

DEVELOPMENT OF SUSTAINABILITY INDICATORS: APPROACHES, CHALLENGES AND OPPORTUNITIES

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Abstract: *Rapidly changing and complex business environment requires from enterprises to cautiously develop their business strategies in order to achieve and maintain competitive advantage over the long term. With the awareness of importance of environmental consequences and sustainability, market value is no longer determined by single financial performance indicators. The sustainability framework which encompasses economic, environmental and social performances has rather received an international attention of both corporate and financial sector. Even though it is generally accepted that the adoption of sustainability ratios is a most adequate and effective way for sustainability performances' assessment, both the creation/selection of sustainability ratios and their implementation and analysis have been still examined at national and corporate levels. Most companies have adopted the internationally recognized performance evaluation systems (such as Global Reporting Initiative or United Nations Global Compact). Still, there is increasing number of companies that apply self-developed sustainable performance evaluation methodologies. The main purpose of this paper is to investigate the development and application of the performance indicators of sustainable management with the aim to offer suggestions for selection of sustainability ratios the application of which should increase the effectiveness of controlling and decision-making process and would lead to long term competitive advantage.*

Key words: *sustainability reporting, economic, environmental and social performance indicators, GRI Standards, controlling.*

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INTRODUCTION

Sustainability is an area of growing importance in today's business. The concept of sustainability and sustainability management has attracted a lot of attention during the last decades. Corporate reporting is influenced by this trend too. Numerous challenges, such as global warming, climate change and energy regulation, data protection, resource scarcity, social conflicts and migrations etc., force companies to respect the requirements for sustainability management. The changes in corporate environment have as a consequence the reshaping of investor's (and other interest groups') requirements for information. The retrospective orientation based exclusively on financial indicators/ performances is no longer sufficient to provide and sustain long-term business success and competitive advantage. It alone reflects only conditionally systematic risks and actual costs of applied corporate policies (Sikora & Downar, 2014). While conventional accounting and financial metrics give an insight into a company's market value, forward-looking voluntary reporting is becoming more relevant to a business's overall value proposition and is regarded as a prerequisite for financial and overall firm competitiveness (Denčić-Mihajlov & Spasić, 2015).

Recent years have witnessed an increasing number of companies reporting on environmental, ethical and social aspects of their business activities through a particular form of disclosure. Sustainability reporting is a very important part of today's external corporate reporting. Adequate inclusion of sustainability issues in company's reports is one of the key issues for further development of corporate communications with stakeholders (Stojanović-Blab et al., 2016). Many companies have made a conscious effort to "go green" and pursue actions that are optimal for a broad class rather than simply one class of shareholders (Rezaee & Rezaee, 2014), and actions designed to lead to a "desirable future state" for all stakeholders (Funk, 2003).

Numerous international and European organizations and institutions consider issues relating to the content and type of reporting on economic, environmental and social aspects of the business and try to jointly create adequate guidance and guidelines in this area. From the accounting point of view significant are Directive 2003/51, Directive 2013/34/EU and especially Directive 2014/95/EU or the so-called CSR Directive. In addition to these directives, the engagement of the Federation of European Accountants, which worked on the establishment of a Generally accepted framework for environmental reporting, is also meaningful in this area (Denčić-Mihajlov & Stojanović-Blab, forthcoming). At the global level, the most adopted multi-stakeholder standards which address a wide range of sustainability issues are the Global Reporting Initiative (GRI) and the UN Global Compact (UNGC). As pointed out by Rasche (2010), the 'market' for sustainability reporting is nowadays highly fragmented with numerous standards, certifications, principles etc. which, on one hand, increases the opportunities for reporting, but, on the other hand, creates difficulties for corporations and stakeholders in operating and evaluating firm performances.

The Global Reporting Initiative has, over the past decades, made substantial progress in assembling a list of sustainability indicators relevant to a wide spectrum of stakeholders and applicable to corporations across all sectors (on the different versions of the GRI sustainability reporting guidelines see: Blab et al. 2014). In May 2013, the Global Reporting Initiative set up the fourth generation of its sustainability reporting guidelines, the GRI G4 Sustainability Guidelines (consisting of two parts - Reporting Principles and Standard Disclosures and Implementation Manual), which remain valid till 1 July 2018. In comparison to previous G3 and G3.1, G4 Guidelines do not bring changes regarding reporting principles, but offer

novelty on how to determine material aspects (encourage organizations to provide only information critical to their business and stakeholders) and the effects they may have. The G4 Guidelines offer the so-called *core option* and *comprehensive option* as two independent options of how organization's sustainability report can comply with the Guidelines. The *core option* requires the provision of minimal foundation information and reporting of at least one indicator for all identified material aspects. *Comprehensive option* builds on the *core option*, by demanding supplementary disclosures about the organization's strategy, governance, ethics and integrity. If deciding on the *comprehensive option*, an organization must report all indicators for all identified material aspects (GRI, 2015).

The new GRI Standards issued in October 2016 by the Global Sustainability Standards Board are created as the first universal set of regulations for sustainability reporting, which offer companies a universal tool for disclosing non-financial information. Sustainability reporting based on the GRI Reporting Framework consists of Reporting Principles, Reporting Guidance, and Standard Disclosures (including company Strategy and Profile, Management approach and Sustainability performance indicators). With the GRI Standards, "GRI aims to maintain the proven principles of sustainability reporting, but to provide users with more flexibility, clearer instructions, clear terminology and a modular structure of the GRI standards, to remedy content redundancies and to provide a more logical structure of the GRI standards compared to GRI G4" (on the comparison between GRI G4 and GRI Standards see: Stojanovic-Blab & Blab, 2017). Unlike GRI, which is viewed mainly as a reporting standard, the UNGC is termed as a principle-based standard (Rasche, 2010). The UNGC framework has a simple and relatively logical structure with criteria related to the four core sustainability issues (Human Rights, Labor, Environment and Anti-Corruption) and 10 UNGC principles for responsible and sustainable business behavior that corporations are required to report. Other relevant and globally-recognized frameworks for sustainability reporting are given by *Sustainability Accounting Standards Board (SASB)*, *International Labor Organization (ILO)*, *OECD Guidelines for Multinational Enterprises*, CDP, *World Resources Institute (WRI)* and *World Business Council for Sustainable Development (WBCSD)* among others (about the complementarity of these frameworks see: GRI/The complementarity of frameworks (2016)).

As pointed out by Lydenberg et al. (2010), in order to maximize the usefulness of sustainability reporting, it is essential that reporting regime integrates a means of identifying key sustainability performance indicators at a sector level. These indicators focus on the sustainability data material to most stakeholders and enable corporate stakeholders to give support for the improvements in the most important aspects of a company's sustainability performance; they should align all levels of an organization with clearly defined targets and benchmarks to create accountability and to track progress (Hřebiček et al. (2011). In this way, the selected sustainability performance indicators would focus on the 'key' measures as the most important to understanding the business and thus avoid the trend toward extended reporting on a wide range of less relevant measures.

The aim of the paper is to investigate the development and application of the performance indicators of sustainable management with the aim to offer suggestions for selection of sustainability ratios the application of which should increase the effectiveness of controlling and decision-making process and would lead to long term competitive advantage. The structure of the paper is as follows. In Section 2 we give an overview of sustainability indicators types, goals and selection process. Following GRI reporting framework, triple-bottom principle is adopted to present economic, environmental and social performance sustainability indicators in Section 3, 4 and 5 respectively. The final Section provides conclusions and proposes the objectives for future research.

1. SUSTAINABILITY INDICATORS: NATURE, PURPOSE AND SELECTION

The advantages of an integrated approach to social, environmental and economic business goals have been shown in a variety of publications (for a literature review see Giovannoni & Fabietti, 2014). Sustainability reporting should not be an objective by itself. Sustainability reporting should be regarded as a key action in implementing corporate strategy which is aiming at recognizing the impact on company's stakeholders, influencing stock specific opportunities and mitigating risks and negative impacts on the economy, society and the environment. Consequently, of central importance is to specify most suitable performance indicators to support operational decision-making in enterprises. According to EY& GRI (2014), one of the key drivers behind the increase in sustainability reporting has been the acknowledgment that, to be meaningful, a sustainability strategy must be based on reliable, concrete data, which can only be the case once the mechanisms and systems for reporting the facts are put in place. As shown in Table 1, this selection process starts with taking into account globally recognized sustainability reporting initiatives and guidelines. Having recognized and encompassed specific sector issues, the process of sustainability indicators selection ends up with the consideration of company relevant characteristics and market position (such as age, size, geographic exposure, complexity, history, news flow). Such a process enables organizations to recognize and track the results and, more importantly, to establish a system that properly indicates firms' values and requirements (Searcy et al., 2005).

Table 1 The process of selecting sustainability indicators



Source: Adapted from Columbia Threadneedle Investments (2016)

The indicators are measurements that show the status of an environmental, economic, or social system over time (Redefining Progress, Sustainable Seattle, and Tyler Norris Associates, 1997). These are simple units of measure that are critical when making decisions in a complex environment. Sustainability indicators can be classified along various dimensions of measurement, such as sustainability attributes (for example

economic, social or environmental attributes) or frameworks (for example DPSIR-indicators) (Singh et al., 2012). Waas et al (2014) classify sustainability indicators into several categories following their important aspects in practice:

- Descriptive (give a description of an actual situation) vs. normative (compare an actual situation with a desired one);
- Quantitative vs. qualitative;
- Objective (that are sensed by instruments outside the individual) vs. subjective (only verifiable through “subjective” explanations);
- Community vs. expert (classification depending on who develops the sustainability indicators—stakeholders “bottom up” and/or experts “top down”);
- Ex-ante vs. ex-post.

Fiksel et al. (1999) indicate that sustainability indicators can address inputs and processes (leading indicators) and outcomes (lagging indicators). Since leading indicators tend to be internally-focused, it is not surprising that the majority of externally-reported indicators are in the lagging category. According to objectives and purposes, sustainability indicators can be represented in various forms, such as qualitative or quantitative, general or specific, and absolute or relative indicators (Bae & Smardon, 2011). Key sustainability indicators are usually quantitative measures (given for example in terms of mass, volume or number of environmental pollutants or physical materials), defined with a purpose to manage sustainability control and to plan qualitative fields of action in the area of sustainability management. However, some indicators cannot be defined in physical terms and have to be expressed qualitatively. Indicators which are based only on subjective estimates (qualitative indicators), usually include social dimensions of a firm’s activities and play a decisive role for nonmonetary goals, such as reputation, transparency, compliance and credibility.

General indicators are used by companies across all sectors (therefore are easily comparable) and deal with globally discussed issues (for example, climate agreements such as Montreal Protocol or Kyoto Protocol). On the other hand, specific indicators are specified for an industry or firm. For instance, in a Report Toward a Sustainable Cement Industry, Battelle Memorial Institute (2002) proposes key performance indicators for companies in this industry (such as non-product output, i.e., *Waste per ton of cement*, or *Net CO₂ (kg) per ton of cement*).

Absolute indicators are used to measure a firm’s quantitative environmental and social impact related to its activities, products, and services (Bae & Smardon, 2011). In this regard, companies report, for example, on *Total amount of energy/water consumed per year* or *Total amount of hazardous waste generated*. Relative indicators (such as ratio of waste per unit of input material as an example of eco-efficiency indicator) are given in terms of a ratio or proportion that compares two absolute indicators, which assures a process of trend evaluation, comparison and consideration of possibly better sustainable opportunities and practices.

With regard to sustainability indicators selection process, as Staniškis & Arbačiauskas (2009) point out, “a particularly important aspect is related to the application of a product life cycle approach. Frequently, enterprises limit performance analyses to production and to other internal processes, sales and general economic indicators. Yet, there are cases when a product use impact on the environment is stronger than that caused by the production phase”.

Having identified the indicators and metrics (as a specific means of measuring and tracking a performance indicator), the company should set short and long term targets, as a determined level of performances it is aiming at. Indicators designate a measurable dimension of performance, metrics provide a means of quantifying the indicators, and targets provide a basis for tracking and assessing improvement, they guide decision-making efforts and support stakeholder communication (Fiksel et al., 1999). The main purpose of sustainability indicators' calculation and application is, thus, to monitor and evaluate effectiveness and performance of goals and targets in a decision-making strategy for sustainable development (Parris & Kates, 2003). Key sustainability indicators can be used for strategy implementation and control, in the realization phase, especially when transferring decisions to be given to implementing sustainability instances. In this way, they fulfill the information task for the stakeholders. Some sustainability indicators are suitable for comparison purposes, while some can also be a subject of benchmarking (Hentze, 2014). In this way, key indicators in the sustainability planning process can serve as a stimulus for the identification and analysis of problems, or for comparison actions and performance of firms that may or may not be implementing sustainable business (Kuhndt et al., 2002).

The majority of published theoretical and empirical studies on sustainable indicators and performance measurement address the issue of balance in the number of indicators and stress the need to develop a small set of indicators. According to the European Federation of Financial Analysts Societies, one of the "essential criteria" for a useable key performance indicator (KPI) set is that it "should be manageable in dimension, e.g. a small set of 30 KPIs max." (EFFAS, 2009). O'Connor & Spangenberg (2008) address the issue of a proper number of sustainability indicators, as the question of a 'balance' in the number of indicators associated with each performance issue, with each stakeholder type, for each site. According to the GRI Guidelines (2011), each Level application requires minimal number of reported sustainability indicators (at the C level, the company must only report on 10 GRI indicators, at the B Level on 20, and at the A Level all 50 GRI "core" indicators must be represented, either with data or a valid explanation as to why the indicator is not reported).

Even though the main impetus for sustainability performance reporting comes externally, from shareholders and other stakeholders, nowadays companies use sustainability performance evaluation for both external and internal reasons. If properly selected, sustainability performance indicators can support the identification of the possibilities for activities' optimization, point out to the inefficiencies that could be resolved by preventive actions, develop the process of exchanging information (Staniškis & Arbačiauskas, 2009), create more incentives for management to refocus its goals, strategic decisions, and actions from a short-term to a long-term prospect (Rezaee & Rezaee, 2014), help to identify risks, as well as the potential for improving efficiency and finding new markets and can have a significant impact on the overall performance, as well as investors' perceptions and access to capital (EY & GRI, 2014).

Companies use data and facts from the sustainability reports with the aim to conduct actions of sustainability management as well as for the engagements in the field of global corporate strategy, products and supply chains management, employees, society and social commitment (Hentze, 2014). Key figures and facts are presented according to the thematic areas in sustainability reports, such as economic, environmental, social, eco-efficiency, social-economic or social-environmental. They are the object of sustainability controlling, which is a part of sustainability management. In this way, a special "service function" of sustainability reporting fulfills its purpose. In order to develop an operational

system to bring value to the enterprise, according to Toth & Arbačiauskas (2005), sustainability performance indicators should be (a) meaningful, (b) comparable, (c) integral, (d) clear, (e) continuous, and (f) efficient.

With the process of technology and digitalization development and sophistication of the systems for data gathering, the processes of controlling and improving sustainability performances will become more closely related to each other, and the sustainability and market performance indicators performance will be more strategically linked. Following the GRI reporting framework, the triple-bottom principle is adopted to present economic, environmental and social performance sustainability indicators in the following text.

2. ECONOMIC PERFORMANCE INDICATORS

Financial performance indicators measure companies' profitability and current financial status and give information necessary to meet primary objectives of companies, such as maximizing shareholder wealth and growth/survival as well the information on the shareholder return and profits and the relationship between profits and shareholder value. As Lin et al. (2014) point out, "economic performance in sustainability reports is frequently confused with the financial performance in accounting reports". The economic indicators go one step further than the standard financial disclosure in explaining the process of value creation, and in reporting its distribution and reinvestment for future growth. "They measure a company's influences on its stakeholders' economic circumstances and on the economic systems at local, national, and/or international levels" (GRI, 2006). In this way, both human and financial capital is taken into account.

This economic aspect of performance gained in popularity during the 1990s and the observed changes in demand for sustainability reports by the users. "It was intended to measure flows of capital among different stakeholders and the economic impacts of the organization on the society" (GRI, 2006). GRI Guidelines (G3) specifies three economic performance aspects: (1) *Economic performance*; (2) *Market presence*; and (3) *Indirect economic impacts*. Each of these categories contains a set of sub-indicators. The 200 series of the GRI Standards (2016) include topic-specific standards used to report information on an organization's material impacts related to economic issues such as: *GRI 201: Economic Performance*, *GRI 202: Market Presence*, *GRI 203: Indirect Economic Impacts*, *GRI 204: Procurement Practices*, *GRI 205: Anti-corruption and GRI 206: Anti-competitive Behavior*. *GRI Standards 201: Economic Performance* (2016), for example, encompasses topic specific disclosures such as:

- Disclosure 201-1: Direct economic value generated and distributed, that includes indicators related to (I) direct economic value generated (revenues), (II) economic value distributed (a) operating costs, such as royalties, payments for contract workers, training costs or costs for personal protective clothing, (b) employee wages and benefits, payments to providers of capital, payments to government by country, and community investments and (III) economic value retained;
- Disclosure 201-2: Financial implications and other risks and opportunities due to climate change, i.e. risks and opportunities resulting from climate change that could significantly impact operations, revenue, or expenditures;
- Disclosure 201-3: Defined benefit plan obligations and other retirement plans;
- Disclosure 201-4: Financial assistance received from the government.

According to Bae & Smardon (2011), five most used economic performance indicators among companies quoted on the New York Stock Exchange in the period 1999-2006 are *Annual profits*, *Annual revenues*, *Annual Sales*, *Fines* and *Donations*. These are general and absolute indicators, relatively easy for calculation and comparison.

As reported by Lin et al (2014), among three economic performance aspects proposed by the GRI Guidelines (G3), the most disclosed by companies listed in the GRI database is economic performance, while the lowest rated aspect is indirect economic impact. They also reveal that “economic performance indicators are considered less important compared relatively to the social and environmental indicators, and explain that by the fact that economic aspect was the most recent addition to sustainability reporting and therefore it is less familiar to both the preparers and users”.

Table 2 The most used sustainability indicators

Economic performance indicators	<ul style="list-style-type: none"> ▪ Annual profits ▪ Annual revenues ▪ Annual sales ▪ Annual operating costs (based on EHS) ▪ Costs saving (based on EHS) ▪ Capital expenditure (environmental) ▪ Annual productivity ▪ Fines ▪ R & D investment (Based on EHS) ▪ R & D investment (total) ▪ Donations ▪ Annual turnover ▪ Value added
Environmental performance indicators	<ul style="list-style-type: none"> ▪ Total amount of water used ▪ Total amount of energy used ▪ Total amount of greenhouse gases generated (CO₂) ▪ Total amount of solid waste generated ▪ Total amount of hazardous waste generated ▪ Total amount of waste recycled or reused ▪ Total amount of Volatile Organic Compound (VOC) generated ▪ Total amount of air emissions generated (SO_x, NO_x) ▪ Total number and volume of significant spills and accidents ▪ Total number of environmental violations
Social performance indicators	<ul style="list-style-type: none"> ▪ Female, disabled person's ▪ The recruitment of people from ethnic minorities, older workers, women ▪ Empowerment of employees ▪ Average hours of training/ employee ▪ Number of employees ▪ Recordable illness rate ▪ Lost time rate ▪ Whether or not firms implement a broad range of voluntary activities ▪ Whether or not firms provide opportunities to communicate internally and externally to interested parties ▪ Breakdown of employees in terms of gender, age, and minority group

Source: Adapted from Bae and Smardon (2011)

3. ENVIRONMENTAL PERFORMANCE INDICATORS

The attention to environmental protection rose after a chain of ecological and environmental disasters during the 1970s and 1980s. The problem of environmental protection has grown to such a degree that the issue of resolving this problem has become the subject of significant international conventions and conferences, such as, the *First United Nations Conference on the Human Environment* in 1972 (adopted document: Stockholm Declaration), the *UN Conference on Environment and Development* in 1992 (Rio Declaration and Agenda 21), the *UN Conference on Sustainable Development* in 2012 (final document "The future we want"), etc. (for a chronological review of most important conventions and conferences see: Stojanović, 2015).

Environmental reporting became a part of many sustainability reports, while environmental disclosures became mandated in many countries, including both developed and developing. Environmental performance measurement evaluates interrelatedness between the business and the environment and could be analyzed at the level of individual environmental performance indicators, the level of the overall performance measurement system and at the level of the relationship of this system with the external environment (Olsthoorn et al., 2001). These indicators are "numerical measures, financial or nonfinancial, that provide key information about environmental impact, regulatory compliance, stakeholder relations and organizational systems" (Veleva & Ellenbecker, 2001).

In the context of the GRI Standards (GRI, 2016), the environmental aspect of sustainability is related to the effects that an organization has on living and non-living natural systems (on land, air, water and ecosystems). The disclosure standard *GRI 301: Material 2016*, can provide information about an organization's impacts related to materials (renewable or non-renewable), and how it manages these impacts (indicated by its approach to recycling, reusing and reclaiming materials, products, and packaging). *GRI 302: Energy 2016* sets out reporting requirements on the topic of energy (energy consumption within and outside the organization, energy intensity, reduction of energy consumption and reduction in energy requirements of products and services). Energy intensity ratios, for example, can be specified on the product, services or sales level (such as *Energy consumed per unit produced, per service, or per monetary unit of sales*). *GRI 303: Water 2016* designs reporting requirements on the topic of water (like water withdrawal by source, water recycled and reuse, etc.). In this regard, the indicator of water reuse and recycling (*Total volume of water recycled and reused as a percentage of the total water withdrawal*) is a measure of efficiency and demonstrates the success of an organization in reducing total water withdrawals and discharges.

GRI 304 addresses the topic of biodiversity, with the indicators related to significant impacts of activities, products and services on biodiversity or habitats protected or restored. *GRI 305* focuses on direct and indirect emissions into air (greenhouse gas (GHG), ozone-depleting substances, etc). GHG emissions intensity expresses the amount of GHG emissions per unit of activity, output, or any other organization-specific metric. *GRI 306* addresses the topic of effluents and waste, and includes indicators related to water discharges, generation, treatment and disposal of waste and spills of chemicals, oils, fuels and other substances. *GRI 307* deals with the topic of environmental compliance, covering an organization's compliance with environmental laws and/or regulations. This includes compliance with international declarations, conventions and treaties, as well as national, sub-national, regional and local regulations. *GRI 308* addresses the topic of supplier environmental assessment.

In a recent study, Bae & Smardon (2011) point out that five most used absolute environmental performance indicators among NYSE listed companies (Table 2) are *Total amount of water used*, *Total amount of energy used*, *Total amount of greenhouse gases generated*, *Total amount of solid waste generated*, as well as *Total amount of hazardous waste generated*. The empirical study realized by Henri & Journeault (2008) suggests that Canadian manufacturing firms devote moderate importance to the various environmental indicators. These authors indicate that the most used indicators are those that measure conformity with inputs of energy, community relations, outputs of solid waste and outputs of air emissions, while the indicators that are considered least important are those providing information on the local, regional or national condition of the environment, measuring the inputs of auxiliary materials or the implementation of environmental policies and programs. A new study done by Székely and vom Brocke (2017) on 9,500 corporate sustainability reports published between 1999 and 2015, shows that the most reported indicators on environmental sustainability are related to energy and emissions, while biodiversity and renewable energy sources receive little attention in reports by organizations.

The process of selection of environmental indicators should take into account the trade-off between environmental and corporate performance criteria. As Delmas and Blass (2010) point out, "it is advisable to favor environmental indicators that might have a more direct and immediate impact on firms' operations and performance over those that might be less directly related to a firm's operations, but could potentially have a bigger environmental impact".

4. SOCIAL PERFORMANCE INDICATORS

The social dimension of sustainability deals with the company's influence on the social systems within which it operates. Progress in social sustainability at the firm level requests a simultaneous improvement of social (institutional interaction between individuals on all levels of a company) and human (knowledge and experience of individuals) capital (Spangenberg & Bonniot, 1998).

Social reporting, with its assessment of the social impact of corporate operations, is regarded as the first supplement to traditional financial reporting. According to Ranganathan (1998), social performance indicators measure the relationship of business with its stakeholders. Most companies have a long history of applied measures and accountability mechanisms for shareholders and customers as key stakeholders. A new challenge in this reporting field is to define performance indicators related to impact on other stakeholders, such as communities, employees, suppliers, by including topics of business ethics. With this purpose, Ranganathan selects (a) employment, (b) community relations, (c) ethical sourcing and (d) social impact of products as crucial components of social performance.

Elkington et al. (1998) suggest that there are social issues and indicators with broad utility across stakeholders, companies and sectors. They classify social indicators into different categories concerning four related issues: 1) *Employment practices* (indicators such as: gender and ethnic ratios, pay rates, benefits, holidays, training, job satisfaction, a safe working environment, etc.), 2) *Community relations* (with indicators like contributions to community development, job creation, taxes paid/ tax breaks received), 3) *Supplier and customer relations* (fair trading practices with suppliers, distributors and partners, number of products sourced locally, use of child or forced labor), and 4) *Social impact of product* (indicators such as contribution of products and services to social welfare and equity, the meeting of basic human needs, etc.).

Warhust (2002) concludes that the current state of development of corporate social performance and sustainability indicators is running at least a decade behind that of the development of environmental performance and sustainability indicators. Many of the organizations working on social performance issues are only just beginning to turn their attention to the development of measures relating to social performance, and those that are doing so are typically working in isolation.

GRI Standards (2016) lists 19 indicators for social performance: *Employment, Labor/Management Relations, Occupational health and safety, Training and education, Diversity and equal opportunity, Non-discrimination, Freedom of Association and Collective Bargaining, Child labor, Forced or Compulsory Labor, Security practice, Rights of indigenous people, Human rights assessment, Local communities, Supplier social assessment, Public policy, Customer health and safety, Marketing and labeling, Customer privacy and Socioeconomic compliance*. The indicators in this field of reporting describe the influence organizations have on the society as well as the management of potential risks occurring from interactions with other social institutions (particularly the risks linked with bribery and corruption, undue influence in public policy-making and monopoly practices). For instance, *Total number and rate of new employee hires during the reporting period, by age group, gender and region, Total number and rate of employee turnover during the reporting period, by age group, gender and region, or Total number of employees that took parental leave* are the indicators belonging to indicators' sub-group *Employment*, while *Average hours of training per year per employee* or *Percentage of employees receiving regular performance and career development reviews* are social indicators assigned to category *Training and education*.

CONCLUSION –

LESSONS LEARNED FROM SUSTAINABILITY INDICATORS APPLICATION IN PRACTICE

The aim of reporting via key economic, social and ecological performance indicators is improvement of the quality of the sustainability reports and their relevance for stakeholders (for example, in the field of risks and opportunities), controllability and comparability (at acceptable costs) across different periods and companies. In order to fill out these functions, the indicators should be objective, understandable, significant, consistent with the objectives, responsive to stakeholder expectations. The application of the sustainability indicators in the praxis has indicated that they should be "workable", i.e. the data required to implement them should be indeed available in practice. Identifying appropriate set of sustainability indicators is a complex and time and resource consuming task. However, even incomplete and imperfect sustainability performance measurement is better than measurement disconnected from business objectives. On the other hand, previous research has suggested that many firms engage in sustainability and environmental reporting for symbolic reasons rather than out of a genuine concern for accountability to a wider set of stakeholders (Adams, 2004); thus, an increase in reporting is not always a reflection of increased sustainability (Price, 2008). Firms can choose to report whatever information they want, so there is obviously an incentive to focus on positive outcomes. These findings suggest that more objective measures of sustainability performance would be useful.

As indicated in Sustainability and Reporting Trends in 2025 (GRI, 2015a), new indicators, enabled by technology development and digitalization, will in coming years enable companies to operate and report in a highly-integrated way. In this regard, new indicators to measure trust as well as the correlated indicators (showing the connection between different factors in the context in which the decision will be made) and the integrated indicators (to guide the decision by integrating a company's performance measurement and reporting with that of its supply chain, regional partners or sectorial peers) will need to be created and monitored constantly.

Another important challenge when developing and applying sustainability indicators, as illustrated by Latawiec & Agol (2015), refers to the conceptual problems with interpretations of sustainability and its subjectivity. Subjectivity is closely linked to issues with values, in the context of sustainability, with the conflicts between human wellbeing, environmental conservation and economic development. Therefore, it is necessary to recognize all the multiplicity and ambiguity related with indicators, and understand and accommodate multiple views on sustainability.

The praxis of sustainability management shows that maintaining the interrelatedness of sustainability with various corporate aspects such as company strategy, decision on company growth, risk management, reputation or executive remuneration, is frequently a difficult task. If a company strategy is related, for instance, to an expanding of worldwide operations, it would be expected to link sustainability indicators and considerations to its strategic management of social, political and economic factors. As Funk (2003) points out, some famous episodes in the public eye, Shell's conflict with the Ogoni people of Nigeria and allegations about Nike's labor practices for example, demonstrate that sustainable operations are an opportunity to avoid or reduce future costs. Early measurement and reporting of leading indicators of sustainability initiatives also helps build better relationships with stakeholders, especially at the local level. In the field of risk management, Funk indicates that proactive investing in environmental measures beyond that required by law can be good for the bottom line, if for no other reason than to limit the downside risk of damages, hefty litigation fees and public relations disasters. If pursuing sustainable business strategies can increase a company's expected value, it is sensible to infer that integrating sustainability considerations into other kinds of risk management will lead to better decision making. However, a study done by Eumedion (2012), which analyzes the use of key performance indicators in the sustainability reporting by the largest Dutch publicly listed firms, indicates that in relation to risk management, only 52% of the companies provide a link between sustainability and the company's risk management in the annual report (while only 33% of the companies apply sustainability indicators in executive remuneration).

Managers "myopia" and their orientation towards the pressure for immediate results for this quarter, is often in contradiction with a long-term strategic consideration of sustainability. However, sustainability reporting practice has shown that the disclosure of both financial and intangible performance information, and more importantly the ability to act and react on the basis of its perception, can supply decision makers with a more comprehensive insight into key issues for successful long-term performances. It should be emphasized that the impact of indicators on overall sustainability could be evaluated and changes in indicators could be linked to competitiveness performance measures such as stock price, earnings per share or market share. As the social, ecological and environmental problems become more tangible, financial and investment success increasingly depends on the efficiency with which companies solve them. Traditionally, environmental compliance and social welfare

expenditures were regarded as extra costs that bring no added value. However, recent studies suggest that sustainability reporting has a positive impact on competitive advantage and improves financial performances (see for example Adams et al. 2011, Hussain, 2015), which implies that firms should devote more attention to improving both their sustainability and transparency.

Apart from the relevance of sustainability performance indicators to financial performance, the increase in sustainability reporting practice and the publication of the reports have been accompanied by growing interest in the accuracy and completeness of these reports (see Haller et al. 2016, 2016a). Here, one should pay attention to two facts. First, while the percentage of companies issuing a formal sustainability report has been increasing in the last few years, the percentage of companies assuring their sustainability report is stagnate (Mori et al., 2014). Second, the lack of uniformity of sustainability accounting reporting and assurance might reduce the comparability, effectiveness and accuracy of sustainability accounting reporting. A growing interest in sustainability reporting assurance is to be both expected and welcomed in the coming years and will be an important avenue for future research.

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REFERENCES

- Adams, C. (2004). The ethical, social and environmental reporting —performance portrayal gap. *Accounting, Auditing and Accountability Journal*, 17 (5), 731–757.
- Adams, M., Thornton, B., & Sepehri, M. (2011). The impact of the pursuit of sustainability on the financial performance of the firm. *Journal of Sustainability and Green Business*, 1, 1-14.
- Bae, B. & Smardon, R. (2011). Indicators of sustainable business in Practice. Retrieved from: <http://www.intechopen.com/articles/show/title/indicators-of-sustainable-business-practices>, Assessed on: 14. May 2017
- Battelle Memorial Institute. (2002). Toward a Sustainable Cement Industry – Key Performance indicators, retrieved from: http://www.wbcscement.org/pdf/battelle/final_report5.pdf, Assessed on: 14 April 2017
- Blab, D., Spasić, D. & Stojanović M. (2014). Sustainability reporting in accordance to the G4 Guidelines of the Global Reporting Initiative. *Ecologica*, 21 (74), 198-203.
- Columbia Threadneedle Investments. (2016). Environmental, social and governance indicators and key issues reference document, Retrieved from: http://www.columbiathreadneedle.com/media/4956293/en_esg_indicators_and_key_issues.pdf, Accessed on: 8 May 2016.
- Delmas, M. & Blass, V. D. (2010). Measuring corporate environmental performance: the trade-offs of sustainability ratings. *Business Strategy & the Environment*, 19 (4), 245–260.
- Denčić-Mihajlov, K. & Spasić, D. (2015). Enhancing competitiveness of enterprises through voluntary disclosure: Empirical evidence from Serbia, Thematic collection of papers „Improving the competitiveness of the public and private sector by networking competences“, University of Niš, Faculty of Economics and Andrzej Frycz Modrzewski Krakow University, Eds. Krstić, B. and Paszek, Z., pp. 83-106. ISBN 978-86-6139-100-2
- Denčić-Mihajlov, K. & Stojanović-Blab, M. (forthcoming). Sustainability reporting – trends in regulation and challenges in implementation. ZWIN Proceedings, Ostfalia University, Wolfenbuettel, Germany
- EFFAS (2009). *KPIs for ESG (A Guideline for the Integration of ESG into Financial Analysis and Corporate Valuation)*. The European Federation of Financial Analysts Societies, Version 1.2., Frankfurt am Main, 2009
- Elkington, J., Van Dijk, F., Delbe, C. & Terry, V. (1998). *The Social Reporting Report*, Sustainability Publication, London.
- EUMEDIION (2012). KPIs and sustainability performance. Retrieved from: https://www.eumedion.nl/nl/public/kennisbank/publicaties/2012_kpis_and_sustainability_performance.pdf, Assesed on May 17, 2017

- EY & GRI (2014). Sustainability reporting — the time is now. Retrieved from: [http://www.ey.com/Publication/vwLUAssets/EY_Sustainability_reporting_-_the_time_is_now/\\$FILE/EY-Sustainability-reporting-the-time-is-now.pdf](http://www.ey.com/Publication/vwLUAssets/EY_Sustainability_reporting_-_the_time_is_now/$FILE/EY-Sustainability-reporting-the-time-is-now.pdf), Accessed on: 9 June 2016
- Fiksel, J., McDaniel, J. & Mendenhall, C. (1999). *Measuring progress towards sustainability principles, process, and best practices*. 1999 Greening of Industry Network Conference Best Practice Proceedings
- Funk, K. (2003). Sustainability and performance. *MIT Sloan Management Review*, Available online at: <http://sloanreview.mit.edu/article/sustainability-and-performance/>
- Giovannoni, E. & Fabietti, G. (2014). What is Sustainability? A Review of the Concept and Its Applications, in Busco et al. (eds.). *Integrated Reporting*. Springer International Publishing Switzerland.
- GRI (2006). *Sustainability Reporting Guidelines*. Retrieved from: <https://www.globalreporting.org/resourcelibrary/G3-Guidelines-Incl-Technical-Protocol.pdf>, Assessed on May 20, 2017
- GRI (2011). *GRI Application levels*. Retrieved from: <https://www.globalreporting.org/resourcelibrary/G3-Application-Levels.pdf>, Assessed on August 30, 2017
- GRI (2015). *G4 Sustainability Reporting Guidelines – Reporting Principles and Standard Disclosures*. Retrieved from: <https://www.globalreporting.org/resourcelibrary/GRIG4-Part1-Reporting-Principles-and-Standard-Disclosures.pdf>, Assessed on May 20 2017
- GRI (2015a). *Sustainability and Reporting Trends in 2025– Preparing for the Future*. Retrieved from: <https://www.globalreporting.org/resourcelibrary/Sustainability-and-Reporting-Trends-in-2025-1.pdf>, Assessed on: May 25 2017
- GRI (2016). *GRI Standards*. Retrieved from: <https://www.globalreporting.org/standards>, Assessed on: 11 August 2017
- GRI (2016). *The complementarity of frameworks*. Retrieved from <https://www.globalreporting.org/resourcelibrary/Complementarity.pdf>, Assessed on August 24, 2017
- Haller, A., Durchschein, C., Mayer, K. & Hacker, T. (2016). Ausgestaltung der Prüfung von nach GRI-Normen erstellten Nachhaltigkeitsberichten in Großbritannien, Schweden und Südafrika [Auditing of sustainability reports prepared in accordance with GRI standards in the UK, Sweden and South Africa]. *Zeitschrift für internationale und kapitalmarktorientierte Rechnungslegung (KoR)*, 16 (11), 509 – 518.
- Haller, A. & Durchschein, C. (2016). Entwicklung und Ausgestaltung der Prüfung von nach GRI-Normen erstellten Nachhaltigkeitsberichten in Deutschland [Development and design of the audit of sustainability reports prepared in accordance with GRI standards in Germany]. *Zeitschrift für internationale und kapitalmarktorientierte Rechnungslegung (KoR)*, 16(4), 188-196.
- Henri JF & Journeault, M. (2008). Environmental performance indicators: An empirical study of Canadian manufacturing firms. *Journal of Environmental Management*, 87, 165–176.
- Hentze, J. (2014). Nachhaltigkeitscontrolling als integrierter Bestandteil des Managementkonzepts [Sustainability controlling as an integral part of management concept]. *Jahrbuch 2014 der Braunschweigischen Wissenschaftlichen Gesellschaft*, 244-275.
- Hřebíček, J., Soukopová, J., Štencl, M., & Trenz, O. (2011). Integration of economic, environmental, social and corporate governance performance and reporting in enterprises. *Acta Universitatis Agriculturae et Silviculturae Mendelianae Brunensis*, 59 (15), 157-166.
- Hussain, N. (2015). *Impact of Sustainability Performance on Financial Performance: An Empirical Study of Global Fortune (N100) Firms*. Ca' Foscari University of Venice, WP No. 2015/01
- Kuhndt, M., Von Geibler, J., & Eckermann, A. (2002). Developing a Sectoral Sustainability Indicator Set taking a Stakeholder Approach. Paper presented at the 10th International Conference of the Greening of Industry Network 23-26 June, 2002, Göteborg, Sweden
- Latawiec, A. & Agol, D. (2015). *Sustainability Indicators in Practice*. DE GRUYTER Open
- Lin, H, Chang O. & Chang C (2014). Importance of Sustainability Performance Indicators as Perceived by the Users and Preparers. *Journal of Management and Sustainability*, 4(1), 29-41.
- Lydenberg, S., Rogers, J. & Wood, D. (2010). From Transparency to Performance: Industry-Based Sustainability Reporting on Key Issues, Harvard University, Initiative for Responsible Investing. Retrieved from: http://iri.hks.harvard.edu/files/iri/files/from_transparency_to_performance_industry-based_sustainability_reporting_on_key_issues.pdf, Assessed on: 22 April 2017
- Mori R., Best, P. & Cotter, J. (2014). Sustainability Reporting and Assurance: A Historical Analysis on a World-Wide Phenomenon. *Journal of Business Ethics*, 120 (1), 1-11.
- O'Connor, M. & Spangenberg, J. (2008). A methodology for CSR reporting: assuring a representative diversity of indicators across stakeholders, scales, sites and performance issues. *Journal of Cleaner Production*, 16, 1399–1415.
- OECD Guidelines for Multinational Enterprises (2011). www.oecd.org/daf/inv/mne/48004323.pdf
- Olsthoorn, X., Tyteca, D., Wehrmeyer, W. & Wagner, M. (2001). Environmental indicators for business: a review of the literature and standardization methods. *Journal of Cleaner Production*, 9, 453–463.

- Parris, T. & Kates, R. (2003). Characterizing and measuring sustainable development. *Annual review of environment and resources*, 28, 559-86.
- Price, M. (2008). Is environmental reporting changing corporate behavior? *International Journal of Business Governance and Ethics*, 4(2), 189–205.
- Ranganathan, J. (1998). Sustainability rulers: measuring corporate environmental and social performance. *Sustainability Enterprise Perspective*, 1–11.
- Rasche, A. (2010). Collaborative Governance 2.0. *Corporate Governance*, 10(4), 500 – 511.
- Redefining Progress, Sustainable Seattle, and Tyler Norris Associates (1997). *The Community indicators Handbook: Measuring progress toward healthy and sustainable communities*, Redefining Progress, CA, Retrieved from: [http://www.sristudies.org/Blank+and+Carty+\(2002\)](http://www.sristudies.org/Blank+and+Carty+(2002))
- Rezaee Z., & Rezaee, H. (2014). Business Sustainability and Key Performance Indicators. *Journal of Business and Economics*, 5 (9), 1484-1490, DOI: 10.15341/jbe(2155-7950)/09.05.2014/004
- Searcy, C., Karapetrovic, S. & McCartney, D. (2005). Designing Sustainable Development Indicators: Analysis for a case utility. *Measuring Business Excellence*. 9 (2), 33-41.
- Sikora, K. & Downar, B. (2014). Die Unternehmensckdaten in deutschen Nachhaltigkeitsberichten [The company key figures in German sustainability report]. *Zeitschrift für internationale und kapitalmarktorientierte Rechnungslegung KoR*, 14(10), 488-498.
- Singh, R.K. Murty, H.R. Gupta, S.K. & Dikshit, A.K. (2012). An overview of sustainability assessment methodologies. *Ecological Indicators*, 15, 281–299.
- Spangenberg, J. & Bonniot, O. (1998). *Sustainability Indicators -A Compass on the Road Towards Sustainability*. Wuppertal Paper No. 81, Wuppertal Institute for Climate, Environment & Energy
- Staniškis, J.K. & Arbaciauskas, V. (2009). Sustainability Performance Indicators for Industrial Enterprise Management. *Environmental Research, Engineering and Management*, 2(48), 42-50.
- Stojanović, M. (2015). Izveštavanje o zaštiti životne sredine – normativni i računovodstveni aspekti [Reporting on environmental protection - normative and accounting aspects]. Univerzitet u Nišu, Doktorska disertacija
- Stojanović-Blab, M., Blab D., Spasić, D. (2016). Sustainability reporting - a challenge for Serbian companies. *TEME*, XL, No. 4, 1349-1366.
- Stojanović-Blab, M. & Blab, D. (2017). Nachhaltigkeitsberichterstattung anhand der GRI Standards – Ein Vergleich zu GRI G4 [Sustainability reporting based on GRI Standards - A comparison to GRI G4]. *Zeitschrift für internationale und kapitalmarktorientierte Rechnungslegung KoR*, 7-8, 307 – 316.
- Székely, N. & Vom Brocke, J. (2017). What can we learn from corporate sustainability reporting? Deriving propositions for research and practice from over 9,500 corporate sustainability reports published between 1999 and 2015 using topic modelling technique. *PLoS One*, 12(4)
- Toth G. & Arbačiauskas V. (2005). *Environmental Performance Evaluation*. Guidebook. Kaunas, Technologija
- UNGC (2010). *United Nations Global Compact*. Available: <http://www.unglobalcompact.org/>.
- Veleva, V. & Ellenbecker, M. (2001). Indicators of sustainable production: framework and methodology. *Journal of Cleaner Production*, 9(6), 519-549.
- Waas, T., Hüge J., Block T., Wright T., Benitez-Capistros, F & A. Verbrugg (2014). Assessment and Indicators: Tools in a Decision-Making Strategy for Sustainable Development. *Sustainability*, 6, 5512-5534; doi:10.3390/su6095512
- Warhurst, A. (2002). Sustainability Indicators and Sustainability Performance Management Professor Alyson, Warwick Business School, Retrieved from: http://valorminero.cl/wp/referencias/V_Compilados/3_193_aw.pdf, Assessed on April 18, 2017

OCENA POKAZATELJA ODRŽIVOG RAZVOJA: PRISTUPI, IZAZOVI I MOGUĆNOSTI

Dinamično i kompleksno poslovno okruženje zahteva od preduzeća da pažljivo razvijaju svoje poslovne strategije kako bi ostvarila i održala konkurentsku prednost u dugoročnom periodu. Razvijanje svesti o značaju očuvanja životne sredine i održivog razvoja ima za posledicu da tržišnu vrednost preduzeća više ne određuju pojedinačni pokazatelji finansijskog učinka. Okvir održivog razvoja, koji obuhvata ekonomske, ekološke i društvene performanse, je duži period predmet međunarodne pažnje, kako realnog, tako i finansijskog sektora. Iako je opšte prihvaćeno da je usvajanje indikatora održivog razvoja najadekvatniji i najefikasniji način procene performansi održivog razvoja, kreiranje/selekcija ovih pokazatelja i njihova primena i analiza su i dalje predmet

detaljnih analiza, kako na nacionalnom, tako i na korporativnom nivou. Većina kompanija usvojila je međunarodno priznatu metodologiju i metriku evaluacije performansi (na primer Global Reporting Initiative ili Global Compact of United Nations). Međutim, sve je veći broj kompanija koje primjenjuju samostalno razvijenu metodologiju ocenjivanja performansi održivog razvoja. Osnovni cilj rada je istraživanje procesa kreiranja, selekcije i primene indikatora održivog razvoja s ciljem da se daju predlozi za odabir pokazatelja održivosti čija bi primena bila u funkciji povećanja efikasnosti kontrolinga i procesa donošenja odluka i rezultirala dugoročnoj konkurentskoj prednosti.

Ključne reči: *izvešavanje o održivom razvoju, ekonomski, ekološki i društveni indikatori performansi, GRI standardi, kontroling.*