LITERATURE REVIEW OF IDEA MANAGEMENT: FOCUSES AND GAPS

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ABSTRACT
Purpose: on the basis of idea management literature reviewidentify topical literature focuses, content, existing research gaps and make suggestions on future researches in this field.
Design/methodology/approach: research is based on theoretical research methods, which include literature review and descriptive statistics. This detailed literature review has considered 68 of scholarly empirical publications, conference proceedings, books and popular market reports published over the last 33 years, i.e., from January 1982 to February 2015, in all research fields.
Findings: the results of the research revealed that the amount literature sources created from 2002 till March 2015 has steadly grown, but it is still relatively low. Results probe that idea management mainly described in innovation as well in information technology literature. Idea management is topical and perspective to research, the authors have developed a large range of possible future research ways that shows that this topic is inexhaustible. There is a perspective to create literature review with the focus on the terms of idea management and idea management systems because research results reflect that there is no united view on these terms.
Research limitations: data collection of 7 databases with time focus from January 1982 to February 2015. Future researches must include wider data collection as well as to continue to research dynamics and content of the literature about this topic in future periods.
Originality/value: the paper gives overview about the idea management literature (reflecting the most often used research methods, literature, and theories) and identifies literature and researchgaps.This paper emphasis potential research objectives.It is hoped that this article will stimulate scholarly dialog and researches about idea management.
Paper type: Literature review
Keywords: Idea management, Idea management systems, Innovation, Innovation management, Literature review, Research gap

1.INTRODUCTION

According to Karanjikar (2007) at information age, every organization has access to the same information (tools, techniques, literature, conferences etc.), on the basis of it, the question how to achieve a breakthrough successbecamemore important, and the solution given is idea management. Ideas are the potential trampoline for many innovation ventures, several researchers and practitioners pointat the opportunity to improve innovation through managing improvements in the front-end innovation (Khurana, Rosenthal, 1998; Day, Gold, Kuczmarski, 1994; Zhang, Doll, 2001), including idea management. Nowadays,organizations seek new ways of innovations (Westerski, Dalagamagas, Iglesias, 2013), but according to Iversen, Kristensen, Liland, Berman, Enger, Losnedahl (2009) there is a gap between the existing importance of innovation and the effectiveness and appropriateness of approaches and methods used to support and accelerate innovation.It emphases that it is topical and important to research idea management not as a concept, but also its application, methods etc. to develop appropriate comprehension how to use idea management to accelerate and support innovation.This situation requires to identifythe main focuses and research gaps in existing literature to determine topical and unexplored objectives for future researches as well as existing research approaches (methods, theories, etc.) thatcould help to develop appropriate research structure.The aim of the literature review is to identify literature dealing with idea management to explore topical focuses and existing research gaps. Idea management has some connected terms, like, ideation, suggestion boxes etc., but in this research authors will refer to the idea management as a complex process or tool of generating, evaluating and implementing ideas.

Research aim: on the basis of idea management literature review to identify topical literature focuses, content, existing research gaps and make suggestions to future researches in this field.

Research tasks: (1) to manage research in scientific databases to explore literature where idea management is mentioned and to analyze selected literature; (2) create conclusions and suggestions for future researches.

Research method: research is based on theoretical research methods, which include literature review and descriptive statistics.

Research base: literature sources from 7 databases- *Scopus, ScienceDirect, Google Scholar, Sage Journals, Ebsco Academic Search Complete, Emerald, Web Science*. In the research mainly secondary sources (scientific papers, books etc.) and some tertiary sources (scientific papers sources for papers which are not currently available in the full version) are used.

There is numerous literature with a modest literature review (most of this literature review sources have literature review elements), but there is lack of specialized and deep literature reviews of idea management. Novelty of this literature review is the count of analyzed literature sources (in this research 68) and the research period (January 1982-March 2015), because the latest specialized literature review (Rose, Jensen, 2012) analyzed only 29 sources from 1982 to 2012.

2.LITERATURE REVIEW

According to Boell and Cecez-Kecmanovic (2010) literature review is one of the most important task for scientific work and has to be done in all scientific disciplines and Boote and Beile (2005) reveals that it impossible to create significant research without first understanding the literature in the field, but there is a negative tendencyfor many researchers to have poor literature reviews.Authors had summarize the main purposes for literature review from researches (Gall, Borg, Gall, 1996; Hart, 1999, Boote, Beile, 2005; Bolderston, 2008):

1) Delimiting the research problem.
2) Seeking new lines of inquiry.
3) Avoiding fruitless approaches.
4) Identifying recommendations for further research (exploring research gaps).
5) Exploring important variables relevant to the topic.
6) Identifying the main methods, literature, theories that have been used.
7) Give overview about the research field, main findings in the area.

The main purposes of this research are (1) to give overview about the research field (detailed content analysis and general data analysis (form of the literature source, dynamics) and identifying the main methods, literature, theories that have been used; (2) to explore important variables relevant to the topic (research perspectives (IT focus, internal or external idea management focus), structural (focus on design and process) or social focus (focus on social capital, creativity, cognition etc.)); (3) to identifying recommendations for further research, exploring research gaps.

Mostly idea management is connected with innovation literature, but it is important to include different fields in the literature review - many researches (Webster, 2012; Fawcett, 2013; Randolph, 2009) highlight that it helps to add valuable information to the research and to cover the whole field of research. Based on this conclusion this literature review has multidisciplinary view.

Summarized literature covers period from 1983 to February 2015. The study ‘’Idea management in R-and- D as a Human Information- Processing Analog’’ (Green, Bean, Snavely, 1983), according to research, was the first publication in which the term idea management was mentioned.Scientific databases- *Scopus, ScienceDirect, Google Scholar, Sage Journals, Ebsco Academic Search Complete, Emerald, Web Science*-research was conducted in March 2015.

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3.RESEARCH METHODOLOGY

Research is based on theoretical research methods, which include literature review and descriptive statistics. Literature review is sectioned in these research stages: (1) to research in 7 scientific databases to explore literature where ‘’idea management’’ is mentioned; (2) to select literature directly about idea management; (3) toexclude duplicates; (4) to analyze selected literature (including descriptive statistics).

Literature review is not restricted to definite academic field, because idea management could be researched not only in innovation management context but in information technology literature as well.

Results of the literature review are analyzed in several dimensions: (1) general data analysis (form of the literature source, dynamics); (2) research perspectives (IT focus, internal or external idea management focus), structural (focus on design and process) or social focus (focus on social capital, creativity, cognition

etc.); (3) detailed content analysis (research substances and gaps).

4.RESEARCH RESULTS

At the first research stage4283216 literature sources in which ‘’idea management’’ was mentioned were found. At the second research stage literature directly about idea management was selected and duplicateswere excluded. The third stage passed 68 literature sources. Detailed literature source count in different stages is reflected in Table 1.

Table 1

Count of the literature sources in stages

	Stage 1 Sources mentioned ‘’idea management’’	Stage 2 Sources directly about idea management	Stage 3 Unique sources
Scopus	36237	15	68
ScienceDirect	396435	2	
Google Scholar	3610000	26	
Sage Journals	137624	7	
Ebsco Academic Search Complete	996	5	
Emerald	101685	3	
Web of Science	239	49	
Sum:	4283216	107	

After the research, authors conclude that at the first research stage it could be more effective to search ‘’idea management’’ in define fields- topic, key words, abstracts. Research results show that in all 68 sources the term of idea management was mentioned.

GENERAL DATA ANALYSIS

The results reflect that idea management is in the scope of researchers, because research results indicate that the most frequent literature source is scientific papers or 53% of all research sources (36) and 31% conference proceedings (21). There are also dissertation thesis (4), scientific institute working papers (3), articles in newspapers (2), books (1) and articles in books (1).

Mainly idea management is researched in USA (22%), Germany (15%), Spain (13%), Sweden (7%), Netherland (6%) and Denmark (6%). All summary is presented in Table 2.

Table 2

Literature sources (count) by countries

Country	USA	Germany	Spain	Sweden	Netherlands	Denmark	India	Greece	England	Finland	China	Norway	Ireland	Taiwan	Slovenia	Switzerland	Morocco	Russia	Canada
Count	15	10	9	5	4	4	3	3	2	2	2	2	1	1	1	1	1	1	1

The first literature source with mentioned idea management was in 1982. From 1982 till 2002 literature is fragmentary, but from 2002 there are substantive literature sources about idea management. The results show that in 2015 there is a decrease in literature sources therefore the research period is only to February 2015. See statistics in Figure 1.

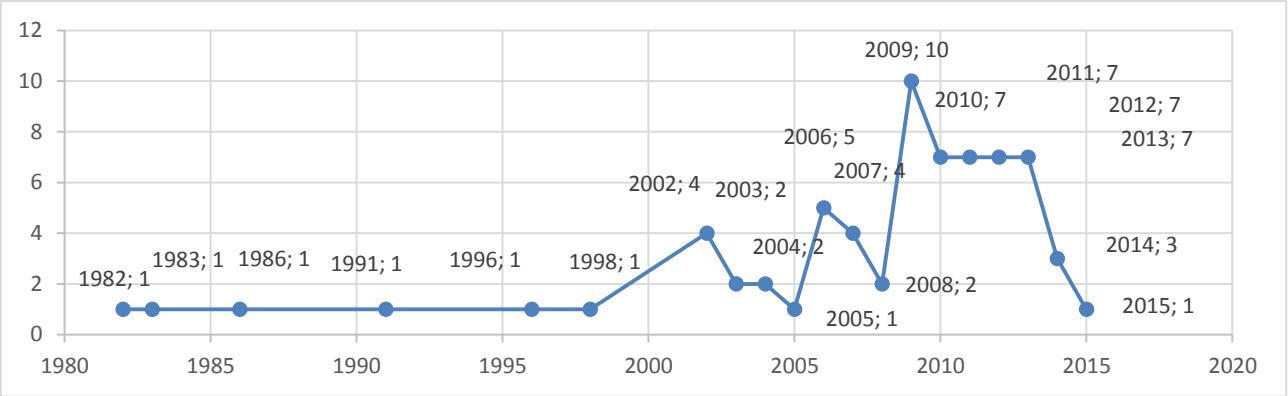

Figure 1. Count of literature sources per year

Research results show that idea management became especially topical in 2009, but this topic is not broadly researched thatis reflected in low numbersof literature sources per year.

Additional data in Google Scholar (2015) and Scopus (2015) represents that the most cited authors about idea management are Bothos, Westerski, Brem, Flyn, Vandenbosch, Sandstrom.Therefore these authors could be considered the main/ most influencing researchers of idea management. The authors agree that this question should be researched not only on the basis of database information, but also that empirical research should be conducted (research based in literature review sources of cited sources).

LITERATURE PERSPECTIVE ANALYSIS

As a result of insight into the idea management literature reviews, the authors reveal that idea management literature in some researches (Rose et al., 2012; Vagn, Clause, Gish, 2013) had been divided into groups- structural and social.Structural literature sources focus on systems, design and the process. Social literature sources focus on social capital, creativity, cognition etc. The literature of the contribution is presented in Table 3.

Table 3

Identified literature- social or structural focus	
Social	Structural
Galbrait, 1982; Green, Bean and Snavely, 1983; Saatcioglu, 2002; Nilsson, Elg and Bergman, 2002; Van Dijk, Van Den Ende, 2002; Flynn, Dooley, Sullivan and Cormican, 2003; Boddrich, 2004; Pundt and Schyns, 2005; Vandenbosch, Saatcioglu and Fay, 2006; Coughlan and Jahanson, 2008; Bjork and Magnusson, 2009; Barczak, Griffin and Khan, 2009; Tung, Yuan and Tsai, 2009; Bailey and Horvitz, 2010; Gish, 2011; Selart and Johansen, 2011	Applegate, 1986; Lu and Mantei, 1991; Rowbotham and Bahlin, 1996; Azrolan and Pavlins, 1998; Fritz, 2002; Wood, 2003; Summa, 2004; Voigt and Brem, 2006; Yu, Chen and Shen, 2006; Bakker, Boersma and Oreel, 2006; Lindroos, 2006; Brem and Voigt, 2007, 2009; Gamlin, Yourd and Paric, 2007; Goyal and Sampath, 2007; Karanjikar, 2007; Bothos, Apostolou and Mentzas, 2008; Enkel, Grasmann and Chesbrough, 2009; Bothos, Apostolou and Mentzas, 2009; Iversen, Kristensen, Liland, Berman, Enger and Losendahl, 2009; Tung, Yuan and Tsai, 2009; Fatur and Likar, 2009; Bansemir and Neyer, 2009; Glassmann, 2009; Klein and Lechner, 2010; Sandstrom and Bjork, 2010; Bettoni, Bernhard, Eggs and Schiller, 2010; Hrastinski and Kviselius, 2010; Xie and Zhang, 2010; Westerski, Iglesias and Rico, 2010; Westerski, Iglesias and Nagle, 2011; Westerski and Iglesias, 2011, 2012; Holzblatt and Tierney, 2011; Shani and Divyapriya, 2011; Moss, Beimborn, Wagner and Weitzel, 2011; Deichmann, 2012; Zejnilovic, Oliveria and Veloso, 2012; Bothos, Apostolou and Mentzas, 2012; Aagaard, 2012, 2013; Baez and Convertino, 2012; Poveda,Westerski and Iglesias, 2012; Bassiti and Ajhoun, 2013; Perez, Larringa and Curry, 2013;Westerski, 2013; Miecznik, 2013; Vagn, Clause and Gish, 2013; Westerski, Dalamagas and Iglesias, 2013; Bergendahl and Magnusson, 2014; Lowe and Heller, 2014; Sadriev and Patrachenko, 2014, Narvaez and Gardoni, 2015
*Scientific papers, conference proceedings, dissertation thesis, scientific institute working papers, articles in newspapers, books and articles in books	

There is a tendency that there is more structurally focused literature (73%), since 2012 there is only literature with structural focus. There are disserations only with structural focus, as well svientific institutes focuses on structural side of idea management.

The authors are interested to research whether there is focus on internal or external idea management.

Focus on internal idea management in the literature was especially pronounced from 1982 to 2006. It could be explained by the distribution of open innovation ideas which appoint importance of both internal and external ideas. The authors consider that this topic should be researched more deeplydetermining what kind of factors influenced distribution of internal or external idea management in literature. Internal idea management ideas are dominated in literature (74%), because only in 9% of literature focuses on external idea management, but on idea management mix- 17% (3 literature sources were without any focus). Distribution of literature see in Figure 2.

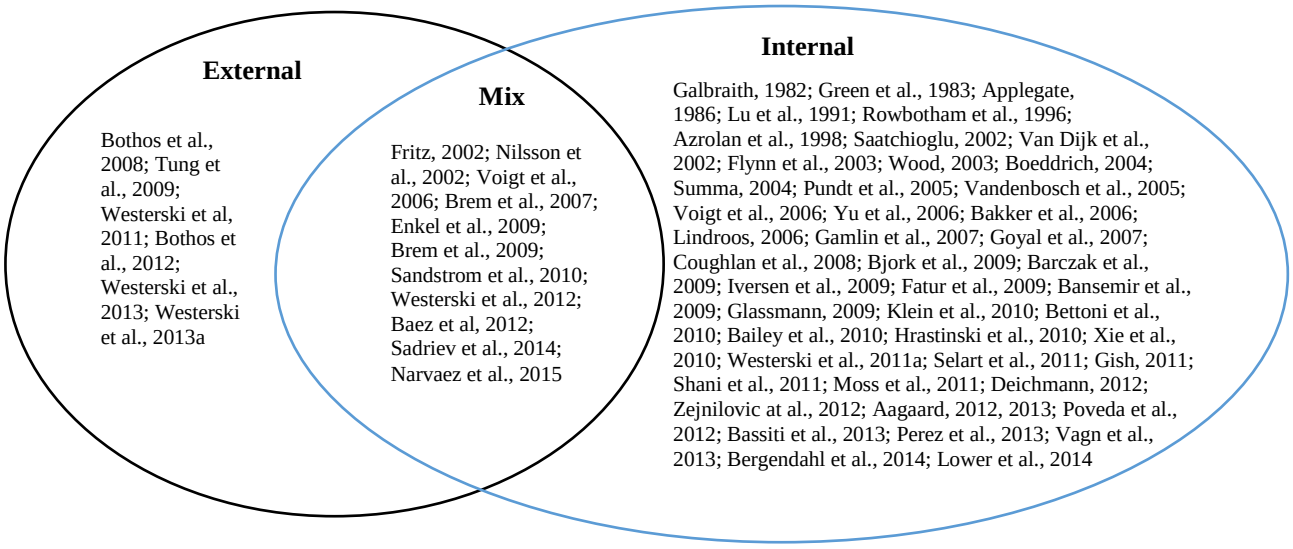

Figure 2. Identified literature- external/ internal/ mix focuses

Chesbrough (2003) revealed that organizations should work with smart people inside and outside the organization. Chesbrough is one of the well-known open innovation researchers and with that conclusion he highlights that organizations should use internal as well as external idea sources. The study of Miles et al., (2005) emphases the aspects of cooperation in internal networks, but other studies focus (Bothos et al., 2008; Chen et al., 2002) on external networks. The research (Brem et al., 2007) also shows that integration of idea management is important for successful innovation. So, it is important to research both factors and how to integrate them. The research results show that there are few researches which research both.

IT aspects with idea management have been researched since 1986. The pioneer in this area was Applegate (1986). 54% of all researched literature has focus on IT aspects, for example, tools, opportunities etc. It is important to research IT aspects, for example, he study (INSEAD, 2012) revealed that information technologies and their tools are among the elements which enhance innovation process. According to Yoo et al. (2012) there is a growing significance of digital technologies in innovation processes, Coughlan et al. (2008) also insists that with IT development there are accessible new idea management tools. In the study Lin (2007) mentions that frequently these tools are applications which allow users to share with opinions and resources. The researches (Schmidt, 2006; Richter et al., 2006) reflect, for example, WebStorm, Idea Central, Cogni Streamer, which lets manage information, communication, coordination and corporation in social networks and Bakker et al. (2006) emphases that their significance only increases.

The authors consider that researched literature sources could be divided in two groups: (1) research of specific idea management systems (for example, Fritz, 2012; Lu et al., 1991), but it is important emphasize that there are researches which stress some specific idea management system features and explore how to improve them, like data linkage (for example, Perez, Larrinaga, Curry, 2013), classifying and comparing ideas (for example, Westerski et al., 2013) etc., (2) researches with the aim to develop new idea management systems (for example, Applegate, 1986; Lindroos, 2006). See Table 4.

Table 4

Identified literature with IT aspects- research/improve existing IMS or develop new

Research/improve existing idea management systems	Develop new idea management systems
Lu et al.,1991; Fritz, 2002; Nilsson et al., 2002; Boeddrich, 2004; Summa, 2004; Bakker et al., 2006; Gamlin et al., 2007; Coughlan et al., 2008; Bothos et al., 2008; Bjork et al., 2009; Barczak et al., 2009; Tung et al., 2009; Bailey et al., 2010; Hrastinski et al., 2010;Westerski et al., 2010; Westerski et al., 2011;Westerski, et al., 2012; Holzblatt et al.,2011; Baez et al., 2012; Poveda et al., 2012; Perez et al., 2013; Westerski, 2013; Westerski et al., 2013; Sadriev et al., 2014	Applegate, 1986; Flynn et al., 2003; Vandenbosch et al., 2006; Lindroos, 2006; Bothos, et al, 2009; Iversen, et al., 2009; Bansemir et al., 2009; Bettoni et al., 2010; Xie et al.,2010;Bothos et al., 2012; Lower et al., 2014; Narvaez et al., 2015

CONTENT ANALYSIS

The authors sum up and sort literature and theories used in literature to understand basic sources of idea management literature. The authors conclude that scientific knowledge primarily is represented not only in innovation management literature (for example in Galbraith, 1982; Green et al., 1983; Flynn et al., 2003; Summa, 2004; Bothos et al., 2009; Bjork et al., 2009; Voigt et al., 2006; Iversen et al., 2009; Sandstrom et al., 2010), but also in literature about software and IT(for example inNilsson et al, 2002; Poveda et al., 2012, Bothos et al., 2012; Xie et al., 2010). The most often used theories in literature are network theories (for example in Deichmann, 2012; Bjork et al., 2009; Iversen et al., 2009; Bettoni et al., 2010), classical learning theory (for example in Deichmann, 2012), leadership theories (for example in Boeddrich, 2004; Pundt et al., 2005; Deichmann, 2012).There are different aspects viewed in the literature connected with idea management, for example, open innovations and cooperation (for example in Bothos et al., 2008; Bothos et al., 2009; Iversen et al., 2009) and behavior of cooperation (for example, Bansemir et al., 2009), human information processes (for example in Green et al., 1983), creativity (for example in Flynn et al., 2003; Coughlan et al., 2008; Bakker et al., 2006), NPD (for example in Karanjikar, 2007; Barczak et al., 2009), social networks (Bjork et al., 2009), involvement (Bansemir et al., 2009) etc. The authors conclude that the idea management is represented mainly in innovation management and IT literature and there are a lot of specific angles how to explore idea management starting from creativity to NPD.

The authors also collected the most frequently used research methods in the literature sources. It has been concluded that the most often used methods are case studies, interviews, questionnaires and statistical methods.The authors chosethem as indication for sorting methods, to achieve the research aims. This classification is adapted from classification developed by Beisell- Durrant (2004). See collected methods, objectives and researches where they were applied in Table 5.

Table 5

More frequently used methods in researched literature

	Subcategory	Examples of objectives	Research examples
Data Collection	Interviews	To identify types of idea management. To research the influence of leadership on quality of ideas. To research social network influence on idea management. To research idea management and its systems (problems, motivation etc.) and views about possible improvements (with the aim to introduce new systems). To verify information interpretation.	Saatcioglu, 2002; Vandenbosch et al., 2006; Deichmann, 2012; Bjork et al., 2009; Brem et al., 2007; Bansemir et al., 2009; Gish, 2011; Bailey et al., 2010; Bakker et al., 2006; Lindross, 2006; Vagn et al., 2013; Brem et al., 2009; Klein et al., 2010;
	Focus group	To analyze idea management. To supplement other collected data. To develop and to test new systems.	Lindross, 2006; Vagn et al., 2013
	Questionnaire (managers, participants, experts)	To collect data about idea management system application. To collect data to research correlations, for example, between transformative leadership and employee involvement in idea management and quality of ideas. For case studies, codedself-administered questionnaires	Applegate, 1986; Pundt et al., 2005; Bakker et al., 2006; Xie et al., 2010; Deichmann, 2012; Glassmann, 2009; Coughlan et al., 2008; Vagn et al., 2013; Moss et al., 2011; Zejnilovic et al., 2012
	Observation	To evaluate a concrete system, its effectiveness and application, influencing factors.	Bothos et al., 2008; Bothos et al., 2009; Iversen, et al., 2009; Tung et al., 2009;
	FromIMS	For idea management system research.	Brem et al., 2009; Zejnilovic et al., 2012; Bailey et al., 2010;
	Case studies	To research idea management systems, to create solutions for innovation increase. To research dynamics in different systems. To create new systems. To collect specific requirements for systems. To collect good practices. To research different mechanisms and factors.	Lindross, 2006; Vagn et al., 2013; Nilsson et al., 2002; Gish, 2011; Westerski et al., 2010; Klein et al., 2010; Poveda et al.,2012; Aagaard, 2012; Barczak et al., 2009; Bergendahl et al., 2014; Perez et al., 2013
Data Handling and Data Analysis	IMS application and participant analysis	To create representative description of system users, application dynamics. To research social tie influences on idea creation. To evaluate result connection with social ties.To research how previous experience influence idea management. To evaluate and develop systems	(Applegate, 1986) (Bjork et al., 2009) (Deichmann, 2012) (Brem et al., 2009) (Holzblatt et al., 2011) (Westerski et al., 2013)
	Statistical	To research dynamics, effectiveness, application. To evaluate correlations, for example, between transformative leadership and involvement, or leadership influence on idea quality and other factors- correlations, factor analysis, regression analysis.	Applegate, 1986; Pundt et al., 2005; Deichmann, 2012; Zejnilovic et al., 2012; Bjork et al., 2009; Bothos et al., 2008; Bothos et al., 2009; Bothos et al., 2012; Tung et al., 2009
	Analysis of systems	To analyze empirical new methods or systems. To compare idea management systems. To create idea management system classification or ontology.	Fatur et al., 2009; Glassmann, 2009; Bakker et al., 2006; Brem et al., 2009; Narvaez et al., 2015; Summa, 2004; Bothoes et al., 2008; Gamlin et al., 2007; Hrastinski et al., 2010
ICT	Simulations	To evaluate a concrete system, its effectiveness and application, influencing factors.	Selart et al., 2011; Westerski et al., 2010
Basic	Literature reviews	Research literature on idea management and connected terms, for example, idea management systems, creativity, decision supporting systems To create a new system, classification, model	Glassmann, 2009; Deichmann, 2012; Aagaard, 2012; Vagn et al., 2013; Aagaard, 2013; Bassiti et al., 2013; Zejnilovic et al., 2012

As important it is to research used focuses, specific details, as it is important to understand the main explored and researched ideas. Karanjikar (2007) provides a general view to idea management, viewing the idea management of a new product development. He puts forward the idea that in the ideadevelopment the total number of ideas is growing moving beyond a particular product or idea development towards commercialization (Karanjikar, 2007).

One of the first literature sources Green et al. (1983) identified the management needs of idea flow, creating the pattern that indicates various idea management aspects, but Galbraith (1982) study offered a design of organization where there are better conditions for ideas, transactions and arrangements. Rowebotham (1996) described a structured idea management approach, which consists of 7 parts- the development of criteria, preparation for idea generation, idea selection, development of ideas, idea evaluation, ranking of ideas and concept development.

Many studies describe idea management as a part of innovation management, for example,Miecznik, 2013. Some literature sources (Aagaard, 2012, 2013; Bassiti et al., 2013; Lindroos, 2006) research idea management in specific part of innovation, like exploring in what way idea management can be applied as a tool in facilitation of putting an innovation in practice, showing how idea management and front end

innovation are related and may support each other. There is even idea management in front end innovations in specific industriesresearched, for example, in the Aagaard study (2012) pharmacy, proposing conclusions for effective facilitation of idea management.Confronting opinion is expressed by Barczak et al. (2009) who concluded that results about idea management role in innovation management at an early stage is unclear, but confirms the need for management improvement.

Sandstrom et al. (2010) indicated that the nature of innovation over the last decade has changed from incremental innovation to business model innovation and open innovation and these changes also place new demands on the idea management systems, the study revealed requirementsof how to meet this need. Bailey et al. (2010) explores idea management in connection with specific innovation type- grassroots innovation. The study researches how idea management could support grassroots innovation.

Saatcioglu (2002) detected certain manager archetypes in idea management, also Vandenbosch et al. (2006) described the idea of archetype management, focusing on the leaders and how their personality type affectsthe management of ideas, understanding of these types can improve management. The paper also highlights an interesting idea that human idea management system can exist by itself, but the IT idea management system cannot, which revealed an important part of various tool application and management. But Selart et al (2011) described two thinking types- value-focused thinking and alternative thinking, concluding that the value focused thinking influences idea management, it decreases the number of created ideas but increases quality of ideas. Wood (2003) created descriptions of 4 types of organizations, which reflects how they handle ideas. In this study the figure that illustrates these 4 types of organizationswas developed which shows that not only do we need to generate ideas (be creative), but that we also must have a system to put them in place (to innovate). Wood (2003) looks at idea management as at a process with several stages –an effective idea-generation, idea handling, effective idea-evaluation process, idea implementation, recognizing/ rewarding those involved- study describes also the preconditions and factors of these stagesto be effective.

Lu et al. (1991) focused on the computerized drawing tools that support the design idea management, focusing on the idea management of groups. Researchers created a compilation of ideas with the group management activities, identifying user requirements and their implementation with CaveDraw system (Lu et al., 1991). Also Goyal et al. (2007) describes the structure how companies can manage employee's ideas (at various levels). But Coughlan et al. (2008) examined the idea management process on individual and social level, exploring how ideas occur in creative work and the strategies and tools used to represent and develop them.

Vagn et al. (2013) concerns idea management in front-end innovation of R&D organizations. Research shows how managers and employees navigate in organization structures, technical features, creativity and interactions. Vagn et al, (2013) have created new theoretical framework of idea management that suggests a dynamic network structure comprised of the dimensions of space, content and process. But Bergendahl et al. (2014) addressed the paper to collaborative and competitive mechanisms used in firm-internal idea management, revealing that the two approaches can be combined, and explored how their paradoxical coexistence can be managed.

Iversen et al. (2009) and Shani et al. (2011) introduced new idea management conceptswhichare based on a life-cycle perspective on innovation, where the aim is to support all phases of innovation.But the Bassiti et al. (2013) constructed a new idea management life cycle that aims to support all activities of the front-end of innovation; this cycle consists of four key parts: idea generation, evaluation, implementation and links. The study described techniques that can be used in each part. Also Bansemir et al. (2009) presents the idea that an organization needs new idea management concept- interactive idea management system that includes multidisciplinary creation of teamsand social software applications.Voigt et al. (2006) and Brem et al. (2007) recommended involving in the idea management not only internal sources of ideas, but also external ones in a structured way, so creating an integrated idea management system. Brem et al. (2007) also highlights that the earlier an integrated idea management is implemented, the greater is the probability of successful innovations.Enkel et al. (2009) aimed to advance R&D, innovation and technology management perspective. Researcher explored idea management as open innovation tool which could involve internal and external ideas. Enkel et al. (2009) also highlights that the internet provides the opportunity to involve external sources in idea management.

Integration of market pull and technology push in the corporate front end and innovation management was researched by Brem et al. (2009), introducing advanced framework that can be used in today's corporate environment. But competition and cooperation in idea management were explored by Tung et al. (2010).

Bakker et al. (2006) researched idea management as a creativity management, the study focused on industrial R&D organizations. Researchers developed crea-political process model in which there is an

ample room for the thought that ideas emerge and survive within a social-political context and the research findings challenge the literature of idea management in organization to consider the political activities of ideation in the whole process of creativity.Creativity research was also conducted in Van Dijk et al. (2002) study which summarizes the organizational factors related to the management of creativity to transform the creativity into ideas. Yu et al. (2006) developed an idea management model based on ‘’total innovation management’’ with the aim to increase innovation results in companies in China, but Xie et al. (2010) established the idea management system that covers the entire idea management process and helps team building.

Lower et al. (2014) presented research results and practical experience regarding implementations of PLM systems in a set of companies, namely, at the early stages of product planning and innovation management. Lower et al. (2014) developed an extended data model in combination with a reference process model for innovation and idea management and described implementation of that in a state of the art PLM system. Moss et al. (2011) analyzed if knowledge management and innovation governance distinguish top innovation performers, reflecting that the aim of idea management systems is to support human idea management to increase innovation capacity.Holzblatt et al. (2011) explores how social media can affect the process of innovation, idea management is viewedin the context of innovationand recommendations were developed to assess and monitor the impact of social media on innovation, business strategy.

Flynn et al. (2003) in the paper present methodology to facilitate the organizational management of idea generation process, an integrated software tool- Creations are also introduced. Software was also researched by Summa (2004). Research mapped 26 existing commercially available idea management software and evaluated the available technologies and software in relation to the idea management needs, evaluated their functions and structures. In this research the author developed software selection methodology and evaluation criteria that can also be usedin other studies. Research also highlights that it is unable to rank the software and set out the reasons. From the same Innovation Management Institute, the study (Lindroos, 2006) revealed the development and theoretical basis of an idea management process in a medium-sized organization producing physical products.Idea management in this research was explored in innovation as an initial phase or front-end. In research it was indicated that all ideas management processes and tools should be well introduced and applied. It also outlined the basics of the front end innovation support infrastructure.

Technologies for open innovation were investigated by Hrastinski et al. (2010). The paper explores how current technologies are designed to support open innovation and develops the classification of open innovation systems and one of the categories is an idea management system which lets users suggest, evaluate and discuss ideas openly or within predefined categories. It is concluded that IT systems do not support initial stages and definingof ideas. Also Nilsson et al. (2002) study exploredidea management systems and developed recommendations for application of these systems to increase the innovation capacity. It is concluded that idea management systems in organizations strengthen the innovation capacity of enterprises. The paper explores main aspects for more useful applications- specific objectives, IT role, creators’ role in the realization of the idea, the way in which ideas are turned into products (Nilsson et al., 2002).

Fatures et al. (2009) developed the performance assessment methodology ofidea management, but Glasmann (2009) established model " Glassman Model for Managing Idea Generation ", which helps to control idea management.

Sadriev et al. (2014) considers prerequisites of origins of the idea management systems and analyzes their application, a special attention is paid to software. They also mentioned 3 types of idea management systems, but without substations. The strong point is that the authors created one of the first brief idea management system history. But one of the first researchers who divided idea management in groups was Gamlin et al. (2007). They presented the idea of "active" idea management, so separating the newest idea management type frompredecessor 'Suggestion Box' which we could call ‘’passive’’ idea management.Gamlin et al. (2007) found that more successful idea management results are achieved whenidea management is conducted parallel in real life and in the internet. The researcher in the paper discusses possible issues that can be resolved with idea management and the basic elements of a successful IM and possible benefits.

Perez et al. (2013) analyze the impact of semantic-enabled idea management systems within a sustainable innovation process, in particular, exploring how ideas can be enriched with contextual Linked Open Data. A specific questionis also exploredby Baez et al. (2012) who presented the design of a dashboard for facilitators in idea management systems, demonstrating how the dashboard helps facilitators in making more efficient and effective decisions. Specific challenges in idea management are solved by a lot of others studies (Westerski et al., 2011; Westerski et al., 2013; Westerski et al., 2012; Westerski et al., 2013a; Westerski et al., 2010; Poveda et al., 2012). For example, Westerski et al. (2012) deal with one of the major challenges in

idea management systems- rapid and automatic assessment of idea value. To address this problem, the paper proposes the use of opinion mining technique and anew metric that summarizes sentiments in the community about ideasintroduced. Also Westerski et al. (2013a) focus on the assessment process and propose a number of solutions that allowfiltering, comparing and evaluating the submitted ideas in idea management ideas. Westerski et al. (2010) recommend to use sematic networking principles as a possibility for idea management systems improvements but Poveda et al. (2012describes the design and the use of a semantic search model as an innovation support system. Westerski et al. (2013) established ideas annotation framework to facilitate the creation of ideas and Westerski et al. (2011) described the use of structured data management systems and showed how this relationship can solve problems in idea management systems and presenteda new IT tool- idea management system that helps collect, organize, select and manage innovative ideas from people outside the organization.

Deichmann (2012) investigated the role of leadership styles on idea quantity, the role of social ties as an important mechanism that people use to ''build'' an idea, as well how success and failure experience of people's prior idea submission influences submission of new ideas and their performance, the forth idea that he explored is the reciprocal dynamic between outcomes of prior creative ideas and the social structure of the network. A similar research was developed by Bjork et al. (2009) who explored the interrelationship between innovation idea quality and idea providers network connectivity, using social network analysis. The results highlight that it is important that the possibility to interact with others should be supported and facilitated but an open question is if the idea generation and social networks should be formalized. The results show that there is a correlation betweenidea quality and idea provider network connectivity. Similarly, Dechmann (2012) and Pundt et al. (2005) investigated the correlation between transformational leadership and employee contribution to idea management. The paper revealed a strong correlation between the intellectual stimulation and contributions toidea management as well asthe correlation between employee contribution to idea management and transformational leadership is stronger when there is a positive improvement culture in the organization.

In many researches when user innovator idea was researched it is focused on external sources, like, consumers etc., but Zejnilovic et al. (2009) investigate the innovation proposals made by employee-user to an idea management system. The results revealed ways for companies to increase the success rate of the ideas submitted by a broad base of employees to idea management systems and to bring more radical ideas to these systems. But there are studies which focus on external idea sources (Bothos et al., 2008) (Bothos et al., 2009) (Bothos et al., 2012), reflecting thatidea management can be used outside the organization in information aggregation markets, where professionals and users choose ideas that organizations implement. Researches show that involvement of external resources in idea management is an effective and useful way how to reduce time and costs by allowing ideas to generate and evaluate in virtual sessions.

Klein et al. (2010) researched BMW Finance Service experience, exploring howidea management helps change management.Specific cases werealso explored by Narvaez et al. (2015). The paper offers idea management processes thatcould support technological transfer between the Canadian Space Agency and industrial partners through ICT, also Bettoni et al. (2010) create a new model for a concrete organization, establishing idea management system for university. Boeddrich (2004) describes basic and specific requirements for idea management. The study highlights benefits of internet-based system application-motivation increase, transparency, rapid assessment, retention, less conflict with patent-related problems. Gish (2011) reaches what lets various idea management activities to succeed and what leads to failure. Gish emphases, that it is important that managers understand the design of idea management and daily work process,as well as their connection.

Authors also reveal that it would be advisable to create literature reviews with the focus on the terms ''idea management'' and ''idea management systems'', because the research results reflect that there is no united view on these terms. For example, majority of literature sources has described idea management as process with 2-7 parts (some of them contrasting) and idea management as a part of innovation process. But there are also other views on this term, like Galbraith (1982) term of idea management has used in individual level as cognitive and social process etc. It is also very important to research the term ''idea management system'', because this term has been used with wide range of meanings, describing either process, system or tool.

5. SUGGESTIONS FOR FUTURE RESEARCHES OR GAPS IN LITERATURE OF IDEA MANAGEMENT

As important it is to research existing literature content, highlightinggaps is a crucial part of literature

review. The authors have collected unanswered questions from researches (excluding mentioned under researched questions, but explored in other researches) and developed suggestions for future researches for idea management researchers:

1) To create literature review with the focus on the terms of idea management and idea management systems, because the research results reflect that there is no united view on these terms.
2) To examine connections between idea management systems or idea management networks and different types of innovations, for example, radical and incremental innovations. To research how to encourage a certain type of innovation with idea management, for example, radical innovation. Literature shows that there are differences in idea management processes, but they are not fully researched.
3) To research empirically psychological factors in idea management.
4) To research the best methods and techniques for each idea management stage.
5) To create idea management system classification. For example, the study (Hrastinki et al., 2010) classified open innovation technologies and one of the categories was idea management systems, it would be advisable to create sub- categories for idea management systems.
6) To research quantity and quality of participation in idea management not only of ideas.
7) To probe the correlation between the size of the network and the quality of ideas. The study (Zejnilovic et al., 2012) revealed a positive correlation, but the authors' 5 years of practical experience with idea management systems raise doubts about this conclusion.
8) To analyze if there are differences how social capital behaves in idea management if they generate, evaluate and develop commercial or social ideas.
9) To explore motivation of participation in idea management.
10) To research support infrastructure for idea management systems in internet (from operative and strategic perspectives).
11) To gather information about commercially available idea management software and examine how to integrate them in idea management. The study (Iversen et al., 2009) reflects that there are no idea management systems that support idea management at all innovation stages;theauthors consider that it would be considerable to investigate this statement.
12) To research influencing factors. The studies (Cumming, 1999; Dooley, 2000; Flynn et al., 2003) revealed these factors theoretically, but it could also be explored through empirical research.
13) To research problems in contemporaneous idea management systems and holistically investigate idea management success elements.
14) To research what kind of idea sources (internal/external) to integrate in idea management, how to find the balance, what kind of problems and benefits for these integrations. To investigate idea management network factors that influence idea management.
15) To probe intellectual property protection aspect in idea management systems (who owns ideas)
16) To research how to organize idea management and investigate decision making main dimensions.
17) To explore how to develop and improve idea management networks over the time.
18) To explore social ties in idea management after the social exchange or the similarity-attraction theory, to probe how to adjust social- psychological behavior changes in the contrasts of idea management network sizes or strength of ties.

6.SUMMARISATION

Every invention, discovery and social improvement started with an idea. The study Fritz (2002) revealed that we do not give ideas the same sort of attention than to other forms of intellectual property. According to Saatcioglu (2002) researchers also pay relatively little attention to them, but there is also a contrasting opinion by Zejnilovic et al. (2012) who insists that idea management has been researched for long time and from many perspectives. The authors consider that this contrast arise because of the research advencements in the last 15 years - till 2002 there was a lack of literature on idea management, but since 2002 amount of literature sources on idea managementcreated has grown noticeably. But the authors also esteem that Fritz (2002) and Saatchioglu (2002) conclusions are still topical, because although amount of literature has steadly grown since 2002, it is still relatively low, and the authors could approve Gish (2011) that there is a growing interest for idea management from researchers.The researches (Nillson et al., 2002) reflect that introduction of an idea management system in organization strengthens innovation capacity, so it is a positive tendency in the development and application of different idea management systems; according to Bansemir et al. (2009) and Shani et al. (2011), for example, even many consulting companies (according to Frizt (2009), like, Price Waterhouse, Ernest & Young) use idea management systems. Idea management is topical and perspective

research subject and the authors have developed a wide range of possible future researches that shows that this topic is not exhausted.Based on the research, the following conclusions can be deducted:

1) The first literature source that mentioned idea management was in 1982. From 1982 till 2002 literature is fragmentary, but from 2002 there are substantive literature sources about idea management.

2) Literature on idea management mainly deals with idea management and idea management system research, exploring their application and problems. Recent literature has begun to probe how idea management systems could be used for specific objectives, for example, technology transfer and how idea management is integrated in organizational processes.

3) The review reflects that idea management is represented in innovation management and IT literature.

4) The most often used theories in literature are network theories, classical learning and leadership theories. There are different aspects viewed in the literature connected with idea management, for example, open innovations, cooperation, behavior of cooperation, human information processes, creativity, NPD, social networks, involvement etc.

5) Most of the literature sources focus on internal idea management, but only few of them reflect internal and external idea management at once.

6) IT aspects are widely viewed in literature.

7) There are structural and social literature focuses, but the interplay between them is not revealed in depth. There is a tendency to have more structural focused literature and since 2012 there has only been literature with structural focus. Less revealed is the social side of idea management, so it is also a perspective research field.

8) There is dominated focus on internal idea management in the literature.

9) The most commonly used methods in literature are case studies, interviews, questionnaires and statistical methods, but idea management research could include a lot of other different research methods.By these or new methods the authors encourage researchers to close the research gaps in idea management literature.

10) There are a lot of possible future researches (according to research gaps), for example:

- To research what types of innovation we can develop in different types of idea management networks, because according to Dijk et al. (2002) companies invest a lot of finance in idea management systems but there is a lack of radical innovations.
- To research how to manage idea management, because, according to Gish (2011), without appropriate application there will not be a great result.
- To create literature review with the focus on the terms of idea management and idea management systems, because the research results reflect that there is no united view on these terms.
- To examine connections between idea management systems or idea management networks and different types of innovations, for example, radical and incremental innovations. To research how to encourage a certain type of innovation with idea management, for example, radical innovation. Literature shows that there are differences in idea management processes, but they are not fully researched.
- To gather information about commercially available idea management software and examine how to integrate them in idea management. The study (Iversen et al., 2009) reflects that there are no idea management systems that support idea management at all innovation stages; the authors consider that it would be considerable to investigate this statement.
- To research influencing factors. The studies (Cumming, 1999; Dooley, 2000; Flynn et al., 2003) revealed these factors theoretically, but it could also be explored through empirical research, etc.

REFERENCES

1. Aagaard, A. (2012), ‘’Idea Management in support of Pharmaceutical Front End of Innovation’’, *International Journal of Technology, Policy and Management,* 12(4), 373-386.
2. Aagaard, A. (2013), ‘’A theoretical model of supporting open source front end innovation through idea management’’, *International Journal of Business Innovation and Research,* 7(4), 446-465.
3. Applegate, L.M. (1986), ‘’Idea management in organization planning (brainstorming, strategy)’’, dissertation, University of Arizona, Arizona.
4. Azrolan, N. & Pavlins M.S. (1998), ‘’Idea management: Restructuring technology-based research to help achieve corporate goals’’, *Drug News Perspect,* 11(3), 180-184.
5. Baez, M. & Convertino, G. (2012), ‘’Innovation Cockpit: A Dashboard for Faciliators in Idea Management’’, in *ACM 2012 conference proceedings of the international conference in Seattle, Washington, USA*, NY: ACM, 47-48.

6. Bailey, B.P. & Horvitz, E. (2010), ''What's Your Idea? A Case Study of a Grassroots Innovation Pipeline within a Large Software Company'', in *CHI2010 proceedings on the 28th annual CHI conference on human factors in computing systems in Atlanta, USA, 2010*, NY: ACM , 2065-2074.
7. Bakker, H., Boersma, K. & Oreel, S. (2006), ''Creativity (Ideas) Management in Industrial R&D Organizations: A Crea- Political Process Model and an Empirical Illustration of Corus RD&T'', *Creativity and Innovation Management*, 15 (3), 296- 309.
8. Bansemir, B. & Neyer, A.K. (2009), ''From idea management systems to interactive innovation management systems: Designing for interaction and knowledge exchange'', *Wirtschaftinformatik Proceedings*, 1(1), 860-870.
9. Barczak, G., Griffin, A. & Kahn, B.K. (2009), ''PERSPECTIVE: Trends and Drivers of Success in NPD Practices: Results of the 2003 PDMA Best Practices Study'', *Journal of Product Innovation Management*, 26 (1), 3-23.
10. Bassiti, L. & Ajhoun, R. (2013), ''Toward an Innovation Management Framework: A Life-cycle Model with an Idea Management focus'', *International Journal of Innovation, Management and Technology*, 4(6), 551-559.
11. Beissel- Durrant, G. (2004),''A Typology of Research Methods within the Social Sciences'', working paper, Southampton Statistical Sciences Research Institute, University of Southampton, Highfield, November.
12. Bergendah, M. & Magnusson, M. (2014), ''Combining collaboration and competition: a key to improved idea management?'', *European Journal of International Management,* 8(5), 528-547.
13. Bettoni, M., Bernhard, W., Eggs, C. & Schiller, G. (2010), ''Idea Management by Role Based Networked Learning'', in *11th European conference on knowledge management proceedings of the international conference*, London: Academic Publishing Limited, 107-116.
14. Bjork, J. & Magnusson, M. (2009), ''Where Do Good Innovation Ideas Come From? Exploring the Influence of Network Connectivity on Innovation Idea Quality'', *Journal of Product Innovation Management,* 26(1), 662-670.
15. Boeddrich, H.J. (2004). ''Ideas in the Workplace: A New Approach Towards Organizing the Fuzzy Front End of the Innovation Process'', *Creativity and Innovation Management,* 13(4), 274-285.
16. Boell, S., K., Cecez-Kecmanovic, D. (2010), ''Literature reviews and the hermeneutic circle'', *Australian Academic and Research Libraries,* 41 (2), 129-144.
17. Bolderston, A. (2008), ''Writing an Effective Literature Review'', *Journal of Medical Imaging and Radiation Sciences*, 39(2), 86-92.
18. Boote, D. N. & Beile, P. (2005), ''Scholars before researchers: On the centrality of the dissertation literature review in research preparation'', *Educational Researcher,* 34(6), 3-15.
19. Bothos, E., Apostolou, D. & Mentzas, G. (2008), ''A Collaborative Information Aggregation System for Idea Management'', in *Conference on Internet and Web Applications and Sevices proceedings of the international conference in Athens*, Athens: IEEE, 289-296.
20. Bothos, E., Apostolou, D. & Mentzas, G. (2009), ''Collective intelligence for idea management with Internet-based information aggregation markets'', *Internet Research*, 19(1), 26-41.
21. Bothos, E., Apostoulou, D. & Mentzas, G. (2012), ''Collective intelligence with web-based information aggregation markets: The role of market faciliation in idea management'', *Experts Systems with Applications,* 39(1), 1333-1345.
22. Brem, A. & Voigt, K.I. (2007), ''Innovation management in emerging technology ventures – the concept of an integrated idea management'', *Journal of Technology, Policy and Management*, 7(3), 304 - 321.
23. Brem, A., & Voigt, K.I. (2009), '' Integration of market pull and tschnology push in the corporate front end and innovation management- Insights from the German software industry'', *Technovation*, 29(1), 351-367.
24. Chen, K.Y. & Plott, C. (2002), ''Information Aggregation Mechanisms: Concept, Design and Implementation for a Sales Forecasting Problem'', working paper [1131], California Instotute of Technology, Pasadena, 27 March.
25. Chesbrough, H.W. (2003), *Open Innovation: The New Imperative for Creating and Profiting from Technology*, Cambridge: Harward Business School Publishing.
26. Coughlan, T. & Johnson, P. (2008), ''Idea Management in Creative Lives'', in Conference on Human Factors in Computing Systems proceedings of the international conference, NY:ACM, 3081-3086.
27. Cumming, B. (1999), *Undrstanding innovation form the cradle to grave. In Best Practice: Process Innovation Management*, Oxford: Butterworth-Heinemann.
28. Day, G.S., Gold, B. & Kuczmarski, T.D. (1994), ''Significant Issues for the Future of Product Innovation'', *Journal of Product Innovation Management,* 11(1), 69-75.
29. Deichmann, D. (2012), ''Idea Management: Perspectives from Leadership, Learning, and Network Theory'', dissertation, ERIM, Netherland.
30. Dooley, L. (2000), ''Systems innovation management'', *Product Planning & Control*, 11(4), 369-379.
31. Enkel, E., Grassmann, O. & Chesbrough, H. (2009), ''Open R&D and open innovation: exploring the phenomenon'', *R&D Management,* 39(4), 311-316.
32. Fatur, P. & Likar, P. (2009), ''The development of a performance measurement methodology for idea management'', *International Journal of Innovation and Learning*, 6(4), 422-437.
33. Fawacett, J. (2013), ''Thoughts about conceptual models, theories, and literature reviews'', *Nursing science quarterley*, 26(3), 285-288.
34. Flynn, M., Dooley, L., Sullivan, D. & Cormican, K. (2003), ''Idea management for organizational innovation'', *International Journal of Innovation Management,* 7(4), 1-26.
35. Fritz, M. (2002), ''Idea management enabler'', *EContent,* 25(8), 50.
36. Galbraith, J.R. (1982), ''Designing the innovating organization'', *Organizational Dynamics*, 10(3), 5-25.

37. Gall, M. D., Borg, W. R., & Gall, J. P. (1996),*Education research: An introduction (6th ed.),* NY: Longman.
38. Gamlin, J.N., Yourd, R. & Patric, V. (2007), ''Unlock creativity with ''active'' idea management'', *Research Technology Manageent,* 50(1), 13-16.
39. Gish, L. (2011), ''Experience with idea promoting initiatives: why they don't always work'', in *18th Conference on Engineering Design: Impacting Society through Engineering Design proceedings of theinternational conference*, Copenhagen: Design Society, 83-92.
40. Glassmann, B.S. (2009),''Improving idea generation and idea management in order to better manage the fuzzy front end of innovation'', disertation, Prude University, Lafayette.
41. Goyal, A. & Sampath, K. (2007), ''Institutionalizing innovation: look to employees for the next great idea'', *Ivey Business Journal*, 71(8), 1-5.
42. Green, S.G., Bean, S.A. & Snavely, B.K. (1983), ''Idea management in R&D as a human information processing analog'', *Human Systems Management,* 4(2), 98-112.
43. Hart, C. (1999),*Doing a Literature Review: Releasing the Social Science Research Imagination*.London: Sage.
44. Holzblatt, L. & Tierney, L.M. (2011), ''Measuring the effectiveness of social media on an innovation process'', *in CHI EA '11 proceedings,* NY:ACM, 697-712.
45. Hrastinski, S. & Kviselius, N.Z. (2010), ''A review of technologies for open innovation: Characterastics and future trends'', *in Annual Hawaii International Conference on System Sciences proceedings,*Kohla: IEEE, 1-10.
46. INSEAD (2012), *The Global Innovation Index 2012*, Geneva: WIPO.
47. Iversen, H., Kristensen, K., Liland, C.S., Berman, T., Enger, N. & Losnedahl, T. (2009), ''Idea Management: A Life- cycle Perspective on Innovation'', available at: http://www.ict-21.ch/com-ict/IMG/pdf/39_IdeaManagement_Kjetil_Kristensen_FINAL.pdf (accessed: 10 April 2015).
48. Karanjikar, M.R. (2007), ''Funnel-reverse-funnel: the future model of idea management in new product development'', *Futures Research Quarterly,* 23 (3), 21-26.
49. Khurana, A. & Rosenthal, S.R. (1998), ''Toward holistic ''front end'' in new product development'', *Journal of Product Innovation Management*, 15(1), 55-74.
50. Klein, D. & Lechner, U. (2010), ''Ideenmanagement im Rahmen von organisatorischem Wandel'', *im MKWI 2010– IKT-gestutzte Unternehmens kommunikation proceedings*, Gottingen: Universitatsverlag Gottingen, 1831-1842.
51. Lin, K.J. (2007), ''Building Web 2.0'', *Computer,* 40 (1), 101-102.
52. Lindross, M. (2006), ''Developing Front-End idea management and information processing'', working paper [39], Innovation Management Institute, Helsinki University of Technology, 6 March.
53. Lowe, M. & Heller, J.E. (2014), ''PLM Reference Model for Integrated Idea and Innovation Management'', *Product Lifecycle Management for a Global Market, IFIP Advances in Information and Communication Technology*, 442(1), 257-266.
54. Lu, I.M. & Mantei, M.M. (1991), ''Idea Management In a Shared Drawing Tool'', *in the Second European Conference on Computer-Supported Cooperative Work proceedings of the international conference*, Rotterdam: Springer Netherlands, 97-112.
55. Miecznik, B. (2013), ''Ideen Management'' im Able, T. (Ed.), *Suchfeldbestimmung und Ideenbewertung : Methoden und Prozesse in den frühen Phasen des Innovationsprozesses,* London: Springer-Gabler, 143-168.
56. Miles, R.E., Miles, G. & Snow, C. (2005), ''Collaborative Entrepreneurship: How Communities of Networked Firms Use Continuous Innovation to Create Economic Wealth'', Stanford Stanford University Press.
57. Moss, B., Beimborn, D., Wagner, H.T. & Weitzel, T. (2011), ''The role of innovation governance and knowledge management for innovation success'', in *the 44th Annual Hawaii International Conference on System Science proceedings,* Kohla: IEEE, 1-10.
58. Naravaez, J.L.M. & Gardoni, M. (2015), ''Harnessing idea management in the process of technology transfer at Canadian Space Agency'', *International Journal on Interactive Design and Manufacturing,* 9(33), 1-11.
59. Nilsson L., Elg, M. & Bergman, B. (2002), ''Managing ideas for the development of new products'', *International Journal of Technology Management,* 24(5/6), 498-513.
60. Perez, A., Larrinaga, F. & Curry, E. (2013), ''The Role of Linked Data and Semantic-Technologies for Sustainability Idea Management'', in Counsell, S. (Ed.), *Software Engineering and Formal Methods*, Berlin: Springer-Verlag, 306-312.
61. Poveda, G., Westerski, A. & Iglesias, C. A. (2012), ''Application of Semantic Search in Idea Management Systems'', in *conference for Internet Technology Secured Transactions proceedings of the internationa conference in London,* UK, London: IEEE, 230-236.
62. Pundt, A. & Schyns, B. (2005). ''Fuhrung im Ideenmanagement - Der Zusammenhang zwischen transformationaler Fuhrung und dem individuellen Engagement im Ideenmanagement'', *Zeitschrift fur Personalpsychologie,* 4(2), 55-65.
63. Randolph, J. (2009), ''A guide to writing the dissertation literature review'', *Practical Assessment, Reseach & Evaluation*, 14(13), 1-13.
64. Richter, A. & Koch, M. (2007), *Enterprise 2.0: Planung, Einfuhrung und erfolgreicher Einsatz von Social Software in Unternehmen*, Munchen: Oldenbourg.
65. Rose, A. & Jensen, V. (2012), ''A literature review of idea management'', the paper presented at the 9th NordDesign conference proceedings DS 71 of NordDesign, Aarlborg University, Denmark. 22-24 August, available

at: https://www.designsociety.org/publication/35610/a_literature_review_of_idea_management (accessed: 10 April 2015).
66. Rowbotham, L. & Bohlin, N. (1996), ''Structured Idea Management as a Value-Adding Process'', available at: http://www.adlittle.com/uploads/tx_extprism/1996_q2_31-36.pdf (accessed: 10 April 2015).
67. Saatcioglu, A. (2002), ''Using grounded inquiry to explore idea management for innovativeness'', the paper presented at Academy of Management Proceedings, available at: http://proceedings.aom.org/content/2002/1/C1.19.abstract (accessed: 10 April 2015).
68. Sandriev, A.R. & Pratchenko, O.V. (2014), ''Idea management in the system of innovative management'', *Mediterranean Journal of Social Sciences,* 5(12), 155-158.
69. Sandstrom, C. & Bjork, J. (2010), ''Idea management systems for a changing innovation landscape'', *International Journal of Product Development*, 11 (3/4), 310-324.
70. Schmidt, J. (2006), ''Social Software: Onlinegestutztes Informations-, Identitats- und Beziehungsmanagement'', *Forschgsjournal Neue Soziale Bewegungen,* 18(2), 37-46.
71. Selart, M. & Johansen, S.T. (2011), ''Understanding the Role of Value- Focused Thinking in Idea Management'', *Creativity and Innovation Management*, 20(3), 196-206.
72. Shani, N. & Divyapriya, P. (2011), ''A Role of Innovative Idea Management in HRM'', *International Journal of Management,* 2(1), 69-78.
73. Summa, A. (2004), ''Software tools to support innovation process- focuss on idea management'', working paper [29], Innovation Management Institute, Helsinki University of Technology, 15 June.
74. Tung, W.F., Yuan, S.T. & Tsai, J.R. (2009), ''A custom collaboration service system for idea management of mobile phone design'', *Human Factors and Ergonomics in Manufacturing,* 19(5), 494-509.
75. Vagn, A.R., Clause, C. & Gish, L. (2013), ''Towards a new perspective of managing ideas in front-end innovation as actor networks'', the paper presented at the 63. International Conference on Engeneering design, 19-22 August, Seoul, Korea, available at: http://orbit.dtu.dk/ws/files/58958235/ICED_13.pdf (accessed: 10 April 2015).
76. Van Dijk, C. & Van Den Ende, J. (2002), ''Suggestion systems: transferring employee creativity into practicable ideas'', *R&D Management,* 32(5), 387-395.
77. Vandenbosch, B., Saatcioglu, A. & Fay, S. (2006), ''Idea management: A systematic view'', *Journal of Management Studies,* 43(2), 259-288.
78. Voigt, K.I. & Brem, A. (2006), ''Integrated Idea Management in Emerging Technology Ventures'', in *IEEE International Conference on Management of Innovation and Technology proceedings of the international conference in Singapore, China*, Singapore: IEEE, 211-215.
79. Webster, J. (2012). ''Analyzing the Past to Prepare for the Future: Writing a literature Review'', *MIS Quarterly*, 26(2), 13-23.
80. Westerski, A. & Iglesias, A. (2012), ''Mining sentiments in idea management systems as a tool for rating ideas'', the paper presented at the International Conference on the Design of Cooperative Systems (COOP2012) of the Large-Scale Idea Management and Deliberation workshop,30 May – 1 June, Marseille, France, available at: http://www.gi2mo.org/files/papers/coop2012/opinions_coop2012_paper.pdf (accessed: 10 April 2015).
81. Westerski, A. & Iglesias, C.A. (2011), ''Exploiting structured linked data in enterprise knowledge management systems: An idea management case study'', in *Enterprise Distributed Object Computing Conference Workshops proceedings of the 15th IEEE International in Finland, Helsinki, 2011,* Helsinki: IEEE , 395-403.
82. Westerski, A. (2013a), ''Semantic Technologies in Idea Management Systems: A Model for Interoperability, Linking and Filtering'', dissertation, Universidad Politécnica de Madrid, Madrid.
83. Westerski, A., Dalamagas, T. & Iglesias, C.A. (2013), ''Classifying and comparing community innovation in Idea Management Systems'', *Decision Support Systems*, 54(1), 1316-1326.
84. Westerski, A., Iglesias, C.A. & Nagle, T. (2011),'' The road from community ideas to organisational innovation: a life cycle survey of idea management systems'', *International Journal of Web Bases Communities,* 7(4), 493-506.
85. Westerski, A., Iglesias, C.A. & Rico, F.T. (2010), ''A model for integration and interlinking of idea management systems'', *Communications in Computer and Information Science*, 108(1), 183-194.
86. Wood, A. (2003), ''Managing Employees' Ideas From Where do Ideas Come?'', *Journal for Quality & Participation*, 26(2), 22-26.
87. Xie, L. & Zhang, P. (2010), ''Idea Management System for Team Creation'', *Journal of Software*, 5 (11), 1187-1194.
88. Yoo, Y., Boland, J.,Lytinen, K. & Majchzak, A. (2012), ''Organizing for Innovation in the Digitalized World'', *Organization Science*, 23 (5), 1398-1408.
89. Yu, F.Z., Chen, J. & Shen, H.H. (2006), ''Idea Management Model for NPD Fuzzy Front End: Empirical Analysis Based on All-key-elements Innovation in TIM'', *Chinese Journal of Management*, 3(5), 573-579.
90. Zejnilovic, L., Oliveira, P. & Veloso, F. (2012), ''Employees as User Innovators: An Empirical Investigation of an Idea Management System'', *SSRN Electronic Journal*, 1(1), 1-38.
91. Zhang, Q. & Doll, W. (2001), ''The Fuzzy Front End and Success of New Product Development: A Casual Model'', *European Journal of Innovation Management*, 4(2), 95-112.