



Article

Strategic corporate sustainability management model

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Received: / Accepted: / Published:

Abstract: The role of businesses in the journey towards society's sustainability is very important, as businesses are an integral part of the society, it has the resources, it is fast and can make rapid changes, it knows how to unite the people inside the company for the goals it sets and works with efficiency in mind. Nevertheless, businesses might not have the professionals and the sustainability scientific knowledge to set the sustainability vision, goals and lead the way. Help and assistance is needed from the management scientists proposing user friendly management models, that are scientifically sound and based on the sustainability principles, but at the same time easily understood by the managers, that are business visionaries and business professionals, but not necessarily sustainability professionals and scientists. Based on the critical analysis of existing business sustainability management models and their advantages and disadvantages, an expanded and detailed business sustainability strategic management model is proposed, in which each step of the model is elaborated to make it as business management friendly as possible. The three sustainability dimensions (environmental, social and economic) are expanded in the model adding the political dimension, and political criteria are proposed to be used in the journey towards a sustainable society.

Keywords: sustainability management, corporate sustainability, sustainability management model, sustainable development, strategic sustainability management.

1. Introduction

Nowadays both scientists and politicians widely agree on the importance of sustainable development. During the United Nations Conference on Environment and Development, held in Rio de Janeiro in 1992, sustainable development at the highest political level was instituted as a principal long-term society's development strategy. In the European Union it was instituted in EU sustainable development strategy, adopted in Goteborg, Sweden, in 2001. Whereas the importance of sustainable development in Lithuania was noted in National sustainable development strategy of 2003.

The importance of businesses in seeking society's sustainable development is also often noted both in political documents and scientific papers. In the Brundtland Report "Our Common Future" [1] it is stated, that most of the necessary human needs can be met only by the products and services, produced by industry. In the Agenda 21 adopted by 1992 Rio de Janeiro conference it is stated, that both business and industry play a major role in the countries' social and economical development. Scientists agree to these statements. According to [2], industrialization is an important element in seeking sustainable development, because through productive workplaces and the created added value, they significantly contribute to poverty reduction. According to [3], applying sustainable development principles in industrial enterprises becomes a more important competitive factor; sustainable development opens new business possibilities, while a versatile and profitable business is an essential driving force of sustainable development.

The main theoretical problem of business sustainability management studies one may consider the dissociation of the studies of sustainable development implementation in businesses from a general structure of global and national sustainability studies. Frequently business sustainability management and evaluation models are formulated separately from other sustainable development studies and concentrate exclusively on the business level. After the analysis of various business sustainability management models, their theoretical and empirical studies, the scientific problem of this paper is formulated considering the shortcomings of sustainability management models. An intention is to formulate a model, that would be coherent with general sustainable development studies of the global and national levels, and that would not be based on complex methods, requiring expert knowledge, which would limit the possibilities of practical model application in business sector.

The object of the paper – management of business transformation to sustainable business.

The objective of the paper – having examined the concepts of sustainable business and advantages and disadvantages of business sustainability management models, to formulate a management model of business transformation to sustainable business and to verify it in present business conditions in Lithuania.

To reach this objective, the following tasks are being solved:

- To analyze the concepts of sustainable development and sustainability and to define the criteria of sustainable society;
- To perform the critical analysis of business sustainability management models, proposed in scientific literature, distinguishing their advantages and disadvantages;
- To formulate a management model of business transformation to sustainable business, applying the determined advantages and avoiding model disadvantages;
- To perform empirical model verification in present business conditions in Lithuania determining model improvement areas;
- To formulate a refined management model of business transformation to sustainable business according to the shortcomings identified in empirical verification.

Methods of study. Analyzing conceptions of sustainable development and business sustainability models, theoretic studies used scientific literature analysis, systematization, synthesis, abstraction, comparison and generalization. Case study analysis was used in the verification study of business transformation to sustainable business management model.

2. Interpretations of the concepts of sustainable development, sustainable society and sustainable business

This section of the paper is intended for the theoretical concepts of sustainability, sustainable society and sustainable business.

2.1. Interpretations of the concepts of sustainability and sustainable development

Though there are many definitions of sustainable development, one of the most widely cited definitions is this: “sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs” [1]. A similar definition, which also puts emphasis on the long-term time scale, and the continuity aspect, is the definition of [4]: sustainable development is a development that lasts. Sustainable development is defined in a similar way by [5] and [6].

In the paper author’s opinion, these definitions define sustainable development from the perspective of its main goal – existence. Development cannot be called sustainable, if it stops. Thus, sustainable development is development, that continues, and this means, that the present human generation has to exist as well as the next generation, and all the generation to come – indefinitely.

Considering this goal of sustainable development, other definitions can be interpreted as focusing more on the means of attaining existence. Though, the [1] definition embraces the goal of the existence of this and generations to come, it also explains the means how to attain it – by meeting the needs. While the needs of the present can be met and the possibilities of the future generations, meeting their needs, are not compromised, humanity can exist indefinitely. Other definitions describe the means in different terms. [6] notes, that a society, that raises an objective of sustainable development, should develop socially and economically in such a way that minimizes its negative impacts, transferred to future generations. Sustainable development is described by the relationships of nature and people in the definitions of [7], [8], [9], [10].

In the paper author’s opinion, sustainable development should be firstly defined by its objective – existence of humanity, and can be additionally defined in many different ways by focusing on the means of attaining this objective – by defining the relationships of humans and nature, by discussing social, economical, political, environmental development, ethical, cultural topics, and in many other ways. As the [1] definition encompasses both the objective, and the explanation how it can be attained, this is probably why it is so popular.

This objective of continuation is also clear in the concept of sustainable yield, which, as a concept, is older, than sustainable development, it was first used in forestry and fishery. [11], [12] described sustainable yield as a quantity of individuals or biomass, which can be taken from the ecosystems without the decrease of the population. This means, that a sustainable yield is a quantity, which can be harvested indefinitely, as the population, and its yield do not decrease. This focus of perpetuity should be the main focus of the definitions of sustainable development.

A quite problematic topic in sustainable development is the number of distinguished systems (dimensions, components, aspects) and their equivalence. There is no agreement on the number of systems distinguished: if three systems are distinguished, mostly they are nature, society and economical systems. This distinction is used by [13], [14], [15], [16], [17], [18], [19], [20], [2], [21], [22], [23], [24], [25], [26], [27], [28], [29]. Sometimes the social system is called the social-cultural system [30], [31]. When four systems are distinguished, mostly they are nature, society, political and economical systems; this distinction is used by [13], [15], [3], [32], [33], [26], [28]. Instead of the political (sometimes institutional) system, a cultural system is used [34], [35], [36], [37], besides, [38] uses education instead (nature, society, economical and education dimensions).

There is a belief [39], that the concept of sustainable development will develop in the future and will embrace more systems thus becoming an increasingly complex phenomenon. An increasing number of the systems is seen as a natural development of the concept. This paper also seeks to contribute to this development, thus in this paper, not three but four systems (nature, society, political and economical systems) are distinguished and employed.

Another problematic area is not only the number of systems distinguished, but their equivalence. There is no agreement on this question either. Some authors and sources state [3], [28], [16], [17] that the three dimensions of sustainability (natural, social and economical) should be considered equal, they should be evaluated equally. When four dimensions are distinguished (natural, social, political or cultural, and economical) they should be held equal too [3], should be of equal value [37]. It is clear, that three systems (dimensions) and four systems cannot be equal at the same time.

According to another view [23], the economical system and society cannot exist without the nature, whereas the economical system and the society are not only unnecessary, but they have a negative impact on the natural systems also. In the paper author's opinion, the distinguished systems should not be considered equal, but they are all important to study in order to pursue sustainability. Therefore, in this paper, all four systems (nature, society, political and economical systems) are considered and analyzed.

2.2. *A sustainable society from a systems approach*

From a systems approach, sustainable development could be considered not as a static systems structure, but as a changing system in time. Sustainable development is defined as a process by [10]: sustainable development is a dynamic process, by which an organization moves towards sustainability. According to [40] sustainable development can be pictured as a process, consisting of two stages. In the first stage, human society is developing towards sustainability; in the second stage society further develops within the sustainability boundaries.

Consequently, from the systems approach, sustainability describes society's objective – to become a sustainable society, and sustainable development is a process, by which the objective is reached. This necessitates explaining and defining the concept of sustainable society.

The definitions of sustainable society also can be broadly grouped into a group, defining sustainable society according to its objective – to continue, and a group, explaining the way it can be achieved. A definition of sustainable society – a society, which does not destroy itself, by [41] - focuses on the society existence. The definitions by [42], [43], [44] focus on how to ensure society's sustainability – living in balance with nature, not wasting resources, not creating too much pollution, maintaining a

constant population level, using energy more efficiently, basing economy on renewable resources, looking after the ecosystem, not decreasing the populations of animals and plants, soil fertility.

Sustainable development is derived not only from the concepts of sustainable yield and environmental capacity, but also from the criticism of technologies [45]. According to [45], a society can become unsustainable not only because of the natural resource overexploitation, but because of creating technologies, destroying nature and the society itself.

[46] distinguishes four sustainable society conditions; three of them are connected to the society and nature relationships, one of them explain the internal state of society. These four conditions are:

1. A sustainable society does not increase the concentration of materials from the earth crust in nature systemically;
2. A sustainable society does not increase the concentration society made materials in nature systematically;
3. A sustainable society does not degrade nature by physical means systematically;
4. In a sustainable society human needs are met worldwide.

The first three conditions describe the mechanisms, by which human activities can negatively impact, worsen or destroy the natural cycles, which life depends on [47]. The fourth condition points that a society cannot expect to meet the first three conditions, if human communities cannot meet their basic needs. This is because the urgent survival needs are given preference against the long-term sustainability demands and will impair the attainment of first three conditions [47]. If all four conditions were met, there would be a sustainable society [46].

In dissertation author's opinion, these four sustainable society conditions also can be supplemented with a condition, directly approaching the threats of technologies. Nuclear weapons are the only technology, which can destroy human species directly and are the biggest immediate threat to society [48]. Therefore, the four conditions should be supplemented by a fifth condition, arising from the threats of technologies: in a sustainable society the technologies, capable of destroying the society itself, are not available.

A topic of political system sustainability is not often raised, it is more often considered in conjunction with other systems. Some authors discuss the type of political system so that it would be sustainable, or so that the society would move towards sustainability. According to [39] there is a requirement to develop towards democracy. Based on theoretical and empirical researches a conclusion is drawn, that a democratic political system, one, that is strong enough to ensure peace, becomes a basis for further development of socio-cultural systems within the limits of natural system boundaries and sustaining the increasing in prosperity level [49]. [50] discusses different political systems from the perspective of sustainability and concludes, that a democratic system is a more stable, and sustainable, system. Whereas [51] does not fully agree to the conclusion, that a democratic system is the best one in pursuing sustainability in a society.

Summarizing the opinions of various authors about the sustainable society, similarly, the political and economical systems, the four systems conditions of the sustainable society, offered by The Natural Step [46] and supplementing them with additional conditions, derived from the threats of technologies, a sustainable society is defined according to the following criteria:

1. A sustainable society does not increase the concentration of materials from the earth crust in nature systemically;

2. A sustainable society does not increase the concentration of society made materials in nature systematically;

3. A sustainable society does not degrade nature by physical means systematically;

4. In a sustainable society human needs are met worldwide.

5. In a sustainable society technologies, capable of destroying the society itself are not available.

In case a political subsystem is also distinguished, the following conditions are raised:

1. The political system in a sustainable society has a key objective of becoming a sustainable society,

2. The political system in a sustainable society passes the laws, oriented towards pursuing a sustainable society,

3. The political system in a sustainable society safeguards the control of the enforcement of the passed laws.

In case an economical subsystem is distinguished, the following condition is raised:

1. The economical system in a sustainable society operates according to the laws, passed by the political system.

In the dissertation author's opinion, these conditions properly define the characteristics of a sustainable society and they encompass not only the criteria concerning nature and society systems, but also the conditions of political and economical systems.

2.3. A sustainable business from a systems approach

Applying sustainable development principles in industrial companies' activities is increasingly becoming an important factor of increasing competitiveness [2]. The concept of sustainable development should be integrated into a general company policy and the main principles, which means, that there is a need for changes in company management system: new policy, new methods and procedures [3].

To reach company sustainability means, that the companies have to measure all their impact on the environment and publish reports consistently, transparently and clearly to all the stakeholders [52]. [2] explain similarly, noting that for a company sustainable development means implementing business strategies and actions, which meets the needs of the company and its stakeholders today while at the same time protects, strengthens and expands human and natural resources, needed in the future. Business sustainability is often explained by measuring its impact on the environment, this is proposed by [52], [14].

Interrelationships among nature, society and business are explained in this way: a community, which cannot provide the basic food and conveniences, will not be a community for long. Therefore, the changes, happening both in nature and society systems are important for companies, this is not only a questions of companies' social responsibility – society's sustainable development is essential for survival of the company [35].

Meanwhile, [111] are of different opinion, and state, that rationally acting companies can enact decisions, that are harmful for the hole society as well as harmful to the company. This is because business has its own interests, and raises them above the interests of the society.

From the systems perspective, business is often put into the lowest distinguished level in most of the figures, depicting various systems. Business is placed in the micro or local level in the illustrations of [3], [53], [54], [49].

In the paper author's opinion, business should not necessarily be pictured in the micro or local level, as there are not only local companies, but global companies, which operate globally, not in one continent, country or city. [55] counted, that both in 1996, and in 2000, among the 100 biggest economies, there were 51 corporation and 49 countries (comparing national GDP with corporate income). This shows, that companies do not operate at micro level; they can be wealthier and employ more people, than some countries. Already in 1981, [42] noticed, that some corporations have bigger resources than countries, therefore they should assume responsibility, proportional to their size and wealth.

Because business is a part of society, in this dissertation, business sustainability is described as business contributing to the objective of society to become sustainable. Sustainable business is defined according to the criteria of sustainable society; therefore sustainable business has to meet these criteria:

1. A sustainable business does not contribute to systematic increases in concentrations of materials from the Earth's crust;
2. A sustainable business does not contribute to systematic increases in concentrations of materials produced by society;
3. A sustainable business does not contribute to systematic physical degradation of nature through physical means;
4. A sustainable business does not contribute to conditions that obstruct the possibilities of meeting human needs worldwide;
5. A sustainable business does not contribute to the existence of technologies, capable of destroy the society itself.

3. Formation of the management model of business transformation to sustainable business

This section of the paper is intended for formation of the management model of business transformation to sustainable business.

3.1. Comparison analysis of business sustainability management models

The critical comparison analysis was executed briefly describing the main aspects of each model, the part of the management process it includes. Additionally, the scientific literature was reviewed studying what analysis have the models already received, what advantages and disadvantages are noted by the authors themselves and the critics. After the analysis, the advantages and disadvantages are summarized so that they became the basis for the formation of the management model of business transformation to sustainable business.

The business sustainability management model critical analysis included the following models:

- Sustainability Evaluation Model of a Manufacturing System [56];
- The Durable Corporation [34], [57], [58], [59], [60], [61], [62], [36], [63], [64], [65], [66];
- The Natural Step [67], [68], [47], [46], [69], [70], [71], [72], [73];
- The Sustainable Organization Model [74], [75], [76];
- UN Global Compact management model [77];

- Sustainability Balanced Scorecard [78], [79], [80], [81], [82], [83], [84];
- Business Sustainability Evaluation Model [85], [86];
- Sustainable Value [87], [88], [89], [90], the criticism [91], further discussion [92], [93];
- Composite Sustainable Development Index [94], [95];
- Sustainability Management System for Decision Making of SMEs [96], [97];
- Sustainability Evaluation and Management Model [98], [99], [100];
- Sustainability Assessment by Fuzzy Evaluation, SAFE [101], [102], [103], [104], [105];
- Sustainability management models, based on the Deming (PDCA) cycle [106], [107], [108].

The following advantages are summarized from the critical analysis of business sustainability management models:

- The criteria of business sustainability evaluation are described in the models. The criteria are detailed stating sustainable indicator values, and during business sustainability evaluation, present business indicator values are compared to the sustainable indicator values.
- Business is distinguished as a subsystem of a bigger system – society.
- The models are abstract enough to be applicable to businesses of various fields and sizes.
- The models are based on a clear management process that is common in the management literature; this increases applicability of the model.
- The management model helps to plan or suggests the steps, leading to sustainability.
- The models do not prescribe particular decisions or actions in order not to arise the resistance of business representatives. Based on the sustainability criteria, the models offer a general structure, whereas the specific implementation means are left for the business representatives to discover.
- The models are presented in different levels of detail: in one of the management model schemes a general model structure is presented, helping to understand the main principles of the model operation. Additionally, more detailed model schemes are presented, which reveal the details of the management steps and their important aspects.

The following disadvantages are summarized from the critical analysis of business sustainability management models:

- The models do not include all four of the systems (environment, society, political and economical systems).
- The models are fragmented; they do not encompass a full management process and analyze only one or several management steps or aspects.
- There is a lack of consistency while defining the relations between business and the systems in its environment – some systems are described as being influenced by business, other systems are described as influencing business. There should be more consistency in describing two-way relations between businesses and the systems in the environment.
- The models do not include technologies that pose threat to the existence of all the society.
- The models created are based on a sustainability interpretation, which is unique and cardinally different from the sustainability interpretations of other scientists making the model unique. Such model uniqueness limits the compatibility of the model with other models, methods and tools that are already being implemented in businesses.
- The models are based on business comparison to other businesses. Such sustainability evaluation cannot state whether the business is sustainable or not, it can only be used to rate

several businesses from the one, having the best indicator values, to the one, having the worst indicator values.

- In business sustainability evaluation models, sustainable indicator values are assigned not according to the knowledge of each scientific field, but the sustainable indicator values are assigned through evaluation of the maximum values in the several businesses comparison group. This does not allow calling these values sustainable indicator values; they are maximum indicator values among several businesses, but not necessarily sustainable.
- Models are based on reducing all indicator values to a monetary value. Monetary evaluation methods are not well established and universally accepted. There is a discussion about the question whether some sustainability components (climate temperature, clean water, vanishing species) can be objectively evaluated in terms of money. Consequently, monetary sustainability evaluation should not be practiced universally; indicators should be measured in their units (liters, hectares, tones, degrees etc.).
- The models are based on business sustainability evaluation using one cumulative value. The advantages of such evaluation are named as simplicity and reduction in information quantity. However, such evaluation is criticized as over simplifying complex systems and providing limited information for the decision-making. During decision-making, such business sustainability evaluation provides little benefit, decision-making benefits from more detailed information, which can be provided by separate indicators.
- The models use standardized indicator sets for business sustainability evaluation, which is more useful not for sustainability management of one separate business, but for comparison of several businesses according to standardized indicators. In sustainability management, indicators should be chosen for each business separately.
- The models use complicated methods, understood only by experts (e.g. artificial intelligence, artificial neural networks, fuzzy logic, composite, intermediate index computation, normalization of indicators, indicator value assigning through mathematical and expert methods). Using expert methods limits the possibilities of the models to be implemented widely in many kinds of business, as they might not have the needed experts and specialists, and such specialists might not be available in the marketplace to hire or consult. Because of the lack of specialists, business might not be able to implement management models that are based on expert methods.
- The models evaluate business sustainability not setting sustainable values of indicators, but according to efficiency. Such evaluation evaluates the efficiency of business seeking sustainability, it cannot answer whether the business is sustainable or not.
- The models are based on the principle of continual improvement, and implemented through Deming (PDCA) cycle, which works in the field of process management, but cannot be universally used in business management because of the changes in the business environment. In the field of process (quality) management, Deming (PDCA) cycle works effectively because of the stable environment (e.g. laboratory), therefore one can expect a continuous process (quality) improvement. Whereas in business management, one cannot expect a stable environment, therefore continuous improvement can be implemented only in the fields that are controlled by the company. In other fields, that depend on the environment (e.g. income, profit) it is unrealistic to expect continuous indicator improvement infinitely into the future. Such a

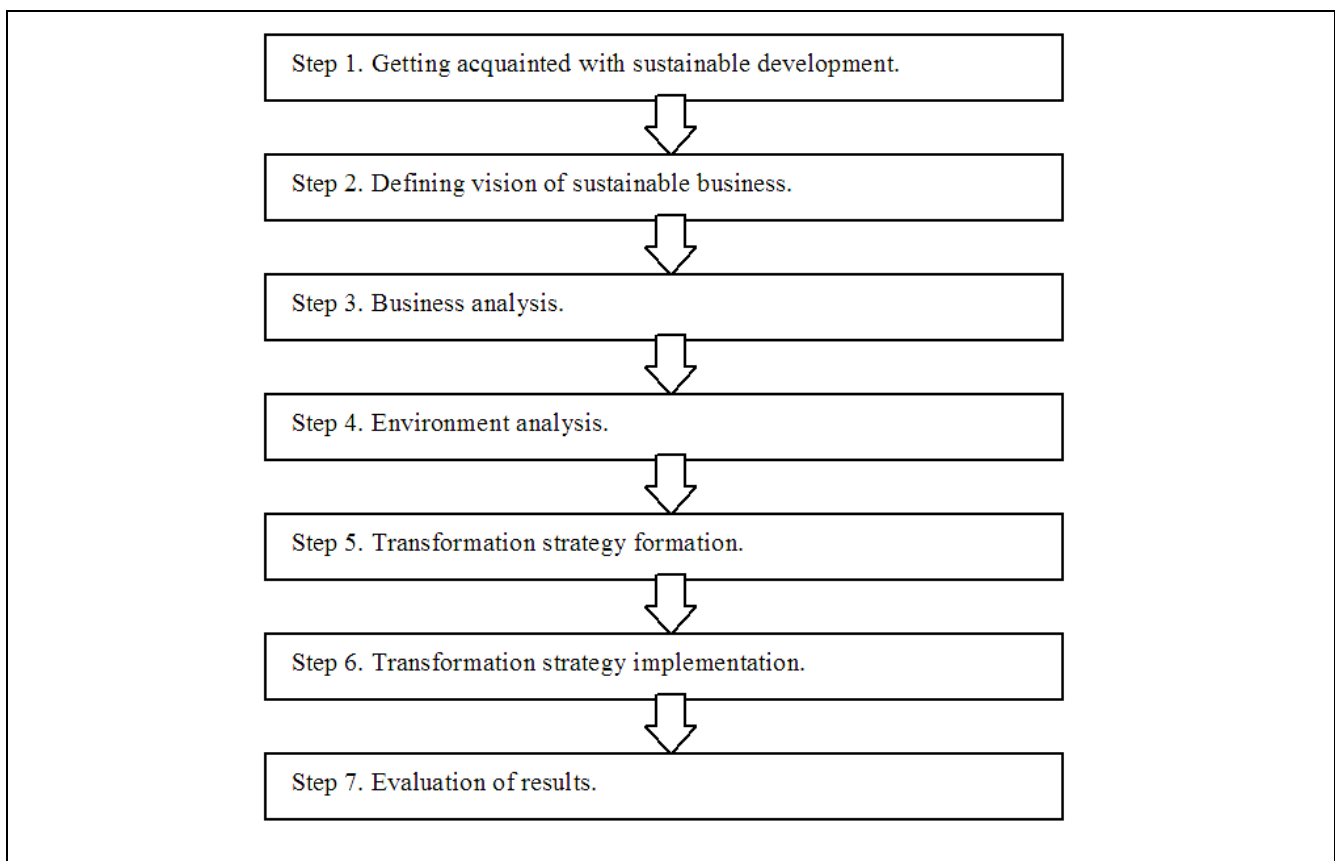
goal can be set for one business, but if a condition of one or several competitors is met, one cannot expect, that all the competitors will be able to improve (profitability) indicators indefinitely into the future. Such expectation is unrealistic.

While composing a model of managing business transformation to sustainable business, a goal is set to use the determined advantages and avoid disadvantages of analyzed sustainability management models.

3.2. A general management model of business transformation to sustainable business

A general management model of business transformation to sustainable business is formed. The model consists of 7 steps (figure 1): step 1 – getting acquainted with sustainable development; step 2 – defining vision of sustainable business; step 3 – present business state analysis; step 4 – environment analysis; step 5 – transformation strategy formation; step 6 – transformation strategy implementation; step 7 – evaluation of results.

Figure 1. A general management model of business transformation to sustainable business



3.3. A detailed management model of business transformation to sustainable business

A detailed seven-step model is depicted in figure 2. It elaborates the important aspects and activities that businesses have to fulfill in each step of the model.

Step 1 – getting acquainted with sustainable development.

This step is the beginning of business transformation to sustainable business. There has to emerge a person in a company, who gets acquainted with the concept of sustainable development, and seeing a meaning and benefit in this concept, seeks to implement it in the practices of business. Beginning with one person, most often a CEO, the business decision makers get introduced to sustainable development. Depending on the size and the management style of the business, the decision maker is one person or a team of managers, who make the decisions, impacting the long-term business activities and investments.

Step 1a. Decision makers get acquainted with the unsustainable tendencies in nature and society, caused by human activities, which cause threats to human extinction. Decision makers get acquainted with the laws, governing existence of various forms of life in the planet Earth.

Step 1b. Decision makers in a company get acquainted with the common goal of sustainable society. As the focus of the concept of sustainable development is global, both the nature's systems and the society's systems are analyzed on a global scale. Decision makers get acquainted to the conditions the society has to meet in order to become a sustainable society. The sustainable society is described according to the sustainable society conditions.

1. A sustainable society does not increase the concentration of materials from the earth crust in the nature systematically.
2. A sustainable society does not increase the concentration of human made materials in the nature systematically.
3. A sustainable society does not increase nature degradation with physical means.
4. In a sustainable society human needs are met worldwide.
5. In a sustainable society the technologies, that are able to destroy the society itself, are not available.

In case a political subsystem is also distinguished, the following conditions are raised:

1. The political system in a sustainable society has a key objective of becoming a sustainable society,
2. The political system in a sustainable society passes the laws, oriented towards pursuing a sustainable society,
3. The political system in a sustainable society safeguards the control of the enforcement of the passed laws.

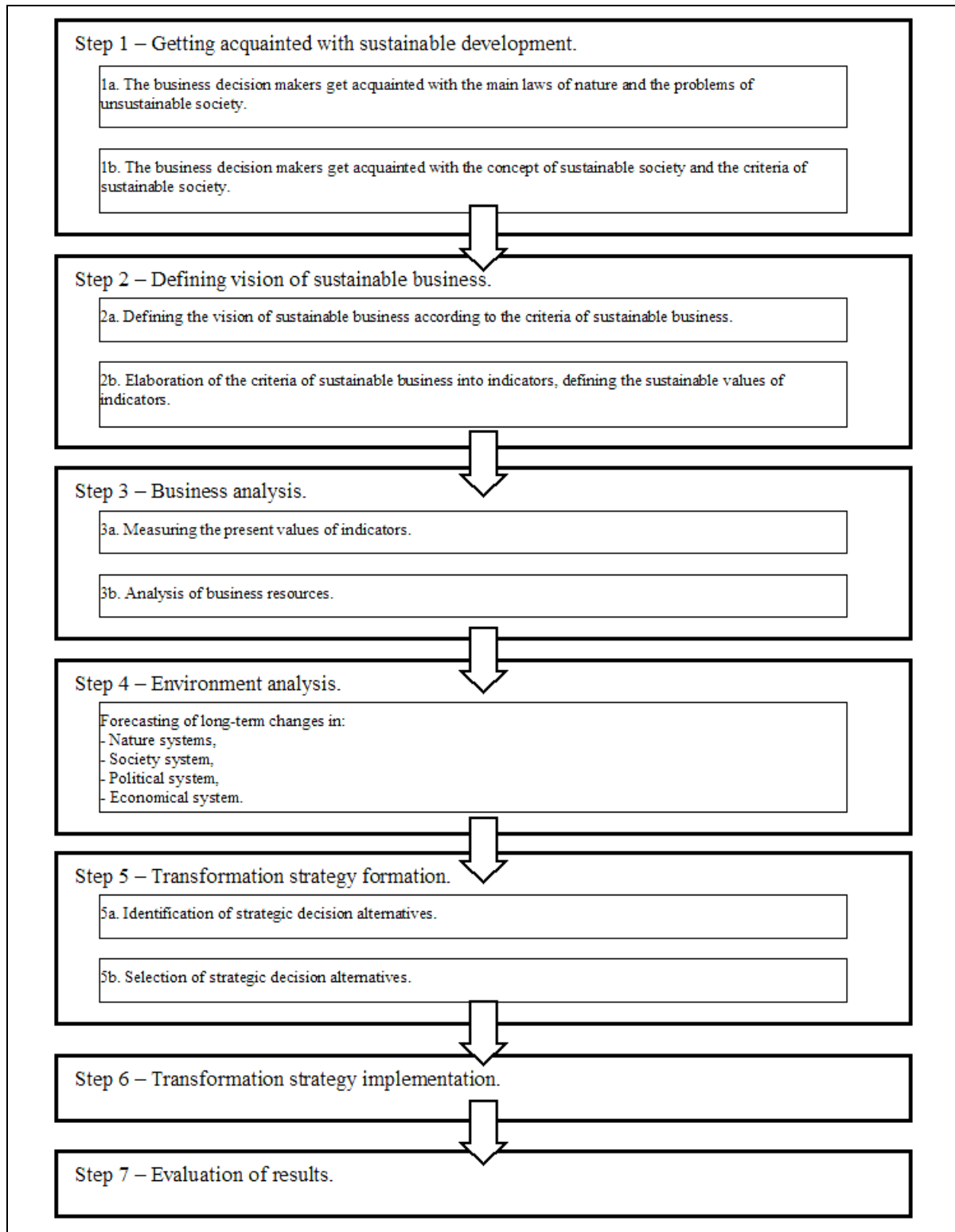
In case an economical subsystem is distinguished, the following condition is raised:

1. The economical system in a sustainable society operates according to the laws, passed by the political system.

Step 2 – defining vision of sustainable business.

Based on a common goal of a sustainable society, business is distinguished as a part of the society – a subsystem. A goal is set to contribute to the pursuit of sustainable society. A sustainable business vision is defined, based on the common goal of contribution to the pursuit of sustainable society. Sustainable business vision is formulated according to the criteria of sustainable society, so that a business, seeking to become sustainable, would contribute to the broader goal of sustainable society.

Figure 2. A detailed management model of business transformation to sustainable business



Step 2a. A sustainable business vision is defined based on a goal to meet the criteria of a sustainable society. Based on the criteria of sustainable society, sustainable business criteria are defined:

1. Sustainable business does not contribute to systemic increase of concentration of materials from the earth crust in nature.

2. Sustainable business does not contribute to systemic increase of concentration of materials, created by society, in nature.

3. Sustainable business does not contribute to systemic nature degradation by physical means.

4. Sustainable business does not contribute to the conditions, reducing the possibilities to meet human needs worldwide.

5. Sustainable business does not contribute to the existence of technologies, capable of destroying the society itself.

The sustainable business vision is formulated by the decision makers in the company. In case of big business, the formal and informal meetings with the personnel, acquainted with sustainable development, are organized. The vision is developed, so that it encompasses various fields and departments of business, so that the managers of each field can be guided by it, and decisions in each field would be directed to the same direction of attaining the sustainable business vision.

Step 2b. Each sustainable business criteria is elaborated into indicators, suitable to the specific business, the indicators are followed as business goals. These goals are pursued measuring their values in the management process, and in this way tracking the progress in the process of pursuing sustainable business vision.

Step 3 – business analysis.

Step 3a. The present business status is evaluated based on the measurements of the indicator values. A gap analysis is executed according to the measurements of present indicator values and the future sustainable indicator values. The gap analysis reveals where the business is now and what is the gap between the present state, and the future visionary state. Based on this gap analysis, the strategic decisions are made, so that they lead to reducing the gap.

Step 3b. A business resource analysis is performed focusing on the resources the business owns or can obtain in the pursuit of sustainable business vision.

Step 4 – environment analysis.

Environment analysis is performed according to the structure of systems, distinguished in the environment: a long-term changes forecasting is performed in the systems of nature, society, politics and economics. Environment analysis is periodically renewed so that it is possible to use the data of most recent analysis and forecasting.

Step 5 – transformation strategy formation.

A strategy is considered as a sequence of decisions and actions, which is directed towards attaining the vision; it can be written and it is followed as an action plan to reach the vision.

Step 5a. Identification of strategic decision alternatives. Based on the goals raised, analysis of business and environment, decision makers search for possible ways to reach the goals. Identification of strategic decision alternatives depends on the knowledge, experience, creativity of the decision makers. The goal is to identify as many decision alternatives as possible, later the alternatives are evaluated and the best are chosen. Not only senior management can take part in the process of strategic decision alternative identification, as the goal is to find as many alternatives as possible.

Step 5b. Selection of strategic decision alternatives. While making business decisions, alternatives are evaluated according to three criteria (as suggested in The Natural Step model [46]):

- The speed of moving towards sustainable business vision.
- Short term profitability.
- Long term flexibility.

These three criteria form the basis of selecting strategic alternatives. Using these three criteria business can select the best decision alternatives that help the business pursue sustainable vision, ensure short-term profitability and increase the long-term flexibility.

According to the criteria of the speed of moving towards sustainable business vision, the alternatives are evaluated considering all the sustainable business criteria so that the decisions help reach some sustainability criteria to the maximum extent, and do not block or restrict the ways to reach other business sustainability criteria leading to a dead end.

Profitability is important for business, but this criterion is used to select decision alternatives, that ensure short-term profitability. It is difficult to expect decisions, that ensure long-term profitability, because profitability to a bigger extend depends on short-term changes in taxes, prices of competitors, prices of materials, efficiency, salaries. As competition ensures, that the best practices are employed in all the competing companies, expecting to ensure long-term profitability is not possible, as the competitors always find the counter decisions, and offer the market new similar products and offers. That is why the goal is to ensure short-term profitability.

Meanwhile during the long-term business seeks to ensure business flexibility. Because there is a lack of precise data about the long-term changes in the environment, one can only forecast certain tendencies. The long-term future is uncertain, so the business has to ensure its flexibility, so that in the future, when the situation in the environment changes, business would be able to adapt to these changes and survive.

The strategy is formulated as a long-term plan, dividing it into middle-term and short-term plans. The strategy is periodically renewed according to the new knowledge gained from the analysis of the environment, the new situation of business and the experience gained.

Step 6 – transformation strategy implementation.

In this step the selected decisions are implemented. This process is overseen by the responsible people; the budget is allocated to the decision implementation. In order for the sustainability goals to be pursued, the personnel should be motivated. Therefore, the motivation system should be modified, so that it encourages attainment of business sustainability goals.

The concept of sustainable development can be used as a motivating and focusing factor, because the new business vision is common to everyone – to seek sustainable society. In order for the personnel to seek the vision of sustainable business and to contribute to sustainability strategy in everyday actions, all the personnel should be familiarized with the concept of sustainable development.

The business personnel are involved in the implementation of the strategy not by imposing decisions they have to execute, which can raise resistance and opposition, but by introducing them to the sustainable business vision and strategy, and involving them into the discovery of solutions. In this way the personnel can discover ways to pursue the sustainable business vision in their field of work and expertise, so that decision and actions of personnel from all different fields of business contribute to the common sustainable business vision.

Step 7 – evaluation of results. Evaluation of results is performed according to the long-term, middle-term and short-term goals. The results are evaluated periodically, and the results are used when renewing the strategy.

The step of strategy formation can be formalized to a certain extent offering the criteria for decision making that would help making decision, directed towards the attainment of sustainable business vision. However, the exact strategic decisions cannot be prescribed, because it is a task of a specific

business. Discovering strategic decision alternatives, their selection and implementation can be characterized by creative thinking, one needs to have the knowledge about the business particularities. Therefore it has to be done by the people inside the business, as the business analysis, and the environment analysis, performed by business personnel, creates this unique knowledge, which with the business decisions warrants a unique solution, that is tailored to a specific business. The competitive advantage consists of these unique decisions, and they are difficult to emulate to the competitors.

A composed business transformation to sustainable business management model involves decision-making considering the environment (nature, society, political and economical systems) situation and forecasts, and business resources and strategy formation according to the relationships between the global environment systems and the business system. Structurally, from the strategic model level, where the vision, goals and indicators are set, naturally the business decisions emerge. The business decision and actions involve various tools that should be assigned to the management tools level. These tools are not intended for formulating strategic business goals, but they are employed to achieve them. The tools work well in certain circumstances; some of them work better combined, creating synergies. In the management tools level there are such tools, as environment management systems, quality management systems, certificates, such as ISO 14001, SA 8000, evaluation of product life cycle, cleaner production, environmental footprint, zero emissions, sustainability accounting, ecological design, green procurement, ecological marketing, ecological logistics, ecologically balanced scorecard etc.

This management model of business transformation to sustainable business is designed considering the advantages and disadvantages distinguished in the critical analysis of the sustainability management models. In the opinion of the author of this dissertation, the model consorts to the following advantages:

4. Verification of management model of business transformation to sustainable business

A qualitative study is employed to verify the composed management model of business transformation to sustainable business. According to [109] a qualitative study should be performed in a natural environment, where the tool for data collection is the researcher himself, collecting information in a form of words and images (pictures) and listening to the opinion of participants and depicting the process. A study in a natural environment means, that people are being observed in their natural environment, the communication is done in their language [110].

A qualitative study requires a lot of time, a thorough gathering of data and understanding and explaining of data, it is a complex, long-term process of data analysis, involving description of long and thorough episodes [109].

A qualitative study is chosen in order to be able to execute a model verification research in natural environment – in real conditions of the business in Lithuania. This type of study also is chosen because the researcher (the author of the paper) has to take part in the study firstly presenting the sustainable development concept to business representatives, consult them about the questions arising, and his role in a qualitative study is active.

A verification study of the composed management model was launched with 185 business representatives, who expressed interest in sustainable development and its application in business activities. For the case studies, this number of business representatives was too big, as the idea of a

case study is to study one or several cases using all the possible methods [109] or using observation [110].

The verification of the model was performed in several companies, some were more active than others. The composed model was implemented in the companies following the steps defined (figure 2).

In the first step the representatives from the company were introduced to the concept of sustainable development. The broad information about the sustainable development and sustainable society was sent in an electronic form by email. Besides, the concepts also were presented to the company personnel during the meetings, where the concepts were discussed in more details. During the meeting the researcher also had an opportunity to gain knowledge about the company- its size, geographic location and the territory of operations, the industry, the services and the history of the company. The company representatives were not only introduced to the broad concepts of sustainability, but also the case studies of real business were presented.

To ease the implementation of the second step – defining sustainable business vision – the company representatives were introduced to the examples of sustainability visions of existing companies. With the consultations of the researcher, the company representatives formulated their sustainable business vision. They used the vision they had, and changed it in such a way, that it included the objective to pursue a vision of sustainable business and to offer services according to the principles of sustainable development. The sustainable business vision was further elaborated, so that it described the areas of business according to the criteria of business sustainability.

Step 2b of the model required elaborating the sustainable business vision into indicators and setting indicator sustainable values. During the meeting with the executives various indicators were discussed choosing the ones that had a meaning to the companies, were relevant to the business activities, and the possibilities of the companies to measure them.

During the discussion it became clear, that it is impossible to choose a set of indicators for the company without the participation of company personnel, because a person from outside the business does not have the information about the present situation of the business, the business particularities, the means the company has to measure the values of the indicators.

During the discussions with company executives a set of indicators was chosen. Not only most of the indicators, prepared by the researcher, were eliminated, but the business executives also introduced some of the indicators themselves. The sustainable indicator values were also set. Some of the indicators were indicated as important and having meaning, but the company did not have direct impact on them because of the limitations of the services it offered. But the company representatives indicated that if the company expands into certain areas of construction, some of the indicators should be introduced and measured, because then they would make sense and could be measured.

After the indicator set was chosen and indicator sustainable values were set, the following step was to measure the present indicator values (step 3a) so that the business aggregates the knowledge where it is considering where it wants to be. The indicator sustainable values and present values were registered in the indicator tables.

Present indicator value recording showed that only some of the present values were known to the business representatives. Some of the indicator values presently could not be measured because the company did not have the equipment, as it did not have such an objective. This showed that indicator selection has to be closely related to the company and adapted to the present situation of the company, the indicators cannot be chosen by somebody outside the company.

Step 3b involved the analysis of business resources, it was done by the business representatives with the consultation of the researcher, and mostly focusing on the resources the company has or could obtain to pursue the sustainable business vision.

The fourth step – environment analysis – was performed by the author of the paper and the analysis was presented to the company executives. The paper author's opinion is that this step – environment analysis – is one of the areas, where scientists can be most useful to the businesses, as the business representatives, especially small and medium business representatives, might not have the time and scientific sources, necessary to execute a thorough analysis and long-term forecasts of the global environment. Whereas from the perspective of sustainable development it is most important to be aware of the long-term forecasts, so that the businessmen could direct their present business decisions towards better preparedness and could better adapt to the changes happening in the environment in order to survive.

The environment analysis was executed considering the structure of distinguished systems (nature, society, political and economical systems), it also paid more attention to the fields, that are related to each business. The environment analysis (step 4) was followed by step 5 – strategy formation - where the business executives brainstormed various strategic decision alternatives the company could implement so that it would move from the present indicator values to the future sustainable indicator values in order to become sustainable. The strategic decisions were identified in various business areas, firstly focusing on the implementation of means to measure the indicator values the company did not measure until now. The decisions were discussed and analyzed, so that they helped improvement of various indicator values, and would not obstruct the improvement of other indicators so that the decisions do not lead to a dead end.

The model verification study in various businesses provided insights how the model is being implemented in working businesses and in what areas the business representatives could have more independence and implement the model on their own, and in what model steps the business representatives should better be guided and consulted by the sustainability scientists so that they use their time most efficiently not doing the tasks, that the scientists can do best. Certain insights resulted from the practical implementation of the composed model; these insights are further used to refine the model.

5. Refinement of management model of business transformation to sustainable business

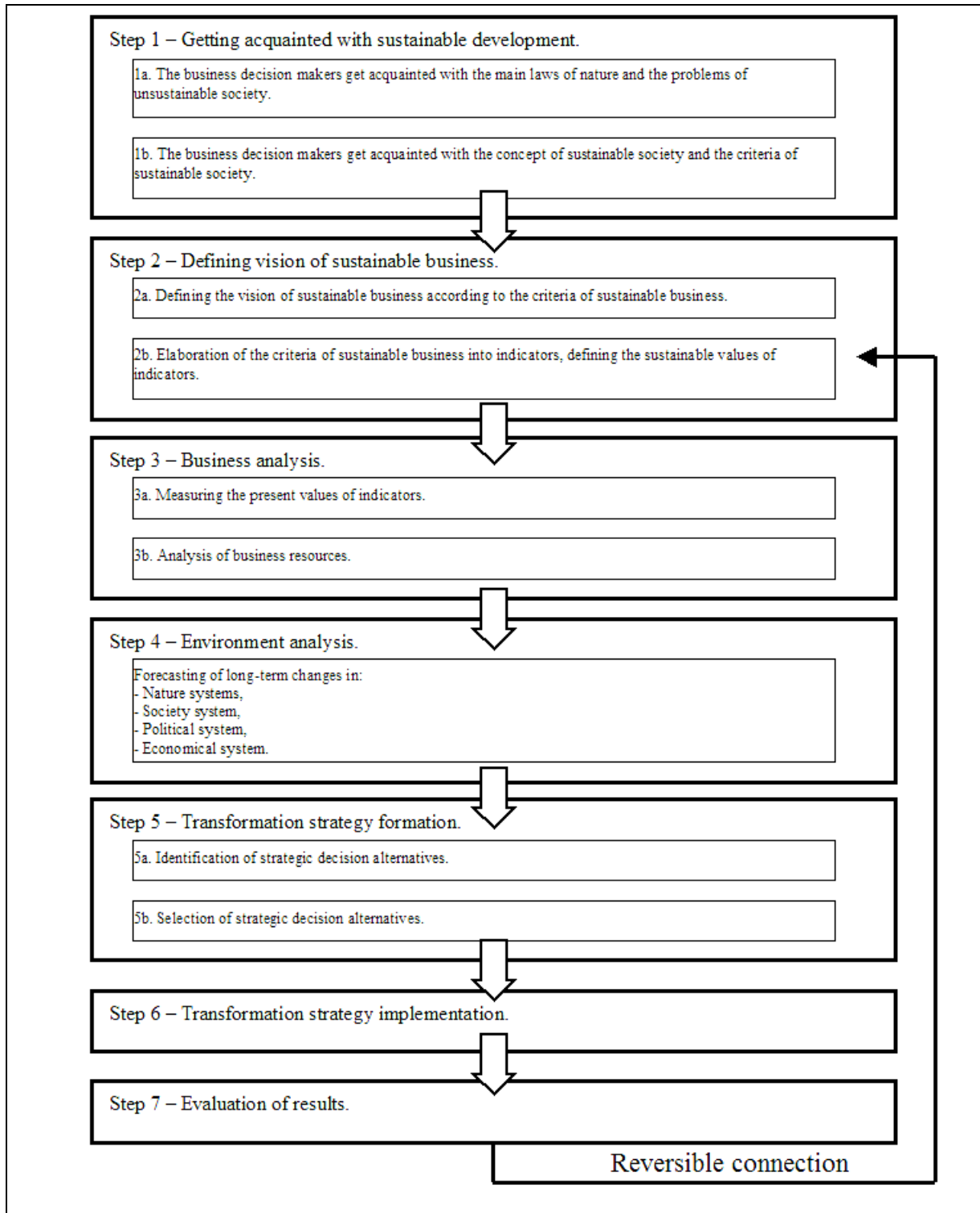
Some aspects for improvement were identified during the empirical verification of the management model of business transformation to sustainable business. Based on the knowledge gained the model is refined by modifying it.

During the practical model verification in companies it was determined, that after reaching the seventh step – evaluation of results – a reversible connection should direct not to the third step – business analysis, but to the step 2b – elaboration of the criteria of sustainable business into indicators and defining the sustainable values of indicators (figure 3).

During a coherent model implementation the first step consists of business decision makers, getting acquainted with the concept of sustainable development, the second step consists of defining a sustainable business vision according to the sustainable business criteria. Following step 2a, in step 2b the sustainable business vision is elaborated into indicators and sustainable indicator values have to be

defined. According to the composed theoretical model, after this step, the third, fourth and the remaining steps are taken. After step 7 – evaluation of results – reversible connection directed towards business analysis (step 3) not returning to indicators.

Figure 3. A refined management model of business transformation to sustainable business



The practical model implementation in companies revealed, that it is impossible to select the right and unchangeable indicators outright. Business constantly changes, it constantly changes the products and services offered, also certain activities are terminated, and certain activities are introduced into the

market. Therefore, company representatives can select only the indicators that reflect the activities during that time. Whereas when the business activities change, the indicators cannot be changeless – they should be also changed, because when the company terminates certain activities, some indicators become obsolete, and when a business introduces a new product or service, it needs to introduce new indicators measuring the new activities. Therefore, indicators cannot be stable; they have to be constantly changed in order to reflect the business activities during the respective moment.

Nevertheless, the reversible connection directs to step 2b - elaboration of the criteria of sustainable business into indicators and defining indicator sustainable values, and not to step 2a – defining the vision of sustainable business according to the criteria of sustainable business. The sustainable business criteria describe general rules, according to which the business should operate in order to be sustainable, and these criteria do not change. Therefore, business management can formulate a sustainable business vision and describe it broadly according to sustainable business criteria, and follow it without changes. However, vision specification up to indicators should be renewed so that indicators reflect and can measure business activities. Consequently, reversible connection in a refined model (figure 3) is directed not to step 3 – business analysis, but to step 2b - elaboration of the criteria of sustainable business into indicators and defining the indicator sustainable values. These refinements to the theoretically composed model were possible because of the empirical model verification in existing businesses.

6. Conclusions

1. Having studied the concepts of sustainable development presented in scientific sources it was noticed that the sustainable development concept often emphasizes the aspect of eternity, continuity, succession, therefore the conclusion was made that the concept of sustainable development analyzes the questions of society survival first and for measurements usually the scale of people generations is being used thus focusing on analysis of long term changes.

Sustainable development is described by explaining both its main goal and means to reach the goal. An example of sustainable development concept that emphasizes the goal – continuity, lasting, stability – is “sustainable development is development, that lasts”[4]. Many concepts of sustainable development explain how to reach the goal: to ensure meeting the needs of present and future generations without exceeding of nature capacity, using suitable proportions of various forms of capital, minimizing the damage etc.

2. In point of view of systems analysis of the fourth – political – system in the sustainable development concept is considered as natural further stage of sustainable development concept’s development. In striving to contribute to further development of this scientific concept, political system was introduced to the model under formation and was applied a distribution into four systems: natural, social, political and economical.

3. Sustainable society is considered such society that doesn’t destroys itself, and this concept of sustainable society is detailed by criteria that it has to meet: sustainable society is such society that doesn’t increases the concentration of materials extracted from the earth crust in the nature systematically, doesn’t increases the concentration of human created materials in the nature systematically, doesn’t increases the degradation of nature by physical means systematically, needs of

the people all around the world are satisfied, and technologies that may destroy the society itself are not accessible.

4. According to the systems approach, business is considered a subsystem of society; therefore business sustainability is described through contributing to the society's goals – to become sustainable. Following criteria are being applied to sustainable business:

- Sustainable business does not contribute systematical increase of concentration of materials extracted from the earth crust in the nature.
- Sustainable business does not contribute systematical increase of concentration of society created materials in the nature.
- Sustainable business does not contribute systematical increase of nature degradation by physical means.
- Sustainable business does not contribute to the conditions decreasing possibilities to satisfy the needs of people all around the world.
- Sustainable business does not contribute to the existence of technologies that may destroy the society itself.

5. Performing the critical analysis of business sustainability management and evaluation models advantages and disadvantages of every model were distinguished. The main disadvantages of the created models are considered the use of unique sustainability concept in the model that decreases the possibility of compatibility between the created models and widely spread studies of sustainable development and management tools as well as scientific studies. Application of methods that require sophisticated and expert knowledge in the models, thus limits possibilities of spreading and more wide application of such models in business sector, is identified as important disadvantage as well.

The main disadvantage of efficiency based models is considered a striving for constant improvement that is possible in the fields of primal application of quality management and Deming cycle – process management, but is unrealistic in business management because reaching of constant improvement of indicators in business management is impossible in changing business environment; this striving can be applied in laboratory or inner business processes conditions.

6. Depending on advantages and disadvantages of business sustainability management models that were distinguished during critical analysis, the created business transformation to sustainable business model is based on strategic management process which is considering environmental changes (in natural, social, political and economical systems). Created business transformation to sustainable business model consists of the following seven steps: 1) introduction of decision makers to the sustainable development concept; 2) description of sustainable business vision; 3) business analysis, 4) environmental analysis, 5) creation of strategy, 6) strategy implementation, 7) evaluation of the results.

7. Qualitative study of empirical verification of created business transformation to sustainable business management model was performed. Qualitative study was chosen in order to perform the study of the created model in natural environment, in real business conditions in Lithuania. This kind of study was chosen because the researcher has to participate the study directly by introducing the concept of sustainable development to business representatives, advising them on relevant questions, and the role of the researches in the qualitative study is active. With the help of case study analysis there is a striving to understand the case – the process of created model application in business – as deep as possible, using different data sources and data collection methods: observation in natural environment (in the enterprise), interview, questionnaires, correspondence.

9. During the empirical study it was determined that having reached the seventh step of the model – evaluation of the results – the feedback should direct not to the third step – business analysis, but to 2b of the second step – detailing of business criteria to indices and naming of sustainable values of the indices. In the theoretical model, after the evaluation of the results (step 7) the feedback directed to business analysis (step 3) without returning to the indices, however practice showed that determination and selection of all suitable indices in the enterprise at once is impossible. Business is constantly changing – it constantly changes goods and services provided – it can both create new activities, products or services and to cancel any activity, to close any production line or a plant. Therefore, managers of the enterprise can select only such indices that are reflecting enterprises' activity at that date, and when activity changes, indices have to be changed too.

Performed empirical study of formed business transformation to sustainable business management model verification allowed to check practically the theoretical model in the enterprises and also to identify the fields of the model that need to be improved. Considering the collected information, the model was modified by forming an improved business transformation to sustainable business management model.

Conflict of Interest

The author declares no conflict of interest.

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