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Sustainable Enterprise and Sustainable Organisation: Mapping the Research Field with Keywords Analysis

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Abstract

Purpose: The aim of the paper is to identify the key research topics and to contribute to mapping the research on the concepts of a sustainable enterprise and a sustainable organisation.

Design/methodology/approach: Keywords analysis, considered as an element of research profiling methodology, is used to achieve the aim of the study. The research sample comprises bibliometric data retrieved from the Scopus database.

Findings: The publications included in both research samples (i.e. these studying of sustainable enterprises and those related to sustainable organisations) focus their primary attention on the issues related to sustainability and CSR. Nevertheless, some interesting differences have been observed. Sustainable enterprise studies are found to be more oriented to strategic management perspective as well as natural environment and ecology. On the other hand sustainable organisation research shows more tendency to deal with the issues of organisational learning and innovation as well as relationships with external stakeholders.

Research and practical limitations/implications: The study is an element of the wider research project aimed at mapping the research on the concepts of a sustainable enterprise and a sustainable organisation. As such it triangulates with other papers

identifying key research topics within the field through different methods e.g. systematic literature review, research profiling and citation analysis.

Originality/value: The originality of the study results from the novelty of research methodology (i.e. keywords analysis) applied to map the research on the concepts of a sustainable enterprise and a sustainable organisation.

Paper type: bibliometric descriptive study.

Keywords: sustainable enterprise, sustainable organisation, research profiling, keywords analysis.

1. Introduction

The concepts of sustainability, sustainable development, a sustainable enterprise and a sustainable organisation are relatively new. Thus, there are many perspectives and definitions as well as numerous interpretations for the aforementioned terms. In general, sustainable development of an enterprise/organisation means that the ideas of sustainability are included in all the aspects of company operations and decision making processes. A sustainable enterprise/ sustainable organisation seeks to keep the balance among economic, ecological and social dimensions of the economic activity, achieving economic objectives which are ecologically accepted and socially expected. Moreover, a sustainable enterprise/organisation is thoroughly inclusive and open to all stakeholders, such as customers, suppliers, business partners, local societies etc. A sustainable enterprise/organisation focuses on developing knowledge, creativity, analytical skills and learning in order to exceed the requirements of the present and so achieve a sustainable competitive advantage in future (Rainey, 2008, p. 15). Following such an approach, a sustainable enterprise or a sustainable organisation has to focus on the anticipation of future consequences resulting from company decisions and activities. It creates new solutions (innovations) that provide extraordinary value and are sustainable from social, economic and environmental perspectives.

The issues related to a sustainable enterprise/organisation attract the new ranks of researchers and make up a dynamically developing field of inquiry. Simultaneously, the field has not been mapped thoroughly, yet. Therefore, the aim of the paper is to identify the key research topics

and to contribute to mapping the research on the concepts of a sustainable enterprise and a sustainable organisation.

Keywords analysis, considered as an element of research profiling methodology (cf. Porter, Kongthon and Lu, 2002; Martinez, Jaime and Camacho, 2012) was used to achieve the aim of the study. The research sample comprised bibliometric data retrieved from the Scopus database. In the research sampling process, we searched for publications comprising phrases 'sustainable enterprise' and 'sustainable organisation' in their titles, abstracts and keywords. We applied the technique of truncation (i.e. searching for 'sustainable organi?ation') in order to include both British and American spelling standards of English. There were set no limitations related to the date or the research area of publications. As of 15 January 2018, we identified in total 496 items divided into two sub-samples related to the studies on a sustainable enterprise (N=269) and a sustainable organisation (N=227).

In order to identify the key study topics within the research field, we identified the top most frequently used keywords in respective sub-samples. Then, we grouped keywords into clusters with the technique of affinity diagrams. We followed the bottom-up approach i.e. we matched together similar keywords and labelled them with appropriate headers. Being aware of subjectivity of such an operation, to increase the level of research objectivity, one of the authors did clustering while the other one questioned the outcomes ('devil's advocate' technique). We benchmarked the idea and procedure of keywords clustering from Lis, Czerniachowicz and Wieczorek-Szymańska (2017).

2. Sustainable enterprise

Top keywords in research on a sustainable enterprise enumerated 10 or more times in the papers included in the research sample are presented in Table 1.

Among the top keywords, those directly relating to the idea of sustainability (i.e. 'sustainable development', 'sustainable enterprise' and 'sustainability') are most often used. They are followed by such keywords as: 'industry', 'competition', 'manufacture', 'innovation', 'planning', 'enterprise resource planning', 'corporate social responsibility', 'interoperability' and 'societies and institutions'. The top keywords may indicate the topics attracting the most attention of researchers in the

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No.	Keywords	[N]
1.	sustainable development	
2.	sustainable enterprise	70
3.	sustainability	52
4.	industry	31
5–6.	competition	17
5–6.	manufacture	17
7–9.	innovation	13
7–9.	planning	13

Table 1. Top keywords in research on a sustainable enterprise

enterprise resource planning

societies and institutions

interoperability

corporate social responsibility

Source: own study based on data retrieved from Scopus database as of 15 January 2018.

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field. In order to validate such a thesis, we extended the number and range of analysed keywords and grouped them into clusters.

While clustering the keywords included in the papers related to the concept of a sustainable enterprise, all the keywords mentioned at least 4 times were taken into account. Among them, only the category 'developing countries' was excluded. In total we analysed 643 keywords grouping them into 10 categories (cf. Table 2). In the majority of cases, keywords were assigned only to one category. Nevertheless, there were a few keywords (e.g. sustainable entrepreneurship, information, human, humans) shared by two clusters.

The findings from the analysis presented in Table 2 confirm that in the field of a sustainable enterprise we can distinguish ten areas labelled as keyword clusters. The most abundant is the keyword cluster called 'Sustainability and CSR' (264 keywords). This cluster refers to three main keywords pointed out in Table 1, which are: 'sustainable development', 'sustainable enterprise' and 'sustainability'.

The second most numerous keywords cluster is 'General management' with 88 keywords. What should be pointed out, is the difference in the number of keywords between both aforesaid clusters. The second one has around one third of the keywords comparing the first, which

Table 2. Keyword clusters in research on a sustainable enterprise

No.	Keyword clusters	Keywords	[N]
1.	Sustainability and CSR	business ethics (4), corporate social responsibility (10), corporate sustainability (4), sustainable (4), sustainable business (5), sustainable development (88), sustainable enterprise (70), sustainable enterprise excellence (4), sustainable enterprises (6), sustainability (52), sustainable enterprise interoperability (5), sustainable entrepreneurship (4), sustainable manufacturing (4), triple bottom line (4)	264
2.	General management	commerce (4), decision making (9), economic development (4), enterprise architecture (6), enterprise modelling (4), enterprise system (4), industrial enterprise (4), industrial management (4), leadership (9), management (8), organisation (4), project management (5), process (4), small and medium-sized enterprise (4), SMEs (5), supply chain management (4), supply chains (6)	88
3.	Organisational resources	enterprise resource management planning (5), enterprise resource planning (12), human (5), humans (4), information (4), information systems (6), information technology (7), intelligent sustainable enterprise engineering (4), interoperability (10), resource allocation (8), technology (4)	69
4.	Strategy and strategic management	competition (17), economics (7), profitability (6), resilience (5), strategic planning (4), strategy (6)	45
5.	Natural envi- ronment and ecology	climate change (5), ecology (4), environment (5), environmental impact (5), environmental management (8), environmental protection (4), environmental sustainability (5), green engineering (4), recycling (5)	45
6.	Organisational learning, improvement and innovation	entrepreneurship (5), enterprise development (4), information (4), information management (5), innovation (13), knowledge management (5), sustainable entrepreneurship (4)	40
7.	External stakeholders	customer satisfaction (4), human (5), humans (4), social (8), social aspects (5), societies and institutions (10)	36
8.	Planning	big data analytics (4), big data (4), master plan (4), planning (13), risk assessment (4)	29
9.	Research	article (4), comparative study (4), education (4), industrial research (5), methodology (4), research (5)	26
10.	Business func- tional areas	human resource management (4), marketing (4), organisation and management (6), sustainable manufacturing (4),	18

Source: own study based on data retrieved from Scopus database as of 15 January 2018.

shows a high level concentration of analysed publications on their key area i.e. sustainability. It is not surprising that the third keyword cluster (while taking into account the number of keywords) refers to the area of enterprise resources. This cluster has been called 'Organisational resources' and it includes 69 keywords. As already said, it not surprising due to the fact that the idea of a sustainable enterprise is directly related to the issue of resource allocation and resource efficiency while managing any kind of business activity.

The next two areas that are equal according to the number of keywords, are: 'Strategy and strategic management' and 'Natural environment and ecology' (45 keywords). We assume that the fact that we found out 'Strategy and strategic management' area as one of the richest is related to enterprises strategic logic for sustainable business development. As highlighted by Rainey (2008), contemporary corporations are embracing sustainable development in order to protect the future value of the firm. Strategic logic for sustainable business development lies in the self-interest of company leadership, employees and shareholders who desire to ensure that corporate value is sustained and enhanced over time. Moreover, sustainable business development strengthens firm's competitive advantage by providing the ability to achieve more complicated and more enduring intangible advantages (Rainey, 2008, pp. 133–138). Also the area called 'Natural environment and ecology' is directly related to the idea of a sustainable enterprise which implements the concept of the triple bottom line (Elkington, 1997; Parrish, 2007), referring to the balance between the economy, the environment and the society. In its strategy, a sustainable enterprise seeks to keep the balance among economic, ecological and social dimensions of the economic activity, achieving economic objectives which are ecologically accepted and socially expected.

The next clusters (based on the number of their keywords) in the field of a sustainable enterprise are: 'Organisational learning, improvement and innovation' (40 keywords) and 'External stakeholders' (36 keywords). It is understandable that a phrase 'sustainable enterprise' refers to the issues of learning and innovation. From its nature, sustainability requires progress and novelty to occur. That is why in the literature there are numerous papers connecting these two aspects. Also, a very relevant research stream concerns sustainable innovations (Stiloge, Owen, Macnaghten, Gorman, Fisher and Guston, 2013). Similarly, the link between a sustainable enterprise and its external stakeholders is

very clear in the literature. Developing relationships with stakeholders is a significant aspect of the corporate social responsibility concept (O'Riordan and Fairbrass, 2008; Golob and Podnar, 2014). What is more, there are proposals to replace the term of 'corporate social responsibility' with 'company stakeholder responsibility' which seems to better explain the gist of the concept (Freeman and Velamuri, 2006). The aforesaid authors are the proponents of such an idea but they are aware that it requires companies to conduct continuous dialogue with their stakeholders in order to recognize their expectations and including them in company operations to obtain real sustainability.

Three less numerous keyword clusters regarding a sustainable enterprise are: 'Planning' (29 keywords), 'Research' (26 keywords) and 'Business functional areas' (18 keywords). We find it quite puzzling that the area of planning, that involves several activities related to transforming an enterprise and improving its performance, includes just 29 keywords regarding the aspects of enterprise sustainability. Also the category that was called 'Research' seems to have different relations with the issues of sustainability. However, our research proved it is next to last cluster. Definitely, the less abundant category of identified keywords refers to 'Business functional areas'. This is rather understandable due to the fact that enterprise sustainability is the issue regarding a firm as a whole, without separating its particular functional areas.

3. Sustainable organisation

Top 10 keywords in research on a sustainable organisation enumerated 9 or more times in the papers included in the research sample are presented in Table 3.

No.	Keywords	[N]
1.	sustainable development	56
2.	sustainability	52
3.	societies and institutions	21
4.	human resource management	18
5.	human	13
6–7.	knowledge management	11

Table 3. Top keywords in research on a sustainable organisation

Table 3. continued

No.	Keywords	[N]
6–7.	leadership	11
8–10.	humans	9
8–10.	information systems	9
8–10.	organisational framework	9

Source: own study based on data retrieved from Scopus database as of 15 January 2018.

Similarly to the research on a sustainable enterprise, among the publications studying the concept of a sustainable organisation, the top keywords are those related to the idea of sustainability. Nevertheless, some interesting differences may observed. The first of them is a strong focus on the humanistic aspects manifested in such keywords as: 'human resource management', 'human', 'humans' and 'leadership'. The second topic of high visibility refers to the issues of information and knowledge management. In order to increase the objectivity of the study, extending the analysis for less numerous keywords and grouping them in categories showing affinities were applied, too.

While clustering the keywords included in the papers related to the concept of a sustainable organisation, all the keywords mentioned at least 3 times were taken into account. Among them, the following categories were excluded: 'China', 'United States', 'Portugal', 'United Kingdom', 'Australia', 'Brazil', 'developing world', 'female'. In total, we analysed 575 keywords and we grouped them again into 10 categories (cf. Table 4). In the majority of cases, keywords were assigned only to one category. Nevertheless, there were a few keywords (e.g. 'values', 'sustainable leadership', 'human', 'humans', 'review', 'conceptual framework') shared by two clusters.

Table 4. Keyword clusters in research on a sustainable organisation

No.	Keyword clusters	Keywords	[N]
1.	Sustainability and CSR	corporate social responsibility (4), economic and social effects (3), organisational sustainability (7), sustainability (52), sustainable development (56), sustainable organisations (7), sustainable leadership (4), values (3)	143

No.	Keyword clusters	Keywords	[N]
2.	General management	business (3), business process management (3), decision making (3), economic growth (3), integration (3), leadership (11), management (7), management science (4), management systems (3), managers (3), nongovernmental organisation (5), organisation (6), organisation and management (7), organisational culture (4), organisational structures (4), participatory approach (4), performance (5), performance assessment (3), project management (6), quality management (5), reliability (3), supply chain management (3), sustainable leadership (4), total quality management (4)	109
3.	Organisational learning, improvement and innovation	benchmarking (3), change (3), design (3), innovation (8), information management (5), knowledge (3), knowledge management (11), learning organisations (3), optimisation (3), organisational change (4), organisational development (8), personnel training (3), quality management (5), research and development management (3), security of data (5), total quality management (4)	74
4.	Organisational resources	enterprise resource management (3), green Is (3), human (13), humans (9), human resources (4), information security (3), information systems (9), information technology (6), organisational culture (4), personnel training (3), resource allocation (3), resource management (3), security of data (5), statistics and numerical data (3)	71
5.	External stakeholders	economic and social effects (3), human (13), humans (9), nongovernmental organisation (5), participatory approach (4), social behaviour (3), societies and institutions (21), stakeholder (4), values (3)	65
6.	Strategy and strategic management	balance scorecard (4), competition (7), competitive advantage (3), conceptual framework (3), economics (6), industry (4), strategic approach (3), strategic planning (5), strategy (4)	39
7.	Research	article (7), conceptual framework (3), education (5), nonbiological model (3), research (5), review (5), theoretical study (4), research and development management (3), statistics and numerical data (3)	38

Table 4. continued

No.	Keyword clusters	Keywords	[N]
8.	Natural envi- ronment and ecology	ecology (3), environmental impact (3), environmental management (7), environmental sustainability (5), green Is (3), green IT (3), green supply chain management (3)	27
9.	Planning	optimisation (3), organisational framework (9), planning (5), review (5), risk assessment (3)	25
10.	Business func- tional areas	human resource management (18), manufacture (3)	21

Source: own study based on data retrieved from Scopus database as of 15 January 2018.

The findings shown in Table 4 illustrate ten keyword clusters identified by the paper authors in the field of a sustainable organisation. In this case the most abundant keyword area is again 'Sustainability and CSR' (143 keywords), referring to main keywords pointed out in Table 2 ('sustainable development' and 'sustainability'). In comparison with research on a sustainable enterprise, here the second abundant cluster, which is called 'General management', includes 109 keywords. Thus, the difference in the number of keywords in these clusters is not so noticeable. The third and fourth most numerous keyword areas are 'Organisational learning, improvement and innovation' (74 keywords) and 'Organisational resources' (71 keywords). The number of the keywords in these two clusters is almost equal. Again, it seems necessary to highlight here that according to the literature, a sustainable organisation integrates the social, economic and environmental conditions and trends into its decision-making process for creating well balanced solutions, e.g. green technologies. This challenging task requires constant learning, innovating as well as smart resource management. Also, while talking about the resources from a sustainability perspective, it must be noted that the significant issue is natural resource depletion (soil depletion, air quality degradation, water resource and quality losses etc.). Unlike previously, in the field of a sustainable organisation, the next abundant keyword cluster regards external stakeholders (65 keywords). It seems very interesting that in case of a sustainable organisation the issue concerning stakeholders occurs much more often in the literature than in case a sustainable enterprise. We assume that our findings prove that an 'organisation' is understood more broadly than an 'enterprise'

and this implies such a difference. Among different organisations we can distinguish profit and non-profit entities, social enterprises etc. It is probable that the organisations that are primarily focused on non-profit issues are more conscious about the importance of organisation stakeholders and their role in sustainable development. There is no doubt that the stakeholders (like contractors, partners, customers, society etc.) impose the direct social responsibilities of the organisation to be fair and to provide appropriate compensation and reward to its contributors (Rainey, 2008, p. 228).

The subsequent categories of clusters presented in Table 4 are 'Strategy and strategic management' (39 keywords) and 'Research' (38 keywords). Comparing to the research related to a sustainable enterprise, the category 'Strategy and strategic management' in Table 4 is on sixth position (fourth position in Table 2). We assume that such difference might result from the fact that the works concerning a sustainable organisation include both the analysis of profit and non-profit entities and these latest are not so strategically oriented as businesses focused on profit. As said before, companies undertake several activities in the area of sustainability due to the necessity for enhancing their competitiveness and corporate value. Non-profit organisations have different priorities and this is probably the explanation for less number of keywords related to strategic management in the field of a sustainable organisation. What is interesting, the cluster labelled as 'Research' counts 38 keywords in the case of a sustainable organisation. This number ranks it much higher than in the study concerning a sustainable enterprise (Table 2). Another significant difference is the fact that the category called 'Natural environment and ecology' is much less numerous in the case of a sustainable organisation (27 keywords) than in the case of a sustainable enterprise. This is really surprising as sustainability is naturally connected with the issues of an environment and ecology. However, enterprises that usually produce several goods, use more natural resources and in consequence may be more conscious about the issues regarding pollution prevention, waste minimization, increasing resource productivity etc. Sustainable corporations are able to generate profits while doing no or little damage to the environment and can sustain themselves along the environment they operate in (Rudnicka, 2012). Moreover, very often they are obliged by law to introduce several solutions focused on eco-efficiency and promoting ecological issues (DeSimone and Popoff, 1997; Rainey, 2008).

Similarly as in Table 2, concerning a sustainable enterprise, also in the case of a sustainable organisation, two least numerous categories are 'Planning' (25 keywords) and 'Business functional areas' (21 keywords).

4. Conclusions

Summing up conducted keyword analysis, we are able to point out some similarities as well as differences in the area regarding the concepts of a sustainable enterprise and a sustainable organisation. First of all, in both cases the most abundant clusters are 'Sustainability and CSR' and 'General management'. These two are obviously related to the nature of any business entity sustainability. However, research findings prove significant difference regarding two clusters that are 'Strategy and strategic management' and 'Organisational learning, improvement and innovation'. The first of the aforementioned is much more numerous in regard to a sustainable enterprise. It seems to be associated with the fact that companies focused on sustainable development naturally include such issues in their strategies as they are aware of the fact that in future they will compete rather on their social and environmental performance, not on cost and quality. As far as the keyword cluster labelled as 'Organisational learning, improvement and innovation' is concerned, the research findings prove it is much richer in the field of a sustainable organisation. This result is quite confusing as learning and developing the ability to innovate nowadays are said to be fundamental for firm's competitiveness (Dess and Lumpkin, 2005; Kaplan and Warren, 2010). We assume that the identified difference in the number of keywords in relation to a sustainable enterprise and a sustainable organisation results from the fact that a phrase 'sustainable organisation' refers to several types of entities. Some of them, such as social enterprises or social cooperatives, are forced to be innovative in order to survive. Such organisations need to empower themselves to make several decisions quickly and undertake different actions on the market to live through. Thus, they must be able to learn and innovate. The nature of social enterprise involves entrepreneurship aspect. It refers to conducting an activity of economic character and thus creating value for the market. This attribute requires being innovative and effective, because without innovativeness and effectiveness we cannot speak of entrepreneurship.

Another difference regarding the abundance of the identified clusters refers to the following categories: 'Natural environment and ecology' and 'External stakeholders'. The first of aforesaid is much richer in the case of a sustainable enterprise, while the second in the field of a sustainable organisation. This finding is very interesting. Companies seem to be more conscious and carrying about the external environment they operate in and more focused on avoiding ecologically destructive practices. Moreover, the direct environmental effects of most enterprises are easy to identify. This makes firms paying significant attention to environmental issues. On the other hand, sustainable organisations (including non-profit ones) might concentrate more than profit focused businesses on wider range of the stakeholders than businesses do. Therefore, these tendencies are reflected in scientific papers that have been studied. Finally, in both analysed fields the least numerous keyword clusters are similar: 'Planning' and 'Business functional areas'.

The originality of the study results from the novelty of research methodology (i.e. keywords analysis) applied to map the research on the concepts of a sustainable enterprise and a sustainable organisation. Nevertheless, while considering the findings, the limitations of the study process should be made explicit. First of all, restricting the sampling process to the publications indexed in the Scopus database results in a natural bias towards papers written in English and makes research in other languages underrepresented. Secondly, due to technical limitations of the Scopus database search engine the least numerous keywords were excluded from the analysis. Thirdly, the procedure of keywords clustering is flawed with a high level of subjectivity. Certainly, we tried to increase its objectivity by applying a devil's advocate technique (one of the authors questioned the categorizations made by the other one) but we are aware of related limitations.

The conducted study is an element of the wider research project aimed at mapping the research on the concepts of a sustainable enterprise and a sustainable organisation. As such it triangulates with other papers identifying key research topics within the field through different methods e.g. systematic literature review, research profiling and citation analysis, which are recommended avenues for further research.

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