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Rokas Grunda

MANAGEMENT OF BUSINESS TRANSFORMATION TO SUSTAINABLE
BUSINESS

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SUMMARY OF DOCTORAL DISSERTATION

INTRODUCTION

Relevance of the theme. 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" (WCED, 1987) 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 Staniškis, Stasiškienė, Jasch (2005), 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 Čiegis (2004), 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 dissertation's theme is relevant both because the sustainable development conception is quite new, it is being studied only for a couple of decades, and also because the rising conception popularity stimulates creation of various tools, that would measure and evaluate both the society's development, and business contribution to sustainable development.

Scientific problem, its exploration level. The concept of sustainable development was first intended for a global level, its theoretical studies and international agreements were firstly targeted at global problems of poverty, climate change, natural resource overexploitation and exhaustion. The conception was also applied at the

national level. Sustainable development from various global and national perspectives was researched by Brown (1981), Dorcey (1991), Pearce (1994), Voinov (1998, 2008), Robert (2002), Wright, Nebel (2002), Bell, Morse (2003), Rogers et al. (2008), Singh et al. (2009), Dresner (2009) and many other authors. In Lithuania this conceptions was studied by Kairiūkštis, Rudzikas (1996), Čepinskis (2001), Čekanavičius, Rinkevičius (2001), Petkevičiūtė, Svirskaitė, (2001), Čiegis (2002), Čepinskis, Smilga, Žirgūtis (2002), Štreimikienė, Vasiljevienė (2004), Čiegis (2004), Adomaitienė, Zubrickienė, Andriekienė (2006), Čiegis, Čiegis, Jasinskas (2005), Rudzkienė, Burinskienė (2007), Juknys (2008), Čiegis, Zeleniūtė (2008), Dringelis (2009), Čiegis, Ramanauskienė, Martinkus (2009), Čiegis, Ramanauskienė, Startienė, (2009), Čiegis (2009), Ruževičius (2010) and others.

Various business and industry impacts to sustainable development were studied by Staniškis, Stasiškienė, Jasch (2005), Staniškis, Arbačiauskas, Pivoras (2006), Štreimikienė, Kovaliov (2007), Ruževičius (2009c). Other scientists were researching sustainable development of several business and industrial fields: financial sector sustainability was studied by Čepinskis, Žirgūtienė, Žirgūtis (2006), sustainability in energy sector was studied by Štreimikienė, Čiegis, Jankauskas (2007), Štreimikienė (2008), Grundey (2008), Klevas, Štreimikienė, Klevienė (2009), Štreimikienė, Simanavičienė, Kovaliov (2009), tourism sector by Hopenienė, Kamičaitytė (2004), Grundey, Sarvutytė, Skirmantaitė (2008), Grundey (2008b), Šimkus, Žegulytė (2009), sustainability in universities by Čiegis, Gineitienė (2006), Grundey, Savrina, Kanapickienė (2007), sustainability in agriculture and food sectors were studied by Grundey et al. (2004), Jasinskas, Kazakevičius (2008), sustainability in construction and architecture sector was studied by Zaleckis (2009), Peldschus et al. (2010).

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.

Foreign scientists proposed various business sustainability management models and empirically tested them in the beginning of the ninth decade of the last century.

During that time the focus of Lithuanian scientists was not yet on business sustainability management as Lithuania had only regained its independence and was in a transitional period from the planned to market economy. Whereas in foreign scientific literature one of the first business sustainability evaluation model propositions was by Ragas et al. (1997). Various theoretical business sustainability management and evaluation models and empirical sustainability researches were published by Tyteca, Callens (1999), Tyteca (1999), Caporali, Tellarini (2000), Andreoli, Tellarini (2000), Bond et al., (2001), Steen, Borg (2002), Keeble, Topiol, Berkeley (2003), Figge, Hahn (2004a), Figge, Hahn (2005), Ko (2005), Krajnc, Glavic (2005), Labuschagne, Brent, van Erck (2005), de Jonge (2006), Lozano (2006), Bebbington, Brown, Frame (2007), Van Couwenberg et al. (2007), Sarmiento et al. (2007), Rusinko (2007), Van Passel et al. (2007), Hutchins, Sutherland (2008), Russell, Allwood (2008), Munoz, Rivera, Moneva (2008), Tseng, Divinagracia, Divinagracia (2009), Vayssieres et al. (2009), Vayssieres, Bocquier, Lecomte (2009), Phillis, Davis (2009), Gomez-Limon, Sanchez-Fernandez (2010), United Nations (2010), Bojkovic, Anic, Pejic-Tarle (2010), Phillis, Kouikoglou, Manousiouthakis (2010).

In Lithuania, the concept of sustainable development is being integrated into business management only in recent years, and increase in the number of papers of this topic can be seen only from 2008 to 2010. A model of sustainable organization is developed by Navickas (2008, 2010), Navickas, Naviskienė (2009), a system of business decision making according to sustainability principles is developed by Laurinkevičiūtė, Stasiškienė (2010, 2011), a sustainability evaluation and management models is presented by Kinderytė (2008, 2010), Kinderytė et al. (2010), models are also proposed by Staniškis, Arbačiauskas (2009b), Bagdonienė et al. (2009), Bagdonienė, Paulavičienė (2010). Such increase in proposed models, integrating sustainability into business practices shows the topicality of this dissertation, because only currently Lithuanian scientists are striving to examine the studies and experience of foreign scientists and are seeking to build the ground for the implementation of sustainable development in business management in Lithuania.

After the analysis of various business sustainability management models, their theoretical and empirical studies, the scientific problem of this dissertation 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 work – management of business transformation to sustainable business.

The objective of the work – 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 in the dissertation:

- 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.

Thesis statements.

- Business transformation to sustainable business management model under formation has to be based on main principles of studies of sustainable development performed on global and national levels, because a unique description of sustainability in business level becomes incompatible neither to more extensive national or global studies of sustainability nor to various methods and means of sustainability management intended to business.

- Business transformation to sustainable business management model has to be based on the clear description of sustainable business and strategic management, because it allows setting a clear goal and the clear goal is not set in the efficiency based models.
- Sophisticated and expert knowledge requiring methods should be avoided because the enterprises may not have the specialists needed, such specialists may not be available in the work market too and this limits a wide spread of such model in the enterprises.
- Theoretical business transformation to sustainable business model under formation has to be abstract enough and has not to determine specific management and evaluation methods because such early prescriptions during practical implementation in the enterprise may cause rejection and resistance reaction of the managers.
- Pre-determination of a fixed set of business sustainability evaluation indicators in the created theoretical business transformation to sustainable business management model is not viable because only having gone into particularities of separate business it is possible to form a set of business sustainability evaluation indicators which have to be changed when business is changing.

Logical structure of the study. Logical structure of the study was determined by the study object, the objective and the tasks raised. The first part analyses concepts of sustainable development, sustainable society and business sustainability. The sustainable development concept is being examined systematically by distinguishing the systems significant to sustainable development and detailing their content. Sustainable society concepts are being examined; criteria of sustainable society are being distinguished following which a sustainable society is being described. Business place in regard to natural, social, political and economical systems and criteria of sustainable business are being distinguished.

The second part of the dissertation is intended to creation of business transformation to sustainable business model; in this part the critical evaluation analysis of business sustainability management models is being performed, advantages and disadvantages of every model are being distinguished. Depending on these distinguished

advantages and disadvantages of the models a general business transformation to sustainable business model is being formatted, later it is being detailed by distinguishing significant aspects and activities of every stage.

The third part of the dissertation is intended to empirical study methodology of created theoretical model as well as to case study analysis of application of business transformation to sustainable business management model. Summarizing the conclusions of empirical study an improved business transformation to sustainable business management model was formatted.

Scientific novelty. Scientific novelty of the dissertation and theoretical significance are described by the following theoretical statements and aspects:

- Performed theoretical analysis of conceptions of sustainable development and sustainable society allowed to distinguish criteria of sustainable society supplementing them with criterion of technological threat which wasn't included to sustainable society's conceptions that determine sustainability through interrelation between nature and public systems.
- The created business transformation to sustainable business model was expanded by the fourth dimension of sustainability – political system -, as previously created models of business sustainability management usually were based on three the most popular dimensions of sustainability: natural, social and economical.
- Critical evaluation analysis of modern business sustainability management models is performed in the dissertation. In Lithuanian scientific literature the striving for integration of the concept of sustainable development to business management is being performed only in the last few years (2008 - 2011), many of the models analyzed were created in 2010, 2011, therefore they are new and haven't attained more detailed critical analysis and comments. Critical analysis in the dissertation involves the modern business sustainability management models created in 2010, 2011.

Practical significance of the study.

- Considering models' disadvantages distinguished during comprehensive critical evaluating analysis of business sustainability management models, the created business transformation to sustainable business model is not based on striving for

efficiency and Deming cycle but on process of strategic management. Created model can be used by enterprises striving for sustainable development conception application in their activity; because the created model is based on strategic management process, it is closely related to the process of strategic planning and management that is usually used in the enterprises.

- Governmental institutions in striving for sustainable development of Lithuania, which is indicated in Lithuanian sustainable development strategy (2003, 2009), can follow the created business transformation to sustainable business model as guidelines or practical management tool by means of which business in Lithuania can apply the sustainable development conception in their activity and thus to contribute the more wide goal – striving for Lithuanian society sustainable development.
- Representatives of academic professions can use the created theoretic business transformation to sustainable business model performing empirical studies of sustainable development concept application in the enterprises thus increasing the number of studies of empirical sustainable development concept application. Studies of application of the created model in the enterprises would popularize the sustainable development concept, would be created more samples of practical applications by using of which it would be possible to strive for sustainable development in business sector.
- Composed business transformation to sustainable business management model is directly related to both the Lithuanian national sustainable development strategy and its goals and European Union sustainable development strategy. Lithuanian enterprises striving for sustainable development and following the management model formulated in the dissertation, their results would contribute practically to reaching of both Lithuanian sustainable development goals and those of European Union.

Methods of study. Analyzing conceptions of sustainable development and business sustainability models, theoretic studies used *scientific literature analysis systematization, synthesis, abstraction, comparison and generalization*. Empirical studies used *computer assisted quantitative content analysis, frequency calculation, questionnaire, descriptive statistics and statistical data analysis* (Microsoft Excel,

SPSS), *case study analysis* was used in the verification study of business transformation to sustainable business management model.

Limitations of the study. The main limitation of the performed study is considered the limited time for preparation of the dissertation because it is too short in order to apply and verify business transformation to sustainable business management model, formulated in the dissertation, in the enterprise coherently and to evaluate the results. It is common that business results are being measured during the period of financial year, therefore coherent application of the created model in the enterprise and evaluation of the results achieved in the enterprise during the time committed for preparation of dissertation is problematic.

Structure and volume of the dissertation. The dissertation consists of introduction, three parts and conclusions. The main study material is described in 160 pages, including 11 tables and 27 figures. Annexes are presented in the dissertation. The list of the literature used consists of 269 sources of scientific literature and 21 informational sources.

1. INTERPRETATIONS OF THE CONCEPTS OF SUSTAINABLE DEVELOPMENT, SUSTAINABLE SOCIETY AND SUSTAINABLE BUSINESS

This section of the dissertation is intended for the theoretical concepts of sustainability. The concepts of sustainability and sustainable development are important for the definition of the concept of sustainable business. Therefore, theoretical interpretations of the concepts of sustainability and sustainable development are performed in subsection 2.1.; the concept of sustainable society is defined in section 2.2. Subsection 2.3. of the dissertation is dedicated to defining the concept of sustainable business.

1.1. Interpretations of the concepts of sustainability and sustainable development

Though there are many definitions of sustainable development, one of the most widely cited definition is of this: “sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs” (WCED, 1987). A similar definition, which also puts emphasis on the long-term time scale, and the continuity aspect, is the definition of World Development

Report (1992): sustainable development is a development that lasts. Sustainable development is defined in a similar way by Elliot (1999) and Pearce (1994).

In the dissertation author's opinion, these definitions define the 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 WCED (1987) definition embraces the goal of the existence of this and generations to come, it also explains 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. Pearce (1994) 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 IUCN (1991), Willums, Goluke (1992), Roseland (1999), Forum for the Future (2005).

In the dissertation 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 WCED (1987) 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. Gordon (1954), Scott (1955) 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 (Dorcey (1991), Luken, Hesp (2003), Čiegis (2003), Nacionalinė darnaus vystymosi strategija (2003, 2009), Haughton, Counsell (2004) den Boer et al. (2005), Juknys (2005), Staniškis, Stasiškienė, Jasch (2005), Jasch, Stasiškienė (2005), Rudzkienė, Burinskienė (2007), Juknys (2008), Čiegis, Zeleniūtė (2008), Grundey (2008), Grundey, Sarvutytė, Skirmantaitė (2008), Rogers, Jalal, Boyd (2008), Kliučinskas, Čiegis (2008), Hitchcock, Willard (2009)). Sometimes the social system is called the social-cultural system (Mowforth, Munt (2003), Hopenienė, Kamicaitytė (2004)). When four systems are distinguished, mostly they are nature, society, political and economical systems; this distinction is used by (Dorcey (1991), Čiegis (2003), Čiegis (2004), Kriščiūnas, Greblkaitė (2007), Čiegis (2008), Grundey, Sarvutytė, Skirmantaitė (2008), Kliučinskas, Čiegis (2008)). Instead of the political (sometimes institutional) system, a cultural system is used (Crowther, Martinez (2007), Werbach (2009), Aras, Crowther (2009b), Staniškis (2011)), besides, Lozano (2006) uses education instead (nature, society, economical and education dimensions).

There is a belief (Čiegis, Gineitienė, 2008), 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 dissertation also seeks to contribute to this development, thus in this dissertation, 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 (Čiegis (2004), Kliučinskas, Čiegis (2008), Nacionalinė darnaus vystymosi strategija (2003, 2009)), 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 (Čiegis (2004)), should be of equal value (Staniškis, 2011). It is clear, that three systems (dimensions) and four systems cannot be equal at the same time.

According to another view (Juknys, 2008), 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 dissertation 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 dissertation, all four systems (nature, society, political and economical systems) are considered and analyzed.

1.2. 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 Forum for the Future (2005): sustainable development is a dynamic process, by which an organization moves towards sustainability. According to Čiegis, Čiegis, Jasinskas (2005) 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 Dresner (2009) focuses on the society existence. The definitions by Brown (1981), Wright, Nebel (2002), Neresoam (2010) 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 (Bell, Morse, 2010). According to these authors, a society can become unsustainable not only

because of the natural resource overexploitation, but because of creating technologies, destroying nature and the society itself.

Robert (2002) 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 (Nattrass, Altomare, 2002, p. 273). 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 (Nattrass, Altomare, 2002, p. 273). If all four conditions were met, there would be a sustainable society (Robert, 2002).

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 (Krieger, 2007). 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 Čiegis, Gineitienė (2008, p.109) 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 (Čepinskis et al. (2002, p.59). Voinov (1998) discusses different political systems from the perspective of sustainability and concludes, that a democratic system is a more stable, and sustainable, system. Whereas Kern (2008) 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 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.

1.3. A sustainable business from a systems approach

Applying sustainable development principles in industrial companies' activities is increasingly becoming an important factor of increasing competitiveness (Staniškis, Stasiškienė, Jasch (2005). 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 (Čiegis, 2004).

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 (Sidiropoulos et al., 2004, p.28). Staniškis, Stasiškienė, Jasch (2005, p.17) 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 Sidiropoulos et al. (2004), Luken, Hesp (2003, p.11).

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 (Werbach (2009, p.3).

Meanwhile, Čekanavičius, Rinkevičius (2001, p.173) 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 Čiegis (2004, p.294), Grundey (2008a, p.101), Čepinskis (2001, p. 38), Čepinskis, Smilga, Žirgūtis (2002).

In the dissertation 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. Anderson, Cavanagh (2002) 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, Brown (1981, p. 325) 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 destroying the society itself.

2. FORMATION OF THE MANAGEMENT MODEL OF BUSINESS TRANSFORMATION TO SUSTAINABLE BUSINESS

This section of the dissertation is intended for formation of the management model of business transformation to sustainable business. The critical analysis of sustainability management models of various authors and organizations is performed in subsection 2.1. According to the identified model advantages and disadvantages, a

general management model of business transformation to sustainable business is formed in subsection 2.2. In subsection 2.3. a general model is elaborated into a detailed model, explaining the most important aspects of the model.

2.1. 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, the critics. The author of the dissertation also notes what additional advantages and disadvantages he can appoint to the models. 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, done in subsection 2.2. and 2.3.

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

- Sustainability Evaluation Model of a Manufacturing System (Ragas et al., 1997);
- The Durable Corporation (Crowther, Martinez (2007), Martinez, Crowther (2008), Guler, Crowther (2008), Aras, Crowther (2008a, 2008b, 2008c, 2009a, 2009b, 2009c, 2009d), Crowther, Hosking (2009), Crowther (2009));
- The Natural Step (Robert et al. (1997), Natrass, Altomare (1999, 2002), Robert (2002), Robert et al. (2002), The Natural Step (2011), Vaage (2003), James, Lahti (2004), Brandury, Clair (1999));
- The Sustainable Organization Model (Navickas (2008, 2010), Navickas, Navickienė (2009).
- UN Global Compact management model (United Nations, 2010);
- Sustainability Balanced Scorecard (Figge et al. (2002), Dias-Sardinha et al. (2002, 2007), Möller, Schaltegger (2005), Dias-Sardinha, Reijnders (2005), Leon-Soriano et al. (2010) Laurinkevičiūtė et al. (2008));
- Business Sustainability Evaluation Model (Tyteca, Callens (1999), Tyteca (1999));
- Sustainable Value (Figge, Hahn, (2004a, 2004b, 2005), Hahn et al. (2007), the criticism Kuosmanen, Kuosmanen (2009), further discussion Figge, Hahn (2009),

Ang, Van Passel (2010));

- Composite Sustainable Development Index (Krajnc ir Glavic (2003, 2005));
- Sustainability Management System for decision making of SMEs (Laurinkevičiūtė, Stasiškienė (2010, 2011));
- Sustainability Evaluation and Management Model (Kinderytė (2008, 2010), Kinderytė et al. (2010));
- Sustainability Assessment by Fuzzy Evaluation, SAFE (Phillis, Andriantiatsaholiniaina (2001), Andriantiatsaholiniaina et al., (2004), Munoz et al. (2008), Phillis, Davis (2009), Kouikoglou, Philis (2010)),
- Sustainability management models, based on the Deming (PDCA) cycle (Staniškis, Arbačiauskas (2009b), Bagdonienė et al. (2009) Bagdonienė, Paulavičienė (2010)).

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.

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

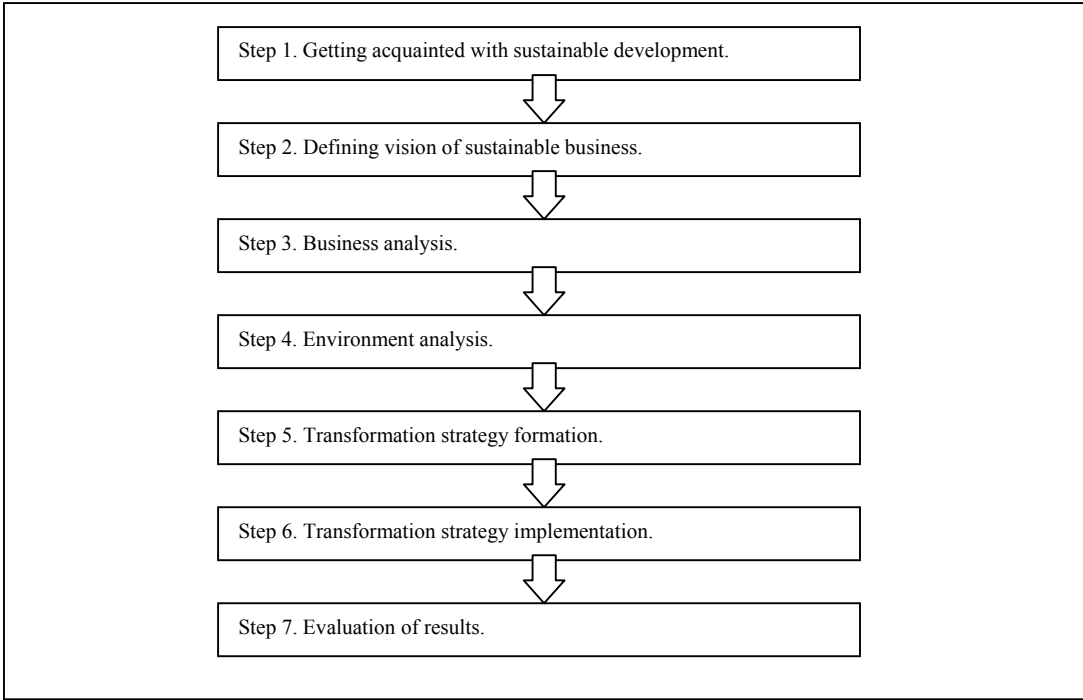
The composed management model of business transformation to sustainable business has an intention to reflect properly processes, happening in reality. However, the model simplifies this process. Simplifying the real processes causes omission of some aspects; therefore the goal of the model is to reflect the most important stages in the process. In reality, the management process not always proceeds by the steps of management model, some repetition and reversion occur, however, the goal is to make the model clear and simple, it reflects the most important steps.

While creating the management model of business transformation to sustainable business, the advantages and disadvantages of critical sustainability management model analysis are considered. The created model is based not on Deming (PDCA) cycle, but on strategic management considering the criticism of Deming (PDCA) cycle.

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.

The first five steps of the management process (figure 1) are needed to form the strategy, the sixth step is strategy implementation, the seventh step – evaluation of the results of strategy implementation.

Step 1 – getting acquainted with sustainable development. In this step the business decision makers get acquainted with sustainable development, with the problems we face today, in what ways humanity is related to various natural systems, what scientific laws these relations are based on. Business decision makers get acquainted with the common objective of sustainable society, with the sustainable society conditions.



Source: created by the author.

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

Step 2 – defining vision of sustainable business. Based on the objective of sustainable society, business is distinguished as one of the parts of society, and the objective is set for the business to contribute to a common objective – a sustainable society. A sustainable business vision is defined, based on the objective to contribute to the sustainable society objective – to fulfill the conditions of sustainable society.

Step 3 – present business state analysis. Based on the defined sustainable business vision, present business state analysis is performed studying to what extent present business contributes to the objective of sustainable society. Gap analysis is executed comparing the future indicator values with the present indicator values.

Step 4 – environment analysis. Analysis of the environment is performed based on the structure of the systems, distinguished in the environment. The present situation in

the systems of the environment is studied as well as the future situation is forecasted in the long run, reflecting the time scale of several human generations. The changes in the environment are projected using the method of forecasting.

Step 5 – transformation strategy formation. A strategy of business changes is formulated aimed at attaining sustainable business vision. Alternative decisions are defined; they are selected using the knowledge, acquired by the present business state analysis and the analysis of the environment. Long-term plans are segmented into middle term and short-term plants.

Step 6 – transformation strategy implementation. During the implementation of the strategy the organization structure is adjusted, the persons, responsible for the goals, are selected, the people in the company are trained and motivated to strive for the goals set.

Step 7 – evaluation of results. Evaluation of results is performed based on the long-term, middle-term and short-term goals and plans. Each period's results are evaluated comparing them to the defined sustainable business vision.

As sustainable development is focused on the long-term perspective, and by sustainable development we seek to fulfill the conditions, enabling existence of society for an indefinite time, defining the vision of sustainable business should also be focused on a long-term perspective, or the time scale should not be identified at all.

While creating business transformation to sustainable business strategy, it is impossible to detail it for an indefinite time into the future. This is because of a lack of reliable data about the future changes in the environment – environment forecasts are created based on present scientific breakthroughs and forecasting models that help to forecast the future scenarios and general tendencies of changes in the environment.

Therefore, the strategy is formulated based on a notion, that the decisions will be found gradually; they cannot be anticipated and detailed in a finished strategy for all the future. As the details of the situation in the environment and the forecasts of the changes are most accurate for the short term, and the longer the time scale, the less accurate the forecasts are, the long term strategy is formulated considering the general tendencies of the changes in the environment. Therefore, the strategic decisions are being prepared and renewed during all the strategy implementation stage.

Contrary to the environment analysis, where the forecasting method is used, the

strategy is formulated using a opposite method – *backcasting*, where firstly the desirable status in the future is envisaged, and after that the strategy is formulated in a way, that with the decisions and actions would lead to this future status. As the analysis of the environment and changes forecasting is renewed periodically, and the business situation in the future periods is also different, the strategic decisions are made based on these periodical new findings and data.

2.3. 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.

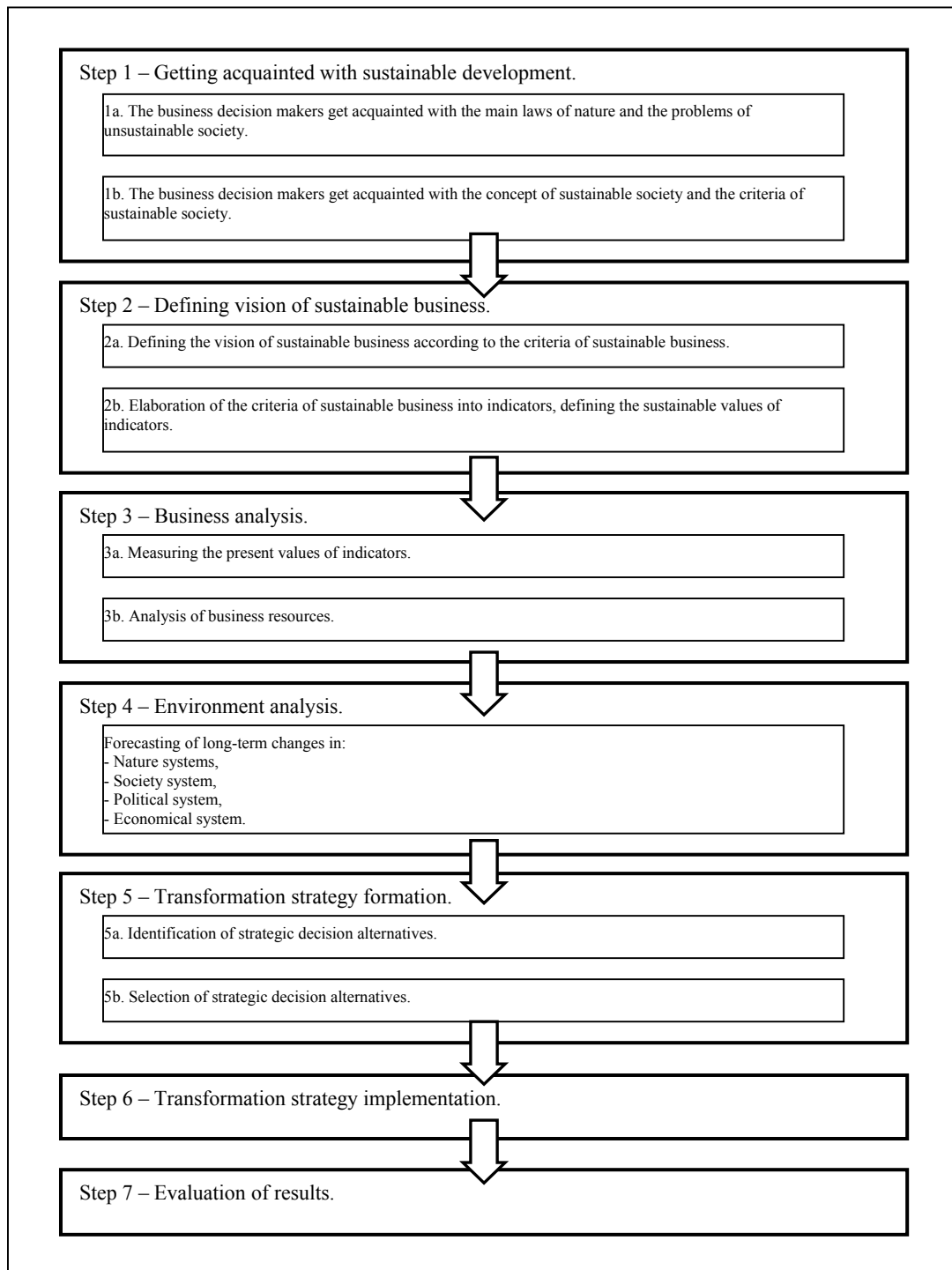
Step 1a. Decision makers get acquainted with the unsustainable tendencies in nature and society, caused by human activities, which cause threats to human extinction. Decision makers get acquainted with the laws, governing existence of various forms of life in the planet Earth.

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.*



Source: created by the author.

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

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.

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 fine 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):

- 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:

- The composed model indicates criteria for the business to satisfy to become sustainable.
- Business is distinguished as a subsystem of a bigger system – society.
- The composed model is abstract so it can be used in businesses of different sizes and fields.
- The model is based on strategic management process, which is clear and widely prevalent in management literature.
- The composed model indicates steps, which can be followed pursuing business

sustainability.

- The composed model does not impose particular tools or decisions, but offers a general structure, which can be used by the business managers in discovering specific business decision and actions.
- The model is figured both in a general scheme, and in a detailed scheme, which elaborates important aspects and activities.

Composing the management model the goal is to avoid the identified sustainability model disadvantages; therefore the composed model in the opinion of the dissertation avoids the following disadvantages:

- The composed model is not based on all four systems; all of them (nature, society, political and economical systems) are incorporated into the model.
- The composed model is not fragmented; it encompasses a complete strategic management process.
- The model includes consideration of technologies, capable of destroying the society itself.
- The composed model is not created based on a unique sustainability interpretation; it is based on a common four system distinction, and a common strategic management process. Therefore, the model should be easily blended with other sustainability management tools and methods.
- The model is not based on business comparison to other business; it is based on setting sustainable indicator values and goal setting in relation to business relations to a bigger system – society. Resulting from this approach, business objective to become sustainable also contributes to the goal of society to become sustainable.
- Sustainable indicator values in a composed model are defined not according to comparison of several businesses but based on the knowledge of each scientific field (natural sciences, social sciences).
- The composed business transformation to sustainable business management model does not reduce business sustainability evaluation to only monetary units; business sustainability is evaluated using the units of each field (liters, meters, hectares, etc.).
- The composed model business sustainability evaluation is not reduced to only one value, which would summarize all the information to a minimum. The model uses

many indicators, so that the information is not lost and can be used in making management decisions.

- The model does not offer a standardized set of business sustainability evaluation indicators, the indicators in the management model are selected for each business separately.
- The model does not request any methods that are complicated and require expert knowledge. Tools and methods should be selected in each case separately, and the methods should be selected by the business representatives according to their knowledge, experience and goals.
- The composed model is not based on the permanent improvement principle and Deming (PDCA) cycle, which works well in a controlled environment. Because of the always changing business environment, in the dissertation author opinion it is unrealistic to expect permanent improvement of all indicator values. Therefore the model uses not the Deming cycle, but strategic management process, in which the business decisions are made considering the business resources and situation as well as the situation and forecasts in the environment (nature, society, political and economical systems).

3. VERIFICATION OF MANAGEMENT MODEL OF BUSINESS TRANSFORMATION TO SUSTAINABLE BUSINESS

Before the empirical verification of the management model of business transformation to sustainable business, the two studies were performed: a content analysis of annual statements of Lithuanian corporations and a survey of executives and representatives of Lithuanian business about sustainable development (more details are supplied in supplement 1 of the dissertation). The knowledge gained from these studies is used in further studies, in which business representatives are introduced to the composed management model of business transformation to sustainable business, the model is being applied in real business in order to discover areas of model improvement.

3.1. Verification methodology of the 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 Luobikienė (2010) 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 (Kardelis, 2007).

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 (Luobikienė, 2010).

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 dissertation) 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 is 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 is too big, as the idea of a case study is to study one or several cases using all the possible methods (Luobikienė, 2010) or using observation (Kardelis, 2007).

With the case study of model implementation in the real business activities, the goal is to understand this process as properly as possible, various information sources and various information gathering methods are used: observation in a natural environment (in the company premises), interviews, reports of conversations, written communication, questionnaires.

A case study has limited potential to be generalized, as it is based on depiction of separate cases. Therefore the main focus of the study is on the process of the composed model implementation in a company. This is done considering, that every case is unique – the created sustainable business vision, the selected indicators, the environment analysis and the business analysis, and the strategic decisions are unique to a specific business and can be generalized only with limitations.

The case studies focus on such topics, as:

1. The areas of business activities where the implementation of the model appears first, what changes appear first;

2. The people that are most important in the implementation of the model in business activities;
3. If the implementation of the model progresses in the sequence of steps that are depicted in the model, whether some other important steps emerge in the process;
4. What advantages and disadvantages the business representatives distinguish, what areas of improvement they can propose?

During the study, the communication with business representatives was performed in the ways that they pointed as most preferable in the survey of business executives and representatives. The communication was done using email, the information about sustainable development and the possibilities of sustainable development implementation in business activities were presented by electronic documents. This activity represents the first step of composed model (steps 1a, 1b). During the seminars and meeting, that were organized both in the premises of the university and the companies, sustainable development was presented in more detail, also the discussions extended to the particularities of each business and various aspects of the business relations to the concept of sustainable development.

After the business representatives were introduced to the concept of sustainable development, the second step of the model was defining sustainable business vision. In this step (2b) the business representatives were introduced to the criteria of sustainable society, the criteria transfer into the sustainable business vision and the examples of the sustainability visions of existing business. After this, the business representatives defined their own sustainable business vision that is unique to each business; this was performed with consultations of the researcher (the author of the dissertation).

Sustainable business vision was defined according to the criteria of sustainable society and sustainable business adapting them to each business. The most important business areas were distinguished for meeting sustainability criteria.

In step 2b sustainable business vision was elaborated into indicators. In this step the focus of the study was put on the selection of indicators and the practical possibilities each business had to measure indicator values.

During the consistent interaction with the business representatives all the steps of the model were passed, and in each step all the required analysis was performed and the

decisions were made. In the verification study of the model in various businesses, the speed of the implementation differs, as it depends on the interest, enthusiasm and the devoted time of business representatives. Therefore, to accomplish all the steps of the model different time periods are needed for different business.

3.2. Case study of management model of business transformation to sustainable business

In the dissertation a case study of a company, working in the construction industry, is described in more detail. The verification of the model was performed in more companies, some were more active than others, but because of the limited volume of the dissertation, a case study is described in more detail of a company, in which executives interacted more actively with the researcher and committed more time and endeavor to this study than most of the other companies.

When contacted by the researcher, the company director was interested and wanted to receive more information about the concept of sustainable development and the possibilities to apply it in his business. He showed great interest in the concept, actively communicated with the author of the dissertation and agreed to take part in the verification study of the composed management model of business transformation to sustainable business. The composed model was implemented in the company 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, one of them from the construction industry as well, as this was desired by the company director.

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 dissertation author, 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. The author of the dissertation prepared a set of indicators based on indicators, identified in Federal Environment Ministry (1997), Veleva, Ellenbecker (2001), IChemE (2003), GRI (2006), Dow Jones Indexes (2010), Nacionalinė darnaus vystymosi strategija (2003, 2009), Tvarus vystymasis Europos Sąjungoje (2009). During the meeting with the executives all 65 indicators were discussed choosing the ones that had a meaning to the company, were relevant to the business activities, and the possibilities of the company 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. A certain practical problem manifested, as some indicators could not be measured because of the present business conditions – the company was located in the business center. Because of this location the company did not have the knowledge and did not have the means to measure such indicators, as usage of electricity, heating, water, waste recycling etc., as these services were supplied centrally, and the company did not have control over them. Such indicators were noted as important to the company, but with no present possibilities to measure them, so the measurement could be only done if the company moved to another place – renting or owning – where they would have control and could have the equipment to measure these indicators. 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 dissertation and the analysis was presented to the company executives. The dissertation 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 the construction industry – forecasts of long-term changes in the construction materials worldwide, the energy resource depletion, the long-term changes in natural systems, temperature and climate.

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 last steps, strategy implementation and evaluation of results, take a longer time and cannot be completed in a matter of weeks or months. The strategic decisions were selected for implementation when the time comes, the company plans to incorporate sustainable development principles into the services it offers as a business. The company set a time scale of evaluation of results according to the financial year period, so the results will be measured each year and in this way the progress will be monitored. For the next years the focus is to start measuring the indicators, that were not measured till now, and developing the conditions, developing the methods according to which the indicator values will be measured.

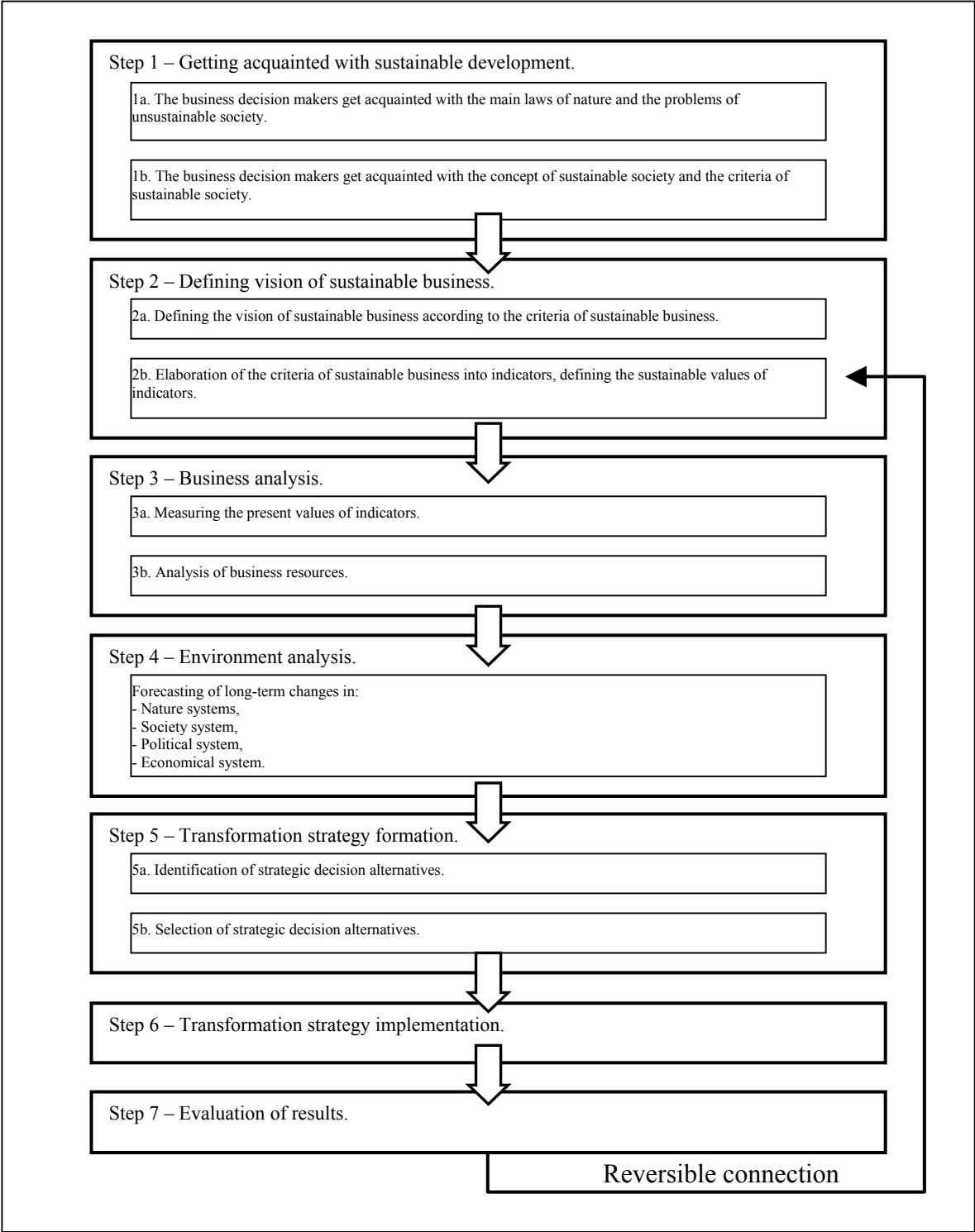
The model verification study in various business provided the insight how the model is being implemented in working business and in what areas the business representatives could have more independence and implement the model on their own, and in what model steps the business representatives should better 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 constructed model.

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

Some aspects for improvement were identified during the empirical testing 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 testing 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).



Source: created by the author.

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

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.

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 model were possible because of the empirical model verification in existing businesses.

CONCLUSIONS AND DIRECTION OF FUTURE RESEARCH

Having performed theoretical and empirical business sustainability management studies the following conclusions were formulated:

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 methods to reach the goal. An example of sustainable development concept that emphasizes the goal – continuity, lasting, stability – is “sustainable development that continues” (World Development Report, 1992). Many concepts of sustainable development explain how to reach the goal: to ensure satisfaction of present and future generations needs without exceeding of nature capacity, using suitable proportions of human created, natural, human and social capital, minimizing the damage and so on. An example of such concept is “sustainable development <...> means improvement of human life quality living without exceeding capacity of ecosystems” (IUCN, 1991).

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 further development of this scientific concept, political system was introduced to the model under formation in the dissertation 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 conform: 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 systematic point of view, business is considered as subsystem of society; therefore business sustainability is described through the striving to contribute 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. Evaluating analysis of business sustainability management models is performed by distributing present model into three groups: models based on statements of classical management school, second group consists of models based on strategic management, and the third group consists of the models based on quality management process, efficiency and Deming cycle. Performing the critical analysis of business sustainability management and evaluation models advantages and disadvantages of every model are being 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 of management and evaluation in the models, thus limiting possibilities of spread 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 perfection that is possible in the fields of primal application of quality

management and Deming cycle – process management, but are not real in of constant improvement of indices in business management because reaching of constant improvement of indices 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 application 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 (the dissertation author) 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 occurrence analysis there is a striving to understand the occurrence – 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.
8. By the means of occurrences analysis it was striving to study:
 - In which fields of enterprise activity the model application is coming into play, what changes are showed first,
 - What persons are influencing model application in the enterprise mostly,
 - If application goes according to the stages distinguished in the created model; if other important stages are showing themselves,

- What advantages and disadvantages of the model distinguish business representatives applying the model; what model fields they distinguish as worth to be improved?
9. During the empirical study it was determined that having reached the seventh step of the model – evaluation of the results – the feedback should go not to the third step – business analysis, but to the stage 2b of the second step – detailing of business criteria to indices and naming of sustainable values of the indices. In the previous 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 to create new activities, products or services and to cancel any activity, to close any production line or all 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 formatted business transformation to sustainable business management model application allowed to check practically formatted 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.

10. According to the dissertation author, the main direction of future studies is more comprehensive studies of model application in Lithuanian enterprises, because the bigger number of such studies would show more fields of the model that should be improved and should allow describing more examples of practical application. Using these examples it would be possible to popularize the concept of sustainable development in the enterprises, depending on the study's results and would be possible to create different versions of the model by adopting them more to enterprises of different size and fields.

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DAKTARO DISERTACIJOS SANTRAUKA

ĮVADAS

Temos aktualumas

Dabartiniu metu tiek mokslininkai, tiek politikai vis labiau sutaria dėl darnaus vystymosi svarbos. 1992 metais Rio de Žaneire vykusioje Jungtinių Tautų aplinkos ir vystymosi konferencijoje darnus vystymasis aukščiausio lygio politikų buvo įteisintas kaip pagrindinė ilgalaikė visuomenės vystymosi strategija. Europos Sąjungoje šią nuostatą įtvirtino Geteborge, Švedijoje, 2001 metais priimta Europos Sąjungos darnaus vystymosi strategija, o Lietuvoje - 2003 metų Nacionalinė darnaus vystymosi strategija.

Verslo svarba siekiant darnaus visuomenės vystymosi taip pat dažnai pabrėžiama tiek politiniuose dokumentuose, tiek mokslininkų darbuose. Brundtland ataskaitoje „Mūsų bendra ateitis“ (WCED, 1987) teigiama, kad daugelį būtinų žmonių poreikių gali patenkinti tik pramonės gaminami produktai ir paslaugos. 1992 metų Rio de Žaneiro konferencijoje priimtame dokumente „Darbotvarkė 21“ teigiama, kad tiek verslas, tiek pramonė yra labai svarbūs socialiniam ir ekonominiam valstybių vystymuisi. Šiems teiginiams pritaria ir mokslininkai. Staniškio, Stasiškienės ir Jasch (2005) nuomone, industrializacija yra svarbus elementas siekiant darnaus vystymosi, kadangi kurdama našias darbo vietas ir pridėtinę vertę ji reikšmingai prisideda prie skurdo mažinimo. Čiegio (2004) teigimu, darnaus vystymosi principų taikymas pramonės įmonių veikloje tampa vis svarbesniu konkurencingumo didinimo veiksniu, darnus vystymasis atveria naujas verslo galimybes, o visapusiškas ir pelningas verslas yra būtina darnaus vystymosi varomoji jėga.

Disertacijos tema aktuali tiek dėl to, kad pati darnaus vystymosi koncepcija yra gana nauja ir nagrinėjama tik porą dešimtmečių, tiek dėl to, kad darnaus vystymosi koncepcijai populiarėjant siekiama sukurti priemones, kuriomis būtų galima matuoti ir vertinti ir visuomenės vystymosi progresą ir verslo indėlį siekiant darnaus vystymosi.

Mokslinė problema, jos ištyrimo lygis

Darnaus vystymosi koncepcija pirmiausia pradėta taikyti globaliu mastu. Iš teorinių tyrimų ir tarptautinių susitarimų dokumentų aiškėja, jog tikimasi, kad darnus vystymasis padės išspręsti globalias skurdo, klimato pokyčių, gamtinių išteklių pereikvojimo ir išsekimo problemas. Taip pat darnų vystymąsi siekiama pritaikyti valstybėse nacionaliniu lygiu. Globalius ir nacionalinius darnaus vystymosi aspektus

nagrinėjo Brown (1981), Dorcey (1991), Pearce (1994), Voinov (1998, 2008), Robert (2002), Wright, Nebel (2002), Bell, Morse (2003), Rogers (2008), Singh et al. (2009), Dresner (2009) ir daug kitų autorių. Lietuvoje - Kairiūkštis, Rudzikas (1996), Čepinskis (2001), Čekanavičius, Rinkevičius (2001), Petkevičiūtė, Svirskaitė, (2001), Čiegis (2002), Čepinskis, Smilga, Žirgūtis (2002), Štreimikienė, Vasiljevienė (2004), Čiegis (2004), Adomaitienė, Zubrickienė, Andriekienė (2006), Čiegis, Čiegis, Jasinskas (2005), Rudzkienė, Burinskienė (2007), Juknys (2008), Čiegis, Zeleniūtė (2008), Dringelis (2009), Čiegis, Ramanauskienė, Martinkus (2009), Čiegis, Ramanauskienė, Startienė, (2009), Čiegis (2009), Ruževičius (2010).

Verslo ir pramonės darnaus vystymosi aspektus tyrinėjo Staniškis, Stasiškienė, Jasch (2005), Staniškis, Arbačiauskas, Pivoras (2006), Štreimikienė, Kovaliov (2007), Ruževičius (2009c). Kiti mokslininkai gilinosi į atskirų verslo ir pramonės šakų darnų vystymąsi: darnumo aspektu *finansinį* sektorių nagrinėjo Čepinskis, Žirgūtienė, Žirgūtis (2006), *energetinį* sektorių - Štreimikienė, Čiegis, Jankauskas (2007), Štreimikienė (2008), Grundey (2008), Klevas, Štreimikienė, Klevienė (2009), Štreimikienė, Simanavičienė, Kovaliov (2009), *turizmo* sektorių - Hopenienė, Kamičaitytė (2004), Grundey, Sarvutytė, Skirmantaitė (2008), Šimkus, Žegulytė (2009), *universitetus* - Čiegis, Gineitienė (2006), Grundey, Savrina, Kanapickienė (2007), *žemės ūkio ir maisto* sektorių - Grundey et al. (2004), Jasinskas, Kazakevičius (2008), *statybos ir architektūros* sektorių - Zaleckis (2009), Peldschus et al. (2010).

Svarbiausia teorine verslo darnumo valdymo tyrimų problema galima laikyti darnaus vystymosi koncepcijos taikymo versle tyrimų atsiejimą nuo bendros globalios ir nacionalinės tyrimų struktūros, nes dažnai verslo darnumo valdymo ir vertinimo modeliai formuluojami izoliuotai nuo kitų darnaus vystymosi tyrimų – susikoncentruojama tik į verslo lygį.

Užsienio autoriai įvairius verslo darnumo valdymo modelius pradėjo sudarinėti ir empiriškai taikyti dar praėjusio amžiaus devintojo dešimtmečio pradžioje. Lietuvoje dėmesys verslo darnumo valdymo idėjoms dar nebuvo skiriamas, kadangi tuo laikotarpiu Lietuva tik atgavo nepriklausomybę ir buvo pereinamasis laikotarpis iš planinės prie rinkos ekonomikos- mokslininkų dėmesys buvo sukongcentruotas į kitų klausimų sprendimą. Tuo tarpu užsienio literatūroje vienas iš pirmųjų modelių verslo darnumui vertinti pasiūlė Ragas et al. (1997). Įvairius teorinius verslo darnumo valdymo ir

vertinimo modelius siūlė ir empirinius verslo darnumo tyrimus atliko Tyteca & Callens (1999), Tyteca (1999), Caporali & Tellarini (2000), Andreoli & Tellarini (2000), Bond et al., (2001), Steen & Borg (2002), Keeble, Topiol & Berkeley (2003), Figge & Hahn (2004a), Figge & Hahn (2005), Ko (2005), Krajnc & Glavic (2005), Labuschagne, Brent & van Erck (2005), de Jonge (2006), Lozano (2006), Bebbington, Brown & Frame (2007), Van Couwenberg et al. (2007), Sarmiento et al. (2007), Rusinko (2007), Van Passel et al. (2007), Hutchins & Sutherland (2008), Russell & Allwood (2008), Munoz, Rivera & Moneva (2008), Tseng, Divinagracia & Divinagracia (2009), Vayssieres et al. (2009), Vayssieres, Bocquier & Lecomte (2009), Phillis & Davis (2009), Gomez-Limon & Sanchez-Fernandez (2010), United Nations (2010), Bojkovic, Anic & Pejic-Tarle (2010), Phillis, Kouikoglou & Manousiouthakis (2010).

Darnaus vystymosi koncepciją į verslo valdymą Lietuvoje siekiama integruoti vos keletą metų, o mokslinių straipsnių šia tema pagausėjo tik 2008 - 2010 metais. Darnios organizacijos modelį vysto Navickas (2008, 2010), Navickas, Navickienė (2009), efektyvumu ir Demingo ciklu pagrįstą darnumo sprendimų sistemą priimant verslo sprendimus aptaria Laurinkevičiūtė, Stasiškienė (2010, 2011), darnumo vertinimo ir valdymo modelį pristato Kinderytė (2008, 2010), Kinderytė et al. (2010), taip pat Staniškis, Arbačiauskas (2009b), Bagdonienė et al. (2009), Bagdonienė, Paulavičienė (2010). Toks darnaus vystymosi integravimo į vadybos mokslą mokslinių darbų pagausėjimas rodo šioje disertacijoje nagrinėjamos tematikos aktualumą, kadangi būtent dabartiniu periodu siekiama išsiginčyti užsienio mokslininkų darbus bei patirtį, be to, siekiama sukurti pagrindus, kaip taikyti darnaus vystymosi koncepciją valdant verslą.

Išnagrinėjus įvairius verslo darnumo valdymo modelius, jų teorinius bei empirinius tyrimus, darbe sprendžiama mokslinė problema formuluojama atsižvelgiant į verslo darnumo valdymo modelių trūkumus ir siekiant sudaryti modelį, kuris nebūtų suformuotas atsietai nuo bendrų darnaus vystymosi tyrimų globaliu ir nacionaliniu lygiais, taip pat siekiant modelyje nevertoti sudėtingų ir ekspertinių žinių reikalaujančių metodų, ribojančių praktinio taikymo versle galimybes.

Darbo objektas - verslo transformavimo į darnų verslą valdymas.

Darbo tikslas - ištyrus darnaus verslo sampratą ir verslo darnumo valdymo modelių privalumus bei trūkumus, sudaryti verslo transformavimo į darnų verslą valdymo modelį ir jį patikrinti Lietuvos sąlygomis.

Disertacijoje sprendžiami uždaviniai

- Išanalizuoti darnaus vystymosi bei darnumo sampratas ir nustatyti darnios visuomenės kriterijus.
- Atlikti mokslinėje literatūroje siūlomų verslo darnumo valdymo modelių kritinę lyginamąją analizę ir išskirti jų privalumus bei trūkumus.
- Įvertinus įvardintų modelių privalumus ir trūkumus, sudaryti verslo transformavimo į darnų verslą valdymo modelį.
- Atlikti empirinį sudaryto modelio taikymą dabartinėmis verslo sąlygomis Lietuvoje, kad būtų galima nustatyti modelio tobulinimo sritis.
- Pagal empirinio taikymo metu aptiktus trūkumus suformuoti patobulintą verslo transformavimo į darnų verslą valdymo modelį.

Ginamieji teiginiai

- Formuojamas verslo transformavimo į darnų verslą valdymo modelis turi būti pagrįstas globaliu ir nacionaliniu lygiais vykdomų darnaus vystymosi tyrimų pagrindiniais principais, kadangi unikalus darnumo apibrėžimas versle tampa nesuderinamas nei su platesniais nacionaliniais ar globaliais darnumo tyrimais, nei su įvairiais verslui skirtais darnumo valdymo ir vertinimo metodais bei priemonėmis.
- Verslo transformavimo į darnų verslą valdymo modelis turi būti pagrįstas aiškiu darnaus verslo apibrėžimu ir strateginiu valdymu, kadangi tai leidžia nustatyti aiškų siekiamą tikslą, o efektyvumu pagrįstuose modeliuose aiškus tikslas nėra nustatomas.
- Sudaromuose modeliuose turi būti vengiama sudėtingų ir ekspertų žinių reikalaujančių metodų, kadangi įmonėse reikiamų specialistų gali nebūti, jų gali nebūti ir darbo rinkoje, o specialistų trūkumas ribotų tokių modelių paplitimą įmonėse.
- Sudaromas teorinis verslo transformavimo į darnų verslą valdymo modelis turi būti pakankamai abstraktus ir iš anksto nenustatyti specifinių valdymo ir vertinimo metodų, kadangi tokie išankstiniai nurodymai praktinio taikymo įmonėje metu gali sukelti vadovų atmetimo ir pasipriešinimo reakciją.
- Sudaromame teoriniame verslo transformavimo į darnų verslą valdymo modelyje negalima iš anksto nustatyti nekintančių verslo darnumo vertinimo rodiklių, kadangi tik įsigilinus į atskiro verslo specifiką galima sudaryti verslo darnumo vertinimo

rodiklių rinkinį, kuris verslui keičiantis taip pat turi būti keičiamas.

Loginė darbo struktūra

Loginę darbo struktūrą nulėmė tyrimo objektas, tikslas ir iškelti uždaviniai. Pirmoje dalyje analizuojamos darnaus vystymosi, darnios visuomenės ir verslo darnumo sampratos. Sistemų požiūriu nagrinėjama darnaus vystymosi koncepcija ir išskiriamos svarbios darnaus vystymosi sistemos bei detalizuojamas jų turinys. Nagrinėjamos darnios visuomenės sampratos, išskiriami darnios visuomenės kriterijai, kuriais vadovaujantis apibrėžiama darni visuomenė. Sistemų požiūriu nagrinėjama verslo vieta gamtinėje, visuomeninėje, politinėje ir ekonominėje sistemose ir išskiriami darnaus verslo kriterijai.

Antroji disertacijos dalis skirta verslo transformavimo į darnų verslą valdymo modeliui sudaryti. Šiame skyriuje atliekama verslo darnumo valdymo modelių kritinė lyginamoji analizė - išskiriami kiekvieno modelio privalumai ir trūkumai. Įvertinus šių išskirtų modelių privalumus ir trūkumus, sudaromas apibendrintas verslo transformavimo į darnų verslą valdymo modelis, kuris vėliau detalizuojamas ir išskiriami svarbiausi kiekvieno etapo aspektai.

Trečia disertacijos dalis yra skirta sudaryto teorinio modelio empirinio tyrimo metodologijai, taip pat verslo transformavimo į darnų verslą valdymo modelio taikymo atvejo analizei. Apibendrinus empirinio tyrimo išvadas, suformuluojamas patobulintas verslo transformavimo į darnų verslą valdymo modelis.

Mokslinis naujumas

Disertacijos mokslinį naujumą ir teorinę reikšmę nusako šie teoriniai teiginiai ir aspektai:

- Atlikta darnaus vystymosi ir darnios visuomenės sampratų teorinė analizė leido išskirti darnios visuomenės kriterijus, juos papildant technologinės grėsmės požymiu, kuris nebuvo įtrauktas į darnios visuomenės sampratą, apibrėžiančias darnumą kaip gamtinės ir visuomenės sistemų sąveiką.
- Sudarytas verslo transformavimo į darnų verslą valdymo modelis išplečiamas ketvirtąją darnumo dimensija, politine sistema, nes ankstesni sudaryti verslo darnumo valdymo modeliai dažniausiai rėmėsi trimis populiariausiomis darnumo dimensijomis: gamtine, visuomenės ir ekonomine.

- Disertacijoje pateikiama atlikta naujausių verslo darnumo valdymo modelių kritinė lyginamoji analizė. Lietuvoje mokslinėje literatūroje darnaus vystymosi koncepciją į verslo valdymą siekiama integruoti tik pastaruosius keletą metų (2008 - 2011), dauguma analizuotų modelių yra sukurti 2010, 2011 metais, todėl yra nauji ir dar nėra sulaukę detalesnės kritinės analizės bei komentarų. Šioje disertacijoje modelių kritinė analizė apima naujausius 2010, 2011 metais sudarytus verslo darnumo valdymo modelius.

Praktinė darbo reikšmė

- Atsižvelgus į išsamios kritinės verslo darnumo valdymo modelių lyginamosios analizės metu išskirtus modelių trūkumus, sudarytas verslo transformavimo į darnų verslą modelis pagrįstas ne efektyvumo siekimu ir Demingo ciklu, o strateginio valdymo procesu. Sudarytu modeliu gali naudotis įmonės, siekiančios darnaus vystymosi koncepciją pritaikyti veikloje. Kadangi sudarytas modelis yra pagrįstas strateginio valdymo procesu, jis glaudžiai siejasi su įprastai įmonėse taikomu strateginio planavimo ir valdymo procesu.
- Valdžios institucijos, siekdamos darnaus Lietuvos vystymosi, kuris nurodytas Lietuvos darnaus vystymosi strategijoje (2003, 2009), sudarytu verslo transformavimo į darnų verslą modeliu gali vadovautis kaip gairėmis ar kaip praktiniu valdymo įrankiu, kurį pasitelkdami Lietuvoje verslininkai darnaus vystymosi koncepciją gali taikyti savo veikloje ir taip prisidėti prie platesnio tikslo – darnaus Lietuvos visuomenės vystymosi.
- Sudarytu teoriniu verslo transformavimo į darnų verslą modeliu akademinės profesijos atstovai gali naudotis atlikdami empirinius darnaus vystymosi koncepcijos taikymo įmonėse tyrimus ir taip pagausinti empirinių darnaus vystymosi koncepcijos taikymo versle tyrimų kiekį. Parengto modelio taikymo tyrimai versle padėtų populiarinti darnų vystymąsi ne tik įmonėse, tačiau suteiktų daugiau praktinių taikymo pavyzdžių, kuriais pasinaudojant būtų galima siekti darnaus vystymosi ir versle.
- Sudarytas verslo transformavimo į darnų verslą valdymo modelis tiesiogiai sieja įmonių darnumo tikslus tiek su Lietuvos nacionaline darnaus vystymosi strategija ir joje iškeltais tikslais, tiek su Europos Sąjungos darnaus vystymosi strategija ir

tikslais. Lietuvos įmonėms siekiant darnaus vystymosi ir joms vadovaujantis disertacijoje suformuotu valdymo modeliu, jų pasiekti rezultatai praktiškai prisidėtų tiek prie Lietuvos darnaus vystymosi tikslų įgyvendinimo, tiek prie platesnių Europos Sąjungos darnaus vystymosi tikslų siekimo.

Tyrimo metodai

Analizuojant darnaus vystymosi sampratas ir verslo darnumo valdymo modelius, teoriniuose tyrimuose naudotasi *mokslinės literatūros analize, sisteminiu, sinteze, abstrahavimu, lyginimu ir apibendrinimu*. Empirinių tyrimų metu pasitelkta *kiekybinė turinio analizė kompiuteriu, dažnumo skaičiavimo metodas, anketinė apklausa, aprašomoji statistika ir statistinė duomenų analizė* (Microsoft Excel, SPSS), o atliekant sudaryto verslo transformavimo į darnų verslą valdymo modelio taikymo tyrimą taikyta *atvejų analizė*.

Tyrimo apribojimai

Pagrindiniu atlikto tyrimo apribojimu laikomas ribotas disertacijos rengimo laikas, kadangi jis yra per trumpas siekiant įmonėse nuosekliai pritaikyti ir patikrinti disertacijoje suformuotą verslo transformavimo į darnų verslą valdymo modelį bei įvertinti rezultatus. Įprasta, kad verslo rezultatai įvertinami pasibaigus metams, todėl per disertacijos rengimui skirtą laiką nuosekliai pritaikyti sudarytą modelį ir įvertinti įmonių pasiektus rezultatus yra ribotos galimybės.

IŠVADOS, ATEITIES TYRIMŲ KRYPTYS

Atlikus teorinius ir empirinius verslo darnumo valdymo tyrimus, suformuluotos šios išvados:

1. Ištyrus mokslo šaltiniuose pateikiamas darnaus vystymosi sampratas pastebima, kad darnaus vystymosi koncepcijoje dažnai pabrėžiamas *amžinumo, nenutrūkstamumo, tęstinumo* aspektas, todėl daroma išvada, kad darnaus vystymosi koncepcija pirmiausia nagrinėja visuomenės išlikimo klausimus, o matavimams dažnai pasitelkiamas žmonių kartų laiko mastelis taip sutelkiant dėmesį į ilgalaikių pokyčių nagrinėjimą.

Darnus vystymasis apibrėžiamas tiek aiškinant jo pagrindinį tikslą, tiek būdus tam tikslui pasiekti. Darnaus vystymosi sampratos, pabrėžiančios tikslą - nenutrūkstamumą, ilgalaikiškumą, patvarumą - pavyzdys yra „darnus vystymasis yra vystymasis, kuris tęsiasi” (World Development Report, 1992). Daugelyje darnaus vystymosi sampratų aiškinama, kaip tą tikslą pasiekti. Tai galima padaryti patenkinant dabartinės ir ateities

kartų poreikius, neviršijant gamtos talpumo, naudojant tinkamas žmogaus sukurto, gamtinio, žmogiškojo ir socialinio kapitalo proporcijas, minimizuojant žalą, ir pan. Tokios sampratos pavyzdys yra „darnus vystymasis <...> reiškia žmonių gyvenimo kokybės gerinimą, kai neviršijamas ekosistemų talpumas” (IUCN, 1991).

2. Sistemų požiūriu, darnaus vystymosi koncepcijoje ketvirtos - politinės - sistemos nagrinėjimas laikomas natūraliu tolimesniu darnaus vystymosi koncepcijos vystymo etapu. Siekiant prisidėti prie tolimesnės šios mokslinės koncepcijos vystymo, disertacijoje į sudaromą modelį įtraukiama politinė sistema ir taikomas skirstymas į keturias dalis: gamtos, visuomenės, politinę ir ekonominę.

3. Darnia visuomenė laikoma tokia visuomenė, kuri savęs nesunaikina, o ši darnios visuomenės samprata detalizuojama kriterijais, kuriuos ji turi atitikti: darni visuomenė yra tokia, kuri sistemingai nedidina iš žemės plutos išgaunamų bei visuomenės sukuriamų medžiagų koncentracijos gamtoje, taip pat sistemingai nedidina gamtos degradacijos fizinėmis priemonėmis, be to, yra patenkinami viso pasaulio žmonių poreikiai bei nėra prieinamos technologijos, galinčios sunaikinti pačią visuomenę.

4. Sistemų požiūriu verslas laikomas visuomenės posisteme, todėl verslo darnumas apibūdinamas kaip siekis prisidėti prie visuomenės išsikelto tikslo - tapti darnia. Darniam verslui taikomi šie kriterijai:

- Darnus verslas neprideda prie sistemingo iš žemės plutos išgaunamų medžiagų koncentracijos didinimo gamtoje.
- Darnus verslas neprideda prie sistemingo visuomenės sukuriamų medžiagų koncentracijos didinimo gamtoje.
- Darnus verslas neprideda prie sistemingo gamtos degradacijos didinimo fizinėmis priemonėmis.
- Darnus verslas neprideda prie sąlygų, mažinančių galimybes patenkinti viso pasaulio žmonių poreikius.
- Darnus verslas neprideda prie technologijų, galinčių sunaikinti pačią visuomenę, egzistavimo.

5. Verslo darnumo valdymo modelių lyginamoji analizė atliekama suskirstant esamus modelius į tris grupes: pirmai grupei priskiriami modeliai, pagrįsti klasikinės vadybos mokyklos teiginiais, antrai grupei - modeliai, pagrįsti strateginiu valdymu, o

trečioje grupėje nagrinėjami kokybės vadybos procesu, efektyvumu ir Demingo ciklu pagrįsti modeliai. Atliekant kritinę verslo darnumo valdymo ir vertinimo modelių analizę išskiriami kiekvieno modelio privalumai ir trūkumai. Vienu pagrindinių sudarytų modelių trūkumų laikomas unikalios darnumo sampratos taikymas modelyje, nes jis mažina galimybę, jog taip sudaryti modeliai galės būti derinami su plačiai paplitusiais darnaus vystymosi tyrimais ir valdymo įrankiais bei moksliniais darbais. Taip pat svarbiu trūkumu laikomas sudėtingų ir ekspertinių žinių reikalaujančių valdymo ir vertinimo metodų taikymas modeliuose, nes taip apribojamos jų paplitimo ir platesnio pritaikomumo verslo sektoriuje galimybės.

Pagrindiniu efektyvumu pagrįstų modelių trūkumu laikomas nuolatinio tobulinimo siekis, kuris yra įmanomas kokybės vadybos ir Demingo ciklo praktinio taikymo metu, tai yra valdant procesus, tačiau valdant verslą nerealu tikėtis nuolatinio rodiklių reikšmių gerinimo, kadangi keičiantis verslo aplinkai to pasiekti neįmanoma, šis siekis taikytinas tik laboratorijos ar vidinių verslo procesų sąlygomis.

6. Atsižvelgiant į verslo darnumo valdymo modelių kritinės analizės metu išskirtus modelių privalumus ir trūkumus, sudarytas verslo transformavimo į darnų verslą modelis, grindžiamas strateginio valdymo procesu, atsižvelgiančiu į aplinkoje (gamtoje, visuomenėje, politinėje ir ekonominėje sistemose) vykstančius pokyčius. Suformuotas verslo transformavimo į darnų verslą modelis yra sudarytas iš šių septynių žingsnių: 1) sprendimų priėmėjų susipažinimas su darnaus vystymosi koncepcija; 2) darnaus verslo vizijos apibūdinimas; 3) verslo analizė, 4) aplinkos analizė, 5) strategijos kūrimas, 6) strategijos įgyvendinimas, 7) rezultatų įvertinimas.

7. Suformuoto verslo transformavimo į darnų verslą valdymo modelio empirinio taikymo tyrimui atlikti buvo pasitelktas kokybinis tyrimas. Kokybinis tyrimas pasirinktas dėl to, kad siekiama modelio taikymo tyrimą atlikti natūralioje aplinkoje - realiomis verslo sąlygomis Lietuvoje. Ši tyrimo rūšis pasirinkta ir dėl to, kad tyrėjas (disertacijos autorius) turi tiesiogiai dalyvauti tyrime - pristatyti darnaus vystymosi koncepciją verslo atstovams, juos konsultuoti aktualiais klausimais, o tyrėjo vaidmuo kokybiniame tyrime yra aktyvus. Analizuojant atvejį siekiama sudaryto modelio taikymo versle procesą suprasti kuo giliau, tam tikslui pasitarnauja įvairūs duomenų šaltiniai bei duomenų rinkimo metodai: stebėjimas natūralioje aplinkoje (įmonėje), interviu, klausimynai, susirašinėjimas.

8. Analizuojant atvejus buvo siekiama iširti:

- Kokiose įmonės veiklos srityse modelis yra pritaikomas, kokie pokyčiai pasireiškia pirmiausia.
- Kokie asmenys labiausiai lemia modelio taikymą įmonėje.
- Ar taikymas vyksta pagal sudarytame modelyje numatytus etapus, ar išryškėja kiti svarbūs etapai.
- Kokius modelio privalumus ir trūkumus bei tobulintinas sritis nurodo modelį taikantys verslo atstovai.

9. Empirinio tyrimo metu buvo nustatyta, kad pasiekus septintą modelio žingsnį - rezultatų įvertinimą - grįžtamasis ryšys turėtų vesti ne į trečią žingsnį - verslo analizę -, o į antro žingsnio 2b etapą - darnaus verslo kriterijų detalizavimą į rodiklius ir rodiklių darnių reikšmių įvardijimą. Septintame teorinio modelio žingsnyje įvertinus rezultatus grįžtamasis ryšys buvo nukreiptas į 3 žingsnį, verslo analizę, tačiau praktika parodė, kad neįmanoma iš karto įmonėje nustatyti visus tinkamus rodiklius. Verslas keičiasi nuolatos: jis keičia tiekiamus produktus bei paslaugas, gali sukurti naujų veiklų, naujų produktų ar paslaugų, taip pat jis gali nutraukti tam tikrą veiklą, uždaryti tam tikrą gamybos liniją ar visą gamyklą. Dėl šių priežasčių įmonės vadovai gali parinkti tik tokius rodiklius, kurie atspindi tuo metu įmonės vykdomą veiklą, o veiklai keičiantis, rodikliai taip pat turi keistis.

Atliktas empirinis suformuoto verslo transformavimo į darnų verslą valdymo modelio taikymo tyrimas leido praktiškai patikrinti įmonėse šį teorinį modelį ir identifikuoti modelio sritis, kurias reikia tobulinti. Atsižvelgiant į šią sukaupią informaciją modelis buvo tobulinamas - suformuotas patobulintas verslo transformavimo į darnų verslą valdymo modelis.

10. Pagrindine tyrimų kryptimi ateityje disertacijos autorius laiko išsamesnius modelio taikymo Lietuvos įmonėse tyrimus, kadangi didesnis tokių tyrimų kiekis leistų atskleisti daugiau tobulintinų modelio sričių ir aprašyti daugiau praktinių taikymo pavyzdžių. Šie pavyzdžiai padėtų populiarinti pačią darnaus vystymosi koncepciją įmonėse, o įvertinus tyrimų rezultatus būtų galima sudaryti įvairių modelio versijų, kurios geriau tiktų įvairaus dydžio ir sričių įmonėms.

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Mokslinės publikacijos:

- Grunda, R. (2010) Estimating Annual Statement Information Usefulness For Business Sustainability Evaluation. *Economics & Management*. 2010. Nr. 15. (Referuojama: EBSCO Business Source Complete, TOC Premier).
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