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A ROLE OF ACCOUNTING IN ESTABLISHING A SUSTAINABLE PERFORMANCE MANAGEMENT SYSTEM IN THE HOTEL INDUSTRY

DOCTORAL DISSERTATION

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POVZETEK

Hotelska panoga je ves čas v porastu, narašča pa tudi njen trajnostni vpliv. Vključevanje trajnosti v podjetja ni lahka naloga, saj ta še vedno postavlja številna vprašanja in podaja negotove rezultate. Ena izmed potencialnih težav je ta, da managerje pogosto skrbi, kakšen učinek bo imela na finančno perspektivo hotelskega podjetja. Pri tem ima pomembno vlogo trajnostno računovodstvo, saj meri in podaja informacije o trajnostni uspešnosti hotelskega podjetja. S temi podatki lahko hotelski managerji ocenijo uspeh njihovih trajnostnih ciljev.

Po načelu trajnosti lahko uspešnost razdelimo na okoljsko, družbeno in ekonomsko. Okoljska uspešnost obravnava vpliv hotelskega podjetja na okolje, družbena uspešnost se ukvarja z učinkom hotelskega podjetja na notranje in zunanje zainteresirane strani, ekonomska uspešnost pa obravnava sredstva, obveznosti ter prisotnost na trgu tako v finančnem kot nefinančnem smislu.

Namen doktorske disertacije je pojasniti vlogo trajnostnega računovodstva in njegovih informacij v procesu trajnostnega managementa. Trajnostno računovodstvo in trajnostni management ne moreta delovati eden brez drugega. Management ne more funkcionirati, če trajnostno računovodstvo ne poskrbi za pripravo in izdajo potrebnih informacij. Toda trajnostno računovodstvo tega ne more storiti, če nima podpore managementa. Cilj te disertacije je preučiti informacije, ki jih poda trajnostno računovodstvo, in analizirati vzajemni odnos med okoljsko in družbeno uspešnostjo ter ekonomsko uspešnostjo v hotelski panogi.

V pričujoči disertaciji smo uporabili različno metodologijo, da bi dosegli želeni cilj. Ker nismo našli primerne lestvice za merjenje okoljske in družbene uspešnosti v hotelski panogi, smo razvili svojo. Spremenljivko ekonomske uspešnosti smo merili z učinkovitostjo, za kar smo uporabili stohastično analizo meja. V nadaljevanju analize smo se poslužili metode multiple regresije, da bi preverili našo hipotezo.

Ciljna skupina vzorca so bila hotelska podjetja na Hrvaškem. Za zbiranje podatkov o okoljski in družbeni uspešnosti smo uporabili spletni vprašalnik. Da bi pridobili informacije o ekonomski uspešnosti, smo se poslužili sekundarnih virov, in sicer registra finančne agencije Fina, podatkovne baze Amadeus podjetja Bureau Van Dijk in spletnih strani hotelskih podjetij. Zbrali smo 76 odgovorov za obdobje 2011–2013.

Rezultati raziskave so pokazali, da je celotna kombinacija družbeno-okoljske uspešnosti, ki smo jo smatrali za neodvisno spremenljivko, bistveno pripomogla k razlagi spremenljivke hotelske učinkovitosti. Pri preučevanju odnosa družbene in okoljske uspešnosti smo ugotovili, da ima okoljska uspešnost velik vpliv na ekonomsko uspešnost, medtem ko družbena uspešnost nima vidnega učinka.

Teoretične prispevke disertacije lahko prepoznamo kot podajanje celostnega okvirja, ki povezuje trajnostni razvoj, trajnostni management in trajnostno računovodstvo znotraj hotelske panoge ter pojasni vlogo trajnostnega računovodstva v procesu trajnostnega managementa. Poleg tega prispeva k raziskavi odnosa med okoljsko, družbeno in ekonomsko uspešnostjo v hotelski panogi.

Metodološki prispevki so vidni pri oblikovanju lestvice za merjenje okoljske in družbene uspešnosti v hotelski panogi. Čeprav so bile opravljene že številne raziskave o odnosih med okoljsko in družbeno uspešnostjo ter ekonomsko uspešnostjo, ta disertacija podaja nov model za preučevanje teh odnosov. Gre za prvo raziskavo, ki uporablja učinkovitost kot spremenljivko ekonomske uspešnosti.

Disertacija je lahko tudi v pomoč hotelskim managerjem, saj nudi vpogled v prednosti uporabe trajnostnih postopkov. Pričujoča raziskava omogoča primerjavo njihovega učinkovitega delovanja in ponuja lestvico za merjenje okoljske ter družbene uspešnosti, ki jo lahko uporabijo v svojem specifičnem poslovanju.

Ključne besede: trajnostno računovodstvo, trajnostna uspešnost, hotelska panoga.

SUMMARY

The hotel industry is constantly growing and its sustainability impact is also rising. Integrating sustainability into a company is not an easy task, as it continues to raise different questions and offers uncertain outcomes. One of the potential issues is that managers are often concerned about the impact of sustainability on a hotel company's financial perspective. In this case, sustainability accounting has an important role as it measures and provides information on sustainability performance in the hotel company. With this information, hotel managers can evaluate the achievement of their sustainability objectives.

Under the principles of sustainability, performance can be divided in environmental, social and economic. Environmental performance deals with the impact of a hotel company on the environment. Social performance deals with the impact of a hotel company on the internal and external stakeholders. Economic performance deals with assets, liabilities and market presence in financial and non-financial terms.

The purpose of this doctoral dissertation is to clarify the role of sustainability accounting and its information in the sustainable management process. Sustainability accounting and sustainability management cannot operate separately. Management cannot function unless sustainability accounting prepares and discloses the necessary information, while sustainability accounting is unable to do so, if there is no feedback from the management. The goal of this thesis is to examine the information that sustainability accounting provides and analyze the mutual relationships between environmental and social performance and economic performance in the hotel industry.

In this dissertation, different methodologies have been employed to achieve the dissertation's goal. Since we did not find any appropriate instruments for the measurement of environmental and social performance in the hotel industry, we developed our own. The economic performance variable is measured by efficiency. For this purpose, we used stochastic frontier analysis. In further analysis, multiple regression is employed to test the hypothesis.

The target sample are hotel companies in Croatia. Data on environmental and social performance is collected by an e-mail questionnaire. Data on economic performance is gathered from secondary sources: Financial agency registry, Bureau Van Dijk's Amadeus database and hotel company's web pages. We collected 76 responses for the period from 2011 to 2013.

The results indicate that the overall combination of socio-environmental performances, considered as the independent variables in the model, significantly contribute to the explanation of the hotel efficiency's variable. When observing the relationship of social

and environmental performance separately, we discovered that environmental performance has a significant effect on economic performance whereas social performance has not.

Theoretical contributions of this study can be seen in providing a comprehensive framework that links sustainable development, sustainability management and sustainability accounting in the context of the hotel industry and explains the role of sustainability accounting in the sustainable management process. In addition, it contributes to the research on the relationships between environmental, social and economic performance in the hotel industry.

Methodological contributions can be seen in developing a measurement instrument for environmental and social performance in the hotel industry. Moreover, although there have been numerous studies that examine the relationships between environmental and social performance and economic performance, this dissertation offers a new model to assess these relationships. Additionally, this is the first study that employs efficiency as a variable of economic performance.

Concerning the managerial implications, this research could help hotel managers to perceive the benefits of implementing sustainability practices. It also offers the possibility of benchmarking their efficiency performance. Furthermore, it provides a measurement instrument for environmental and social performance that is to be adapted to the specifics of their business.

Key words: sustainability accounting, sustainability performance, hotel industry

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INTRODUCTION

1. Broader research area of the doctoral dissertation

Over the past three decades sustainability issues have gained more and more importance. There have been various initiatives from governmental and non-governmental organizations (The Environmental Protection Agency; Greenpeace, World Commission on Environment and Development, The International Union for Conservation of Nature, The Regional Environmental Center for Central and Eastern Europe and others) aimed at reducing the negative effects of unsustainable practices. The tourism and hotel industry is constantly growing (UNWTO, 2015) and with this growth the impact on environment and society is also rising. There is evidence that hotels are among the commercial buildings that have the most negative effect on the environment (Bohdanowicz & Martinac, 2003), in addition to the cultural erosion that they cause (Hunter & Green, 1995). For these reasons stakeholders are pressuring hotel companies to behave in a more responsible manner (Ayuso, 2006).

To respond to stakeholder demands, hotel companies need to embed sustainability practices into their business model. Implementing sustainability is a demanding task, but there is evidence that companies that do so, gain a competitive advantage (Camino, 2007; Ramanathan et al., 2010; Bennett & Crudgington, 2003). To successfully implement sustainability practices, hotel companies need to adopt sustainability management. This is a process where companies first have to scan their internal and external environments (Burgeois, 1980) and identify their strengths, weaknesses, opportunities and threats. Subsequently, the formulation of the strategy takes place, followed by implementation, evaluation and control.

In the process of strategic management, sustainability accounting plays an important role as a "bridge" between strategic sustainability management and sustainability reporting (Schaltegger, Wagner, 2006b). It can be seen as a provider of information for establishing strategic sustainability objectives and for assessing the impact of the long- and short-term decisions made by managers on the economic, environmental and social impact on the hotel companies and the environment (Schaltegger and Burritt, 2010b, p. 3). Sustainability accounting is the most advanced form of accounting for sustainable development. It was developed from environmental, social and triple bottom line accounting. The main difference from the previous forms is that it not only measures, examines and reports on environmental, social and economic performance, but it also reflects on the connections and interrelations between them.

2. Research topic of the doctoral dissertation

There are three main lines of research in sustainability accounting. According to Unnerman and Chapman (2014) these lines explore the relationship between social and environmental performance and reporting and economic performance, the causes of unsustainability and sustainability threats and opportunities in order to improve operations. The research will focus on examining the relationship between environmental and social performance and economic performance.

The relationships between environmental, social and economic performance can be analyzed from different perspectives. The first one examines the hypothesis that higher economic performance leads to better environmental and social performance (Garriga & Melé, 2004). The second perspective considers whether hotel companies who perform better in environmental and social performance consequently have better economic performance (Seifert, Morris & Bartkus, 2004). The focus of this research is on the second perspective.

Various authors have examined the relationship between environmental and social performance and economic performance (Tsoutsoura, 2004; Garcıa & Armas, 2007; Mahoney & Roberts, 2007; Nicolau, 2008: Lee & Park, 2009; Kang, Lee & Huh, 2010; Inoue, Lee, 2011; Cheng, Ioannou & Serafeim, 2011; Saleh, Zulkifli & Muhamed, 2011). The findings have been insufficient to set a unified theory, and while some authors found that these relationships are positive (Lin, Yang & Liou, 2009), some authors concluded that they are negative (Filbeck & Gorman, 2004) while others found no relationship (Aras, Aybars & Kutlu, 2010). The reasons for these inconclusive findings can be attributed to inappropriate theoretical and methodological approaches (Wood & Jones, 1995; Kicošev, Blešić & Bradić, 2011).

The investigation of these relationships is of considerable significance for the hotel industry, since their product is highly dependable on environmental and social conditions. Nonetheless, there is a significant lack of literature that examines these relationships in the hotel industry.

3. Purpose, goals and hypothesis of the doctoral dissertation

The purpose of this doctoral dissertation is to clarify the role of sustainability accounting and its information in the sustainable management process. Sustainability accounting and sustainability management cannot operate separately. Management cannot function unless sustainability accounting prepares and discloses the necessary information, while sustainability accounting is unable to do so if there is no feedback from the management. The goal of this thesis is to examine the information provided by sustainability accounting

and to analyze the mutual relationships between environmental and social performance and economic performance in the hotel industry. This relationship will be explored through:

- a literature review of the existing research on the link between environmental and social performance and economic performance in the hotel industry;
- an empirical analysis of the link between environmental and social performance and economic performance in the hotel industry.

The main research question in this dissertation is: What is the relationship between socio-environmental performance and economic performance? Although these relationships have been investigated in different industries from different perspectives, research results have been inconclusive. Moreover, there are only a few studies that address this matter in the context of the hotel industry.

For this reasons this doctoral dissertation aims to test the following hypothesis:

H1: Socio-environmental performance has a significant and positive effect on economic performance.
H1a: Environmental performance has a significant and positive effect on economic performance.
H1b: Social performance has a significant and positive effect on economic performance.

4. Description of scientific methods in the doctoral dissertation

To examine these relationships different methodologies will be used. Since there is no appropriate measurement instrument for environmental and social performance in the hotel industry, we will develop our own. Meta-analysis of the existing research will be done and experts from the hotel industry will additionally be employed to ensure face validity. Moreover, factor analysis will be employed to derive factors from environmental and social performance attributes. The economic performance variable will be measured by efficiency. For this purpose we will use stochastic frontier analysis. At the end, we will use the method of hierarchical multiple regression for hypothesis testing. The hypothesis will be tested on the sample of Croatian hotel companies. Data about environmental and social performance will be collected using a questionnaire, which will be sent to all hotel companies in Croatia by e-mail. Economic performance will be measured using secondary sources like the Financial Agency Registry, Bureau Van Dijk's Amadeus database and hotel company web pages.

5. Contribution of the doctoral dissertation

This doctoral dissertation will contribute in improving theory, methodology and practice. The lack of literature in the area of hotel industry points out that this field of study is

insufficiently investigated and should be researched. Therefore, this dissertation will extend the literature of embedded sustainability by offering an integrative theoretical framework. This framework will link sustainable development, sustainability management and sustainability accounting to the hotel industry.

From a methodological point of view, this dissertation will contribute in several ways. A new measurement instrument will be developed that will measure hotel companies' environmental and social performance. Additionally, this will be the first study to employ efficiency as a variable of economic performance. Moreover, this is the first research in this field that will be done on the sample of Croatian hotel companies. It will also be applicable to countries whose hotel industries have similar characteristics to those in Croatia.

Concerning managerial implications, this research will assist hotel managers in that it will help them perceive the benefits of implementing sustainability practices. The results will also support potential solutions that could be applied to the conditions in which hotels operate. It will offer the possibility of benchmarking their efficiency performance and provide a measurement instrument for environmental and social performance. That instrument will be tailored to the specific needs of the hotel industry. In this way it will help them reduce risks and improve their corporate performance and consequently increase the economic potential of environmental and social activities. Based on the obtained research results it will be possible to make suggestions for further research and practice.

6. Structure of the doctoral dissertation

This doctoral dissertation consists of an introduction, theoretical and empirical sections. The introduction consists of a description of the research problem and the paper's purpose and goals, hypothesis, description of scientific methods, scientific contribution and the structure of the dissertation. The theoretical section it is divided in sustainable development, sustainability management, sustainability accounting and determinants of tourism, the hotel industry and sustainability in Croatia. In the first section sustainability development and its components are explained alongside current developments and achievements in this area. The second section presents sustainability management together with the process of strategic sustainability management and sustainability balanced scorecard as a tool for sustainability strategy implementation and evaluation. The third section describes sustainability accounting, its development and role in establishing sustainability management, alongside with sustainability reporting and its frameworks. Additionally, the current situation in the Croatian tourism and hotel industry as well as developments in the field of sustainability, are explained. The empirical section first conceptualizes the model, then operationalizes the construct and explains the data collection process. Subsequently empirical research results are provided. First, sample

characteristics will be presented, followed by factor analysis and stochastic frontier analysis and hypothesis testing. At the end implications and conclusions will be delivered.

1. THEORETICAL BACKGROUND

In this part the concept of sustainable development its evolution and current achievements are explained. They are followed by sustainability management, as a prerequisite for sustainability implementation. The last part describes what sustainability accounting, its development and its role in establishing sustainability management, is.

1.1. Sustainable development – a roadmap for the future

In recent years there has been increasing concern about the social and environmental impacts caused by various human activities. To minimize these impacts, the principles of sustainable development need to be embedded in every aspect of business. Only with this approach, will there be enough resources for future generations.

1.1.1. Defining sustainable development

There are many definitions of sustainable development. Among the first and often cited is that "the development meets the needs of current generations without compromising the ability of future generation to meet their own needs" (World Commission on Environment and Development, 1987, p. 23). Engel (1990, p.10) defined it as a kind of human activity that nourishes and perpetuates the historical fulfillment of the whole community of life on Earth. Sustainable development, also referred as sustainability or corporate social responsibility in the context of companies, is often considered as a concept that accounts for economic growth and development, in a way that the effect on the environment is taken into account in the process of economic growth. On the other hand, sustainability is often focused on economic growth within the limits of the environment (Robinson, 2004, Dresner 2008). Moreover, we can divide matters into those that have to be sustained, namely nature, life support systems and community and to those that have to be developed, namely people, economy and society (Board on Sustainable Development, Policy Division & National Research Council, 1999). Sustainable development is a bridge that connects the matters that have to be sustained with the ones that have to be developed.

Although there is a variety of definitions, they all concede that sustainable development is a multidimensional concept that consists of mutually integrated environmental, social and economic aspects (World Commission on Environment and Development, 1987; Dyllick & Hockerts, 2002; Hart & Milstein, 2003). The economic dimension of sustainable

development addresses an economy's objectives of growth, equity and efficiency while at the same time maintaining its capital (Serageldin, Steer & Cernea, 1994; Brandon & Lombardi, 2005). The environmental dimension of sustainable development deals with the balance of eco-systems and the environment with main objectives of eco-system integrity, including carrying capacity, biodiversity and global issues (Serageldin et al., 1994; Lee, McNeill & Holland, 2000; Brandon & Lombardi, 2005). The social dimension of sustainable development involves raising the standard of living with the main objectives of empowerment, participation, social mobility, social cohesion and institutional development (Barbier, 1987; Serageldin, et al., 1994). Reaching the objective in one dimension can affect the objectives of other dimensions, thus trade-offs between the dimensions must be made (Hahn, Figge, Pinkse & Preuss, 2010).

Sustainable development is a guiding model at the society level, corporate sustainability is a sustainable development model at the corporate level, and corporate social responsibility is a management approach for business contribution to sustainable development (Asif, Searcy, Zutshi & Fisscher, 2013, p. 8). The terms sustainability and sustainable development are usually used interchangeably as synonyms. There is a trend for the term sustainable development to be used by government and private sector organizations and the term sustainability by academic and non-government organizations (Dresner, 2008).

Sustainability can be characterized by the principles of normativity (subjectivity), equity, integration and dynamism. Sustainability is subjective by nature and as a result there are many different definitions, approaches and views on the concept (Christen & Schmidt, 2012; Haughton, 1999; Harris, 2000). The equity principle implies the right of a certain level of quality of life for present and future generations, the right to survival for all species, the right of all stakeholders to be involved and the right for all to be included on a global level (Haughton, 1999; Gibson, Hassan, Holtz, Tansey & Whitelaw, 2005; Pearce, Markandya & Barbier, 1990; Hugé, Waas, Eggermont & Verbruggen 2011). The integration principle supposes that all aspects of sustainability should be integrated and of equal importance (Laszlo & Zhexembayeva, 2011; Lélé, 1991; Giddings, Hopwood & O'Brien, 2002). According to the dynamism principle, sustainable development is a process of constant change (Lafferty & Meadowcroft, 2000; Cairns, 2004; Lélé, 1991). Sustainability is not just a goal to be reached, it is an ongoing process that has to constantly be revised and altered, in accordance with other undertaken actions.

Sustainability development should be a balance between growth and development on one hand and ecological, social and economic aspects on the other hand. One aspect of sustainability cannot be overemphasized in relation to others. There must be balance and equity between them, otherwise a situation that enhances one aspect of sustainability while deteriorating another, can arise.

1.1.2. Sustainable development on the global level

The issues that arise from the concept sustainable development, can be traced back a few thousand years to the beginnings of human kind and the struggle to have enough resources to survive within the environmental limits (Ponting, 2007; Van Zon, 2002). The term sustainable development first appeared in 1713 as a German term "nachhaltende nutzung" (sustainable use) in the book *Sylvicultura oeconomica, oder haußwirthliche Nachricht und Naturmäßige Anweisung zur wilden Baum-Zucht*, by Hans Carl von Carlowitz (Van Zon, 2002).

The evolution of sustainable development can be separated into four time intervals (Waas, Hugé, Verbruggen & Wright, 2011): the beginning of the movement (till the end of 1970), a period of inactivity (1970- 1986), a period with major achievements (1987–1995), and a period of decline (1996–onwards).

The beginnings of sustainable development can be traced to the Age of Enlightenment (often called Age of Reason) that began in the late 17th century. It was an intellectual movement that challenged tradition and faith and encouraged reason and scientific methods (Jacobs, 2000). Adam Smith and John Stuart Mill belonged to this movement. In his theory, Smith assumed that with the growing population, the scarcity of natural resources would rise (Wood, 1993). Mill argued that uncontrolled growth would have a significant impact on the environment and decrease the quality of life (1885). The enlightenment movement left a trace in history and there is evidence that businesses had started to change their value systems. John and George Cadbury, the founders of Cadbury World, started their business in 1831. They were followers of the Quaker religious movement, whose main belief was pacifism and social equality (Murray, 1995). Following these religious views, they treated their employees as equal partners and provided for them in many different ways (Olusoji, Adediji, & Oluwakemi, 2012). Another example is Wilh. Wilhelmsen, a maritime company founded in 1861 that was known for taking care of its employees from its earliest stages (Hargett & Williams, 2009; Ahern, 2011). These two companies became the predecessors of modern corporate social responsibility.

In its early years, sustainability was seen as an alternative approach. The International Union for Conservation of Nature, the first global environmental organization was established in 1948, with the aim of balancing economic development and environmental preservation (IUNC, 2014). One of the first environmental books was Rachel Carson's *Silent Spring* (1962). The book described the negative effects of pesticides on animals and humans. The publication of this book triggered the modern environmental movement. The Friends of the Earth was founded in 1969, in the United States and two years later spread to Europe and became international. Its main objective is to encourage changes that make a better world (FOE, 2012).

In 1970, the United States of America established the Environmental Protection Agency with the mission of enforcing national regulations, standards and guidelines on environmental pollution (EPA, 1970). On April 22, 1970 the first Earth Day was held in the USA. More than 20 million people participated and it was marked with anti-war demonstrations with an emphasis on environmental concerns. In 1971, a group of activists from Canada sailed on a ship called Greenpeace to Alaska to stop nuclear testing (Weyler, 2004). Although their mission didn't quite succeed, it attracted a lot of public interest. This was the beginning of a global organization that promotes environmental conservation and peace. In 1972, a study titled *The Limits to Growth* (Meadows, Meadows, Randers, & Behrens), was released. This study showed simulations of interactions between the exploitation of various resources and their impact on the environment. More than 12 million copies of the book were sold, increasing environmental awareness worldwide. The United Nations Conference on the Human Environment held in 1972, in Stockholm was the first global environmental conference. Its output, the Declaration of the United Nations Conference on the Human Environment, was the first written guideline on the preservation and enhancement of the human environment (UNEP, 1972).

The concept 'sustainable development' was first mentioned in the 'World Conservation Strategy- Living Resource Conservation for Sustainable Development' in 1980 (IUCN). In 1987, the World Commission on Environment and Development (also known as the Bruntland Commission) published the Our Common Future report which gave the first definition of sustainable development.

The United Nations Conference on Environment and Development (UNCED), commonly known as the Earth Summit, Rio Conference or Rio Summit, was held in 1992, in Rio de Janeiro in Brazil. It was the biggest conference on this topic with about 30,000 individuals from governmental and non-governmental organizations in attendance. It was very significant because for the first time all aspects of sustainable development were discussed. One of the results of the conference was *Agenda 21*, an action plan for achieving sustainable development (United Nations, 1997). Another achievement was the *Kyoto Protocol*, which binds participating industrialized countries to reduce their greenhouse gas emissions to a certain level (United Nations Framework on Climate Change, 1997).

The World Summit for Social Development held in Copenhagen in 1995, gave a clear message for the first time to the entire international community about a common position and attitude that advocates for the complete eradication of global poverty.

ISO 14000 is an acronym that identifies a series of international standards on environmental management for organizations, established by the International Organization for Standardization (ISO). One of the most important and best known standards is ISO 14001, which was formally adopted in 1996, and became the international standard for planning and implementing the Environmental Management System.

The first set of indexes which measure sustainability performance, the Dow Jones Sustainability Indexes (DJSI) was launched in 1999. This tool, now called S&P Dow Jones Indices, evaluates the sustainability performance of more than 2500 largest companies listed on the Dow Jones Global Total Stock Market Index. This instrument helps investors find profitable companies that are following the principles of sustainable development.

In 2000, the United Nations Millennium Summit was organized and at the conclusion of the Summit the United Nations Millennium Declaration was adopted. The Declaration is a document that determines the values, principles and actions that have to be implemented. With the Millennium Development Goals they quantified targets that members of United Nations have to reach by 2015 (United Nations, 2000).

In 2001 The Millennium Ecosystem Assessment was launched ("Millennium Ecosystem Assessment") with the support of the United Nations. This research project had the goal of identifying the effect on ecosystems and to develop scenarios for the future, based on trends in changes. The results, published in 2005, included the work of more than one thousand experts and scientists that have claimed that the world is degrading its natural resources, with emphasis on the fact that the consequences of this degradation will grow significantly in the next 50 years.

Sustainable development received strong political support at the World Summit on Sustainable Development (World Summit on Sustainable Development - WSSD), held in 2002, in Johannesburg (United Nations, 2002). After the Johannesburg Summit, there were several key events that represented the journey towards sustainable development.

The third meeting of the G-20 was held in Pittsburgh, USA in 2009. The G-20 leaders set up guidance for a more sustainable and balanced global economy for the 21st century. Participants requested to phase out fossil fuel subsidies and to search for measures that will lead to sustainable consumption.

The United Nations Conference on Sustainable Development (UNCSD) known as' Rio +20', that took place in Rio de Janeiro in 2012, set a comprehensive framework for sustainable development. One of the most important decisions of the Conference was to define future goals of sustainable development (Sustainable Development Goals - SDGs), which include the three dimensions of sustainable development - economic, social and environmental. The Goals should build on development policies contained in the Millennium Development Goals (MDGs) and represent the global development agenda for the decade that follows. The year 2012 showed significant achievement in sustainable development, the fact that one of the millennium development goals was achieved even before its deadline in 2015. The percentage of the world’s population without access to risk-free drinking water has been cut in half.

At the European Union level, there were also significant efforts to address sustainability challenges. The Regional Environmental Center for Central and Eastern Europe (REC) is an international non-profit organization originally established by the European Commission in 1990. It was designated to assist the environmental problems within the area of Central and Eastern Europe by promoting cooperation between governments and non-governmental organizations, by providing information on the environment, promoting public participation, and on the other cooperation among regional stakeholders (REC).

The Environment for Europe process, initiated in 1991, is a partnership of member States within the UNECE region, organizations of the United Nations system represented in the region, other intergovernmental organizations, regional environmental centers, non-governmental organizations, the private sector and other major groups (United Nations Economic Commission for Europe). It works like a high level platform for dialogue and exchange of opinions in the field of environmental issues within its member countries. A significant step for Europe was made in 1997, when the Amsterdam Treaty included sustainable development as one of its basic objectives (European Union, 1997).

At the Gothenburg Summit European strategy for sustainable development called A Sustainable Europe for a Better World: A European Union Strategy for Sustainable Development was brought in 2001 (Commission of the European Communities). The strategy brings a vision of long term sustainable economic growth in the European Union, by changing unsustainable practices, improving policies, formulating objectives and measures to reach them. It was revised in 2006 and every 2 years progress reports are released.

The European Union continuously funds programs that develop different tools for sustainable development under the supervision of the Research Framework Program. Some of these programs are LIAISE, AWARE, PRIMUS, ENCI-LowCarb, ESDInds, Sustainability A-Test, MATISSE, SENSOR, MODELS, INDI-LINK and DECOIN (European Commission, 2010).

In the field of tourism, sustainable tourism, as a response to mass tourism, started to rapidly evolve concurrent with the publishing of the Brundtland Commissions report. The main milestones can be seen in various initiatives, organizations, conferences, certification systems and scientific research in this area.

Significant achievement was recorded in 1993 when, in its Fifth Environmental Action Programme titled ‘Towards Sustainability’, the European Union introduced tourism as one of the key sectors (European Commission, 1993). Another milestone was the World Conference on Sustainable Tourism held in Lanzarote, Spain, where the Charter for Sustainable Tourism with 18 objectives regarding guiding activities for sustainable tourism

development, was adopted (The global development research center, 1995). During the International Conference of Environment Ministers on Biodiversity and Tourism held in 1997 in Berlin, 'The Berlin declaration on biological diversity and sustainable tourism', was signed (Berlin Declaration, 1997). The importance of the declaration can be seen through its general and specific principles that address tourism actions and activities in the light of sustainability. It is also noteworthy to mention the "Agenda 21 for the Travel & Tourism Industry: Towards Environmentally Sustainable Development". It is a program prepared by the World Tourism Organization, the Earth Council and the World Travel & Tourism Council. Agenda 21 presents activities for government and non-government organizations in tourism and in the travel industry that support sustainability implementation. As far as the preservation of biodiversity is concerned, notable are the guidelines of the Convention on Biological Diversity, which outline the preservation of ecosystems in relation to tourism (CBD, 2004). Among the various organizations, worth mentioning is the European Commission's Tourism Sustainability Group, established in 2004. It prepared a framework that addresses the most important challenges of sustainable tourism in the European Union, provides implementation mechanisms and assigns responsibilities for the main stakeholders (Tourism Sustainability Group, 2007).
Another relevant organization is the Global Sustainable Tourism Council, founded in 2010 whose aim is to set standards for sustainable tourism. The Council prepared sustainable tourism criteria for destinations, hotels and tour operators, where emphasis is put on environmental and social responsibility.

There are also numerous voluntary certification systems that allow tourism and travel business to demonstrate and promote their compliance with the principles of sustainable development. Green Globe, Rainforest Alliance, Green Key, Blue Flag, EarthCheck, Travellife, Greenleaders are few examples of international certificates. In addition to certification systems, it is necessary to emphasize the World Travel & Tourism Councils' award 'Tourism for Tomorrow', that rewards excellence in sustainability activities in different categories.

In the research area, the most notable achievement is probably the academic Journal of sustainable tourism, specialized in research about interactions between sustainable development and tourism. It was first published in 1993 and so far 10 issues have been published on an annual basis.

It can be seen that considerable effort has been devoted to promoting sustainable development. Additionally, a mind shift from thinking 'if we were to implement it' to the 'how to implement it' is visible, but there is still much work to be done towards awareness that economic, environmental and social dimensions are equally important and directly interconnected.

1.2. Sustainability management

The hotel industry is constantly growing while its sustainability impact is also rising. There is evidence that hotels are one of the top two commercial buildings, alongside hospitals, which have the most negative influence on the environment (Bohdanowicz & Martinac, 2003). Furthermore, hotels cause cultural erosion and environmental degradation (Hunter & Green, 1995). If hotel companies act in a sustainable manner, this could positively affect not only local but also regional development (Richards & Derek, 2000). The sustainability of the hotel industry must be based on the principles of sustainable tourism development (Agenda 21, 2003), following the report of the World Commission on Environment and Development "Our Common Future" (Brundtland Commission, 1987). Ecologically and socially sustainable companies have to only use natural resources that are consumed at a rate lower than the natural reproduction; they also have to add value to the community by increasing human and social capital (Dyllick & Hockerts, 2002). It is very important to introduce sustainable resource management in the production and consumption of goods and services in the tourism industry, and the whole tourism product should be considered from the perspective of its life cycle.

Integrating sustainability into a company is not an easy task and it raises many questions. First, there is the question whether or not the implementation will be successful and enhance sustainability performance. Second, there is the concern on how it will reflect the company's financial perspective. One of the main problems in implementing sustainability is the lack of knowledge in environmental and social areas (Abramovitz, 1997). Research has shown that companies that are implementing sustainability beyond the mandatory level gain competitive advantage (Camino, 2007; Ramanathan et al., 2010; Bennett & Crudgington, 2003).Companies that have integrated sustainability strategies, have the role of educators that change customer preferences, suppliers' attitudes and stakeholders views (Hart, 1997).

1.2.1. The process of sustainability strategic management in hotel industry

Strategic management in the hotel industry must strive to be sustainable, achieve long-term profitability and economic performance objectives (Gray, 1992, Schaltegger, Sturm, 1992, Mathews, 1997a, Sisaye, 2010). A company's survival on the market greatly depends on its ability to meet the needs of its stakeholders (Freeman, 1984; Freeman & Gilbert, 1988) and their pressures for companies act more responsively regarding social and environmental issues (Adams, 2004; O'Dwyer et al., 2005; Unerman, 2000). Strategic management should follow the principles of sustainable tourism development. In such way, it can contribute to their own resilience and to global economic recovery, by pursuing an environmentally neutral strategy. By combining strategies and approaches, which are

based on sustainability principles, the hotel industy can contribute to poverty reduction, support an ecological approach, as well as encourage social and economic development for local, regional and national communities.

In a McKinsey survey done in 2010, including around 2000 respondents from various industries, about 60% answered that sustainability is very important for corporate strategy, but only 30% stated that their companies are intensively trying to implement sustainability in practice. These results show a great discrepancy between commitment and actual realization, with substantial area for improvement. An explanation for these results could be in the fact that companies don't have a clear view or an agreement reached, there is no assignment of responsibility and they don't have real commitment to sustainability (Mirvis, Googins & Kinnicutt, 2010). Companies can become sustainable only if all of the components of their systems are viable. The change to sustainability management is in essence about strategic organizational development, modifying management structures, systems and competencies (Room, 1998), that results in reducing costs, managing risks and creating new products (Azapagic, 2003) and enhancing the company's public image (Ziek, 2009).

No longer is the question if companies want to implement sustainability, but how to do it, with what resources and to which extent to include it into business (Smith, 2003). Turning the strategic focus of a hotel company to sustainable development, is the only viable roadmap for the future.

Sustainable strategic management includes strategic management processes that are economically competitive, socially responsible, and balanced with the cycles of nature… here we are taking a more comprehensive global view of the term, referring not only to the survival and renewal of the firm itself, but also to the survival and renewal of the greater economic system, social system, and ecosystem in which the firm is embedded (Stead & Stead, 2004, p.6). Sustainable strategic management in the hotel industry comprises all the processes fundamental for integrating sustainability into the strategic core of organizations, including internal cognitive, strategic, structural and operational processes, internal and external alliances, networks and relationships that are essential for operating in a sustainable manner (Stead & Stead, 1996).

The process of sustainable strategic management consists of four stages: environmental scanning, strategy formulation, strategy implementation and evaluation and control (Figure 1).

Figure 1: The process of sustainable strategic management

Source: T. L. Wheelen and J. D. Hunger, *Strategic Management and Business Policy: Toward Global Sustainability*, 2011.

The first stage of the process, i.e. environmental scanning is needed to evaluate the current position of the company, in relation to its environment (Aguilar, 1967; Ackoff, 1970; Bourgeois, 1980). In this stage, the collected information is used to identify the strengths, weaknesses, opportunities and threats in the internal and external environment. Internal scanning includes an examination of a company's resources and competences, while external scanning relates to investigating the natural, societal and task environment (Wheelen & Hunger, 2011). Scanning the internal and external environments, assists hotel managers to determine the positive and negative influences, and in that way helps them formulate strategies that enable the hotel company to adapt to its environment.

Hotel companies should aim to achieve sustainable business. In the second stage of the sustainable strategic management process, this motivation has to be translated to the mission, objectives, strategies and policies of a hotel company.

A mission statement presents the hotel company and what it does. Moreover, it reveals to stakeholders the company's goals and priorities and the plan on how to achieve them (Pearce & David, 1987; Falsey, 1989; Abrahams, 1995; Amato & Amato, 2002). By including sustainability issues in the mission statement, a company demonstrates that sustainability is a crucial part of its strategy (Epstein & Rejc Buhovac, 2014).

Second, strategic objectives are measurable actions that a hotel company wants to achieve (Blackburn, 2007). Their role is to assist in the translation of a company's mission into its results. By selecting environmental and social sustainability as their objective, companies can ensure their long-term sustainability (Dutta, Lawson & Marcinko, 2013). When objectives and goals are set, the hotel company has to formulate its strategy.

Third, hotel sustainability strategy is a business strategy that is not only focused on satisfying companies' needs but also the needs of stakeholders, by preserving and enhancing natural and human resources (International Institute for Sustainable Development, 1992). A strategy can be seen as a plan on how to reach established objectives and goals with the resources that are available to the hotel company (Porter, 1980; Mintzberg & Quinn, 1996). When formulating the strategy, managers have to consider current market trends, evaluate the company's competences and predict possible future developments (Iaquinto & Fredrickson, 1997; Ferrier, 2001). The strategy has to address the company's strategic position, meet stakeholder expectations and be feasible (Johnson & Scholes, 1993). Hotel companies need to select suitable corporate and business strategies in order to ensure appropriate utilization of resources and gaining of competitive advantage (Epstein & Roy, 2001). In the literature, sustainability strategies can be divided to those that are focused on avoiding risks, external relationships, eco-efficiency and holistic strategies which include the sustainability impacts of all business activities (Baumgartner & Ebner, 2010). Choosing an effective sustainability strategy can bring many benefits to improving a hotel company's quality, cutting costs, increasing its positive image and the possibility of raising market share and opening new markets (Porter & van der Linde, 1995).

Fourth, once the strategy is formulated, the company needs to develop policies that will serve as guidelines in strategy implementation, assisting in decision-making and daily operations (Wheelen & Hunger, 2011).

Strategy implementation is the process of translating strategy into concrete actions, which have to be taken in order to achieve a hotel company's goals. Research has shown that 90% of strategies aren't implemented successfully (Judson, 1991; Speculand, 2009) and the primary reasons for this are inappropriate organizational structures (Aaltonen & Ikävalko, 2002), insufficient management efforts (Beer & Eisenstat, 2000), poor communication, lack of evaluation (Speculand, 2009), market changes and poorly employed resources (Sterling, 2003). One of the requirements for the effective incorporation of sustainability strategies, is that companies have to use formal and informal operating systems that are aligned (Epstein & Buhovac, 2010; Sollomon, 2010; de Colle & Gonella, 2003). Formal operating systems include all the procedures, regulations, processes, plans and performance measurement systems while at the same time informal operating systems include work-related issues like leadership, organizational culture and unwritten norms. In the interest of strategy implementation and execution, hotel companies need to provide an optimal amount of resources. This includes financial, human, physical, operational and intellectual resources (Evans, Stonehouse, & Campbell, 2012) that must be allocated across all levels of the company simultaneously (Gilbert & Bower, 2005). Organizational structure has a key role in strategy implementation, while it directly affects the decision-making process (Bourgeois & Astley, 1979; Fahey, 1981). It represents a design of the company's hierarchy that supports the division of jobs and tasks,

coordinating work, communication and knowledge transfer (Johnson, Scholes & Whittington, 2008; Rothaermel, 2014). Usually when implementing strategies, the organizational structure has to be changed and adapted in order to align it with previously defined sustainability objectives and strategy (Chandler, 1962; Rainey, 2009). Within organizational structures, organizational processes have to be determined to control a company's operations. These processes have to control strategic decisions, plan and supervise resource allocation, promote self-control and motivation, maintain organizational culture and assess performance (Johnson et al., 2008). In order for organizational structure and policies to work, hotel companies need to build internal and external relationships to manage relations with employees, stakeholders and customers (Johnson et al., 2008).

All the actions made in the process of sustainability integration have to be clear. Actions must be measurable and management has to see direct results from them. The cost- effect analysis is very important here. During the transition to sustainability management, top management has to show commitment and be able to transfer it down to lower operational levels (Holton, Glass & Price, 2010). In this transition, all employees have to be collectively included. If the entire management and its subordinates don't support sustainability integration, it is less likely that it will be achieved (Nijhof, Bruijn, Fisscher, Jonker, Karssing & Schoemaker, 2005). A company cannot be sustainable, if sustainability isn't successfully integrated into all business segments.

Strategy evaluation is the final stage of the strategic management process, where a decision must be made on whether or not the selected strategy meets sustainability objectives. Evaluation includes monitoring achievements, auditing and giving feedback to managers (Rainey, 2009). Monitoring the performance is indispensable in determining progress in performance and provides assistance in identifying segments that need alteration and improvement (Holton, Glass & Price, 2010). Qualitative monitoring is used to assess teamwork and communication, while quantitative monitoring evaluates hard data (Mintzberg, 1994). The strategy has to continuously be evaluated, in order to assure that the hotel company is moving towards its objectives and also to enable corrective actions, if necessary.

1.2.2. A sustainability balanced scorecard as a tool for sustainability strategy implementation and evaluation

The traditional balanced scorecard (BSC) is a tool for strategy implementation, while in its process of development, a company's objectives are incorporated into the perspectives through strategy maps (Kaplan & Norton, 2004). Additionally, when BSC is developed, it provides a set of measures that represent a company's performance aligned with established strategic objectives and in that way can help in strategy evaluation and control. The sustainability balanced scorecard (SBSC) is a strategic performance management tool that is based on the concept of Norton and Kaplan's (1997) BSC and it integrates and

combines sustainability with existing perspectives (financial, customer, internal business processes and learning and growth). One of the characteristics of the BSC is that it presents financial and nonfinancial measures in a single unified report. The advantage of SBSC is that it links long-term resources and competences that incorporate social and environmental issues with financial results (Möller & Schaltegger, 2005). This is why the BSC is suitable as a framework for incorporating sustainability into company planning and management and as a foundation for aligning sustainability with business strategy.

Although the concept of SBSC emerged at the beginning of the 21st century, the literature on this topic is not abundant. The majority of the literature offers overviews, emphasizes benefits and different visions of SBSC. One of the benefits of SBSC is that it takes a systematic approach to strategic sustainability management and structuring the framework for sustainability management control (Schaltegger, 2011), in addition to improving corporate responsibility (Epstein & Wisner, 2001). There is some evidence that sustainability has a positive relation to financial performance (Crawford & Scaletta, 2005, Chalmeta & Palomero, 2011).

There is no global consensus on how to incorporate sustainability in the BSC. Different authors propose different methods. The literature review has identified 14 approaches (Table 1).

Table 1: Different approaches of integrating sustainability into the Balanced Scorecard

Author	**Approach**
Zingales, O'Rourke & Orssatto (2000)	Environmental BSC, socio-related scorecard
Bieker & Gminder (2001)	Five different approaches according to different strategies employed by the respective companies.
Bieker & Waxenberger, (2002)	Society perspective
Hockerts & O'Rourke (2002)	Perspectives upgraded with social performance indicators
Figge, Hahn, Schaltegger& Wagner, (2002a)	Three approaches of integrating sustainability
White, (2005)	BSC upgraded with GRI indicators
Ahmad, Hamid, Yusoff & Ramlan, (2007)	Incorporate CSR in learning and growth perspective.
Firestone, Hadders & Cavaleri, (2009)	Adaptive Quadruple Bottom Line Scorecard
Hubbard, (2009)	Social performance perspective; environmental performance perspective; organizational sustainable performance indicator

Author	Approach
Soriano, Munoz-Torres & Chalmeta-Rosalen, (2010)	New model based on Norton and Kaplan's BSC, Sustainability perspective
Chalmeta, & Palomero, (2011)	Upgraded perspectives, Social/Occupational perspective, Environmental perspective
Hsu, Hu, Chiou & Chen, (2011)	Sustainability and stakeholder perspective
Razek (2012)	Employee, risk management, social and environmental perspective
Reefke & Trocchi (2013)	Environmental and social issues integrated into 4 existing perspectives and non-market perspective added

Source: *Author*

Zingales, O'Rourke & Orssatto (2000) made a distinction between a company's social and environmental responsibilities and proposed building two separate environmental and social scorecards. Bieker and Gminder (2001) identified five different possibilities of structuring a Sustainability Balanced Scorecard:

a. 'Partial approach' - One or two sustainability indicators should be integrated into one of the classical perspectives (most likely perspectives of internal processes or customers).

b. 'Additive SBSC' – A fifth perspective is added for environmental and social sustainability.

c. 'Total SBSC' – Sustainability indicators are added into all of the four BSC perspectives.

d. 'Transversal approach'- Sustainability is considered the value driver of an organization and environmental and social aspects are leading indicators in all perspectives.

e. 'Shared Services SBSC' – SBSC for only some parts of the organization, with the aim of promoting the idea of sustainability.

In 2002, these five approaches were summarized into three ways of integrating sustainability into the BSC. The first method was to integrate environmental and social indicators in the BSC, then to create a fifth perspective and the last method was to make a separate sustainability scorecard which took into account environmental and social aspects (Figge, Hahn, Schaltegger, & Wagner). Bieker and Waxenberger (2002) proposed a new society perspective which relates to external groups, including all other sustainability-related issues in the four BSC perspectives. According to Hockerts and O'Rourke (2002) social performance indicators on the communication of social performance, access to clients, community and employee relations should be included in all the perspectives. White (2005) found an intersection between BSC and GRI's economic, environmental and social sustainability indicators and suggested a version of a Sustainability Balanced Scorecard that incorporates the Global Reporting Initiative's Sustainability Reporting Guidelines and its indicators into BSC perspectives. Ahmad et al. (2007) proved that when integrating Corporate Social Responsibility into the Balanced Scorecard perspectives, the most effective way is to integrate it into the learning and growth perspective. Firestone et

al. (2009) upgraded BSC with performance on organizational learning and intelligence (routine learning processes and deeper creative learning processes), social responsibility, sustainability and adaptive capacity. Hubbard (2009) proposed two new perspectives related to social and environmental performance. The measures in all of the perspectives are indicated in rates (from 1 to 5), in addition to this he integrates the Organizational Sustainability Performance Index that is an average of all perspectives rates. A new model was proposed based on Kaplan and Norton's BSC. This modified Balanced Scorecard, contrary to the classical one, has three perspectives – sustainability, stakeholders and structure that are connected with causal links (Soriano, Munoz-Torres, & Chalmeta-Rosalen, 2010). In 2011 (Chalmeta & Palomero), research was conducted in 16 companies with the aim of investigating the possibilities of implementing the concepts of sustainability within the strategy and day-to-day management. The authors upgraded all classical BSC perspectives with sustainability elements and added two new perspectives – the Social/Occupational perspective (social and labour criteria) and the Environmental perspective (environmental aspects important for the organization's processes). According to Hsu et al. (2011) to reflect sustainability matters, the BSC criteria should exchange financial and customer perspective with sustainability and stakeholder perspective. The newly proposed perspectives have more than the recommended number of indicators. In Razek's (2012) point of view, the learning and growth perspective should be substituted by the employee perspective, and perspectives about risk management, social and environmental aspects should be added. Reefke and Trocchi (2013) indicated social and environmental aspects in each of the existing four perspectives and added a non-market perspective with issues such as waste reduction, emissions and working conditions.

There are concerns that environmental and social activities will not be fully reflected in the Scorecard and that the integration will have minimal effects on sustainability practice and overall results (Butler, Henderson, & Raiborn 2011). Finge et al. (2002b) argue that social and environmental measures will 'crowd out' economic measures and that they will communicate just a small part of the company's performance which is not sufficient. Schaltegger and Lüdeke-Freund (2011) provided a possible solution to this issue by making a deductive balanced scorecard. It would represent an additional scorecard that would be focused only on environmental and social outcomes.

Some examples of SBSC can be found in the literature, but none of them is from the hotel industry. Novartis implemented sustainability in a way that a new Environment, Health and Safety Balanced Scorecard was created in addition to the classical BSC (Zingales & Hockerts, 2003). Novo Nordisk integrated environmental and social issues into Customer & Society, People & Organization and Internal Processes Perspectives (Zingales & Hockerts, 2003). Royal Duch Shell added a fifth perspective named Sustainable Development (Zingales & Hockerts, 2003). Dias-Sardinha, Reijnders and Antunes (2007) tried to implement SBSC into three Portuguese companies, but there were difficulties because the companies were only concerned with the financial effect sustainability would

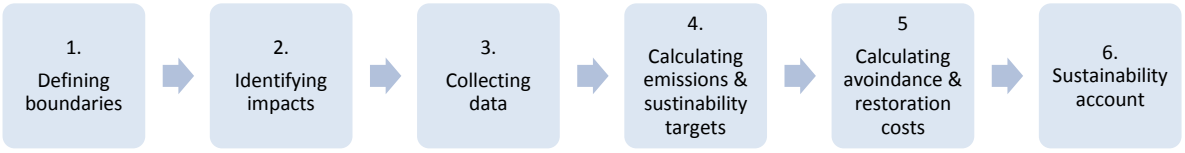
have, and despite the willingness for implementation that they had, they did not want to implement it in a short time. As it can be seen, these SBSC have each been made by adopting a different approach and there is no common ground for comparison.

The SBSC could be very useful for strategy implementation and evaluation, but it is still not sufficiently investigated. There have been various proposals on how to integrate sustainability into existing perspectives, nonetheless no consensus has been made. Further research has to be undertaken to reach the best solution for sustainability integration.

1.3. Sustainability accounting

A hotel company whose strategic management is oriented towards sustainability needs an appropriate basis for decision-making. Measuring sustainability performance represents a challenging assignment for companies (Morimoto, Ash & Hope, 2005). Sustainability accounting, as an information system that measures, analyses and reports economic, social and environmental performance, can provide hotel managers information that is needed to support the process of sustainability strategic management. Taplin et al. (2006) proposed a framework (Figure 2) that shows the process of linking sustainability strategic management and sustainability accounting.

Figure 2: Steps to creating sustainability account



Source: *J. R. D. Taplin et al., Developing a sustainability accounting framework to inform strategic business decisions: a case study from the chemicals industry*, 2006, p. 352.

In this process, the first step is to define the boundaries and to determine and define sustainability-related impacts and analyze how much influence over these impacts a company has over these impacts. In this step, companies need to detect threats and possible opportunities that are arising. These steps are followed by collecting data, calculating emissions and sustainability targets and calculating avoidance and restoration costs. This information is then transferred to the sustainability account. The sustainability account, unlike the traditional account, expands conventional limits and shows economic, environmental and social impacts and hidden cost that can incur in avoiding these impacts or that can incur in the process of minimizing the impact that happened. By following these steps, companies can identify their weak areas and better implement sustainability. In this way, sustainability accounting can quantify economic, social and environmental impacts

that a hotel company causes with its activities and consequently support the sustainability of strategic management.

1.3.1. Development of sustainability accounting

Conventional accounting has many limitations, and is not able to provide high quality information which managers in hotel companies need, in order to make decisions regarding sustainable development. The first mentions of sustainability accounting in the literature centered on shortcomings of conventional accounting and constrains connected with the usage of only monetary measurements (Ackerman, 1973; Maunders & Burritt, 1991; Gray, 1992; Mathews, 1997a; Lehman, 1999; Schaltegger, & Burritt, 2000).

The earliest works on sustainability accounting began in the late 1960s with the social accounting movement. Questions arose about the shortcomings of financial measures in quantifying social areas that are beyond business (Linowes, 1968) and the need for the accounting profession to start measuring aspects of social change like pollution and population (Beams & Fertig, 1971; Churchman, 1971). This accounting branch was named socio-economic accounting and its purpose was to employ accounting into social science and determine and measure economic activities that affect society and their cause-effect relationship (Linowes, 1968; Mobley, 1970). Efforts to find adequate approach to disclose companies' sustainable actions, Dilley and Weygandt (1973), propose the statement of funds flows where all financial activities related to environmental and social perspectives are stated. Ramanathan (1976), was the first to propose the social accounting framework as a process of selection and measurement of social variables that are then delivered as information for companies' social performance evaluation. In contrast to previous studies which were mostly financially oriented, Dierkes and Preston (1977) proposed a model with solely descriptive and non-financial information. Parallel with emerging of various forms of accounting concerned with sustainability issues, the need to audit information was accentuated (Ackerman, 1973). Besides normative studies, the first research was conducted to analyze disclosed sustainability information (Ingram, 1978; Brockhoff, 1979) and the relationship between social and environmental performance versus financial performance (Vance, 1975; Alexander & Buchholz, 1978; Chen & Metcalf, 1980).

In the 1980s empirical research prevailed over normative research. Among normative studies, there were efforts to develop a system for social accounting information (Burke, 1984) and a social performance framework (Wartick & Cochran, 1985; Brooks, 1986), while Mathews (1984) made a classification of components of social accounting. During this period, a noticeable transition in terminology occurred, with socio-economic accounting (Mobley, 1970) being replaced with social accounting Mahapatra, 1984; Guthrie & Mathews, 1985; Perera & Mathews, 1990). Empirical research was mostly done on the analysis of sustainability reports and arguments have been made that the relationship between social responsiveness and economic performance is inconclusive

(Arlow & Gannon, 1982; Freedman & Jaggi, 1988), while Ullman (1985) argued that this is the result of the lack of theory application and definition of key concepts. Rockness (1985), who examined the accuracy of information in environmental reports, came to the conclusion that companies provide an insufficient amount of information that mostly inaccurately represents their performance.

From 1990s onward there were significant changes towards the separation of environmental accounting from social accounting. Different visions of environmental accounting were shared. Ecological accounting as an independently developed form, was later incorporated into financial and management accounting with an emphasis on financial information (Schaltegger, Muller & Hindrichsen, 1996). Birkin (1996) used a holistic approach to design an environmental accounting model through a balance sheet that is divided into four parts- stakeholder base and burden and ecosystem base and burden. Additionally, a full cost accounting model was proposed to estimate monetary losses caused by environmental pollution, by calculating the costs of prevention and failure (Boone & Daniel, 1997).

It is worth noting that there were difficulties in finding a universal agreement between accounting researchers on the definition of social accounting. Some of them defined it as a process of measuring and delivering only social performance (Ramanathan, 1976), some argued about social and environmental performance (Gray, Owen & Maunders, 1987; Mathews & Perera, 1995), while others argued that it deals only with environmental concerns (Gauthier, Leblanc, Farley & Martel, 1997).

Gray, Owen and Adams (1996) advocated for the merging of environmental and social reports into companies' annual reports and can be seen as one of the first steps towards the concept of sustainability accounting. Mathews (1997b) further proposed a model that was accompanied with basic principles that emphasize the use of both non-financial and financial data. The author also accentuated that these social and environmental data would then be subject to auditing in the same way as financial reports. This line of research was followed by Elkington (1997) who developed the triple bottom line approach where companies needed to measure their three bottom lines – people, planet and profit in separate bottom lines and in that way measure their overall impact on their surroundings. Although this was a significant step towards measuring and reporting companies' sustainability performance, it has been criticized for low ability to aggregate and compare results between the bottom lines (Sridhar & Jones, 2013).

In the 2000s, the shift towards sustainability accounting as a most advanced form of accounting for sustainable development began. Sustainability accounting can be seen as a process that involves measuring, examining and reporting on financial impacts caused by environmental and social activities, impacts that companies have on environment and society and the connections and interrelations between economic, environmental and social

issues (Schaltegger & Burritt, 2010). What differentiates sustainability accounting from other forms of social and environmental accounting is its emphasis on the synergy and interactions between the three pillars of sustainability. Sustainability accounting measures and reports sustainability information about a hotel company's economic, environmental and social performance that are used in the decision-making, planning, assessment and control processes. In other words, sustainability accounting can be a basis for decision-making gathering and then communicating sustainability information. This is also called the inside-out approach, where a company's strategy is first translated into information systems and performance indicators and sustainability accounting is modeled to satisfy management's needs (Burritt & Schaltegger, 2010). In contrast to this, the outside-in method aligned with the stakeholder theory (Freeman, 2010) takes the opposite approach. As a rule, first stakeholder's needs and expectations are gathered and sustainability accounting measures and approaches are formulated in accordance with these (Schaltegger & Wagner, 2006b). Managers should be cautious with this approach while stakeholders can have subjective expectations that can affect a company in an undesired way. Probably, the best solution for a company is a combination of these two approaches, also called the twin-track approach (Schaltegger & Wagner, 2006b; Henri & Journeault, 2010), that could satisfy both parties and balance company and stakeholder expectations and needs.

In making day-to-day decisions, managers in hotel companies need information prepared by using tools and sustainability accounting methodology, as a source of information for embedding sustainability. Sustainability accounting provides very important information for establishing strategic sustainability objectives and for assessing the impact of managers' long- and short-term decisions on the economical, ecological and social impact hotel companies have and the environment. There is a growing demand by various stakeholders for the development of sustainability performance measurements, and the most important is the demand to see that the implemented and reported sustainability reflects on sustainability performance (James, Wehrmeyer, 1996; Epstein, Roy, 2001a; Adams, Larrinaga-Gonzalez, 2007: Aras, Crowther, 2009). Operating managers have to be capable of taking sustainability issues into account more effectively in day-to-day decision-making in order to be able to deliver sustainability objectives. Sustainability accounting can help to identify risks that a company is faced with, furthermore it can also determine positive opportunities that can occur (Unerman, 2011).

In the past few years, much attention has been given to sustainability accounting by various researchers and practitioners, but nonetheless there is a minority of companies that have implemented it into their systems (Songini, & Pistoni, 2012). It is necessary to point out that one of the reasons for this is that in spite of numerous efforts made by researchers, sustainability accounting doesn't have a defined place among accounting branches. Two distinctive suggestions have been made. The first is that sustainability accounting should be a separate system that is in line with the company's sustainability strategy and the second suggestion is that sustainability accounting is an addition or alternation to existing

accounting branches – financial, cost or management accounting (Gray, 1994; Lamberton, 2005; Schaltegger, & Burritt, 2000). The first option perhaps has leverage over the second option while it allows a completely new system to develop without any constrains imposed by current financial, cost and management accounting. Especially while it is argued that models of social and environmental accounting in their current state have limitations that prevent further development (Lehman, 1999). Nonetheless, this option has to be taken into consideration while it is still unexplored and its possible consequences are unknown. One of the concerns could be that this separate system would be marginalized and taken lightly if the priorities of the company aren't truly aligned with sustainability.

With regard to the perception of sustainability accounting, the following categories have been identified (Schaltegger & Burritt, 2006; 2010):
- Empty buzzword: sustainability accounting is often perceived as a buzzword while it is repeatedly used, often without any meaning or just to make an impression.
- Broad umbrella term: in this category, sustainability accounting is a term under which various methods and techniques are lumped together without any clear definition and structure and most importantly without determined connections between sustainability aspects.
- Overarching measurement tool: in this viewpoint, sustainability accounting is a system that provides one unified measurement of sustainability. The problem with this approach is that one measurement cannot depict the broad variety of issues that sustainability covers with its three dimensions.
- Goal driven stakeholder engagement process: sustainability accounting is considered as a set of different tools that measure the diverse aspects of sustainability while taking into consideration the links among them.

In terms of motivation for the implementation of sustainability accounting systems, literature has found 6 reasons (Schaltegger & Burritt, 2010, p. 378):
- Greenwashing: a situation when a company puts more efforts in collecting and delivering sustainability information, than in real activities that would enhance the company's sustainability. By doing so, companies primarily want to increase their reputation, at the same time disguising their unsustainable activities (Laufer, 2003). Often called corporate disinformation, this is a practice where positive performance is selected and highlighted and poor performance is ignored (Lyon & Maxwell, 2011).
- Mimicry and industry pressure: companies copy their competitor's behavior, but usually these attempts can be recognized through introducing new ideas that are not fully developed and implemented. Research has shown that companies tend to mimic other similar companies with superior performance (Joseph & Taplin, 2012).
- Legislative pressure, stakeholder pressure and ensuring the 'license to operate': In order to operate, companies are sometimes constrained to comply with legislation and follow stakeholders' requirements.

- Self-regulation: in this case companies voluntarily implement sustainability accounting systems in the interest of increasing performance and reputation or in anticipation of regulatory demands.
- Corporate responsibility and ethical reasons: this kind of motivation relates to the accountability concept (Gray, Owen & Adams, 1996), where companies are not driven by any self-centered interests but the desire to be responsible for their actions.
- Managing the business case for sustainability: in these circumstances implementation is done while companies are realizing potential economic benefits from environmental and social information that sustainability accounting delivers.

Sustainability accounting includes sustainability reporting and sustainability performance measurements, following the specific information requirements of a manager in the hotel industry. When developing and incorporating the sustainability accounting model in a company five elements that comprise of objective, principles, techniques, attributes and reports have to be taken into consideration (Lamberton, 2005). The objective of sustainability accounting is to provide the basis that supports reaching a company's sustainability goals. Its task is to measure all the components of sustainability performance and prepare it for stakeholders in a comprehensive format. Besides the performance, it has to supply the effect that this performance has. Information provided from sustainability accounting has to be functional in helping the decision-making process. From this information stakeholders have to be able to evaluate the company's current position and be able to make informed and timely decisions.

Sustainability accounting is still seen in its initial stage, as many undefined matters are present. For example,there is the question as to whether ought to be a separate accounting system or implemented into existing accounting branches. The importance of sustainability accounting is often not fully recognized, and considerable efforts have to be made in order for it to achieve its goal to deliver valuable sustainability information for strategic management.

1.3.2. Principles of sustainability accounting

Despite the fact that there has been an increase in the publishing of sustainability reports (Aras, & Crowther, 2009), this doesn't mean there has also been an increase in accountability (Adams, 2004). In the interest of delivering reports that communicate improved performance (Adams, & Larrinaga- Gonzalez, 2007) and in the process of defining report content some principles should be followed. According to Lamberton (2005), the main sustainability accounting principles are: definition, accounting period, scope, materiality, capital maintenance, units of measurement and precautionary principle. In addition to this, content should be transparent, stakeholder inclusive, provide sustainability context and allow auditing (Global Reporting Initiative, 2002).

The first step in the process is to define sustainability in the company's context by examining the operating environment, and then defining goals and objectives that must be achieved (Searcy, 2009).

It is important to define the accounting period for which sustainability performance is being measured, but unlike traditional financial accounting reports, it doesn't need to strictly be within the framework of monthly, quarterly, semiannual or annual period reports, but instead the whole life cycle of the product or service has to be taken in account.

Completeness assures that all sustainability impacts have been covered in the report. This is a demanding task (Park, & Brorson, 2005) while it includes the coverage of sustainability scope and identifying and representing important impacts of the hotel company (Adams, & Evans, 2004).

Sustainability accounting's scope is mainly determined by the hotel company's definition and vision of sustainability. It has to cover all three aspects of sustainability information using the stakeholder approach (The Sigma Project, 2003), in the interest of satisfying a hotel company's main sustainability priorities.

The stakeholder inclusiveness principle dictates that sustainability accounting information is presented in a manner that reflects the way in which company sustainability performance influences stakeholders and shows how their interests, needs and expectations have been addressed (Global Reporting Initiative, 2013). To comply with this principle, stakeholders should be involved in the process of defining the report content. However this is not often the case (Lingenfelder, & Thomas, 2011).

The materiality principle expresses the notion that a matter can be omitted if its impact is so negligible that it would not influence the final result. Accountants are the ones that judge if something should be disregarded or not. It is usually connected with financial accounting and discussed within financial standards like the US Generally Accepted Accounting Principles (1980) and International Financial Reporting Standards. Hotel companies need to choose and prioritize the relevant topics that influence economic, social and environmental issues and consequently enable strategic planning, operational management and stakeholder decision-making (GRI, 2013; King, 2013). The focus of materiality should be extended in order to provide a longer-term, wider and deeper view of information that can be achieved by detecting a company's most material issues, advancing mechanisms and processes, managing and reporting timely and transparent information (AccountAbility, 2013).

Under the capital maintenance principle, profit should be realized only when the level of capital at the end of the year has reached the amount of capital at the beginning of the year.

In sustainability terms, capital maintenance deals with maximizing economic growth without diminishing produced and natural capital and replacing it with its substitutes (Bartelmus, 2003).

Sustainability performance must be measured in financial and non-financial units. Social and environmental performance is in some cases very hard to represent in financial values. Attempts to monetarize sustainability performance present a great risk that sustainability issues will be understated and misstated (Lamberton, 2005).

The precautionary principle is considered a central principle of sustainability (Tickner, 2004) and has been embedded in various pieces of national legislation and international treaties (Som, Hilty & Köhler, 2009). Basically, underlying this principle is the notion that if there is uncertainty about some matters and no sufficient scientific information to make a decision, it is necessary to make the decision that will prevent and have less negative consequences on sustainability issues (Dovers, 1995; Underwood, 1997).

The principle of the sustainability context underlines the importance of accounting information being delivered but also being put into a context that enables readers to understand the wider consequences of performance. For example, if a hotel company publishes its CO2 emissions, these emissions should be compared to emissions from previous years, limits or industry averages, so that stakeholders can evaluate the company's performance.

Last, but not less important is the auditability principle, by which all reports have to be prepared in a way that enables assessment and where the sustainability information can be verified for accuracy with regard to set standards (Global Reporting Initiative, 2002; Global Reporting Initiative, 2013c; Janković, & Krivačić, 2014; Sustainability Accounting Standards Board, 2013).

When producing sustainability accounting information, qualitative reporting attributes have to be taken into consideration to ensure accurate representation. The Global Reporting Initiative (Global Reporting Initiative, 2002; 2013) divided these quality characteristics into the following principles: balance, comparability, accuracy, timelines and clarity.

The balance (Global Reporting Initiative, 2013c) or neutrality principle (Global Reporting Initiative, 2002), requires that all sustainability accounting information is delivered in an unbiased manner. Sustainability information should be neutral and avoid situations where this information could be misleading (Wallage, 2000). Since sustainability reporting is not mandatory and often isn't audited, hotel companies can use this to their advantage and emphasize only positive, favorable performance, and on the other hand, camouflage or omit performance that could have negative effects. Companies which report their

sustainability information tend to highlight positive matters such as corporate social investment and philanthropy and these reports are usually written in an aspirational, anecdotal and episodic manner (Sonnenberg & Hamann, 2006, p. 311).

Unlike financial reports, where there are precise rules about how reports are to be presented, in sustainability reporting there are no such detailed guidelines which usually leads to reports that cannot be compared to each other. Comparability is one of most important principles that allows the evaluation of performance, relation with past or target performance, rating and benchmarking with other companies. . This is a major issue for all stakeholders as current sustainability reports from hotel companies are very difficult to compare.

Accuracy shows the degree to which the information presented is truthful. This again raises the question of non-mandatory reporting that is not audited. Without controlling the reported information, accuracy cannot be verified and published information could be questioned when used in the decision-making process.

Regarding timeliness principles, all reports should be delivered regularly in a time that satisfies users' needs (Global Reporting Initiative, 2013c). Again, since it is not legally regulated, hotel companies use different time frames to publish the reports, usually between one and two years, making it difficult to compare this information in relation to competitors.

The principle of clarity denotes that the represented information should be represented in an understandable, accessible, and usable manner to a wider audience (Global Reporting Initiative, 2013c).

Information prepared by sustainability accounting has to follow specific principles. These principles guide the process of information preparation and support requirements that sustainability information has to provide. If these principles are not applied, sustainability information will not deliver appropriate information to form the foundation for sustainability based decision-making.

1.3.3. Sustainability reporting

Company reports are often called as their 'business cards' (Daub, 2007), since they provide a summarized picture of the company's results. In the 1990s, the first companies started to report their sustainability impact in various forms such as extended annual reports or standalone reports (Stubbs, Higgins & Milne, 2013). Internet and company websites are commonly used as a media for disseminating sustainability reports while allowing information to be delivered to a wide audience (Line, Hawley & Krut, 2002; Rikhardsson,

Andersen, Jacob & Bang, 2002). First such reports were mostly published by very large organizations and characterized by delivering more content, and publishing more frequently than others (Guthrie & Parker, 1990; Deegan & Gordon, 1996). Since then, there have been considerable changes and advancements in reporting, moving from standalone environmental and social reports, to triple bottom line (TBL) and sustainability reports. It is important to emphasize the distinction between TBL and sustainability reports. TBL reports, in essence display a company's results in economic, environmental and social dimensions without showing any connections between them (Schaltegger, & Burritt, 2010). On the other hand, sustainability reporting also presents information about the three sustainability dimensions but also shows correlations between the dimensions and interpretation of how they affects business. These reports have to be publicly available to all stakeholders and deliver qualitative and quantitative data on improvements on sustainability performance (World Business Council for Sustainable Development, 2002; Daub, 2007).

Beresford (1973) was one of the first authors to examine sustainability reports on the example of Fortune 500 companies, where 60% of the companies disclosed some sustainability information, mostly environmental. In another content analysis of Fortune 500 Companies' sustainability reports it has been noted that general descriptions are more common than verified, detailed and specific information (Kolk, 2008). Moroney, Windsor and Aw (2012) divided disclosures into hard and soft, where hard describes disclosures that deliver objective information as opposed to soft disclosures that usually only include management's descriptive declarations about sustainable activities that the company undertakes. Bouten, Everaert, Van Liedekerke, De Moor and Christiaens (2011) examined the content clarity of reports by dividing each item into three types of information, presence in vision and mission, management approach and performance indicators. Comprehensive reporting was found to be at a low level while a minority of the companies reported on all three categories for each item. Another content study revealed that hotel companies most commonly report information on social activities like donations, followed by diversity policy and in third place reporting sustainability strategies (Holcomb, Upchurch & Okumus, 2007). Through case study analysis, an attempt has been made to define interlinked dimensions of sustainability that are lacking in standard reporting guidelines like GRI, Social Accountability 8000 standard or similar (Lozano & Huisingh, 2011). Their proposition is a significant advancement towards the synergy of sustainability pillars while clearly stating which dimensions are connected, supported by examples that could assist companies in achieving sustainability accounting and reporting. Turning to the link between compulsory regulation that requires sustainability disclosures and company disclosure practice, Ioannou and Serafeim (2014), stated that in countries that have serious sustainability challenges mandatory reporting augmented sustainability reporting, in contrast to countries that do not have such severe sustainability threats where mandatory regulation didn't increase sustainability disclosures.

Despite the fact that more and more companies are preparing and publishing sustainability reports, there is still a much larger number of companies that are not involved in this trend. The underlying reasons for this are lack of financial resources or detailed implementation guidelines, problems with conceptualization and operationalization, no external pressure (legal or stakeholder) and the general opinion that sustainability reporting is irrelevant and not necessary, thus not recognizing the opportunities that the reports can provide (Noci, 2000; Solomon & Lewis, 2002; Merwe & Wocke, 2007; Bebbington, Larrinaga & Moneva, 2008; Stubbs, Higgins & Milne, 2013). Additionally, the relevance of reporting should be considered in the long term, while in the short term they have a negative effect because they introduce complex processes and cause stress to employees who have to cope with new responsibilities (Skouloudis, Evangelinos & Kourmousis, 2009; Jackson, Boswell & Davis, 2011).

Besides the obvious benefits of sustainability reporting such as improving the company's reputation and attracting investors and future employees, research has shown that disclosing sustainability performance has a positive effect on the return on assets (Hamilton & Statman, 1993; Skinner & Mersham, 2008; Burhan & Rahmanti, 2012). A positive relationship has also been found between size, industry category and export-oriented industries (Kansal, Joshi & Batra, 2014; Muttakin & Khan, 2014).

In spite of the fact that research on sustainability reporting is constantly growing, the expansion of research in this field in the hospitality industry is lagging. Most of the research has been done by analyzing publicly available reports with no assurance of the accuracy of information (Font, Walmsley, Cogotti, McCombes & Häusler, 2012). Recent research of top 50 hotel companies revealed that less than 50% of them publish sustainability reports on their web sites and the authors also stated that a lack of required compliance, resources, awareness and knowledge are the reasons that these companies are not reporting (Hsieh, 2012). A case study on 5-star hotels in India revealed that there is awareness about employment and environmental issues, but only the basic issues were addressed and there is significant space for improvement (Ferus-Comelo, 2014). Further, by investigating websites and sustainability reports it is claimed that hotel companies raise quality of life of their surrounding communities and employees. (Bohdanowicz & Zientara, 2009). Nyahunzvi (2013) analyzed hotel's sustainability reports in Zimbabwe where poor quality information was found and argued that previous research was mostly done by international hotel chains, in developed countries with significant resources and was therefore biased and misleading in revealing the real situation in the hotel industry. To support this, an examination of hotels in Croatia that are not affiliated with international chains has shown that there is almost no sustainability reporting and that the Croatian hotel industry lags significantly behind with regard to trends in adopting sustainability practices (Peršić, Janković, Bakija & Poldrugovac, 2013). Similarly, Malaysian hotels report very little information about their sustainability efforts, only 15% of assessed hotels provided

data, with emphasis placed only on economic aspects, followed by social and environmental aspects (Joseph, Lin, Nichol & Jussem, 2014).

Sustainability reporting has been increasing among hotel companies. Research has shown that reporting can be beneficial to companies but the level of the quality of reporting varies. One of the significant issues is that companies often confuse triple bottom line reporting and sustainability reporting. Most of published reports are in the essence triple bottom line reports and not sustainability reports that fail to show the connections between sustainability perspectives. If hotel companies want to strive towards sustainability these reports must show mutual interactions among economic, environmental and social issues.

1.3.4. Framework for sustainability reporting

Many hotel companies are trying to implement sustainable performance management systems in order to meet sustainability goals and enhance their performance. To avoid difficulties in the implementation process there is a need for standardized, systematic and unified guidelines that will guide the process (Asif, Searcy, Zutshi & Ahmad, 2011). There are various guidelines that try to assist in the process of sustainability implementation in companies. In the following text, the Global Reporting Initiative framework is presented as a widely used guideline among international hotel companies. Moreover, the integrated reporting framework and the efforts to deliver integrated reports are explained further in the text.

The Global Reporting Initiative (GRI), founded in 1997, in Boston, is a non-profit organization that publishes globally known sustainability reporting guidelines. The sustainability-reporting framework (GRI, 2006) provides guidance on how organizations can disclose their sustainability performance by offering a set of principles, guidance and key performance indicators on sustainability reporting. GRI works with the support of the United Nations Environment Program, the UN Global Compact, the Organization for Economic Co-operation and Development, the International Organization for Standardization and others. The first guidelines were disclosed in 2000 and next generations followed in 2002, 2006 with an updated version in 2011, and finally the fourth generation issued in 2013 (Global Reporting Initiative, 2000; Global Reporting Initiative, 2002; Global Reporting Initiative, 2006; Global Reporting Initiative, 2011; Global Reporting Initiative, 2013). It is important to emphasize that the guidelines are not mandatory and are available free of charge to every company that is willing to implement them. They provide a large group of sustainability indicators where measurement is not limited to monetary units, but include multiple indicators.

The Guidelines are divided into Reporting Principles and Standard Disclosures and the Implementation Manual. Reporting Principles and Standard Disclosures define criteria by which organizations prepare their reports, principles for report content, quality and general

and specific standard disclosures. The Implementation Manual presents information on how to implement reporting principles and standard disclosures. In addition to this, GRI offers sector guidance previously known as sector supplements that provide specific guidelines for various industries. Currently, there are guidelines for airport operations, food processing, construction and real estate, media, electric utilities, mining and metals, event organizers, non-governmental organizations, financial services and the oil and gas industry. There are no specific guidelines for the tourism and leisure industry.

On its web site, GRI provides a database of reports from various industries that are prepared according to GRI guidelines. This database also includes reports from the tourism and leisure industry. An examination of these reports shows that they are very extensive with some being more than 100 pages long. They contain descriptive explanations of sustainability actions, and mostly don't show precise numbers, favoring percentages and estimates, delivering the information in different forms.

There are few exceptions like concrete information on energy consumption, carbon emissions and waste (Marriott, 2009; The Hong Kong & Shanghai Hotels, 2010; IFA Hotels and Resorts, 2010; The Rezidor Hotel Group, 2010; Hyatt Hotels Corporation, 2011; InterContinental Hotels Group, 2011; Melco International Development, 2012; The Hong Kong and Shanghai Hotels, 2013; InterContinental Hotels Group, 2014). Reports seem more like marketing tools than actual reflections of performance. Since reporting is voluntary, there is a concern that companies can choose on which aspects to report, and leave the negative information out of the report.

There has been much criticism that the guidelines are too descriptive and non-specific and that they do not lead to sufficiently standardized reports (Archel, Fernandez & Larrinaga, 2008; Brown, de Jong & Lessidrenska, 2009; Delai & Takahashi, 2011; Ricaurte, 2011; Christofi, Christofi & Sisaye, 2012). The clear link between economic performance indicators and sustainability is hard to detect (Baker, 2002). The GRI framework is often criticized as not being applicable as a management tool, that it is too general, that there are too many indicators, that it can be manipulated and that companies can tailor the results to suit their needs (O'Dwyer, 2002; 2003; Adams, 2004; Goel, 2005; Economist, 2008). There is evidence that some companies prepare reports using GRI guidelines and that they do not behave in accordance with sustainability principles (Moneva, Archel & Correa, 2006). Despite all the criticism and doubt, GRI guidelines are used globally by many companies and organizations (Moneva, Archel & Correa, 2006; Smith & Lenssen, 2009).

The International Integrated Reporting Council (IIRC), formerly known as The International Integrated Reporting Committee was established in 2010. The International Federation of Accountants (IFAC), the Global Reporting Initiative (GRI), and The Prince's Accounting for Sustainability Project founded this alliance on the global level, consisting of the most prominent members in the fields of regulators, investors, companies,

standard setters, the accounting profession and non-governmental organizations with the goal of designing a globally accepted framework combining financial, environmental, social and economic information into a comprehensive format. IIRC composed the Integrated Reporting framework aiming to provide a different approach to corporate reporting by providing a way to better integrate strategy, through guiding principles on how to create integrated reports and improve information quality by supplying a greater spectrum of connected data for short-, medium- and long-term decision-making (The International Integrated Reporting Council, 2013a). The pilot program which tested the framework initially included 60 companies, (Integrated Reporting, 2012) and by 2014, it included about 100 organizations in 25 countries actively engaged in the program (Integrated Reporting, 2014). However, hotel companies are not among them. The first impressions of organizations taking part in the project were positive with recommendations to put more emphasis on industry-specific matters and business models, timeframes for strategies and objectives and the alignment of integrated reports with other disclosures (The International Integrated Reporting Council, 2013b). The pilot program ended in September 2014 and different conclusions were drawn. The results reveal that reporters gained a better understanding of the value generated for the society, improved performance measurement alongside with gaining valuable support in the decision making process, enhanced relationships with stakeholders and intensified collaboration between departments within the companies (Integrated Reporting, 2014).

Since this is a new way of delivering company information, literature in this field is scarce. The majority of the papers examined provide only a general overview and theoretical guidelines and steps on how to implement them, most of the papers stress the benefits of implementation and only two papers accent current limitations and criticize them (Table 2).

Table 2: Overview of the integrated reporting literature and what they address

Author	**Integrated reporting**
Eccles & Krzus (2010a)	General guidelines, benefits
Eccles & Krzus (2010b)	General guidelines, benefits
Armbrester & Clay (2011)	Overview
Deloitte (2011)	Overview, general guidelines
Eccles & Saltzman (2011)	Overview of history and current state, benefits
Obholzer, A. (2011)	Overview
Phillips, Watson, & Willis (2011)	Benefits, standardization
Roberts (2011)	Differences between local and international guidance
The International Integrated Reporting	Overview, general guidelines

Author	Integrated reporting
Committee (2011)	
Verschoor (2011)	Overview, critique
Bouie Leuner (2012)	Overview, benefits, King III
Brown Gooding (2012)	Example of implementation, benefits
Davis & Lukomnik (2012)	Overview, preparation for integrated reporting
Eccles (2012)	Overview, current limitations
KPMG International Cooperative (2012)	Detailed overview and guidelines, King III
The International Integrated Reporting Committee (2012a)	Suggestions for improvement
The International Integrated Reporting Committee (2012b)	General overview, future directions
Sharman (2012)	Overview
Vaessen & Tant (2012)	Steps for implementing Integrated reporting
Frías, Rodríguez& García (2013)	Relationship between legal systems and reporting

Source: *Author*

Eccles and Krzus were among the first to address this matter. For them preparing an integrated report provides considerable benefits to companies in cases of clarity about relationship and commitments, enhancing decision making, deepening engagement with stakeholders and lowering reputational risks (Eccles & Krzus, 2010a). It also adds discipline that arises from external reporting to the discipline that stems from internal reporting (Eccles & Krzus, 2010b). In 2011, the International Integrated Reporting Committee published a discussion paper explaining the essence of integrated reporting in a concise manner, how to build it and what the content and benefits are, what challenges must be faced and what future directions must be taken, and it also invites all interested parties to get involved in the discussion. Obholzer (2011) gave another definition of integrated reporting - it is an ongoing search for effective communication that represents a tool for classifying data (Obholzer, 2011). This specially adapted framework should be made with a set of standards for measuring and reporting non-financial information and should integrate financial and non-financial performance while reflecting mutual influences between these two (Eccles & Saltzman, 2011). Standardization is one of the benefits that implementing integrated reporting ought to bring to companies by obtaining incremental insights and process enhancements for shareholders and stakeholders (Phillips, Watson & Willis, 2011). There are also initiatives for integrated reporting to become mandatory for all companies that list at stock exchanges (Armbrester & Clay, 2011). As there is currently no generally accepted framework, organizations implementing integrated

reporting could face doubt about relevance, scope, assurance and other issues (Deloitte, 2011). There has also been criticism that integrated reporting is overwhelming and that it will not become widely accepted (Verschoor, 2011), along with the fact that it is not mandatory and involves high costs to the owners (Prado & García, 2010). Research has shown that in highly developed civil law countries, companies are more open to creating and publishing integrated reports (Frías, Rodríguez & García, 2013).

In 2012, the International Integrated Reporting Committee published a summary of the responses to the 2011 Discussion Paper. There were more than 200 responses with reference to basic concepts and definitions of integrated reporting, its target audience, the values it can provide and the timing of the release of the framework (The International Integrated Reporting Committee, 2012a).

At the same time KPMG International (2012), published its own vision of an integrated report that consists of an organizational overview and business model, operating context including risks and opportunities, strategic objectives, performance, future outlooks and governance and remuneration. Vaessen and Tant (2012) made a three-block model of building integrated reporting which includes financial and non-financial information and relevant details in the short-, medium- and long-term. Davis and Lukomnik (2012) suggest the following steps for the implementation of integrated reporting:

1. Companies need to understand the connection between sustainability and financial performance;
2. Integrated reporting should be a process of reporting not just the final product, but also emphasize the fact that it is much more than just a disclosure mechanism, it is also an internal management tool;
3. The internet should be used to gather data about stakeholders;
4. Companies should be involved in the preparation of the methodology for integrated reporting.

Integrated reporting will likely introduce changes in company structures. Furthermore, companies that have already embedded sustainability in their business models will consequently implement it easier and faster than those that did not (Bouie Leuner, 2012). Another benefit stated is the repositioning of a company ahead of its competitors and the creation of integrity and ethical values (Brown Gooding, 2012). In the upcoming period, there will be many challenges mentioned in terms of time constraints that will be necessary in order to prepare the guidelines, concerns about making the reports legitimate, universally applied and how to audit them (Eccles, 2012). For integrated reporting to be complete, it should include reports from the stakeholders (Sharman, 2012). Furthermore, there have been criticisms that the reporting guidelines of the International Integrated Reporting Council don't define values well enough. Furthermore, that they don't require reporting on all categories of capital, full impact on sustainability is neglected and they don't impose any specific obligations on delivering information for companies reporting

(Flower, 2014). In addition, the guidelines are very business oriented and in that way disregard the stakeholder oriented approach to sustainability (Thompson, 2014). As a response to this, Adams (2014) argued that integrated reporting is still in its beginnings and that accounting academics should be more involved in the process of framework development to help surmount the imitations and shortcomings.

Some of the pioneers applying integrated reporting are BASF (2012), Dimo (2012), Novo Nordisk (2012), Phillips (2012) and United Technologies (2012). Each of these reports is prepared based on a different methodology since the framework is general and does not provide sufficiently standardized guidelines. The reports are hard to compare in terms of sustainability, although the sustainability issues are mostly prepared based using the GRI methodology. Sustainability issues do not reflect the financial performance to a satisfactory level. There are no companies in the hotel industry that prepare integrated reports.

A good starting point for the preparation of integrated reporting is the King III Code of Governance Principles for South Africa that has been mandatory for all of the companies that are listed on the Johannesburg Stock Exchange (JSE) since 2010. The King III Code works on the principle of "apply or explain why not" which requires companies to apply the Code in the way that sustainability impacts financial performance or to provide argumentation as to why they are not applying it (Institute of Directors Southern Africa, 2009). The differences between integrated reporting and King III Code, can be seen in stakeholder focus, the report structure, terminology, principles, financial information, length of the report and quality (Roberts, 2012). In the JSE there are three hotel companies that prepare integrated reports according to King III Code. Cullinan Holdings LTD (2011) delivers only a descriptive sustainability explanation, City Lodge Hotels LTD (2012) describe and provide sustainability metrics and Hospitality Property Fund LTD (2011) describes and reports only two kinds of metrics. These three reports are not comparable with regard to sustainability issues and none of them measures the effect that sustainability has on financial performance. One of the first analysis of integrated reports in South Africa indicates that stakeholders still primarily use financial reports as a principal source of data and integrated reports are only used for supplementary information (Rensburg & Botha, 2014).

Another important initiative and example of good practice on the state level can be found in the United Kingdom and their Prince's accounting for sustainability project that works with experts in finance and accounting in order to embed sustainability in organizations. The need for better performance evaluation led to the development of the Connected Reporting Framework as a new methodology for sustainability reporting that integrates annual and management reports and links financial and non-financial data (the Prince's Accounting for Sustainability Project, 2009) by delivering the business' strategy and its financial and sustainability performance and presenting a well-rounded and balanced view of the organization's overall performance (Fries, McCulloch, Webster, 2010).

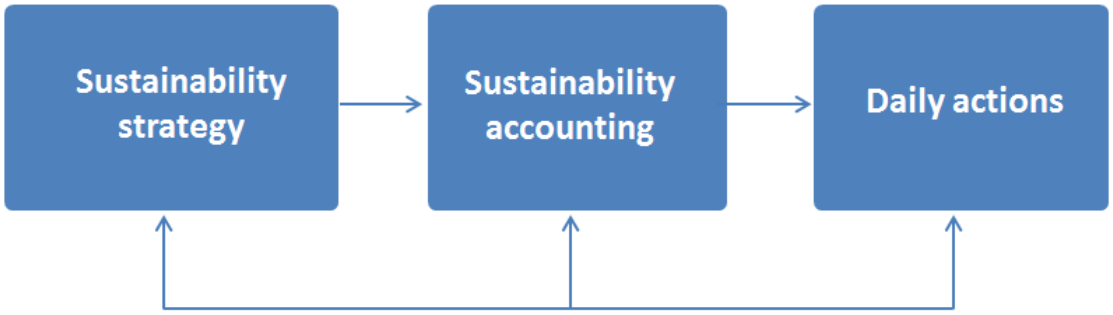
It is important to emphasize that by embedding sustainability in the business model there is no compromise with price and quality of the products or services. The Prince's Accounting for Sustainability Project (2010) defines ten elements for embedding sustainability, among other things including understanding and analyzing key sustainability drivers and monitoring and reporting sustainable performance. It is noticeable that, although they have been working for a few years now, the initiative is still in the development phase, providing mostly general guidelines and advice on how to implement sustainability into business practices.

The variety of reporting frameworks for companies can lead to difficulties in the selection of an appropriate one. Considerable efforts are devoted to developing frameworks, but still they mostly provide general guides and do not offer specific detailed instructions. This added to the voluntary nature of sustainability reporting brings about the situation that hotel companies are preparing reports on a different basis adapting them to their own interests that are sometimes not underlined with the principles of sustainability.

1.3.5. The role of sustainability accounting in the performance management process

Sustainability accounting can be seen as an information management and accounting method (Polejewski, 2011) that gathers, analyzes and reports sustainability information vital for the sustainability management of a hotel company. This information, prepared by sustainability accounting, is indispensable in the sustainability management process, while it allows for managers to assess the company's performance and make informed decisions. The following Figure 3 shows the role of sustainability accounting in the sustainable performance management.

Figure 3: The role of sustainability accounting in performance management



Source: Author

Sustainability accounting is involved in all the stages of sustainable performance management. The first role of sustainability accounting is that it assists in the planning process. In that stage it guides managers in developing future plans by providing information about previous performance by which new plans can be formulated. At this point short term plans are prepared and then centralized to the master plan. Here sustainability accounting establishes procedures and integrates and harmonizes plans.

The second role of sustainability accounting is in determining the elements of organizational structure. Organizational structure illustrates how responsibilities and tasks are assigned and distributed between levels of management (Altman, Valenzi & Hodgetts, 1995) in a hotel company in order to achieve hotel companies' goals. Sustainability accounting, after determining these elements of the organizational structure, prepares the reporting system adapted to it.

The third role of sustainability accounting is in communicating the performance results. Reports prepared by sustainability accountants are communicated to internal and external stakeholders. In addition to this, sustainability accounting supports the controlling function of management. The communicated sustainability reports can enable control if the performance is within the set targets and highlight activities that need more extensive examination. In this way, reports prepared by sustainability accounting can also have a role in motivating companies' employees to undertake activities towards achieving their targets.

Sustainability accounting and sustainability management cannot function separately. Management cannot function unless sustainability accounting prepares and discloses the necessary information, while sustainability accounting is unable to prepare and disclose information if there isn't feedback from the management.

1.4. Contextual setting of the research - determinants of sustainability in the tourism and hotel industry in Croatia

Croatia is a small country with just under 4.3 million inhabitants situated in southeastern Europe. In 2013, Croatia became the 28th member of the European Union. Geographically it is very diverse with a sea coast, mountains and plains. It is famous for its long coastline that stretches along the Adriatic Sea and includes more than 1100 islands. One of Croatia's main advantages is its mild Mediterranean climate and rich natural and cultural heritage.

1.4.1. Tourism in Croatia

The beginnings of tourism in Croatia date from the mid-nineteenth century when Villa Angiolina was built in Opatija, on the northern Adriatic coast. The 1960s brought economic growth, the expansion of mass tourism and the construction of various tourism facilities, including hotels, camp sites and marinas. Today, tourism contributes 15.5% of Croatia's gross domestic product (Ministry of Tourism of the Republic of Croatia, 2013), which means that the country is highly dependent on the tourism industry and its fluctuations.

One of the main characteristics of tourism in Croatia is its seasonality and the fact that most tourist arrivals and overnight stays occur within the scope of four months, from June to September, on the seaside. Subsequently, the average number of overnights per bed in 2010 was 62, which is 17% of the overall average occupancy rate (Ministry of Tourism of the Republic of Croatia, 2014). As a county rich in natural and cultural heritage, as well as a country with developed tourism infrastructure, a season this short indicates that the tourism potentials are not being used to their maximum. The hotel offer is perishable and an unsold room cannot be sold the next day.

When comparing Croatia with its main competitors on the Mediterranean, it accounts for a 5% share of international tourist arrivals and receipts (Table 3).

Table 3: Tourist arrivals and receipts in Mediterranean countries

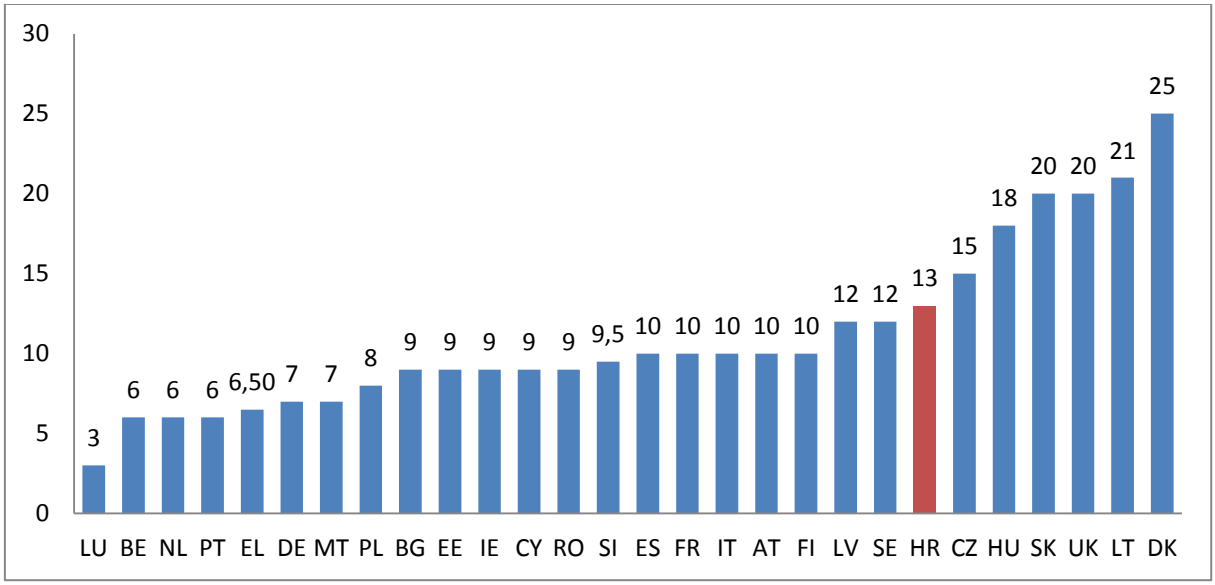
	2013		**2013**	
	Arrivals (in thousands)	**Share**	**Receipts (in millions)**	**Share**
Mediterranean	201359	100%	187254	100%
Croatia	10955	5%	9555	5%
Cyprus	2405	1%	2917	2%
Greece	17923	9%	15930	9%
Italy	47704	24%	43912	23%

	2013		2013	
	Arrivals (in thousands)	**Share**	**Receipts (in millions)**	**Share**
Malta	1582	1%	1403	1%
Montenegro	1324	1%	884	0%
Spain	60661	30%	60435	32%
Turkey	37795	19%	27997	15%

Source: UNWTO, *Tourism Highlights -2014 Edition.* 2014, p. 46.

According to the Travel and Tourism Competitiveness Index (World Economic Forum, 2013), Croatia is ranked 35th among 140 world countries and is 23rd when compared to European countries. Compared to previous years (World Economic Forum, 2009; World Economic Forum, 2011; World Economic Forum, 2013), Croatia lowered its rank by one place. As reported, major advantages primarily lie with the tourism infrastructure pillar, followed by the affinity for travel and tourism, information and communication technology, health and hygiene and cultural resources pillars. On the other hand, the weakest points of competitiveness are policy rules and regulations, human resources and price competitiveness pillars where Croatia scored the lowest points. One of the reasons for low price competitiveness is the high Value Added Tax (VAT) rate for tourist accommodation. In 2014 the rate was raised from 10% to 13%. With this rate, Croatia is in the highly unsatisfying 7th place among 28 members of the European Union (Figure 4). Moreover, when comparing this rate to the rates of competing Mediterranean countries like Spain, Italy, France, Malta and Cyprus, Croatia's rate is the highest.

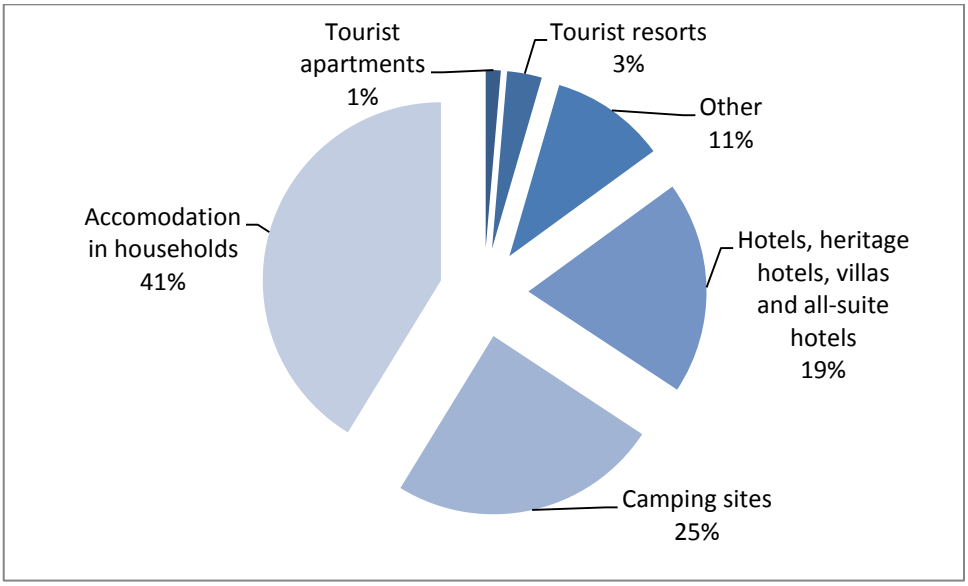
Figure 4: Value added tax rates among European Union member countries



Source: European Commission, *VAT Rates Applied in the Member States of the European Union.*2014, p. 35.

In 2013 Croatia had 310,016 rooms in various accommodation facilities which altogether accounted for a total of 925,773 beds (Croatian Bureau of Statistics, 2014). The majority of bed capacity (Figure 5) is in household (private) accommodation (41%), followed by camping sites (25%), hotels, villas and all-suite hotels (19%), tourist resorts (3%) and tourist apartments (1%) The other category comprises all types of accommodation that contribute in the overall number with less than 1% such as inns, guest houses, health establishments, boarding houses, hostels, hunting lodges, mountain refuges, rooms to let, Robinson tourism accommodation establishments, suites, studio-type suites, summer houses, student dormitories and accommodations, vessel cabins, sleeping cars and couchettes.

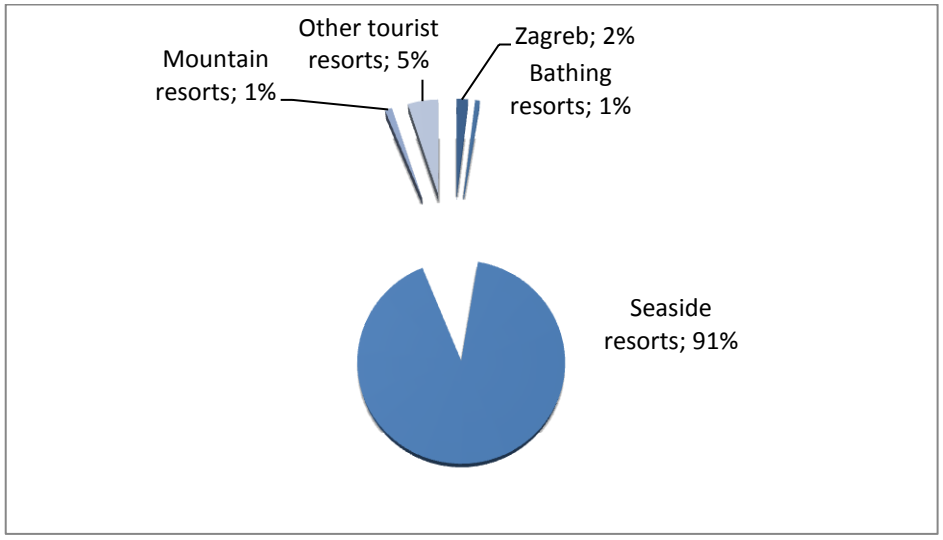
Figure 5: Share of rooms in different accommodation facilities in Croatia



Source: *Prepared based on Croatian Bureau of Statistics (2014).*

When dividing room capacity according to the types of tourist resorts, we can distinguish between five distinct categories (Figure 6). Seaside resorts have the biggest share at 91%, while other tourist resorts that include localities with specific natural or cultural attractions have 5% of the country's capacity. The capital city of Zagreb has 2% of the overall accommodation capacity, and in last place are mountain resort and bathing resorts (areas rich with thermal or mineral water) that represent 1% of the total capacity.

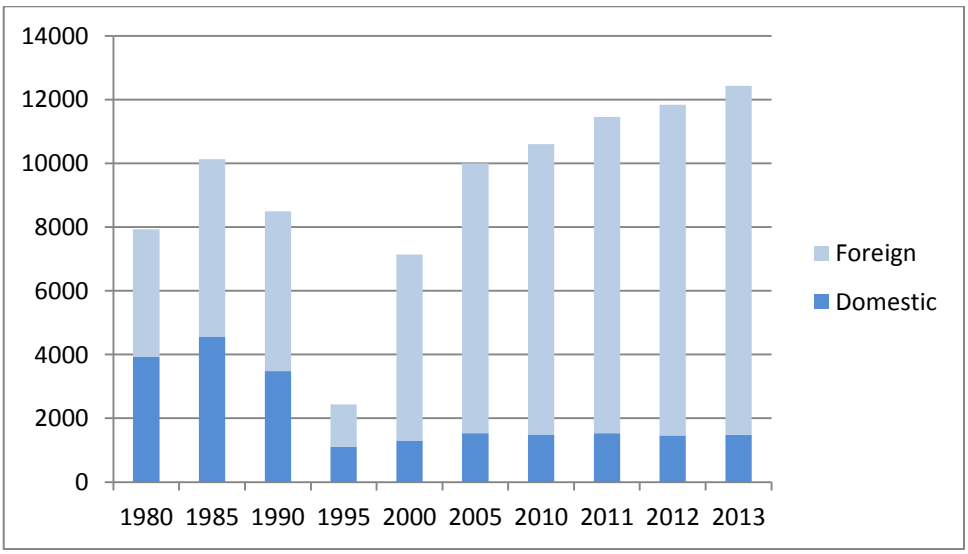
Figure 6: Accommodation capacities by type of resorts



Source: *Prepared based on Croatian Bureau of Statistics (2014).*

Tourist arrivals in Croatia from 1985 to 2013 can be seen in Figure 7. During the pre-war years, the peak period was in 1985 when more than 10 million tourists came to Croatia. It can be noticed that domestic and foreign tourists were equally represented in the overall number of arrivals. After the downfall during the war, in 2000s the number of tourist arrivals started to rise and in 2010 they exceeded the pre-war results. In 2013, more than 12 million tourists travelled to Croatia. It is also important to highlight that the ratio between foreign and domestic arrivals changed in favor of foreign tourist arrivals. While the number of domestic tourists remains constant at approximately 1.5 million arrivals, the number of foreign tourists is steadily growing.

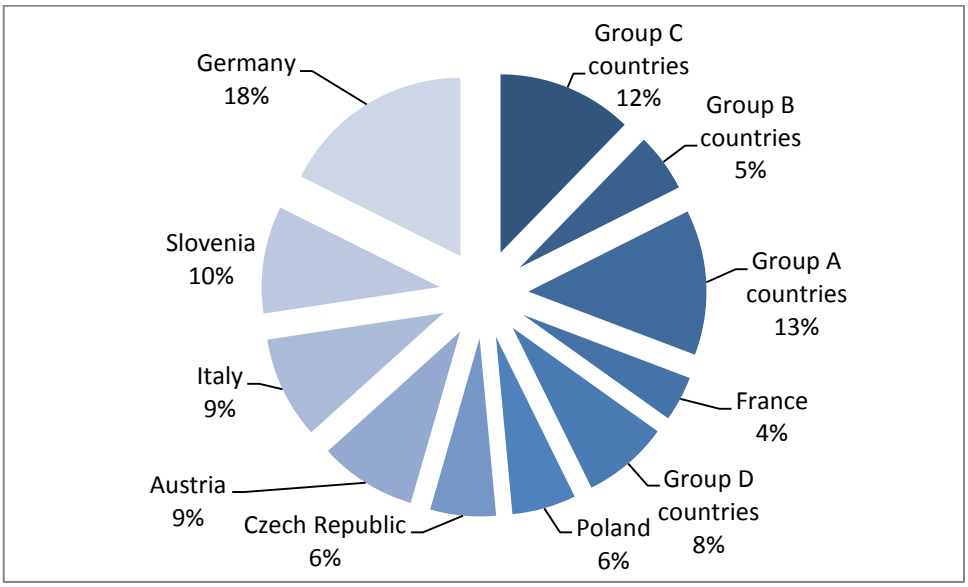
Figure 7: Tourist arrivals in Croatia (in 000)



Source: Croatian Bureau of Statistics, 2014; Ministry of Tourism of the Republic of Croatia, 2014.

One of the advantages of Croatia as a tourist destination is also its geographic proximity to its main tourist markets. Of 12,434,000 tourists in 2013, 12% were domestic tourists (Croatian Bureau of Statistics, 2014). With reference to foreign tourists, Germany holds the first place accounting for 18% of arrivals, Slovenia 10%, Italy and Austria 9% each, the Czech Republic and Poland 6% and France accounting for 4% of arrivals (Figure 8). The remaining countries can be classified into four groups. Group A represents countries that have approximately 3% of arrivals each, such as the Netherlands, Slovakia, United Kingdom and North and South America. Group B consists of Hungary and Asian countries with 2% of arrivals each. Countries with 1% of arrivals are in group C and consist of Bosnia and Herzegovina, Switzerland, Sweden, Belgium, Japan, Spain, the Russian Federation and Norway. Group D comprises of all other European and non-European countries that account for less than 1% of arrivals.

Figure 8: Tourist arrivals in Croatia by country of residence



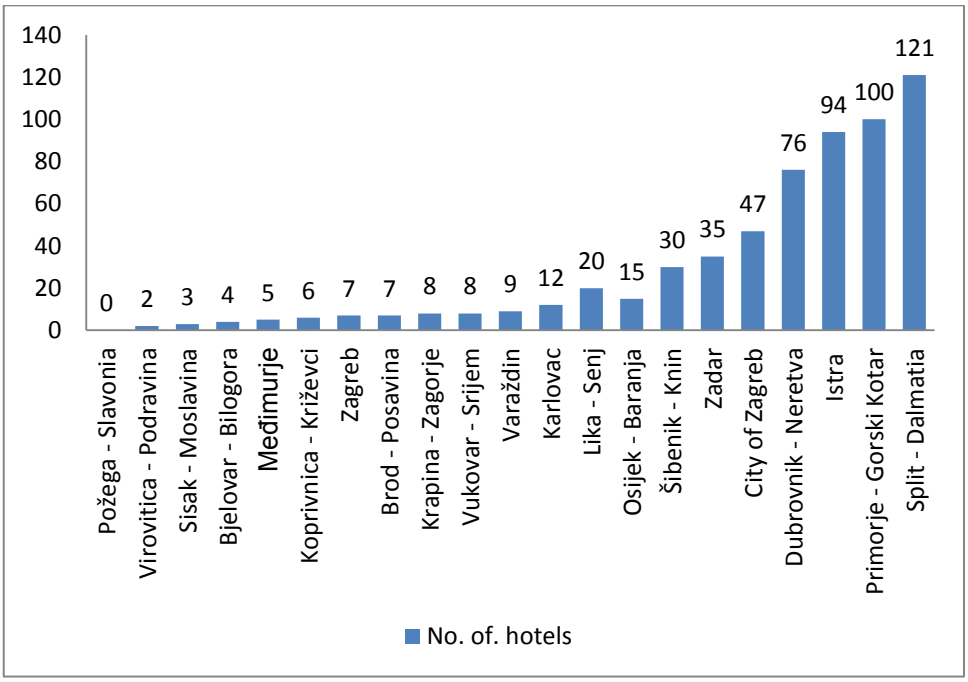
Source: *Croatian Bureau of Statistics, 2014*

Tourism in Croatia is a significant contributor to the economy, but its potentials are not utilized to their full capacity. This can be seen in low occupancy rates, concentration in seaside resorts while neglecting other types of tourism. The tourism product is mostly concentrated on the sea, sun and sand offer and therefore a differentiation of the tourism product, must be made. Tourism in Croatia is a long way from being sustainable and significant efforts have to be made on the strategic level to amend this situation.

1.4.2. The Hotel Industry in Croatia

According to the data from the Ministry of Tourism (2014), there are 619 categorized hotels in Croatia. The largest number of hotels is concentrated in seaside counties like Split-Dalmatia, Primorje-Gorski Kotar and Istria (Figure 9). The Capital city of Zagreb is in fourth place and Požega-Slavonia County is the only county without any hotels.

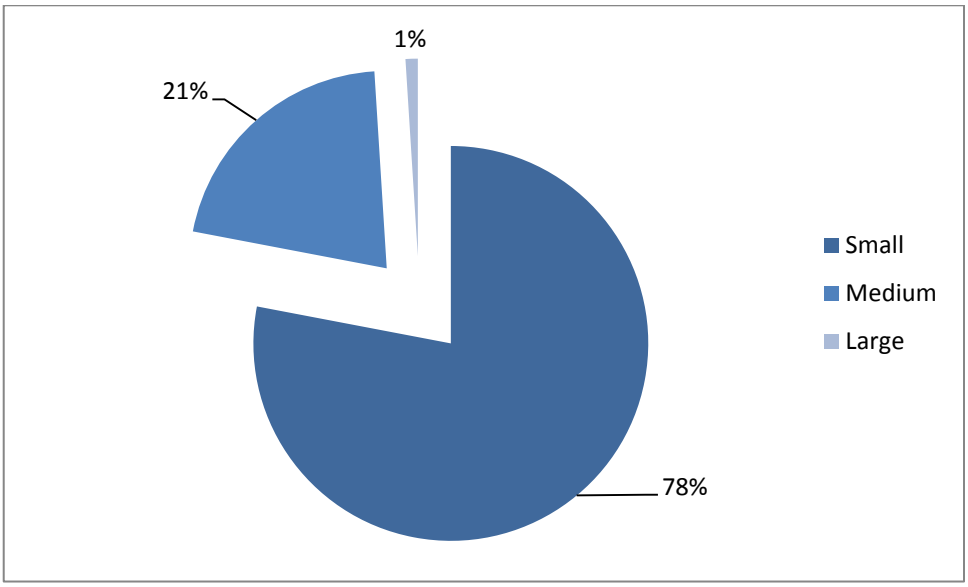
Figure 9: Segmentation of hotels according to Croatian Counties



Source: Prepared based on Ministry of Tourism of the Republic of Croatia, 2014.

With regard to the number of hotel rooms, hotels are classified as small if they have less than 151 rooms, medium if they have from 151 to 400 rooms and large if they have more than 400 rooms (The European Consumer Centers' Network, 2009). Small hotels hold first place with 78% of accommodation capacity, followed by medium-sized hotels. Only 1% of accommodation capacity belongs to large hotels.

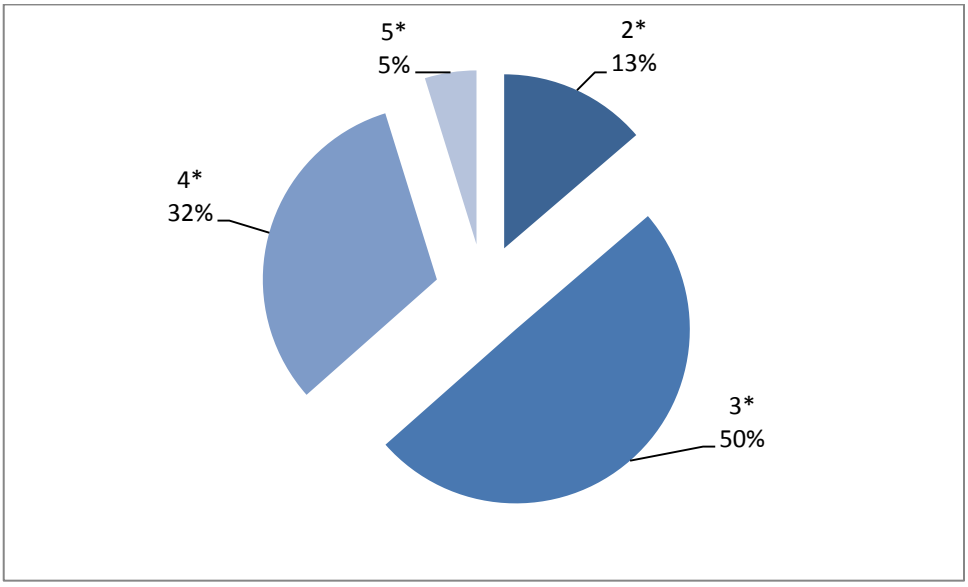
Figure 10: Size of hotels in Croatia according to the number of rooms



Source: Prepared based on Ministry of Tourism of the Republic of Croatia, 2014.

Figure 11 shows the structure of hotels in Croatia according to their quality. The majority of hotels are of lower quality, 13% have a two-star rating and 50% have a three-star rating. The percentage of four-star rated hotels accounts for 32% and only 5% of hotels have a five-star rating. Split-Dalmatia County has the most two, three and four-star rated hotels while Dubrovnik-Neretva County has the highest number of five-star hotels.

Figure 11: Hotels in Croatia according to their quality

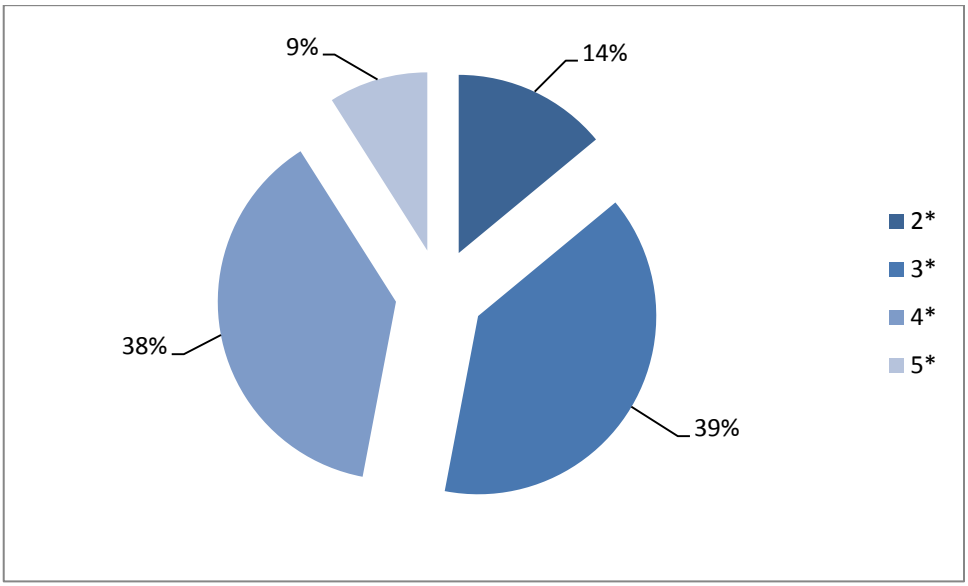


Source: Prepared based on Ministry of Tourism of the Republic of Croatia, 2014.

When considering the overall number of rooms and their quality, the ratio shifts partly in favor of higher quality hotels (Figure 12). Three-star rated hotels still form the majority

with 39% of capacity, followed closely by four-star rated hotels with 38% capacity. Two-star rated hotels are in third place with 14% capacity, and finally five-star rated hotels have 9% of the overall room capacity.

Figure 12: Room capacity according to quality



Source: Prepared based on Ministry of Tourism of the Republic of Croatia, 2014.

These diagrams show that hotels are predominately oriented towards guests with lower budgets and this consequently results in lower financial results for hotel companies. Today's tourist needs have changed. Tourists have higher expectations and low prices are no longer the crucial factor in choosing accommodations (Ekinci, Prokopaki, & Cobanoglu, 2003).

The majority of hotels in Croatia are concentrated in four counties. One of the positive features is that hotels are predominantly small in size but the level of quality is quite low while two and three-star hotels account for the majority of hotel accommodations. Considerable changes need to be made in order to satisfy the needs and current trends in the tourism industry.

1.4.3. Sustainability in Croatia

Croatia has both endorsed Agenda 21 and the action plan adopted at the United Nations Conference on Environment and Development in 1992. It has assumed the obligations arising from the Millennium Declaration and the Millennium Development Goals adopted by the UN General Assembly in 2000 (Ministry of Foreign and European Affairs). After the Millennium Summit, Croatia prepared a national report on how to implement and reach Millennium Goals. With the Principles for Development of the Republic of Croatia Document in 2001 the commitment for the implementation of sustainable development

was reconfirmed. In 2005, the Mediterranean Commission on Sustainable Development adopted the Mediterranean Strategy for Sustainable Development, whose aim is to help countries adapt to international commitments and provide guidelines on how to develop national strategies, as well as to promote partnership between countries on different levels of development. Croatia supported this document as one of the contracting parties.Croatia participated in the United Nations Conference on Sustainable Development in 2012 and accepted the final document of the Conference "The Future We Want".

The Environmental Protection Act was first passed in 1994, followed by 2 amendments in 1999 and 2013. According to the legal provisions of the Environmental Protection Act, Croatia was bound to prepare a National Environmental Strategy. It was drawn up in 2001 and it is based on the principles of sustainable development. The strategy focuses on the current state of the environment, international obligations, objectives and priorities that must be accomplished and activities that have to be done in each priority area. As a member of the Economic Commission for Europe, Croatia was also obligated to compose a National Environmental Action Plan. It was adopted in 2002 and contains a list of environmental issues and the order of solving them.

In 2009 the Strategy for Sustainable Development was completed. It focuses on key areas such as encouraging population growth, environment and natural resources, promoting sustainable production and consumption, ensuring social and territorial cohesion and justice, ensuring energy independence and increasing the efficiency of energy use, strengthening public health, interconnectedness of the Republic of Croatia and protection of the Adriatic Sea, coastal area and islands. It provides objectives for each key area as well as measures and activities on how they can be reached.

The Croatian National Network for Corporate Social Responsibility was founded in 2010 by various organizations in the public and private sector, with the aim of generating joint action towards the development of corporate social responsibility, increasing the number of companies that are taking part in the network and raising public awareness. The corporate social responsibility (CSR) index measurement first started in 2008 as a joint project between the Croatian Chamber of Commerce and the Croatian Business Council for Sustainable Development. The CSR index measures 6 main components that include economic viability, inclusion of CSR in business strategy, working environment, environmental protection, market relations and community relations (Croatian National Network for Corporate Social Responsibility Index, 2013b). The CSR index is intended for small, medium and large companies as well as public companies.

Table 4: Companies involved in CSR index in Croatia

Year	Number of companies	Number of hotel companies
2008	32	0
2009	42	0
2010	98	1
2011	71	1
2012	78	2
2013	89	3

Source: Prepared according to Indeks DOP-a, 2009, 2010, 2011, 2012, 2013a, 2014.

In 2008, the first companies started to complete the CSR index questionnaire (Table 4). From 32 companies included in 2008, their number increased to 89 in 2013. It can be observed that hotel companies are under-represented in this sample, and with only three hotel companies participating.

Another initiative is the Sustainable Hotel, launched in 2013 by the Association of Employers in Croatian Hospitality. They defined green criteria for hotels in the area of sustainability management, supply, sales, marketing and public relations, environment, energy efficiency and human resources. The process of certification is divided into several phases. The first phase includes workshops with the aim of educating hoteliers and analyzing the current situation. This is followed by project implementation according to a specific action plan. Workshops were also organized for lower level employees. When these phases were finished in 2014, 21 hotels, divided in basic, advanced and superior category, received Sustainable Hotel Certification. Although this is a significant step towards sustainability in the Croatian hotel industry, the number of certified hotels is very small compared to the total number of hotels in Croatia (more than 600). The Association of Employers in Croatian Hospitality intends to include all of their members in the project by the end of 2016, which would make up about 80% of hotels in Croatia.

Although significant progress has been made towards the implementation of sustainability, there is still much work to be done. Sustainable development is still in its beginnings in spite of all the efforts that have been made. The lack of plans for implementation and integration with the legislative branch is evident. The situation could also be improved by fostering education and raising awareness at all levels.

2. EMPIRICAL RESEARCH DESIGN

This section provides an explanation of the conceptual model followed by an explanation of the research method that consists of construct operationalization and data collection processes.

2.1. Conceptual model

Three lines of research have been identified in the field of sustainability accounting (Unnerman and Chapman, 2014). The first line explores relationship between social and environmental performance and reporting and economic performance. The second group states that the cause of unsustainability lies in the capitalist system and the only way to resolve this issue is to completely transform the system. Finally, the third group searches for sustainability threats and opportunities and tries to suggest measures to improve operations. The focus of this study is on the first line of research, which will be further explained in the upcoming sections.

The examination of the relationship between social and environmental performance and economic performance has been a topic of interest for researchers since the emergence of sustainability as a theory. This examination can be seen from two different perspectives. The first perspective, also called the "good management" approach (Garriga & Melé, 2004) asserts that better social and environmental performance contributes to improvements in economic performance. The second perspective, known as the "slack resources" approach (Seifert, Morris & Bartkus, 2004) states that higher economic performance reflects on social and environmental performance. A more detailed categorization was presented by Preston and O'Bannon (1997), who identified six versions of hypothesis differing in causality and direction of the relations. The first is the social impact hypothesis which relates to Freeman's (1984) stakeholder theory and is founded on the assumptions that satisfying stakeholders' needs will positively contribute to economic performance. This is also true of the opposite situation, if stakeholders are dissatisfied, this will have a negative influence on economic performance. The second hypothesis is the slack resources or available funds hypothesis that considers a vice versa approach. A company with better economic performance has more available funds that can be allocated to improve environmental and social performance (Waddock & Graves, 1997; Melo, 2012). Therefore, economic performance positively influences social and environmental performance. The trade-off hypothesis predicts that investment in environmental and social activities like environmental protection, education and donations will raise a company's costs and consequently lower financial performance (Vance, 1975; Aupperle, Carroll & Hatfield, 1985; Preston & O'Bannon, 1997). Managerial opportunism hypothesis relates to managers' behavior by considering that managers follow their own short term objectives, they are often only concerned about how to achieve their financial targets and as such neglect environmental and social performance. This hypothesis predicts that the higher the

economic performance the lower the environmental and social performance (Preston & O'Bannon, 1997; Makni, Francoeur & Bellavance, 2009). The last two hypotheses present the interactions and synergy between economic and environmental and social performance. The first one is the positive synergy hypothesis where a higher level of social and environmental performance contributes to a higher level of economic performance. Consequently, companies that have a higher economic performance can invest more in achieving environmental and social goals (Waddock & Graves, 1997; Allouche & Laroche, 2005). In contrast to this, the negative synergy hypothesis suggests that increased environmental and social performance leads to a lower level of economic performance that subsequently reduces funds that can be allocated to environmental and social activities (Preston & O'Bannon, 1997; Makni, Francoeur & Bellavance, 2009).

Previous studies have tested these relationships, but their findings have not been sufficiently conclusive to set a unified theory. Present research about relationships among sustainability pillars can be divided into positive (Lin, Yang & Liou, 2009; Saleh, Zulkifli & Muhamad, 2011), negative (Vance, 1975; Cordeiro & Sarkis, 1997; Filbeck & Gorman, 2004) and no relationship (Aragon-Correa & Rubio-Lopez, 2007; Aras, Aybars & Kutlu, 2010). These inconclusive findings can result from a variety of reasons such as wrong theoretical and methodological approaches (Cochran & Wood, 1984; Wood & Jones, 1995; Kicošev, Blešić & Bradić, 2011).

This examination of the relationship between environmental and social performance and economic performance is very important for the hotel industry since the tourism product is highly dependent on its local natural, cultural, social and economic environment. This environment is also a part of the tourism product that raises product quality and guest satisfaction (González & León, 2001). Despite these facts, there is an evident lack of research in this field in the hotel industry (Table 5).

Table 5: Overview of the existing research linking socio-environmental and economic performance in the hotel industry

Author	**Socio-environmental performance**	**Economic performance**	**Relationship**
Rodríguez & Cruz (2007)	Social-environmental responsibility	Economic performance	Positive
Lee & Park (2009)	Corporate social performance	Financial performance	Positive
Molina-Azorín et al. (2009)	Environmental practices	Financial performance	Positive, none

Author	Socio-environmental performance	Economic performance	Relationship
Karagiorgos (2010)	Social and environmental performance	Financial performance	Positive
Inoue & Lee (2011)	Social and environmental performance	Financial performance	Mixed
Kicošev et al. (2011)	Social responsibility	Financial performance	Negative
Garay & Font, (2012)	Corporate social responsibility practices	Financial performance	Positive
Boley & Uysal (2013)	Environmental practices	Financial performance	
Singal (2013)	Investment in sustainability initiatives	Financial performance	Positive
Benavides-Velasco et al. (2014)	Social performance	Financial performance	Positive

Source: Author

Rodríguez and Cruz (2007) examined these relationships on a sample of Spanish hotels and found a positive relationship. This case study analysis on three hotel companies found that sustainability initiatives can reduce costs (Boley & Uysal, 2013), however since this is only a case study analysis these results can be limited in terms of generalizability especially since only managers were interviewed and no concrete numbers were provided to support their claims. Research conducted on Serbian hotel companies revealed a negative relationship (Kicošev et al., 2011), but these results should be taken with caution since the research was carried out on a small sample and there were also issues with the accuracy of the economic variables. Another study was done among Greek hotel companies that also identified a positive relationship (Karagiorgos, 2010). The drawback of this research is that it was done on a relatively small sample and values of dependent and independent variables were not taken from the same year. When addressing only environmental aspects, within hotel companies with lower environmental commitment there is no relationship with financial performance; however, hotel companies with more advanced environmental commitment demonstrated a positive relationship (Molina-Azorín et al., 2009). Inoue and Lee (2011) investigated not only the hotel industry but also related industries like restaurants, casinos and airlines and mixed results were obtained, depending on the industry and dimension of sustainability that was measured. Garay and Font (2012)

analysed environmental and social practices and the financial performance on small and medium hotel companies in Spain, also identifying a positive relationship. Additionally, Singal (2013) explored whether investment in sustainability initiatives reflected on financial performance and found positive results. The limitation of this study was that it included only publicly traded hotel companies, disregarding others. One of the most recent studies focused solely on social performance and a significant effect on employees, customers and society with respect to financial performance was found (Benavides-Velasco, Quintana-García & Marchante-Lara, 2014).

In Croatia, there is currently no research that examines the relationship between social, environmental and economic performance in the hotel industry. Since there is a rising importance of sustainability in today's business, there is also the need for determination and better understanding of effects that social and environmental performance have on economic performance.

Based on the research of the literature we expect that there will be a positive relationship between sustainability performance and economic performance, hence we propose:

H1: Socio-environmental performance has a significant and positive effect on economic performance.

H1a: Environmental performance has a significant effect on economic performance.

H1b: Social performance has a significant and positive effect on economic performance.

Additionally, controls such as star rating (category) and size will be introduced to see if they have any effect on economic performance. Star rating as a control was chosen for the reason that there is evidence that a hotel's rating influences its performance (Ye, Law & Gu, 2009; Ye, Law, Gu & Chen, 2011; Assaf, Josiassen, Cvelbar & Woo, 2015). Size was selected as a control variable because it is assumed that larger companies have more resources and consequently undertake more activities that stimulate better sustainability performance (Riordan & Williamson, 1985; Luo & Bhattacharya, 2006 Rodríguez & del Mar Armas Cruz, 2007).

Environmental performance refers to the assessment of management activities and its outcomes as related to the natural environment. It is a multidimensional concept that can be interpreted in different ways (Table 6).

Table 6: Overview of environmental performance categories

Author	Environmental performance categories
EMAS Easy (n.d.).	- Energy efficiency - Material efficiency - Water - Waste - Biodiversity - Mobility - Emissions
ISO 14031 (1999)	- Environmental condition - Environmental performance
Warhurst, A. (2002).	-Environmental Conditions - Environmental Output -Environmental Management Process -Environmental Achievement
Mihalič et al. (2012)	- Resources - Biodiversity - Environmental education
Global Reporting Initiative (2013b)	- Materials - Energy - Water - Biodiversity - Emissions - Effluents and Waste - Products and Services - Compliance - Transport - Overall - Supplier Environmental Assessment - Environmental Grievance Mechanisms

Source: Author

The Global Reporting Initiative (2013b) made a very detailed categorization of environmental performance, subdividing it into materials, energy, water, biodiversity, emissions, effluents and waste, products and services, compliance, transport, overall supplier environmental assessment and environmental grievance mechanisms. On the contrary, the International Organization for Standardization made a broad categorization separating it into two groups - environmental conditions and performance (ISO 14031, 1999). The environmental conditions describe the present state of the environment that is affected by the company, while environmental performance informs about efforts made by management and organizational environmental performance. According to Warhurst

(2002) environmental categories can be divided into environmental conditions, environmental outputs, environmental management processes and environmental achievement. Environmental conditions reveal the appraisal of environmental circumstances that influence ecosystems and biodiversity. Environmental outputs describe material flows between the company and its environment. Environmental management processes express the distribution of resources that are allocated to environmental management and the extent of a company's integration and commitment to environmental management. Environmental achievement evaluates the progress that is made towards achieving a company's predefined targets. Environmental performance can also be categorized to resource management, biodiversity protection and environmental education as a provision for following sustainable practices (Mihalič et al., 2012).

With regard to the presented categorization of environmental performance it can be concluded that it includes elements that in some way influence the company's surrounding environment. More specifically these can be generally divided to environmental resources that are used in the process of producing products and services and environmental outputs that are the result of the production process.

Previous studies have categorized social performance in different ways. The following table (Table 7) presents these categories.

Table 7: Overview of social performance categories

Author	**Social performance categories**
EMAS Easy (n.d.)	- Supplies - Guest - Employees - Public Relations - Health
Mihalič et al. (2012)	- Human capital - Cultural capital - Power to change participation
Global Reporting Initiative (2013b)	- Labor Practices and Decent Work - Human Rights - Society - Product Responsibility

Source: *Author*

Social performance can be divided to human capital that is associated with employees, cultural capital that deals with local culture and power for change that deals with relationships with external stakeholders (Mihalič et al., 2012). On the other hand, it can be also divided into labor practices and human rights that deal with employee-related

activities, and society category and product responsibility that involves customer related aspects (Global Reporting Initiative, 2013b). EMAS Easy (n.d.) categorized these as five distinct groups: supplies that deal with issues related to suppliers, relationship with guests, employees and public as well as health issues.

These different social performance categories can be broadly divided into two groups. The first is the one that deals with internal social performance including all the aspects of employees as internal stakeholders. The other group can be seen as external social performance that considers all other interested stakeholders.

The economic performance of a hotel company assesses its assets, liabilities and market presence in financial and non-financial terms. Different sources explain economic categories in different ways (Table 8).

Table 8: Overview of economic performance categories

Author	**Economic performance categories**
Warhurst, A. (2002)	-Corporate stakeholders -Other stakeholders
Mihalič et al. (2012)	- Tangible - Intangible
Global Reporting Initiative (2013b)	- Economic performance - Market presence - Indirect economic impacts - Procurement practices

Source: *Author*

The economic dimension of sustainability concerns the organization's impacts on the economic conditions of its stakeholders and on economic systems at the local, national, and global levels (Global Reporting Initiative, 2013b, p. 48). Various divisions of economic performance have been proposed by different authors (Table 8). The Global Reporting Initiative (2013b) separates these into economic performance, market presence, indirect economic impacts and procurement practices. Warhurst (2002) separated economic performance into corporate stakeholders and other stakeholders. Corporate stakeholders are used to show performance that is connected with the goals of the company, while other stakeholders reflect the company's economic and employment impacts. For Mihalič et al. (2012) economic performance is seen as tangible and intangible, tangible relating to financial performance and intangible relating to customer satisfaction as a requirement for the sustainability of tourism business.

To further explore the proposed model, the research methodology is presented in the following sections. The operationalization of variables and explanation of data collection process is also explained.

2.2. Research method

In this section of the thesis construct operationalization and the data collection process are explained.

2.2.1. Construct operationalization

Construct operationalization is divided in two parts. First social and environmental performance is operationalized using the scale development process. In the second part operationalization of economic performance takes place.

Environmental and social performance

Operationalization of environmental and social performance consists of different stages. First the review of the existing literature that examined relationships between environmental, social and economic performance from the field of hotel industry but also from other industries, is examined.

Literature review revealed that environmental and social performance can be measured using a wide variety of indicators. The following table (Table 9) presents indicators used in other industries.

Table 9: Overview of variables used in other industries

Author	Sustainability/social/ environmental performance
Bragdon Jr & Marlin (1972)	CEP index
Fogler & Nutt (1975)	Pollution index
Alexander & Buchholz (1978)	Reputation ratings
Spicer (1978)	CEP index
Waddock & Graves (1997)	CSP index
Berman, Wicks, Kotha & Jones (1999)	KLD index
King & Lenox (2001)	Emissions of toxic chemicals, pills and other plant accidents, Lawsuits concerning improper disposal of hazardous waste,

Author	Sustainability/social/ environmental performance
	rewards for environmental performance, environmental management standards, rankings of superior environmental performers
Konar & Cohen (2001)	Aggregate pounds of toxic chemicals emitted, number of environmental lawsuits
Ruf, Muralidhar, Brown, Janney & Paul (2001)	KLD index
Al-Tuwaijri, Christensen & Hughes Ii (2004)	Ratio of toxic waste recycled to total toxic waste generated; disclosures about toxic waste recycled, financial penalties, PRP designation, reported oil and chemical spills
Filbeck & Gorman (2004)	Hazardous waste clean-up responsibilities, Permit restrictions, Toxic chemicals, Reported spills, Compliance data
Wagner (2005)	CO2, SO2, NOX emissions, energy input, water input
Akpinar et al. (2008)	KLD index
Lin et al. (2009)	Donations
Choi, Kwak, & Choe (2010)	equal-weighted CSR index, stakeholder-weighted CSR index
Lev, Petrovits & Radhakrishnan (2010)	Charitable contributions
Saeidi, Sofiana, Saeidi, Saeidi & Saaeidi (2014)	Customer satisfaction, reputation, competitive advantage

Source: *Author*

These variables were not suitable for our research for various reasons. Some of them are not applicable for the hotel industry (Bragdon & Marlin, 1972; Fogler & Nutt, 1975; Spicer, 1978; King & Lenox, 2001; Konar & Cohen, 2001; Al-Tuwaijri et al., 2004; Wagner, 2005; Filbeck & Gorman, 2004). Others cover only partially aspects of environmental and social performance (Alexander & Buchholz, 1978; Lin et al., 2009; Lev et al., 2010; Saeidi, 2014). There are also researches that employ variables that are not available for our sample (Berman et al, 1999; Ruf et al., 2001; Akpinar et al., 2008).

Research in the hotel industry were also analysed and can be seen in Table 10.

Table 10: Overview of variables used in hotel industry

Author	Sustainability/social/ environmental performance
Rodríguez & del Mar Armas Cruz (2007)	Social-environmental responsibility
Lee & Park (2009)	KLD indexes
Molina-Azorín et al. (2009)	Basic environmental commitment, advanced environmental commitment, competitive performance, stakeholder satisfaction

Author	Sustainability/social/ environmental performance
Karagiorgos (2010)	CSR score
Inoue & Lee (2011)	KLD indexes
Kicošev et al. (2011)	CSR index
Singal (2013)	CSR variables

Source: Author

Some of these are more oriented on management practices than on the measurement of social and environmental performance (Rodríguez & del Mar Armas Cruz, 2007). Other research did not provide the measurement scale (Kicošev et al., 2011; Singal, 2013). Karagiorgos (2010) made a scoring index by evaluating whether or not companies reported information in their annual reports according to GRI environmental and social performance categories. This was not applicable to our research as there is no hotel company in Croatia that reports their information using GRI guidelines. Finally, Lee and Park (2009) as well as Inoue and Lee (2011) use KLD database indexes that are not available for this research.

For all the reasons stated above, we decided to develop our own measurement instrument to measure environmental and social performance in the hotel industry. First, a meta-analysis of the existing literature in the field with the addition of sustainability reports from hotel companies was conducted. Various indicators for social and environmental performance were collected. More specifically, 116 indicators representing environmental performance and 128 indicators representing social performance. It is important to emphasize that we came to such a large number of indicators with all possible variations of the same indicators taken into account. A list of collected indicators can be seen in Appendix 1.

In the second stage these indicators were examined by a group of expert judges, academic professionals in the fields of strategic accounting, management accounting, environmental accounting, environmental and social auditing and controlling, all in the hotel industry. Expert judges are employed in order to decrees the number of indicators collected to the most relevant ones. After they carefully examined the provided environmental and social performance indicators, they selected 17 environmental and 18 social performance indicators that they perceived to be the most significant.

In the following phase, these 17 environmental and 18 social performance indicators were sent by e-mail to another group of expert judges. More specifically, to a person that is the general manager of a hotel company and has special knowledge in human resources management, to a head controller that has expertise in environmental accounting, to another head controller of one of the largest hotel companies in Croatia and to the vice president of a company that is a leader in ICT consulting in the Croatian hotel industry and works directly in customizing information systems for hotel companies. These expert judges are engaged with the aim of additionally narrowing the number of indicators and

selecting the most applicable ones to the hotel industry in Croatia. Their assignment was to evaluate the importance of environmental and social performance indicators on a Likert scale from 1 to 5 (1- not important and 5- very important). Indicators, that are evaluated with the score higher than 3.75, are selected for the following stage. The results were further discussed with a third group of expert judges. These expert judges were both from academic and professional fields in the hotel industry. The aim of this phase is to additionally control the indicators in order balance the number of environmental and social indicators and eliminate indicators that represent similar performance.

This process resulted in the following 10 environmental performance indicators and 9 social performance indicators:

Environmental performance**:**
Waste recycling
Energy consumption
Water consumption
Total paper purchase
Detergents and cleaning agents' consumption
Total environmental protection expenditures and investments
Indoor air quality
Direct greenhouse emissions
Noise emissions
Renewable materials used

Social performance:
Employee turnover
Absenteeism rate
Employee satisfaction
Investment in employee training/education
Number of trained employees
Guest satisfaction
Cooperation with the municipality
Cooperation with local residents
Number of cultural events in the hotel company

Economic performance

In the operationalization of economic performance, first the literature review of the research examining the relationship between environmental, social and economic performance is analysed. Variables used for economic performance are extracted. Economic performance is usually measured with accounting- or market-based performance

indicators. An analysis of the current literature has revealed a wide variety of indicators used (Table 11).

Table 11: Overview of variables used for economic performance

Author	**Variable used**
Bragdon & Marlin (1972)	EPS growth, return on equity, return on capital
Fogler & Nutt (1975)	Profit/Equity ratio
Alexander & Buchholz (1978)	Market return on security
Spicer (1978)	Return on equity, size- assets, price/earnings ratio, market measures of risk
Waddock & Graves (1997)	Return on equity, return on sales, return on assets
Berman et al. (1999)	Return on assets
King & Lenox (2001)	Tobin's Q, return on assets, return on equity, return on investment.
Konar & Cohen (2001)	Tobin's Q, market value of preferred shares, long-term debt, short-term debt, value of firm assets, market share of firm, sales growth, import-consumption ratios, research and development expenditures, advertising expenditures
Al-Tuwaijri, Christensen & Hughes (2004)	Industry adjusted annual return
Filbeck & Gorman (2004).	Market value of equity
Wagner (2005)	Return on capital employed, return on equity, return on sales
Rodríguez & del Mar Armas Cruz (2007)	Relative return on average assets
Akpinar et al. (2008)	Monthly stock returns, Tobin's Q.
Lee & Park (2009)	Average market value, return on assets, return on equity
Lin et al. (2009)	Return on assets
Molina-Azorín et al. (2009)	Occupancy rate per room, gross operative profit (GOP), and GOP per available room per day
Choi et al. (2010)	Return on equity, return on assets, Tobin's Q
Kang et al. (2010)	Return on equity, return on assets, Tobin Q, price earnings ratio.
Karagiorgos (2010)	Stock return
Lev, Petrovits & Radhakrishnan (2010)	Sales growth
El Ghoul, Guedhami, Kwok & Mishra	Cost of equity capital

Author	Variable used
(2011)	
Inoue & Lee (2011)	Return on assets
Kicošev et al. (2011)	Return on assets
Singal (2013)	S&P ratings
Benavides-Velasco et al. (2014)	Net income, net income growth, net income by number of rooms, economic-financial goals
Saeidi et al. (2014)	Return on equity, return on sales, return on assets, return on investment, net profit margin

Source: Author

The most commonly employed is return on assets (Waddock & Graves, 1997; Berman et al., 1999: King & Lenox, 2001; Lin, Yang & Liou, 2009; Choi, Kwak & Choe, 2010; Kang, Lee & Huh, 2010; Saeidi et al., 2014) which represents a ratio of companies' operating profit and total assets (Bertonèche & Knight, 2001). Return on equity is another widely used indicator Bragdon & Marlin, 1972; Spicer, 1978; Waddock & Graves, 1997; King & Lenox, 2001; Wagner, 2005; Choi et al., 2010; Kang et al., 2010; Saeidi et al., 2014) that is calculated as a ratio of net income and stockholders' equity (Bertonèche & Knight, 2001). Moreover, return on sales is repeatedly used (Waddock & Graves, 1997; Wagner, 2005; Saeidi et al., 2014). Return on sales shows the relationship between operating income and revenue. Of market based indicators, most commonly used is the Tobin's Q which represents a company's ratio of total market value and asset values (Lang, Stulz, & Walkling, 1989). Besides return on assets and return on equity studies in the hotel industry used variables are such as average market values, occupancy rate, gross operative profit, net income and stock return (Rodríguez & del Mar Armas Cruz, 2007; Lee & Park, 2009; Molina-Azorín et al., 2009; Karagiorgos, 2010; Inoue & Lee, 2011; Kicošev et al., 2011; Benavides-Velasco et al., 2014).

Traditional performance indicators are usually calculated as a ratio of two variables (Thanassoulis, Boussofiane & Dyson, 1996) and as a result it is difficult to evaluate the company's overall performance. Efficiency is one of the options for evaluating a company's performance. There are many different approaches on how to measure the efficiency of hotel companies (Fay, Rhoads, & Rosenblatt, 1971; Van Doren, & Gustke, 1982; Kimes, 1989; Wassenaar, & Stafford, 1991; Baker, & Riley, 1994; Ismail, Dalbor, & Mills, 2002). It can be evaluated through frontier models like the data envelopment analysis (DEA) and the stochastic frontier analysis (SFA). The advantages of DEA and SFA are that they can measure and monitor multiple dimensions of performance (Wöber, 2002). In these frontier models, the use of multiple inputs and outputs is allowed, with inputs being the variables that are used in the production process and outputs being the results of the production process. Combining these inputs and outputs, the relative

efficiency of an organization or parts of an organization (also called decision making units – DMU) is calculated. In a sample of DMUs, those with the best practice are identified. An efficiency frontier is set, the DMUs on the frontier are efficient (best practice) and the ones that are below the frontier are inefficient. Efficiency is shown by an index with values from 0 to 1 (0 to 100%). The result 1 represents an efficient unit and that less than 1 is considered inefficient. For these frontier models to be applicable to a sample, the decision making units in the sample have to be engaged in similar activities so that a common group of inputs and outputs can be determined, with the units operating in a similar business environment (Dyson, Allen, Camanho, Podinovski, Sarrico & Shale, 2001). One of the advantages of this performance measurement is that, unlike conventional accounting methods, frontier models make it possible to compare the relative performance between multiple performance measures (Rouse, Harrison, & Chen, 2010).

Although DEA and SFA are very similar frontier methods, there are also differences between them (Table 12).

Table 12: Comparison between data envelopment analysis and stochastic frontier analysis

	Data envelopment analysis	**Stochastic frontier analysis**
Technique	Non-parametric technique	Parametric
Sensitivity to outliers	Yes	No
Distributional assumptions for the inefficiency	no	yes

Source: Prepared based on Barros, C. P., Peypoch, N., & Solonandrasana, B., *Efficiency and productivity growth in hotel industry*, 2009, pp. 389-402. Hu, J. L., Chiu, C. N., Shieh, H. S., & Huang, C. H. A., *Stochastic cost efficiency analysis of international tourist hotels in Taiwan*, 2010, pp. 99-107. Assaf, A. G., & Barros, C., *Bayesian cost efficiency of Luanda, Angola hotel,*. 2011, pp. 1549-1559.

The main difference is that DEA is a non-parametric technique while SFA is a parametric technique. This means that DEA, unlike SFA, makes no assumptions about probability distributions. DEA is sensitive to outliers, while with SFA there are no issues with them. Another difference is that SFA differentiates the fluctuations from efficiency to inefficiency and noise, while DEA doesn't.

An analysis of published SFA and DEA papers in the hotel industry on the Web of Science was conducted using the search string 'stochastic frontier analysis hotel' and 'data envelopment analysis hotel' (Figure 13).

Figure 13: Number of publications of SFA and DEA papers in the hotel industry per year

Source: Web of Science (search string 'stochastic frontier analysis hotel' and 'data envelopment analysis hotel'), 2015, own analysis.

It can be seen that there are significantly more papers that employed the DEA method than the SFA method, with exactly 88 DEA publications compared to 17 SFA publications. They have become popular among researchers in the hotel industry over the past 20 years, with the exception of Parkan (1996). It is also evident that the SFA method isn't widely used in measuring efficiency in the hotel industry. Here, it is necessary to point out that this is not the total number of published papers, but only the ones that are indexed within the Web of Science. This database is chosen as it indexes the most relevant scientific literature.

After comparing these two frontier methods, we decided to use SFA to estimate a hotel company's efficiency. The main reasons for this are that there is no sensitivity to outliers, there are distributional assumptions for inefficiency and there is a lack of research using it in the hotel industry.

There are different inputs and outputs used in efficiency measurement in the hotel industry (Table 13).

Table 13: Overview of inputs and outputs used in efficiency measurement

Author	**Inputs**	**Outputs**
Johns, Howcroft, & Drake (1997)	Room nights available, labor hours, Food and beverage (F&B) costs, utilities cost.	Room nights sold, covers served, beverage revenue.
Anderson, Fish, Xia & Michello (1999)	No. of employees, number of rooms, room expenses, gaming expenses, food and beverage expenses, other expenses.	Operating revenue.
Hwang & Chang (2003)	Full-time employees, guest rooms, area of meal department, operating expenses.	Room revenue, F&B revenue, other revenues. .

Author	Inputs	Outputs
Chiang, Tsai, & Wang (2004)	Hotel rooms, F&B area, employees, total cost of the hotel.	Yielding index, F&B revenue, miscellaneous revenue.
Barros (2005)	Full time workers, cost of labor, rooms, surface area of the hotel, book value of property, operational costs, external costs.	Sales, no. of guests, nights spent.
Barros & Santos (2006)	Labor, full-time-equivalent employees, capital.	Sales, added value, earnings.
	Electricity consumption, water consumption, liquefied petroleum gas, employees.	Occupancy rate, revenue, no. of guests.
Önüt & Soner (2006)	Employees, electricity consumption, water consumption, liquefied petroleum gas consumption.	Occupancy rate, revenue, no. of guests.
Chen (2007)	Price of labor, price of F&B, price of materials.	Total revenue of hotel.
Davutyan (2007)	No. of available beds, employees, operating expenses.	Beds sold to return customers divided by no. of available beds, beds sold.
Perez-Rodrıguez & Acosta-Gonzalez (2007)	Price of labor, price of capital, financial costs.	Total annual revenue.
Barros et al. (2009)	No. of employees, physical capital.	Sales, added value.
Neves & Lourenco (2009)	Current assets, net fixed assets, shareholders' equity, cost of goods and services.	Revenues and earnings (EBITDA).
Perrigot, Cliquet & Piot-Lepetit (2009)	Age of the hotel chain in years, labor, no. of rooms in the chain, expansion costs: no. of hotel openings during the year, franchising contract: royalties in percentage, chain ranking.	Room revenues: occupancy rate in percentage, other revenues, total sales.
Yu & Lee (2009)	Full-time employees in the room service department, full-time employees in the F&B department, no. of rooms, floor area in the F&B service department; expenses for each service sector, shared input.	Rooms revenue, F&B revenue, other revenue.

Author	Inputs	Outputs
Chen, Hu & Liao (2010)	No. of guest rooms; employees; floor space of catering division.	F&B revenues; rooms revenues; other revenues.
Hu, Chiu, Shieh & Huang (2010)	Price of labor, price of other operation, and F& B price.	Room revenue, F&B revenue, and other operation revenue.
Hsieh & Lin (2010)	Accommodation costs, no. of employees of the accommodation department, catering cost, employees of the catering department, rooms, catering floors.	Accommodation revenue, catering revenue.
Hsieh, Wang, Huang & Chen (2010)	No. of rooms, no. of employees, facilities expenses, management expenses.	Occupied room rate, total revenue.
Assaf & Barros (2011).	Price of labour, price of capital, total operation costs.	Revenue per available room, average occupancy rate per year
Assaf & Magnini (2011)	No. of outlets, full time equivalent employees, other operational costs.	Total revenues, occupancy rate.
Avkiran (2011)	Full-time staff, permanent part-time staff , bed capacity.	Revenue and cost of a double room.
Chen (2011)	Employees, surface area of floors, guest rooms, operating expenses, depreciation expenses.	No. of guests, occupancy rate, guest satisfaction index, room revenue, other revenue.
Shahroudi & Dery (2011)	No. of rooms, full-time employees, area of hotel.	No. of guests, no. of rooms occupied.
Yen & Othman (2011)	Room nights available, no. of employees, book value of the property, total operating expenses, non-operating expenses, F&B costs.	No. of room nights occupied, no.of guests; average occupancy rate, operating revenues, other revenues, F&B revenues.
Honma & Hu (2012)	No. of employees, no. of temporary staff, no. of seats in restaurants and bars, no. of rooms.	Real revenue.
Ashrafi et al. (2013)	Standard average room rate, total international visitor arrivals, GDP.	Hotel room revenue, hotel F&B revenue, occupancy rate, gross lettings.
Manasakis et al. (2013)	No. of employees, no. of beds,	Total revenues, total no. of

Author	Inputs	Outputs
	total operational cost.	nights spent.
Oliveira, Pedro & Marques (2013)	Cost of rooms, F&B costs, no. of rooms, no. employees, number of seats F&B, other costs, Capex.	Total revenue.

Source: Author

Of the input variables in financial values the most commonly used are the costs of various departments like room, food and beverage and others. Additionally, the price of labor and operating expenses are also frequently employed. Of non-financial inputs, the number of employees, number of rooms and surface area are usually utilized. Looking at the output variables, of those relating to finances, the total revenue or revenue segmented by departments is very common. Moreover, the output for the occupancy rate is recurrently adopted from non-financial variables.

When selecting appropriate inputs and outputs for our research a few considerations had to be made. First, they are collected from secondary sources and previous research had been mostly done on a hotel level and our research is being done on a hotel company level, with some companies owning more than one hotel property. Since the research encompasses small, medium and large companies in Croatia that report their results differently, the variables had to have a common ground. More exactly, medium and large companies provided more detailed reports than small hotel companies. As a result, input variables could not include the segmented costs of departments, and material cost was selected as a substitution. Material costs include cost of materials, utility costs, operating supplies and contract services. Contract services include utility (municipal) services, laundry costs, property operation and maintenance costs, entertainment costs, postage costs, telecommunication costs, professional fees and other services. Additionally, among financial inputs, labor cost is selected. Labor costs include total cost of salaries and wages (cost of salaries and wages, payroll taxes and employee benefits) from the employees of a hotel company. Among nonfinancial variables the number of employees and number of rooms were chosen. The number of employees denotes the total number of employees in a hotel company, while the number of rooms includes a hotel company's total number of rooms. For the output variable, the operating revenue is selected. Operating revenue includes revenues from main business activities. Non-operating revenues were not taken into account since they are generated from the activities that are not related to the hotel company's core business. The occupancy rate was excluded from the consideration since it is it is usually determined at the hotel, and not the hotel company level. Moreover, there are different ways of calculating this and it is not uncommon that hotel companies manipulate these results to show higher performance.

2.2.2. Data collection process

Data for this research were collected from primary and secondary sources. For the collection of primary data an e-mail questionnaire was used. Since all the examined literature was in English, the questionnaire was first developed in English and later translated into Croatian. It was then examined by two accounting experts who further improved the language.

The questionnaire had a total of 40 questions that could be divided into three groups:

- General information that included the name of hotel company, number of hotels it owns, full name of the respondent, their e-mail contact, position and information about the hotel company's sustainability practices that included 21 questions
- Information about their environmental performance that included 10 questions
- Information about their social performance that included 9 questions.

Hotel companies were asked to evaluate their performance in relation to their target on a Likert scale from 1 (poor performance) to 5 (exceptional performance) over 3 years (2011-2013). The questionnaire can be seen in Appendix 2.

The questionnaire was sent to all the hotel companies in Croatia. The target groups were top managers, accountants and controllers. The list of hotel companies was initially taken from the Financial Agency's Annual Financial Statements Registry, but this list included all the companies registered for hotel and similar accommodation activities, some of whom were not necessarily currently involved in these business activities. To narrow down the sample, the list of categorized hotels from the Ministry of Tourism was used. A total of 436 hotel companies were identified. The e-mail addresses were collected through a web search and personal contacts and around 500 e-mails with the questionnaire were sent. Questionnaires were sent to more than one person at some hotel companies. The collection period lasted five weeks, and every 7 days a remainder e-mail was sent to those who did not respond. Additionally, phone calls were made to remind those who didn't respond after two reminder e-mails.

Secondary data was collected from various sources. The primary source of information about labor and material costs, revenues, number of employees and size was the Financial Agency's Annual Financial Statements Registry. Additionally, since some of the information about small hotel companies was missing from the Financial Agency Registry, this information was supplemented from Bureau Van Dijk's Amadeus database.

The hotel company's size classification was made according to the Croatian Accounting Act where two of the following criteria had to be satisfied:

- Small companies – total assets less than 32.5 million Croatian kunas (HRK), turnover less than 65 million HRK and average number of employees during the year less than 50.
- Medium companies - total assets between 32.5 and 130 million HRK, total turnover between 65 and 260 million HRK and average number of employees during the year between 50 and 250.
- Large companies - total assets more than 130 million HRK, total turnover more than 260 million HRK and average number of employees during the year more than 250.

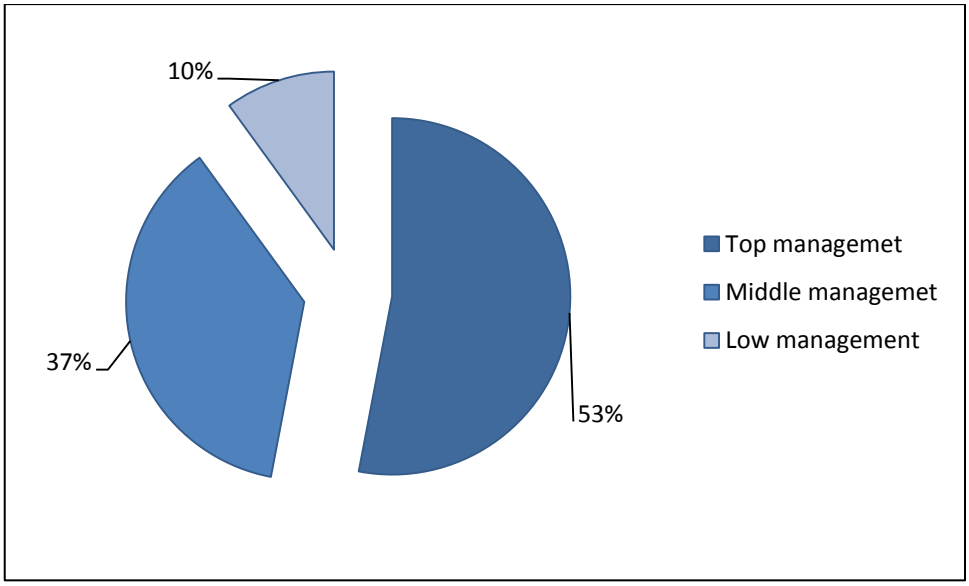
Information about hotel's star rating was retrieved from company web sites and from the list of categorized hotels from the Ministry of Tourism. Information about the number of rooms in the hotel company was collected from company web sites, annual reports published in the Financial Agency's Annual Financial Statements Registry and from the list of categorized hotels from the Ministry of Tourism.

3. RESEARCH RESULTS

3.1. Sample characteristics

Questionnaires from 76 hotel companies were collected. Analysing the working position of the respondents who filled out the questionnaire, 53% of the respondents were top management, 37% middle management and 10% low management (Figure 14). Top management level respondents were owners, general managers or their deputies. Middle management level respondents were mostly chief accountants and controllers, hotel operations managers, internal auditors and quality managers. Low management respondents were mostly reception managers, but here it is important to emphasize that these responses were from small family owned hotels and these receptionists are very familiar with the business.

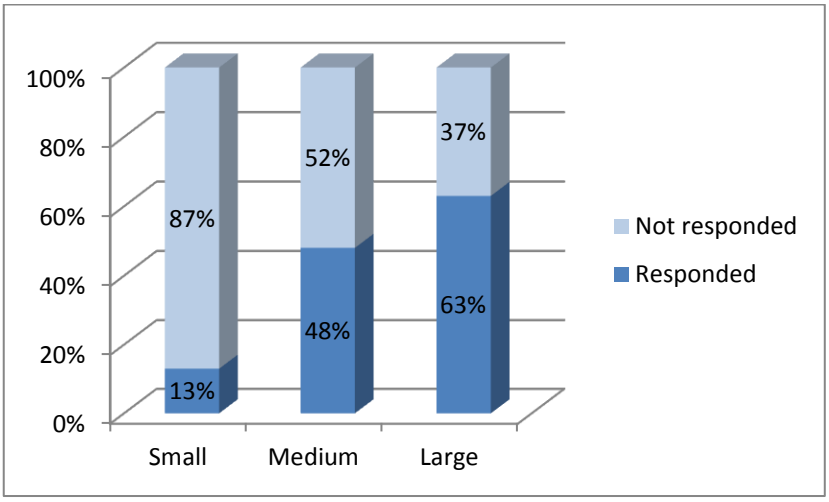
Figure 14: Working position of the respondents



Source: *Author*

According to the company's size, 42 companies were small, 22 medium and 12 large. When considering the overall structure, this sample represents 13% of the small hotel companies, 48% of medium hotel companies and 63% of large hotel companies in Croatia (Figure 15). The majority of companies, 70%, own one hotel while the largest company owns 21 hotels.

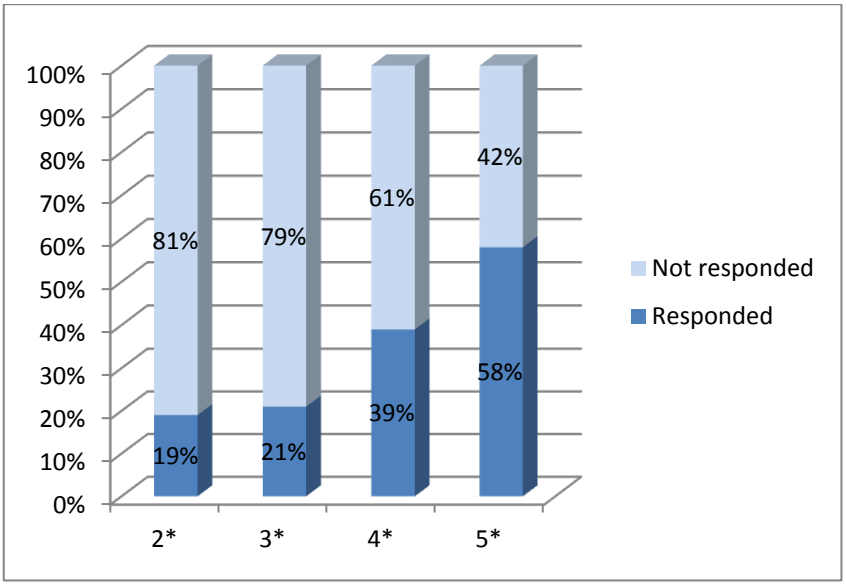
Figure 15: Structure of the respondents according to the size of the company



Source: *Author*

The majority of hotel companies (70%) have one hotel in their ownership and the largest company has 21 hotels. These 76 hotel companies manage a total of 176 hotels. This represents 28% of the overall number of hotels in Croatia. With regard to the quality of hotels in the sample, 15 hotels have 2 stars, 64 of hotels have 3 stars, 79 of hotels have 4 stars and 18 of the hotels have 5 stars. Comparing with the total number of hotels in Croatia, the sample represents 19% of 2-star rated hotels, 21% of 3-star rated hotels, 39% of 4-star rated hotels and 58% of 5-star rated hotels (Figure 16).

Figure 16: Structure of the hotels included in the sample according to their quality

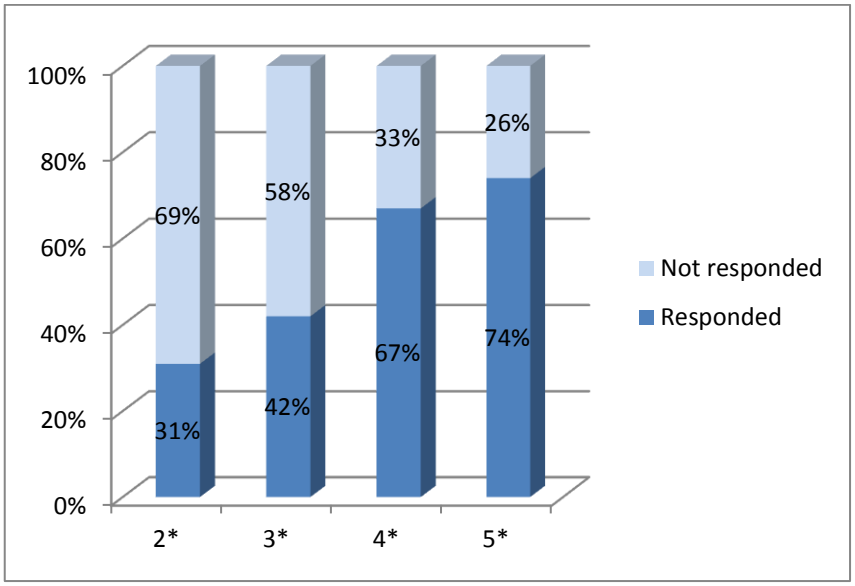


Source: *Author*

When taking into account the room capacity of the hotels according to their quality, the situation changes. The collected sample covers 31% of the room capacity of 2-star rated

hotels, 42% of room capacity of 3-star rated hotels, 67% of room capacity of 4-star rated hotels and 74% of 5-star rated hotels (Figure 17).

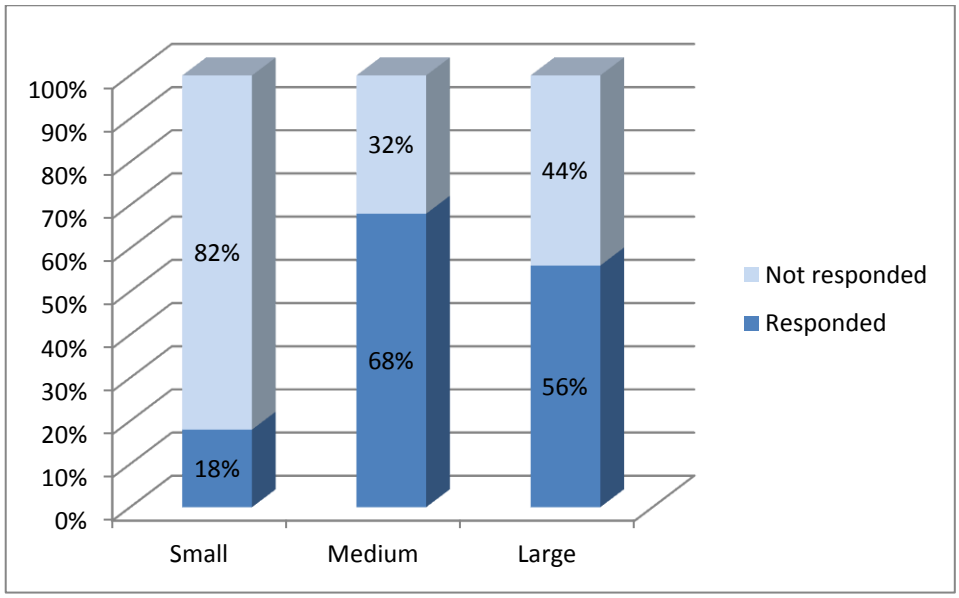
Figure 17: Structure of the hotels in the sample according to their room capacity



Source: *Author*

If the hotels are divided by the number of rooms in small, medium and large (The European Consumer Centers' Network, 2009), 86 hotels were small, 85 medium and 5 large. This sample compared to the overall structure of hotels represents 18% of small hotels, 68% of medium and 56% of large hotels. The smallest hotel has only 6 rooms, while the biggest one has 501 rooms (Figure 18).

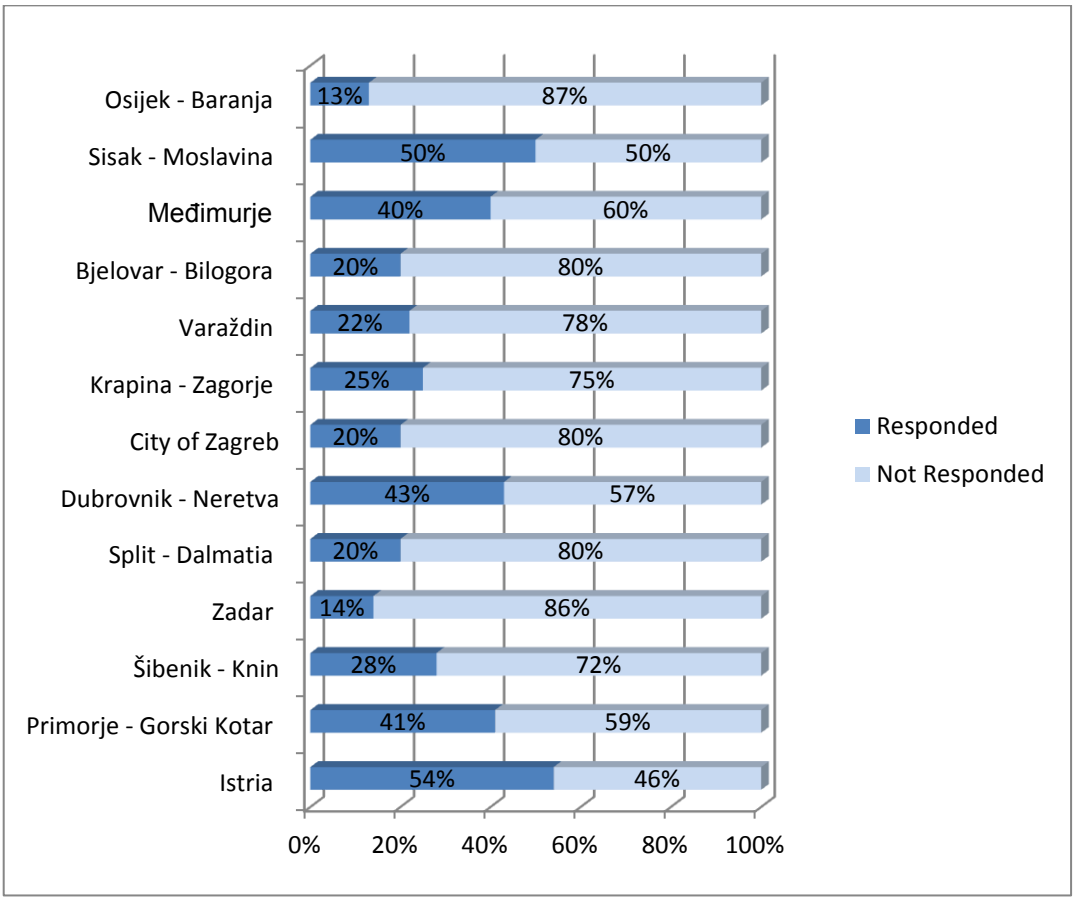
Figure 18: Structure of the hotels according to their size



Source: *Author*

When analysing the sample by geographical regions, among 21 counties in Croatia, 13 are included in the sample. There was no response from Zagreb, Karlovac, Koprivnica-Križevci, Lika-Senj, Virovitica-Podravina, Požega-Slavonia, Brod-Posavina and Vukovar-Srijem Counties. In comparison to the number of hotels in the sample and the total number of hotels in counties, the sample covered 54% of hotels In Istria, 50% of hotels in Sisak-Moslavina, 43% of hotels in Dubrovnik-Neretva, 41% of hotels in Primorje-Gorski Kotar, 40% of hotels in Međimurje, 28% of hotels in Šibenik-Knin, 25% of hotels in Krapina-Zagorje, 22% of hotels in Varaždin, 20% of hotels in Bjelovar-Bilogora and Split-Dalmatia. The smallest number of hotels were represented in the Zadar and Osijek-Baranja counties, 14% and 13% respectively (Figure 19).

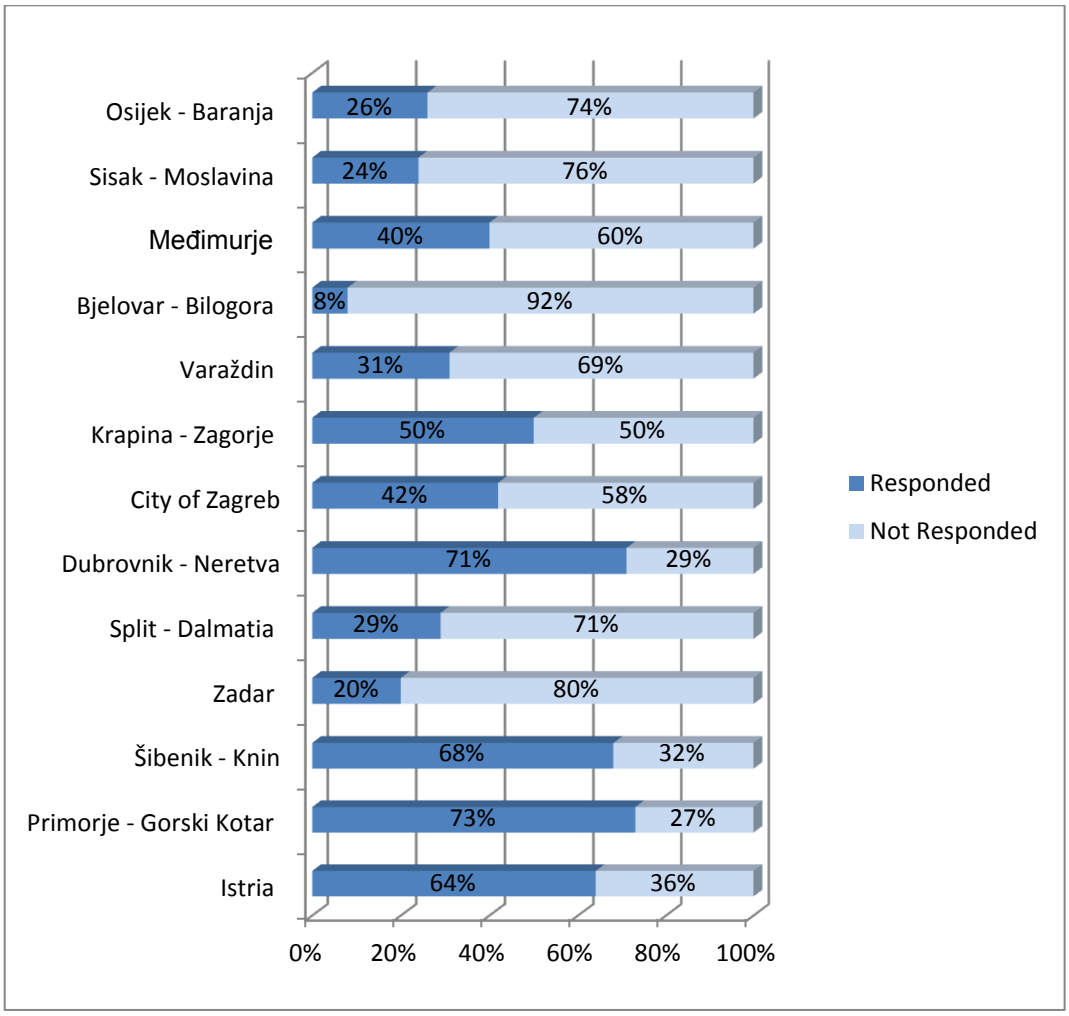
Figure 19: Structure of the sample according to the number of hotels in Croatian counties



Source: *Author*

If we analyze the sample in comparison to the hotel capacity in Croatian counties, there are some changes (Figure 20). The highest sample representation is in the Primorje-Gorski Kotar (73%), Dubrovnik-Neretva (71%), Šibenik-Knin (68%), Istra (64%), Krapina-Zagorje (50%), the City of Zagreb (42%), Međimurje (40%) and Varaždin Counties (31%). Split-Dalamtia, Osijek-Baranja, Sisak-Moslavina, Zadar and Bjelovar-Bilogora counties have less than 30% of the total room capacity.

Figure 20: Structure of the sample according to the hotel capacity in Croatian counties



Source: *Author*

Hotel companies were asked if they have any type of sustainable development policy or plan. Responses show that only 20% of them have adopted a sustainable development policy or plan, 27% of them are currently in the process of developing one and 53% of hotel companies do not have any sustainable development policies or plans (Table 14).

Table 14: Sustainable development policies and plans

Does your company have a sustainable development policy or plan?	**Responses**	
	%	**Number**
Yes	20%	15
No, it is in the process of development	27%	20
No	53%	39
Total	100%	74

Source: Author

To manage sustainability issues more efficiently, hotel companies need sustainability departments. Results show that only 5% of the hotel companies in Croatia have established a sustainability department (Table 15).

Table 15: Sustainability department

Do you have sustainability department?	**Responses**	
	%	**Number**
Yes	5%	4
No	95%	72
Total	100%	76

Source: *Author*

When looking at the employment of a person responsible for sustainability at the hotel company, the results reveal a better situation with 25% of companies have personnel in charge of sustainability issues (Table 16). Nonetheless, these results are far from being satisfactory.

Table 16: Person responsible for sustainability issues

Do you employ a person responsible for sustainability or environment in your company?	**Responses**	
	%	**Number**
Yes	25%	19
No	75%	56
Total	100%	75

Source: *Author*

Hotel companies were also asked whether or not they prepare some kind of sustainability report. A separate sustainability report is prepared by 4% of the hotel companies surveyed, 16% of the hotel companies integrate a sustainability report in their annual report, 7% deliver environmental reports, 1% deliver data through the Environmental Pollution Register and 72% of the companies do not report sustainability performance (Table 17).

Table 17: Sustainability reporting

Does your company report on its sustainable development performance?	**Responses**	
	%	**Number**
We report a separate sustainability report	4%	3
Sustainability report is integrated in the annual report	16%	12
We report environmental report	7%	5
No	72%	55
Other (please specify)	1%	1
Total	100%	76

Source: *Author*

An additional question was added with reference to frequency of reporting sustainability information (Table 18). Only 3% of the hotel companies are reporting sustainability performance on a monthly and quarterly basis, 16% report on an annual basis and 7% report it less frequently. The rest of respondents do not report sustainability performance (57%) or are not familiar with it (16%).

Table 18: Frequency of sustainability reporting

Does your company report on its sustainable development performance?	**Responses**	
	%	**Number**
Monthly	3%	2
Quarterly	3%	2
Annually	16%	12
Less frequently	7%	5
We don't report	57%	43
I am not familiar with this	16%	12
Total	100%	76

Source: *Author*

To evaluate the achieved level of monitoring sustainability information, hotel companies were asked to provide answers about their environmental (Table 19) and social databases. The lower the company's level of monitoring information, the better the accounting system. The majority of hotel companies have a centralized database accessible at the corporate level (32%), followed by a centralized database at hotel level (24%) and only a minority have a centralized database at the department level (5%). The rest of the hotel companies (39%) have no database that contains environmental data.

Table 19: Database for environmental data

Does your company have a centralized database for environmental data?	**Responses**	
	%	**Number**
Yes, our centralized database is accessible at corporate level	32%	24
Yes, our centralized database is accessible at hotel level	24%	18
Yes, our centralized database is accessible at department level	5%	4
No	39%	30
Total	100%	76

Source: *Author*

With regard to monitoring social information, respondents revealed slightly different and better results (Table 20). The centralized database accessible at the corporate level is present at 30% of respondents, 38% of hotel companies have a database accessible at the hotel level and 13% of hotel companies have a database available at the department level. The remaining 18% of hotel companies have no available database for monitoring social performance.

Table 20: Database for social data

Does your company have a centralized database for social data?	**Responses**	
	%	**Number**
Yes, our centralized database is accessible at corporate level	30%	23
Yes, our centralized database is accessible at hotel level	38%	29
Yes, our centralized database is accessible at department level	13%	10
No	18%	14
Total	100%	76

Source: *Author*

The last question concerned awarded sustainability certificates, implemented standards or similar accreditation (Table 21). From the sample, 35% of hotel companies have some sort of sustainability certificate or implemented norms, while the remaining 65% of hotels have no certificates or standards.

Table 21: Sustainability certificates and standards

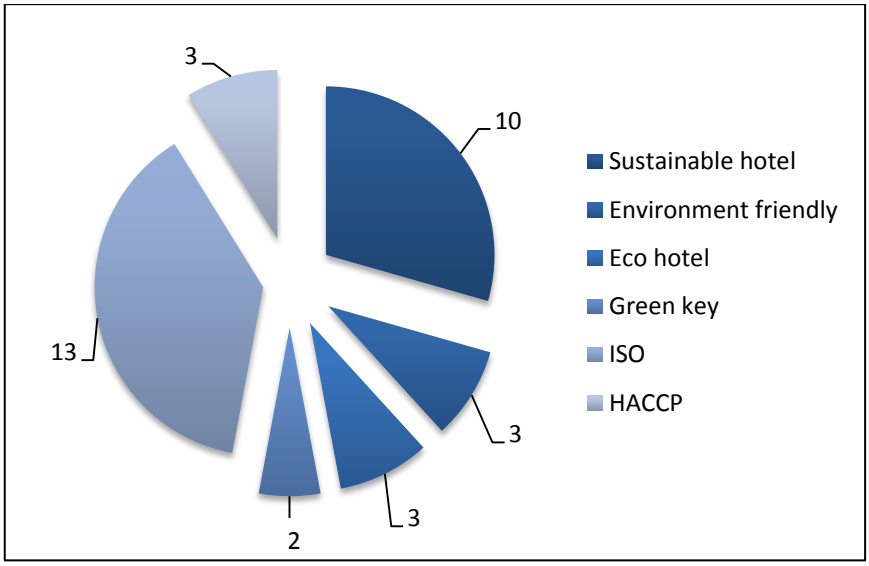
Does your company have any sustainability certificates/ implemented norms or similar?	**Responses**	
	%	**Number**
Yes	35%	26
No	65%	49
Total	13%	75

Source: *Author*

Among sustainability certificates (Figure 21), the most common is the Sustainable Hotel Certificate from the Association of Employers in Croatian Hospitality and 10 hotel companies have it. An Eco-Hotel certificate from the Association of Small and Family Hotels is held by three hotel companies. Two hotel companies have a Green Key Label which is an international environmental label for hotels. The Environmentally Friendly Label awarded by the Ministry of Environmental Protection is held by three hotel

companies. Additionally, there are 13 companies that have implemented ISO standards, mostly concerning quality management, environmental management, occupational health and safety and food safety management. Furthermore three hotel companies stated that they have the HACCP food safety management systems certification.

Figure 21: Kinds of sustainability certificates and norms



Source: *Author*

Additionally, descriptive statistics have been made for environmental and social performance (Table 22 and 23).

Table 22: Descriptive statistics for environmental performance (N = 209)

Variable	Mean	Standard deviation
Waste recycling	2.43	0.902
Energy consumption	2.78	0.888
Water consumption	2.77	0.806
Total paper purchase	2.78	0.764
Detergents and cleaning agents' consumption	2.83	0.655
Total environmental protection expenditures and investments	2.53	0.785
Indoor air quality	2.78	0.606
Direct greenhouse emissions	2.70	0.727
Noise emissions	2.93	0.769
Renewable materials used	2.56	0.739

Note: Variables are evaluated on a scale from 1 to 5, where the lowest performance is 1 and the highest 5

The range of average scores for environmental performance variables is between 2.43 and 2.93. Variable noise emissions has the highest score (2.93), while variable waste recycling has the lowest score and hotel companies need to improve their performance on this variable. It can be seen that the hotel companies' environmental performance meets their expectations or targets. Moreover, it can be seen that the values of standard deviation are in all of the variables lower than 1, in other words the data aren't highly dispersed.

Table 23: Descriptive statistics for social performance (N = 209)

Variable	**Mean**	**Standard deviation**
Employee turnover	3.11	0.804
Absenteeism rate	3.41	0.786
Employee satisfaction	3.14	0.903
Investment in employee training/education	2.63	0.835
Number of trained employees	2.61	0.831
Guest satisfaction	3.53	0.904
Cooperation with the municipality	2.93	0.938
Cooperation with local residents	3.12	0.797
Number of cultural events	2.86	0.935

Source: *Author*

Note: Variables are evaluated on a scale from 1 to 5, where the lowest performance is 1 and the highest 5

The range of average scores for social performance variables is between 2.61 and 3.53. The Guest Satisfaction variable has the highest score, while the number of trained employees has the lowest score. It can be seen that the hotel companies' social performance meets their expectations or targets. Moreover, it can be seen that the values of standard deviation are in all of the variables lower than 1, in other words the data aren't highly dispersed.

The following table presents the results of descriptive statistics for variables used in efficiency measurement (Table 24).

Table 24: Descriptive statistics for variables used in efficiency measurement (N=173)

	Minimum	**Maximum**	**Mean**	**Std. Deviation**
Material cost	201,114.00	910,343,307.00	34,585,377.88	87,213,095.91
Cost of labor	16,033.00	315,653,000.00	23,762,407.29	48,793,972.45
No. of employees	1.00	1,924.00	191.50	324.78

	Minimum	Maximum	Mean	Std. Deviation
No. of rooms	6.00	7,541.00	652.17	1295.61
Revenue	63,237.00	1,060,214,000.00	83,833,359.00	166,678,822.91

Source: *Author*

Since the sample consists of small, medium and large hotel companies there are significant differences between minimum and maximum values. The minimum value of material cost is 201,114 HRK, the maximum value is 910,343,307 HRK with a mean value of 34,585,377 HRK. The cost of labor has a minimum of 16,033 HRK and maximum of 315,653,000 HRK with a mean value of 23,762,407 HRK. The smallest hotel company has only one employee while the largest has 1924 employees with an average of 192 employees across the sample. The smallest hotel company has 6 rooms while the largest has 7541 rooms with a sample average of 652 rooms. The minimum value of operating revenue is 63,237 HRK and the maximum value is 1,060,214,000, with the mean value of 83,833,359 HRK.

3.2. Factor analysis

Factor analysis is employed to derive factors from 19 environmental and social attributes. The objective is to identify the key structure among the variables. Furthermore, the identified factors will be used as independent variables in the hypotheses testing process. There are two main types of factor rotation: orthogonal and oblique. The difference between them is that orthogonal is used when factors are uncorrelated, while oblique rotation is used when factors are correlated (Brown, 2006). First, the principal component analysis with varimax rotation is performed, in order to reduce the original set of variables in a smaller number of factors that capture most of the original variance (information). Subsequently, correlations between factors are reviewed. Results reveal that factor correlations exceed the threshold of 0.32, as proposed by Tabachnick and Fidell (2007) (See Appendix D). For this reason oblique direct oblimin rotation method is employed. Kaiser-Meyer-Olkin's measure (KMO) and the Bartlett's sphericity test are used to assess the appropriateness for the employment of factor analysis (Hair et al., 2006).

Factor extraction and variable retaining is conducted on the basis of criteria eigenvalues, the percentage of variance, the significance of factor loadings and the number of variables in the extracted factor. Factors having eigenvalues equal or greater than 1, at least 60% of the total variance explained and factor loadings above 0.4, are considered satisfactory. A factor group that captures three or more of these category items, is deemed acceptable.

The scales' reliability is tested with Cronbach alpha coefficients. Coefficients higher than 0.6 were considered acceptable, as they indicate reasonable internal consistency and reliability (Hair et al., 2006).

The first stage consists in assessing the appropriateness for factor analysis conduction. KMO has a high value of 0.864. This indicates sufficient items for each extracted factor. Bartlett's Test reveals significant results (χ^2=2319.513 df=171, Sig=0.000) and shows strong correlations between the items. These results justify the employment of factor analysis. The results of factor analysis and the reliability analysis are presented in Table 25.

Table 25: Factor and reliability analyses (N = 209)

Factors/variables	**Factor loadings**	**Communa-lities**	**Eigen-value**	**% of Variance**	**Cummula-tive % of Variance**	**Cronbach alpha coefficient**
Factor 1			7.521	39.585	39.585	0.880
Water consumption	0.803	0.775				
Energy consumption	0.798	0.740				
Total paper purchase	0.716	0.674				
Waste recycling	0.695	0.565				
Detergents and cleaning agents' consumption	0.657	0.565				
Total environmental protection expenditures and investments	0.488	0.661				
Factor 2			2.395	12.604	52.189	0.824
Indoor air quality	0.796	0.722				
Direct greenhouse emissions	0.725	0.770				
Noise emissions	0.724	0.556				
Renewable materials used	0.609	0.635				
Factor 3			1.430	7.525	59.714	0.850
Employee turnover	0.859	0.724				
Absenteeism rate	0.743	0.581				
Employee satisfaction	0.649	0.663				
Investment in	0.573	0.689				

Factors/variables	Factor loadings	Communa-lities	Eigen-value	% of Variance	Cummula-tive % of Variance	Cronbach alpha coefficient
employee training/education						
Number of trained employees	0.539	0.653				
Factor 4			1.115	5.868	65.581	0.765
Cooperation with the municipality	0.826	0.700				
Cooperation with local residents	0.785	0.679				
Number of cultural events in hotel company	0.742	0.607				
Guest satisfaction	0.512	0.499				
Total			12.461	65.581		0.910

Source: Author

Note: Extraction Method: Principal Component Analysis. Rotation Method: Oblimin with Kaiser Normalization.

The 19 environmental and social performance variables are grouped into four factors, explaining 65.581% of the total variance in the data. Factor loadings range from 0.488 to 0.859, which is considered relatively high. This shows that item correlation with the loaded factors is reasonably high.

In addition, item communalities are checked and exceed the accepted values of 0.5 (Hair et al., 2006). Results range from 0.499 to 0.775, implying that variables have sufficient levels of variance explanation.

The extracted factors can be interpreted as follows:
Factor 1 – "resources and waste" includes six variables that explain 39.585 per cent of the variance. This factor deals with resources used in the production process of products and services and waste recycling.
Factor 2 – "environmental output and renewable materials" combines four variables and explains 12.604 per cent of the variance. It represents environmental outputs and renewable materials.
Factor 3 – "internal social performance" captures five variables that explain 7.525 per cent of the variance. It relates to the internal stakeholder performance.
Factor 4 – "external social performance" includes four variables, explaining 5.868 per cent of the variance. It measures the external stakeholder performance.

In the next step, reliability analysis is performed. Results in Table 25 show that Cronbach's alpha coefficients of the factors range from 0.765 to 0.880. These values are above the minimum value of 0.60, which is regarded as satisfactory as an indication of scale reliability. These results suggest good internal consistency of the factors. Additionally, items to total correlations are examined and are above the threshold of 0.5 that Hair et. al. (2006) propose. Cronbach's alpha value of 0.910 indicates high reliability of the measurement instrument.

3.3. Stochastic frontier analysis

Stochastic frontier (SF) analysis is an approach in econometric modelling of the given economic output, most frequently production, cost, revenue or profit with respect to the relevant inputs. It is typically used to estimate business inefficiency for non-financial or financial enterprises. Since the initial appearance of the SF model in the work of Aigner et al. (1977), numerous and more complex versions of SF modelling have proliferated in the literature. However, basic cross-sectional SF model can be depicted by a set of following equations and assumptions (1):

$$y_i = \beta_0 + x_i'\beta_i + \varepsilon_i,$$
$$\varepsilon_i = v_i \pm u_i,$$
$$v_i \sim N(0, \sigma_v^2),$$
$$u_i \sim F(\Theta).$$

Opposite to the standard econometrical models, error term ε_i the SF approach consists of two elements:

- v_i - standard error term with desirable assumptions on normal distribution with zero mean and homoscedastic variance, which reflects the aggregate impact of all variables randomly affecting given outcome, beyond management's control;
- u_i – the so-called inefficiency disturbance term following some kind of the asymmetric distribution, which measures inefficiency as a consequence of "poor management".

Without u_i term, all disturbances of the given outcome would be the consequences of completely random effects, thus the regression line in such case represents "efficient outcome". Inefficiency disturbance term u_i measures how much outcome of the given company deviates from efficient outcome due to poor management. If the given outcome is production, revenue or profit, u_i enters the model with a negative sign, meaning that the inefficient outcome is lower than efficient, while the opposite holds for the cost modeling.

The central issue of SF modelling is the choice of a proper assumption on the distribution of inefficiency terms. Traditionally, three assumptions on inefficiency term distribution are frequently used in SF analysis:

- Half-normal distribution, proposed by Aigner et al. (1977). This is a one-sided form of normal distribution, with density function starting at zero value and monotonously decreasing toward the positive values;
- Truncated normal distribution, proposed by Stevenson (1980). It is similar to half-normal, with the main difference being that density function is truncated from the left at zero value, regardless of the point at which it reaches its peak.
- Exponential distribution, proposed by Meeusen and van den Broeck (1977).

SF regression models are typically estimated by method of Maximum Likelihood. This brings about estimation of error term residuals $\widehat{\varepsilon_i}$, but not the estimation of inefficiency terms $\widehat{u_i}$, which is a prior interest of SF analysis. According to Belotti et al. (2012), the most well-known solutions of this problem are proposed by Jondrow et al. (1982) and Battese and Coelli (1988), based on the conditioning of expectation of u_i on the values of ε_i, $\widehat{u_i} = E(u_i|\varepsilon_i)$.

Initial work on the specification of SF cross-sectional models has been further extended to panel data modelling. Notable examples include the SF panel models of Battesse and Coelli (1988, 1992) assuming truncated normal distribution and Kumbhakar (1990) assuming half-normal distribution. In addition, Greene (2005) developed SF panel model that allows the assumption of heteroscedasicity in terms of inefficiency.

SF modelling when examining efficiency in the hotel business has rarely been applied in the previous work dealing with this issue, mostly concerning estimation of cost (in)efficiency. Anderson et al. (1999) estimated the cost function on a sample of 48 US hotels in 1994, assuming truncated normal distribution of inefficiency terms. Chen (2007) estimated the relative efficiency of 55 Taiwan hotels in 2002, based on the assumption of half-normal distribution. Hu et al. (2010) conducted similar research on efficiency of hotels in Taiwan, but used panel data covering 66 hotels for the period between 1997-2006. In this research we applied a similar approach as in previous works, with the main difference being that, instead of cost, our objective is modelling revenue. We decided to use revenue function that maximizes output with the same level of inputs, while the cost function works on minimizing inputs which can affect the level of service quality that can have serious consequences in the hotel business.

The starting point of the modelling is revenue frontier function, given in the following form (Chen, 2007):

$$R = f(x, u, v) = f(x)e^{v-u},$$

where x denotes the vector of inputs. In regard to the original specification of the frontier function for the purpose of cost estimation, we omitted the output vector.

From the theoretical specification of revenue frontier function, the following empirical SF model for panel data is derived:

$$\ln(R_{i,t}) = \beta_0 + \sum_{j=1}^{4} \ln(x'_{i,t})\beta_j + v_{i,t} - u_{i,t},$$

where $R_{i,t}$ is a value of revenue of a given hotel *i* at time *t*, while $\{x_{i,t}\}_j$ denotes a set of input vectors including material costs (*cmat*), costs of salary (*csal*), number of employees (*nemp*) and number of rooms (*nroom*). The model is estimated using Battese and Coelli's (1992) estimation procedure, assuming truncated normal distribution. Very similar results are also obtained when the model is estimated by Kumbhakar's (1990) estimation procedure, assuming half-normal distribution.
The model is estimated using pooled OLS estimator. Results of the model estimation are presented in Table 26. Estimation results show that, other than the cost of salary, all other input variables significantly contribute to the explanatory power of the model.

Table 26: Estimation of SF revenue model

Variable (logs)	**Constant**	**Material cost**	**Labor cost**	**No. of employees**	**No. of rooms**
Coefficient	6.977427***	0.505644***	-0.0477897	0.3576046***	0.2561358***
Standard error	(0.5928857)	(0.0562584)	(0.037276)	(0.0598882)	(0.0490853)

Note: Standard errors in the parenthesis.
Levels of significance: * p<0.1, ** p<0.05, *** p<0.01

Eventually, we estimated the efficiency for each hotel/year within the sample. Estimation of revenue efficiency *RE* is derived from the relation between efficient frontier of revenue function (assuming no inefficiency terms) and estimated revenue function of given hotel and year, as explained by the following equation:

$$RE_{i,t} = \frac{R_{i,t}^{eff}}{R_{i,t}} = \frac{f(\mathrm{x}_{i,t};\beta)e^{v_{i,t}}}{f(\mathrm{x}_{i,t};\beta)e^{v_{i,t}-u_{i,t}}} = e^{u_{i,t}}.$$

Table 27 presents descriptive statistics of efficiency.

Table 27: Descriptive statistics of efficiency

	N	Minimum	Maximum	Mean	Std. Deviation
Efficiency	173	0.26	0.95	0.78	0.13948

Source: *Author*

Although the initial sample was 228 (76 companies multiplied with three years), the sample size is 173 since not all data was available for all companies concerning inputs and outputs. The lowest performing hotel is 26% efficient, while the highest performing hotel company is 95% efficient. The mean value is 78%.

An estimate of the hotel efficiency as a dependent variable is further used in regression analysis, which relates a certain group of factors that are identified as the possible sources of the hotel business inefficiency.

3.4. Hypothesis testing

To examine the relationship between the set of independent variables of environmental and social performance and the dependent variable of economic performance, hierarchical multiple regression analysis is used. Hierarchical multiple regression is, in effect, an approach to empirical analysis rather than an estimation method *per se*. We use the hierarchical multiple regressions' approach to test and illustrate whether or not and to which extent the enter of our main explanatory variables contributes to the rise in explanatory power of the model, after controlling for size and stars characteristics. In the technical sense, hierarchical multiple regressions may be implemented throughout any econometric estimation method, including Ordinary Least Squares -OLS (containing Fixed Effects estimator - FE), Generalized Least Squares GLS (containing Random Effects estimator - RE), or Instrumental Variable approach - IV (containing Generalized Method of Moments - GMM or 2-stage Least Squares - 2SLS), etc.

Independent variables are computed by calculating means of items included in the extracted factor (Morgan et al., 2004). Thus, these items will be treated as one variable. In this way, four new variables are created: factor 1 – resources and waste, factor 2 – environmental output and renewable materials, factor 3 – internal social performance, factor 4 – external social performance. Efficiency is used for the dependent variable and for the control variables star rating as well as for the size of the hotel company.

The relationship can be represented with the following equation:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + e$$

Where:

Y – dependent variable ‘efficiency’
β_0 – intercept or constant
β_1 – mean change in efficiency (Y) associated with the unit change in star rating/size (X_1)
β_2 – mean change in efficiency (Y) associated with the unit change in ‘resources and waste’ (X_2)
β_3 – mean change in efficiency (Y) associated with the unit change in ‘environmental output and renewable materials’ (X_3)
β_4 – mean change in efficiency (Y) associated with the unit change in ‘internal social performance’ (X_4)
β_5 – mean change in efficiency (Y) associated with the unit change in ‘external social performance’ (X_5)

X_1 – independent variable star rating/size
X_2 – independent variable ‘resources and waste’
X_3 – independent variable ‘environmental output and renewable materials’
X_4 – independent variable ‘internal social performance’
X_5 – independent variable ‘external social performance’

e – prediction error (residual)

It is important to mention that the use of star rating and size as control variables helps in reducing possible issues of non-representativeness of our sample. In conformity with this type of study, sample representativeness may be influenced by the sample selection bias, i.e. the fact that a certain group of companies were more willing to give response than others (for example, hotels with a 5 star rating are more willing to give response than hotels with 2 stars). In such cases, the simplest method to correct for selection bias, is to include regression variables that control for sample selection (Soderbrom, 2011). On the other hand, our sample is well-diversified across counties, so there was no need to control for geographical dispersion.

In this work, pooled OLS is applied as an estimation method within the hierarchical multiple regressions approach, as we considered it to be the most appropriate method (among the panel estimation alternatives including FE, RE or IV). The inappropriateness of other alternatives is discussed after the results' presentation.

The analysis is conducted on the sample size of 173. This sample size meets the requirements of preferably 100 observations, and the preferred ratio 15:1 of observations to variables (Hair et al., 2010).

Multicollinearity of variables is examined before conducting the multiple regression analysis. Correlation coefficients are presented in Table 28.

Table 28: Correlation matrix for independent variables (N = 173)

Variables	**1.**	**2.**	**3.**	**4.**	**5.**	**6**
1. Size	1.000					
2. Star rating	0.290*** (0.000)	1.000				
3. Resources and waste	0.279*** (0.000)	0.150** (0.024)	1.000			
4. Environmental output and renewable materials	0.077 (0.157)	0.025 (0.371)	0.678*** (0.000)	1.000		
5. Internal social performance	0.206*** (0.003)	0.132** (0.042)	0.509*** (0.000)	0.383*** (0.000)	1.000	
6. External social performance	0.241*** (0.001)	0,127** (0.048)	0,373*** (0.000)	0,290*** (0.000)	0,550*** (0.000)	1.000

Note: p-values in the parenthesis.

Levels of significance: * p<0.1, ** p<0.05, *** p<0.01

It can be noticed that all independent variables are correlated with each other, and results reveal a positive, statistically significant relationship. The only insignificant relationship is the one between the 'star rating/size' and the 'environmental output and renewable materials' variables. The cut-off value of 0.8 is not surpassed, suggesting that there is no multicollinearity problem (Bryman & Cramer, 2009).

After the examination of collinearity, hierarchical regression is performed. For the sake of testing robustness of the estimates, we run three separate regressions with respect to the control variable included in the model: star rating only, size only and both star rating and size. Each regression is estimated in two phases. In the first stage, denoted as Model 1, the star control variable is entered, and in the second stage (Model 2), four factors - resources and waste, environmental output and renewable materials, internal social performance and external social performance - are entered into the equation. The obtained results are demonstrated in Table 29.

Table 29: Hierarchical multiple regression results (N=173)

Model	**Only star rating**		**Only size**		**Both star rating and size**	
Variables	**Model 1**	**Model 2**	**Model 1**	**Model 2**	**Model 1**	**Model 2**
Star rating	0.050*** (0.014)	0.032** (0.013)			0.041*** (0.015)	0.032** (0.013)
Size			0.042** (0.014)	0.012 (0.014)	0.029* (0.015)	0.003 (0.014)
Resources and waste		0.125*** (0.021)		0.127*** (0.022)		0.123*** (0.022)
Environmental output and renewable materials		-0.111*** (0.021)		-0.113*** (0.021)		-0.110*** (0.021)
Internal social performance		0.023 (0.018)		0.024 (0.018)		0.023 (0.018)
External social performance		0.005 (0.017)		0.005 (0.017)		0.004 (0.017)
Constant	0.604*** (0.051)	0.553*** (0.067)	0.710*** (0.026)	0.643*** (0.057)	0.588*** (0.051)	0.553*** (0.067)
Model fit						
Multiple R	0.263	0.536	0.219	0.512	0.299	0.536
R^2	0.069	0.287	0.048	0.262	0.089	0.287
Adjusted R^2	0.064	0.266	0.042	0.240	0.079	0.262
Standard error	0.136	0.120	0.137	0.122	0.134	0.120
R^2 change	0.069	0.218	0.048	0.214	0.089	0.198
F ratio	12.716	13.456	8.632	11.885	8.354	11.158
Significance	0.000	0.000	0.004	0.000	0.000	0.000

Note: Standard errors in the parenthesis.

Levels of significance: * p<0.1, ** p<0.05, *** p<0.01

Dependent variable: efficiency; Model 1: independent variable – star rating/size; Model 2: independent variables – star rating/size, resources and waste, environmental output and renewable materials, internal social performance, external social performance.

Star ratings only

Hierarchical multiple regression demonstrates the following results. There is a moderately strong (R = 0.536) relationship between efficiency as a dependent variable and star rating, resources and waste, environmental output and renewable materials, internal social performance and external social performance, as independent variables. Looking at the coefficient of determination (R^2 = 0.287) and the adjusted coefficient of determination (adjusted R^2 = 0.266), it is inferred that the five factors explain about 28% of the efficiency variance. Similar values of R^2 and adjusted R^2 in the model, suggest good explanatory power of the efficiency as the dependent variable. A significant *F*-ratio (F = 13.456, p <

0.01), indicates that the adopted model results did not happen by accident and that the set of independent variables significantly predicts the dependent variable.

After controlling for star rating, which explains about 7% of the efficiency variable results, and introducing the factors resources and waste, environmental output and renewable materials, internal social performance and external social performance, the total variance explained increases to 28.7%, which is the difference of 21.8 percentage points (R^2 change = 0.218). Results show that Model 2 better predicts efficiency than Model 1.

Additionally, beta coefficients are delivered to evaluate the importance of independent variables of environmental and social performance, in relation to the independent variable of efficiency. As presented in Table 2, efficiency is significantly influenced by three independent variables. The first is the 'resources and waste' variable ($\beta = 0.125$, $p < 0.01$) that has the highest statistically significant coefficient. The 'environmental output and renewable materials' factor ($\beta = -0.111$, $p < 0.01$) is in second place, followed by 'star rating' ($\beta = 0.032$, $p < 0.05$). The least important independent variables in this regression model are 'internal social performance' ($\beta = 0.023$, $p > 0.05$) and 'external social performance' ($\beta = 0.005$, $p > 0.05$), implying that these factors have the lowest impact on efficiency. In addition, the impacts of the 'internal social performance' and 'external social performance' factors are not statistically significant, while the effect of the 'environmental output and renewable materials' factor, are negative.

The tested regression model can be interpreted in the following way:

$Y = 0.553 + 0.032$ star rating $+ 0.125$ resources and waste $- 0.111$ environmental output and renewable materials $+ 0.023$ internal social performance $+ 0.005$ external social performance $+ e$

The most important predictor of efficiency in this research is the 'resources and waste' variable. According to the results, a one-unit increase in 'resources and waste' would result with 12.5 pp increase in the efficiency of Croatian hotels, with other variables being held constant. 'Environmental output and renewable materials' turns out to be the second most important factor affecting efficiency. A one-unit increase in 'environmental output and renewable materials' leads to an 11.1 pp decrease in efficiency, with other variables being held constant. Star rating is the third most important factor affecting efficiency. A one-unit increase in star rating leads to 3.2 pp increase in efficiency, other variables being held constant. Furthermore, internal social performance and external social performance appear to be the fourth and fifth factors influencing efficiency in this study. Results show that a one-unit increase in internal social performance result with 2.3 pp increase, and a one-unit increase in external social performance results with 0.5 pp increase in efficiency, other variables being held constant. However, these factors do not have a statistically significant impact on efficiency.

Size only

The procedure is same as for the previous model, In the first stage, the control size variable is entered, and in the second stage the remaining four independent variables are added.
There is a moderately strong (R = 0.512) relationship between size, resources and waste, environmental output and renewable materials, internal social performance and external social performance and efficiency, as a dependent variable. According to the coefficient of determination (R^2 = 0.262) and the adjusted coefficient of determination (adjusted R^2 = 0.240), the five factors explained approximately 25% of the efficiency variance. Since R^2 value and the adjusted R^2 value are similar, the regression model in this research has good explanatory power of the dependent variable. In addition, the significant *F*-ratio (F = 11.885, $p < 0.01$) suggests that the results of the adopted regression model could not have occurred by chance and that the combination of the independent variables significantly predict the dependent variable.

After controlling for size, which explains about 5% of results in the efficiency variable, by introducing the factors resources and waste, environmental output and renewable materials, internal social performance and external social performance, the total variance explained increases to 26.2 %, which is the difference of 21.4 percentage points (R^2 change = 0.214). Results show that Model 2 better predicts efficiency than Model 1.

Furthermore, beta coefficients are delivered to evaluate the importance of the independent variables in determining the values of the dependent variable. It is clear from the above table that, 'resources and waste' and 'environmental output and renewable materials' significantly influence efficiency. The 'resources and waste' variable ($\beta = 0.127$, $p < 0.05$), is the most relevant independent variable that influences efficiency, while it has the highest statistically significant standardized coefficient. This is followed by the 'environmental output and renewable materials' variable ($\beta = -0.113$, $p < 0.01$), 'internal social performance' ($\beta = 0.024$, $p > 0.05$), and 'size' ($\beta = 0.012$, $p > 0.05$). 'External social performance' ($\beta = 0.005$, $p > 0.05$) is the variable with the least importance in the model, meaning that it has the lowest impact on efficiency. In addition, impacts of the 'internal social performance', 'size', and 'external social performance' variables are not statistically significant, while effect of the 'environmental output and renewable materials' factor is negative.

The tested regression model can be interpreted in the following way:

Y = 0.643 + 0.012 size + 0.127 resources and waste – 0.113 environmental output and renewable materials + 0.024 internal social performance + 0.005 external social performance + *e*

The most important predictor of efficiency in this study is the ‘resources and waste’ variable. According to the results, a one-unit increase in ‘resources and waste’ results with a 12.7 pp increase in the efficiency of Croatian hotels, with other variables being held constant. ‘Environmental output and renewable materials’ turned out to be the second most important factor affecting efficiency. A one-unit increase in ‘environmental output and renewable materials’ leads to 11.4 pp decrease in efficiency, with other variables being held constant. 'Internal social performance' is the third most important factor affecting efficiency. A one-unit increase in ‘internal social performance’ leads to a 2.4 pp increase in efficiency, with other variables being held constant. The following factors: ‘internal social performance’, ‘size’ and ‘external social performance’ appear to hold fourth and fifth place in the importance of influencing efficiency in this study. The results show that a one-unit increase in size results with a 1.2 pp increase in efficiency, while unit increase in external social performance results with a 0.5 pp increase in efficiency, with other variables being held constant. However, these variables do not have a statistically significant impact on efficiency.

Both star rating and size

Eventually, we estimate and interpret regression, including both star rating and size as control variables, according to the same procedure as in previous cases.

There is a moderately strong (R = 0.536) relationship between size, resources and waste, environmental output and renewable materials, internal social performance and external social performance and efficiency, as a dependent variable. As expected, the coefficient of determination (R^2 = 0.299) is higher than in previous regressions, while the adjusted coefficient of determination (adjusted R^2 = 0.262) is close to the value from the first regression. This indicates that adding size to the right-hand side of the equation does not contribute significantly to the rise of the model explanatory power. Altogether, six independent variables explain approximately 30% of the efficiency variance. Since the R^2 value and the adjusted R^2 value are similar, the regression model confirms solid explanatory power in explaining variations of the dependent variable. In addition, the significant *F*-ratio (F = 11.885, $p < 0.01$), suggests that results of the adopted regression model could not have occurred by chance, and that combination of independent variables significantly predicts the dependent variable.

After controlling for star rating and size, which explains about 9% of results in the efficiency variable, introducing the factors resources and waste, environmental output and renewable materials, internal social performance and external social performance, the total variance explains increases to 29.9 %, which is the difference of around 20 points (R^2 change = 0.198).

Moreover, we discuss separate values of regression coefficients to evaluate the importance of independent variables in determining the values of the dependent variable. It is clear from table 29 that 'resources and waste' and 'environmental output and renewable materials' significantly influence efficiency, as in the two previous regressions. The 'resources and waste' variable ($\beta = 0.123$, $p < 0.05$) is the most relevant independent variable that influences efficiency, as it has the highest statistically significant standardized coefficient. This is followed by the 'environmental output and renewable materials' variable ($\beta = -0.110$, $p < 0.01$), 'star rating' ($\beta = 0.032$, $p < 0.05$), and 'internal social performance' ($\beta = 0.023$, $p > 0.05$). The variables 'size' ($\beta = 0.003$, $p > 0.05$) and 'External social performance' ($\beta = 0.004$, $p > 0.05$), are variables with the least importance in the model, meaning that they have the lowest impact on efficiency. In addition, impacts of the 'internal social performance', 'size', and 'external social performance' variables are not statistically significant, while the effect of the 'environmental output and renewable materials' factor is again negative.

The tested regression model can be interpreted in the following way:

$Y = 0.553 + 0.032$ star rating $+ 0.003$ size $+ 0.123$ resources and waste $- 0.110$ environmental output and renewable materials $+ 0.023$ internal social performance $+ 0.004$ external social performance $+ e$

The analysis of the predicting power of single regressors, confirm the finding that the most important predictor of efficiency is the 'resources and waste' variable. According to the results, a one-unit increase in 'resources and waste' results with a 12.3 pp increase in the efficiency of Croatian hotels, with other variables being held constant. 'Environmental output and renewable materials' turn out to be the second most important factor affecting efficiency. A one-unit increase in 'environmental output and renewable materials' leads to a 11 pp decrease in efficiency, with other variables being held constant. The rest of the variables have a similar predictive power, as discussed in previous models.

The comparison between all three estimated regressions, reveals very strong robustness of the estimated relations between efficiency as a dependent variable and our main regressors of interest measuring the socio-environmental impact, regardless of the control variables included in the model. This has been indicated throughout the similar and considerable incremental rise in the explanatory power across the regression when socio-environmental factors are added, ranging from 0.198 (both control variables are included) to 0.218 (only star rating included). In addition, size, direction of impact and statistical significance of particular regression coefficients' estimates are stable across the regression specifications, for example, values of the most important predictor, 'Resources and waste', range from 0.123 to 0.127. Some of the independent variables are found to be insignificant. However, if one of the independent variables (even though not significant) is excluded from the specification, this can influence the significance levels of other independent variables

(Leech et al., 2005). For this reason, the multiple regression model provides adequate and significant results, meaning that, star rating, size, resources and waste, environmental output and renewable materials, internal social performance, external social performance, can be used as significant predictors of efficiency in the Croatian hotel industry.

We consider other panel estimation alternatives as well, including fixed effects (FE), random effects (RE) or instrumental variables (IV). However they have eventually been dismissed having suffered from serious drawbacks, as discussed further in the text.

It is reasonable to employ the *IV method (2SLS or GMM),* if there is a serious suspicion that the independent variable may be endogenous and most likely correlated to the disturbance term. While we cannot utterly reject the possibility of endogeneity, at least some of the independent variables or their components, the IV method would be extremely hard to apply, as it requires an appropriate selection of instrumental variables, in order to instrument the endogenous independent variable. In regard to the design of independent variables, adequate instruments that would theoretically fulfill assumptions on high co-linearity with independent variables and orthogonally to the disturbance term, are not available or their relevance cannot be stated with high reliability.

The RE estimator, based on the error-component regression model, is grounded on a very strong theoretical assumption stating that the unobserved individual effect is not correlated to any independent variable. Thus, RE estimator is typically engaged in the studies explicitly targeting to capture effects of time-invariant variables like gender of religion at price of questioning efficiency of estimation, which is not a prior task in case of our analysis. In addition, we have no *a priori* beliefs, which can be theoretically approved, that individual effects are random in nature; and even if we assume so, hypothesizing on relevant distribution (including standard Gaussian) of individual effects cannot be justified based on theoretical grounds, in the same sense as it can be done when observation units are individual persons. Eventually, we run Hausman test to check whether in pure technical sense RE estimator may be more efficient than FE. In the first instance, we found Hausman test is not possible to run, as shown in the next table. Failure to run Hausman test is typically interpreted as the strong evidence that null hypothesis should be rejected (see for example Stata, n.d.), i.e. that RE is not consistent estimator. In order to avoid negative value of chi square statistic, we assure the same estimate of the error variance throughout the calculation, first assuming that the covariance matrices is based on the estimated disturbance variance from the efficient estimator (FE) and then from consistent estimator (RE). In both cases Hausman test suggests rejection of Ho and RE, as shown in the next two tables.

Table 30: The Hausman test results based on FE covariance matrix

		Hausman test1
χ^2		15.39
Prob χ^2	>	0.0174

Source: *Author*

Table 31: The Hausman test results based on RE covariance matrix

		Hausman test2
χ^2		16.34
Prob χ^2	>	0.0121

Source: *Author*

While the Hausman test, having less restrictive theoretical assumptions and nature of the observations altogether, suggests that the *FE estimator* may be a better solution in relation to the RE estimator in the pure technical sense, we firmly believe that FE estimates may not produce reliable estimates, given the size and panel structure of the sample. As we are dealing with a sample with a short time span (three time units) and a considerably large number of panel units relative to only three time units, the FE estimator would significantly reduce the degrees of freedom available in estimation. If we assume that we estimate FE using the Least Square Dummy Variables approach (LSDV), it effectively means that we introduce more than seventy new dummy variables for each hotel, beside 5-6 explanatory and control variables. This would significantly reduce information content of the sample and produce highly unreliable estimates of regression coefficients, standard errors and R-square. A similar effect will be realized, too, if we estimate FE by within transformation of the data, as each within transformation will reduce one degree of freedom.

In summary, we consider that pooled OLS estimator is an overwhelming solution with respect the to nature of the research, sample characteristics, maximization of degrees of freedom and restrictiveness of underlying estimation assumptions.

Eventually, we take into account possible concerns that classical assumptions on disturbance term do not hold. The application of straightforward implementation of standard diagnostic tests may not be appropriate on panel data structures. For example, the DW statistics for residuals correlation neglects differences in intergroup and intragroup correlations. Instead, we re-estimate regressions using estimators of variance, robust to

possible failures, with the assumption that disturbance term follows the IID process. The most usual robust estimator is the Huber-White (HW) sandwich estimator. However, it relies on a strong assumption that observations are not correlated, which is not likely to hold in panel data structures with high probability of intragroup correlation (i.e. within autocorrelation of observations for each hotel unit). Thus, we apply HW after clustering observations per each hotel, arguably assuming only intergroup non-correlation of observations.

Table 32:Huber-White estimates

Variables	**Only star rating**	**Only size**	**Both star rating and size**
Star rating	0.032*		0.032
	(0.018)		(0.020)
Size		0.012	0.003
		(0.017)	(0.018)
Resources and waste	0.125***	0.127***	0.123***
	(0.047)	(0.043)	(0.046)
Environmental output and renewable materials	-0.111***	-0.113***	-0.110***
	(0.029)	(0.030)	(0.029)
Internal social performance	0.023	0.024	0.023
	(0.024)	(0.026)	(0.025)
External social performance	0.005	0.005	0.004
	(0.017)	(0.026)	(0.025)
Constant	0.553***	0.643***	0.553***
	(0.085)	(0.084)	(0.086)
Model fit			
R^2	0.287	0.262	0.287

Note: Standard errors in the parenthesis.
Levels of significance: * p<0.1, ** p<0.05, *** p<0.01
Dependent variable: efficiency; Model 1: independent variable – star rating/size; Model 2: independent variables – star rating/size, resources and waste, environmental output and renewable materials, internal social performance, external social performance.

As expected, estimated standard errors of regression coefficients turn to be underestimated in basic regressions (Table 29), but overall results do not significantly change, as illustrated in the following table (actually the only notable difference is the decrease in statistical significance of star rating).

3.5. Discussion

The results revealed moderately strong, positive and significant relationships between the combination of factors and efficiency, implying that highly perceived star rating (for the first model), size (for the second model), resources and waste, environmental output and renewable materials, internal social performance and external social performance lead to higher efficiency in Croatian hotels. These results imply that the main study hypothesis is confirmed (H1) and that socio-environmental performance have a significant effect on economic performance. These results are in accordance with the "good management' approach (Garriga & Melé, 2004) and social impact hypothesis (Freeman, 1984; Preston & O'Bannon, 1997) where satisfaction of stakeholders positively contributes to economic performance. Other research that investigated socio-environmental and economic relationships but with different variables come to similar conclusions (Lee & Park, 2009).

Looking at environmental and social performance separately in relation to economic performance, somewhat different results can be found. Environmental performance in this research is divided to 'environmental resources and waste' and 'environmental output and renewable materials'. With regard to the relationship between 'environmental resources and waste' and efficiency it has been found that the relationship is positive and significant. To put it in another way, for hotel companies who better perform in the areas of water, energy, detergents and cleaning agents and paper consumption, environmental protection expenditures and investments and waste recycling, will contribute to higher efficiency. This is in consonance with previous empirical research where minimization of environmental impact, reduction in energy, water and resources consumption will lead to raising efficiency and cost minimization (Porter & van der Linde, 1995). There is also evidence that investment in environmental practices positively reflects on financial performance (Singal, 2014).

Considering the relationship between 'environmental output and renewable materials' and the hotel companies' efficiency, we find a negative and significant relationship, meaning that increasing indoor air quality, lowering direct greenhouse and noise emissions and increased use of renewable materials, will lead to lowered efficiency. One of the possible explanations for receiving these results, as noted in King and Lenox (2001), is that data for several years is needed to fully test the relationship, whilst this research includes data for only three years and could provide different results if tested with more longitudinal data. These results conform to the trade-off hypothesis where environmental protection expenditures raise costs and in this manner reduce a company's financial performance (Vance, 1975; Aupperle, Carroll & Hatfield, 1985; Preston & O'Bannon, 1997). Similar results have also been found by Wagner, Van Phu, Azomahou, and Wehrmeyer (2002) and Wagner (2005). González-Benito and González-Benito (2005) arrived to the same results while their study of environmental activities like installation of emission filters, negatively influenced economic performance. These findings can be further elaborated in the way that

better performance in these areas requires significant resources in terms of cost and time that can negatively impact a companies' financial performance while they can't be incorporated in the selling price (Klassen & Whybark, 1999). Additionally, research in Croatia demonstrated that the main obstacles for the introduction of environmental responsibility among tourism companies are lack of information, insufficient financial incentives and lack of organizational support (the Nature, Environment and Sustainable Development Association and the Green Istria Association, 2009).

Bearing in mind the above-mentioned facts, it can be concluded that the sub-hypothesis H1a is partially confirmed, while the relationship between environmental performance considering 'environmental resources and waste' and economic performance is positive and significant. The relationship between environmental performance presented as 'environmental output and renewable materials' and economic performance is negative and significant.

Turning to the question of the relationship between social performance and economic performance in the 'internal social performance' and 'external social performance' variables, it is found that the relationship is not significant, implying that social performance has no effect on economic performance. These results reject sub-hypothesis H1b that states that social performance has a significant and positive effect on economic performance. These findings are also in contrast to previous studies in other countries (Benavides-Velasco et al., 2014; Assaf, Josiassen, Cvelbar & Woo, 2015). Inoue and Lee (2011) came to similar conclusions where their research results indicated that there is no significant effect of diversity issues and employee relations on financial performance. This can be supported further with the Kang et al. (2010) study where there was no influence of positive and negative corporate social activities on profitability in the hotel and restaurant industry.

Possible reasons for obtaining these results can be found in the following facts. The level of awareness about the importance of sustainability is very low in Croatia, while it is estimated that only 10-15% of entrepreneurs in tourism are aware about sustainability principles and the significance of their implementation (the Nature, Environment and Sustainable Development Association and the Green Istria Association, 2009). Another study in Croatia affirms these results by observing that corporate social responsibility is still not widely accepted by Croatian hotel companies (Golja & Krstinic Nizic, 2010). This notion is also supported by this study where similar results have been found where hotel respondents answered that only 5% of them have a department for sustainable development and 20% of them have adopted a sustainability policy or plan. Turning to the solely social performance, Žilić (2012) investigated business excellence on the sample of Croatian hotel companies and found that hotel managers evaluate importance of social responsibility with the lowest grade. Mičić (2006) identified crucial problems in the area of human resources in Croatian tourism. First, around 80% of the employment contracts are temporary

contracts ranging from 15 days to a few months. Furthermore, recently there has been a significant increase of employment through various employment agencies that has increased the insecurity of working positions of employees. This situation does not help create the necessary preconditions for raising service quality. It is also important to mention that the average monthly salary in the hospitality industry is around 15% lower than the average monthly salary in Croatia (Business Journal, 2015). Additionally, Mičić (2006) emphasizes that black market employment in tourism in Croatia is rampant, with the industry ranked third for black market employment, after the construction and trade industry and in these cases the employees' employment rights are usually not respected.

Concerning education, Mičić (2006) highlights that there is not enough cooperation between educational institutions and hotel companies and that lifelong learning and internal training in hotel companies is often neglected. Croatia and Montenegro have the highest seasonality in Europe (Eurostat, 2014a) which creates high employee turnover rates. Additionally, Croatia has the third highest unemployment rate in Europe after Greece and Spain. Here, it is important to emphasize that only 10% of employees in the hospitality industry have post-secondary education qualifications (Sabol Opačić & Bogdan, 2010), and the majority of jobs in the hospitality industry require a primary or secondary school education. Having these facts in mind, it can be noted that if employees are not satisfied with their working conditions, as a result of high unemployment and low levels of education and training required for these positions, employers can easily find new employees, contributing to the high industry turnover rate.

The obtained results indicate that social performance does not have any effect on economic performance. Bearing in mind the previous points, it can be concluded that social performance in the Croatian hotel industry is undermined and neglected what could be the main reason for these non-significant results. If hotel companies start to improve their internal and external social performance, this could lead to different results.

Moreover, one of the reasons for obtaining these results could also be that hotel companies are not measuring some of the indicators and the respondents answered the questions according to their estimation. Another argument can be that sustainability accounting isn't established or isn't fulfilling its role. If accountants aren't closely engaged with the management, performance management systems cannot efficiently operate. They have to be involved in all the stages of the management process. First, in the process of planning to ensure that the plans are coordinated. Afterwards, it has to be included in establishing the organizational structure in order to be able to prepare the reporting systems. Thirdly, sustainability accounting has to communicate hotel companies' performance in a timely manner in order that managers can control their activities and make corrective actions if necessary. Only when all of these actions are inline, can sustainability performance have value for a hotel company.

Since sustainability accounting is still in development, there are different open issues. With regard to the standardization of indicators, the calls for standardization can be conflicting with the integrated performance management theory. On one hand, the integrated performance management theory suggests that every company has its own unique strategy, and measures only what is considered strategically relevant to its business (Schaltegger & Wagner, 2006b). Therefore, every report has to be different. On the other hand, the calls for standardization endorse unified reports. A significant difference can also be seen in the quantity of indicators that each of them require. Integrated performance management systems usually involve a smaller number of strategically important indicators, while sustainability reports as a communication instruments, usually need to deliver larger number of information to satisfy their stakeholders. Hotel companies have a difficult task: to find the balance between these two issues. Sustainability reporting guidelines should not be blindly followed. Every hotel company needs to adopt and implement them, according to their strategically important goals. The purpose of guidelines should not be to impose, but rather to lead and support companies in the process of establishing information systems and preparing reports. Specific and detailed reporting guidelines can be of valuable assistance, not only by reducing the resources necessary to design performance management systems and make reports, but also by allowing benchmarking between other hotel companies. It cannot be expected that the reports are completely comparable, as every hotel company has its specific characteristics and distinct strategy. However, if the guidelines are followed, some degree of comparability can be achieved and bring wider benefits to hotel companies and their stakeholders.

IMPLICATIONS AND CONCLUSIONS

1. Theoretical and methodological implications

The theoretical contributions of this study can be seen through delivering a comprehensive framework that links sustainable development, sustainability management and sustainability accounting in the context of the hotel industry. This is especially valuable since there is a lack of research in this field.

The first contribution can be used to provide a detailed overview of sustainability development, its definition as a multidimensional concept and explanation of economic, environmental and social dimensions as its components that closely interact with each other. Additionally, the evolution and advancements of sustainable development at the global level over the last two centuries have been disclosed and a critical overview is delivered.

The second contribution is recognized through presenting the outline of sustainability management and its role in implementing sustainability in hotel companies. The process of sustainable strategic management and its stages is demonstrated with the actions that hotel companies need to undertake to successfully implement sustainability into their practices. Moreover, a sustainability balanced scorecard is interpreted as a tool for sustainability strategy implementation and evaluation. Different approaches on how to integrate sustainability into a balanced scorecard are identified and the current state of adoption in business practices is evaluated. Likewise, a critical perspective of the area is provided.

The third contribution lies in sustainability accounting. First, the place of sustainability accounting in the process of sustainability management is provided. Afterwards, stages of sustainability accounting development are discussed from the early stage of social and environmental accounting to triple bottom line accounting and sustainability accounting as the most advanced form of accounting for sustainable development. This is followed by principles of sustainability accounting that explain how sustainability accounting information must be prepared and what characteristics it needs to have. Subsequently, current developments in sustainability reporting are described alongside with frameworks for sustainability reporting and sustainability key performance measures. This is a contribution to establishing a coherent sustainability accounting framework.

Likewise, a contribution is made in describing tourism, the hotel industry and sustainability in Croatia. This contribution can be seen in the evaluation of the current state of sustainability practices in Croatia.

In addition, empirical findings of this research confirm the "good management' approach (Garriga & Melé, 2004) and the social impact hypothesis (Freeman, 1984; Preston & O'Bannon, 1997), claiming that hotel company socio-environmental performance contributes to economic performance.

Alongside theoretical contributions, this doctoral dissertation offers several methodological contributions. The first contribution of this research is in the development of a new measurement instrument for measuring environmental and social performance in the hotel industry. This socio-environmental measurement instrument is tested for reliability and validity. It is adapted to the specifics of the hotel industry by a meta-analysis of current studies in this field and hotel companies' sustainability reports in addition to using expert opinions to improve face validity. It measures resources used in the production process of products and services from the environmental perspective and environmental outcomes that arise from this processes. From the social perspective, it measures issues related to internal and external stakeholders.

Another contribution is visible in the measurement of efficiency as a variable of economic performance. This is the first study that employs stochastic frontier analysis for measuring efficiency as a combination of material cost, labour cost, number of employees and number of rooms as inputs and revenue as output.

The following methodological contribution can be seen as the development of a hierarchical multiple regression model that combines four variables of environmental and social performance as independent variables and efficiency, estimated using the stochastic frontier analysis, as the dependent variable in addition to size and star rating as control variables.

Additionally, a novelty can also be seen in the inclusion of a new country that has not been investigated in this way before. This research can be applied to other countries that have similar conditions such as high dependence on tourism and emphasis on seaside tourism that is limited to one part of the year.

2. Managerial implications

From a practical point of view, this dissertation offers various managerial implications. Hotel managers are often hesitant to implement sustainability in their practices while they have limited resources and do not realize potential benefits of implementing sustainability in their strategic objectives. This research has proven that socio-environmental performance has a positive effect on economic performance and therefore provides evidence that can be persuasive for hotel managers to change their practices and implement sustainability activities into their business. In addition, since there are still many hotel companies that do not measure aspects of social and environmental performance, the

indicators used in the analysis can be adapted for sustainability measurement. This can also be a significant basis for formulating sustainability management systems and preparing sustainability reporting. The selection process of indicators included extensive analysis and involvement of expert consultants with extensive knowledge in management, accounting, controlling and auditing in the hotel industry and in that way the suitability of selected indicators is very high for hotel companies. This supports the formulation of solutions acceptable in the conditions in which hotels in the hospitality industry operate. Moreover, the efficiency measurement can be used for benchmarking between hotel companies and as a basis for evaluating competitive advantage. In this way hotel companies can see how their performance is in comparison to their competitors, identify weaknesses, reduce risks and consequently improve performance. In this way this research will provide direct assistance to hotel managers in both their operational and strategic decision-making processes.

3. Limitations and future research implications

One of the main limitations of this research is that environmental and social performances are measured using perceptual measurements. The underlying reason for using perceptual measurements instead of hard data is that managers are very reluctant to participate in research where they need to reveal confidential business information. Additionally, it would be too time consuming to fill in all the environmental and social performance measurements. Future research should be focused on using hard data as a substitute of perceptual measurements for environmental and social performance. Concerning the questionnaire, there are no addressed questions about the role of accounting in establishing a sustainable performance management system, about hotel companies' implementation of integrated performance management systems and hotel companies' strategic goals. Furthermore, the questionnaire has been constructed in such a way that questions about environmental and social performance do not allow respondents the option to answer ‘this is not applicable to our company/ we do not measure this indicator’. This could be a suggestion for a measurement instrument improvement for future studies. Another limitation of this study is that the examination spans only three years and 76 hotel companies. It would be beneficial to include more companies and more longitudinal data that could lead to different results.

Another limitation is that the relationship is tested only on a sample of Croatian hotel companies. It would be advisable to test it in other countries to obtain higher generalizability of the results. It is also suggested to further expand this research to other service industries. Likewise, efficiency as a dependent variable could be examined using different inputs and outputs. Similarly, besides stochastic frontier analysis, efficiency could be measured with data envelopment analysis or some other economic performance measure to test if there are any differences between the results.

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APPENDICES

LIST OF APPENDICES

APPENDIX A – Indicators used in the proces of measurement instrument development

Social indicators	
Number of employees	NH Hotels, 2013; ONYX Hospitality Group, 2014.
Percentage of employees by division	Shangri-la Hotels and Resorts, 2013.
Proportion of Team Members by gender	Caesars Entertainment, 2013; ONYX Hospitality Group, 2014; Shangri-la Hotels and Resorts, 2013.
Proportion of Team Members by age group	Caesars Entertainment, 2013; Shangri-la Hotels and Resorts, 2013; InterContinental Hotels Group, 2014; ONYX Hospitality Group, 2014.
Proportion of Team Members by employment type (full-time, part-time)	Caesars Entertainment, 2013; ONYX Hospitality Group, 2014.
Proportion of Team Members by employment contract (Indefinite or permanent contract- Fixed or temporary contract)	Caesars Entertainment, 2013; ONYX Hospitality Group, 2014.
Proportion of Team Members by number of working days	ONYX Hospitality Group, 2014.
Turnover by age and gender	EMAS Easy, n.d.; Brown, 1996; Caesars Entertainment, 2013; Enjoy, 2013; Shangri-la Hotels and Resorts, 2013; ONYX Hospitality Group, 2014.
% of turnover (voluntary/non-voluntary) by gender and age	Caesars Entertainment, 2013; GRI, 2013b; NH Hotels, 2013.
Proportion of turnover by region (local/non-local/international)	ONYX Hospitality Group, 2014.
Proportion of turnover by employment type (full-time/part-time)	ONYX Hospitality Group, 2014.
Proportion of turnover by employment contract (permanent contract/ temporary contract)	ONYX Hospitality Group, 2014.
New hires	Caesars Entertainment, 2013.
Number of new hires by	Caesars Entertainment, 2013; ONYX Hospitality Group,

Social indicators	
age and gender	2014.
total number and rate of new employee hires by age group, gender and region	EMAS easy, n.d.; Brown, 1996; GRI, 2013b; Marriott, 2012.
Proportion of new hires by number of working days	ONYX Hospitality Group, 2014.
Employees on call	Hyatt Hotels Corporation, 2011.
Length of service	InterContinental Hotels Group, 2014.
Medical insurance	Enjoy, 2013.
Incentives linked to employees performance	Starwood hotels and resorts, 2013.
Reduction of absenteeism rate for maternity leave	NH Hotels, 2013.
Percentage of women in management positions	GRI, 2013b.
Percentage of employees that agree that the company is a favorable place to work	Starwood hotels and resorts, 2013.
% of working hours of full-time employes	Hyatt Hotels Corporation, 2011; Accor, 2013.
% of working hours of part-time employes	Hyatt Hotels Corporation, 2011; Accor, 2013.
% of management in total workforce	Accor, 2013.
Employee health and safety	Ricaurte, 2012.
N° of professional diseases per year by gender	Enjoy, 2013; GRI, 2013b; Starwood hotels and resorts, 2013.
Type of injuries by gender	GRI, 2013b; Starwood hotels and resorts, 2013; ONYX Hospitality Group, 2014.
Rates of injuries by gender	GRI, 2013b; Starwood hotels and resorts, 2013; ONYX Hospitality Group, 2014.
Injury rate per 100 employees	Caesars Entertainment, 2013.
Injury severity rate per 100 employees	Caesars Entertainment, 2013.
Accidents per year (total and percentage) by gender	Enjoy, 2013; GRI, 2013b; Shangri-la Hotels and Resorts, 2013; Starwood hotels and resorts, 2013.
Number of lost days due to	EMAS easy, n.d.; Accor, 2013; GRI, 2013b; Starwood hotels

Social indicators	
diseasesa and accidents by gender	and resorts, 2013.
Lost Day Rate	Caesars Entertainment, 2013; Shangri-la Hotels and Resorts, 2013.
Lost days and absenteeism by gender	GRI, 2013b; Starwood hotels and resorts, 2013; ONYX Hospitality Group, 2014.
N° of mortal victims per year	Enjoy, 2013.
Total no. of work-related fatalities by gender	GRI, 2013b; Starwood hotels and resorts, 2013; ONYX Hospitality Group, 2014.
No.of employees that quit smoking	Caesars Entertainment, 2013.
Reduction of absenteeism rate caused by illness	NH Hotels, 2013.
Reduction of absenteeism rate caused by accidents	NH Hotels, 2013.
Environmental activities for employees (eg. Number of seminars or environmental education hours per employee)	Mihalič et al., 2012; Cvelbar & Dwyer, 2013.
Average hours of training per year per employee by gender and by employee category	EMAS easy, n.d.; ONYX Hospitality Group, 2014.
Training hours per employee (on environmental issues)	EMAS easy, n.d..
Average number of days/hours of training per employee (for manager, for non-manager)	Ricaurte, 2012;Accor, 2013; EMAS Easy, n.d.; Meliá Hotels International, 2013.
Trained employees per gender and age	Caesars Entertainment, 2013; NH Hotels, 2013.
Trainde employees per area (F&B, housekeeping, Front office…)	NH Hotels, 2013.
Number of employees having attended at least on training course (managers,	Accor, 2013;

Social indicators	
non-managers)	
Hours of internal training	NH Hotels, 2013.
Hours of external training	NH Hotels, 2013.
Hours of e-learning	NH Hotels, 2013.
Total hours spent in training	Caesars Entertainment, 2013.
Investment in training	EMAS easy, n.d.; NH Hotels, 2013.
Percentage of employees receiving regular performance and career development reviews by gender	GRI, 2013b; Hyatt Hotels Corporation, 2013; ONYX Hospitality Group, 2014.
Training of employees	The Hong Kong & Shanghai Hotels, 2010; Mihalič et al., 2012; Cvelbar & Dwyer, 2013.
Number of employee training and development programs	Wadongo et al., 2010.
Employee performance appraisal ratings	Wadongo et al., 2010.
Diversity or local hiring percentage	Ricaurte, 2012
Percentage of immigrants in total number of employees	NH Hotels, 2013.
Percentage of disabled people in total number of employees	NH Hotels, 2013; Shangri-la Hotels and Resorts, 2013.
Percentage of women in management positions	The Hong Kong & Shanghai Hotels, 2010; Hyatt Hotels Corporation, 2011; Accor, 2013; Caesars Entertainment, 2013; NH Hotels, 2013; Nordic Choice Hotels, 2013; InterContinental Hotels Group, 2014.
% of men in management	The Hong Kong & Shanghai Hotels, 2010; Hyatt Hotels Corporation, 2011; Accor, 2013; InterContinental Hotels Group, 2014.
Ethnicity and Race information	Hyatt Hotels Corporation, 2011.
% female employees in non-management	Hyatt Hotels Corporation, 2011; InterContinental Hotels Group, 2014.
% male employees in non-management	Hyatt Hotels Corporation, 2011; InterContinental Hotels Group, 2014.

Social indicators	
Ratio of basic salary and remuneration of women to men	GRI, 2013b.
Salary ratios and comparison of minimum wage and gender	Ricaurte, 2012.
Suppliers: serve fairtrade-certified products	EMAS Easy, n.d.; The Rezidor Hotel Group, 2013.
Percentage of food from fair trade	EMAS easy, n.d..
Freedom from oppression, mistreatment and violence	Bohdanowicz, Simanic & Martinac, 2005.
Policies allowing freedom of association	Hyatt Hotels Corporation, 2011; Ricaurte, 2012
Policies against sexual exploitation	Ricaurte, 2012
Policies against child labour	Hyatt Hotels Corporation, 2011; Ricaurte, 2012.
Policies against discrimination	Hyatt Hotels Corporation, 2011; Ricaurte, 2012.
Total hours of employee training on policies and procedures concerning aspects of human rights	GRI, 2013b; Starwood hotels and resorts, 2013.
Participation in local community organisations	The Hong Kong & Shanghai Hotels, 2010.
Percentage of operations with implemented local community engagement	GRI, 2013b; Starwood hotels and resorts, 2013.
local community satisfaction	Bohdanowicz et al. 2005.
Cooperation with the municipality	Mihalič et al., 2012; Cvelbar & Dwyer, 2013.
Cooperation with local residents	Mihalič et al., 2012; Cvelbar & Dwyer, 2013.
Satisfaction of local residents with the development of tourism	Mihalič et al., 2012; Cvelbar & Dwyer, 2013.
Cooperation with non-governmental	Mihalič et al., 2012; Cvelbar & Dwyer, 2013.

Social indicators	
environmental organizations	
Participation in the overall strategy of sustainable development of tourism in the destination	Mihalič et al., 2012.
Actions and membership in networks that support tourism development and destination	Cvelbar & Dwyer, 2013.
Promoting local entrepreneurship	EMAS Easy, n.d.; Nyahunzvi, 2012; Ferus-Comelo, 2014;
Anti-corruption	
Communication and training on anticorruption policies	GRI, 2013b; Starwood hotels and resorts, 2013.
Public Policy	
Total value of political contributions	GRI, 2013b; Starwood hotels and resorts, 2013.
% of guests that participate in sustainability programs	Ricaurte, 2012.
Customer satisfaction	EMAS Easy, n.d.;Bohdanowicz et al., 2005; Wadongo et al., 2010; Marriott, 2012; Ricaurte, 2012; Caesars Entertainment, 2013; Cvelbar & Dwyer, 2013; GRI, 2013b; Meliá Hotels International, 2013) Nordic Choice Hotels, 2013; The Rezidor Hotel Group, 2013; Shangri-la Hotels and Resorts, 2013; Starwood hotels and resorts, 2013;
Customer satisfaction level	Molina-Azorín et. al., 2009.
Guest evaluations of attitude, behavior, and expertise of employees	Wadongo et al., 2010.
Guest evaluations of design facilities renovations and maintenance	Wadongo et al., 2010.
Guest evaluations of benefits gained such as relaxation, exercise, and refreshment	Wadongo et al., 2010.
Guest satisfaction score by	ONYX Hospitality Group, 2014.

Social indicators	
performance of departments	
Value for Money Scores	NH Hotels, 2013.
Share of guests who evaluate quality vs. price ratio as very high	Mihalič et al., 2012; Cvelbar & Dwyer, 2013.
Number of customer complaints	Brown, 1996; Banker, Potter & Srinivasan, 2005.
Share of guests who formally complain in written form	Mihalič et al., 2012.
Share of highly satisfied guests	Mihalič et al., 2012; Cvelbar & Dwyer, 2013.
Share of highly satisfied guests by segments (individual, group, allotment)	Cvelbar & Dwyer, 2013.
Share of returning guests who have stayed at hotel at least three times	Mihalič et al., 2012; Cvelbar & Dwyer, 2013.
Likelihood of guests to return	Banker et al., 2005.
Percentage of guests that come back (within 5 years)	EMAS easy, n.d..
Share of guests who evaluate quality as very high	Mihalič et al., 2012.
Share of guests who would recommend the hotel to friends and acquaintances	Mihalič et al., 2012.
Share of new guests	Mihalič et al., 2012.
Privacy Protection program	Hyatt Hotels Corporation, 2011.
Ability to meet customer requirements on time	Wadongo et al., 2010.
Delivering guest products and services on time	Wadongo et al., 2010.
Level of ICT usage	Wadongo et al., 2010.
number of web site visits	Mihalič et al., 2012.
Employee satisfaction	Molina-Azorín et. al., 2009.

Social indicators	
level	
Employee satisfaction with salaries (in comparison with other hotels)	Mihalič et al., 2012; Cvelbar & Dwyer, 2013.
Employee satisfaction with working conditions	Mihalič et al., 2012; Cvelbar & Dwyer, 2013.
Employee satisfaction	EMAS easy, n.d..
Monitoring of performance of individual employee innovators	Wadongo et al., 2010.
Number of product and services innovated per year	Wadongo et al., 2010; Mihalič et al., 2012.
Hotel suppliers delivering on time	Wadongo et al., 2010.
Hotel suppliers meeting standard purchasing specification	Wadongo et al., 2010.
Share of local dishes on offer	Mihalič et al., 2012; Cvelbar & Dwyer, 2013.
Percentage of regional foods	EMAS easy, n.d..
Number of cultural events in the hotel enterprise	Mihalič et al., 2012; Cvelbar & Dwyer, 2013.
Share of reservations within total demand/inquiries	Mihalič et al., 2012.
Awareness/recognition of hotel enterprise's brand in key markets	Mihalič et al., 2012.
Monitoring of the implementation of hotel's sustainable/ecologic development strategy	Mihalič et al., 2012.
No. of property owners informed about hotels sustainability programs and activities	The Rezidor Hotel Group, 2013.

Environmental indicators	
Purchase of ecological products	Molina-Azorín et. al., 2009.
Detergents and cleaning agents	EMAS easy, n.d.; Bohdanowicz et al., 2010.
Consumption of cleaning products per square meter	França et al., 2003.
Percentage of environmentally friendly detergents	EMAS easy, n.d..
chemicals used in kg/year	EMAS easy, n.d.; Bohdanowicz et al., 2010; The Hong Kong & Shanghai Hotels , 2010.
Total paper purchase	ONYX Hospitality Group, 2014.
Paper usage	EMAS easy, n.d.; NH Hotels, 2013; Ricaurte, 2012.
Average paper purchase per room	ONYX Hospitality Group, 2014.
Paper consumption per employee	EMAS easy, n.d..
Renewable materials used	GRI, 2013b.
Non-renewable materials used	GRI, 2013b.
Reduction in the use of environmentally dangerous products	Molina-Azorín et. al., 2009.
Power generated from solar power	NH Hotels, 2013.
Energy consumption	EMAS Easy, n.d.; França et al., 2003; Bohdanowicz et al., 2010; The Hong Kong & Shanghai Hotels, 2010; Hyatt Hotels Corporation, 2011; Mihalič et al., 2012; Accor, 2013; Cvelbar & Dwyer, 2013; GRI, 2013b; NH Hotels, 2013; Shangri-la Hotels and Resorts, 2013; Starwood hotels and resorts, 2013; Ferus-Comelo, 2014; InterContinental Hotels Group, 2014.
Direct energy consumption by primary energy source	Hyatt Hotels Corporation, 2013.
Consumption of energy per type of energy consumed	França et al., 2003.
Energy price by unit	Enjoy, 2013.
Consumption of energy per room	França et al., 2003; Accor, 2013; Starwood hotels and resorts, 2013.
Consumption of energy per	França et al., 2003.

Environmental indicators	
guest	
Energy consumption per night	EMAS Easy, n.d..
Energy consumption per m2	The Hong Kong & Shanghai Hotels, 2010.
Liquefied petroleum gas	ONYX Hospitality Group, 2014.
Gas consumption (kgs)	Caesars Entertainment, 2013; Enjoy, 2013; ONYX Hospitality Group, 2014.
Gas usage per food cover	Chan, 2008.
Propane	Caesars Entertainment, 2013.
Diesel fuel for motor vehicles (litres)	ONYX Hospitality Group, 2014.
Diesel fuel for generator (litres)	ONYX Hospitality Group, 2014.
Bunker oil (litres)	ONYX Hospitality Group, 2014.
Oil/Petrol consumption	Enjoy, 2013.
Total Electricity Consumption	EMAS easy, n.d.; Caesars Entertainment, 2013; Enjoy, 2013; GRI, 2013b; ONYX Hospitality Group, 2014.
Electricity Consumption (kHw) per occupied room night	Chan, 2008; ONYX Hospitality Group, 2014.
Consumption of energy from renewable resources (eg. Biomass, solar, geothermal, wind, energy, photovoltaic, etc.)	EMAS easy, n.d.; Mihalič et al., 2012; Ricaurte, 2012; Cvelbar & Dwyer (2013)
Percentage of renewable energies	EMAS Easy, n.d..
Purchased steam	Caesars Entertainment, 2013; GRI, 2013b.
Chilled water	Caesars Entertainment, 2013.
Cooling consumption	GRI, 2013b.
Heating consumption	EMAS easy, n.d.; GRI, 2013b.
Reduction of energy consumption per year	Caesars Entertainment, 2013; GRI, 2013b; NH Hotels, 2013; Starwood hotels and resorts, 2013.
Reduction of energy requirements of products and services	Starwood hotels and resorts, 2013.
Energy saved due to conservation and efficiency improvements	Hyatt Hotels Corporation, 2013.

Environmental indicators	
Indirect energy consumption by primary source	Hyatt Hotels Corporation, 2013.
Energy efficiency initiatives	Accor, 2013.
Water consumption	EMAS Easy, n.d.; The Hong Kong & Shanghai Hotel, 2010; Hyatt Hotels Corporation, 2011; Mihalič et al., 2012; Accor, 2013; Cvelbar & Dwyer, 2013; Enjoy, 2013; GRI, 2013b; NH Hotels, 2013; Shangri-la Hotels and Resorts, 2013; Starwood hotels and resorts, 2013; Ferus-Comelo, 2014; InterContinental Hotels Group, 2014; ONYX Hospitality Group, 2014.
Consumption of water per guest	França et al., 2003; Nordic Choice Hotels, 2013.
Consumption of water per room	Starwood hotels and resorts, 2013.
Water use per occupied room night	ONYX Hospitality Group, 2014.
Water consumption / night	Emas Easy, n.d..
Potable water consumption (kL/guest-night)	Bohdanowicz et al., 2005; The Hong Kong & Shanghai Hotels, 2010.
Total water use by source (trucks/wells/local authority)	Hyatt Hotels Corporation, 2013; ONYX Hospitality Group, 2014.
Amount and percentage of water reused in the hotel	Emas Easy, n.d.; França et al., 2003; Hyatt Hotels Corporation, 2011; GRI, 2013b; Starwood hotels and resorts, 2013.
Recycle water	Mihalič et al., 2012; Accor, 2013; Cvelbar & Dwyer, 2013.
Reduction of water consumption per year	Caesars Entertainment, 2013; GRI, 2013b; NH Hotels, 2013; Starwood hotels and resorts, 2013.
% Savings on water consumption	Enjoy, 2013; Starwood hotels and resorts, 2013.
Participation in conservation efforts	Pereira, Mykletun & Hippolyte, 2012.
Noise emission	Enjoy, 2013.
Dust emission	Enjoy, 2013.
Direct greenhouse emissions	EMAS easy, n.d.; Commission on Sustainable Development, 2002) The Hong Kong & Shanghai Hotels, 2010; Hyatt Hotels Corporation, 2011; Mihalič et al., 2012; Accor, 2013; GRI, 2013b; Hyatt Hotels Corporation, 2013;

Environmental indicators	
	NH Hotels, 2013; Nordic Choice Hotels, 2013; Shangri-la Hotels and Resorts, 2013; Starwood hotels and resorts, 2013; InterContinental Hotels Group, 2014; ONYX Hospitality Group, 2014.
Carbon emission (kgs of CO2 equivalent) per occupied room night	ONYX Hospitality Group, 2014.
CO2 equivalents/ night	Emas Easy, n.d.
CO2 equivalents / employee	Emas Easy, n.d.
CO2 equivalents from business trips	Emas Easy, n.d.
CO2 equivalents from commuting	Emas Easy, n.d.
Energy indirect greenhouse emissions	Mihalič et al. (2012); Caesars Entertainment (2013); GRI (2013b); Hyatt Hotels Corporation (2013); Starwood hotels and resorts (2013)
Reduction of greenhouse gas emissions	Caesars Entertainment (2013); GRI (2013b); NH Hotels (2013); Nordic Choice Hotels (2013); Starwood hotels and resorts (2013).
Indoor air quality	The Hong Kong & Shanghai Hotels (2010)
Waste	Emas Easy, n.d.
Waste disposal	EMAS easy (n.d.); Hyatt Hotels Corporation (2011); Ferus-Comelo (2014)
Waste / night	Emas Easy, n.d.
Solid waste production (m3 of landfilled waste/guest-night)	Bohdanowicz et al. (2010)
Bio waste	Emas Easy, n.d.
Leftovers	Emas Easy, n.d.
Recyclables	Emas Easy, n.d.
Recycling waste	Mihalič et al., 2012; Cvelbar & Dwyer, 2013.
Reducing food waste	Nordic Choice Hotels, 2013.
Total amount of waste by type and disposal method complete	Hyatt Hotels Corporation, 2013; Nordic Choice Hotels, 2013.
Quantity of solid waste	Mihalič et al., 2012; Cvelbar & Dwyer, 2013.
Residual waste (kg and l/guest day)	Nordic Choice Hotels, 2013.
Amount of residues	Nordic Choice Hotels, 2013.

Environmental indicators	
produced monthly per guest	
Hazardous Waste (tonnes)	GRI, 2013b; ONYX Hospitality Group, 2014.
Non-Hazardous Waste (tonnes)	GRI, 2013b; ONYX Hospitality Group, 2014.
Proportion of Non-hazardous Waste to Reuse	ONYX Hospitality Group, 2014.
Proportion of Non-hazardous Waste to Recycle	ONYX Hospitality Group, 2014.
Proportion of Non-hazardous Waste to Landfill	ONYX Hospitality Group, 2014.
Discharged water	GRI, 2013b; ONYX Hospitality Group, 2014.
Number of various chemicals	Nordic Choice Hotels, 2013.
Reduce the consumption of chemical (gram/guest night)	Nordic Choice Hotels, 2013.
Replacing environmentally harmful chemicals	Nordic Choice Hotels, 2013.
Number of initiatives implemented by the hotel to prevent pollution	França et al., 2003.
Recycling (kgs)- glass-paper-plastic-aluminum	ONYX Hospitality Group, 2014.
Average paper recycle per room	ONYX Hospitality Group, 2014.
Recycling waste	Cvelbar & Dwyer, 2013.
Waste reduction and recycling	Bohdanowicz et al. 2005; Hyatt Hotels Corporation, 2011; InterContinental Hotels Group, 2014.
Waste reduction per year	NH Hotels, 2013.
Percentage of recycled paper	Emas Easy, n.d.
Total environmental protection expenditures and investments by type	GRI, 2013b; Starwood hotels and resorts, 2013.
Cost of Treatment & Elimination of waste	Enjoy, 2013.
Prevention and	GRI, 2013b.

Environmental indicators	
environmental management costs	
Waste disposal, emissions treatment, and remediation costs	GRI, 2013b.
Costs associated with environmental aspects of the process	França et al., 2003.
Percentage of suppliers with certified environmental management	Emas Easy, n.d.
Percentage of new suppliers that were screened using environmental criteria	GRI, 2013b; Starwood hotels and resorts, 2013.
Suppliers: serve organic-certified food items	Emas Easy, n.d.; Pereira, Mykletun & Hippolyte, 2012; The Rezidor Hotel Group, 2013.
Achieving environmental targets	Brown, 1996; The Hong Kong & Shanghai Hotels, 2010; GRI,2013b; Starwood hotels and resorts, 2013.
Frequency of equipment breakdown	Wadongo et al., 2010.
Environmental awards	Hyatt Hotels Corporation, 2011; Nyahunzvi, 2012.
Environmental activities per guests	Mihalič et al., 2012; Cvelbar & Dwyer, 2013.
Participation in environmental conservation schemes and projects	Wadongo et al., 2010.
Number of environmental projects undertaken by the hotel	Wadongo et al., 2010.
Selecting plants that are adapted to a particular environment	Mihalič et al., 2012.
Planting at least one tree per year (% of hotel establishments)	Mihalič et al., 2012.
Environmental quality standards	Mihalič et al., 2012.

Environmental indicators	
Number of other ecological quality labels (eg. Green key, Green dot, EU flower, Blue flag)	Mihalič et al., 2012.
Activities related to ecological quality labels	Cvelbar & Dwyer, 2013.
Percentage of maximum bath towel changes	ONYX Hospitality Group, 2014.
Optional towel and linen reuse programs	Hyatt Hotels Corporation, 2011.

APPENDIX B - Questionnaire – English version

Dear Mrs. /Mr.,

I am Assistant at the Accounting department of Faculty of tourism and hospitality management in Opatija, Croatia.

Currently I am conducting my PhD research in the area of sustainability development in Croatian hotel industry. The aim of the research is to evaluate the level of monitoring and reporting of sustainability information and to investigate the relationship between environmental and social perspective with the economic perspective of sustainable development.

Questions are structured in such a way that you only need to provide your opinion in certain areas of business. Gathered information will be used only for scientific purposes. Research results will be shown anonymous, only as aggregated data.

Thank you for your feedback.

Yours sincerely,

Katarina Poldrugovac

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1. Name of the hotel company:

2. Number of hotels in the hotel company:

3. Your work position:

4. Does your company have a sustainable development policy or plan?
   - Yes
   - No, it is in the process of development
   - No

5. Do you have sustainability department?
   - Yes
   - No

6. Do you employ a person responsible for sustainability or environment in your company?
   - Yes
   - No

7. Does your company report on its Sustainable Development performance?
   - We report a separate Sustainability report
   - Sustainability report is integrated in the Annual report
   - We report environmental report
   - No
   - Other (please specify)

8. Frequency of sustainability reporting:
   - Monthly
   - Quarterly
   - On an annual level
   - Less frequently
   - We don't report
   - I am not familiar with this

9. Does your company have a centralized database for environmental data (energy consumption, water consumption, emissions....)?
   - Yes, our centralized database is accessible at corporate level

- Yes, our centralized database is accessible at hotel level
- Yes, our centralized database is accessible at department level
- No

10. Does your company have a centralized database for social data (employees, guests...)?

- Yes, our centralized database is accessible at corporate level
- Yes, our centralized database is accessible at hotel level
- Yes, our centralized database is accessible at department level
- No

11. Does your company have any sustainability certificates/ implemented standards or similar (ISO, Green hotel, Eco hotel....)?

- No
- Yes (please specify)

PLEASE EVALUATE YOUR COMPANY ENVIRONMENTAL AND SOCIAL PERFORMANCE IN RELATIONSHIP TO YOUR TARGET (BUDGET) IN THE FOLLOWING 3 YEARS.

12. Waste recycling

	Poor performance	Needs improvement	Performance meets expectations/target	Above target	Exceptional performance
2011	1	2	3	4	5
2012	1	2	3	4	5
2013	1	2	3	4	5

13. Energy consumption

	Poor performance	Needs improvement	Performance meets expectations/target	Above target	Exceptional performance
2011	1	2	3	4	5
2012	1	2	3	4	5
2013	1	2	3	4	5

14. Water consumption

	Poor performance	Needs improvement	Performance meets expectations/target	Above target	Exceptional performance
2011	1	2	3	4	5
2012	1	2	3	4	5
2013	1	2	3	4	5

15. Total paper purchase

	Poor performance	Needs improvement	Performance meets expectations/target	Above target	Exceptional performance
2011	1	2	3	4	5
2012	1	2	3	4	5
2013	1	2	3	4	5

16. Detergents and cleaning agents' consumption

	Poor performance	Needs improvement	Performance meets expectations/target	Above target	Exceptional performance
2011	1	2	3	4	5
2012	1	2	3	4	5
2013	1	2	3	4	5

17. Total environmental protection expenditures and investments

	Poor performance	Needs improvement	Performance meets expectations/target	Above target	Exceptional performance
2011	1	2	3	4	5
2012	1	2	3	4	5
2013	1	2	3	4	5

18. Indoor air quality

	Poor performance	Needs improvement	Performance meets expectations/target	Above target	Exceptional performance
2011	1	2	3	4	5
2012	1	2	3	4	5
2013	1	2	3	4	5

19. Direct greenhouse emissions

	Poor performance	Needs improvement	Performance meets expectations/target	Above target	Exceptional performance

2011	1	2	3	4	5
2012	1	2	3	4	5
2013	1	2	3	4	5

20. Noise emissions

	Poor performance	Needs improvement	Performance meets expectations/target	Above target	Exceptional performance
2011	1	2	3	4	5
2012	1	2	3	4	5
2013	1	2	3	4	5

21. Renewable materials used

	Poor performance	Needs improvement	Performance meets expectations/target	Above target	Exceptional performance
2011	1	2	3	4	5
2012	1	2	3	4	5
2013	1	2	3	4	5

22. Employee turnover

	Poor performance	Needs improvement	Performance meets expectations/target	Above target	Exceptional performance
2011	1	2	3	4	5
2012	1	2	3	4	5
2013	1	2	3	4	5

23. Absenteeism rate

	Poor performance	Needs improvement	Performance meets expectations/target	Above target	Exceptional performance
2011	1	2	3	4	5
2012	1	2	3	4	5
2013	1	2	3	4	5

24. Employee satisfaction

	Poor performance	Needs improvement	Performance meets expectations/target	Above target	Exceptional performance
2011	1	2	3	4	5
2012	1	2	3	4	5

	Poor performance	Needs improvement	Performance meets expectations/target	Above target	Exceptional performance
2013	1	2	3	4	5

25. Investment in employee training/education

	Poor performance	Needs improvement	Performance meets expectations/target	Above target	Exceptional performance
2011	1	2	3	4	5
2012	1	2	3	4	5
2013	1	2	3	4	5

26. Number of trained employees

	Poor performance	Needs improvement	Performance meets expectations/target	Above target	Exceptional performance
2011	1	2	3	4	5
2012	1	2	3	4	5
2013	1	2	3	4	5

27. Guest satisfaction

	Poor performance	Needs improvement	Performance meets expectations/target	Above target	Exceptional performance
2011	1	2	3	4	5
2012	1	2	3	4	5
2013	1	2	3	4	5

28. Cooperation with the municipality

	Poor performance	Needs improvement	Performance meets expectations/target	Above target	Exceptional performance
2011	1	2	3	4	5
2012	1	2	3	4	5
2013	1	2	3	4	5

29. Cooperation with local residents

	Poor performance	Needs improvement	Performance meets expectations/target	Above target	Exceptional performance
2011	1	2	3	4	5
2012	1	2	3	4	5

2013	1	2	3	4	5

30. Number of cultural events in hotel company

	Poor performance	Needs improvement	Performance meets expectations/target	Above target	Exceptional performance
2011	1	2	3	4	5
2012	1	2	3	4	5
2013	1	2	3	4	5

39. Personal information (not obligatory)

Name and surname:

E-mail:

40. Do you want to receive survey results?

- Yes
- No

Thank you for participating in the survey!

Katarina Poldrugovac

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APPENDIX C – Efficiency results

Hotel company	Efficiency
1	0.9054536
2	0.913888
3	0.9216242
4	0.7894847
5	0.8070353
6	0.8233426
7	0.8039465
8	0.820424
9	0.8357108
10	0.8784771
11	0.8891369
12	0.8989459
13	0.7423583
14	0.7632715
15	0.7828015
16	0.891867
17	0.9014304
18	0.9102168
19	0.9099336
20	0.9179919
21	0.925379
22	0.2827383
23	0.3189157
24	0.3556477
25	0.8520766
26	0.8648518
27	0.8766425
28	0.68528
29	0.7099631
30	0.7331626
31	0.9421985
32	0.9474881
33	0.9523157
34	0.9389483
35	0.9445219
36	0.9496112
37	0.6193081
38	0.6478622
39	0.6749228
40	0.5831648
41	0.613584

Hotel company	Efficiency
42	0.6425574
43	0.6605651
44	0.6867643
45	0.7114621
46	0.6166239
47	0.6451108
48	0.8265947
49	0.8413549
50	0.8550154
51	0.5852568
52	0.6155735
53	0.6444405
54	0.9119832
55	0.9198688
56	0.9270957
57	0.7946361
58	0.8118065
59	0.8277519
60	0.8084106
61	0.8245532
62	0.8395221
63	0.5992548
64	0.6288678
65	0.6570088
66	0.8145261
67	0.8302069
68	0.8447382
69	0.7777382
70	0.7961465
71	0.813272
72	0.9106984
73	0.9186922
74	0.9260195
75	0.7492018
76	0.76964
77	0.7887122
78	0.9182154
79	0.9255733
80	0.9323111
81	0.9109861
82	0.9189557
83	0.9262605
84	0.6807491

Hotel company	Efficiency
85	0.7057157
86	0.7291942
87	0.7923208
88	0.8096625
89	0.8257707
90	0.8134471
91	0.8292096
92	0.8438184
93	0.9217558
94	0.9288121
95	0.9352708
96	0.5463752
97	0.578485
98	0.6092387
99	0.8483521
100	0.8614208
101	0.8734875
102	0.6232136
103	0.6515548
104	0.6783996
105	0.9206729
106	0.9278217
107	0.9343657
108	0.9463392
109	0.9512652
110	0.9557583
111	0.5246711
112	0.557673
113	0.5893914
114	0.7465089
115	0.7671345
116	0.7863873
117	0.5860765
118	0.6163527
119	0.6451779
120	0.6818336
121	0.7067326
122	0.7301445
123	0.7496074
124	0.7700173
125	0.7890623
126	0.6841929
127	0.7089443

Hotel company	Efficiency
128	0.7322108
129	0.7040119
130	0.7274973
131	0.7495232
132	0.7591766
133	0.778914
134	0.7973126
135	0.5080959
136	0.5417235
137	0.5741332
138	0.7412369
139	0.7622275
140	0.7818322
141	0.8663467
142	0.8779859
143	0.8887112
144	0.9233372
145	0.9302585
146	0.9365922
147	0.277902
148	0.9385902
149	0.944195
150	0.949313
151	0.2596936
152	0.7820211
153	0.8001181
154	0.8169464
155	0.7212358
156	0.7435853
157	0.7645051
158	0.7528188
159	0.773004
160	0.7918327
161	0.8743549
162	0.8853489
163	0.8954704
164	0.8016177
165	0.8182693
166	0.8337214
167	0.8261576
168	0.8409514
169	0.8546436
170	0.8749539

Hotel company	Efficiency
171	0.8858994
172	0.8959755
173	0.6906277

APPENDIX D – Correlation matrix between factors

Measure	1.	2.	3.	4.
Factor 1	1.000			
Factor 2	0.663**	1.000		
Factor 3	0.494**	0.416**	1.000	
Factor 4	0.458**	0.377**	0.588**	1.000

**. Correlation is significant at the 0.01 level (2-tailed).

APPENDIX E - Summary in Slovenian language/Daljši povzetek disertacije v slovenskem jeziku

Doktorska disertacija je sestavljena iz uvoda, teoretičnega in empiričnega dela. Uvod vsebuje opis raziskovalnega problema, namen in cilje, hipotezo, opis znanstvenih metod, znanstveni prispevek ter strukturo disertacije. V teoretičnem delu je razložen termin trajnostni razvoj, njegova evolucija in trenutni dosežki. Sledi predstavitev trajnostnega managementa kot pogoja za udejanjanje trajnosti. V zadnjem delu je pojasnjeno trajnostno računovodstvo, njegov razvoj in vloga pri oblikovanju trajnostnega managementa. Predstavljena je tudi trenutna situacija v hrvaškem turizmu in hotelski panogi ter dosežki na področju trajnosti. V empiričnem delu je najprej izdelana konceptualizacija modela, sledi operacionalizacija konstrukta in razlaga postopka zbiranja podatkov. Nato so predstavljeni rezultati empirične raziskave. Na koncu so podana še priporočila in zaključki.

1. TEORETIČNO OZADJE

1.1. Trajnostni razvoj – zemljevid za prihodnost

V tem delu doktorske disertacije je navedena definicija trajnostnega razvoja. Opredelimo ga lahko kot večdimenzionalen pojem, ki je sestavljen iz medsebojno integriranih okoljskih, družbenih in ekonomskih vidikov (Svetovna komisija za okolje in razvoj, 1987; Dyllick in Hockerts, 2002; Hart in Milstein, 2003). Ekonomska dimenzija trajnostnega razvoja obravnava ekonomske cilje, in sicer rast, lastniški kapital in učinkovitost, hkrati pa ohranja kapital (Serageldin, Steer in Cernea, 1994; Brandon in Lombardi, 2005). Okoljska dimenzija trajnostnega razvoja skrbi za ravnotežje ekosistemov in okolja, njen glavni namen pa je integriteta ekosistema, vključno s kapaciteto, z biološko raznovrstnostjo in z globalnimi težavami (Serageldin et al., 1994; Lee, McNeill in Holland, 2000; Brandon in Lombardi, 2005). Družbena dimenzija trajnostnega razvoja vključuje dvig življenjskih standardov, njeni glavni cilji pa so krepitev moči, sodelovanje, družbena mobilnost, družbena kohezija in institucionalni razvoj (Barbier, 1987; Serageldin et al., 1994). Trajnostni razvoj bi moral predstavljati ravnotežje med rastjo in razvojem na eni strani ter ekološkimi, družbenimi in ekonomskimi vidiki na drugi. Med njimi mora obstajati ravnotežje in enakopravnost, sicer lahko pride do položaja, v katerem je en vidik trajnosti pomembnejši od drugega.

V nadaljevanju sta predstavljena evolucija in trenutno stanje trajnostnega razvoja. Težave, ki se pojavljajo pri pojmu trajnostni razvoj, segajo več tisoč let v preteklost, in sicer vse do nastanka človeštva in boja za zadostno količino sredstev za preživetje znotraj okoljskih omejitev (Ponting, 2007; Van Zon, 2002). Evolucijo trajnostnega razvoja lahko razdelimo na štiri časovna obdobja (Waas, Hugé, Verbruggen in Wright, 2011): začetek gibanja (do

leta 1970), obdobje neaktivnosti (1970–1986), čas velikih dosežkov (1987–1995) in obdobje upada (od 1996 dalje). Opazimo lahko, da je bilo veliko truda vloženega v spodbujanje trajnostnega razvoja. Zaznali smo tudi premik v mišljenju: »Če bi to izvedli …« se je spremenilo v »Kako bi to izvedli ...« Kljub temu bo potrebnega še veliko dela, da se bomo zavedali, da so ekonomske, okoljske in družbene dimenzije enakovredne ter neposredno povezane med sabo.

1.2. Trajnostni management

V tem poglavju je pojasnjen postopek strateškega managementa trajnostnega razvoja v hotelski panogi. Ta veja managementa zajema vse postopke, ki so nujni za integracijo trajnosti v strateško središče organizacij, vključno z notranjimi kognitivnimi, strateškimi, strukturnimi in operativnimi postopki, notranjimi ter zunanjimi povezavami, omrežji in odnosi, ki so ključnega pomena za delovanje na trajnostni način (Stead in Stead, 1996). Postopek strateškega managementa trajnostnega razvoja je sestavljen iz štirih stopenj: raziskovanje okolja, oblikovanje strategije, uresničevanje strategije in ocenjevanje ter kontrola (Wheelen in Hunger, 2011). Raziskovanje okolja je potrebno izvesti, da bi lahko ocenili trenuten položaj podjetja glede na njegovo okolje (Aguilar, 1967; Ackoff, 1970; Bourgeois, 1980). V tej fazi se zbere potrebne podatke za identifikacijo moči, pomanjkljivosti, priložnosti in groženj v notranjem ter zunanjem okolju. Managerji morajo pri oblikovanju strategije upoštevati trenutne tržne trende, oceniti kompetence podjetja in predvideti možne razvoje v prihodnosti (Iaquinto in Fredrickson, 1997; Ferrier, 2001). Uresničevanje strategije je postopek, ki prenese strategijo v konkretna dejanja, potrebna za doseganje ciljev hotelskega podjetja. Ocenjevanje strategije je zadnja stopnja v procesu strateškega managementa, v kateri se je potrebno odločiti, ali izbrana strategija izpolnjuje trajnostne pogoje.

V nadaljevanju je opravljena analiza trajnostne kartice dosežkov kot pripomočka za uresničitev in ocenitev trajnostne strategije. Trajnostna kartica dosežkov predstavlja orodje strateškega managementa, ki temelji na Nortonovem in Kaplanovem (1997) konceptu uravnoteženega sistema kazalnikov ter združuje trajnost z obstoječimi perspektivami. Lahko bi bila izredno koristna pri uresničevanju in ocenjevanju strategij, vendar še ni dovolj raziskana. Podani so bili že različni predlogi o načinu vključitve trajnosti v obstoječe perspektive, toda soglasje še ni bilo doseženo. Potrebne bodo nadaljnje raziskave, da bi dosegli najboljšo možno rešitev za integracijo trajnosti.

1.3. Trajnostno računovodstvo

Trajnostno računovodstvo je podatkovni sistem, ki meri, analizira in poroča o ekonomski, družbeni ter okoljski uspešnosti in lahko oskrbuje hotelske managerje s podatki, potrebnimi za podporo postopkov strateškega managementa trajnostnega razvoja. V tem

poglavju smo predstavili celostni okvir trajnostnega računovodstva. Na začetku smo orisali razvoj trajnostnega računovodstva in njegova načela, nato pa smo prikazali še trenutno stanje trajnostnega poročanja, okvirje za poročanje in njegovo vlogo pri vzpostavitvi managerskega sistema za trajnostno uspešnost poslovanja.

Trajnostno računovodstvo je še vedno v začetni fazi, saj ostaja še veliko odprtih vprašanj, med drugim tudi glede tega, ali gre za ločen računovodski sistem ali bi moral biti vključen v obstoječa računovodska področja. Pogosto se zgodi, da pomembnost trajnostnega računovodstva ni v celoti priznana, zato je treba vložiti veliko truda, da lahko doseže svoj cilj podajanja dragocenih trajnostnih informacij za strateški management.

1.4. Okoliščine raziskave - dejavniki trajnosti, turizma in hotelske industrije na Hrvaškem.

Turizem na Hrvaškem veliko prispeva k ekonomiji, toda njegovi potenciali niso v celoti izkoriščeni. To lahko opazimo v nizki stopnji zasedenosti, osredotočenosti na obmorska letovišča in hkratnemu zapostavljanju drugih vrst turizma. Turistični produkt se osredotoča zlasti na ponudbo morja, sonca in peska, zato bi bilo potrebno pripraviti diferenciacijo turističnega proizvoda. Turizem na Hrvaškem še zdaleč ni trajnosten, zato bo treba vložiti še veliko truda v strategijo, da bi popravili nastalo situacijo.

Na področju hotelske panoge na Hrvaškem lahko opazimo, da je večina hotelov zgoščena na štirih območjih. Ena izmed pozitivnih lastnosti je prevlada majhnih hotelov, toda nivo kakovosti je dokaj nizek, saj hoteli z dvema ali s tremi zvezdicami sestavljajo večino hotelskih nastanitev. Potrebne bodo korenite spremembe, da bomo lahko zadostili potrebam in trenutnim trendom hotelske panoge.

Ob analizi trajnosti na Hrvaškem smo ugotovili, da je že prišlo do bistvenega napredka pri udejanjanju trajnosti, toda potrebnega bo še veliko dela. Kljub vloženemu trudu je trajnostni razvoj še vedno v povojih, saj primanjkuje načrtov za njegovo uresničitev in vključitev v zakonodajno vejo. Položaj bi lahko med drugim izboljšali s spodbujanjem izobraževanja in ozaveščenosti na vseh ravneh.

2. ZASNOVA EMPIRIČNE RAZISKAVE

2.1. Konceptualni model

Preučevanje odnosov med družbeno in okoljsko uspešnostjo ter ekonomsko uspešnostjo predstavlja aktualno temo za raziskovalce, ki se ukvarjajo s pojavom trajnosti. Izdelane so bile že različne raziskave na tem področju, toda rezultati so se izkazali za negotove, saj so nekateri prikazali pozitiven, drugi negativen in spet tretji ničen odnos. Pomanjkanje

literature na področju hotelske panoge kaže na to, da je ta veja preučevanja premalo raziskana in potrebuje nadaljnje raziskave.

Na podlagi preučene literature pričakujemo, da bo odnos med trajnostno in ekonomsko uspešnostjo pozitiven, zato domnevamo sledeče:

H1: Trajnostna uspešnost ima pomemben in pozitiven vpliv na ekonomsko uspešnost.
H1a: Okoljska uspešnost ima pomemben in pozitiven vpliv na ekonomsko uspešnost.
H1b: Družbena uspešnost ima pomemben in pozitiven vpliv na ekonomsko uspešnost.

Okoljska uspešnost se nanaša na ocenjevanje managementskih aktivnosti in rezultatov, povezanih z naravnim okoljem. Družbena uspešnost se odraža v odnosih z notranjimi in zunanjimi zainteresiranimi stranmi. Ekonomska uspešnost hotelskega podjetja ocenjuje njegova sredstva, obveznosti in prisotnost na trgu tako v finančnem kot nefinančnem smislu.

Rezultati empirične raziskave so pokazali, da je glavna hipoteza potrjena. Trajnostna uspešnost ima pozitiven in pomemben odnos do ekonomske uspešnosti, kar pomeni, da večja okoljska in družbena uspešnost vodi do večje ekonomske uspešnosti.

2.2. RAZISKOVALNA METODA

Operacionalizacija konstrukta. Okoljska in družbena uspešnost. Da bi operacionalizirali okoljsko in družbeno uspešnost, smo pregledali širok izbor literature. V preteklih raziskavah so se posluževali različnih spremenljivk, toda nekatere izmed njih niso uporabne v hotelski panogi. V drugih raziskavah so uporabili kazalnike družbene odgovornosti podjetij (angl. CSR) ali Kinder Lydenburg Domini, ki pa niso na voljo za hotelska podjetja na Hrvaškem, zato smo se odločili, da oblikujemo lestvico za izmero okoljske in družbene uspešnosti. Najprej smo pripravili metaanalizo obstoječe literature s tega področja in trajnostnih poročil hotelskih podjetij. Zbrali smo različne kazalnike za družbeno in okoljsko uspešnost. Po treh stopnjah strokovne presoje smo pripravili deset kazalnikov okoljske uspešnosti in devet kazalnikov družbene uspešnosti.

Tradicionalne kazalnike ekonomske uspešnosti običajno določimo kot razmerje med dvema spremenljivkama (Thanassoulis, Boussofiane in Dyson, 1996), toda na tak način težko ocenimo skupno uspešnost podjetja. Ena izmed možnosti za oceno uspešnosti podjetja je učinkovitost, ki jo lahko določimo s pomočjo mejnih modelov, kot sta analiza ovojnice podatkov (angl. DEA) in stohastična analiza meja (angl. SFA). Prednost teh dveh modelov je ta, da lahko z njima merimo in nadzorujemo več dimenzij uspešnosti (Wöber, 2002). Čeprav gre za zelo podobna mejna modela, je med njima tudi nekaj razlik. Glavna razlika je v tem, da analiza ovojnice podatkov predstavlja neparametrično metodo, medtem

ko je stohastična analiza meja parametrična metoda. To pomeni, da prva za razliko od druge ne predpostavlja o verjetnostni razporeditvi. Analiza ovojnice podatkov je občutljiva na odstopanja, medtem ko se pri stohastični analizi meja ne pojavljajo težave v zvezi s tem. Zadnja razlikuje med nihanji od učinkovitosti do neučinkovitosti ter šuma, medtem ko prva ne. Po primerjavi teh dveh mejnih metod smo se odločili, da s pomočjo stohastične analize meja ocenimo učinkovitost hotelskega podjetja. Naša odločitev je temeljila zlasti na zgoraj omenjenih dejstvih in na pomanjkanju raziskav na področju hotelske panoge. Ob preučitvi literature se je izkazalo, da so kot vstopne spremenljivke najpogosteje uporabljeni stroški različnih oddelkov, na primer sob, hrane in pijače ter drugih oddelkov, stroški dela, operativni stroški, število zaposlenih, število sob in površina območja. Za izstopno spremenljivko smo izbrali operativni prihodek. Pogosto uporabljene izstopne spremenljivke so skupni prihodki ali dohodki, razdeljeni po oddelkih, in stopnja zasedenosti.

Ker raziskava zajema majhna, srednja in velika podjetja na Hrvaškem, ki različno poročajo o svojih rezultatih, so morale imeti spremenljivke skupno osnovo. Tako pri vstopnih in izstopnih spremenljivkah nismo mogli vključiti razčlenjenih stroškov in dohodkov oddelkov. Za vstopne spremenljivke smo torej izbrali stroške materiala, stroške dela, število zaposlenih in število sob.

Zbiranje podatkov. Podatke za raziskavo smo pridobili iz primarnih in sekundarnih virov. Za zbiranje primarnih podatkov smo uporabili spletni vprašalnik. Ker je bila vsa preučevana literatura v angleškem jeziku, je bil vprašalnik sprva izdelan v angleščini, nato pa preveden v hrvaški jezik. Da bi dodatno izpopolnili prevod, sta ga preučila še dva strokovnjaka s področja računovodstva.
Vprašalnik je imel štirideset vprašanj, ki jih lahko razdelimo v tri skupine:

- splošni podatki, ki vključujejo naziv hotelskega podjetja, število hotelov v lasti podjetja, ime in priimek anketiranca, njegov elektronski naslov, naziv delovnega mesta ter podatek o trajnostnih postopkih hotelskega podjetja, kar obsega skupno enaindvajset vprašanj;
- podatki o okoljski uspešnosti, ki vključujejo deset vprašanj;
- podatki o družbeni uspešnosti, ki vsebujejo devet vprašanj.

Vprašalnik smo poslali vsem hotelskim podjetjem na Hrvaškem. Ciljna skupina so bili vrhnji managerji, računovodje in nadzorniki. Seznam hotelskih podjetij smo sprva vzeli iz Registra letnih finančnih poročil hrvaške finančne agencije Fina, vendar so bila na njem navedena tudi podjetja, ki so registrirala hotelske in podobne nastanitvene dejavnosti, a jih niso nujno izvajala. Da bi zožili vzorec, smo uporabili seznam kategoriziranih hotelov hrvaškega ministrstva za turizem, ki je obsegal 436 hotelskih podjetij. Elektronske naslove smo pridobili prek spletnega iskanja in s pomočjo osebnih stikov. Vprašalnike smo tako poslali na okoli petsto elektronskih naslovov. V nekaterih primerih je bil vprašalnik posredovan več kot eni osebi v posameznem hotelskem podjetju. Zbiranje podatkov je

trajalo pet tednov in vsakih sedem dni smo prek elektronske pošte poslali opomnik tistim, ki se še niso odzvali na vprašalnik. Prav tako smo opravili tudi nekaj telefonskih klicev, da bi opomnili anketirance, ki še niso odgovorili na naša vprašanja kljub že poslanima dvema elektronskima opomnikoma.

Sekundarne podatke smo pridobili iz različnih virov. Primarni vir informacij o stroških dela in materiala, prihodkih ter številu zaposlenih je bil Register letnih finančnih poročil agencije Fina. Ker v njem niso bili navedeni vsi podatki o majhnih hotelskih podjetjih, smo te informacije pridobili iz podatkovne baze Amadeus podjetja Bureau Van Dijk. Podatke o številu sob v hotelskih podjetjih smo poiskali na spletnih straneh podjetij, v letnih poročilih, objavljenih v Registru letnih finančnih poročil agencije Fina, in na seznamu kategoriziranih hotelov hrvaškega ministrstva za turizem.

3. Rezultati raziskave

V tem poglavju bomo predstavili karakteristike vzorca in prikazali rezultate faktorske analize ter stohastične analize meja. Ob koncu smo model testirali še s pomočjo multiple regresijske analize. Vse analize smo opravili v programu SPSS, različica 22, in Stata, različica 12.

3.1. Karakteristike vzorca

Zbrali smo vprašalnike iz 76 hotelskih podjetij, kar predstavlja 17 % celotne populacije. Našteli smo 42 majhnih, 22 srednjih in 12 velikih podjetij. Naš vzorec tako predstavlja 13 % majhnih, 48 % srednjih in 63 % velikih hotelskih podjetij na Hrvaškem. 76 hotelskih podjetij upravlja s skupno 176 hoteli, kar predstavlja 28 % vseh hotelov na Hrvaškem. Pri pregledu kapacitete hotelskih sob glede na njihovo kakovost smo opazili, da je situacija nekoliko drugačna. Zbrani vzorec predstavlja 31 % kapacitete hotelskih sob z dvema zvezdicama, 42 % s tremi, 67 % s štirimi in 74 % s petimi zvezdicami.

Postavili smo tudi nekaj vprašanj za pridobitev splošnih informacij o trajnostnih postopkih. Samo 20 % hotelskih podjetij je sprejelo politiko oziroma načrt trajnostnega razvoja in 27 % od omenjenih podjetij je trenutno v postopku razvoja, medtem ko 53 % hotelskih podjetij nima nobenega načrta oz. politike trajnostnega razvoja. Pri raziskovanju trajnostnega oddelka smo ugotovili, da je 5 % podjetij ustanovilo takšen oddelek. Rezultati kažejo na boljše stanje pri številu oseb, odgovornih za trajnost v hotelskem podjetju, saj ima 25 % podjetij zaposleno osebje, ki skrbi za trajnost. Posebno poročilo o trajnosti pripravi 4 % hotelskih podjetij, 16 % hotelskih podjetij vključi trajnostno poročilo v letno poročilo, 7 % pripravi okoljsko poročilo, 1 % predstavi podatke prek registra o onesnaževanju okolja in 72 % podjetij ne poroča o trajnosti. 3 % hotelskih podjetij poročajo o trajnostni uspešnosti na mesečni in četrtletni ravni, 16 % jih o tem poroča vsako

leto, 7 % pa redkeje. Ostali anketiranci (57 %) ne poročajo ali pa niso seznanjeni s tem. Večina hotelskih podjetij ima vzpostavljeno centralizirano podatkovno bazo, ki je dostopna na ravni podjetja (32 %), malo manj jih ima centralizirano bazo na ravni hotela (24 %) in še najmanj na ravni oddelka (5 %). Preostanek hotelskih podjetij (39 %) nima podatkovne baze, ki bi vsebovala informacije o okolju. Centralizirano družbeno podatkovno bazo, dostopno na ravni podjetja, ima 30 % anketirancev. 38 % hotelskih podjetij ima podatkovno bazo na ravni hotela in 13 % podjetij ima bazo na voljo na ravni oddelka. Preostanek (18 %) hotelskih podjetij nima podatkovne baze za nadzorovanje družbene uspešnosti. 35 % obravnavanih hotelskih podjetij ima trajnostni certifikat ali uveljavljene norme, medtem ko preostalih 65 % hotelov nima niti certifikata niti standardov.

3.2. Rezultati faktorske analize

Namen uporabe raziskovalne faktorske analize je bila pridobitev faktorjev iz 19 atributov. V tej raziskavi smo uporabili analizo glavnih komponent s pomočjo varimaks rotacije. Cronbachovi alfa koeficienti so bili izmerjeni, da bi preverili zanesljivost lestvice. Koeficienti, ki so bili višji od 0,6, so sprejemljivi in označujejo zadovoljivo notranjo usklajenost ter zanesljivost (Hair et al., 2006). Najprej smo ocenili primernost za izvedbo faktorske analize. Vrednost KMO je bila visoka, kar označuje zadostno število elementov za vsak pridobljen faktor. Bartlettov test je bil pomemben pokazatelj, da obstajajo močne korelacije med elementi pri vsakem faktorju. S tem smo utemeljili izvedbo analize raziskovalnih faktorjev. 19 spremenljivk smo zmanjšali na štiri faktorje, kar pojasni 65,581 % skupne variance v podatkih. Faktor obremenitve je bil dokaj visok, saj je znašal med 0,546 in 0,831, kar kaže na ustrezno visoko korelacijo elementov s faktorji, na katerih so bili obremenjeni. Štirje pridobljeni faktorji so opredeljeni na sledeč način. Prva dva faktorja sta povezana z okoljsko uspešnostjo. Faktor št. 1 predstavlja vire in odpadke, medtem ko se faktor št. 2 nanaša na okoljske produkte in obnovljive materiale. Preostala dva faktorja sta povezana z družbeno uspešnostjo. Faktor št. 3 predstavlja notranjo družbeno uspešnost, faktor št. 4 pa zunanjo družbeno uspešnost. Sledila je analiza zanesljivosti. Rezultati so pokazali, da so Cronbachovi alfa koeficienti pridobljenih faktorjev segali od 0,765 do 0,880, kar je precej višje od minimalne vrednosti, ki znaša 0,60 in velja za sprejemljiv pokazatelj zanesljivosti lestvice (Hair et al., 2006). Te vrednosti torej kažejo na dobro notranjo usklajenost faktorjev. Cronbachova alfa vrednost za celotno lestvico je bila 0,910 in označuje visoko zanesljivost.

3.3. Rezultati stohastične analize meja.

Stohastična analiza meja predstavlja pristop v ekonometričnem modeliranju danih gospodarskih rezultatov, najpogosteje proizvodnje, stroškov, prihodkov ali dohodkov, glede na relevantne vložke. V tej raziskavi smo uporabili podoben pristop, kot so ga že v preteklih delih (Anderson et al., 1999; Chen, 2007; Hu et al., 2010), vendar je bil za razliko

od preostalih naš cilj modeliranje prihodka namesto stroška. Model je bil ocenjen s postopkom ocenjevanja avtorjev Battese in Coelli (1992) ter domneva okrnjeno običajno razporeditev. Ocenili smo ga s pomočjo združene cenilke metode najmanjših kvadratov. Rezultati so pokazali, da so vse vstopne spremenljivke razen stroškov dela znatno pripomogle k razlagi modela. Ocenili smo tudi učinkovitost vsakega hotela iz vzorca. Ocena učinkovitosti prihodkov izhaja iz odnosa med mejo učinkovitosti ali funkcijo prihodkov (brez faktorja neučinkovitosti) in ocenjeno prihodkovno funkcijo danega hotela ter leta. Rezultati so pokazali, da je najnižja učinkovitost znašala 25,96 %, najvišja učinkovitost hotela pa 95,57 %, medtem ko je bila povprečna vrednost 78 %. Ocena učinkovitosti hotela kot odvisne spremenljivke je nadalje uporabljena v regresijski analizi, ki povezuje določeno skupino faktorjev, identificiranih kot možni viri učinkovitosti hotelskih storitev.

3.4. Preverjanje hipoteze

Multipla regresijska analiza je bila uporabljena za raziskovanje odnosa med posamezno odvisno spremenljivko in skupino neodvisnih spremenljivk. V tej študiji smo kot neodvisne spremenljivke uporabili štiri faktorje, vzete iz analize raziskovalnih faktorjev: faktor št. 1 predstavlja vire in odpadke, faktor št. 2 okoljske produkte in obnovljive materiale, faktor št. 3 notranjo družbeno uspešnost, faktor št. 4 pa zunanjo družbeno uspešnost. Odvisna spremenljivka je učinkovitost. Pred začetkom multiple regresijske analize smo preučili multikolinearnost spremenljivk. Vse neodvisne spremenljivke so bile medsebojno povezane. Odnosi so bili pozitivni in statistično pomembni, toda korelacijski koeficienti niso presegli mejne vrednosti 0,80, kar pomeni, da v tej raziskavi ni prišlo do težav z multikolinearnostjo (Bryman in Cramer, 2009). Multipla regresijska analiza je razkrila sledeče. Rezultati raziskave so pokazali, da je celotna kombinacija družbeno-okoljske uspešnosti, ki smo jo smatrali za neodvisno spremenljivko, bistveno pripomogla k razlagi spremenljivke hotelske učinkovitosti. Pri preučevanju odnosa družbene in okoljske uspešnosti smo ugotovili, da ima okoljska uspešnost velik vpliv na ekonomsko uspešnost, medtem ko družbena uspešnost nima vidnega učinka.

PRIPOROČILA IN ZAKLJUČKI

1. Teoretični in metodološki prispevki.

Teoretične prispevke disertacije lahko prepoznamo kot podajanje celostnega okvirja, ki prvič povezuje trajnostni razvoj, trajnostni management in trajnostno računovodstvo znotraj hotelske panoge. To je še posebej pomembno zaradi pomanjkanja raziskav na tem področju. Metodološki prispevki so vidni pri oblikovanju nove lestvice za merjenje okoljske in družbene uspešnosti v hotelski panogi. Čeprav so bile opravljene že številne raziskave o odnosih med okoljsko in družbeno uspešnostjo ter ekonomsko uspešnostjo, ta

disertacija podaja nov model za preučevanje teh odnosov. Poleg tega je to prva študija, ki uporablja učinkovitost kot spremenljivko ekonomske uspešnosti.

2. Priporočila za managerje.

S praktičnega vidika ta disertacija ponuja različna priporočila za managerje. Hotelski managerji so pogosto negotovi glede vključevanja trajnosti v njihovo prakso, saj imajo omejena sredstva in se ne zavedajo potencialnih koristi implementacije trajnosti v njihove strateške cilje. S to raziskavo smo dokazali, da ima trajnostna uspešnost pozitiven vpliv na ekonomsko uspešnost, in tako ponudili argument, ki lahko pripomore k odločitvi hotelskih managerjev, da spremenijo svojo prakso. Še vedno obstaja veliko hotelskih podjetij, ki ne meri vidikov družbene in okoljske uspešnosti, zato se dane kazalnike, uporabljene v analizi, lahko prilagodi merjenju trajnosti in uporabi kot osnovo za trajnostno poročanje. Postopek izbiranja kazalnikov je zahteval obsežno analizo in pomoč strokovnjakov z bogatim znanjem na področju managementa, računovodstva, nadzora in revizije v hotelski panogi, zato so izbrani kazalniki nadvse primerni za hotelska podjetja. S tem je podprto oblikovanje rešitev, sprejemljivih v pogojih, v katerih delujejo hoteli v gostinsko-hotelirskem sektorju. Merilo učinkovitosti lahko uporabimo tudi kot osnovo za ocenjevanje konkurenčne prednosti pri primerjanju hotelskih podjetij. Hotelska podjetja lahko vidijo, kako so uspešna v primerjavi s konkurenti, odkrijejo vzroke slabosti, zmanjšajo tveganja in posledično izboljšajo svojo uspešnost. Poudariti moramo, da smo anketirancem ponudili možnost prejema rezultatov raziskave. Večina sodelujočih je izkazala interes za ugotovitve, zato jim jih bomo posredovali. V času zbiranja podatkov je potekala intenzivna komunikacija s hotelskimi managerji, z računovodji in z nadzorniki v hotelskih podjetjih. Ugotovili smo, da trajnostna uspešnost ni bila njihova prioriteta in nekateri niso bili dovolj dobro seznanjeni z njo. Z rezultati raziskave, ki jim jih nameravamo poslati, bomo tako poudarili, da ima izboljšanje trajnostne uspešnosti pozitiven vpliv na njihovo finančno uspešnost. Posredovali jim bomo tudi prilagojena poročila z rezultati učinkovitosti, ki bodo pokazala, kako učinkoviti so v primerjavi z drugimi hoteli na Hrvaškem in s hoteli s podobnimi karakteristikami. Naša raziskava bo tako neposredno pripomogla hotelskim managerjem pri operativnem in strateškem procesu odločanja.

3. Omejitve in predlogi za nadaljnje raziskave.

Ena izmed glavnih omejitev te raziskave je merjenje okoljske in družbene uspešnosti s percepcijskimi merili. Glavni razlog za uporabo omenjenih meril namesto konkretnih podatkov je ta, da managerji niso naklonjeni sodelovanju v raziskavah, ki zahtevajo razkritje zaupnih podatkov. Prav tako bi bilo navajanje vseh meril okoljske in družbene uspešnosti izredno zamudno. Nadaljnje raziskave bi se torej morale osredotočiti na uporabo konkretnih podatkov namesto percepcijskih meril za okoljsko in družbeno uspešnost. V vprašalniku ni bilo navedenih vprašanj o vlogi računovodstva pri

vzpostavljanju managerskega sistema za trajnostno uspešnost poslovanja, izvajanju managerskih sistemov za integrirano uspešnost poslovanja hotelskih podjetij ali njihovih strateških ciljih. Vprašalnik je bil oblikovan tako, da na vprašanja o okoljski in družbeni uspešnosti ni bilo mogoče odgovoriti: »To ne velja za naše podjetje.« ali »Tega pri nas ne merimo.« To bi lahko bil predlog za izboljšanje lestvice za merjenje v prihodnjih raziskavah. Naslednja omejitev te študije je, da obsega zgolj tri leta in 76 hotelskih podjetij. Lahko bi bila koristnejša, če bi v njo vključili več podjetij in longitudinalnih podatkov, ki bi morda prinesli drugačne rezultate.

Še eno omejitev predstavlja odnos, ki je bil testiran zgolj na vzorcu hrvaških hotelskih podjetij. Priporočljivo je, da se ga preveri tudi v drugih državah, saj bi to prineslo večjo posplošitev rezultatov.

Predlagamo tudi, da se v prihodnosti razširi pričujočo raziskavo na druge storitvene gospodarske panoge. Učinkovitost kot odvisno spremenljivko bi lahko raziskovali s pomočjo analize ovojnice podatkov ali pa jo nadomestili s kakšnim drugim merilom za ekonomsko uspešnost, da bi ugotovili, če pride do odstopanj pri rezultatih.