 SMJ AM	2015 SMJ Per	2016 ASMJ AM	2016 ASMJ Per	2016 JSM AM	2016 JSM Per	2016 SMJ AM	2016 SMJ Per	Total AM	Total Per	Rank
1	Innovation	0	0,0	1	4,5	9	11,0	0	0,0	2	8,7	8	8,8	1	5,6	1	4,2	9	7,3	0	0,0	1	4,5	4	3,2	1	0,9	1	4,0	10	5,3	48	5,3	1
2	Firm performance	0	0,0	0	0,0	3	3,7	0	0,0	1	4,3	4	4,4	1	5,6	0	0,0	3	2,4	1	3,4	0	0,0	3	2,4	1	0,9	2	8,0	9	4,8	28	3,1	3
3	Corporate social responsibility	0	0,0	0	0,0	2	2,4	0	0,0	1	4,3	2	2,2	1	5,6	1	4,2	3	2,4	1	3,4	0	0,0	5	4,0	1	0,9	0	0,0	7	3,7	24	2,6	5
4	Leadership	1	5,6	1	4,5	0	0,0	0	0,0	3	13,0	1	1,1	1	5,6	1	4,2	1	0,8	0	0,0	2	9,1	0	0,0	0	0,0	0	0,0	0	0,0	11	1,2	16
5	Management	0	0,0	1	4,5	0	0,0	0	0,0	1	4,3	0	0,0	0	0,0	0	0,0	0	0,0	0	0,0	0	0,0	0	0,0	6	5,5	0	0,0	0	0,0	8	0,9	18
6	Resource-based view	0	0,0	0	0,0	2	2,4	0	0,0	0	0,0	7	7,7	0	0,0	2	8,3	4	3,2	1	3,4	0	0,0	8	6,5	1	0,9	2	8,0	5	2,7	32	3,5	2
7	Performance	0	0,0	0	0,0	4	4,9	0	0,0	0	0,0	4	4,4	0	0,0	2	8,3	5	4,0	0	0,0	0	0,0	3	2,4	0	0,0	2	8,0	4	2,1	24	2,6	5
8	Corporate strategy	0	0,0	3	13,6	1	1,2	0	0,0	3	13,0	2	2,2	0	0,0	0	0,0	2	1,6	0	0,0	0	0,0	2	1,6	0	0,0	0	0,0	3	1,6	16	1,8	9
9	Corporate governance	0	0,0	0	0,0	2	2,4	0	0,0	0	0,0	4	4,4	0	0,0	0	0,0	4	3,2	0	0,0	0	0,0	5	4,0	2	1,8	0	0,0	8	4,3	25	2,7	4
10	Competitive advantage	0	0,0	1	4,5	2	2,4	0	0,0	2	8,7	2	2,2	0	0,0	0	0,0	3	2,4	0	0,0	0	0,0	3	2,4	0	0,0	1	4,0	2	1,1	16	1,8	9
11	Human capital	0	0,0	0	0,0	0	0,0	0	0,0	0	0,0	3	3,3	0	0,0	0	0,0	1	0,8	0	0,0	0	0,0	5	4,0	3	2,8	0	0,0	2	1,1	14	1,5	12
12	Entrepreneurship	0	0,0	0	0,0	6	7,3	0	0,0	1	4,3	1	1,1	0	0,0	0	0,0	3	2,4	0	0,0	0	0,0	2	1,6	0	0,0	1	4,0	3	1,6	17	1,9	8
13	Acquisition	0	0,0	0	0,0	4	4,9	0	0,0	0	0,0	2	2,2	0	0,0	0	0,0	4	3,2	0	0,0	0	0,0	3	2,4	1	0,9	0	0,0	5	2,7	19	2,1	7
14	Dynamic capabilities	0	0,0	1	4,5	2	2,4	0	0,0	0	0,0	2	2,2	0	0,0	1	4,2	1	0,8	0	0,0	0	0,0	1	0,8	1	0,9	1	4,0	2	1,1	12	1,3	15
15	Decision making	0	0,0	1	4,5	2	2,4	0	0,0	2	8,7	2	2,2	0	0,0	0	0,0	2	1,6	0	0,0	0	0,0	3	2,4	0	0,0	0	0,0	2	1,1	14	1,5	12
16	Mergers and acquisition	0	0,0	2	9,1	0	0,0	0	0,0	1	4,3	1	1,1	0	0,0	1	4,2	3	2,4	0	0,0	0	0,0	3	2,4	0	0,0	0	0,0	2	1,1	13	1,4	14
17	Alliances	0	0,0	0	0,0	2	2,4	0	0,0	0	0,0	1	1,1	1	5,6	0	0,0	3	2,4	0	0,0	0	0,0	3	2,4	1	0,9	0	0,0	5	2,7	16	1,8	9
18	Learning	0	0,0	0	0,0	0	0,0	0	0,0	0	0,0	0	0,0	1	5,6	1	4,2	1	0,8	0	0,0	0	0,0	4	3,2	0	0,0	1	4,0	3	1,6	11	1,2	16
19	Balanced scorecard	0	0,0	1	4,5	0	0,0	0	0,0	0	0,0	0	0,0	0	0,0	0	0,0	0	0,0	0	0,0	0	0,0	0	0,0	1	0,9	1	4,0	1	4,0	3	0,3	19
	Number of articles	18		22		82		15		23		91		18		24		124		29		22		124		109		25		188		914		

Appendix 3

Chi square distances between the top keywords mentioned (authors' own elaboration).

Keywords	Innovation	Resource-based view	Firm performance	Corporate governance	Corporate social responsibility	Performance	Acquisition	Entrepreneurship	Corporate strategy	Competitive advantage	Alliances	Human capital	Decision making	Mergers and acquisition	Dynamic capabilities	Leadership	Learning	Management	Balanced scorecard
Innovation	0	0,076	0,239	0,359	0,312	0,180	0,346	0,157	0,696	0,363	0,433	0,682	0,275	0,514	0,399	1,579	0,255	2,662	1,961
Resource-based view	0,076	0	0,165	0,347	0,243	0,243	0,356	0,232	0,707	0,392	0,392	0,618	0,316	0,532	0,367	1,547	0,201	2,586	1,913
Firm performance	0,239	0,165	0	0,327	0,087	0,406	0,381	0,390	0,799	0,523	0,298	0,462	0,462	0,642	0,398	1,538	0,210	2,438	1,861
Corporate governance	0,359	0,347	0,327	0	0,302	0,518	0,100	0,411	1,051	0,722	0,165	0,492	0,632	0,872	0,700	1,863	0,515	2,636	2,185
Corporate social responsibility	0,312	0,243	0,087	0,302	0	0,486	0,375	0,456	0,882	0,610	0,233	0,376	0,548	0,727	0,471	1,586	0,287	2,394	1,886
Performance	0,180	0,243	0,406	0,518	0,486	0	0,481	0,137	0,582	0,233	0,610	0,860	0,133	0,394	0,407	1,546	0,341	2,786	1,970
Acquisition	0,346	0,356	0,381	0,100	0,375	0,481	0	0,359	1,041	0,701	0,265	0,592	0,605	0,857	0,722	1,898	0,544	2,733	2,240
Entrepreneurship	0,157	0,232	0,390	0,411	0,456	0,137	0,359	0	0,719	0,370	0,528	0,811	0,270	0,531	0,509	1,671	0,398	2,818	2,079
Corporate strategy	0,696	0,707	0,799	1,051	0,882	0,582	1,041	0,719	0	0,349	1,089	1,226	0,449	0,188	0,433	1,049	0,597	2,724	1,552
Competitive advantage	0,363	0,392	0,523	0,722	0,610	0,233	0,701	0,370	0,349	0	0,785	0,982	0,100	0,161	0,305	1,339	0,362	2,747	1,792
Alliances	0,433	0,392	0,298	0,165	0,233	0,610	0,265	0,528	1,089	0,785	0	0,327	0,924	0,921	0,696	1,817	0,507	2,477	2,102
Human capital	0,682	0,618	0,462	0,492	0,376	0,860	0,592	0,811	1,226	0,982	0,327	0	0,924	1,087	0,795	1,767	0,635	2,165	1,967
Decision making	0,275	0,316	0,462	0,632	0,548	0,133	0,605	0,270	0,449	0,100	0,924	0,924	0	0,261	0,333	1,427	0,334	2,761	1,866
Mergers and acquisition	0,514	0,532	0,642	0,872	0,727	0,394	0,857	0,531	0,188	0,161	0,921	1,087	0,261	0	0,326	1,201	0,452	2,731	1,676
Dynamic capabilities	0,399	0,367	0,398	0,700	0,471	0,407	0,722	0,509	0,433	0,305	0,696	0,795	0,333	0,326	0	1,181	0,189	2,442	1,571
Leadership	1,579	1,547	1,538	1,863	1,586	1,546	1,898	1,671	1,049	1,339	1,817	1,767	1,427	1,201	1,181	0	1,354	2,218	0,572
Learning	0,255	0,201	0,210	0,515	0,287	0,341	0,544	0,398	0,597	0,362	0,507	0,635	0,334	0,452	0,189	1,354	0	2,446	1,712
Management	2,662	2,586	2,438	2,636	2,394	2,786	2,733	2,818	2,724	2,747	2,477	2,165	2,761	2,731	2,442	2,218	2,446	0	1,797
Balanced scorecard	1,961	1,913	1,861	2,185	1,886	1,970	2,240	2,079	1,552	1,792	2,102	1,967	1,866	1,676	1,571	0,572	1,712	1,797	0

Keyword analysis of the five most current subjects in strategic management (authors' own elaboration).

2014 - 2017	Strategic planning	Entrepreneurship	Decisionmaking	Knowledge management	Business logistics	Total
performance	9	17	1	16	21	**64**
supply chain management	3	0	5	1	29	**38**
innovation	4	13	5	7	4	**33**
sustainable development	6	5	3	2	9	**25**
organization	8	3	2	7	3	**23**
information technology	1	0	0	15	5	**21**
entrepreneurial orientation	0	19	0	0	0	**19**
SME	0	10	2	4	1	**17**
knowledge sharing	0	0	0	14	3	**17**
resource-based view	4	2	1	2	6	**15**
corporate social responsibility	5	1	4	0	4	**14**
capabilities	2	1	0	2	8	**13**
leadership	6	2	2	1	0	**11**
uncertainty	0	3	3	1	4	**11**
business model	3	5	1	0	1	**10**
entrepreneurship education	0	10	0	0	0	**10**
competitive advantage	1	1	2	6	0	**10**
human resource management	3	1	2	3	0	**9**
simulation	2	0	6	0	0	**8**
international entrepreneurship	0	8	0	0	0	**8**
entrepreneurship intention	0	8	0	0	0	**8**
collaboration	1	1	1	1	4	**8**
knowledge creation	2	2	0	3	0	**7**
competitiveness	3	1	0	2	1	**7**
corporate entrepreneurship	0	7	0	0	0	**7**
entrepreneurial behavior	0	6	1	0	0	**7**
external environment	3	3	0	0	0	**6**
marketing strategy	3	1	2	0	0	**6**
risk management	0	0	2	2	2	**6**
decision support	0	0	6	0	0	**6**
organizational learning	0	0	0	5	1	**6**
strategic entrepreneurship	0	5	0	0	0	**5**
knowledge-based view	0	0	0	5	0	**5**

demand management	1	0	0	0	3	**4**
risk analysis	3	0	1	0	0	**4**
business environment	1	2	0	1	0	**4**
system dynamics	2	0	2	0	0	**4**
social entrepreneurship	0	4	0	0	0	**4**
human judgment	0	0	2	0	2	**4**
fuzzy approach	0	0	3	0	1	**4**

Overview of the top 150 keywords within the journals (authors' own elaboration)

Keywords 2014-2017 (1/2)	Amount
Innovation	99
Planning	76
Strategic Planning	43
Management	39
Leadership	38
Competition	36
Corporate Social Responsibility	33
Strategy	32
Decision-making	30
Managers	29
Competitive Advantage	24
Economics	22
Commerce	19
Information Systems	18
Industrial Management	16
Management Science	16
Project Management	16
Human Resource Management	15
Strategic Management Accounting	15
Sustainability	15
Knowledge Management	14
Surveys	14
Strategic Approach	13
Balanced Scorecard	12
Competitiveness	12
Sustainable Development	12
Dynamic Capabilities	12
Industry	12
Information Management	12
Performance	12
Competitive Intelligence	11
Entrepreneurship	11
Intellectual Capital	11
Investments	11
Business Intelligence	10
Case Study	10
Competitive Strategy	10
Corporate Governance	10
Societies and Institutions	10
Business Strategy	9
Education	9
Performance Measurement	9
Corporate Strategy	8
Enterprise Resource Planning	8
Finance	8
Information Technology	8
Innovation Management	8
Literature Review	8
Organizational Performance	8
Quality Management	8
Regional Planning	8
Resource-based View	8

Keywords 2014-2017 (2/2)	Amount
Business Process	7
Copyrights	7
Decision Support Systems	7
Strategic Management Tools	7
Management Accounting	6
Operations Management	6
Process Management	6
Product Development	6
Research Methods	6
SWOT Analysis	6
Stakeholders	6
Strategic Management Theories	6
Analytic Hierarchy Process	5
Artificial Intelligence	5
Business Model	5
Business Performance	5
Cloud Computing	5
Competitive Dynamics	5
Economic Analysis	5
Empirical Research	5
Engineering Education	5
Financial Performance	5
Industrial Economics	5
International Business	5
Knowledge	5
Knowledge-based Systems	5
Manufacturing	5
Organizational Learning	5
Performance Measurements	5
Risk Assessment	5
Risk Management	5
Social Media	5
Social Sciences	5
Standards	5
Strategy Research	5
Supply Chain Management	5
Supply Chains	5
Technological Innovation	5
Technology	5
Value Creation	5
AHP	4
Balanced Scorecards	4

Business cycle management and company performance hiring habits

KASPARS IESALNIEKS

ABSTRACT

Purpose: the purpose of the research paper is to observe and analyse how major companies in the Baltic States (Latvia, Lithuania and Estonia) behaved during the last business cycle in terms of hiring management in order to identify different management hiring strategies across various countries and industries in different business cycle phases. The paper analyses whether companies adopt counter-cyclical or cyclical behaviour during different business cycle phases taking into account GDP indicators for each country.

Approach: statistical analysis from 2007 to 2012 encompassing the 1334 largest (large and medium-size enterprises) businesses in the Baltics by operating revenue. In the research paper clustering and comparison methods are applied in order to identify how businesses react to different business cycle phases.

Findings: the research findings show that companies in the Baltic States mainly behave cyclically and have very balanced counter-cyclical and cyclical behaviour with some industries that stand out. Overall the results show that hiring management in the Baltic States is carried out quite conservatively and there are few exceptions in counter-cyclical behaviour of hiring management.

Research implications: the research paper demonstrates that various industries adopt different strategies during the business cycle and there are differences on both country and industry levels, which opens a door for further research in order to develop a holistic instrument for how to adapt to different business cycle phases.

Originality: the first research paper that summarizes major Baltic companies' behaviours during the last business cycle on both a country and industry level and provides a comparison between them.

Paper category: research paper

Keywords: Business cycle management, hiring management, company performance

INTRODUCTION

The aim of this research paper is to analyse how major companies in the Baltic States manage their human resources during different business cycle phases, specifically during a peak, recession, trough and expansion on industry and country levels. The paper has the potential to uncover meaningful trends in a company's functional strategy regarding human resource management.

The main hypothesis of the research paper is as follows: "Major Baltic companies perform counter-cyclical hiring in order to seize opportunities in the labour market". And by performing statistical analysis of companies' data aggregated on industry and country levels, the author provides an answer to this hypothesis and makes recommendations for future research.

THEORETICAL FRAMEWORK OF THE RESEARCH

Business cycle management (further in the text – BCM) is a term that encompasses the strategy of applying counter-cyclical actions and, if applied in a timely way during the different business cycle phases, it can improve companies' performance relative to their competitors (Dhalla, 1980 cited by Navarro et al., 2010). In essence, BCM's aim is to utilize the business cycle phenomenon via a counter-cyclical response to different business cycle phases (Navarro et al., 2010). It must be emphasized that according to Navarro et al. (2010), a response to business cycle phases does not necessarily involve forecasting macroeconomic movements; rather, it comprises a timely response. Based on a literature review regarding business cycle management (Iesalnieks and Sarnovics, 2016) that summarizes and categorizes current business cycle associations or factors that are used by businesses to cope with business cycles, and taking into account the theoretical groundwork and some shortcomings identified, first-level analysis is carried out to identify the differences between countries' and industries' behaviour.

The key points from the theoretical groundwork that was laid out by Iesalnieks and Sarnovics (2016) are as follows: a business cycle consists of fluctuations in economic activity, meaning changes in GDP between one year to twelve years, and has four phases – expansion, peak, recession and trough – and business cycle-related theories mainly focus on the reasons behind business cycle fluctuations, while BCM focuses on how companies manage their operations during different business cycle phases to ultimately gain a competitive advantage where possible (Johnson et al., 2007, 2011; Bank, 1981; Metcalf, 2012; Mascarenhas and Aaker, 1989; Zarnowitz, 1984; Banerji, Layton and Achutan, 2012; Moore and Shiskin, 1967; Sherman and Sherman, 2008; Johnson et al., 2007 as cited by Iesalnieks and Sarnovics, 2016).

The aim of this research paper is to review one of the aspects of business cycle management that is related to hiring management to analyse what companies do during different business cycle phases and how they do it. As several researchers have stated, one of the tools that is utilized during different business cycles to cope with the changes is human resource management, in order to gain a competitive advantage, e.g. by hiring human resources at a low rate during a

recession in order to have a competitive advantage when the economy recovers. Current research in academia has several limitations. Sample size is an issue, no countrywide comparisons are taken into account, nor how different macroeconomic dynamics influence business cycle management in different industries in diverse conditions, and in many cases the entire business cycle is not reviewed, just one of the phases (Navarro et al., 2010; Lorange and Datson, 2014; Navarro et al., 2008 Conti et al., 2015).

Thus, this research paper addresses these shortcomings to some extent in order to identify potential patterns in different business cycle phases regarding how different industries behave in different countries.

RESEARCH METHODOLOGY

The research is based on quantitative data analysis where the data is comprised of 1334 companies in the Baltic States from a range of 17 industries that are classified taking into account NACE codes. One of the main variables is states of the economy, which consists of counter-peak, non-counter-peak, counter-expansion, non-counter-expansion, non-counter-recession, counter-recession, non-counter-trough and counter-trough. This means that for each year of companies' financial and non-financial data it has been indicated in which business cycle phase they are according to GDP (gross domestic product) fluctuations. Taking into account these fluctuations, different data (e.g. financial data – operating revenue; non-financial – number of employees) for each company is analysed by the following method: taking into account the financial and non-financial data for each company depending on the results (an increase or decrease in financial and non-financial data), the data is connected to the GDP, resulting in cyclical and non-cyclical behaviour summarizing the results on industry and country levels.

Therefore, in order to understand how major companies in the Baltic States behave, year-on-year changes in employee numbers are analysed. In terms of this research paper, analysis is carried out in a comparative manner, i.e. how companies have performed in comparison to previous years: was there an increase or decrease in the number of employees?

In order to analyse hiring habits, the following approach was utilized:

1. Data is taken from the secondary database Orbis, which has information on over 275 million companies across the globe. It is the resource for company data. Orbis captures and processes data from almost 160 separate providers and hundreds of in-house sources.

2. The data consists of 1334 (large and medium-size) companies' financial and non-financial data in 17 NACE-categorized industries across the three Baltic States: Latvia, Lithuania and Estonia.

3. The data consists of the following financial indicators: operating revenue, number of employees, and non-financial data such as NACE industry categories and a macroeconomic indicator – GDP.

4. Taking into account the fluctuations of different data, each company is analysed by the following method: taking into account the financial and non-financial data for each company depending on the results (an increase or

decrease in financial and non-financial data), the data is connected to GDP, resulting in cyclical and non-cyclical behaviour summarizing the results on industry and country levels. For instance, if the number of employees increases more than >0, then during a recession a counter-recession will result, while a non-counter-recession would result if the number of employees decreased.

5.   To be more specific, data is analysed on the industry level by comparing behaviour by each industry during each business cycle phase with regard to the number of employees, determining whether the companies within the industry behave counter-cyclically or cyclically with a proportional percentage where a significant result is above 60%, indicating it is cyclical or counter-cyclical behaviour, while anything below 60% is considered as balanced behaviour.

ANALYSIS OF THE RESEARCH RESULTS

In analysing data regarding the hiring habits in major companies in the Baltic States, data were reviewed and analysed for the highest point of the economy, expansion of the economy, recession of the economy and the lowest point of the economy. The data analysed differs between all three Baltic States – Estonia, Latvia and Lithuania.

When it comes to hiring habits in Estonia and Latvia, during the highest point of the economy, it was more common in the sectors to perform non-counter-cyclical hiring, while in Lithuania the trend in most industries was to apply cyclical hiring. In Figure 1, the difference can be seen. There are sectors where there is no certain hiring habit.

	Estonia	Latvia	Lithuania
▪ Balanced	8	7	17
▪ Non-counter cyclical hiring	6	7	1
▪ Counter cyclical hiring	3	3	0

Figure 1. Hiring habits – highest point of the economy

The three sectors which applied counter-cyclical hiring in Estonia were:
- Electricity, gas, steam and air conditioning supply;
- Real estate activities (100%);

● Water supply; sewerage; waste management and remediation activities.

This partly overlaps with the three sectors which applied counter-cyclical hiring in Latvia:

● Accommodation and food service activities;
● Electricity, gas, steam and air conditioning supply;
● Real estate activities.

During the expansion of the economy, it was more common in Latvia and Estonia to apply non-counter-cyclical hiring, while in Estonia the situation overall within the sectors was very balanced. The overall situation within all three Baltic States has been visualized in Figure 2.

	Estonia	Latvia	Lithuania
■ Balanced	14	8	13
■ Non-counter cyclical hiring	2	6	5
■ Counter cyclical hiring	1	3	0

Figure 2. Hiring habits – expansion of the economy

The three sectors which applied counter-cyclical hiring in Latvia were:

● Administrative and support service activities;
● Agriculture, forestry and fishing;
● Electricity, gas, steam and air conditioning supply.

During the recession of the economy, unfortunately, data was available only for one of the three Baltic States – Latvia. During the recession in Latvia, it was more common to apply non-counter-cyclical hiring. Based on the fact that during the highest point of the economy and expansion of the economy there is not always a common trend within all three Baltic States, it cannot be concluded that the situation would be similar in Lithuania and Estonia. An overview of the situation in Latvia can be seen in Figure 3.

	Latvia
■ Counter cyclical hiring	1
■ Non-counter cyclical hiring	11
■ Balanced	2
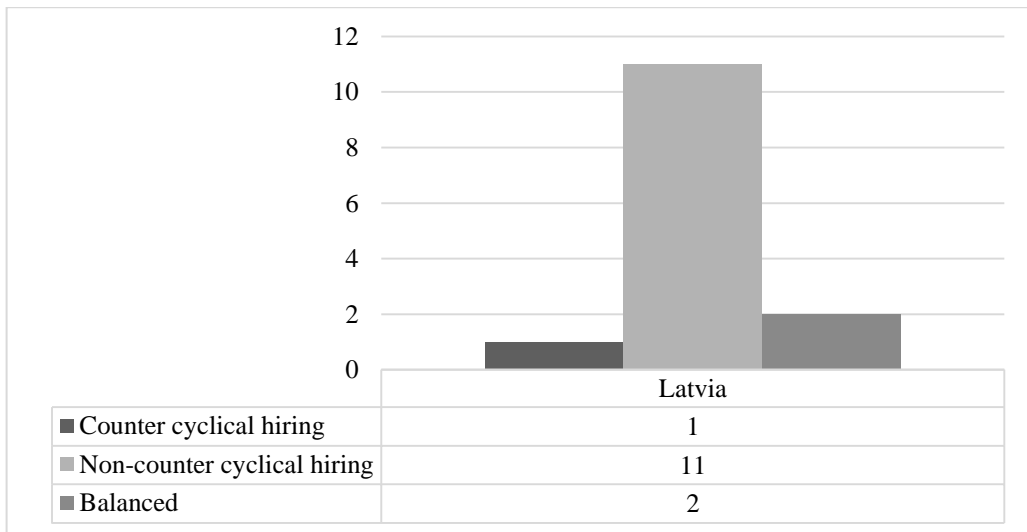
Figure 3. Hiring habits – recession of the economy

During the lowest point of the economy, the situation among the Baltic States varies. In Estonia and Latvia it has been more common to apply cyclical hiring, while in Lithuania it has been more common to apply balanced hiring. The overall situation has been visualized in Figure 4.

	Estonia	Latvia	Lithuania
■ Balanced	10	3	18
■ Non-counter cyclical hiring	6	13	0
■ Counter cyclical hiring	1	1	0
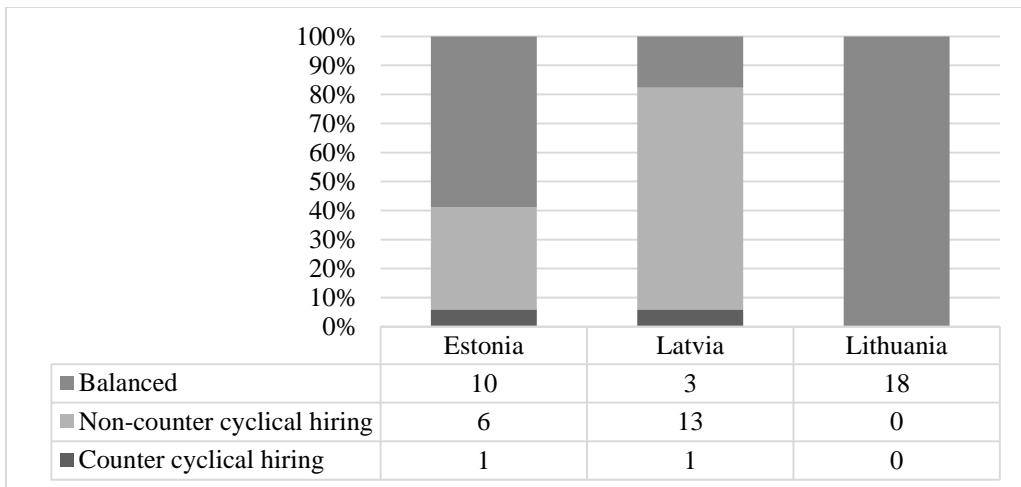
Figure 4. Hiring habits – the lowest point of the economy

In Estonia there was only one sector where it was more common to apply counter-cyclical hiring – agriculture, forestry and fishing – where counter-cyclical hiring was applied in 100% of the companies for which the data has been provided and analysed.

The only sector in Latvia where it was more common to apply counter-cyclical hiring was mining and quarrying.

The reasoning behind cyclical hiring can potentially be explained by the EU financing period of 2007-2013. During the acquisition of EU funds, more employees

were needed. During the planning period of 2007-2013 there were funds intended for agriculture, forestry and fishing, which would explain the need for employees in that industry.

During 2007-2013 investments from EU funds in Lithuania were mainly made in the areas of transport, the environment, social infrastructure, research and innovation, renewable energy and energy efficiency. Jobs were created in the research and tourism industries. Almost 78 500 people connected to new or upgraded wastewater treatment facilities. Also, 1 526 research projects were supported.

During 2007-2013 investments from EU funds in Latvia were mainly made in the areas of transport infrastructure, the environment and business support. It has been stated that 1 184 start-ups, 153 research projects, and 36 cooperation projects between SMEs and research centres were supported.

During 2007-2013 investments from EU funds in Estonia were mainly made in the areas of the environment, transport infrastructure, education, health and social infrastructure, and research and innovation. It has been stated that nearly 13 700 people were connected to drinking water supply plants and more than 15 800 people were connected to new or improved wastewater treatment facilities.

In summary, more detailed analysis needs to be carried out in order to understand the underlying factors of such behaviour and whether there is any correlation.

CONCLUSIONS

Although the hypothesis stated that major companies in the Baltic States engage in counter-cyclical staffing, the data analysis shows that it is more common to apply non-counter-cyclical hiring during the four different points of the economy. One explanation for the hiring habits may be the funds for different sectors in different periods; however, more detailed and broader analysis is needed.

Lithuania has been very balanced during the majority of business cycle phases, followed by Estonia and then Latvia. There have been some industries that have exhibited counter-cyclical behaviour, which needs to be analysed in more detail. The overlapping industries in Latvia and Estonia are agriculture, forestry and fishing; electricity, gas, steam and air conditioning supply; and real estate activities. Some industries are more business cycle-sensitive than others, whereas some may exhibit counter-cyclical behaviour during almost the entire business cycle.

It is apparent that there are countrywide differences when comparing industries in different countries. Mainly, industries perform cyclically within economic fluctuations and, in order to provide a meaningful explanation of counter-cyclical behaviour, in-depth research is needed to identify the factors that play a role in a particular behaviour.

Consequently, the author, based on the research results, concludes with recommendations for further research:

1.   Take into account companies' operating revenue for comparison purposes to understand whether non-cyclical behaviour has provided any financial gain relative to competitors;

2. Elaborate on the reasons for counter or non-counter-cyclical behaviour for each industry (where apparent anomalies are identified);
3. Continue analysis with more financial and non-financial indicators (e.g. capital investments, financial ratios, shareholder investments, cost analysis);
4. Work on developing a holistic framework for business cycle management where industry-sensitive and generic factors are identified;
5. Compare large enterprises with medium-size enterprises to understand if the behaviour changes and provides better financial results for large versus medium-size enterprises.

REFERENCES

1. Banerji, A., Layton, A.P. and Achuthan, L. (2012). Dating the 'world business cycle. Applied Economics, 44(16), 2051–2063.
2. Bank, F. (1981). The ABCs of Business Cycles. Financial Analysts Journal, 37, 75–80.
3. Conti, R., Goldszmidt, R. and Vasconcelos C. (2015),. Strategies for superior performance in recessions: pro or counter-cyclical?. Business Source Complete, 55, 273-289.
4. Iesalnieks, K. and Sarnovics, A. (2016). Business cycle management and companies' performance: current knowledge and the way forward. Journal of Business Management, 12, 113-124.
5. Johnson, G. (2011). Exploring Strategy: Text and Cases, 9th edition, Prentice Hall, Harlow.
6. Johnson, G., Scholes, K. and Whittington, R. (2007), Exploring Corporate Strategy, 8th edition, Financial Times / Prentice Hall, Harlow.
7. Lorange, P. and Datson, E. (2014). Business cycles: looking beyond the downside for competitive advantages. Journal of Business Strategy, 35, 9-19.
8. Mascarenhas, B. and Aaker, D.A. (1989). Strategy over the business cycle. Strategic Management Journal, 10, 199-210.
9. Metcalf, J. (2014). The Economics of Energy Security. Annual Review of Resource Economics, 6(1), 155-174.
10. Moore, G.H. and Shiskin, J. (1967). An Explicit Scoring System for Business Cycle Indicators. NBER, 8–28.
11. Myant, M. and Drahokoupil, J. (2010). Transition Economies: Political Economy in Russia, Eastern Europe, and Central Asia, New Jersey, John Wiley and Sons, Inc.
12. Navarro, P. (2005). The Well-Timed Strategy: Managing the Business Cycle, New Jersey, Pearson Education, Inc.
13. Navarro, P. (2006). Help Your Clients Manage the Business Cycle. C2M: Consulting to Management; the Forum for Consultants to Management Worldwide, 17(1).
14. Navarro, P. (2009). Recession-Proofing Your Organization. MIT Sloan Management Review, 50(3), 45–51.
15. Navarro, P., Bromiley, P. and Sottile, P. (2010). Business cycle management and firm performance: Tying the empirical knot. Journal of Strategy and Management, 3, 50-71.
16. Sherman, H.J. and Sherman, P.D. (2008). Why Is This Cycle Different from All Other Cycles?. Journal of Economic Issues, 42(1), 255–268.
17. Zarnowitz, V. (1984). Recent Work on Business Cycles in Historical Perspective: Review of Theories and Evidence. Journal of Economic Literature, 23(2), 523-580.

Top management team diversity and organizational characteristics of banks in Russia

ELENA PROSVIRKINA
BERT WOLFS

ABSTRACT

Background: Several worldwide studies demonstrate that the diversity of a top management team (TMT) depends on the organizational characteristics of business organizations. Though this topic has been studied in different countries, it is not well researched in Russia, especially for some industries, including the banking sector. The main purpose of the research is to study diversity of TMTs of banks in Russia and investigate if it depends on banks' organizational characteristics.
Methods: Data on top management team characteristics is collected for 178 banks (32% of banks operating in Russia). The data includes age, gender, citizenship, education, functional expertise, and work experience of the team members. In addition, data on organizational characteristics of banks was collected from their websites, including size, ownership, type of business, and number of years of operation in Russia. The variance coefficient, which demonstrates the level of TMT diversity, was calculated for all TMT members of each bank. Correlation analysis between TMT diversity and organizational characteristics of banks was completed in SPSS software.
Results: The calculated variance coefficient for different top management characteristics shows that TMTs in the Russian banking sector are mostly homogeneous (in terms of age, gender, nationality and previous work experience). TMTs are only diverse in terms of educational background and functional expertise. The research also shows that TMT diversity metrics correlate with some organizational characteristics, including capital concentration, type of ownership, and nationality of capital (international or local). There is no correlation of TMT diversity with type of banking business and headcount.
Conclusions: It can be surmised that boards of directors of banks in Russia should appoint more diverse TMTs to achieve higher organizational outcomes. Nevertheless, this should be researched

further, and the authors recommend studying the impact of TMT diversity on bank performance in Russia.

INTRODUCTION

TMTs are considered in different research fields, including psychology, behavioural and social sciences, business and management, economics, etc. The first research related to TMTs appeared in the mid-1980s and was based on the perception that managers have their personal perceptions and values which influence their decision-making and therefore organizational performance. Based on this hypothesis researchers began to pay more attention to TMT studies. Upper echelons theory also appeared in the 1980s and considered basic demographic characteristics, such as age, gender, race, and nationality (Hambrick, Mason, 1984). Following the development of organizational demography theory, scholars began to study more demographic TMT characteristics, including tenure within the company, previous experience and qualifications. Later, heterogeneity (nowadays it is often called TMT diversity) became one of the main topics in upper echelons theory.

TMT diversity is well researched in the USA and Europe. In Russia few researchers have considered this topic, and none of them have analysed the correlation between TMT diversity and organizational characteristics of banks. Therefore, the current research focuses on the diversity of TMTs of banks in Russia and investigates if it depends on banks' organizational characteristics.

LITERATURE REVIEW

The Russian Banking Sector

According to Central Bank of Russia (CBR) data, there are 538 credit institutions licensed to conduct banking operations on the Russian market in 2018. Although the number of credit institutions has been decreasing for several years, there are still as many banks in Russia as in the USA, Germany, Austria, and France respectively. Concentration of capital in the Russian banking sector is high.

The large number of banks and high concentration of capital makes the Russian banking sector unique. Russia is among the countries with hundreds of banks, but a low real level of competition, such as Macedonia, Slovakia, Oman, and Greece. The main reason for the low level of competition is the power of state-controlled banks in Russia, which are directly or indirectly controlled by the Bank of Russia or the Russian Federation. Though the number of state-controlled banks is low (only 5% of the total number of banks), they own more than half of total assets of the Russian banking sector (Banking Supervision Report, 2016).

Currently, the structure of the Russian banking sector's total assets is as follows: state-controlled banks (58.6% of the banking sector's total assets), large private banks (29.8%), foreign-controlled banks (8.8%), and small and medium-sized banks based in the Moscow Region as well as in other regions (2.8%). According to the Centre for Economic Research of the Moscow Financial and Industrial Academy, there are only three big national economies where state-controlled banks continue to play the main

role in the banking sector: China, India, and Russia. Most credit institutions in Russia are local, and only 27% of them are foreign. In other developing countries, this indicator is higher, for example in East Europe around 70% of banks are controlled by foreign capital, while the figure for Latin America is 40%.

Top Management Teams in the Russian Banking Sector

In the banking sector in Russia the day-to-day operation of banks is managed by members of the executive board. Executive board members are the main decision-makers in a bank's operations in Russia and therefore in the current research TMTs of Russian banks are considered as teams of executive board members.

The day-to-day activities and implementation of a bank's strategy is managed by an executive board. According to the internal documents of the banks analyzed and Russian legislation, the CEO plays the main role in managing the day-to-day activities of a bank; he/she leads the executive team of directors in carrying out the long-term objectives and priorities established by the board of directors. The CEO "also maintains a dialogue with the chairman of the board, puts in place adequate operational planning and financial control systems, ensures that the operating objectives and standards of performance are not only understood but also 'owned' by the management and other employees, monitors operating and financial results against plans and budgets, takes remedial action where necessary and informs the board of significant changes." (Jackson et al., 2003, p. 194).

Executive directors of banks in Russia are employed full-time and are responsible for their area of day-to-day functional or operational business. They attend the executive board meetings and report directly to the CEO. Executive directors in banks in Russia set the direction, mission and policies for the business.

TMT Characteristics and Diversity

The first research related to TMTs appeared in the mid-1980s and was based on the perception that managers have their personal perceptions and values which influence their decision-making and therefore organizational performance. Based on this hypothesis researchers began to pay more attention to TMT studies. Upper echelons theory also appeared in the 1980s (Hambrick, Mason, 1984). Since then many studies have been related to the research of TMT characteristics.

For the purposes of this research all publications devoted to TMT characteristics were found in Elsevier's Scopus database. The search words included "top management", "TMT", "team", "CEO", "chief executive officer", "CFO", "chief financial officer", and "characteristics". 262 article abstracts were selected for analysis, and finally it appeared that only 98 publications (71 articles, 20 conference proceedings, 4 book chapters, and 3 reviews) are relevant to the topic. Figure 1 demonstrates the staggering exponential growth of TMT publications since the mid-1980s.
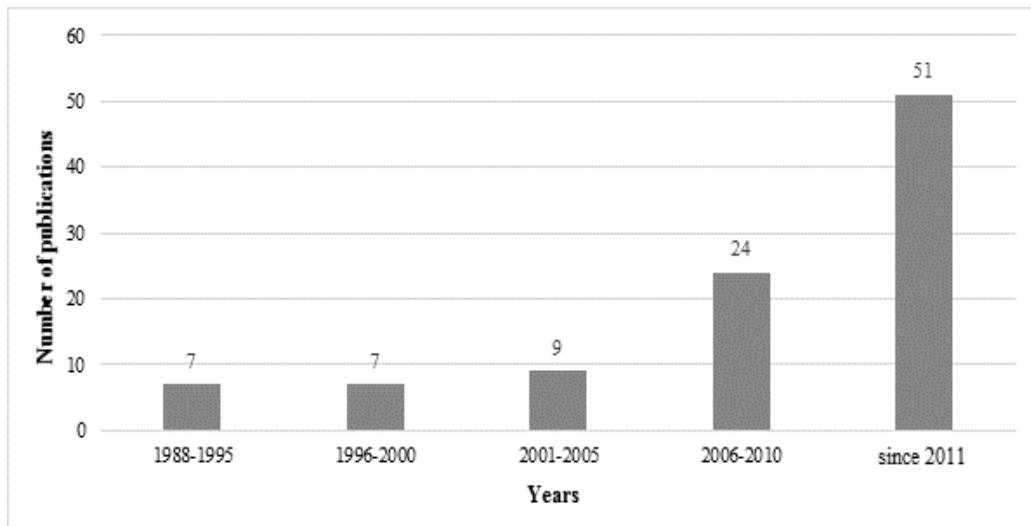
Figure 1. Number of Publications Devoted to TMT Characteristics since 1988
(Developed by the authors)

The literature review shows that TMT characteristics can be researched on both individual and group levels. On the individual level, researchers consider the characteristics of the CEO or CFO and on the group level they consider heterogeneity or diversity of the TMT. Some papers consider both the individual and group levels, including characteristics of the board of directors. In the table below classification of publications devoted to TMT characteristics based on the level of analysis is presented. The first researchers of TMT characteristics referred to heterogeneity (Gu, 2008), which nowadays is often called diversity (Yoon et al., 2016). In the majority of publications, the authors hypothesize that homogeneous teams are less productive, and a homogeneous mindset leads to slow strategic change. As in the current turbulent environment it is crucial for business organizations to be quick and adaptive to the changes in the external environment, organizations must choose the right level of heterogeneity within their TMT.

The first researchers of executive teams considered basic demographic characteristics, such as age, gender, race, and nationality (Barnard, 1938). Following the development of organizational demography theory (Pfeffer, 1983), scholars began to study more demographic TMT characteristics, including tenure within the company, previous experience and qualifications (Korac-Kakabadse et al., 2001). A long tenure, measured in years since appointment as executive board member, points to more entrenched executives who have more time to develop their skills and knowledge. The more years the TMT member works in the organization, the more experienced he/she becomes, and this can help him/her to make the right decisions.

Functional tracks and other career experiences of each TMT are also important characteristics (Hambrick, Mason, 1984). Researchers analyse functional background (Yoon et al., 2016; Díaz-FernAndez et al., 2014), international experience (Bany-Ariffin et al., 2014; Herrmann, Datta, 2005), executive experience (Bjornal et al., 2016; Yang et

al., 2011) or industry experience (Ahrens et al., 2015; Knockaert, 2015).

For a deeper understanding of what TMT demographic characteristics are considered most often, all 98 selected publications were analysed. The literature review found that age and education of TMT members are researched more often than other characteristics (in 45 and 43 publications respectively). Also, researchers quite frequently consider tenure (32 publications), experience (29 publications), and functional background (23 publications). Interestingly, gender is analysed in only 11 publications, and the majority of them were published within the last decade. This shows that interest in the gender topic within upper echelons theory appeared with the expansion of social gender studies. Board membership and shareholding of TMT members are also researched in a small number of publications (in 10 publications each), probably because this data is not always available in secondary sources of information. Only in a few studies do researchers analyse turnover (3 publications) and nationality (2 publications).

The latest publications are usually devoted not to TMT characteristics themselves, but to TMT diversity. TMT diversity can be regarded as the differences in TMT members with respect to their demographics (Oduor, Kilika, 2018), for example, diversity in TMT tenure (Jaw, Lin, 2009). According to Katz (1982), group tenure is positively associated with internal communication, but only up to a point: after that, increases in tenure bring less communication. Other researchers consider educational diversity (Yoon et al., 2016; Zahra, Wiklund, 2010), functional diversity (Bjornali at al.; 2011; Buyl et al., 2011), and gender diversity (Wen et al., 2015; Yang, Wang, 2014).

TMT diversity is a popular topic in the American and European management literature. But in the meantime, TMT diversity is poorly researched in Russia, especially in some industries. Therefore, further research of TMT diversity is required. This study investigates TMT diversity in the Russian banking sector and its correlation with organizational characteristics of banks.

RESEARCH DESIGN AND METHODOLOGY

Research Design

This research adopts mixed research techniques and a quantitative approach to data sources and analysis. Such an approach helps to provide insightful and objective knowledge for the study and answer the research questions below:

What are the main TMT characteristics in the Russian banking sector?

Are top management teams diverse in banks on the Russian market?

Is there a correlation between TMT diversity and organizational characteristics of banks?

The literature review found out the TMT characteristics most frequently used for analysis of TMT diversity. All of them are investigated in the research, including diversity of TMT age, gender, nationality, work experience, and education. The research investigates the linkage between organizational characteristics of banks and TMT diversity. The theoretical model below addresses the main purpose of the research (Figure 2).
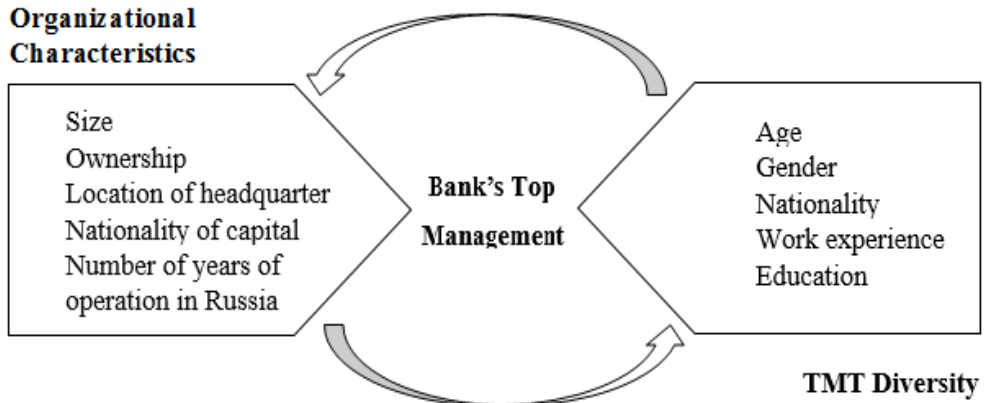
Figure 2. Theoretical Model of the Research
(Developed by the authors)

Data Collection

The research includes different types of secondary data. Firstly, data on TMT members was collected from banks' websites. Data on demographic characteristics, work experience, and education is available. According to Russian legislation, banks must publish these data for top managers. The websites of 178 banks were studied and data on TMTs was summarized in Excel for further coding. For the majority of banks this data was published in Russian; therefore, it has been translated into English for coding purposes. A summary of data collected on TMT characteristics is presented in Table 1.

Table 1

Data Collected on TMT Members' Characteristics
(Developed by the authors)

Type of Data	Variables	Source of Data
Demographic characteristics	• Name • Gender • Age • Nationality	Websites of banks (usually in the "Corporate Governance" section)
Work Experience	• Position • Core function • Job history • International experience	
Education	• University • Major • Additional education • Academic degree • Field	

Secondly, data on organizational characteristics of banks was collected from their websites. The authors collected the following data for 178 banks: size, ownership, location of headquarters, nationality of capital (local/international), and number of years of operation in Russia. And finally, data for calculation of financial performance indicators was gathered from banks' financial statements. According to Russian legislation, all banks must submit their financial reports to the Central Bank of the Russian Federation. This simplified the data collection as all financial statements are published on the CBR website. The data collected and their sources are indicated in Table 2.

Table 2

Data Collected and Source
(Developed by the authors)

Type of Data	Variables	Source of Data
Organizational characteristics of banks	Size, ownership, location of headquarters, nationality of capital, number of years of operation in Russia	Banks' websites
	Headcount	Banks' financial statements

Additional sources of information for this research included Russian banking law, annual business reports of banks, consultants' reports, and international organizations' public documents (International Monetary Fund, World Bank annual investment reports). Moreover, data analysis also relied on various publications, such as newspapers and analytical magazines.

Sample

The size of the banks in this survey is mostly average. 50.6% of the sample have less than 500 employees. Only 3.4% have more than 10,000 employees. According to the EU definition from the Centre for Strategy and Evaluation Services[1], an institution that has less than 250 employees is defined as a small or medium-sized enterprise. In this study, 51 banks (28.7% of the sample) are therefore small or medium-sized organizations. The majority are large banks.

The review of the banking sector in Russia has shown that most banks are private, and only a few are government-controlled. In this survey 15.2% are government-controlled banks and 84.8% of the sample are private banks. Most banks are local (74.7%); only 25.3% are international banks. More than 80% of banks in the sample are universal, which means that they provide different types of financial services for both private and corporate clients. Three other categories are represented by 5-6% of banks. This accurately represents the Russian banking sector as a whole, where there is a small number of corporate, retail or investment banks.

The concentration of capital refers to the shareholder structure of a bank. If there is one shareholder who controls key decision-making processes, then the concentration of capital is high. If there are many minority shareholders, then this

[5] Centre for Strategy and Evaluation Services: http://www.cses.co.uk/

concentration is low. More than sixty percent of banks have a high concentration of capital and 28.7% have a low capital concentration. The rest of the banks have several shareholders who control the main management decisions.

Data Analysis

The current research is quantitative and statistical analysis was applied for analysis of the coded data. For some variables coding was not required (name of TMT member, age), but other variables were coded for further analysis in SPSS. To evaluate the diversity of TMTs, the coefficient of variance (CV) was calculated. The formula for CV is outlined below

$CV = (SD/ \mu) *100$, where SD – standard deviation, μ – mean.

$SD = \frac{\sum_{i=1}^{N}|x_i - \mu|^2}{N}$, N – number of values.

- <17% – very homogeneous;
- 17–33%% – homogeneous;
- 35–40%% – slightly homogeneous;
- 40–60%% – slightly heterogeneous;
- > 60% – heterogeneous.

Finally, correlation analysis was applied to investigate if TMT diversity depends on organizational characteristics of banks.

RESEARCH FINDINGS

The variance coefficient was calculated for all TMT members of each bank. The research found that the variance coefficient for the age of TMT members is in the range of 0% to 38%. This means that top management teams' members are homogeneous in terms of their age. This finding can be explained by the fact that the majority of top managers in the banking sector are experienced individuals with an average age range of 40-50 years. Details on the calculated variance coefficient are outlined in Table 3.

Table 3

Variance Coefficient for Age of TMT Members
(Developed by the author)

Variance Coefficient	Frequency	Percent
< 17%	110	60.0
17–34%	67	39.4
35–39%	1	0.6
40–60%	0	0
>60%	0	0
Total	178	100.0

The variance coefficient for the gender of top managers shows this indicator is in the interval of 0% to 47%. This means that teams are more heterogeneous in terms of

gender than in terms of age. The low level of heterogeneity can be explained by the fact that the majority of top managers are men (77.5%). Details are presented in Table 4.

Table 4

Variance Coefficient for Gender of TMT Members
(Developed by the authors)

Variance Coefficient	Frequency	Percent
< 17%	59	33.1
17–34%	24	13.5
35–39%	83	46.6
40–60%	12	6.7
>60%	0	0
Total	178	100.0

TMTs in the Russian banking industry are homogeneous in terms of nationality. Though the variance coefficient is in the interval of 0% to 99%, for the majority of banks (87.6%) it is less than 17%. The low level of heterogeneity in terms of nationality means that usually TMTs are represented by Russian citizens; only in a few banks are there foreign members. Details are presented in Table 5.

Table 5

Variance Coefficient for Nationality of TMT Members
(Developed by the authors)

Variance Coefficient	Frequency	Percent
< 17%	156	87.6
17–34%	0	0
35–39%	5	2.8
40–60%	4	2.2
>60%	13	7.3
Total	178	100.0

As data for education of TMT members is also available, the variance coefficient for academic majors was analyzed (Table 6). Only in 11 banks are teams homogeneous as all their top managers studied economics at university. In 75.8% of banks top management teams are heterogeneous in terms of education, as some TMT members have studied mathematics, physics, law or another field.

Table 6

Variance Coefficient for Academic Majors of TMT Members
Source: Developed by the authors

Variance Coefficient	Frequency	Percent
< 17%	11	6.2
17–34%	2	1.1
35–39%	4	2.2
40–60%	26	14.6
>60%	135	75.8
Total	178	100.0

TMTs are homogeneous in terms of membership of top managers in the board of directors. This conclusion is made based on the variance coefficient below (Table 7).

Table 7

**Variance Coefficient for Membership in Board of Directors
of TMT Members**
(Developed by the authors)

Variance Coefficient	Frequency	Percent
< 17%	86	48.3
17–34%	18	10.1
35–39%	42	23.6
40–60%	26	14.6
>60%	6	3.4
Total	178	100.0

In 48.3% (86 banks) there are now top managers who are also members of the board of directors. The research shows that in the Russian banking industry usually not more than 1 top manager is represented in the board of directors. In large banks, this number may be 2 or 3 individuals (according to legislation, representation of top managers can be no more than 25% of board members). This leads to a low level of heterogeneity in terms of membership in the board of directors.

Data analysis demonstrates that the majority of top managers have previous experience in banking. Only a few managers worked in other industries before joining a bank. This leads to a low variance coefficient (for 50.6% it equals less than 33%), i.e. a low level of heterogeneity (Table 8). This finding can be explained by the fact that successful work in the banking sector requires specific knowledge and skills, for example the skill of working with a large amount of financial data.

Table 8

**Variance Coefficient for Previous Industry Experience
of TMT Members**
(Developed by the authors)

Variance Coefficient	Frequency	Percent
< 17%	86	48.3
17–34%	18	10.1
35–39%	42	23.6
40–60%	26	14.6
>60%	6	3.4
Total	178	100.0

The variance coefficient was also calculated for previous functional experience of top managers. The research showed that top managers have different functional expertise, including general management, finance, sales, and human resource

management. The results of calculating the variance coefficient are indicated below (Table 9).

Table 9

**Variance Coefficient for Previous Functional Experience
of TMT Members**
(Developed by the authors)

Variance Coefficient	Frequency	Percent
< 17%	7	3.9
17–34%	1	0.6
35–39%	6	3.4
40–60%	60	33.7
>60%	104	58.4
Total	178	100.0

For 58.4% (104 banks) the variance coefficient is more than 60%. This means that top management teams in the Russian banking sector are heterogenous in terms of previous functional experience of TMT members. If we consider current functional expertise of top managers, the variance coefficient is also high (for 58.4% of banks it is more than 60%). High level heterogeneity of a TMT in terms of current functional experience means that usually a TMT consists of heads of functional departments of a bank. The results of the calculation are presented in Table 10.

Table 10

**Variance Coefficient for Current Functional Experience
of TMT Members**
(Developed by the authors)

Variance Coefficient	Frequency	Percent
< 17%	7	3.9
17–34%	1	0.6
35–39%	6	3.4
40–60%	60	33.7
>60%	104	58.4
Total	178	100.0

The research also found that top management teams in the Russian banking industry are homogeneous in terms of their little international work experience. In 86% of banks all TMT members have working experience only in Russia. This can be explained by the fact that each country has its own regulatory environment and financial markets are different; therefore, the work experience of TMT members usually relates to the market where the bank operates.

The variance coefficient for the duration of membership in the board varies from 0% in some banks to 76%. Nevertheless, in the majority of banks

(177 out of 178 banks) this indictor equals 3%; only in one bank does it equal 76%. This means that TMTs in the Russian banking sector are homogeneous in terms of the duration of their membership on the executive board. TMT members are appointed at the same time, usually, and if the board of directors decides to change TMT members, they replace all top managers simultaneously.

To sum up, the minimum, maximum, average, and standard deviation of the variance coefficient for all TMT characteristics were calculated. The results are presented in Table 11.

Table 11

Variance Coefficient for TMT Characteristics
(Developed by the authors)

TMT Characteristics	Minimum	Maximum	Average	Standard Deviation
Gender	0	0.47	0.3193	0.12531
Citizenship	0	0.99	0.0843	0.21111
Number of years of work experience	0	0.76	0.0124	0.05687
Education	0	1.22	0.7051	0.25557
Current functional expertise	0	1.11	0.6113	0.25746
Work experience in the banking sector	0	0.43	0.2198	0.18367
Functional work experience	0	1.15	0.6392	0.21162
International work experience	0	0.43	0.0435	0.11173
Membership in the board of directors	0	0.64	0.2103	0.21433

The calculated meanings of the average, maximum, and standard deviation for the variance coefficient for different top management characteristics show that TMTs in the Russian banking sector are heterogeneous in terms of their current functional expertise, functional work experience, and education background. This finding can be simply explained by the fact that TMTs in banks usually consist of heads of functional departments, who should have an educational background and work experience related to their function. If we consider other top management characteristics, TMTs are homogeneous. On average, TMTs in Russia consist of a majority of Russian men with the same duration of membership in the executive board and usually with work experience in the Russian banking sector without an international working background.

To identify if TMT heterogeneity depends on the organizational characteristics of banks, the correlation coefficient was calculated. The results are presented in Table 12.

**Correlation Coefficient Between Characteristics of Banks
and TMT Variance Coefficient**
(Developed by the authors)

	Gen-der	Citizen-ship	Turn-over	Education	Banking Work Experience	International Work Experience	Current Functional Expertise
Type of Ownership		-.039	.172**	.006	-.070	-.191**	.164**
	.877	.587	**.005**	.919	.286	**.009**	**.008**
International/ Local	.068	.438**	-.052	.069	-.065	.104	-.064
	.283	**.000**	.398	.261	.319	.153	.304
Capital Concentration	-.147*	-.204**	.151*	-.075	.131*	-.187**	.000
	.016	**.004**	**.011**	.209	**.040**	**.008**	.996
Type of Business	-.025	.084	.023	.050	.002	-.087	.028
	.684	.232	.702	.405	.981	.222	.647
Location of Headquarters	.037	-.107	.004	.027	.017	-.227**	.086
	.523	.109	.948	.631	.777	**.001**	.131
Headcount	-.066	-.073	-.038	-.043	-.073	.027	-.008
	.200	.221	.450	.393	.178	.646	.878
Number of Years in Russia	-.029	-.038	.124*	.002	.094	-.152*	-.033
	.600	.542	**.020**	.967	.099	.016	.543

The research shows that the level of significance for some cases is on the required level (0.01 or 0.05), which means that there is a statistically significant linkage between some organizational characteristics of banks and TMT diversity. **Firstly**, all organizational characteristics, except type of business of a bank (investment, corporate, retail, or universal), have a correlation with some TMT diversity metrics, but the correlation coefficient is not high. **Secondly,** the highest correlation of 0.438 is between TMT citizenship diversity and nationality of banks' capital (international or local). This means that in international banks there are both global and local managers, and therefore TMT diversity is higher than in local banks with homogenous Russian TMTs. **Thirdly**, capital concentration is the most impactful organizational characteristic for TMT diversity, as it has the highest number of statistically significant correlations. It has a negative correlation with gender diversity (-0.147), citizenship (-0.204), and international work experience (-0.187). High capital concentration of a bank refers to low numbers of shareholders, and in Russia this is usually common for large state-owned banks and private banks with one or several local owners. In such banks TMTs are usually homogeneous in terms of gender (male environment), citizenship (local Russian managers), and international work experience (managers with mostly local experience). **Fourthly**, type of ownership is correlated with three TMT diversity metrics (positively with TMT turnover diversity and TMT functional diversity, and negatively with TMT work experience diversity). **Finally**, the longer a bank operates in Russia, the more diverse its TMT is in terms […]

CONCLUSIONS

Based on the research, the authors can conclude that TMTs in the Russian banking sector are mostly homogeneous. TMTs are homogeneous in terms of their members' age, gender, nationality, and previous work experience. Top managers in banks are usually Russian men aged 40-50 years with previous work experience only in the banking sector. TMTs' members have diverse educational backgrounds (economics, mathematics, physics, law or another field) and functional expertise (general management, finance, sales, human resource management, etc.). The research also found that in Russia TMT diversity metrics don't correlate with type of banking business and headcount, but do correlate with some other organizational characteristics, including capital concentration, type of ownership, and nationality of capital.

A large number of international research papers have demonstrated that organizations with mostly homogeneous TMTs are less successful and have lower organizational performance results. It can be surmised that the same situation may apply for the Russian banking sector, and therefore boards of directors of banks should appoint more diverse TMTs to achieve higher organizational outcomes. Nevertheless, this should be researched further. It is recommended that further research should be devoted to the analysis of TMT diversity's impact on bank performance in Russia.

In considering the conclusions of the study, limitations have been identified with regard to the research only addressing the banking sector of Russia, as it might not be fully representative. This limitation has affected the results of the study, as a broader sample could have led to further insights. Even though this limitation may apply, the paper is still valid. The study adds to existing knowledge and can be used to justify further studies.

REFERENCES

1. Ahrens, J., Landmann, A., and Woywode, M. (2015). Gender preferences in the CEO successions of family firms: Family characteristics and human capital of the successor. Journal of Family Business Strategy, 6(2), 86-103. doi:10.1016/j.jfbs.2015.02.002
2. Banking Supervision Report (2016). Moscow: Bank of Russia, 1-100.
3. Bany-Ariffin, A. N., McGowan, C. B., Tunde, M. B., and Shahnaz, A. S. (2014). Top management characteristics and firm's international diversification activities: Evidence from a developing nation. Pertanika Journal of Social Science and Humanities, 22(December), 39-54.
4. Barnard, C. I. (1938). The functions of the executives. Cambridge, MA: Harvard University Press.
5. Bjørnåli, E. S., Erikson, T., and Knockaert, M. (2011). The impact of top management team characteristics and board strategic involvement on team effectiveness in high-tech start-ups. Paper presented at the Academy of Management 2011 Annual Meeting - West Meets East: Enlightening. Balancing. Transcending, AOM 2011, doi:10.5464.AMBPP.2011.166
6. Bjornali, E. S., Knockaert, M., and Erikson, T. (2016). The impact of top management team characteristics and board service involvement on team effectiveness in high-tech start-ups. Long Range Planning, 49(4), 447-463. doi:10.1016/j.lrp.2015.12.014

7. Buyl, T., Boone, C., Hendriks, W., and Matthyssens, P. (2011). Top management team functional diversity and firm performance: The moderating role of CEO characteristics. Journal of Management Studies, 48(1), 151-177. doi:10.1111/j.1467-6486.2010.00932

8. Díaz-FernAndez, M. C., GonzAlez-Rodríguez, M. R., and Pawlak, M. (2014). Top management demographic characteristics and company performance. Industrial Management and Data Systems, 114(3), 365-386. doi:10.1108/IMDS-04-2013-0210

9. Gu, J. (2008). An empirical study on the relation between characteristics of enterprise top management team and strategic decision in industry cluster of China. International Journal of Human Resources Development and Management, 8(1-2), 96-110. doi:10.1504/IJHRDM.2008.018203

10. Hambrick, D. C. and Mason, P. (1984). Upper echelons: the organization as a reflection of its top managers. Academy of Management Review, 9(2), 193-206.

11. Herrmann, P., and Datta, D. K. (2005). Relationships between top management team characteristics and international diversification: An empirical investigation. British Journal of Management, 16(1), 69-78. doi:10.1111/j.1467-8551.2005.00429

12. Jackson, S., Farndale, E. and Kakabadse, A. (2003). Executive development: meeting the needs of top teams and boards. Journal of Management Development, 22(3), 185 – 265.

13. Jaw, Y., and Lin, W. (2009). Corporate elite characteristics and firm's internationalization: CEO-level and TMT-level roles. International Journal of Human Resource Management, 20(1), 220-233. doi:10.1080/09585190802528797

14. Knockaert, M., Bjornali, E. S., and Erikson, T. (2015). Joining forces: Top management team and board chair characteristics as antecedents of board service involvement. Journal of Business Venturing, 30(3), 420-435. doi:10.1016/j.jbusvent.2014.05.001

15. Korac-Kakabadse, N., Kakabadse, A. K. and Kouzmin, A. (2001). Board governance and company performance: any correlations? Corporate Governance, 1(1), 24-30.

16. Oduor, B. A., Kilika, J. M. (2018). TMT Diversity, Decision Quality and Service Sector Firm Performance: A Research Agenda. Journal of Management and Strategy, 9(2), 34-45.

17. Pfeffer, J. (1983). Organizational demography. Research in Organizational Behaviour, 5, 299-357.

18. Wen, M., Gao, J., Liang, L., and Lu, Q. (2015). Study on the moderating effect of top management team characteristics on the relationship between equity incentive and internal control quality. Paper presented at the 2015 12th International Conference on Service Systems and Service Management, ICSSSM 2015, doi:10.1109/ICSSSM.2015.7170296

19. Yang, Q., Zimmerman, M., and Jiang, C. (2011). An empirical study of the impact of CEO characteristics on new firms' time to IPO. Journal of Small Business Management, 49(2), 163-184. doi:10.1111/j.1540-627X.2011.00320

20. Yang, L., and Wang, D. (2014). The impacts of top management team characteristics on entrepreneurial strategic orientation: The moderating effects of industrial environment and corporate ownership. Management Decision, 52(2), 378-409. doi:10.1108/MD-03-2013-0140

21. Yoon, W., Kim, S. J., and Song, J. (2016). Top management team characteristics and organizational creativity. Review of Managerial Science, 10(4), 757-779. doi:10.1007/s11846-015-0175-7

22. Zahra, S. A., and Wiklund, J. (2010). The effect of top management team characteristics on product innovation among new ventures: The moderating role of behavioral integration. Paper presented at the Academy of Management 2010 Annual Meeting - Dare to Care: Passion and Compassion in Management Practice and Research, AOM 2010.

Implementation of a circular economy-based business model for landfill management companies

NATALIJA CUDECKA-PURINA
DZINTRA ATSTAJA

Demand for raw materials by the world economy could increase by a further 50% in the next 15 years. In order to reverse the trend, a circular development model has to be adopted, which would keep materials and their value in circulation. This is the only solution able to maintain sustainability alongside economic growth.

The Latvian waste management system currently relies heavily on landfilling, with a landfilling rate of over 70% in 2014. In a period when waste policies guarantee the supply of secondary raw materials and prevent valuable materials from getting lost in landfills or incineration, it is of vital importance to start shifting to a circular economy-based business model, particularly for landfill management companies.

The **purpose** of the research paper is to develop a business model for a landfill management company that will facilitate efficient management of resources and their sustention within the economic cycle. The authors have developed the research based on mathematical modelling of resource flows for maximum economic benefit from their management. The model is dynamic as it depends on a wide range of parameters and the economy – changes in independent variables directly affect the model output.

The methods used in the paper will be economic assessment with material flow analysis as well as systems dynamics for decision-making. The research is limited to analysis of municipal waste.

One of the main findings and practical implications will be a tool for decision-making based on the authors' industrial symbiosis model. Industrial symbiosis fits perfectly into the circular economy concept and is an option for Latvian landfill management companies in promoting resource efficiency, especially taking into account that Latvia is underperforming in the management of primary resources.

The **originality** of the paper is underscored by the lack of similar studies in Latvia. The research will be of a **value** for specialists in the municipalities, responsible for waste management, and for waste management companies, allowing them to improve their business model as well as to foresee and decrease operational risks and optimize transportation costs. The paper is **designed** as a research paper.

INTRODUCTION

According to a report by the Committee on the Environment, Agriculture and Local and Regional Affairs (2007), proper management of solid waste is a central pillar of far-sighted, sustainable environmental policies. Every citizen of the EU generates approximately 1 kg of solid household waste a day and the figures show an upward trend. Management of household waste is therefore one of the major challenges currently facing local authorities.

Over the twentieth century, the world increased its fossil fuel use by a factor of 12, whilst extraction of material resources increased by a factor of 34. Today in the EU, each person consumes 16 tons of materials annually, of which 6 tons are wasted, with half going to landfills for disposal (EU COM, 2011; DG ENV, 2012). The World Business Council for Sustainable Development estimates that by 2050 a 4 to 10-fold increase in resource efficiency will be required, with important improvements already achieved by 2020. This also means that significant measures in the field of waste management are to be taken instantly. The Europe 2020 Strategy and its flagship initiative "A Resource-Efficient Europe" set the EU on the path to this transformation. Across the EU 28 average domestic material consumption in 2014 reached 13.296 tons per capita; in comparison Latvia's domestic material consumption was 21.504 tons per capita. Domestic material consumption is defined as the total amount of material directly used in an economy and equals direct material input minus exports. Taking into account the fact that currently the circular economy, resource efficiency and the concept of resource sharing (industrial symbiosis) are becoming more important and the fact that Latvia is very inefficient in resource exploitation per capita, waste management is viewed as a potential field that could be assessed first in order to improve the ratio (Eurostat Press Office, 2015; Eurostat, 2017).

During the time period when waste management infrastructure was in the development stage in Latvia, the EU was quite active, working on legislative improvements. For instance, in the mid-2000s it performed a feasibility check of Directive 2008/98/EC on waste (Waste Framework Directive) and developed amendments to the Directive. The amendments entailed a significant shift in policy, changing the waste management hierarchy's accents (stressing a focus on recycling, reuse and recovery) and developing a range of landfilling bans. This stage had a significant impact on landfill functioning. Thus, unconsciously, waste landfill sustainable development was endangered on the EU level, especially for the member states, where a significant volume of waste is still being landfilled. When applying these legislative changes in Latvian landfill management companies (hereinafter – LMCs), it should be noted that waste landfills are complicated elements of the infrastructure which cannot adapt instantly to such changes.

In the Latvian case, this means that in the nearest future a decision on significant changes in the current waste landfill sustainable development strategy are required. In the nearest future no implementation of any revolutionary waste treatment technologies is foreseen and a decrease of disposed waste from 71% in

2014 to 10% or even 5% in 2030 poses a threat for the existence of waste landfills and their economic stability.

According to EU COM (2015), it is important to promote innovative industrial processes, for example, industrial symbiosis, which allows waste or by-products of one industry to become inputs for another. The concept of the circular economy and industrial symbiosis as one of its sub-systems sounds like a good option in order to solve the current problems of Latvian inter-municipal landfill management companies.

Analysis of the current situation within Latvian LMCs has revealed a negative trend in which some companies have problems combining managerial, entrepreneurial and environmental decisions – companies dealing only with landfilling are interested in an increase in landfilled waste volumes, but this is in direct conflict with the latest EU trends in the landfilling of waste, in which member states are to focus on decreasing landfilled waste as much as possible. Currently it is of vital importance to develop a smart and sustainable decision-making system that will allow LMCs not only to fulfil their financial obligations but, as entities, to generate a positive cash flow and choose further development options. Currently the EU provides aid for recovery and recycling activities; these activities alongside an inhabitant education programme will also have an impact on waste prevention and final waste volume reaching a landfill. All this leads to the conclusion that, in order for an LMC to become economically effective, a new management approach has to be considered. The outcome of the research is applicable not only to Latvian waste management companies, but also to all EU and non-EU countries, which still rely significantly on landfilling.

MATERIALS AND METHODS

The object of the research is Latvian landfill management companies. The data for the empirical part of the research has been collected by means of a survey. The survey was developed in order to prove the authors' vision of possible LMC development, with two main focus groups – a landfill group (covering LMCs) and an expert group (including experts in the field of waste management from Latvia, Estonia, Lithuania, Russia, Malaysia and Spain). The respondents in the landfill group were mainly top managers or members of the board of LMCs, while the expert group comprised representatives of foreign LMCs, consultants, experts from ministries of environmental protection and academics. The questionnaire was completed by 10 LMCs, which accounted for 91% of Latvian LMCs, and 20 experts, which accounted for 67% of the primary target group. The research is based on qualitative methods (survey and situation analysis) and quantitative methods, such as Latvian waste management system data analysis (primary and secondary data) benchmarking, systems dynamics (logical causal-loop diagrams), mathematical modelling and data evaluation.

For the empirical study, *Excel (MonteCarlo modelling)* and *Vensim* software was used. The data was obtained from the survey, mathematical modelling and statistical databases offered by Eurostat, the World Bank, the Confederation of European Waste-to-Energy Plants and the OECD.

RESULTS AND DISCUSSION

The rapid growth in the world population over the last 50 years has caused an immense increase in the demand for food. It has been estimated that the world population will reach 9 billion by 2050, requiring a 60%–70% increase in food production (Moraes et al., 2014). However, the Food and Agriculture Organization of the United Nations (FAO) estimates that more than 1.3bt of food are wasted every year (Bräutigam et al., 2014). This means that significant quantities of resources employed for food production are used in vain and have a significant environmental impact, such as an increase in the quantity of greenhouse gases generated (FAO, 2011). Therefore, the European Commission has promoted the reutilization of waste by means of the circular economy (Laso et al., 2016).

Back in 1990, Pearce and Turner introduced the concept of a circular economy into mainstream economic theory. In their well-known textbook on environmental economics, the authors addressed the interlinkage between the environment and the production/consumption economic model. In their newly proposed circular scheme, the environment provides amenity values and is a resource base, a foundation for economic activities, and a fundamental life-support system (Pearce, Turner, 1990).

The circular economy appears in the literature through three major activities, the so-called 3R's Principles: Reduction, Reuse and Recycle (Feng and Yan, 2007; Ren, 2007; Preston 2012). It should be noted that circular economy concepts have already been adopted on national levels. For example, in China, where environmental protection is a very important issue, in 2009 the Circular Economy Law was passed and entered into force. Austria, Germany, and the Netherlands have to some extent already developed strategies compatible with circular economic activities (Cudecka-Purina, Atstaja 2017; Heck, 2006; Goorhuis et al. 2012). As highlighted by Morone, Navia (2016), the purpose of consumption is to increase the consumer's utility and/or enhance social welfare. However, at each stage of the supply chain, waste is produced. To some extent this waste might be recycled and reconverted into resources, reducing the need to mine virgin resources and, through this, the economy becomes circular. Yet, not all waste can be recycled or is recyclable, partly owing to missed opportunities and partly owing to basic physical and thermodynamic laws. The amount of waste that can be recycled depends crucially on the capacity of the environment to assimilate residuals from the economic system. Once the assimilative capacity is exceeded, environmental damage occurs. To reduce the economy's impact on the environment, awareness of environmental issues is required on the part of society and entrepreneurs (Cudecka-Purina, Atstaja, 2012). Researchers have emphasized the necessity of significant reduction of the environmental impact of economic activities to avoid the collapse of civilization, and change should come from society by transforming dominant cultural patterns, changing attitudes and behaviour (Assadourian, 2010; Jackson, 2009).

DECISION-MAKING PROCESS

Waste management is a field that relies a lot on sustainable and long-term decision-making processes. Thus, it has certain boundaries. It should be considered that waste management in European Union member states has the following main stakeholders: the European Union, countries, regional municipalities, landfill management companies, NGOs and society. Limitations exist ranging from type of activity to waste sources analysed. Hung et al. (2007) note that the factors considered in municipal waste management models are mainly economic (e.g., system cost and system benefit), environmental (air emission, water pollution) and technological (the maturity of the technology). Three models have played a major role in the decision-making of municipal waste management: life cycle assessment, multi-objective programming and multi-criteria decision-making (Alidi, 1996; Powell, 2000).

The most popular and viable waste management models developed to support decision-making and selection of an optimal waste management strategy can be classified as:

- Models based on the *cost-benefit analysis* of the waste management system studied;
- Models that consider environmental, energetic and material aspects of the waste management strategy – *life cycle assessment*;
- *Multi-criteria decision-making* models for selection of the optimal waste management strategy (Morrissey and Browne, 2004).

Life cycle assessment focuses on environmental aspects, whereas maximization of economic efficiency is the major goal of cost-benefit analysis. Multi-criteria decision-making, however, allows for consideration of the three pillars of sustainability: economic, social, and environmental criteria (Karmperis et al. (2013), Milutinović et al. (2014)). In fact, multi-criteria decision-making can guide decision-makers in evaluating existing or potential alternatives by simultaneously applying multiple conflicting criteria (Kou et al., 2011; Zhou et al., 2010).
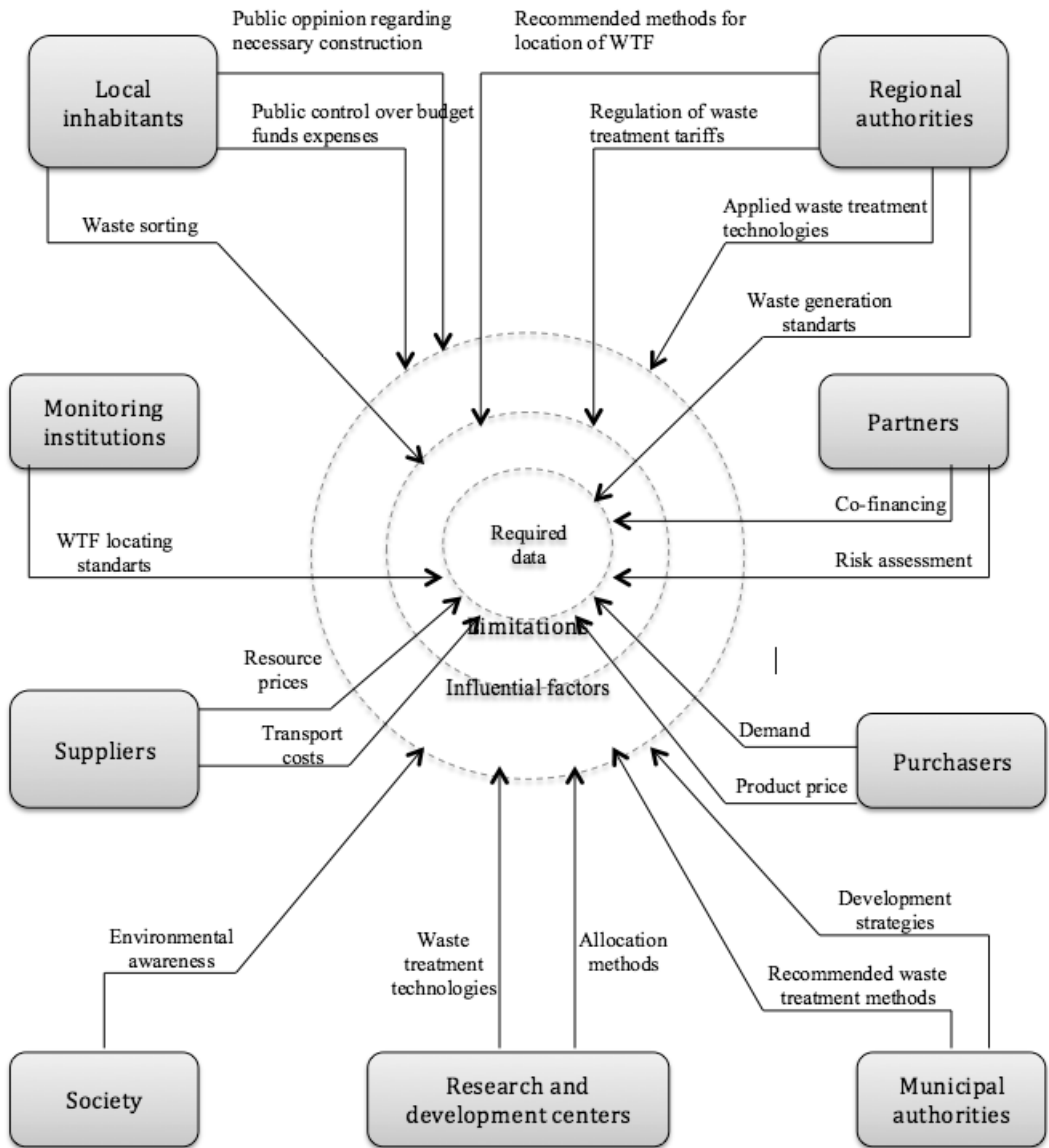
Figure. 1. Information flow for the decision-making process for locating a waste management infrastructure element
(Source: adapted from Velikanova, 2014)

Because of their ability to handle several criteria, multi-criteria decision-making methods are considered to be some of the most effective and thorough decision support frameworks for decision-making in solid waste management (Soltani et al., 2015).

RESULTS OF THE SURVEY

The authors created a survey with specially developed questions in order to confirm or dispel their theory that industrial symbiosis is the direction landfill management companies should follow in order to improve their sustainability and increase efficiency. The survey consists of 19 open and closed-type questions and is divided into three sub-sections. The first sub-section covers landfill management companies, their functions, the output of a landfill's daily operation activities, potential resources for industrial symbiosis and disposal rates. The following sub-section covers waste management tendencies in Latvia; it aims to disclose a landfill management company's vision on further development.

And the last sub-section tackles decision-making practices in waste management companies. The authors have analysed the sample set and, in order to make it more representative, developed two types of surveys. The target audience or affected party of the research within Latvia is municipal landfill management companies. In addition, the authors have modified the same survey for experts in the waste management field (experts not directly engaged with the issues of landfill management company sustainability) who comprise both Latvian and foreign experts (from Estonia, Lithuania, Russia, Spain, and Malaysia). This group will hereinafter be called the "expert group".
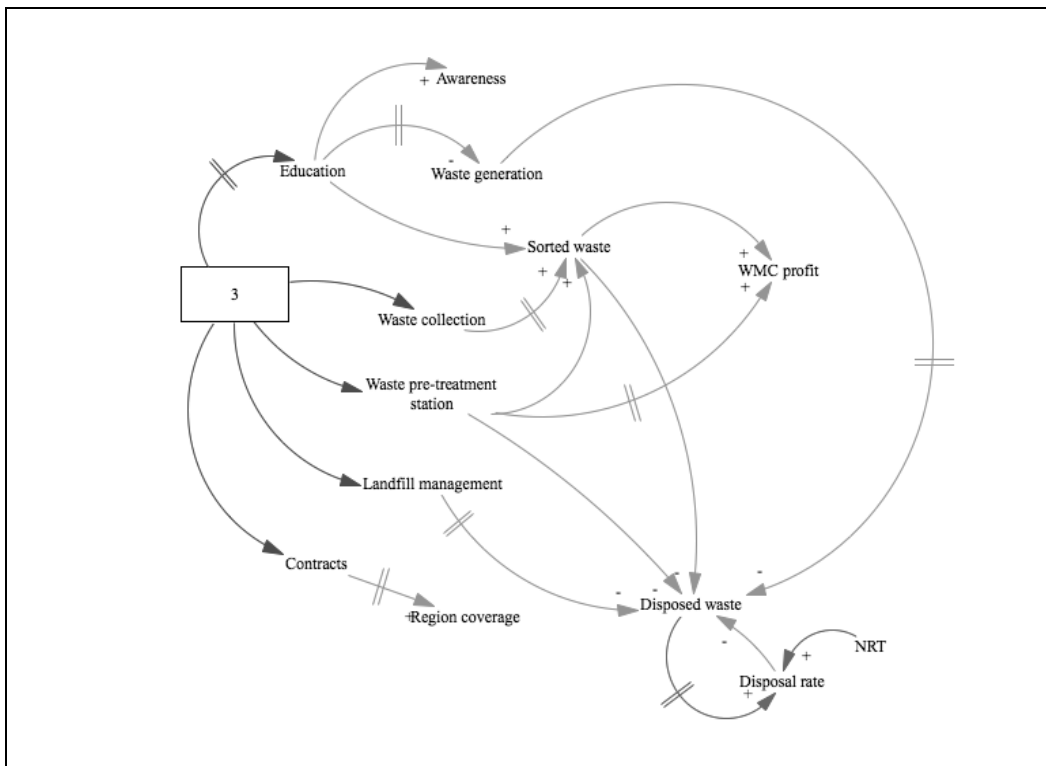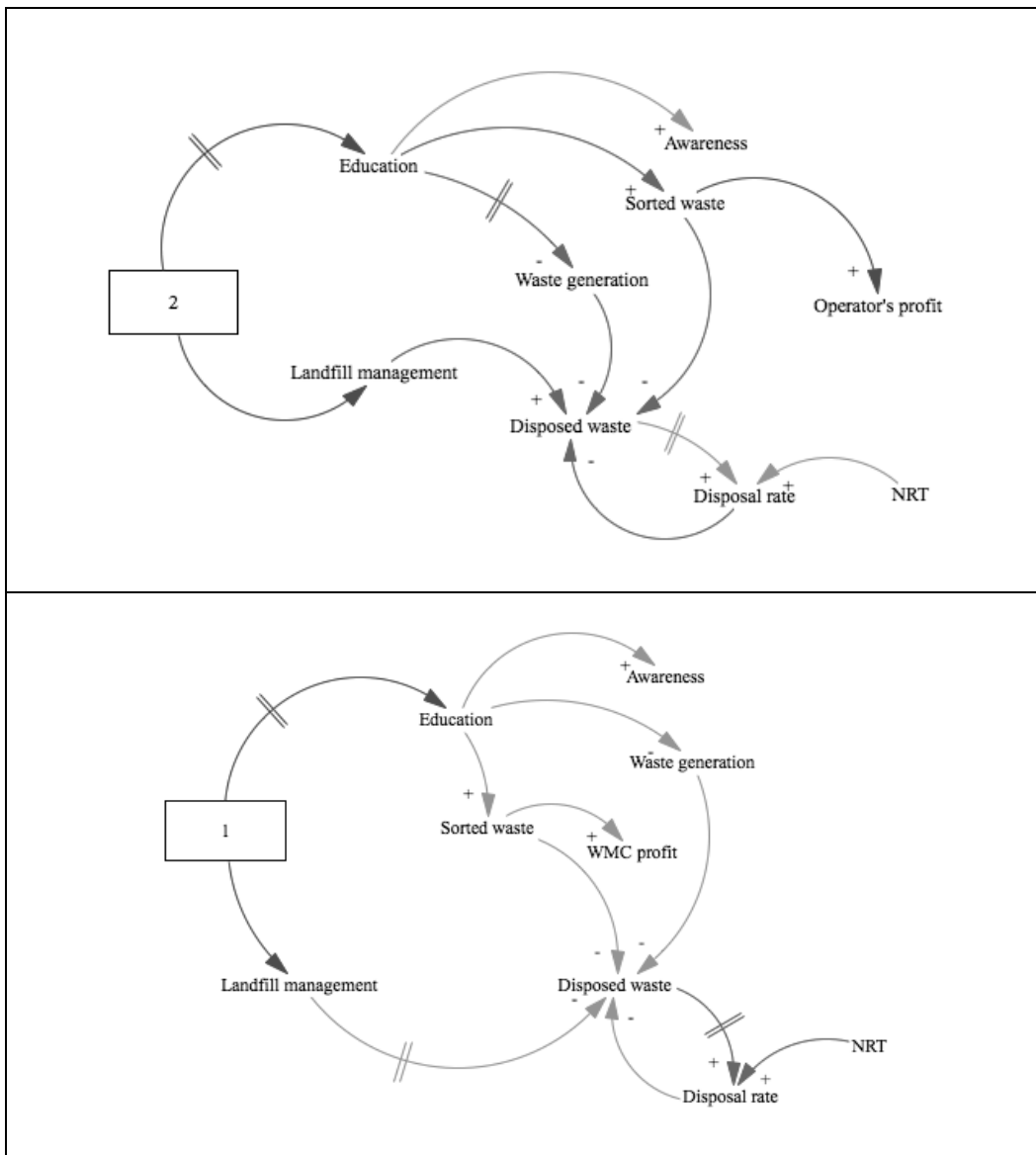
Figure 2. Causal loop diagrams of LMCs

Where:
1 – represents LMCs doing landfilling, sorted waste collection and education activities
2 – represents LMCs doing only landfilling and education activities
3 – represents full-cycle LMCs
(Notes for Fig. 2.: interrupted arrows have an effect in the long-term, + have a positive effect from LMCs' point of view, - have a negative effect; blue arrows are neutral, green are positive, red are negative)

The Latvian waste management system was not designed using a "one size fits all" approach; rather, it allowed municipalities to choose the management and operation a landfill management company should undertake. All 11 household waste landfills are

municipality-owned – each region has an intermunicipal waste management company (LMC) operating a landfill. Regarding other waste management activities, here the regions start to vary. Based on the results of the survey, the authors have analysed all the operations undertaken by LMCs and developed the schemes above.

Table 1.

SWOT analysis of a landfill management company

Strengths	Weaknesses
Regional monopoly	Lack of own financing
On-site waste treatment	Dependence on waste flow
Strong market entry barriers	Waste disposal tariff is approved by the
Fully public companies	Public Utilities Commission
Vertical integration in the in-house case[2]	Research capabilities
	All the incomes must deduct the waste disposal tariff
Opportunities	**Threats**
Development of waste treatment facilities	EU targets on waste landfilling limitations
Development of industrial symbiosis on a landfill basis	EU targets on landfill ban of certain materials
Resource availability for sharing	Changing policies
Cooperation with other industries	Global waste trends
	Energy prices

The SWOT analysis provides us with a full picture of internal variables which influence daily operation and long-term development of landfill management companies. In order to ensure their feasibility, LMCs have to elaborate a long-term development strategy, taking into consideration all the factors stated above.

Some of the results of the survey are provided below. Question No. 3 "What are the resources that arise during daily operation of a landfill?" provided us with a picture of the resources that are produced during a landfill's daily operations. Figure 3 shows that landfills do rely on sorting, gaining sorted waste from it (such as paper and cardboard, plastics, metals) as well as other reusable materials with market value. Purified leachate is obtained by all landfills – thus it should be mentioned that this product has negligible value, being used internally as technical water or for fire-extinguishing pools. The expert group sees, as the main by-products, all of the options (70%-90%), except for RDF (60%), compost used for road construction (40%) and compost for agricultural purposes (25%). This is due to the fact that production of RDF in many countries is done before waste reaches the landfill. Regarding compost production – unless a separate collection of biodegradable waste is ensured, no high-quality compost production is possible. This is due to the fact that the compost would be full of residual waste and heavy metals, which would be a problem for meeting agricultural fertilizer quality.

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[2] In the future, all landfill management companies may become vertically integrated. The more functions a municipality assigns to an entity, working on the in-house principle, the lower the possibility for private companies to enter the market.

By-products that arise during a landfill's daily operations

Figure showing a bar chart with the following categories on the x-axis: Sorted packaging materials, Other reusable materials with commercial value, Electric energy and heat, Purified leachate, Resource derived fuel (RDF), Technical compost, Compost for road construction works, Compost for agriculture. The y-axis ranges from 0% to 70% in 10% increments.

Figure 3. Resources that arise during a landfill's daily operations – response of the landfill group

In addressing the question **"What are the resources that could be offered for other companies?"**, i.e. that are either not used in an efficient manner or not used at all, the expert group identified the resources indicated in Figure 4, mostly focusing on education of society and awareness creation. They also pointed out that landfills should be as open as possible to teaching people to sort waste. The next step is to promote waste reduction and prevention. This means promotion of repair and reuse, especially for electric, electronic and bulky waste. According to the responses of the landfills, they see themselves as fully involved in sharing experience, education of society (80%), and organization of excursions and trainings (90%), followed by technical equipment (60%), infrastructure required for business establishment (fenced territory, supply road, premises, etc.) (50%) and exchange of energy commodities (30%).

This leads to a very important question analysed within the questionnaire: **"What could be a stimulating factor for a landfill management company to get involved in industrial symbiosis?"** Landfill management companies point out as the most stimulating factor (44% of respondents) education of society, explaining that the modern landfill is environmentally safe and different types of manufacturing can be allocated within its territory.
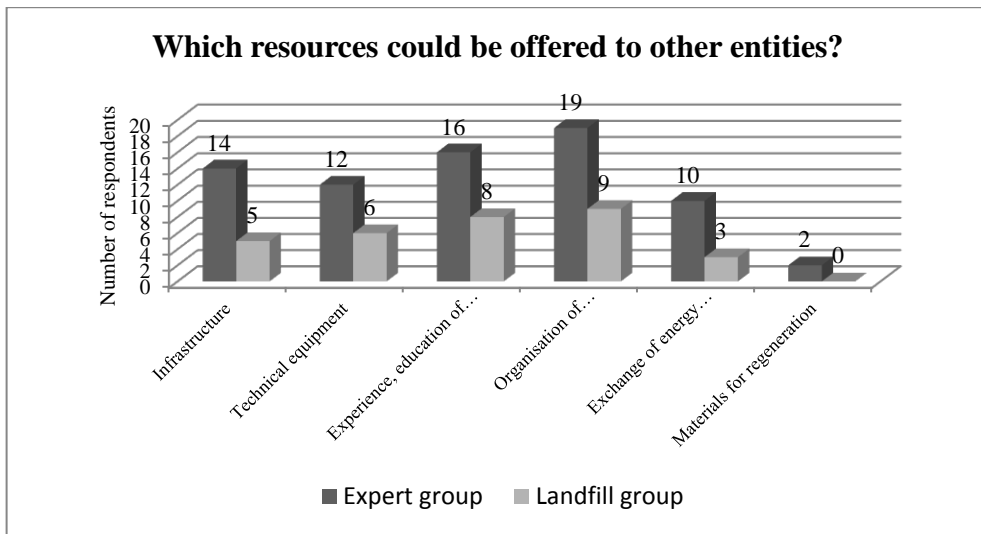
Figure 4. Resources that could be offered to other entities

This is followed by the necessity of developing state support programmes in order to facilitate cooperation of different sectors – identified by 39% of respondents. 6% see the main obstacle in legislation, pointing out that it has to be redeveloped in order to promote interdisciplinary cooperation. On the other hand, 11% of respondents consider that the existing legislation is sufficient and companies themselves are already starting to develop industrial symbiosis on a landfill basis. When it comes to the expert group, regarding the same question, 75% of respondents support the idea of state aid necessity, followed by reconsideration and revision of the legislative basis (45%); only 15% of respondents consider the legislative basis to be sufficient and 25% of the expert group stress the necessity of educating society.

DEVELOPMENT OF A DECISION-MAKING MATRIX

A range of problems that are currently faced by landfill management companies and do not allow them to engage directly in industrial symbiosis has been identified. This means that the first obligatory stage in promoting involvement in industrial symbiosis is the necessity to revise and change or amend legislative acts in order to stimulate promotion of such activities.

One of the obstacles identified is the Commission's Decree No. 1/5 of February 16, 2017 "Household waste disposal tariff calculation methodology" (Public Utilities Commission, 2017), as currently it does not directly support any additional activities that could be undertaken by landfill management companies. In addition, it should be mentioned that with the present regulations, in case a landfill starts successful implementation of industrial symbiosis which would generate additional profit, it would have to decrease the landfill rate, which, in turn, would decrease inhabitants' costs. But at this point, it should be stressed that this action would not be environmentally fair, as inhabitants would receive a discount in

payment without any increase in participation in waste management activities (sorting, reuse, etc.). Figure 5 provides a current picture of by-products generated from Latvian landfills' daily operations. This figure could be modified in the future, as landfills are evolving and new waste treatment options are appearing. The resources available within a landfill fall into 4 categories: a) materials, b) energy, c) services, d) skills. Research undertaken revealed that industrial symbiosis can be implemented in wood processing (for example – technical water, heat), agriculture (heat for greenhouses), greening, road construction (technical compost), domestic heating, construction materials, fish and pig farms (technical water, heat), etc.
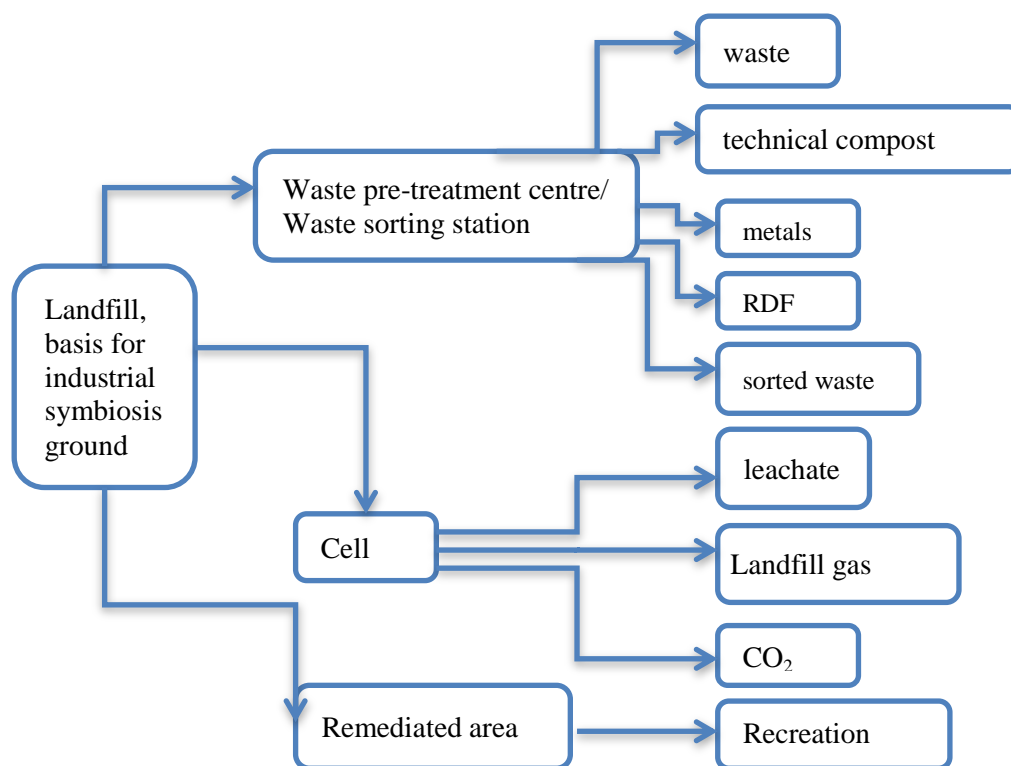
Figure 5. The landfill as a basis for industrial symbiosis

Within this research a model has been developed, presented in Figure 6, where:
- x_1, x_2, $x_{...}$, x_n – are the input data, i.e. waste flows that reach the waste landfill site (which includes the sorting station and waste pre-treatment centre),
- y_1, $y_{...}$, y_m – are the output resources that are left so far without appropriate application within a landfill site,
- z_1, z_2, z_k – industries which may take advantage of y resources and save the consumption of primary resources.
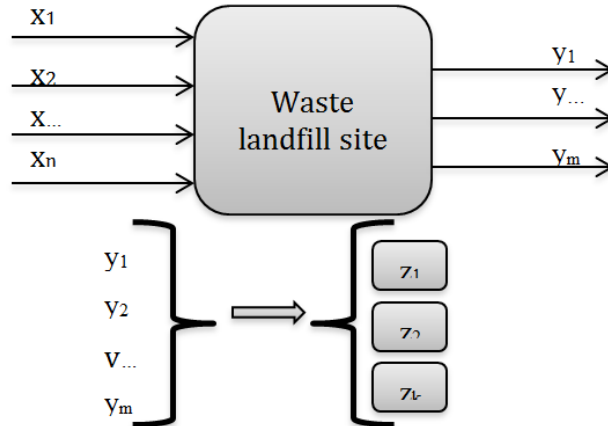
Figure 6. Energy flows within a landfill

The development paths of LMCs, according to the authors' concerns, should include primary resource consumption and assessment of critical resources for the country, and they should highlight possible solutions, ensuring resource efficiency and development possibilities through industrial symbiosis.
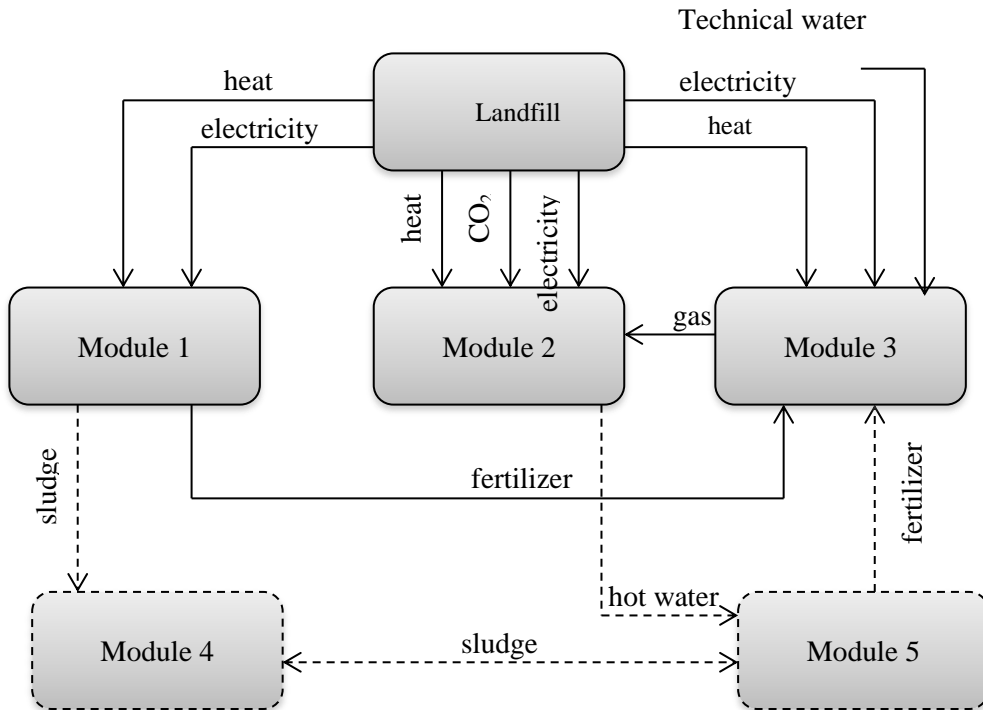
Figure 7. Industrial symbiosis model

Figure 7 depicts a possible industrial symbiosis model, offering cooperation between the modules. Based on this model, the landfill management company is able to choose the most suitable modules, which it can then construct, or a cooperation model with the desired industry could be offered. Further on, in developing the industrial symbiosis, other industries could join the symbiosis, not necessarily interacting directly with the landfill, but sharing resources with other modules.

In order to apply the resource balances to a particular landfill and thus choose the best possible solution, taking into consideration all the nuances and particularities of the landfill's operation, a decision-making matrix has been developed. This matrix will allow the landfill management company to take into account the main variables as well as its desired development path.
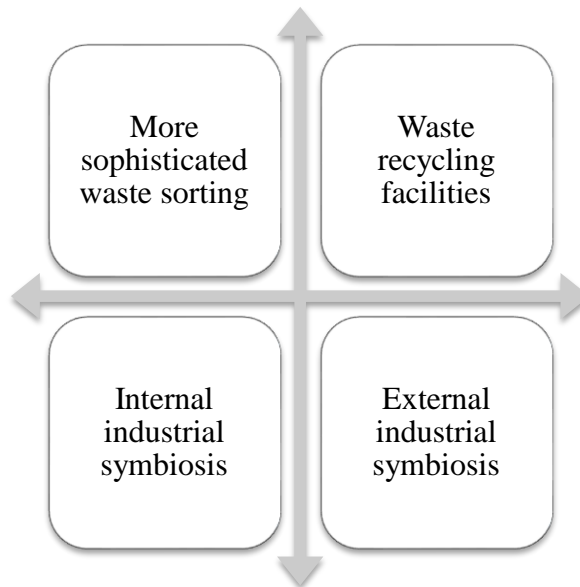
Figure 8. LMC matrix

Figure 8 offers a landfill management company decision-making matrix. It consists of four quadrants:

- The first quadrant, with preconditions of low volume of resources and low profit, foresees development in the form of modular internal industrial symbiosis. This means that the landfill management company has to balance the available resources and can choose one or a combination of modules suitable for industrial symbiosis.
- The second quadrant has the precondition of high volume of resources and low profit. This situation is considered to be a good starting point in order to develop more sophisticated waste sorting – focusing on smaller fractions with higher value (i.e. development of sorting of LDPE and HDPE and preparing this material in flakes / regrinds or pellets).
- The third quadrant foresees that a landfill management company has both high volume of resources and high profit. In this case it may consider focusing on

fractions, which can be imported for recycling from abroad and/or other Latvian waste management regions. These could be sophisticated tyre recycling facilities or specific material recycling facilities, which currently are not available in Latvia or nearby countries.

- The fourth quadrant, with low volume of resources and high profit, is suitable for a landfill management company that wishes to focus on sale of resources and development of infrastructure. In this case the company will be able to attract other industries and develop an industrial symbiosis centre.

Application of the LCM matrix will allow a landfill management company to identify its current position and future development prospective. Together with the industrial symbiosis model, developed in Figure 7, landfill management companies can apply the matrix and use these tools for decision-making and shifting towards the circular economy.

CONCLUSIONS

On the basis of the research undertaken, the authors have come to the following conclusions.

It is important to understand that the environment and entrepreneurship are in a constant conflict situation; a constant seeking for compromise in order to ensure fulfilment of environmental requirements alongside provision of company competitiveness and sustainable development is required.

In assessing the Latvian waste management system, a major contradiction has been identified: on the one hand current trends focus on sustainable use of resources and the necessity of decreasing landfilled waste volumes, and on the other hand landfill management companies are interested in as much incoming waste to landfills as possible, securing themselves with income. Elimination of this contradiction has social implications; a solution has to be found so that a decrease in incoming waste volumes would not increase the waste disposal rate several times and thus not influence inhabitants' fees for waste management.

System management in the waste management field in Latvia differs across regions and no unified approach has been developed, leaving waste management regions freedom of choice of one or another management model. Latvian landfill management companies can be divided into three groups, based on their activities (landfilling; landfilling and management of sorted waste; full cycle). Implementation of the model developed would allow landfill management companies, as expensive infrastructure elements, to ensure sustainable development and maintain an increase in waste disposal rates.

Assessment and management of the waste / resources generated on landfills, i.e. launching industrial symbiosis, could be an optimal solution, especially for landfill management companies engaged only in landfilling.

The present research provides landfill management companies with a landfill management company matrix, which facilitates decision-making in terms of choosing a company development strategy and initiating inter-sectoral cooperation.

The methodology developed allows for performing an in-depth analysis of reusable material flow at any stage of a landfill management company's development. Application of the methodology would allow for identifying particular reusable

resources, which would require more sophisticated preparation and for which this would be economically grounded.

REFERENCES

1. Alidi, A. (1996). A multiobjective optimization model for the waste management of the petrochemical industry. Applied Mathematical Modelling 20, 925–933.
2. Assadourian E. (2010). The Rise and Fall of Consumer Societies. In State of the World 2010 (eds.: Starke, L. and Mastny, L.). London: Earthscan. pp. 3-20.
3. Brautigam, K.R., Jorissen, J., and Priefer, C. (2014). The extent of food waste generation across EU-27: Different calculation methods and the reliability of their results. Waste Management and Research 32: 683–694.
4. Committee on the Environment, Agriculture and Local and Regional Affairs (2007). Report: Management of municipal solid waste in Europe, Council of Europe.
5. Cudecka-Puriņa, N., Atstaja, D. (2012). Climate change and sustainable development – as experience in the study courses European Integration Studies 2012. No 6. ISSN 1822 – 8402 pp. 7-14.
6. Cudecka-Purina N., Atstaja D. (2017). Assessment of business performance in waste landfills and shifting towards the circular economy. Proceedings of the 2017 International Conference "Economic Science for Rural Development" No. 45 Jelgava, LLU ESAF, 27-28 April 2017, pp. 30-39 ISSN 1691-3078.
7. European Commission (2011). Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions. Roadmap to a Resource-Efficient Europe Brussels, COM (2011). 571 final.
8. European Commission (DG ENV) (2012). Use of economic instruments and waste management performances. Final report.
9. European Commission (2015). Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions. Closing the loop – An EU action plan for the circular economy.
10. Eurostat (2017). Material flow accounts and resource productivity. Database. Available at: http://ec.europa.eu/eurostat/web/environment/material-flows-and-resource-productivity/database – accessed 30 April 2017.
11. Eurostat Press Office (2015). Environmental accounts. Resource productivity in the EU up by 28% in 2014 compared with 2002. 190/2015 - 27 October 2015.
12. FAO (2015). Globefish. The canned seafood sector in Spain. Available at: http://www.fao.org/in-action/globefish/market-reports/resource-detail/en/c/338172/ – accessed 27 January 2017.
13. Feng, Z., Yan, N., (2007). Putting a circular economy into practice in China. Sustain. Sci. 2, 95-101.
14. Goorhuis, M., Reus, P., Nieuwenhuis, E., Spanbroek, N., Sol, M., van Rijn, J. (2012). New developments in waste management in the Netherlands. Waste Management and Research 30(9) Supplement 67–77.
15. Heck, P. (2006). Circular Economy Related International Practices and Policy Trends: Current Situation and Practices on Sustainable Production and Consumption and International Circular Economy Development Policy Summary and Analysis. Institute for Applied Material Flow Management (IfaS), Environmental Campus Birkenfeld.
16. Hung, M-L., Ma, H., Yang, W-F. (2007). A novel sustainable decision making model for municipal solid waste management. Waste Management 27 209–219.
17. Jackson T. (2009). Prosperity without growth: Economics for a finite planet. Sustainable Development Commission. London: Earthscan, p.132.

18. Karmperis, A.C., Aravossis, K., Tatsiopoulos, I.P. (2013). Decision support models for solid waste management: Review and game-theoretic approaches. Waste Management 33: 1290–1301.

19. Kou, G., Miettinen, K., Shi, Y. (2011). Multiple criteria decision making: challenges and advancements. Journal of Multi-Criteria Decision Analysis 18: 1–4.

20. Laso, J., Margallo, M., Celaya, J., Fullana, P., Bala, A., Gazulla, C., Irabien, A., Aldaco, R. (2016). Waste management under a life cycle approach as a tool for a circular economy in the canned anchovy industry Waste Manag Res August 2016 34: 724-733.

21. Milutinovic, B., Stefanovic, G., Dassisti, M. (2014). Multi-criteria analysis as a tool for sustainability assessment of a waste management model. Energy 74: 190–201.

22. Morone, P., Navia, P. (2016). New consumption and production models for a circular economy. Waste Management and Research 2016, Vol. 34(6) 489–490.

23. Moraes Carlos A.M., Fernandes I.J., Calheiro D., et al. (2014). Review of the rice production cycle: By-products and the main applications focusing on rice husk combustion and ash recycling. Waste Management and Research 32: 1034–1048.

24. Morrissey, A.J., Browne, J. (2004). Waste management models and their applications to sustainable waste management. Waste Management 24: 297–308.

25. Pearce, D., Turner, R.K. (1990). Economics of Natural Resources and the Environment. London: Harvester Wheatsheaf.

26. Powell, J. (2000). The potential for using life cycle inventory analysis in local authority waste management decision making. Journal of Environmental Planning and Management 43, 351–367.

27. Preston, F., (2012). A Global Redesign? Shaping the Circular Economy. Briefing Paper. Available: http://www.chathamhouse.org/sites/default/files/public/Research/ Energy%20Environment%20and%20Development/bp0312_preston.pdf – accessed April 8, 2017.

28. Public Utilities Commission (2017). Decree No. 1/23, of February 16, 2015 "Household waste disposal tariff calculation methodology". "Latvijas Vēstnesis", 37 (5864), 17.02.2017.

29. Ren, Y., (2007). The circular economy in China. J. Material Cycles Waste Manag. 9, 121-129.

30. Soltani, A., Hewage, K., Reza, B., (2015). Multiple stakeholders in multicriteria decision-making in the context of municipal solid waste management: A review. Waste Management 35: 318–328.

31. Velikanova T. (2014). Information component in the solution of problems of rational placement of objects processing of household waste. Современные проблемы науки и образования. – 2014. – № 4.

32. Zhou, P., Fan, L.W., Zhou, D.Q. (2010). Data aggregation in constructing composite indicators: A perspective of information loss. Expert Systems with Applications 37: 360–365.

An Alumni knowledge management model for sustainable higher education and research institution management

ANITA STRAUJUMA
ELINA GAILE – SARKANE

ABSTRACT

The purpose of the research is to study the application of customer knowledge management (CKM) in alumni relations management (AR) at universities. It reviews various roles of alumni and cases where particularly the customer role can be attributed to alumni and university relationships. CKM is one part of the knowledge management process which focuses on capturing, saving and reusing customer knowledge. Universities are not an exception and their customer knowledge means valuable competitiveness. The authors describe a unique model that has been developed for alumni-CKM and can be applied by AR managers.
Keywords: Knowledge management, customer, alumni relations, customer knowledge management

INTRODUCTION

Universities have always cultivated some sort of cooperation with their alumni. Written history registers that organized and deliberate alumni relations management started in the 18th century (Sailor, 1930). The underlying reasons for organized alumni gatherings and universities' deliberate relationship building with alumni were the same in the 18th century as they are nowadays – networking among alumni, alumni lobbying and knowledge support for improvements in the universities, and financial support from alumni to the university. The models and organizations have varied in different times and different regions. Alumni are among the most important assets of universities (Chi, Jones and Grandham, 2012), but what is their role and place in the university? The customer concept implies people or organizations that purchase goods or services from a business or merchant or intend to do so (Britannica, 2011; Oxford University Press, 2017). An alumnus/alumna is "a person who has attended or has graduated from a particular school, college, or university" (Cambridge University Press, 2017). At first sight, these two concepts seem incompatible since the first implies a present or future transaction, while the second implies that the transactions and relationship have ended. However, several authors define alumni as higher education and research institution (HERI) customers not only directly, i.e. when they purchase HERI services, but also continuously because the value of their diploma always depends on the HERI's performance at that particular moment (Kotler and Fox, 1995; Heckman and Guskey, 1998; Taiwo, 2010). Universities are investing more and more effort in integrated activities to identify, maintain and build a network of customers and partners for mutual benefit (Grant and Anderson, 2002). Knowledge management is defined as the process of applying a systematic approach to the capturing, structuring, management, and dissemination of knowledge throughout an organization so that it may work faster, reuse best practices, and reduce costly reworking from project to project (I. Nonaka; H. Takeuchi, 1995). Customer knowledge management (CKM) is a discipline that integrates customer relationship management and knowledge management (Gebert, Geib, Kolbe and Brenner, 2003; Chen, 2011; Shieh, 2011). CKM changes customers from passive recipients of goods or services into a valuable knowledge source for the organization (Sofianti et al., 2010). CKM encompasses acquiring, dissemination and usage of customer knowledge within the organization for mutual benefit of the product/service provider and the customer (Khosravi, Razak and Hussin, 2016). The history and culture of alumni relations at HERIs in the Baltics is very recent and underdeveloped. Surveys reflect that alumni are reluctant to support HERIs financially but are ready to share their knowledge. This leads to the research problem: how to manage alumni knowledge for sustainable HERI development? The research objective is to develop an alumni knowledge management model that involves all alumni relations and HERI functions and provides sustainable mutual development.

The main conclusion of the research is that even those alumni who are not in an active contractual relationship with an HERI are still its clients and CKM models can be adopted and successfully applied for a mutual benefit – sustainable HERI management.

RESEARCH METHODOLOGY

The study is a result of a systematic literature overview through analysis of scientific articles, monographs, conference materials and other relevant literature. Expert opinions were gathered during interviews of alumni relations managers at European universities; the results were supported by case studies and by conducting 2 surveys reflecting the viewpoints of both the university and alumni on the alumni-university relationship. Qualitative and quantitative data analysis methods were applied.

ALUMNI – UNIVERSITY CUSTOMERS

Alumni are among the most important assets of universities (Chi, Jones and Grandham, 2012), but what is their role and place in the university?

Many authors have researched and discussed who HERI customers are and how to group them – according to impact, roles, as primary, secondary, tertiary or as internal and external. Defining HERI customers is not a trivial task and there is a lot of scientific discussion about it (Weaver, 1976; Juran, 1988; Conway, Mackay and Yorke, 1994; Kotler and Fox, 1995; Pereira and Silva, 2003; del Barrio-García and Luque-Martínez, 2009; Taiwo, 2010). Further, the discussion will be about one of the alumni roles in correlation with HERIs – being a lifelong customer, e.g. how alumni fit in the overall picture of the HERI customer concept.

The customer concept implies people or organizations that purchase goods or services from a business or merchant or intend to do so (Britannica, 2011; Oxford University Press, 2017). An alumnus/alumna is "a person who has attended or has graduated from a particular school, college, or university" (Cambridge University Press, 2017). At first sight, these two concepts seem incompatible since the first implies a present or future transaction, while the second implies that the transactions and relationship have ended. This has been a common view at HERIs for a long time in Europe. It is only recently that most HERIs have implemented alumni relations management as a common practice and an integral part of HERI strategic management. Alumni are HERI customers not only directly, i.e. when they purchase HERI services, but also continuously because the value of their diploma always depends on the HERI's performance at that particular moment (Kotler and Fox, 1995; Heckman and Guskey, 1998; Taiwo, 2010).

Alumni have several roles in their interrelation with HERIs that can sometimes overlap (*Figure 1. Alumni roles in relation to* HERI):

- Customers
    - Lifelong diploma prestige depending on HERI performance;
    - Owners, managers of organizations:
        - Performing research at the HERI;
        - Requesting technical expertise at the HERI;
        - Expecting HERI alumni to be skilled employees;

- o Continuing education at the HERI (as a student, informally, alumni activities, latest scientific findings);
  - o Enjoying practical results of research development;
  - o Parents sponsoring studies of their children at the HERI;
- Stakeholders
  - o Interested in general state/society wellbeing, intellectual development and technological progress;
- Investors/partners
  - o Developing common business entities based on HERI research valorisation;
  - o Funding scholarships for talented students.
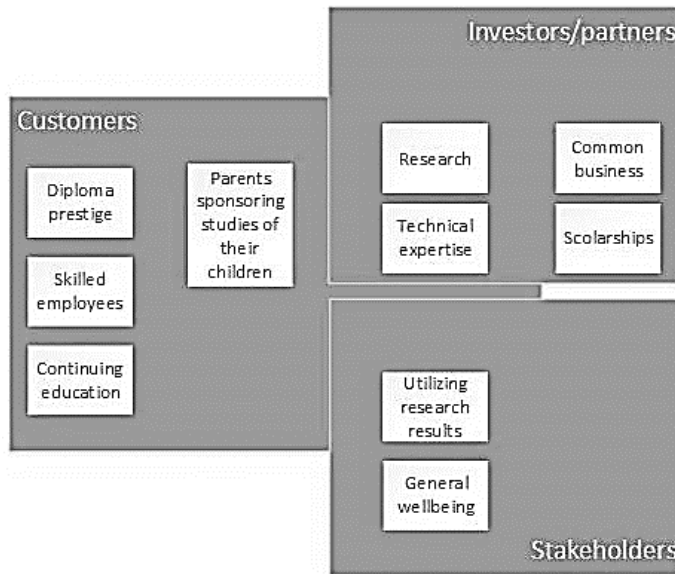
Figure 1. Alumni roles in relation to HERIs.
(Developed by the authors)

Kotler and Fox analyse the customer concept particularly regarding the marketing activities of educational institutions (Kotler and Fox, 1995). They describe different consumer groups and discuss the relative importance of these groups. They differentiate between two terms, consumer and customer, where the consumer "is a person who uses and benefits from the product or service" and the customer "is a person who selects a particular source for this product or service". Thus, a consumer is a student in general who can choose to study at different universities, while a customer is a student who has chosen and enrolled in a particular university. Kotler and Fox emphasize that "educational institutions have many customers: students, staff, faculty, **alumni**, donors and others" (Kotler and Fox, 1995). Moreover, they particularly mention alumni as HERI customers. Each of these customer groups may have different expectations; for example, students want to learn particular knowledge and skills, students' parents expect the HERI to transmit knowledge and ambition to their heirs, employers expect the HERI to produce educated and skilled employees, alumni expect their

alma mater to do notable things to make their diploma valuable and prestigious. An HERI must define different groups, be aware of their expectations and needs, and be clear on how to meet them.

Taiwo describes three types of external customers of HERIs, among them alumni (Taiwo, 2010). He distinguishes community as a customer group, expecting HERIs to contribute to its development by training leaders and a competent workforce and creating politically and socially active citizens. Cooperation with the community is critical for an HERI in order to strengthen effectiveness. An HERI serves the community by training students for responsible lifelong involvement through regular participation of students and faculty in volunteering and frequent community service. Another customer group is donors, who become involved in the work of the HERI and offer some type of value for a variety of reasons, often without any expectations of material and monetary return (Pyton, Rosso and Tempel, 1991). The third customer group, alumni, is a bridge between the HERI and society at large. The real success of the HERI is often measured by the success of its alumni and how they represent its values in everyday life and work. Strengthening this bridge involves including alumni in all possible life stages of the HERI in a participatory way (Taiwo, 2010).

Conway and other authors focus on strategic planning at the HERI and in that context analyse the different types of customers of the HERI (Conway, Mackay and Yorke, 1994). These authors refer to primary (students), secondary (employers, education authorities) and tertiary customers (parents, alumni) of the HERI.

The authors of this study performed a survey to find out the extent to which universities consider alumni as their customers. The respondents of the survey were employees of universities, 43.5% of

them alumni relations experts, 16.1% of them in fundraising, 12.9% in marketing and communications, and the rest holding different university management positions. The survey was performed from September 2017 till January 2018. It was disseminated to 231 recipients, and the response rate was 18%. The aim of the survey was to find out universities' attitudes towards alumni, questioning university employees whose work is related to alumni management. Expert interviews[3] supplemented the findings on alumni relations' attitudes towards alumni as customers of HERIs. Another survey was performed to find out about alumni views on their relationship with their alma maters. The target audience of the survey was alumni of Latvian, Estonian and Lithuanian universities and colleges. Convenience sampling was used to recruit participants. Alumni were contacted via social networks and direct email marketing. An online survey was published on Facebook as a promoted post for 3 weeks, targeted towards Facebook users from Latvia, Lithuania and Estonia. The online survey was open for one month, engaging 579 respondents: 76.6% Latvian, 12.6 % Estonian and 10.9 % Lithuanian. The Wilcoxon's Matched Pairs test indicated that subgroups of these respondents were not significantly different in terms of socio-demographic variables such as gender, marital status, employment status and highest academic degree. Significant differences were detected only regarding age and average

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[3]   (E. Jones (Director of Alumni Engagement, KTH Royal Institute of Technology in Stockholm, 2017), S.H. Schütz (Alumni Relations Coordinator, Uppsala University, 2017), G. Birzyte (Director of Alumni Relations, Vilnius University, 2018), R. Hopeniene (Alumni Coordinator, Kaunas University of Technology, 2016), E. Kirt (Chief Officer of the Alumni Association, Tallinn University of Technology, 2018), T. Arak (Head of Estonian Marketing, University of Tartu, 2017)).

monthly income after taxes. In the group of Lithuanian respondents, more are over 34 years of age than in the Latvian respondent group. Also, there are less respondents whose net income is over 1000 EUR than in the Estonian respondent group. The Latvian and Estonian respondent groups are homogeneous according to all socio-demographic parameters to be analysed. The main results of the surveys are summarized in Table 1, where 'HERI' describes the responses of the first survey performed with HERI professionals and 'Alumni' describes the responses in the second survey of Baltic HERI alumni.

Table 1

HERI and alumni survey responses
(developed by the authors)

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
Statement: The HERI creates value for alumni after graduation:					
HERI	97.5%	-	-	2.5%	-
Alumni	5.2%	32.8%	41.2%	17.4%	3.4%
Statement: Alumni are customers of their HERI:					
HERI	50%	40%	1%	5%	1 %
Alumni	9%	37.1%	27.9%	22.4%	3.6%

The overall conclusion after the literature review and university management and alumni surveys is that alumni are HERI customers, although it is just one of their roles in relation to HERIs. Thus, further in the research they are treated as customers and appropriate methodologies are applied.

KNOWLEDGE MANAGEMENT AT UNIVERSITIES

Universities are shifting from their traditional academic role to a new entrepreneurial role as promoters of innovation to significantly contribute to their local economics. Moving away from universities' traditional two roles of creating knowledge (research) and disseminating knowledge (teaching), Draghici et al. (2015) describe three main roles for universities: "education (smart people), research (new knowledge) and knowledge transfer to society (entrepreneurship, technology, expertise)". Oosterlinck (2001) indicates that universities are expected not only to be active in science and technology development but also to turn these developments into innovations and, even further, implement the creation of new ventures. Now universities must balance curiosity-driven academic research and strategy-driven corporate RandD research. At the same time, the lifecycle of students' relationship with universities has shifted from the traditional view of termination at the graduation point to a life-long relationship. Nowadays the needs of students and alumni are the continuous growth in knowledge and skills demanded by the rapidly developing market. The availability of continuous learning is growing alongside the expanding support of technologies. Thus, universities are required to maintain bilateral knowledge

flow to keep up with innovative learning and teaching (Metaxiotis and Psarras, 2003). Universities must foster creation and sharing of knowledge among the most important stakeholders: teaching staff, non-teaching staff, students, alumni, sponsors and others (Hoq and Akter, 2012).

CUSTOMER KNOWLEDGE MANAGEMENT

Customer knowledge management is a discipline that integrates customer relationship management and knowledge management (Gebert, Geib, Kolbe and Brenner, 2003; Chen, 2011; Shieh, 2011). CKM encompasses acquiring, dissemination and usage of customer knowledge within an organization for mutual benefit of the product/service provider and the customer (Khosravi, Razak and Hussin, 2016). Fan and Ku (2010) list numerate improvements in the knowledge of the markets, customers, products, services, methods, processes, competitors, employees, regulatory environment and technological advances. It may be a strategic resource for co-creation of new products and services, a source of innovation and an indicator of long-term opportunities (Sofianti et al., 2010). Pavicic, Alfirevic and Znidar (2007) describe single CRM practices as too one-dimensional and transactional and introduce the social aspect where, just like in social media (like Facebook, Twitter), customers become co-creators, creators of the content and the results in seamless partnership with the organization.

Knowledge flow in these processes can be split into three categories: knowledge for customers, knowledge from customers, knowledge about customers (Gebert, Geib, Kolbe and Brenner, 2003; Gebert, Geib, Kolbe and Riempp, 2003; Bueren et al., 2005; Shieh, 2011; Buchnowska, 2014). Each of these types can interact with the others and CKM models facilitate the understanding of relationships between the processes of creation and application of the knowledge types (Zanjani, Rouzbehani and Dabbagh, 2008; Buchnowska, 2011).

• Knowledge **for** customers is knowledge that customers need or that the organization wants customers to know, for example, knowledge about products, services, organization culture, partners, the industry environment, etc. This knowledge is used to match customers with the services/products available or to maintain their understanding about the organization and its needs in order to achieve a mutually beneficial relationship.

• Knowledge **from** customers is knowledge that is important for the organization to know for continuous improvement and mutual benefit, for example, knowledge about customer views on product/service improvement, customer daily usage of the product/service, the most common challenges customer face, success stories, the industry environment, etc. This knowledge is valuable for service/product improvement since it brings together the real experiences and insights that accrue when customers utilize the product/service.

• Knowledge **about** customers gathers all knowledge that an organization finds strategically important about its customers. It may include customer history, connections, purchasing habits, requirements, expectations, knowledge and skills, family status, hobbies, etc. This knowledge is used to address the right

customers at the right time about the right issues.

Managing these three knowledge flows is the main challenge of customer knowledge management – how to collect, store and distribute only strategically important knowledge and not waste valuable time/human/storage resources on irrelevant knowledge (Gebert, Geib, Kolbe and Brenner, 2003; Chen, 2011).

ALUMNI CUSTOMER KNOWLEDGE MANAGEMENT MODEL

As previous sections discussed, alumni are university customers and knowledge management is of growing importance within HERIs. In this section, the authors present an alumni customer knowledge management model (see *Figure* 2) that is inspired by the CKM model of Gebert, Geib, Kolbe and Brenner (2003). These authors developed a model for organizations where marketing, sales and service are the primary business functions. Here it is fully adapted to the functions of alumni relations and HERIs.
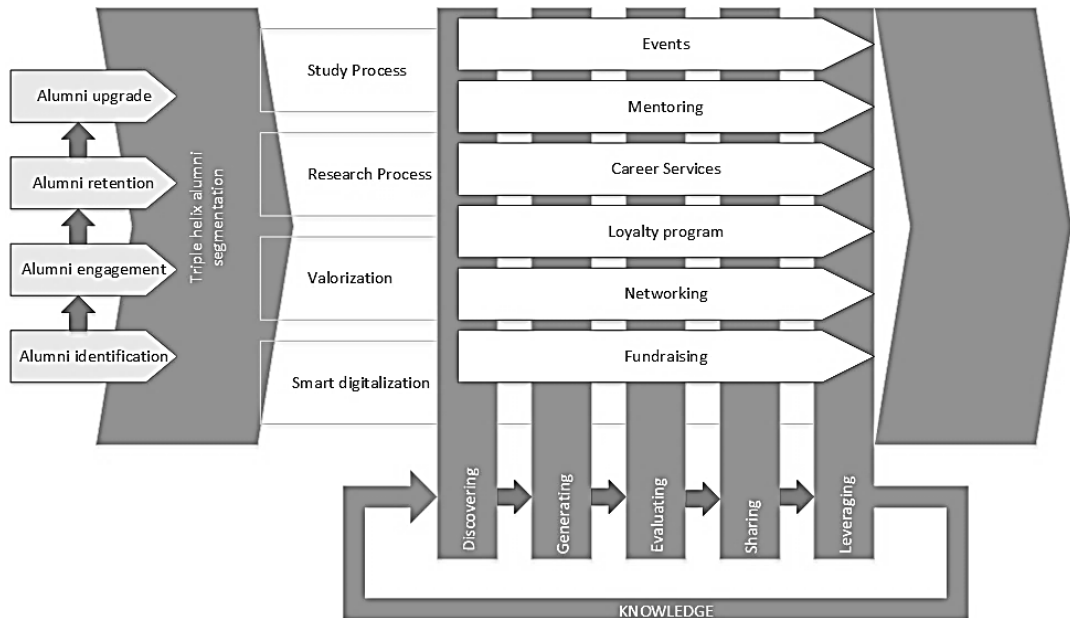
Figure 2. Alumni Customer Knowledge Management Model developed by the authors based on the main principles of the Gebert et al. model (Gebert, Geib, Kolbe and Brenner, 2003)

The Alumni Customer Knowledge Management Model was developed by the authors applying both theoretical and field research. The alumni customer lifecycle is adapted to the classical customer lifecycle and merged with the Triple Helix Model of Alumni Segmentation. The segmentation divides alumni into 3 large groups (finance, knowledge, cocreation capacity) and, in each group, splits them according to the level of involvement (streamline, status, star, strategic).

The alumni lifecycle, with each cycle, aims for deeper engagement, closer ties, a more personal relationship and higher investment in the university. It consists of four consecutive stages:

1) **Identification** – finding alumni, discovering their knowledge, needs, interests and capacity, segmenting;

2) **Engagement** – meaningfully engaging new alumni in alumni and/or university activities;

3) **Retention** – building long-term relationships with alumni, deepening loyalty, encouraging advocacy;

4) **Upgrade** – once a higher level of engagement is reached and maintained for a certain period, upgrading alumni to the next segment to create new forms of engagement and build a more personalized relationship.

Once alumni are identified, they become engaged in university and alumni functions.

Study process, research, valorisation and smart digitalization are the primary functions of the university (Riga Technical University, 2014). The model is further derived by deconstructing these functions into relevant alumni relations functions. Synergies between the main processes and alumni relations functions can appear in any place. The six most typical alumni relations processes are event management, mentoring and career services, loyalty programmes, networking, valorisation and fundraising activities.

- **Events** – custom-designed events targeted to alumni. They may be entertaining and/or educational in nature. Examples: seminars, company visits, inspirational speeches, trips to university labs, homecomings, etc.
- **Mentoring, career services** – alumni-student or alumni-alumni mentoring supported and organized by the career or alumni relations office; career support, also for alumni. Examples: portal for job adverts, networking platform, career advice from the university career centre, etc.
- **Loyalty programme** – access to university infrastructure, products or services for alumni for a special price. This can involve providing further education courses with special conditions (discounts, place reservation, etc.). A loyalty programme can also involve alumni-to-alumni discounts, where entrepreneurs offer discounts for their business products/services for fellow alumni. The programme could by supported by alumni ID cards.
- **Networking** – events and services that support alumni networking. Examples: online platform with alumni directory, integration with social networks; networking events – live library, wine tastings, "fuckup nights", etc.
- **Career services** – projects and activities involving alumni career development
- **Fundraising** – open fundraising projects that offer alumni opportunities to contribute finances to projects that are strategically important for the university; also includes student scholarships.

The knowledge management cycle (Jashapara, 2004) is present in all functions of the university and alumni relations. It also involves university knowledge management functions from Davenport, De Long and Beers (1998) and Rowley (2010) and the García-Murillo and Annabi (2002) knowledge management model:

- **Discovering knowledge** – involves alumni-employee personal interaction, knowledge identification; in other models: revealing (García-Murillo and Annabi, 2002)
- **Generating knowledge** – using existing knowledge to create new knowledge. In other models: knowledge levelling (García-Murillo and Annabi, 2002)
- **Evaluating knowledge** – valuation of knowledge, assigning values to knowledge assets, determining the strategic value of the knowledge; in other models: knowledge sorting (García-Murillo and Annabi, 2002), valuing (Davenport, De Long and Beers, 1998; Rowley, 2010)
- **Sharing knowledge** – knowledge coding, storing, publishing, knowledge sharing in groups – training, experience sharing; in other models: knowledge externalization, socialization (I. Nonaka; H. Takeuchi, 1995); knowledge levelling (García-Murillo and Annabi, 2002); access (Davenport, De Long and Beers, 1998; Rowley, 2010)
- **Leveraging knowledge** – use of acquired knowledge to generate high level intellectual capital. The term leverage means
    - a relatively small amount of cost yielding relatively high returns (Webfinance Inc, 2007)
    - "to use something that you already have in order to achieve something new or better" (Cambridge, 2015)

CONCLUSIONS AND RECOMMENDATIONS

Based on the literature research and surveys performed by the authors, alumni are perceived as HERI customers and corresponding methodologies and techniques can be applied to them. The authors have developed alumni segmenting according to their engagement intensity since each level requires distinctive attitudes, communication and activities. There are numerous ways alumni can help HERIs in sustainable development, but knowledge management is playing an increasingly important role in HERIs, where commercialization is emerging alongside study and research processes as a driving force in cooperating with industry. The Alumni Customer Knowledge Management Model combines all alumni activities with the main HERI functions and interweaves them through knowledge management, ensuring that one of the most important assets of an HERI, knowledge to, from and about alumni, is properly managed for the mutual benefits of alumni, the HERI and society as a whole. Within the research the authors have developed and tested an alumni knowledge management model that involves all alumni relations and HERI functions and provides for sustainable mutual development. The authors believe that it will help to manage alumni knowledge towards more successful cooperation among HERIs and alumni and strengthen the development of a university ecosystem towards the triple helix.

The authors suggest that further work with the model should include more detailed approbation as well as measurement and proof of tangible improvements that will lead to sustainable HERI growth.

REFERENCES

1. del Barrio-García, S. and Luque-Martínez, T. (2009). The value of client perceptions in university strategic planning: an empirical research study. Industry and Higher Education, 23(6), pp. 423–436. doi: 10.5367/000000009790156391.
2. Britannica (2011). Encyclopedia - Britannica Online Encyclopedia, EBU. Available at: http://www.school.eb.com.au/all/comptons/article-9275557?query=martin lutherandct=null.
3. Buchnowska, D. (2011). Customer knowledge management models: Assessment and proposal. 4th SIGSAND/PLAIS Symposium on Systems Analysis and Design, EuroSymposium (2011). doi: 10.1007/978-3-642-25676-9_3.
4. Buchnowska, D. (2014). Social Crm for Customer Knowledge Management. 5(4), pp. 65–80.
5. Bueren, A. et al. (2005). Improving performance of customer- processes with knowledge management. Business Process Management Journal, 11(5), pp. 573–588. doi: 10.1108/14637150510619894.
6. Cambridge (2015). Cambridge Online Dictionary. Cambridge University Press 2015. Available at: titlehttp://dictionary.cambridge.org/dictionary/english/interest.
7. Cambridge University Press (2017). Cambridge Dictionary. Alumni. Available at: http://dictionary.cambridge.org/dictionary/english/alumni (Accessed: 18 September 2017).
8. Chen, T. (2011). An integrated process-based customer knowledge management model. Journal of Knowledge Management Practice.
9. Chi, H., Jones, E. L. and Grandham, L. P. (2012). Enhancing mentoring between alumni and students via smart alumni system. Procedia Computer Science. Elsevier Masson SAS, 9, pp. 1390–1399. doi: 10.1016/j.procs.2012.04.153.
10. Conway, T., Mackay, S. and Yorke, D. (1994). Strategic Planning in Higher Education: Who Are the Customers. International Journal of Educational Management, 8(6), pp. 29–36. doi: 10.1108/09513549410069202.
11. Davenport, T. H., De Long, D. W. and Beers, M. C. (1998). Successful Knowledge Management Projects. Sloan Management Review, 39(2), pp. 43–57. doi: 10.1016/j.ygeno.2009.01.004.
12. Draghici, A. et al. (2015). A Knowledge Management Approach for the University-Industry. Collaboration in Open Innovation. Procedia Economics and Finance. Elsevier B.V., 23(October 2014), pp. 23–32. doi: 10.1016/S2212-5671(15)00377-9.
13. Fan, Y.-W. and Ku, E. (2010). Customer focus, service process fit and customer relationship management profitability: the effect of knowledge sharing. The Service Industries Journal, 30(2), pp. 203–223. doi: 10.1080/02642060802120141.
14. García-Murillo, M. and Annabi, H. (2002). Customer knowledge management. Journal of the Operational Research Society, 53(8), pp. 875–884. doi: 10.1057/palgrave.jors.2601365.
15. Gebert, H., Geib, M., Kolbe, L. and Brenner, W. (2003). Knowledge-enabled customer relationship management: integrating customer relationship management and knowledge management concepts. Journal of Knowledge Management. doi: 10.1108/13673270310505421.
16. Gebert, H., Geib, M., Kolbe, L. and Riempp, G. (2003). Towards Customer Knowledge Management: Integrating Customer Relationship Management and Knowledge Management Concepts. International Conference on Electronic Business Taipei, (September), pp. 1–12.
17. Grant, G. B. and Anderson, G. (2002). Customer relationship management: a vision for higher education. Web Portals and Higher Education: Technologies to Make IT Personal, pp. 23–32.

18. Heckman, R. and Guskey, A. (1998). The Relationship between Alumni and University: Toward a Theory of Discretionary Collaborative Behavior. Journal of Marketing Theory and Practice, 6(2), pp. 97–112. doi: 10.1080/10696679.1998.11501799.

19. Hoq, K. M. G. and Akter, R. (2012). Knowledge Management in Universities: Role of Knowledge Workers. Bangladesh Journal of Library and Information Science, 2(1), pp. 92–102. doi: 10.3329/bjlis.v2i1.12925.

20. I. Nonaka; H. Takeuchi (1995). The Knowledge-Creating Company: How Japanese Companies Create the Dynamics of Innovation. Available at: http://www.amazon.com/Knowledge-Creating-Company-Japanese-Companies-Innovation/dp/0195092694/ref=sr_1_1?ie=UTF8andqid=1456402355andsr=8-1andkeywords=takeuchi+nonaka (Accessed: 25 February 2016).

21. Jashapara, A. (2004). Knowledge Management: An Integrated Approach, Fisheries Research. doi: 10.1016/S0165-7836(02)00158-3.

22. Juran, J. M. (1988). Juran on planning for quality. New York: Free Press.

23. Khosravi, A., Razak, A. B. and Hussin, C. H. E. (2016). Customer Knowledge Management: Development Stages and Challenges. 91(2), pp. 264–274.

24. Kotler, P. and Fox, K. (1995). Strategic Marketing for Educational Institutions, Englewood Cliffs: Prentice Hall.

25. Metaxiotis, K. and Psarras, J. (2003). Applying knowledge management in higher education: The creation of a learning organisation. Journal of Information and Knowledge Management, 2(4), pp. 353–359. doi: 10.1109/ITHET.2006.339762.

26. Oosterlinck, A. (2001). University/industry knowledge management: A university perspective. Paris: Organisation for Economic Co-operation and Development, pp. 1–20. Available at: http://www.oecd.org/edu/skills-beyond-school/2668232.pdf.

27. Oxford University Press (2017). Oxford Dictionary. Alumni. Available at: https://en.oxforddictionaries.com/definition/alumnus (Accessed: 18 September 2017).

28. Pavicic, J., Alfirevic, N. and Znidar, K. (2007). Customer Knowledge Management: Toward Social CRM', International Journal of Management Cases, pp. 203–209.

29. Pereira, M. and Silva, M. Da (2003). A key question for higher education: Who are the customers', Proceedings of the 31st Annual Conference of the Production and Operations Management Society.

30. Pyton, R., Rosso, H. and Tempel, E. (1991). Toward a Philosophy of Fund Raising. In Taking Fund Raising Seriously. San Francisco: Jossey-Bass Inc., pp. 3–17.

31. Riga Technical University (2014). Riga Technical University Strategy 2014-2020. Riga. Available at: https://www.rtu.lv/writable/public_files/RTU_rtu_strategija2014.2020._g..pdf.

32. Rowley, J. (2010). Is higher education ready for knowledge management? The International Journal of Educational Management, 14(7), pp. 325–333. doi: 10.1108/09513540010378978.

33. Sailor, R. W. (1930). The American Alumni Council. The Journal of Higher Education, 1(6), pp. 339–341. doi: 10.2307/1974320.

34. Shieh, C.-J. (2011). Study on the relations among the customer knowledge management, learning organization, and organizational performance. The Service Industries Journal, 31(5), pp. 791–807. doi: 10.1080/02642060902960818.

35. Sofianti, T. D. T. et al. (2010). Customer Knowledge Co-creation Process in New Product Development. Proceedings of the World Congress on Engineering 2010 (WCE 2010), I, pp. 335–340. Available at: http://www.doaj.org/doaj?func=fulltextandaId=578910.

36. Taiwo, A. S. (2010). Customers: Identifying the needs in higher education. Educational Research, Vol. 1(7), pp. 210–218.

37. Weaver, T. (1976). What is the Good of Higher Education?. Higher Education Review.

38. Webfinance Inc (2007). Business Dictionary, the Internet's Most Comprehensive Business Dictionary. doi: http://www.businessdictionary.com/definition/triple-bottom-line.html.

39. Zanjani, M. S., Rouzbehani, R. and Dabbagh, H. (2008). Proposing a Conceptual Model of Customer Knowledge Management: A Study of CKM Tools in British Dotcoms. Proceedings of the World Academy of Science: Engineering and Technology.

Authors

Dzintra Atstaja
BA School of Business and Finance, K. Valdemara Str. 161, Riga, Latvia
dzintra.atstaja@gmail.com

Natalija Cudecka-Purina
BA School of Business and Finance, K. Valdemara Str. 161, Riga, Latvia
natalija@vct.lv

Elina Gaile – Sarkane
Riga Technical University, Kalku Str.1, Riga, LV-1658, Latvia.
elina.gaile-sarkane@rtu.lv

Kaspars Iesalnieks
BA School of Business and Finance, K. Valdemara Str. 161, Riga, Latvia,
kaspars.iesalnieks@ba.lv

Pierre G. Keller
BA School of Business and Finance, K.Valdemara Str. 161, Riga, Latvia,
e-mail: pierrekeller91@outlook.com

Frederic Maffei
RISEBA University of Business, Arts and Technology, Meza str. 3, Riga, Latvia
e-mail: frederic.maffei@gmail.com

Elena Prosvirkina
SBS Swiss Business School, Flughafenstrasse 3, 8302 Kloten, Switzerland
National Research University "Higher School of Economics", Russia
e-mail: eprosvirkina@hse.ru

Marius Schonberger
BA School of Business and Finance, K.Valdemara Str. 161, Riga, Latvia,
e-mail: marius.schonberger@ba.lv

Anita Straujuma
Riga Technical University, Kalku Str.1, Riga, LV-1658, Latvia.
anita.straujuma@rtu.lv

Bert Wolfs
SBS Swiss Business School, Flughafenstrasse 3, 8302 Kloten, Switzerland
e-mail: dean@sbs.edu