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POLISH NATIONAL AGENCY FOR ACADEMIC EXCHANGE

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AKADEMICKIE PARTNERSTWA MIĘDZYNARODOWE

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PREFACE

Dynamic and extensive changes pose a number of challenges to the accounting system of various entities. A company is perceived not only as an entity whose purpose is to make a profit, but also as an organization that is to benefit the society (local community, clients, etc.), not to harm the environment, contributing, at the same time, to the elimination of problems arising from unequal treatment, social and market discrimination.

New regulations on the regional (EU) and international scale have responded to these new challenges facing accounting and reporting enterprises perceived in such a way. The term *sustainability* is understood as socio-economic development in which the process of integrating political, economic and social activities takes place, while maintaining natural balance and the durability of basic natural processes, in order to ensure the possibility of satisfying the basic needs of individual communities or citizens of both the modern generation, and future generations.

The aim of this e-book is to present the most important aspects related to sustainability, Corporate Social Responsibility and innovation from an accounting perspective. The book contains parts that deal with accounting aspects of sustainability and innovations and can be useful in the teaching process. Theory and case studies discussed in the book are useful for accounting teaching.

The book consists of ten chapters devoted to relevant and topical issues of sustainability and innovations. In particular, there has been discussed:

- sustainability and Corporate Social Responsibility in accounting,
- social responsibility reporting standards,
- narrative reporting,
- integrated reporting,
- non-financial reporting in selected European countries,
- Socially Responsible Investments (SRI),
- external costs,
- derivatives in accounting,
- costs of research and development,
- cryptoassets.

Chapter 1, **Sustainability and Corporate Social Responsibility in accounting** is an introduction to further considerations and deals with the essence of

sustainable development, Corporate Social Responsibility and their recognition in accounting. Sustainability has three dimensions: ecological, economic and social. A consequence of the growing importance of social and ecological aspects of business operations is the increased interest and requirements for reporting, understood as a set of reports containing both financial and non-financial information. This chapter covers the concept of sustainable development and Corporate Social Responsibility explains the role, goals and challenges of social responsibility accounting.

Chapter 2, **Social responsibility reporting standards** presents the most important reporting guidance such as GRI, OECD, United Nations Global Compact, International Organization for Standardization. However, CSR reporting is still predominantly voluntary and not standardized. According to the analysis of the content and scope of the most important frameworks and standards of sustainability reporting, it can be confirmed that they have certainly contributed to improving the quality of non-financial reporting.

Chapter 3, **Narrative reporting** focuses on descriptions and explanations in accounting reports. The purpose of the chapter is to identify and describe the determinants of the development of accounting narratives in practice, and to explain why narratives are gaining importance in accounting communication. The chapter presents the links between accounting and language, the development of accounting narratives and the factors determining the use of narratives. The authors notice that there are still many challenges ahead of narrative financial reporting, such as determining the minimum content of reports, ensuring comparability of reports or the issue of external control of narrative financial reporting.

Chapter 4, **Integrated reporting** discusses the motivations, objectives and the process of preparing an integrated report. Integrated reporting can prove to be an effective tool for businesses looking to shift their reporting focus from annual financial performance to long-term shareholder value creation. The International Integrated Reporting Framework encourages the preparation of a report that shows business performance against strategy, explains the various capitals used and affected, and gives a longer term view of the organization.

Chapter 5, **Non-financial reporting in selected European countries** presents the experience of Croatia, the Czech Republic and Poland in the field of preparing non-financial reports. A significant contribution to promoting the importance of sustainability reporting was made by the Non-Financial Reporting Directive (2014/95/EU) which obliged large public interest companies with over 500 employees to disclose certain non-financial information. In order to satisfy the EU rules, the analysed countries have implemented into its legislation the provisions of the Directive 2014/95/EU regarding the disclosure of certain non-financial reporting.

Chapter 6, **Socially Responsible Investments** discusses the essence of socially responsible investing and socially responsible investment. Socially responsible

investing is a decision making process concerning the allocation of free financial resources, where the investor aims at maximization of profit and minimization of risk on one part and includes the socio-ethical and environmental-ecological considerations on the other. We can find four types of motives such as psychological and social, legal, economic and strategic, financial. This chapter also presents strategies and market of socially responsible investing.

Chapter 7, **External costs—accounting perspective** describes costs connected with using goods such as air, soil, water, silence or the aesthetics of the surroundings. They all are non-marketable goods; without a price on the market. Therefore, one of the non-market valuation methods could be used to evaluate them. One of the biggest problems for accounting in the future will be measuring the volume of using these goods or measuring the size of reduction in the quality of public goods suffered and assigning the decrease to particular companies.

Chapter 8, **Derivatives in accounting** is devoted to financial instruments, in particular derivatives. Derivatives are the financial instruments whose price depends on the value of the underlying instrument. They are used to protect the enterprise against financial risk related to changes in prices on the markets, changes in the exchange rate or changes in interest rates, as well as for commercial purposes. This part presents two different approaches to accounting of derivatives: general model and hedge accounting. The derivative is reflected in the balance sheet of the entity that is a party to a given contract. The results obtained on the derivative contract is presented in the profit and loss account.

Chapter 9, **Costs of research and development** shows the company's activity in the field of research and development and the related costs. The authors noticed that year by year, research and development works constitute an increasingly important element of the functioning of enterprises. Valuation and financial reporting for intangible assets is perhaps one of the most difficult and most controversial topics of accounting and financial reporting. This is due to the intangible nature of the assets, their diversity as well as the lack of active markets which would allow for reliable pricing/valuation. The reporting of internally developed intangible assets is even more problematic.

Chapter 10, **Cryptoassets—nature, valuation and disclosures in accounting** focuses on cryptocurrencies (e.g. Bitcoin, Ethereum) and digital tokens which are specific rights or values representatives. As a result of the transformation on the financial market, we are currently dealing with cryptoassets, which are a creation of blockchain technologies and the changing habits of the digital society. One of areas that there are a lot of doubts regarding these new technological solutions is accounting. It is not clear how we can classify particular groups of cryptoassets and how to value them in financial statement. The aim of the chapter is to present the essence, use and valuation issues of cryptoassets and also to review the definitions of

selected asset groups in the currently applicable accounting regulations to identify those asset groups to which cryptocurrencies can be classified.

This e-book is the result of collaboration between several research centres in Central and Eastern Europe, partners of the Cenetsie project. The authors are scientists from the Accounting Departments of the University of Zagreb, University of Economics in Prague and Poznań University of Economics & Business.

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This publication would not have been written if it had not been for the international project, coordinated by Barbara Borusiak. It is thanks to her efforts and commitment that cooperation between universities from Bulgaria, Croatia, the Czech Republic, Hungary, Slovakia, Ukraine and Poland has been established and strengthened. The project titled Central European Network for Sustainable and Innovative Economy (CENETSIE) is financed by NAWA funds intended for the development of international cooperation. The project was implemented in the years 2020–2022.

On behalf of the entire team of authors, I would like to sincerely thank the reviewer prof. Mateja Brozović, Ph.D. for the valuable comments.

We would also like to thank the employees of the Publishing House of the Poznań University of Economics and Business for its help in publishing the e-book, in particular the editor Marta Dobrecka.

We have great optimism that our publication will contribute to a better understanding of the sustainable development concept, sustainability and Corporate Social Responsibility in the field of accounting.

The publication was created at a difficult time for everyone, when the world was impacted by the COVID-19 pandemic. This factor strongly influenced our understanding of the issues raised, the form of cooperation and the problems faced by individual countries.

We hope that the international cooperation that began with this book, will continue in a series of joint research, organisational and teaching works.

Marzena Remlein

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1.

SUSTAINABILITY AND CORPORATE SOCIAL RESPONSIBILITY IN ACCOUNTING

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Abstract: The term *sustainable development* is understood as such socio-economic development in which the process of integrating political, economic and social activities takes place, while maintaining natural balance and the durability of basic natural processes, in order to ensure the possibility of satisfying the basic needs of individual communities or citizens of both the modern generation, and future generations. Sustainable development has three dimensions: ecological, economic and social. A consequence of the growing importance of social and ecological aspects of business operations is the increased interest and requirements for reporting, understood as a set of reports containing both financial and non-financial information. This chapter covers the concept of sustainable development, CSR and explains the role, goals and challenges of social responsibility accounting.

CSR reporting has become some kind of a trend in non-financial reporting. Many large international companies make great efforts to prepare CSR reports in order to transparently communicate with their stakeholders as well as strive to achieve established social and environmental goals. CSR covers different aspects of business, with, among other things, environmental issues being highlighted. The importance of green accounting has been recognized globally where the adoption of the 2014/95/EU Directive has just further raised awareness of the importance of reporting on the environment and environmental activities. This chapter covers the basic concept and development phases of sustainable and environmental accounting, explains the role of green accounting in modern business conditions and discusses the benefits and opportunities it provides to interested users.

Keywords: accounting for sustainable development, Corporate Social Responsibility, environmental management accounting, global corporate responsibility reporting, green accounting, social accounting, social responsibility accounting, sustainability reporting, sustainable development.

1.1. Sustainability and Corporate Social Responsibility

Sustainable development means a comprehensive approach to business management, focusing on creating and maximizing long-term economic results while minimizing the impact on the natural environment and taking into account the needs of employees and other members of society in an ethical manner. The origin of the term sustainable development lies in the 18th century and was actually used in forestry. This was as the then populace was only allowed to cut down a certain number of trees so that a long-lasting protection of the tree population was guaranteed. This method ensured a continuous supply of wood without reducing resources for forthcoming generations. The Club of Rome precipitated an international discussion due to its report "Limits to Growth" (Ebner & Baumgartner, 2006, p. 2).

The concept of sustainable development appeared in the 1960s as a consequence of the growing awareness of the society about the emerging threats in the conditions of systematic economic growth and limited natural resources. It was then that the phenomena related to the ecological crisis intensified, which was a manifestation of the negative externalities of economic growth that had been practically unchanged since the times of the industrial revolution. The essence of development at that time was the clear primacy of the pace of development of the economic sphere over the social and environmental sphere (Fiedor & Kociszewski, 2010, p. 169).

Sustainable development became popular with the definition of the Brundtland Report (World Commission on Environment and Development, 1987). Currently, the term *sustainable development* is understood as socio-economic development in which the process of integrating political, economic and social activities takes place, while maintaining natural balance and the durability of basic natural processes, in order to ensure the possibility of satisfying the basic needs of individual communities or citizens of both the modern generation, and future generations. This definition is based not only on the principle of integrating natural, economic, social and political spheres, but also on the principle of equal access to resources and intergenerational justice (Jeżowski, 2002, p. 47).

The concept of sustainable development is based on the use and conservation of natural resources, as well as the orientation of technologies and institutions to achieve and maintain the satisfaction of human needs of the present and future generations. It should also ensure that society and future generations meet high ecological, economic and social standards within the limits of the capacity of ecosystems, applying the principle of intra-generational and intergenerational justice. Sustainable development understood in this way has three dimensions: ecological, economic and social.

Figure 1.1 illustrates the link between sustainable development and corporate sustainability.

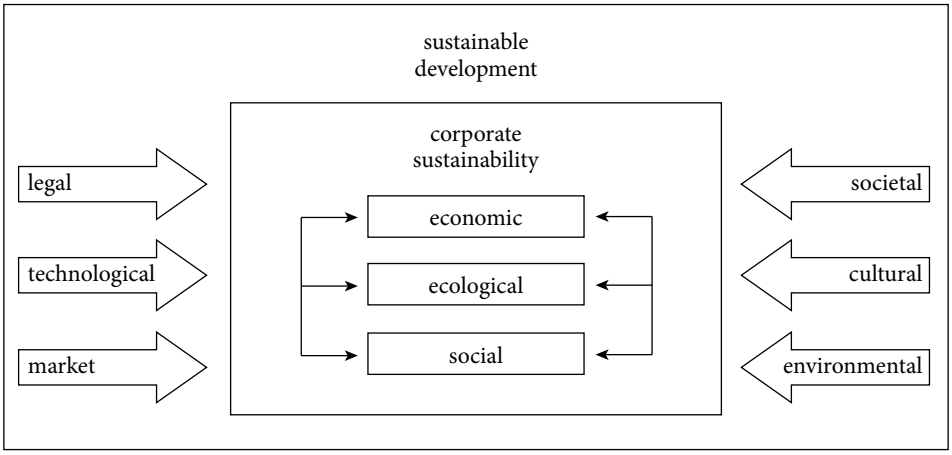


Figure 1.1. Corporate sustainability and its interdependences

Source: Based on (Baumgartner & Ebner, 2010, p. 77).

Sustainable development when incorporated by organizations is termed corporate sustainability and contains three pillars that interact with each other: economic, ecological and social (Ebner & Baumgartner, 2006, p. 13). The sustainable development goals, taking into account the three dimensions, are presented in Table 1.1.

Table 1.1. The goals of sustainable development

Goals	Description
Ecological	• protection of the Earth's atmosphere (limiting climate warming) • not harming nature: preserving species and landscape diversity • sustainable use of renewable resources • balancing the use of non-renewable resources • healthy living conditions (eliminating harmful substances, radiation and noise)
Economic	• stability of the economy, ensuring independent existence with acceptable quality of work • satisfying basic needs through sustainable products (food, housing, clothing, energy) and prices applied • price stability and counteracting concentration and economic power, internalisation of external costs • non-economic sustainability and development cooperation with as little import of raw materials as possible • efficient state budget with sufficient standards providing the society with substantive / collective goods and the appropriate division of income
Social	• democracy of participation and the rule of law in all areas of life • poverty eradication, social security, tackling demographic problems • equal opportunities, integration (e.g. gender of immigrants) • external and internal security, non-violent conflict resolution • protection of human health and quality of life

Source: (Rogall, 2010, p. 47).

The basic idea to incorporate a sustainability aspect into business management should be grounded in the ethical belief of give and take to maintain a successful company in the long-term. As the company is embedded in a complex system of interdependences in- and outside the firm, this maintaining of character should be fulfilled due to the company's commitment in protecting the environment or reducing its ecological footprint and due to the general acceptance of its corporate behaviour by society in- and outside of the firm. Economic sustainability embraces general aspects of an organization that have to be respected—next to environmental and social aspects—in order to remain in the market for long time.

Sustainable development should stimulate the economic growth necessary to create material well-being, taking into account social well-being, justice, security and environmental quality. On the other hand, sustainable development at the enterprise level concerns its functioning through the integration of economic, environmental and social goals. The answer to such a challenge is the implementation of the concept of Corporate Social Responsibility (CSR) within the scope of the enterprises' activities. A modern entity, addressing the challenges of sustainable development, should develop in accordance with the idea of CSR. Such implementations require the expectations of all stakeholders, including society and the environment, to be considered (Różańska, 2014, p. 434).

The term *social responsibility* came into widespread use in the late 1970s, although *corporate social responsibility* is the term that is most familiar to the general public when applied to private, for-profit organizations (Hemphill, 2013, p. 306). CSR is defined as "the parallel satisfaction of the interests of individual stakeholder groups with the limiting condition of achieving an appropriate level of profit (Stępień & Wydymus, 2007, p. 81).

The International Organization for Standardization defines social responsibility (not CSR since their standards are intended to all organizations, regardless of their size or legal structure) within the ISO 26000:2010 as "responsibility of an organization for the impacts of its decisions and activities (include products, services, and processes) on society and the environment, through transparent and ethical behaviour that contributes to sustainable development, including health and the welfare of society; takes into account the expectations of stakeholders; is in compliance with applicable law and consistent with international norms of behaviour; and is integrated throughout the organization and practised in its relationships (an organization's activities within its sphere of influence)" (ISO, 2010, 2.18).

However, in the literature you can find many definitions explaining the concept of CSR which take into account its various aspects. Selected definitions of CSR responsibility are presented in Table 1.2.

Table 1.2. Review of the definitions of CSR

Author / Institution	Definition
Stępień, Wydymus, 2007	the parallel satisfaction of the interests of individual stakeholder groups with the limiting condition of achieving an appropriate level of profit
Macuda, 2013	an idea of constructing a long-term strategy by an organizational entity that voluntarily takes into account the social, ethical and ecological aspects in its business operations. Such an entity takes responsibility for the decisions that it made and the activities that it undertook, which have an impact on the local community and the environment, and also leads a dialogue with the internal and external stakeholders
Responsible Business Forum, 2008	a trend that will not go away like many other business fads, but will develop, evolve, and adapt to the challenges, expectations and possibilities
Samelak, 2013	the implemented strategy of the company's responsibility for the impact of its decisions and actions on the society and the environment, implemented with the involvement of stakeholders through—in accordance with the law and international standards of behaviour—transparent and ethical behaviour, contributing to sustainable development and taking into account the expectations of stakeholders
Carroll, 1979	the economic, legal, ethical and discretionary expectations that society has of the enterprise at any given point in time
Davis, Blomstrom, 1975	the obligation of the management of the corporation to choose such decisions and actions that will contribute both to the care of self-interest (multiplication of profit by enterprises) and protection and multiplication of social welfare

Source: Own study based on (Stępień & Wydymus, 2007, p. 81; Macuda, 2013, p. 91; Responsible Business Forum, 2008, p. 4; Samelak, 2013, p. 17; Carroll, 1979, p. 500; Davis & Blomstrom, 1975, p. 13).

The EC believes that CSR provides important benefits to enterprises in risk management, cost savings, access to capital, customer relationships, and human resource management (Matuszak & Różańska, 2019, p. 1). A consequence of the growing importance of social and ecological aspects of business operations is the increased interest and requirements for reporting, understood as a set of reports containing both financial and non-financial information. The source of financial information is the financial statements constituting the final product of accounting, while all non-financial information relating to the entity's business activities are presented in separate reports. An attempt to combine financial and non-financial information about the entity's operations was made under a new reporting concept, known as integrated reporting (Remlein, 2019, p. 49).

1.2. Social responsibility accounting

The orientation of accounting for the responsibility of organizational units for the economic, social and environmental results of their operations began in the 1970s in the United States, when the problem of pollution and environmental

protection was increasingly discussed. From this period, the first social balance sheets began to be recorded and the concept of social accounting was introduced (Szadziewska, 2013, p. 136). The growing importance of the idea of sustainable development and the concept of CSR gave rise to the need for the accounting system to develop solutions enabling the provision of information on the methods and results of implementing these concepts in entities operating on the market (Biadacz, 2017, p. 24).

The result is the emergence of different names related to accounting in combination with sustainable development and the concept of CSR.

In the literature, we can find the following terms: *social accounting, sustainability accounting, social responsibility accounting*, *social and environmental accounting* and *accounting for sustainable development*.

Table 1.3 presents the most common definitions of accounting in the concept of sustainable development, according to the Web of Science Core Collection.

Table 1.3. The most common definitions of accounting in the concept of SD

The Authors	The definitions of accounting
Lehman, 1999	*social and environmental accounting*: two interlocking social mechanisms which can be used to engage the hegemonic and destructive forces of the capitalist relations of production. social and environmental accounting is two interlocking social mechanisms which can be used to engage the hegemonic and destructive forces of the capitalist relations of production
Gray, 2002	*social accounting*: a generic term for convenience to cover all forms of 'accounts which go beyond the economic' and for all the different labels under which it appears—social responsibility accounting, social audits, CSR, employee and employment reporting, stakeholder dialogue reporting as well as environmental accounting and reporting
Unerman, Bebbington, O'Dwyer, 2007	*accounting for sustainable development*: have provided tools in the management, planning, control and accountability of the economics aspects of an organization, broader techniques of sustainability accounting and accountability have the potential to be tools in the management, planning, control and accountability for organizations for their social and environmental impacts
Burritt, Schaltegger, 2010	*sustainability accounting*: gives recognition to the importance of management decision making and views corporate sustainability accounting as a set of tools that provide help for managers dealing with different decisions

Source: Own study based on (Lehman, 1999; Gray, 2002; Unerman, Bebbington & O'Dwyer, 2007; Burritt & Schaltegger, 2010).

The interest in accounting in the area of sustainable development has contributed to the development of vocabulary related to measurement, calculation, disclosure, reporting and verification of information about the activities of units for sustainable development. Table 1.4 presents terms used in the characteristics of accounting taking into account the concepts of sustainable development.

Table 1.4. Terms used in accounting for sustainable development

Categories	Terms
I. Accounting taking into account social and environmental aspects	• social responsibility accounting • social and environmental accounting • social accounting • sustainability accounting • sustainable accounting • accounting for sustainable development • accounting for sustainability • environmental accounting • triple bottom line accounting
II. Reporting on social and environmental issues	• social reporting • environmental reporting • social and environmental reporting • CSR reporting • social responsibility reporting • non-financial reporting • integrated reporting • corporate sustainability reporting • triple bottom line reporting • environmental social and governance reporting
III. Disclosures on social and environmental issues	• social and/or environmental disclosures • sustainability disclosures sustainability disclosures
IV. Statement of environmental and social costs and benefits	• environmental costing • full environmental cost accounting • environmental budgeting • social cost-benefit analysis
V. Revision or validation of environmental and social reporting revision or validation of environmental and social reporting	• CSR audit • CSR Audit • CSR auditing • assurance of CSR reports • external assurance on sustainability reporting • sustainability reporting assurance • sustainability assurance external assurance on sustainability reporting • sustainability reporting assurance • sustainability assurance • environmental audit • sustainability audit • non-financial audit

Source: (Zyznarska-Dworczak, 2019, p. 66).

In summary, the goal of accounting for sustainable development is to meet the information needs of external and internal stakeholders.

Accounting challenges are:

- providing environmental, social and economic information;
- integrating quantitative and qualitative information;

- reporting the company's impact on environment and society;
- preparation of tools supporting the process of preparing integrated reports.

1.3. Green accounting

In the last few years, more and more attention has been paid to the importance of transparent sustainability and non-financial reporting, where, among other things, environmental issues are especially emphasized. The importance of green accounting has been recognized globally and it can be said that the adoption of the 2014/95/EU Directive has only further raised awareness of the importance of reporting on environment and environmental activities. This chapter will define the concept and development phases of sustainable and environmental accounting, explain the role of green accounting in modern business conditions and discuss and present the benefits and opportunities it provides to interested users.

Green accounting is also referred to as *environmental accounting*, *ecological accounting*, *environmental responsibility accounting* and *eco-accounting* (Zrnić, Pekanov Starčević, & Mijoč, 2020, p. 48). Historically, the development of green accounting is closely linked to the development of sustainability and social reporting. Namely, "in the 1990s, the awareness of environmental accounting within social accounting increases and becomes a key topic of research, gaining recognition within accounting research" (Van, 2012, p. 439). Today, environmental accounting is considered as an "auxiliary sub-system to the traditional accounting system, the primary objective of which is to provide information on environmental measures within the organisation and the external environmental impacts it is responsible for" (Van, 2012, p. 448).

There are various definitions of green accounting. "At a national or regional level, environmental accounting is the branch of accounting dealing with activities, methods, analysis, and reporting of environmental impacts of defined economic systems. On the other hand, from the microeconomic point of view i.e. at a corporate level, environmental accounting can be defined as a set of organizational activities that deal with the measurement and analysis of the environmental performance of corporations and the reporting of such results to concerned groups, both within and outside the corporation" (Stasiskiene, 2019, p. 1). The author also recognizes three subsets of green (environmental) accounting (Figure 1.2).

Lako (2019, p. 3) considers green accounting as "a new accounting paradigm that emphasizes that the focus of the accounting process (recognition, measurement of value, recording, summarizing, presenting and reporting, and disclosing information) is not only on objects, transactions or financial events, but also on objects, transactions or social events (people) and the environment events (planet). The accounting process for these three objects must be systematically integrated so

that accounting information produced and presented to stakeholders is complete, accurate, relevant, and useful information."

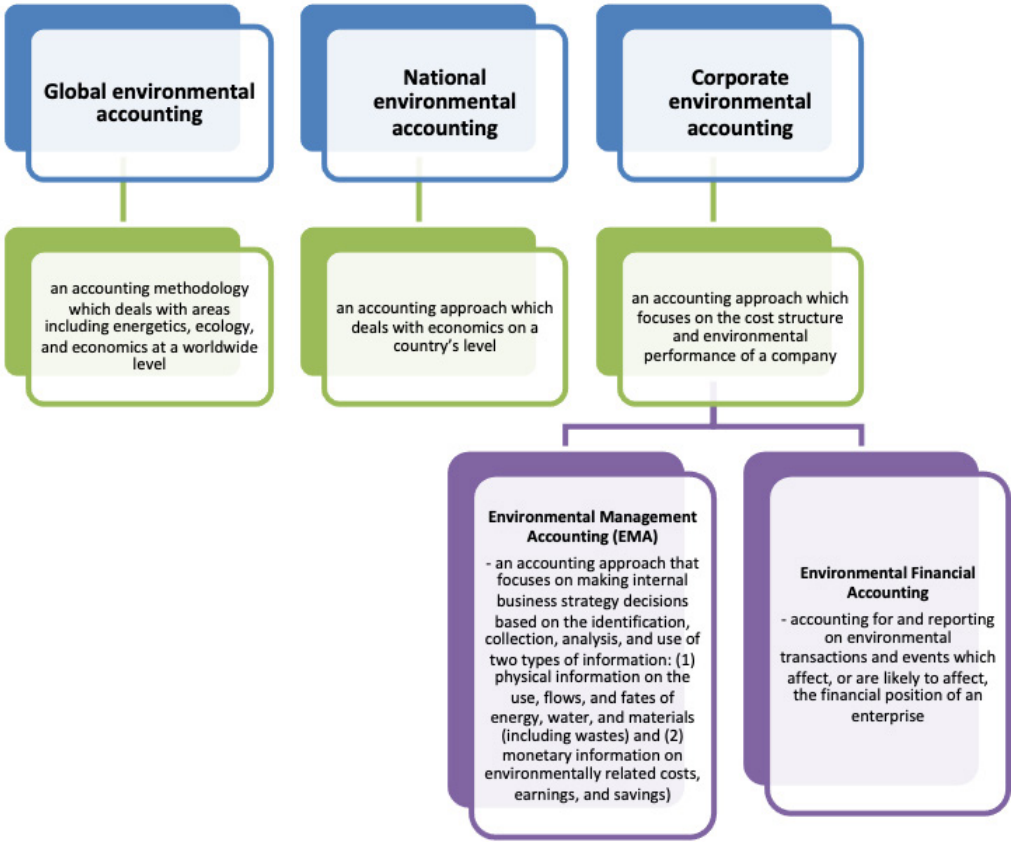


Figure 1.2. The subsets of green (environmental) accounting

Source: Created by the authors according to (Stasiskiene, 2019, p. 2).

The main purpose of green accounting in companies is reflected in the possibilities of better planning and better business decision-making. Namely, green accounting is primarily internally oriented and generates environmental information "to help management make decisions referring to prices, cost control, capital budgeting, and external use, thus revealing information about the environment that is of interest to the public and the financial community" (Zrnić et al., 2020, p. 49, quoted from Yakhou & Dorweiler, 2004, p. 65). According to Rewadikar (2014), the benefits of implementing green accounting within an economic entity are:

1) provision of useful information regarding decision making for level and structure of production, value of investment and environmental costs;

2) help in analysing the environmental costs and an afferent debt identifies and manages the ratio between the environmental expenses and its afferent debt;
3) identifies, collects and analyses data about raw materials energy and other information's about environmental impact of the business that will lead to more informed decision making with consequent implications for improved profitability and environmental protection;
4) manages the acquisitions, consumption and sales of material including waste;
5) contributes to a better management of energy and water costs;
6) provides information regarding the performance of an economy entity which leads to a better relationship between partners and the external environment being new clients and better image of the society;
7) leads managers to purchase materials that will minimize the costs.

Bartolomeo and others (2010, p. 48) summarizes environmental management accounting opportunities in business as:

1) understanding and managing environmental costs;
2) introducing waste minimization schemes;
3) integrating environment into decisions with long-term implications on capital expenditure and product development;
4) understanding and managing life-cycle costs;
5) involving accountants in a strategic approach to environmental management accounting and performance evaluation;
6) encouraging cross-fertilization of knowledge and ideas, through training and organizational processes, between environmental management and management accounting functions;
7) linking data held by different business functions.

In addition to the importance of environmental management accounting for internal users, companies are required to communicate environmental issues with external users too. Environmental reporting is especially important to all of current and potential customers. Namely, the preparation of reports on environmental issues can improve businesses visibility in the market and indicate its awareness of environmental responsibility. In addition to customers, other stakeholders such as investors, suppliers and the government may be interested in environmental issues too. Helfaya, Whittington and Alawattage (2019, p. 174) consider the quality of corporate environmental reporting incorporating both preparers and user-based views on how they asses the quality of a company's environmental report. They consider quality corporate environmental reporting especially important because "it is an effective tool for improving environmental performance. It ensures transparency, completeness, and usefulness of data to assess the environmental activities as well as it allows users to differentiate the environmental performance across companies. Moreover, they help regulators and the public to take action to create a more sustainable environment." As can be noted, there are many benefits of

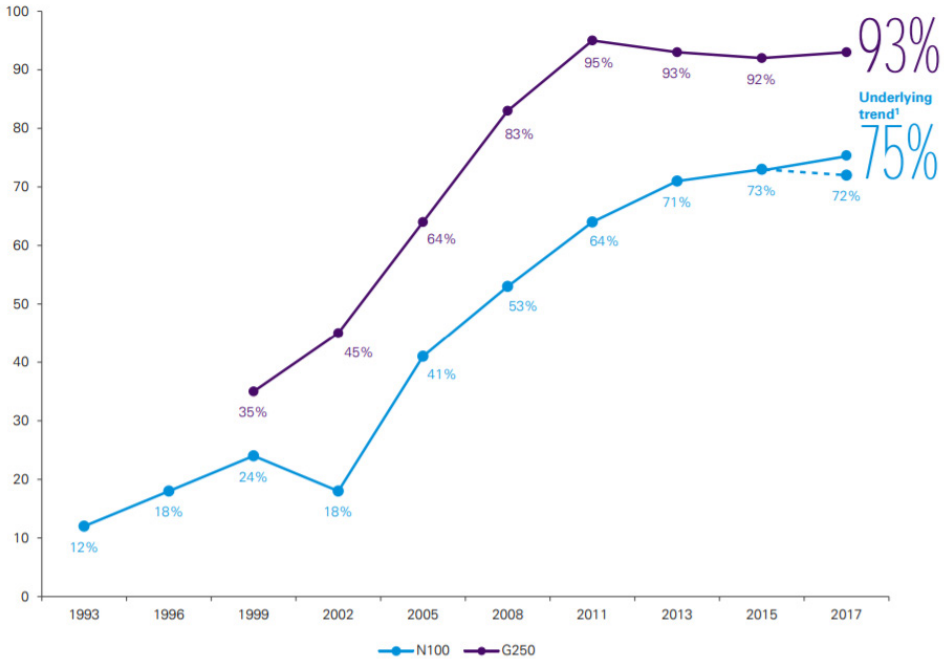
external environmental reporting for companies and different stakeholders. For now, environmental reports differ depending on the subsector that company belongs to (Zrnić et al., 2020, pp. 55–60). Therefore, their reports are quite incomparable as there are no specific standards by which companies should report on environmental issues. However, there is certainly room for harmonizing reporting practices at the international level in order to achieve greater uniformity and understanding of environmental reports.

1.4. Corporate Social Responsibility and Sustainability Reporting

Corporates impact on environment sustainability is of great stakeholder interest nowadays. Accordingly, stakeholders request disclosure of such business aspects. There are various synonyms of corporate external reporting about social, ethical, environmental, economic, and governance aspects of a particular business organization. CSR reporting, sustainability reporting, social responsibility accounting, social accounting, corporate social disclosures, corporate citizenship reporting, social and environmental disclosure, and non-financial disclosure are some but not all terms used for some kind of non-financial reporting of a particular business organization. Accordingly, there are various definitions of such reporting, but generally "CSR reporting refers to a company's systematic disclosure of information on its social performance. The term social performance is understood in a broad sense and refers to social, environmental, and governance issues that are typically not covered by financial performance metrics. In contrast to managerial accounting, CSR reports primarily address external stakeholders such as customers, investors, and the public. In absence of formal mandatory rules, CSR reports significantly vary in form (design, distribution media, reporting frequency, etc.) and content (scope, quality, etc.)" (Schreck, 2013). Therefore, CSR reporting is a mean of communication about company's actions and results regarding the social, economic, and environmental issues.

CSR reporting is voluntary for most companies, even though there are intentions for slight standardization of such reporting for certain companies. For example, some companies in Europe have to prepare so-called non-financial statement according to the Directive 2014/95/EU as of January 2017 as a part of their management report (see more in chapter 3). Despite that obligation for certain companies, this report is not standardized as financial statements, so companies do not have to follow a prescribed pattern while preparing it. There is an increasing trend in corporate responsibility reporting among N100 (a worldwide sample of 4,900 companies comprising the top 100 companies by revenue in each of the 49 countries researched in the KPMG study) and G250 (world's 250 largest companies by

revenue based on the Fortune 500 ranking of 2016) (KPMG, 2017). This trend is presented in Figure 1.3.



[1] The underlying trend of 75% applies when looking at the same sample of countries in 2015 and 2017. The overall N100 rate in 2017 is 72% due to the inclusion of 5 new countries with relatively low reporting rates in the 2017 research.

Figure 1.3. Trend in global corporate responsibility reporting

Source: (KPMG, 2017, p. 9).

Some of the frequently asked questions are *what the benefits of CSR reporting are* and *whether the benefits of CSR reporting overcome the associated expenses of preparing such report*. The answers cannot be univocal. Smaller companies, particularly micro and small ones, usually do not benefit from such reporting since they operate within a small share of a national market and do not have intention to expand their business. This should not be taken for granted because there are also small enterprises which intend to expand their business, go international, and look for investors, and therefore they certainly benefit from non-financial reporting. On the other hand, CSR reporting, as well as other voluntary types of reporting, is typical for large and especially international companies. It could be said that CSR reporting has become some kind of trend in non-financial reporting. In that context, large international companies make great efforts to prepare CSR

reports in order to transparently communicate with their stakeholders, to monitor and compare their own results with plans, and to strive to achieve established social and environmental goals, either set in their own business or prescribed by the government or non-for-profit organizations.

Questions / tasks

1. Explain the terms *sustainable development and corporate sustainability*.
2. Define the main goals of sustainable development.
3. Explain the concept of CSR.
4. Describe the three popular terms of accounting in the concept of sustainable development.
5. Define the main purpose of green accounting.
6. Describe the three subsets of green (environmental) accounting.
7. Specify the key benefits of environmental management accounting.
8. Explain what the concept of CSR reporting refers to.
9. Identify to whom is CSR reporting, in the context of enterprise size, primarily intended and why.

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2.

SOCIAL RESPONSIBILITY REPORTING STANDARDS

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Abstract: It is well known that today, in addition to already established financial reporting, multinational companies are paying more and more attention to non-financial reporting on social, economic, environmental and governmental issues. Corporate Social Responsibility (CSR) reporting is still predominantly voluntary, and it is not standardized. However, there are various international organizations which have been developing frameworks and voluntary standards for non-financial reporting. Those organizations have been putting a sizable amount of effort, time, and knowledge in order to offer some specific solutions to interested organizations preparing CSR reports. Proposed standards, guidelines, and frameworks serve as tools for simplifying CSR reporting. In that sense, the most important providers of sustainability reporting guidance, such as GRI, OECD, United Nations Global Compact, International Organization for Standardization, certainly stand out. A significant contribution to promoting the importance of sustainability reporting was also made by the Non-Financial Reporting Directive (2014/95/EU) which obliged large public interest companies with over 500 employees to disclose certain non-financial information. According to the analysis of the content and scope of the most important frameworks and standards of sustainability reporting, it can be confirmed that they have certainly contributed to improving the quality of non-financial reporting.

Keywords: CSR reporting, Global Sustainability Frameworks, Global Sustainability Standards, OECD Guidelines, GRI, SDGs, UN Global Compact Principles.

2.1. Introduction to voluntary standards and reporting frameworks

CSR reporting on social, economic, environmental, and governmental issues is still on a voluntary basis for a majority of companies. There are some examples of regulated non-financial reporting, but they refer only to a part of large companies (see more in chapter 3). Since CSR reporting is on a voluntary basis for a majority of companies, it is not standardized. In contrast to the standardized financial statements and prescribed financial reporting standards, either international or national, there is no standardized form of the non-financial statement/CSR report nor prescribed non-financial/CSR reporting standards. Despite that, there are various international organizations which have been developing frameworks and voluntary standards for non-financial reporting. Those organizations have been putting a lot of effort, time, and knowledge in order to offer some specific solutions to interested organizations preparing CSR reports. Numerous eminent members, whether individuals or communities, with a huge experience endeavour to simplify the CSR reporting via proposed standards, guidelines, and frameworks.

"Major providers of sustainability reporting guidance include:

1) GRI (GRI's Sustainability Reporting Standards);
2) The Organisation for Economic Co-operation and Development (OECD Guidelines for Multinational Enterprises);
3) The United Nations Global Compact (the Communication on Progress);
4) The International Organization for Standardization (ISO 26000, International Standard for social responsibility)" (GRI, 2020b).

The Sustainable Development Goals provided by the UN are also an inevitable part of that list. Although each of the above reporting standards and guidelines can be used separately, it is not uncommon that their providers call for their common use as they complement each other.

2.2. GRI Sustainability Reporting Standards

"Global Reporting Initiative (GRI) is the independent international organization—headquartered in Amsterdam with regional offices around the world—that helps businesses, governments and other organizations understand and communicate their sustainability impacts" (GRI, 2020a). GRI has developed the GRI Sustainability Reporting Standards (GRI Standards) in 2000 which represent the first global and the world's most commonly used standards for sustainability reporting[1]. The

[1] According to the KPMG Survey of Corporate Responsibility Reporting (2017), the GRI framework is used by 63% of N100 and 75% of G250. The N100 refers to a worldwide sample of 4,900 companies comprising the top 100 companies by revenue in each of the 49 countries researched

GRI Standards are organized as sets of standards and are divided in two main parts: Universal Standards and Topic-Specific Standards. There are three universal standards under the 100 series "applicable for every organization preparing a sustainability report. They guide reporters in using the Standards, reporting an organization's relevant contextual information, and reporting how its material topics are managed" (GRI, 2020d). The rest of series refers to the topic-specific Standards. The 200 series consists of 7 Standards, the 300 series consists of 8 Standards, and the 400 series consists of 19 Standards making it the greatest set among the GRI Standards. The reporting process using the GRI Standards is presented in Figure 2.1.

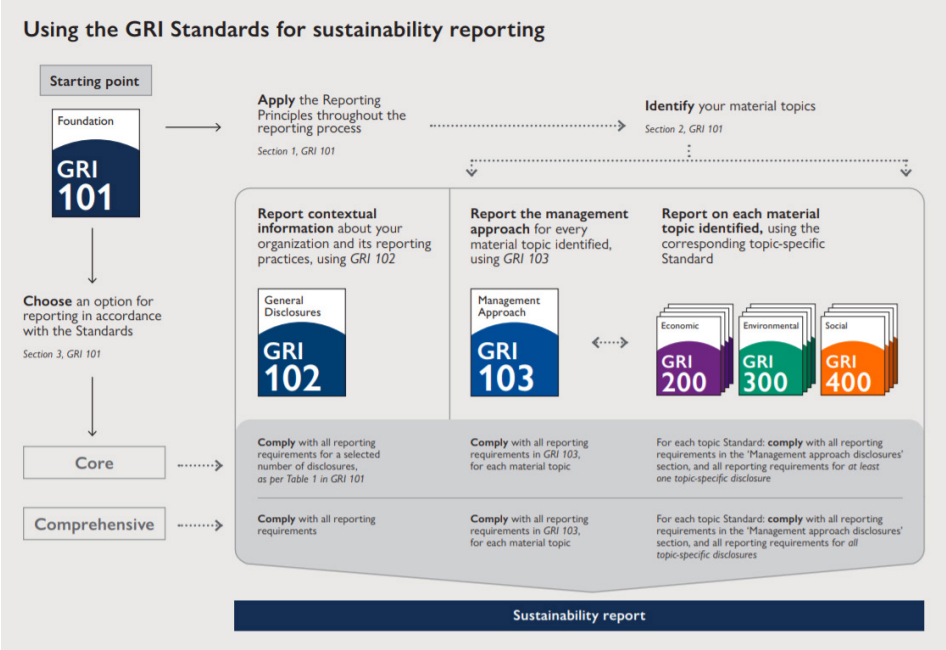

Figure 2.1. The reporting process applying the GRI Standards

Source: (GRI, 2020e).

In order to make sustainability reporting apply the GRI Standards easily, there is a GRI Standards Glossary explaining the terms and definitions used in the Standards. The GRI Standards are available online free of charge meaning that every organization willing to prepare its sustainability report applying the GRI Standards is allowed to use them. The sole responsibility for setting the GRI Standards is on the Global Sustainability Standards Board (GSSB) established under the auspices

in this study, while the G250 refers to the world's 250 largest companies by revenue based on the Fortune 500 ranking of 2016.

of GRI as an independent operating entity (GRI, 2020c). The GSSB continuously reviews and updates the GRI Standards in order of their development and adaption to current changes in the global environment. The structure of each of the topic-specific Standards is presented in Figure 2.2.

Economic

GRI 200

Title	Year of the last revision	Number of pages	Effective from
GRI 201: Economic Performance	2016	16	01 July 2018
GRI 202: Market Presence	2016	12	01 July 2018
GRI 203: Indirect Economic Impacts	2016	9	01 July 2018
GRI 204: Procurement Practices	2016	10	01 July 2018
GRI 205: Anti-corruption	2016	13	01 July 2018
GRI 206: Anti-competitive Behavior	2016	9	01 July 2018
GRI 207: Tax	2019	17	01 January 2021
	Total	86	

Environmental

GRI 300

Title	Year of the last revision	Number of pages	Effective from
GRI 301: Materials	2016	11	01 July 2018
GRI 302: Energy	2016	16	01 July 2018
GRI 303: Water and Effluents	2018	24	01 January 2021
GRI 304: Biodiversity	2016	14	01 July 2018
GRI 305: Emissions	2016	23	01 July 2018
GRI 306: Waste	2020	28	01 January 2022
GRI 307: Environmental Compliance	2016	8	01 July 2018
GRI 308: Supplier Environmental Assessment	2016	12	01 July 2018
	Total	136	

Social

GRI 400

Title	Year of the last revision	Number of pages	Effective from
GRI 401: Employment	2016	14	01 July 2018
GRI 402: Labor/Management Relations	2016	10	01 July 2018
GRI 403: Occupational Health and Safety	2018	32	01 January 2021
GRI 404: Training and Education	2016	13	01 July 2018
GRI 405: Diversity and Equal Opportunity	2016	11	01 July 2018
GRI 406: Non-discrimination	2016	9	01 July 2018
GRI 407: Freedom of Association and Collective Bargaining	2016	10	01 July 2018
GRI 408: Child Labor	2016	11	01 July 2018
GRI 409: Forced or Compulsory Labor	2016	10	01 July 2018
GRI 410: Security Practices	2016	9	01 July 2018
GRI 411: Rights of Indigenous Peoples	2016	11	01 July 2018
GRI 412: Human Rights Assessment	2016	13	01 July 2018
GRI 413: Local Communities	2016	14	01 July 2018
GRI 414: Supplier Social Assessment	2016	12	01 July 2018
GRI 415: Public Policy	2016	9	01 July 2018
GRI 416: Customer Health and Safety	2016	11	01 July 2018
GRI 417: Marketing and Labeling	2016	12	01 July 2018
GRI 418: Customer Privacy	2016	9	01 July 2018
GRI 419: Socioeconomic Compliance	2016	9	01 July 2018
	Total	229	

Figure 2.2. Structure of the topic-specific Standards

Source: Created by the authors according to GRI (2020d).

The total length of the universal Standards is 94 pages while the topic-specific Standards have 451 pages, which gives a total of 545 pages of GRI Standards. Comparing the GRI Standards with the International Financial Reporting Standards, the world's most widespread accounting standards for financial reporting, there is not significant difference in their length. Thus, it can be concluded that the GRI Standards have a lot of potential to become mandatory for CSR reporting in the future because of their wide application and reporting areas.

2.3. OECD Guidelines for Multinational Enterprises

The Organization for Economic Co-operation and Development (OECD) within the key aim of building better policies for better lives adopted the first international legal document on corporate responsibility addressed by governments to multinational companies. "In 1976, the Organisation for Economic Co-operation and Development (OECD) adopted the OECD Guidelines for Multinational Enterprises as part of the Declaration on International Investment and Multinational Enterprises. Since then, the Guidelines have been updated five times" (Bonucci & Kessedjian, 2018), in 1979, 1982, 1984, 1991, and the last time at the Ministerial Meeting of 27 June 2000, containing clarifications, comments, and explanations on the Guidelines (Oldenziel, 2000, p. 9). The OECD Guidelines for Multinational Enterprises are the most comprehensive international standards on Responsible Business Conduct (RBC), which is about integrating the management of environment, people and society risks within the core of business activities (OECD, 2020). "RBC principles and standards set out the expectation that businesses—regardless of their legal status, size, ownership or sector—contribute to sustainable development, while avoiding and addressing adverse impacts of their operations including throughout their supply chains and business relationships" (OECD, 2020). Accordingly, the OECD Guidelines "cover all key areas of business responsibility, including human rights, labour rights, environment, bribery, consumer interests, as well as information disclosure, science and technology, competition, and taxation" (OECD, 2020).

The OECD Guidelines are divided in two parts. The first part refers to the recommendations for responsible business conduct in a global context (standards), while the second part refers to the implementation procedures of the OECD Guidelines, (OECD Guidelines, 2011). There are approximately 50 pages of the guidelines making them relatively simple for application. The structure of the OECD Guidelines (the first part) is presented in Figure 2.3.

According to the OECD Watch (2020), a global network of civil society organizations whose key aim is to inform and advise the global NGO community on how to use the OECD Guidelines, "what makes the OECD Guidelines unique are:

1) international and extraterritorial scope;
2) clear recognition of supply chain responsibility;
3) broad coverage of issues and business sectors;
4) backing by government; and
5) grievance mechanism for resolving conflicts regarding alleged corporate misconduct".

Figure 2.3. Structure of the OECD Guidelines for Multinational Enterprises

Source: (Ministry of Foreign Affairs, 2020).

Each adhering country shall set up a National Contact Point (NCP) "to further the effectiveness of the Guidelines by undertaking promotional activities, handling enquiries and contributing to the resolution of issues that arise relating to the implementation of the Guidelines in specific instances, taking account of the attached procedural guidance" (OECD Guidelines, 2011, p. 68). In September 2020, there were 49 NCPs around the world.

2.4. UN Sustainable Development Goals

The continuous progress of the human race, which causes many harmful consequences such as increase of greenhouse gases emission and excessive environmental pollution, has led to a point at which each person must think about his/her behaviour when it comes to environmental and social issues. More than individuals, companies have to control their impact on the society and environment. In that context, after more than two decades of preparations, all United Nations Member States have adopted the 2030 Agenda for Sustainable Development with its 17 Sustainable Development Goals (SDGs) at the UN Sustainable Development Summit in New York in September 2015. The 2030 Agenda for Sustainable Development provides a shared blueprint for peace and prosperity for people and the planet while its 17 SDGs stand for an urgent call for action by all countries—developed and developing—in a global partnership (UN, 2020b). "Today, the Division for Sustainable Development Goals (DSDG) in the United Nations Department of Economic and Social Affairs (UNDESA) provides substantive support and capacity-building for the SDGs and their related thematic issues, including water, energy, climate, oceans, urbanization, transport, science and technology, the Global Sustainable Development Report (GSDR), partnerships and Small Island Developing States" (UN, 2020b). The list of all SDGs is presented in Figure 2.4.

Figure 2.4. The Sustainability Development Goals

Source: (The Global Goals, 2020b).

Each goal has a specific target or more targets to be achieved over the 15 years from their adoption, until the 2030. "They recognize that ending poverty and other deprivations must go hand-in-hand with strategies that improve health and education, reduce inequality, and spur economic growth—all while tackling climate change and working to preserve our oceans and forests" (UN, 2020b). An example of goal targets for the SDG 13—Climate action is presented in Figure 2.5.

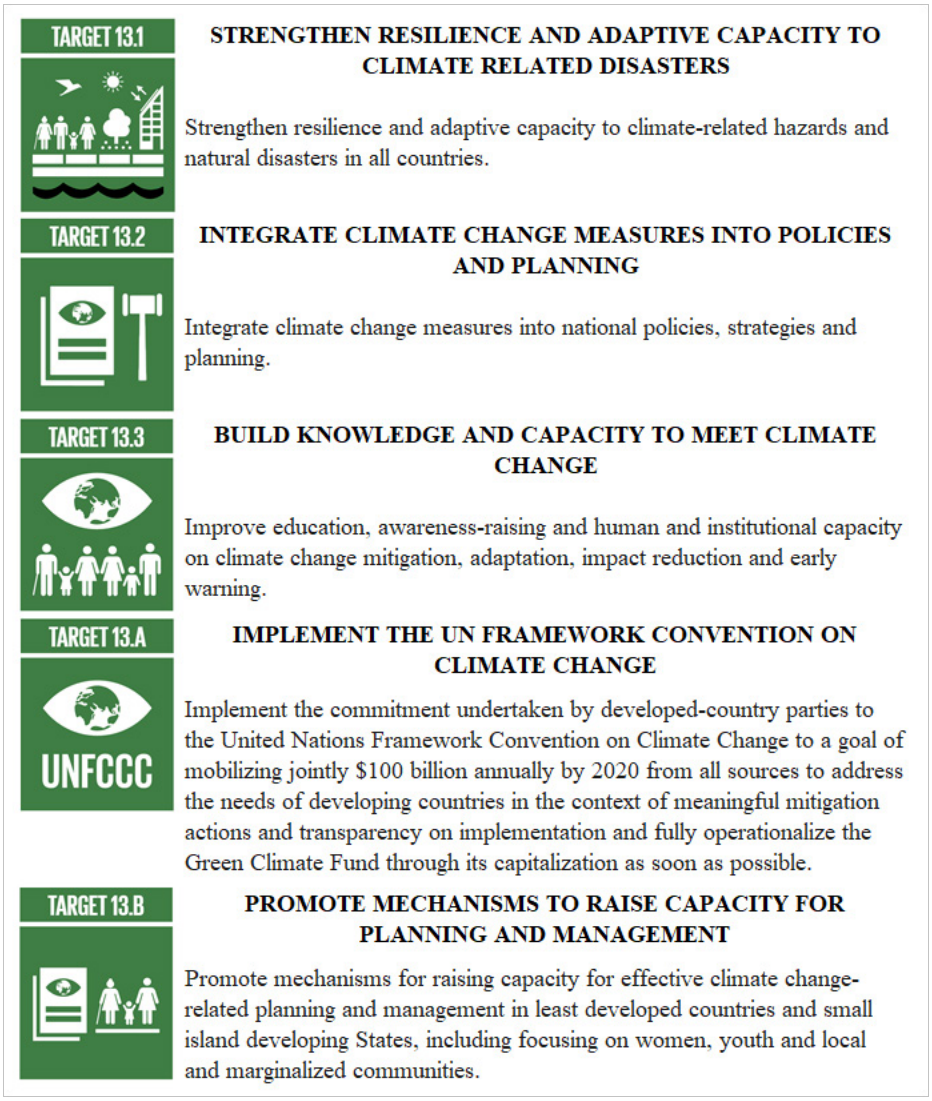

Figure 2.5. The SDG 13—Climate action targets

Source: (The Global Goals, 2020a).

There are also indicators for each target to enable organizations to track settled and achieved goals. For example, the first target of the SDG 13 has three indicators (UN, 2020a):

1) number of deaths, missing persons and persons affected by disaster per 100,000 people;
2) number of countries with national and local disaster risk reduction strategies;
3) proportion of local governments that adopt and implement local disaster risk reduction strategies in line with national disaster risk reduction strategies.

In order to facilitate reporting on the SDGs, there is a three-step process presented in Figure 2.6.

Figure 2.6. The three-step process to embed the SDGs in reporting processes

Source: (GRI & UNGC, 2018, p. 5).

Even though it is about newly adopted goals, "SDGs have resonated strongly with businesses worldwide in less than two years since their launch" (KPMG, 2017, p. 39). According to the KPMG 2017 survey, 39% of N100 and 43% of G250 (see footnote 1)

linked their corporate responsibility activities with the SGDs. Furthermore, according to the official SDGs report, OECD countries represent most countries in the top 20 in 2020 with three Nordic countries in the top 3 (Sachs et al., 2020, p. 25). The SDG index calculated in the official SDGs reports represents a country's position between the worst (0) and the best or target (100) outcomes. Table 2.1 presents the first 42 and the least 41 countries SDG 2020 index.

Table 2.1. SDG 2020 index

Rank	Country	Score	Rank	Country	Score
1	Sweden	84.7	126	Syrian Arab Republic	59.3
2	Denmark	84.6	127	Senegal	58.3
3	Finland	83.8	128	Côte d'Ivoire	57.9
4	France	81.1	129	The Gambia	57.9
5	Germany	80.8	130	Mauritania	57.7
6	Norway	80.8	131	Tanzania	56.6
7	Austria	80.7	132	Rwanda	56.6
8	Czech Republic	80.6	133	Cameroon	56.5
9	Netherlands	80.4	134	Pakistan	56.2
10	Estonia	80.1	135	Congo, Rep.	55.2
11	Belgium	80.0	136	Ethiopia	55.2
12	Slovenia	79.8	137	Burkina Faso	55.2
13	United Kingdom	79.8	138	Djibouti	54.6
14	Ireland	79.4	139	Afghanistan	54.2
15	Switzerland	79.4	140	Mozambique	54.1
16	New Zealand	79.2	141	Lesotho	54.0
17	Japan	79.2	142	Uganda	53.5
18	Belarus	78.8	143	Burundi	53.5
19	Croatia	78.4	144	Eswatini	53.4
20	Korea, Rep.	78.3	145	Benin	53.3
21	Canada	78.2	146	Comoros	53.1
22	Spain	78.1	147	Togo	52.7
23	Poland	78.1	148	Zambia	52.7
24	Latvia	77.7	149	Angola	52.6
25	Portugal	77.6	150	Guinea	52.5
26	Iceland	77.5	151	Yemen, Rep.	52.3
27	Slovak Republic	77.5	152	Malawi	52.2
28	Chile	77.4	153	Sierra Leone	51.9
29	Hungary	77.3	154	Haiti	51.7
30	Italy	77.0	155	Papua New Guinea	51.7
31	United States	76.4	156	Mali	51.4
32	Malta	76.0	157	Niger	50.1
33	Serbia	75.2	158	Dem. Rep. Congo	49.7
34	Cyprus	75.2	159	Sudan	49.6
35	Costa Rica	75.1	160	Nigeria	49.3
36	Lithuania	75.0	161	Madagascar	49.1
37	Australia	74.9	162	Liberia	47.1
38	Romania	74.8	163	Somalia	46.2
39	Bulgaria	74.8	164	Chad	43.8
40	Israel	74.6	165	South Sudan	43.7
41	Thailand	74.5	166	Central African Republic	38.5
42	Moldova	74.4			

Source: (Sachs et al., 2020, pp. 26–27).

"Since 2015, the world has seen the most rapid progress towards SDG 1 (No Poverty), SDG 9 (Industry, Innovation and Infrastructure), and SDG 11 (Sustainable Cities and Communities)" (Sachs et al., 2020, p. 29). Unfortunately, Covid-19 will probably slow the progress of all goals and even decrease some positive trends, but organizations as well as countries and unions have to strive to reach the long-term objectives of the 2030 Agenda.

2.5. UN Global Compact Communication on Progress

The United Nations Global Compact (hereafter UN Global Compact) is one of the largest corporate sustainability initiatives in the world, launched in 2000. It stands for "a call to companies everywhere to align their operations and strategies with ten universally accepted principles in the areas of human rights, labour, environment and anti-corruption, and to take action in support of UN goals and issues embodied in the Sustainable Development Goals" (UN Global Compact, 2019, p. 2). There is the Communication on Progress (hereafter: COP) within the UN Global Compact which "is intended as a mechanism to inform company stakeholders (e.g. investors, consumers, civil society, governments) on progress made in implementing the ten principles" (UN Global Compact, 2019, p. 5). There is a linkage between the 10 Principles of the UN Global Compact and 17 SDGs (Figure 2.7) making it clear that global sustainability principles, standards, and frameworks should be commonly used to enhance the overall reporting process.

There is a minimum content requirement of the COP, respectively, "each COP must contain the following three elements:

1) a statement by the chief executive expressing continued support for the Global Compact and renewing the company's ongoing commitment to the initiative and its principles;
2) a description of practical actions (e.g. disclosure of any relevant policies, procedures, activities) that the company has taken (and plans to take) to implement the Global Compact principles in each of the four issue areas (human rights, labour, environment, anti-corruption);
   Note: In cases where a COP does not address one or more of the four issue areas, an explanation must be provided ('report or explain').
3) a measurement of outcomes (i.e. the degree to which targets/performance indicators were met, or other, qualitative or quantitative, measurements of results)" (UN Global Compact, 2019, p. 5).

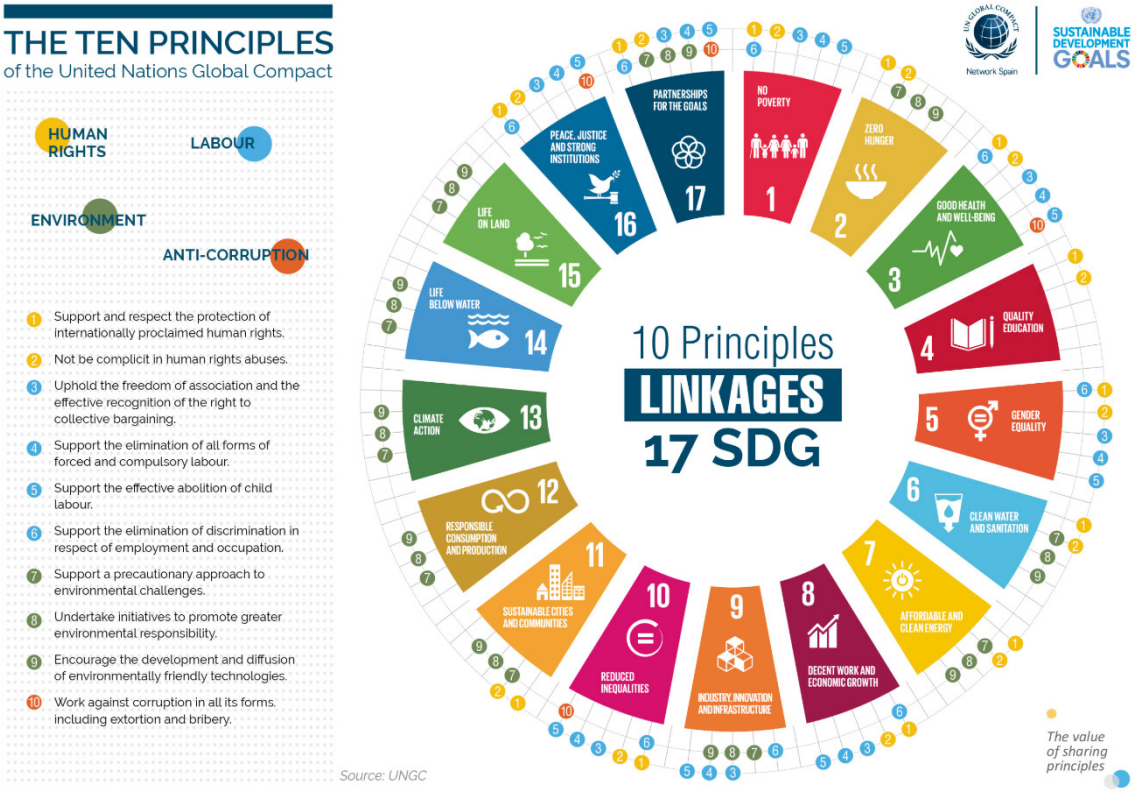

Figure 2.7. The linkage between the 10 Principles of the UNGC and 17 SDGs

Source: (SDG services, 2020).

There is also a differentiation programme manifested through three levels of reporting: GC Active, GC Advanced, and GC Leadership[2].

2.6. ISO 26000—Guidance on social responsibility

The International Organization for Standardization (hereafter ISO) launched the ISO 26000:2010, Guidance on social responsibility (hereafter ISO 26000) in 2010. ISO 26000 is one of the more than 21,500 ISO Standards which "provides guidance to all types of organizations, regardless of their size or location, on:

1) concepts, terms and definitions related to social responsibility;
2) the background, trends and characteristics of social responsibility;
3) principles and practices relating to social responsibility;

[2] See more in (UN Global Compact, 2019).

4) the core subjects and issues of social responsibility;
5) integrating, implementing and promoting socially responsible behaviour throughout the organization and, through its policies and practices, within its sphere of influence;
6) identifying and engaging with stakeholders; and
7) communicating commitments, performance and other information related to social responsibility" (ISO, 2010).

A systematic and overall overview of ISO 26000 is provided in Figure 2.8.

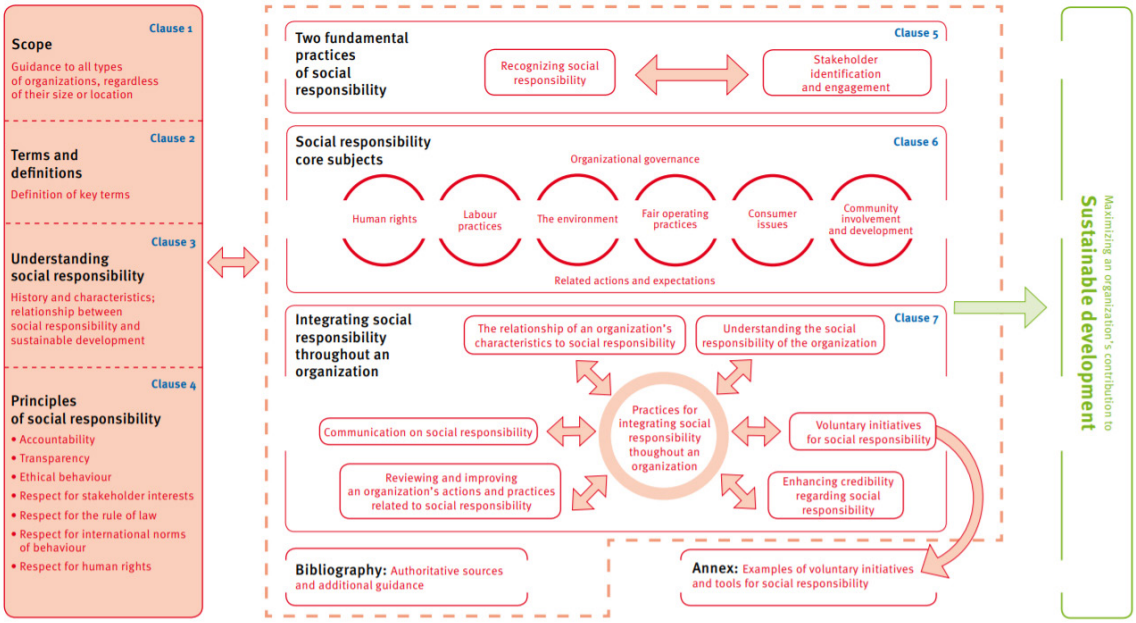

Figure 2.8. Schematic overview of ISO 26000

Source: (ISO 26000, 2020).

Since the ISO 26000 does not provide requirements but rather guidance as well as examples of social responsibility to organizations, it is not intended for certification purposes unlike most ISO standards. Organizations may use guidelines of the ISO 26000 while implementing and applying the GRI Standards, UN SDGs, OECD Guidelines, and UN Global Compact Principles.[3] Comparing the definition of ISO 26000 with other most popular global standards and guidelines for social responsibility, the main difference is in the range of organizations to which the guidelines or standards are intended, but they all have a similar main aim which is to contribute to sustainable development in general.

[3] See more in (ISO, 2018; ISO & GRI, 2014; ISO & OECD, 2017; UN Global Compact, 2010).

2.7. Other frameworks for CSR reporting

In the previous chapters, some of the most commonly applied standards on sustainability reporting have been elaborated. However, in addition to them, there is a number of other significant global organizations which provide guidelines and frameworks that seek to help a range of users (stakeholders) in ensuring transparent sustainability reporting, reporting environmental and climate related information as well as in adopting socially responsible business practices.

Whereas there are many sustainability reporting frameworks, different international organizations seek to offer solutions that will be more specialized and that can be differentiated from existing ones. In this regard, an independent standard-setting body, the **Sustainability Accounting Standards Board (SASB)** in 2018 issued sustainability disclosure standards focused on reporting on "financially material information covering a range of industry-specific sustainability areas, including environmental and social topics and the governance of those topics" (SASB, 2020c). In other words, the concept of materiality has been adopted as the most important determinant that differentiates them from other sets of sustainability standards. There is a total of 77 standards that are "providing a complete set of globally applicable industry-specific standards which identify the minimal set of financially material sustainability topics and their associated metrics for the typical company in an industry" (SASB, 2020b). The importance and relevance of these standards is confirmed by leading companies that use these guidelines in sustainability reporting, such as Yamaha, Adobe, Caterpillar, Ford, Cemex, eBay, Arch and many others (SASB, 2020a).

Moreover, a leading global sustainability framework developer and standards setter **AccountAbility** issues an AA1000 series of Standards that include "simple, practical, and easy-to-use frameworks for:

- developing, analysing, and implementing sustainability initiatives (AA1000AP, issued in 2018);
- creating and conducting inclusive sustainability-related stakeholder engagement practices (AA1000SES, issued in 2015);
- assuring credibility in reporting on progress toward sustainability goals (AA1000AS v3)" (AccountAbility, 2020b).

The prevalence of the application of these standards worldwide is shown by the fact that "over 25 years, AccountAbility has served businesses, investors, governments, and multi-lateral organizations across North America, Europe, the Middle East, Asia, and Africa" (AccountAbility, 2020a). Their clients are leading companies from various industries like Shell, Bayer, The Coca-Cola Company, Walmart, Nestle, Mc Donald's and many others (AccountAbility, 2020a).

Given the requirements of the Non-Financial Reporting Directive (2014/95/EU) large public interest companies with over 500 employees are obliged, *inter*

alia, to disclose environmental and climate change related information. In this regard, in 2019 the **European Commission** has published guidelines on reporting climate-related information which are a supplement to the general non-binding guidelines on non-financial reporting issued in 2017 (European Commission, 2019a). These new guidelines on climate reporting contains "explanations of key concepts in relation to reporting climate information under the Non-Financial Reporting Directive, including materiality, climate-related risks, opportunities, and natural capital dependencies as well as proposals for what to report regarding the climate under each of the reporting areas identified in the Non-Financial Reporting Directive (business model, policies, outcomes, risks and indicators)" (European Commission, 2019b).

Climate Disclosure Standards Board (CDSB) in December of 2019 issued a Framework for reporting environmental and climate change information as a method of compliance with environmental reporting legislation (CDSB, 2019). The following data demonstrate the widespread application of the CDSB Framework: "74 companies[4] across 32 countries[5] are currently using the CDSB Frameworks; with companies across 10 sectors[6] using the frameworks, their approach provides consistency and comparability for investors and other stakeholders; CDSB Frameworks are currently referenced in 7 stock exchanges across the world, covering all continents" (CDSB, 2019).

Finally, based on the analysis of the most important global principle-based reporting frameworks, it can be said that there is a good basis for compiling quality non-financial reports. Additionally, good preconditions for quality sustainability reporting which benefit a wide range of users (investors, employees, customers, suppliers, regulators and other public and private organizations) have been achieved.

Questions / tasks

1. List the most commonly used social responsibility reporting standards and the organizations that have developed them.
2. Describe the structure of the GRI Standards.
3. Which of the topic-specific GRI Standards series is the most comprehensive?
4. Explain the differences between the first and the second part of the OECD Guidelines.
5. Specify the key areas the OECD Guidelines cover.
6. Describe the structure of the SDGs.

[4] Among them are: BT Group, Nestle and Coca cola HBC (CDSB, 2019).

[5] Top 5 Countries: UK, Japan, South Africa, USA, South Korea (CDSB, 2019).

[6] Top 10 sectors: Industries, Finance, Consumer Discretionary, Materials, Consumer Staples, Information Technology, Utilities, Energy, Health Care, Telecommunication Services (CDSB, 2019).

7. Provide at least five SDGs.
8. Determine the minimum content elements of the Communication on Progress within the UN Global Compact.
9. What is the main difference between the ISO 26000:2010 and most other ISO standards?
10. Which generally accepted accounting principle differentiates the SASB standards among other social responsibility reporting standards?

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3.

NARRATIVE REPORTING

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Abstract: For years financial and management accounting reports were based primarily on "hard" numbers. Extensive written descriptions and explanations were not common in practice. However, in recent decades there has been a significant shift towards "softer" and more narrative communication in accounting. The purpose of the chapter is to identify and describe the determinants of the development of accounting narratives in practice, and to explain why narratives are gaining importance in accounting communication. The chapter presents the links between accounting and language, the development of accounting narratives and the factors determining the use of narratives.

Narratives give economic units the opportunity to explain the situation and the achieved financial results. The use of narratives helps to better meet the information needs of stakeholders. There are still many challenges ahead of narrative financial reporting, such as determining the minimum content of reports, ensuring comparability of reports or the issue of external control of narrative financial reporting.

An insufficient application of professional accounting materiality judgment is considered as one of the main causes of disclosing too much irrelevant information and not enough relevant information. Preparers of narrative reports should be aware that without applying materiality principle the information disclosed in the reports are not considered transparent and stakeholders lose confidence in such companies.

Keywords: accounting, communication, language, materiality principle, narrative reports, narratives, reporting, reporting accounting, transparent reporting.

3.1. Accounting communication—from numbers to text

Accounting is commonly called the "language of business" as it enables communication between preparers and users of accounting information. Accounting is also a tool for describing and constructing the image of the economic reality in which an entity operates. While natural language reflects phenomena in the real world, accounting reflects phenomena in the business world. Accounting communication may be also referred to as a process of creating and sharing meaning (Jack, Davison, & Craig, 2013).

A question arises at this point: is accounting a language or does accounting just use natural language? According to Masztalerz (2018a), the links between accounting and language may be analysed by adopting four different approaches:

- structural approach: accounting is a language as it has similar structure—dictionary and grammar);
- functional approach: accounting is a communication tool and performs all language functions);
- semiotic approach: accounting is a system of signs and meanings;
- social approach: accounting is a socio-cultural phenomenon and an instrument of social construction of the image of reality.

There is also the second face of linguistic issues in accounting, namely the use and role of natural language (and thus also narratives) in accounting. The use and role of language in accounting communication may be considered, *per analogiam*, by using four approaches to the accounting as a language. Firstly, under the structural approach, natural language is used in accounting in order to name, classify, and reflect the economic transactions and other phenomena that need to be taken into consideration while preparing financial statements and other accounting reports. Secondly, under the functional approach, language and text are used in order to facilitate the communication process and to provide comprehensive and understandable information from senders (e.g. accountants) to receivers (e.g. financial statement users). Thirdly, under the semiotic approach, the use of language is required for constructing meaning(s) and create a real or imagined picture of the economic reality in which an entity operates, or even to manage the impression on the users of information. Finally, under the social approach, language is used in the accounting communication process in order to integrate the members of a community (e.g. within an organization), or to accumulate knowledge, but it may also be a tool for constructing the reality.

For years accounting reports (especially financial statements) were based primarily on "hard" numbers (accompanied by brief narrative notes to the items of the financial statements), and accounting communication was equal to providing

information. Extensive written descriptions or explanations were not common in practice. However, in recent decades, there has been a significant shift towards "softer" and more narrative communication in accounting. This "narrative turn" in accounting gives rise to new research challenges and perspectives (Beattie, 2014; Brennan & Merkl-Davies, 2013; Masztalerz, 2018a). The purpose of this section is to present the development of accounting narratives and to explain why narratives are still gaining importance in the process of accounting communication processes.

The importance of language in accounting communication has increased significantly in the last decades. Contemporary accounting, both in its theoretical and practical dimension, can no more be simply regarded as a technical and number-based discipline. It has been constantly developing in a rather "soft" and text-based direction (Brennan & Merkl-Davies, 2013). Accounting written narratives appear, for instance, in annual reports, financial statements, management commentaries, social responsibility and sustainability reports, integrated reports, intellectual capital reports, management accounting and performance reports, national and international accounting standards and other regulations, principles and guidelines issued by numerous professional accounting bodies, accounting textbooks, papers, articles and monographs. There are several reasons why language and narratives have been systematically gaining importance in the processes of accounting communication. According to Merkl-Davies and Brennan (2013), voluntary and discretionary narrative disclosures in accounting are determined by the following causes:

- providing incremental information in order to improve the process of decision-making by users operating in the conditions of information asymmetry;
- managerial hubris, i.e. the belief of managers that they have control over all the effects of their decisions, and through narratives in reports, they try to reduce cognitive dissonance among the recipients of the information;
- retrospective sense-making for past events in order to maintain control;
- impression management, i.e. presentation of the company's performance in the best possible light through a variety of communication measures to build reputation or create positive image.

Masztalerz (2016) identifies eight reasons why language and narratives have been gaining importance in accounting communication (Figure 3.1). An important contributor is the increasing complexity of economic phenomena, involving the necessity of giving additional written explanations in order to ensure intelligibility. The accounting narratives aim to enable in-depth understanding of those complex phenomena. A given number in a financial statement may be insufficient for the information user if the nature of the related item or phenomenon is not clearly described and explained. The increasing complexity of economic phenomena had a significant impact on the growing needs of accounting information users and decision makers, who want to understand the determinants of a company's financial position and performance, so they expect not only relevant information,

but also intelligible explanations to be included in corporate reports. Around each enterprise there are groups of stakeholders interested in different aspects of the organization's performance. If an organization aims to fully satisfy their information needs, some relevant explanatory narratives must be included in the financial statements, reports or other messages containing accounting information.

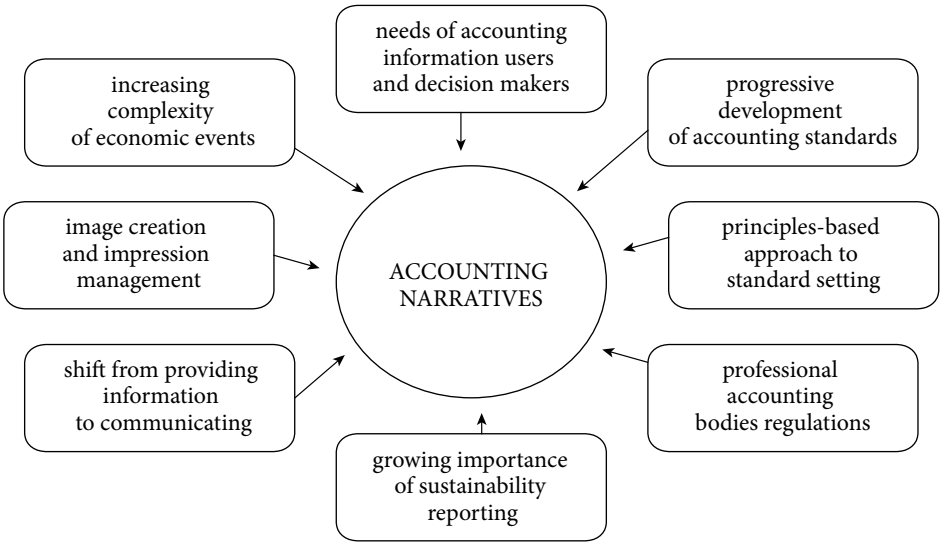

Figure 3.1. Determinants of the development of narratives in accounting

Source: (Masztalerz, 2016, p. 102).

In response to the growing needs of accounting information users, many professional accounting bodies have been (and undoubtedly will be) issuing standards, principles, guidelines, and other regulations or statements which may be considered as accounting narratives themselves, but on the other hand, they have also had a significant impact on the use of language in accounting communication practice. The most visible example is the progressive development of accounting standards, particularly the International Financial Reporting Standards (IFRS). Since 2001 the International Accounting Standards Board (IASB) has issued an average of over one new standard per annum, not to mention the renewals of numerous formerly published standards (IAS). Currently, along with all the accompanying documents such as bases for conclusions, implementation guidance, illustrative examples, interpretations and a practice statement, the complete text of the IFRS has nearly 4,000 pages, and it will undoubtedly grow in the future. The influence of the IFRS, on the use of narratives in annual reports results from at least two reasons. On one hand, the IFRS have been requiring more and more compulsory written disclosures in the notes to the financial statements (in order to present and

explain accounting policies, judgments, estimations, etc.), and on the other hand, since the publication of the IFRS practice statement Management Commentary in 2010, the IASB has been encouraging entities to prepare these non-binding narrative reports to provide context within which to interpret the entity's position, performance and progress. The major objective of the management commentary is to supplement the financial statements with additional explanations of the amounts presented in the financial statements and the conditions and events that shaped that information, and to complement the financial statements with financial and non-financial information about the entity's position, performance and progress. Management commentary should communicate information about the enterprise's economic resources and explain the main trends and factors that are likely to affect the enterprise's future performance, position and development. All that information requires narrative disclosure.

Another reason for the increase in using narratives in accounting communication is the principles-based approach to standard setting. According to this approach, accounting standards are not designed to regulate the accounting treatment of all possible particular phenomena or events (as it is in case of the rules-based standards), but rather to indicate general principles focused on achieving accounting objectives. The application of the principles-based standards in the preparation of financial statements requires regular use of professional judgment, and hence the use of verbal descriptions in order to explain accounting policies and all underlying assumptions and estimations to the information users.

Not only the financial reporting standards strengthen the role of narratives in the process of accounting. This is also the case of particular professional accounting bodies regulations. The Global Management Accounting Principles (GMAP) issued in 2014 by two international professional bodies—Chartered Institute of Management Accountants (CIMA) and American Institute of Certified Public Accountants (AICPA)—may serve as a glaring example. The document was designed to guide management accounting practice and includes four principles: Communication provides insight that is influential; Information is relevant; Impact on value is analysed; and Stewardship builds trust. According to CIMA and AICPA (2014, p. 6), "numbers usually require explanation [and] management accounting helps organizations translate numbers into meaningful narrative analysis". The GMAP stresses the importance of verbal description in management accounting reports as narratives make the accounting information more understandable for its users.

The next reason for the increasing use of verbal descriptions in the process of accounting communication is the growing importance of sustainability reporting, which is a natural consequence of the growing importance of sustainable development and the concept of corporate social and environmental responsibility. In recent years several bodies have published documents containing guidelines and principles for organizations interested in reporting social and environmental

issues. An illustrative example is the International Integrated Reporting Framework published in 2013 by the International Integrated Reporting Committee (IIRC). According to IIRC (2013, p. 7), "an integrated report is a concise communication about how an organization's strategy, governance, performance and prospects, in the context of its external environment, lead to the creation of value". Integrated reporting encompasses such elements as organizational overview and external environment, governance, business model, risks and opportunities, strategy and resource allocation, performance, outlook, and basis of preparation and presentation (IIRC, 2013, pp. 24–29). An integrated report contains both quantitative and qualitative information as each provides context for the other. Numbers and indicators need narrative explanation in order to ensure effective communication, whilst narratives need numbers and indicators in order to support and justify the verbal commentary.

What is a common feature for many recent pronouncements made by different accounting and reporting professional bodies, is the focus on communication. This explicit shift from providing information to communicating results in a much greater use of narratives in internal and external reporting. As mentioned above, contemporary regulations and guidelines issued by professional accounting and reporting bodies (e.g. CIMA, AICPA, IIRC) put a lot of emphasis on communication. For example, in 2008 the American Institute of Management Accountants (IMA) published a new definition of management accounting, which undermines the traditional role of management accountants as information providers and stresses their active and partnering role in decision-making. According to IMA (2008, p. 2), management accountants provide the conceptual framework for converting data into information and fulfil the role of a enabler and strategic business partner along the entire information value chain. In turn, CIMA and AICPA (2014, p. 8), define management accounting as "the sourcing, analysis, communication and use of decision-relevant financial and non-financial information to generate and preserve value for organizations". The GMAP strongly emphasize the importance of communication because "management ac-counting begins and ends with conversations" (CIMA & AICPA, 2014, p. 9). By communicating insightful information at all stages of decision-making, processes management accounting leads to better decisions. The method and style of communication should be tailored to the information users, to the decision under discussion and to different decision styles. In order to improve the users' understanding, management accounting should rely largely on explanatory narratives enabling deeper insight into the entity's financial and non-financial position, performance and prospects.

The final reason for why accounting narratives have been gaining importance is related to image creation and impression management. Every entity (be it a company, a manager, a standard setter, a textbook author, a professional body, etc.) is naturally interested in presenting the best possible image of its position, performance

and prospects. Brennan and Merkl-Davies (2013) argue that impression management can play a role in restoring reputation, image or legitimacy in times of crisis or change. As far as financial reporting is concerned, this goal may be achieved by using creative or aggressive accounting methods (in the area of measurement, disclosure and presentation of specific items or transactions), what leads to the apparent improvement of the entity's financial position and performance reported in financial statements. Nonetheless, the impression management in accounting communication refers rather to the use of narratives and visuals in order to make and give the desired sense and meaning of the accounting information, and to influence the reader's perception, understanding and (re)actions.

3.2. Narrative financial reporting

As commonly understood, the purpose of accounting is to represent the situation and performance of economic units in numbers. However, accounting has always been, to a greater or lesser extent, related to narrative. Previously, the use of natural language in accounting was limited to explaining the accounting policy by entities and additional explanations to the financial statements. The significance of words in accounting has steadily increased and continues. The current annual reports largely consist of a verbal description.

In the accounting system financial information is expressed and described (Błażyńska, 2014, p. 164). In the specialist language of accounting, the adjective "financial" may indicate connections with the term "finance". The adjective "financial" in accounting can also connote the business financing. In another context, the adjective "financial" may also refer to financial reporting (Masztalerz, 2018b, p. 194).

In most publications concerning narratives in accounting, the presence of text in accounting is associated with reports provided by practice. Quantitative financial results are seldom communicated separately. Information provided to investors by economic units is a combination of quantitative and qualitative information. Annual reports of companies, which contain financial statements presenting information primarily in the form of numbers, also include management reports summarizing the most important events of the past year (Riley & Yen, 2019, p. 2).

Financial narratives have developed in the last decade (Moreno-Sandoval, Gisbert, Haya, Guerrero, & Montoro, 2019, p. 7). One of the first scientists who used the adjective "narrative" in the context of reporting was A.H. Adelberg (Kobiela-Pionnier, 2018, p. 102). In his article "Narrative Disclosures Contained in Financial Reports: Means of Communication or Manipulation?" he pointed out that public companies often influence investors or even manipulate their reactions in order to keep share prices at a satisfactory level or to raise capital at a lower price or on

more favourable terms. In his work, he referred to research from the 1960s and 1970s on the readability and understandability of reports (Adelberg, 1979, p. 179).

Although accounting is traditionally numbers-oriented, the role of language in communication in accounting is increasingly noticeable in recent years. The reason is that qualified financial results, such as sales revenue or net profit, are rarely communicated without any other comments. There is often an additional accompanying narrative. Narratives allow entities to elaborate on their financial performance (Riley & Yen, 2019).

Initially, the textual description in practice of accounting was used only in the notes, the part of the financial statements. Over time, reports using narrative accompanying financial statements began to be produced. Currently, the variety of forms of narrative reports and the scope of information disclosed there is growing.

Accounting, in theoretical and practical terms should not be associated only with numbers. In accounting practice, narratives appear primarily in parts of financial statements, management commentaries, social responsibility reports and integrated reports.

Some of the most common additional reports accompanying annual financial statements include:

- activity report;
- economic risk report;
- report on the impact of activities on the natural environment;
- intellectual capital report (Samelak, 2013, p. 118).

The increase in the level of disclosure of information in reports concerning environmental issues was the result of society's increasing expectations of companies to run activities that minimize the negative impact on the natural environment (Dyduch, 2017, p. 34). The scope of disclosure of environmental information (financial and non-financial) in corporate reporting depends mainly on the legal regulations in this area and the information policy of enterprises.

Business reporting needs to go beyond the traditional financial reporting. The end of traditional accounting understood as a system of recording and financial reporting is predicted. "It will lose its current character and will transform into the science of universal economic description, where narrative accounting replaces numerical values" (Kamela-Sowińska, 2014, p. 107).

There is no one generally accepted definition of narrative reporting in the literature (Mazurowska, 2014, p. 246). One of the definitions was presented by PWC (2007, p. 4) who cites it as comprehensive information provided together with financial statements in order to guarantee a better understanding of the entity's activity, its market position, strategy, results and prospects for future. Narrative reporting should therefore be understood as information supplementing the annual financial statements.

Narrative in accounting means the presentation of quantitative or qualitative information that complement the data from the traditional financial statements and appear before it (e.g. management commentary) or after it (all other additional reports). Their primary task is to provide an interpretative context for data on financial situation and performance (Kobiela-Pionnier, 2018, p. 105). The IFRS Management Commentary displays these documents as narrative report which provides interpretations about entity's position and performance. It is intended to extend and supplement the information presented in the financial statements.

Narratives are mainly used to expand and explain information presented in numbers. The textual description allows for a more detailed explanation of the situation and the results of activities of economic units.

The narrative information is generally more understandable than numbers, especially to users who do not have sufficient knowledge of financial data. Therefore the narrative can be a very good way of communication between an entity and its stakeholders.

Figures in a financial statement without descriptions and explanations may not be sufficient for stakeholders. Each enterprise can have some stakeholders who are more interested in some aspects of company's activity or results. If an organisation wants to provide required information, it should add some textual explanations to financial statement or other reports.

The use of narratives in accounting allows to better meet the needs of information users. Thanks to the textual description, this information can be explained in detail and be more understandable. More detailed explanations may increase shareholders' confidence in the information which they receive. By expanding the scope of information and the greater variety of forms of its transmission, stakeholders are more likely to find information that they are interested in.

The most important stakeholders using narrative reports are external users of information, such as investors, state administration institutions or local authorities. Internal users have access to a wide range of information, while for external users it is the narrative reporting that becomes a source of information on, for example, environmental impact or social responsibility. Thanks to narrative reporting, stakeholders can benefit from detailed information and explanations of entities' situation, financial results, plans and forecasts. Recipients of the information receive comprehensive explanations of the entity's situation, activities and future prospects. The narratives also enable reporting in areas such as environmental impact, economic risk or Corporate Social Responsibility.

Narratives provide stakeholders with detailed information and explanations of the entity's situation, financial results, plans and forecasts. Such use of the narrative is assessed positively. However, narrative reporting is criticized for too much freedom, staying out of control and for its use in marketing purposes.

The problem of narrative reports is their comparability. The lack of unambiguous requirements relating to reports using a textual description, the freedom to create them, and lack of a common length makes any attempt to compare them an extremely difficult task.

The reasons for the emergence of the concept of integrated reporting should be seen between others in insufficient financial reporting. Integrated reporting is a combination of financial and non-financial information. The essence of integrated reporting is providing financial and non-financial information to stakeholders. Therefore, the scope of the integrated report is greater than obligatory financial statements. Most of the integrated reports are prepared based on generally applicable standards and guidelines for reporting social responsibility, such as GRI guidelines and the ISO 26000 standard. These documents precisely outline the scope and type of non-financial information that should be disclosed in an integrated report. One must however remember that there are no such guidelines to the financial part of the integrated report (Garstecki, 2015, p. 503).

There are currently no detailed guidelines regarding the type of financial information disclosed in an integrated report. It has also not been settled whether the financial statements and other financial information should be the core of an integrated report, or just one of its many equivalent items (Garstecki, 2015, p. 506).

Accounting narratives are an increasingly important source of financial information. Narratives occupy a significant place in the reports of companies, especially in the annual report. They enable management to present a complex description of financial performance in a way which can be understandable for more recipients.

According to IFRS the financial statements contain financial information. They are not defined explicitly, but indirectly by identifying qualitative characteristics that financial information should have in order to be useful to the recipients of that information. It can be concluded that the mere fact of including information in the financial statements makes it financial information (Błażyńska, 2014, p. 162).

Financial statements are audited by external experts and are subject to control, while narrative reports are far more free and at risk of confusion and manipulation (Balata & Breton, 2005, p. 5). Currently, there are no detailed rules for the preparation of narrative reports that define, *inter alia*, their scope, volume or required information, as is the case with financial statements. There is also no general obligation to examine all narrative reports.

The results of the research by Balata and Breton (2005) suggest that narrative reports and financial statements, generally, present the same view of a situation although some differences can occur when the financial situation is not good. Even if the financial statement contains a loss, the thick, colourful and rich narrative report can suggest something else.

Scientists noticed managers' aversion to disclose bad news which may have an influence on company's value or reputation (Moreno-Sandoval et al., 2019, p. 7).

Other researchers investigated the relationship between readability of narrative accounting disclosure and financial performance (Souz, Rissatti, Rover & Borba, 2018, p. 59). According to that, narrative accounting is more complex when financial performance is worse. Managers can deliberately include complex financial information in narrative reports when performance is unsatisfactory. The complex narratives are sometimes used to hide negative financial information. Complex narratives are more difficult to understand and costlier in analysis. Complicated narrative reports can even discourage readers from reading them.

Accounting narratives are not as regulated and standardised as financial statements so there are a lot of ways to use them to create a positive image of a company. The content of narrative reports can be selectively chosen and help managers to portray a company and its performance in the most positive light.

Entities can change the scope of information disclosed in narrative reports. On one hand, they may omit areas where the information is negative from their point of view. On the other hand, they can display information that they want to share with their stakeholders.

Impression management in accounting narratives can be conducted in two principal ways (Clathworthy & Jones, 2003, p. 182). Usually, good news is more willingly presented than bad news. It should be in line with financial results. On the other hand, companies with less optimistic results do not concentrate on bad news but focus more on good news. Therefore, for less prosperous companies there may be some differences between accounting narratives and financial statements. In general, entities use more positive than negative keywords. The other issue is the explanation of causes of the results. Companies tend to attribute positive results to themselves and negative to the environment.

Narrative reports are intended to show non-financial issues, often uncountable or difficult to measure, and link them to financial results. The narrative is often used by entities as a tool for improving the image. While from the user's point of view, it has a specific financial dimension, which gives better possibilities of assessing the value creation mechanism. To make it possible the narrative must be integrated with the financial data and create a holistic picture of the company's activity (Kobiela-Pionnier, 2018, pp. 122–123).

The information provided shows that the growing scope of the use of narratives in reporting brings undoubted benefits for entities, as well as for information users. Entities can provide stakeholders with information they deem appropriate in an accessible form, while recipients receive comprehensive explanations of the entity's situation, activities and future prospects. However, despite the advantages of using narratives in accounting, one should be aware of the imperfections of such a way of presenting information and the associated risks.

On the basis of the presented content, it is possible to formulate several main postulates regarding narrative financial reporting:

- indication of obligatory narrative reports containing financial information;
- setting the minimum content of financial information in individual narrative reports;
- ensuring the comparability of narrative reports;
- resolving the issue of external control of narrative financial reports.

3.3. Importance of materiality principle in narrative reporting

Accounting principles represent the fundamental rules that have to be used within the whole accounting process (collection—processing—reporting). Some of the accounting principles include the going concern principle, accrual principle, cost principle, objectivity principle, materiality principle, consistency principle, prudence principle, full-disclosure principle, matching principle, principle of purchase price or production cost and substance over form. Over time, some of them proved to be particularly significant so they were given the status of generally accepted accounting principles (GAAP). The materiality principle is one of them.

Previous research showed that financial statements are becoming more extensive (the average length of annual report in UK increased from 26 pages in 1965 to 75 pages in 2004 (Beattie, Dhanani, & Jones, 2008), while Deloitte UK reported that its average length in 2016 was 155 pages) (Rep, 2020). In that context, the IASB has started the initiative entitled *Better Communication in Financial Reporting* in order to examine the existing problems in financial reporting and to find applicable solutions. In the beginning of the initiative, in 2012, the IASB conducted a research which led to the conclusion that financial statements do not contain enough relevant information, contains too much irrelevant information, and that there is a poor communication of disclosures (IASB, 2013, p. 35). An insufficient application of professional accounting materiality judgment is considered to be one of the main causes of the disclosure problem. Accordingly, the IASB started the project Disclosure Initiative which has been separated in several areas. One of the projects that directly focused on the materiality principle was the *Definition of Material (Amendments to IAS 1 and IAS 8)*. In order to spread and strengthen the awareness of the importance of materiality principle and to simplify its application, the IASB clarified and aligned the terms and the definition of materiality in the IFRSs and revised the *Conceptual Framework for Financial Reporting* to help improve consistency in the application of the materiality concept.

According to the IASB definition stated in the *Conceptual Framework*:

> Information is material if omitting, misstating or obscuring it could reasonably be expected to influence decisions that the primary users of general purpose financial

> reports make on the basis of those reports, which provide financial information about a specific reporting entity. In other words, materiality is an entity-specific aspect of relevance based on the nature or magnitude, or both, of the items to which the information relates in the context of an individual entity's financial report. Consequently, the Board cannot specify a uniform quantitative threshold for materiality or predetermine what could be material in a particular situation (IASB, 2018, par. 2.11).

Although the IFRSs present the fundamentals for financial reporting and disclosure requirements, they also require some non-financial disclosures. Furthermore, preparers of both financial and non-financial statements should consider materiality principle and use their professional judgment when disclosing information. Reports that contain irrelevant information do not meet stakeholders' needs (e.g. disclosure of accounting policies related to assets that the enterprise does not possess or defining the accounting categories in the notes already defined by the accounting standards). Likewise, reports that do not contain enough relevant information also do not meet all the stakeholders' needs. Narrative reporting in both financial and non-financial reporting should be based taking into account the materiality principle. Immaterial and generally known information increases only the length of report but decreases its quality. The length of report is not necessarily positively correlated with the quality of information disclosed. Reports that contain immaterial (irrelevant) information alongside relevant information require more attention of users, who might think that company wants to hide some information by disclosing immaterial information. Even worse scenario is disclosure of only immaterial (irrelevant, generally known) information without disclosing relevant information that stakeholders seek.

Nowadays, there are numerous examples of excellent narrative financial and non-financial reports, as well as a multitude of bad ones. The reason lies in the fact that most SMEs do not recognize benefits of such narrative financial and non-financial reporting. In addition, for most micro enterprises costs related to preparation of narrative reports overcome their benefits since most of micro enterprises are family businesses and do not perceive the benefits of reporting, in contrast to large, public, and multinational companies. Most micro enterprises do not perceive benefits of financial and non-financial reporting. However, there is a great potential of both financial and non-financial information to manage an enterprise in a more effective way and to make better business decisions.

In order to facilitate reporting process for micro enterprises, Directive 2013/34/EU allows member states to exempt them, alongside other simplifications, from the obligation to prepare notes to the financial statements as long as certain information is disclosed at the foot of the balance sheet (art. 36, 1. (b)). Not many member states transposed that possibility into their national legislation since micro entities present a major share in the economies. By doing so, a great information potential would be lost since in most economies micro entities make around 90%

of all entities. The problem of disclosing too much irrelevant information and not enough relevant information is also present in large companies. The IASB is still looking for a solution on how to motivate preparers to use professional judgment when it comes to the materiality principle. One idea that had been floated, but not brought into active use is the creation of a new standard which would contain only disclosure principles. By creating a standard such as that, preparers would have all the disclosure requirements set in one place, which could be a road map for drawing the notes. On the other hand, micro and small entities would even more benefit if the notes would be standardized in prescribed form, but considering the materiality of information disclosed.

To conclude, preparers have to be aware that users expect relevant information disclosed in the narrative reports to be able to make business decisions. All the reports, financial and non-financial, have to give a true and fair view of the business.

Task

Choose a well-known and long-lasting public company. Go to its corporate website and enter the "Investor Relations" or "For Investor" section. Compare the information presented by the company in the last year and (for instance) 10 or more years ago. Compare the scope of reporting (financial and non-financial, e.g. CSR reports, integrated reports, sustainability reports). Compare the length of the reports and their sections, like accounting policy or notes to the financial statements. Look at the forms of presentation (narratives and visuals). Do you see the difference? Can you explain why it is so?

Questions

1. List at least three examples of narrative reports.
2. Explain the goals of narrative financial reporting.
3. Identify the benefits of narrative financial reporting and the risks associated with it.
4. What are the main problems regarding the content of financial statements?
5. Application of which generally accepted accounting principle is necessary for the disclosure of significant information specific to the reporting company?
6. Explain the meaning of materiality principle and why is it important in the process of preparation of narrative reports.

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4.

INTEGRATED REPORTING

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Abstract: Companies struggle to communicate value through traditional reporting. Integrated reporting can prove to be an effective tool for businesses looking to shift their reporting focus from annual financial performance to long-term shareholder value creation. Such a shift should cover the demand from investors for a structured reporting framework that goes beyond the traditional financial reporting. The International Integrated Reporting Framework will encourage the preparation of a report that shows business performance against strategy, explains the various capital used and affected, and gives a longer term view of the organization. The framework will be attractive to companies who wish to develop their narrative reporting around the business model to explain how the business has been developed. Integrated reporting attained various degrees of popularity depending on the geographical regions. While it is mandatory for all companies listed in South Africa's stock exchange, in other regions it is used by businesses on voluntary basis. Research shows that in the USA the adoption of integrated reporting is slower than in most of the other developed regions.

Keywords: business model, intangible assets, integrated reporting, value creation.

Integrated reporting reflects how our company thinks and does business. This approach allows us to discuss material issues facing our business and communities and show how we create value, for shareholders and for society as a whole

Dimitris Lois, CEO, Coca-Cola HBC

4.1. Introduction

The primary purpose of an integrated report is to explain to provider of financial capital how an organization creates value over time. An integrated report benefits all stakeholders interested in company´s ability to create value, including employees, customers, suppliers, business partners, local communities, legislators, regulators and policymakers, although it is not directly aimed at all stakeholders.

Providers of financial capital can have a significant effect on the capital allocation and attempting to aim the report at all stakeholders would be an impossible task and increase the length of the report. This would be contrary to the objectives of the report, which is value creation.

An integrated report must be a specific and identifiable communication that can be either: a standalone report or included as a distinguishable, prominent and accessible part of another communication (e.g. annual report). It should be more than a summary of information in other communications but should provide insight into the connectivity of the information and how value was created over time. Companies may produce integrated reports for the following reasons.

- Internal reasons in order to integrate factors that are fundamental to business success.
- External reasons to demonstrate leadership and show investors and other stakeholders that they really understand the drivers of long term success.
- Regulatory reasons, since as of 2020, integrated reporting is mandatory for companies listed on the Johannesburg Stock Exchange. As efforts to modernize company law directives proceed and evolve we could expect integrated reporting to become mandatory in more stock exchanges.

4.2. Motivations to introduce integrated reporting

Historical financial statements are essential in corporate reporting, particularly for compliance purposes, but do not always provide meaningful information regarding business value. Users need a more forward-looking focus without the necessity of companies providing their own forecast.

A study by the Association of Certified Chartered Accountant (ACCA), *Understanding investors: Directions for corporate reporting* (2013), found that two-thirds of investors had lost trust in financial statements following the onset of the global financial crisis from 2007. Edelman's research to develop a *Trust Barometer* (2013) showed a greater importance was placed on integrity based issues rather than operational based issues such as financial performance. Findings of this nature prompted evolution of integrated reporting in order to address these problems. Besides that, established reporting schemes face two additional issues. Intangible assets do not feature on the face of financial reports the way that would be adequate to their increasingly important role. On the contrary, they would be fully contained within integrated report in a relevant manner. Secondly, in the past decades there was a proliferation of various non-financial reporting duties, often without formalized framework, which companies needed to adhere to. This led to the need to develop a structured formalized reporting framework that integrated reporting aims to be. These two issues are discussed a more detail in the next two subsections.

4.2.1. Invisible assets, loss of confidence in financial data

As a result of increasingly tense global competition, technological developments and deregulation, competition shifts into new areas. Currently, these areas are constituted by investment into qualified personnel and other non-tangible assets such as research and development, product design, trademarks, intangible distribution channels, customer relations, and business models. Such a trend could be observed in the content of the traded goods and services. They typically include a significant amount of knowhow and technical knowledge (e.g. multifunctional smart phone) or have a significant symbolical value thanks to their brand name (e.g. Nike). Consequently, these intangible assets play an equally important role as the tangible assets in the modern economy.

It is not possible to exactly quantify the ratio of tangible and intangible assets, however, it is possible to estimate this ratio by using several well-known global indicators such as *price-to-book value (P/BV),* which represent market capitalization to equity book value presented in statutory financial statements. Studies indicate that P/BV has been rapidly increasing over the past decades confirming the raising importance of intangible assets. For example, Lev (2001) shows that in the period between 1980–1999, P/BV rose almost six fold. Similar increase was found by a research firm Ocean Tomo as shown in Figure 4.1.

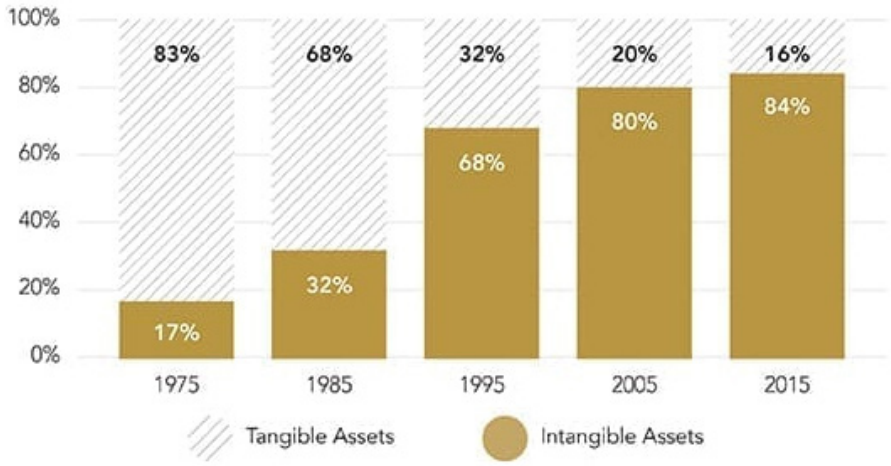

Figure 4.1. Intangible Asset Market Value Study

Source: (Ocean Tomo, 2015).

Indicator P/BV is used to show the proportion of intangible assets since intangible assets are presented in the statutory financial statements insufficiently. Currently, International Financial Reporting Standards (IFRS) provide accounting guidance in IAS 38 Intangible Assets, however, only a small proportion of intangible assets could be reported through this standard because of its reliability requirement that are difficult to meet. Similar issues exist with US GAAP as well. Estimated proportion of the intangible assets reported is shown in Figure 4.2.

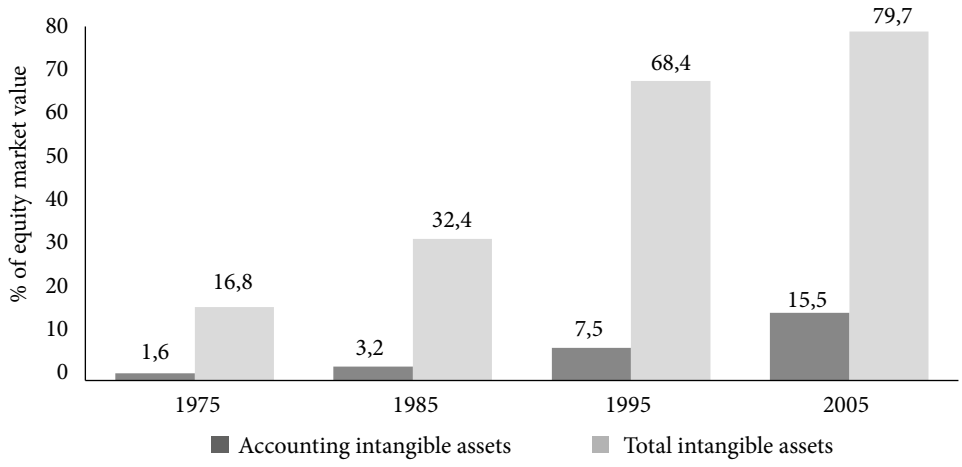

Figure 4.2. Reported versus total intangible assets

Source: (Cardoza, Basara, Cooper, & Conroy, 2006, adjusted).

4.2.2. Convolution of reporting schemes and a need for a structured approach

Corporate reporting has evolved over time and it is possible to divide this evolution into several stages. Until about 1980s the only required set of reports consisted of financial statements and notes to the financial statements. Going forward new reports were added next to the financial statements. Those were related to Environmental reporting, Governance and Remuneration reporting as well as Management Commentary. On the turn of the 20th century Sustainability reporting was also added to the list. These reports were driven by a guidance, however, this guidance was built-up over the time. Integrated reporting aims to become the centre ground and the reporting focus which would encompass topics from other reports, resulting in less clutter and improved comparability across reporting entities. Also, with integrated reporting in place the information containment is expected to be more useful and understandable.

4.3. International Integrated Reporting Council

The framework for integrated reporting is released by International Integrated Reporting Council (IIRC) which is a global coalition of regulators, investors, companies, standard setters, the accounting profession, academia and NGOs. The coalition promotes communication about value creation as the next step in the evolution of corporate reporting (IIRC, 2013).

In 2009, the Prince of Wales convened a high level meeting of investors, standard setters, companies, accounting bodies and UN representatives including The Prince's Accounting for Sustainability Project, International Federation of Accountants (IFAC), and the Global Reporting Initiative (GRI), to establish the International Integrated Reporting Committee (IIRC), a body to oversee the creation of a globally accepted Integrated Reporting Framework. In November 2011, the Committee was renamed the International Integrated Reporting Council. The IIRC began a pilot program in 2011 in order to underpin the development of the International Integrated Reporting Framework. The framework for integrated reporting was finally released in 2013. That was preceded by a three-month global consultation and trials in 25 countries.

4.4. Objectives of integrated reporting

The integrated report should create the next generation of the annual report as it enables stakeholders to make a more informed assessment of the organization and its prospects. In order to achieve that, integrated reporting should:

- Improve the quality of information available to providers of financial capital to enable a more efficient and productive allocation of capital.
- Provide a more cohesive and efficient approach to corporate reporting that draws on different reporting strands and communicates the full range of factors that materially affect the ability of an organization to create value over time.
- Enhance accountability and stewardship for the broad base of capital (financial, manufactured, intellectual, human, social and relationship, and natural).
- Promote understanding of the capitals their interdependencies.
- Support integrated thinking, decision-making and actions that focus on the creation of value in the short, medium and long term.

4.5. Fundamental concepts of integrated reporting

The centre of integrated reporting is the nature of value and the value creation process, which is depicted in Figure 4.3. These terms can include the total of all capital, benefits captured by the company, market value of cash flows of the organization, and the successful achievement of the company's objectives. However, the conclusion reached was that the framework should not define value from any one particular perspective, because value depends upon the individual company's own perspective. An integrated report should not attempt to quantify value, as assessments of value are left to those using the report.

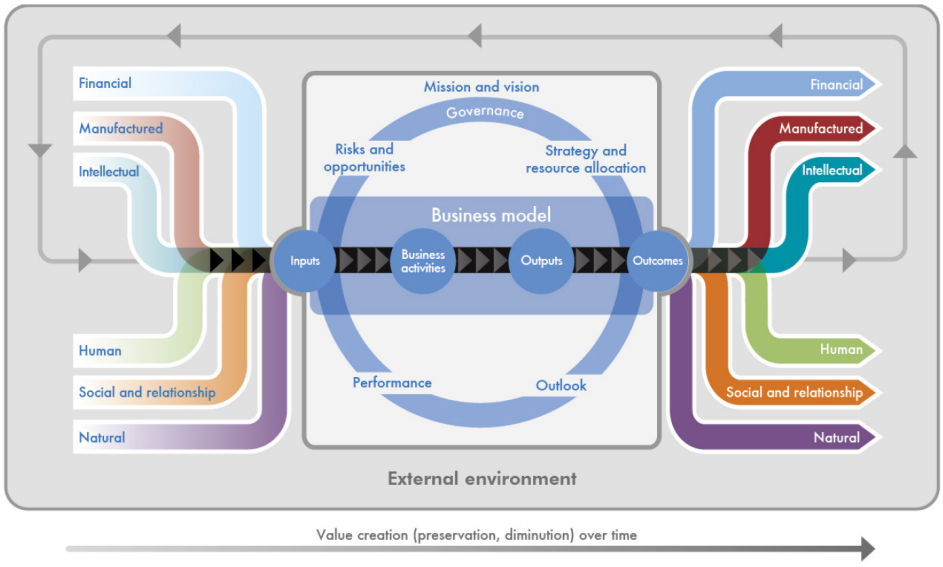

Figure 4.3. The value creating process

Source: (IIRC, 2013).

The external environment, including economic conditions, technological change, societal issues and environmental challenges, sets the context within which the organization operates. The mission and vision encompass the whole organization, identifying its purpose and intention in clear, concise terms.

At the core of the organization is its business model, which draws on various capital as inputs and, through its business activities, converts them to outputs (products, services, by-products and waste). The organization's activities and its outputs lead to outcomes in terms of effects on the capital. The capacity of the business model to adapt to changes (e.g. in the availability, quality and affordability of inputs) can affect the organization's long term viability.

Business activities include the planning, design and manufacture of products or the deployment of specialized skills and knowledge in the provision of services. Encouraging a culture of innovation is often a key business activity in terms of generating new products and services that anticipate customer demand, introducing efficiencies and better use of technology, substituting inputs to minimize adverse social or environmental effects, and finding alternative uses for outputs.

Chart in Figure 3 also depicts content elements which surround the business model and are described in subchapter 4.6. Individual capitals are described in subchapter 4.7.

4.6. Preparation of integrated report—Content Elements

The Content Elements are fundamentally linked to each other and are not mutually exclusive. The order of the Content Elements listed here is not the only way they could be sequenced. Content Elements are not intended to serve as a standard structure for an integrated report with information about them appearing in a set sequence or as isolated, standalone sections. Rather, information in an integrated report is presented in a way that makes the connections between the Content Elements apparent. Integrated reporting is built around the following content elements:

- **Organizational overview and the external environment in which it operates**: What does the organization do and what are the circumstances under which it operates?
- **Governance**: How does an organization's governance structure support its ability to create value in the short, medium and long term?
- **Business model**: What is the organization's business model?
- **Risk and opportunities**: What are the specific risks and opportunities that affect the organization's ability to create value over the short, medium and long term, and how is the organization dealing with them?

- **Strategy and resource allocation**: Where does the organization want to go and how does it intend to get there?
- **Performance**: To what extent has the organization achieved its strategic objectives for the period and what are its outcomes in terms of effects on the capitals?
- **Outlook**: What challenges and uncertainties is the organization likely to encounter in pursuing its strategy, and what are the potential implications for its business model and future performance?
- **Basis of preparation and presentation**: How does the organization determine what matters to include in the integrated report and how are such matters quantified and evaluated?

The framework does not require discrete sections to be compiled in the report, but there should be a high-level review to ensure that all relevant aspects are included. The linkage across the above content can create a key storyline and can determine the major elements of the report, such that the information relevant to each company would be different.

4.7. Preparation of integrated report—capitals

The integrated report aims to provide an insight into the company's resources and relationships which are known as the capital and how the company interacts with the external environment and the capital to create value. These capital can be financial, manufactured, intellectual, human, social and relationship and natural capital, but companies need not adopt these classifications. Below is the outline of the capital as describe by the International Framework material (IIRC, 2013).

- **Financial capital**—the pools of funds that is available to an organization for use in the production of goods or the provision of services and obtained through financing, such as debt, equity or grants, or generated through operations or investments.
- **Manufactured capital**—manufactured physical objects (as distinct from natural physical objects) that are available to an organization for use in the production of goods or the provision of services, including: buildings, equipment, infrastructure (such as roads, ports, bridges, and waste and water treatment plants). Manufactured capital is often created by other organizations, but includes assets manufactured by the reporting organization for sale or when they are retained for its own use.
- **Intellectual capital**—organizational, knowledge-based intangibles, including intellectual property (such as patents, copyrights, software, rights, licences) and "organizational capital" (such as tacit knowledge, systems, procedures and protocols).

- **Human capital**—people's competencies, capabilities and experience, and their motivation to innovate, including their: alignment with and support for an organization's governance framework, risk management approach, and ethical values, ability to understand, develop and implement an organization's strategy, loyalties and motivations for improving processes, goods and services, including their ability to lead, manage and collaborate.
- **Social and relationship capital**—the institutions and the relationships within and between communities, groups of stakeholders and other networks, and the ability to share information to enhance individual and collective well-being. Social and relationship capital includes shared norms, and common values and behaviours, key stakeholder relationships, and the trust and willingness to engage with the wider community.
- **Natural capital**—all renewable and non-renewable environmental resources and processes that provide goods or services that support the past, current or future prosperity of an organization. It includes air, water, land, minerals and forests, biodiversity and eco-system health.

4.8. Preparation of integrated report—guiding principles

The reporting framework is principle-based rather than specifying a detailed disclosure and measurement standard. This enables each company to set out its own report rather than adopt a checklist approach. The report acts as a platform to explain what creates the underlying value in a business and how management protects this value. This gives the report more business relevance than the compliance led approach. Integrated reporting will not replace other form of reporting, but the vision is that preparers will pull together relevant information already produced to explain the key drivers to their business value. Seven guiding principles are defined as follows:

- **Strategic focus and future orientation**—insight into the organization's strategy.
- **Connectivity of information**—showing a holistic picture of the combination, inter-relatedness and dependencies between the factors that affect the organization's ability to create value over time.
- **Stakeholder relationships**—insight into the nature and quality of the organization's relationships with its key stakeholders.
- **Materiality**—information will only be included in the report where it is material to the stakeholder's assessment of the business.
- **Conciseness**—sufficient context to understand the organization's strategy, governance and prospects without being burdened by less relevant information.
- **Consistency and comparability**—ensuring consistency over time and enabling comparisons with other organizations.

4.9. Integrated reporting practice—selected studies

The question whether companies have recognized the benefits of showing a fuller picture of company value and a more holistic view of the organization prompted a research into integrated reporting usage. This research indicates mixed conclusions depending on particular geographies. Several recent findings are cited below.

In depth research by Gibassier, Adams and Jérôme (2019) provides a definitive view of the global adoption of integrated reporting and how it is spreading. They found that 85% of self-declared integrated reporters discuss at least four capitals and 58% of those self-identifying as integrated reports are SMEs. In terms of numbers of reporters, South Africa and Japan were out ahead, with the UK, Netherlands and Spain in the next group. Industries with high intangibles, such as banking, are amongst the biggest reporters along with those with high environmental footprints, such as chemicals.

ACCA (2016) polled views of the users of financial information on integrated reporting. Overall, from the evidence gathered from equity investors and other providers of finance / financial users, it appears that sustained growth of demand for integrated reporting is needed for it to succeed in becoming the mainstream reporting framework. At present, while there is evidence of some use of and familiarity with integrated reporting among providers of financial capital, this appears to be limited mostly to those involved with specific ESG or ethically related investments / decision making and for those already familiar with broader sustainable reporting and/or have been involved at a firm or institutional level in the development and emergence of integrated reporting. There is at present little evidence of either use of or demand for integrated reporting among many mainstream fund managers or sell-side analysts.

A study by Eccles, Krzus and Solano (2019) explored the extent to which companies around the world use the integrated reporting framework to prepare their reports and whether the reports of the companies that do use it vary in quality and content measured by special scores. Five companies from each of the following countries were selected for the study: Brazil, France, Germany, Italy, Japan, the Netherlands, South Africa, South Korea, United Kingdom, and the United States for the study. The Netherlands and South Africa were the only two countries ranked high across all scores, and the United States was the only country ranked Low across all scores. The researchers found a wide gap in the quality of integrated reports around the world. The researchers assume that this gap reveals much more than whether companies in one country adhere to the IR Framework Guiding Principles and Content Elements better than those in other countries. Given the absence of generally accepted and enforceable standards for integrated reporting, companies are free to declare that they have published an integrated report, even if in doing so they demonstrate a misunderstanding of the concept.

As it seems that South Africa is a leader in integrated reporting while the USA is lagging significantly behind other developed countries, these two countries are discussed in more detail next.

Integrated reporting began in South Africa, and the country has contributed significantly to its development worldwide. South Africa is the only country where integrated reporting has been mandated on a "comply or explain" basis. JSE listed companies have been made to adopt this reporting system on "apply and explain" basis. Studies from South Africa generally confirm usefulness of integrated reporting for investors. Citing the same is research by Moloi (2020) who found a significant difference in firm value on account of differences in integrated reporting quality. This signals that the extent to which integrated reporting provides pertinent information is proportional and/or directly related to investors' confidence in the entity, which holistically has a value-adding effect for firms.

In the USA integrated reporting has seen much less usage. It is, however, worthwhile to heed the Investor Responsibility Research Institute (2018) which produces that there are indications that investors are fuelling demand for more and standardized corporate environmental and social data. Currently, most companies reporting on sustainability issues are navigating the landscape in their own way, using multiple reporting models and customizing guidance for their own needs. The number of integrated reporters in the S&P 500 has doubled between 2013 and 2018, although from a low baseline—14 in 2018 issue integrated reports, up from seven in 2013 (Investor Responsibility Research Institute, 2018).

Questions / tasks

1. Who are the beneficiaries of integrated reporting?
2. What are the main reasons for which companies publish integrated report?
3. Describe the wider factors that led to the need for integrated reporting framework.
4. How is integrated report related to financial statements and other established reporting duties?
5. How was the International Integrated Reporting Council created and when was the integrated reporting framework issued?
6. What are the major objectives of integrated reporting?
7. Describe what is meant by value creating process and what are its individual elements.
8. What are the pillars of a company's business model and how does it fit within the value creating process?
9. Describe the six capitals which represent the basic resources in integrated reporting framework.

10. What are the guiding principles based on which an integrated report should be created?
11. How widespread is the utilization of the integrated reporting framework in the world as of 2020?
12. What is the experience in applying the integrated reporting framework in various regions and states?
13. Contrast the utilization of the integrated reporting framework in South Africa and the USA.

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5.

NON-FINANCIAL REPORTING IN SELECTED EUROPEAN COUNTRIES

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Abstract: Directive 2014/95/EU gave the EU Member States a certain flexibility when transposing it into national law. Each Member State could, therefore, decide to introduce regulations of varying degrees of stringency. According to Directive 2014/95/EU, large companies have to publish reports on the policies they implement in relation to environmental protection, social responsibility and treatment of employees, respect for human rights, anti-corruption and bribery, diversity on company boards (in terms of age, gender, educational and professional background).

In order to satisfy the EU rules, the Republic of Croatia has implemented into its legislation the provisions of the Directive 2014/95/EU regarding the disclosure of certain non-financial reporting, by amending the Accounting Act. Some companies registered in Croatia have been disclosing some of the required non-financial information in their reports even before the effective date of the Directive, but conducted studies conclude that there is still a room for improvements.

This chapter provides a short overview of regulation of non-financial reporting in the Czech Republic as well as overview of previous research on non-financial reporting in this country. The results of the research present that few Czech companies publish standalone corporate responsibility report. More popular is the disclosure of non-financial information within annual financial reports but even this approach is pursued by less than half of respondents. The amount of disclosed information in annual reports is mostly up to 5 pages. 11 companies (10.38%) provide more than 5 pages of environmental information and only 7 companies (6.60%) provide more than 5 pages of social information.

In Poland, the requirement to present non-financial information relating to CSR was introduced by the Accounting Act. Public trust entities are required to present in the report on the activities a separate part called "Statement on non-financial information". In 2017, the Polish Standard of

Non-Financial Information (SIN, 2017) was published to help enterprises fulfil their obligations under the EU Directive.

Keywords: Directive 2014/95/EU, annual reports, non-financial reporting, questionnaire research, standalone corporate responsibility reports, web pages, Statement on non-financial information, Polish Standard of Non-Financial Information (SIN).

5.1. Legal regulations—Directive 2014/95/EU

European Union law requires large companies to disclose certain information on the way they operate and manage social and environmental challenges. This helps investors, consumers, policy makers and other stakeholders to evaluate the non-financial performance of large companies and encourages these companies to develop a responsible approach to business. Directive 2014/95/EU—also called the non-financial reporting directive (NFRD)—lays down the rules on disclosure of non-financial and diversity information by large companies. This directive amends the accounting directive 2013/34/EU. Companies are required to include non-financial statements in their annual reports from 2018 onwards. Large undertakings which are public-interest entities exceeding on their balance sheet dates the criterion of the average number of 500 employees during the financial year shall include in the management report a non-financial statement containing information to the extent necessary for an understanding of the undertaking's development, performance, position and impact of its activity, relating to, as a minimum, environmental, social and employee matters, respect for human rights, anti-corruption and bribery matters, including (Directive 2014/95/EU, art. 19a.1):

a) a brief description of the undertaking's business model;
b) a description of the policies pursued by the undertaking in relation to those matters, including due diligence processes implemented;
c) the outcome of those policies;
d) the principal risks related to those matters linked to the undertaking's operations including, where relevant and proportionate, its business relationships, products or services which are likely to cause adverse impacts in those areas, and how the undertaking manages those risks;
e) non-financial key performance indicators relevant to the particular business.

EU rules on non-financial reporting only apply to large public-interest companies with more than 500 employees. This covers approximately 6,000 large companies and groups across the EU, including (Non-financial reporting):

- listed companies,
- banks,
- insurance companies,

- other companies designated by national authorities as public-interest entities.

According to Directive 2014/95/EU, large companies have to publish reports on the policies they implement in relation to:

- environmental protection,
- social responsibility and treatment of employees,
- respect for human rights,
- anti-corruption and bribery,
- diversity on company boards (in terms of age, gender, educational and professional background).

Directive 2014/95/EU gives companies significant flexibility to disclose relevant information in the way they consider most useful. Companies may use international, European or national guidelines to produce their statements—i.e. they can rely on[1]:

- the UN Global Compact,
- the OECD guidelines for multinational enterprises,
- ISO 26000.

The introduction of Directive 2014/95/EU was meant to increase the usability, consistency and comparability of non-financial information disclosed by companies throughout the EU. However, as La Torre, Sabelfeld, Blomkvist, Tarquinio and Dumay (2018, p. 606) state, "the regulation is flexible in terms of how it can be transposed into different local contexts by the States". This means the possibility of adopting more or less stringent solutions in the national law of a given EU country regarding the disclosure of non-financial information, as part of the obligations imposed by Directive 2014/95/EU. This in particular applies to such issues as (see La Torre et al., 2018; Śnieżek, Krasodomska, & Szadziewska, 2018; Aureli, Magnaghi, & Salvatori, 2018):

- The scope of the non-financial information published (while maintaining the minimum indicated); specific standards containing unified solutions for measurement and reporting of such disclosures have not been defined.
- The manner of presenting non-financial disclosures; depending on the practices adopted in individual countries, non-financial information may be included in an annual report or in a non-financial report prepared additionally; other communication channels are not considered; consequently, as La Torre and others (2018, p. 604) note, "the regulation is a backward and old-fashioned policy because, in the era of Big Data, where digitalization, technological advances and new media offer several, arguably, better routes for communicating information".
- The use of various frameworks and guidelines for non-financial-information reporting; international and national organizations have developed a number of frameworks for sustainability reporting; the Directive does not indicate a single framework only, but provides the option of selecting international and national

[1] The non-financial reporting standards are described in Chapter 2.

reporting frameworks and guidelines to ensure legal compliance; moreover, individual guidelines are focused on both the different stakeholder groups and the aspects of the organization's activities; consequently, problems with the comparability of the non-financial information published by companies will remain.
- Verification of the non-financial information presented in the reports; the Directive did not impose any external audit obligation regarding non-financial disclosures; it allows the choice of a mandatory or a voluntary audit, as part of the national law; this affects the stakeholders' confidence in the reliability and completeness of the non-financial information published.
- Adoption of the "comply or explain" principle allows non-publication of non-financial information if, in accordance with the opinion of the head of the entity and the members of the supervisory board or another supervisory body, disclosure of such information would have negative impact on the market situation of the company; this allows the information to be withheld, if the entity deems it as sensitive data violating its business secrets.

The possibility to choose the solutions regarding the transposition of the above-mentioned matters into national law is not conducive to achievement of the objectives adopted in Directive 2014/95/EU, i.e. increasing the consistency and comparability of non-financial disclosures.

Considering the above, it should be stated that the need for further changes in the field of non-financial-information reporting still exists. As indicated by Mion and Loza Adaui (2019, p. 9) introduction of Directive 2014/95/EU "is only a part of a larger process aimed at creating an increasingly transparent European economic zone to guarantee the interests of all stakeholders who are concerned with corporations' behavior" (Szadziewska et al., 2020, p. 132).

5.2. Disclosing of non-financial information in Croatia

The most important act in the national legislation of the Republic of Croatia regarding financial reporting is the Accounting Act. The Accounting Act prescribes that all business entities registered in Croatia regardless of their size have to prepare and publicly disclose the balance sheet, profit and loss account and notes to the financial statements. The structure of the balance sheet and profit and loss account are prescribed under the Ordinance on the structure and content of the financial statements. Since its accession to the EU in July 2013, Croatia, as well as other member states, had to harmonize its legislation with the EU regulation. In that context, among others, Croatia has harmonized national legislation with the Directive 2014/95/EU which prescribes, *inter alia*, the obligation of presentation some non-financial information for certain companies. Likewise, the Accounting act has been amended in accordance with the Directive 2014/95/EU at the end of

2016. Related with the non-financial reporting, "Croatia has directly adopted and transferred into its legislation, *inter alia*, the Article 1 of the Directive 2014/95/EU and by doing so, aligned its legislation in accordance with the CSR Directive" (Meeh-Bunse, Rep, & Schomaker, 2019, p. 46). Accordingly, Croatian public companies with more than 500 employees are obliged to disclose the non-financial information on an annual basis as of 1st January 2017.

In order to evaluate the effect of a formal obligation for certain companies to disclose non-financial information within their management report, annual report or other kind of reports, several studies have been observed in Croatia. Dečman and Rep (2018) conducted an empirical research on non-financial information disclosures on a sample of Croatian largest companies for FY 2016 (before the legislation amendments). The overall conclusion was that there was room for improvement of non-financial information disclosures since Croatian companies still did not fully recognize the benefits of integrated (financial and non-financial) reporting. Meeh-Bunse and others (2019) conducted similar research after the effective date concerning the non-financial disclosures, which showed a slight improvement compared with the disclosures before FY 2017 (Table 5.1).

Table 5.1. Non-financial information disclosed by Croatian companies before and after the effective date

ASPECTS					Average disclosure (%)
Environmental concerns	**Employee concerns**	**Social concerns**	**Respect for human rights**	**Combating corruption and bribery**	
Companies with the highest revenue in the financial year 2016, based in the most developed Croatian county, Zagreb City					
1*	1	1	1	1	100
1	1 (0)***	1	0**	0	60 (40)
1	1	1	1	1	100
1	1	1	1	1	100
1	1	1	0	0	60
1 (0)	0	0	0	0	20 (0)
1	1	1	1	1	100
0	0	0	0	0	0
1	1	1	1	1	100
Average disclosure (%)					
89 (78)	78 (67)	78	56	56	71 (67)

* 1—disclosed
** 0—not disclosed
*** Labels in brackets reflect the state before the effective date (1st January 2017) only if it differs from the disclosures after the effective date.

Source: (Meeh-Bunse et al., 2019, p. 53).

Besides, in 2019, business, public, and civil sector organizations prepared a *National Study on the State of Non-Financial Reporting in Croatia*. The subject of the study were non-financial reports of 74 companies (13 companies compiled that report voluntarily) for FY 2017 and 2018 (after the legislation amendments). The results show that 37% of them use GRI Standards as framework for non-financial reporting, 11% use GRI G4 guidelines, 4% use EU guidelines, 4% use UNGC principles, 3% use IR, while 34% of them do not use any framework for non-financial reporting. Most companies have met the obligation of legally prescribed content. In that context, 87% disclosed non-financial key performance indicators relevant to the particular business, 92% described the policies pursued by the undertaking in relation to society and environment matters, including due diligence processes implemented, while 67% presented the outcome of those policies too. On the other hand, most companies did not present set goals (only 21% did), only 26% described the dialog with stakeholders in a process of content determination, and only 28% identified the principal risks of climate and social impacts (*National Study on the State of Non-Financial Reporting in Croatia*, 2019).

Furthermore, formal legislation as well as an increasing trend of voluntary CSR reporting noticed in practice have had an impact on raising awareness of the benefits of non-financial reporting. Nowadays, it is not sufficient to present only financial information since investors seek non-financial information regarding company's impact on social, environment, anticorruption, and many more fields. To meet shareholder needs, financial as well as non-financial statements preparers should put more effort while using professional accounting materiality judgment. By doing so, reports would contain more relevant and less irrelevant information.

5.3. Regulation and research of non-financial reporting in the Czech Republic

Regulation is often mentioned as a crucial factor influencing the amount of non-financial reporting (KPMG, 2017, p. 9). In this context it is necessary to underscore the fact that at present, the Czech regulation of non-financial reporting is in accord with European legislation.

There are two cornerstone directives regarding reporting obligations. The first is Directive 2013/34/EU of the European Parliament and of the Council of 26 June 2013 on the annual financial statements, consolidated financial statements and related reports of certain types of undertakings (further referenced as Directive, 2013) and the second is Directive 2014/95/EU of the European Parliament and of the Council of 22 October 2014 amending Directive 2013/34/EU as regards disclosure of non-financial and diversity information by certain large undertakings

and groups (further referenced as Directive, 2014). Both these directives are now transposed into the Czech legislation.

Regarding financial and non-financial reporting in the Czech Republic, the key document is Act No. 563/1991 Coll., on Accounting (Act on Accounting, 1991), especially its section 18, section 21, section 21a (publication of corporate documents), section 22, and sections 32f-32i (non-financial reporting according to Directive, 2014). Some non-financial information is required by the other sections of this act as well, but these requirements are rudimentary. Non-financial information can be published as a part of annual report or in a separate report. The obligation to publish non-financial information according to sections 32f-32i relates to large public interest entities with more than 500 employees.

Disclosure of financial and non-financial information is addressed also by Act No 89/2012 Coll., the Civil Code, Section 120 and 121 (Civil Code, 2012) and the in-detail regulation is provided by Act No 304/2013 Coll., on Public Registers of Legal and Natural Persons (Act on Public Registers, 2013). It is above the scope of this text to address these regulations in detail, but it is worth mentioning that the public register includes a document register and is freely available on the Internet.

So far, it could seem that regulation regarding non-financial reporting is sufficient. The problem is that the transposition of the European directives was implemented in such a way that only minimal requirements on non-financial reporting were imposed on corporations. Moreover, in the context of the Czech Republic it is estimated that the number of corporations obliged to report non-financial information according to Directive (2014) is low (around 30 companies), which accounts for about 1.15% of large companies based in the Czech Republic. These facts, together with the long-term averseness of a majority of Czech companies to disclose more information than necessary, leads to a relatively low level of non-financial reporting.

Disclosure of information in the area of corporate governance is requested from the issuers of securities by Act No. 256/2004 Coll., on Business Activities on the Capital Market (Act on Capital Market Business, 2004). In addition to general regulation of reporting, there are some industry-specific regulations. For example, Act No. 458/2000 Coll., on Business Conditions and Public Administration in the Energy Sectors (Energy Act, 2000), requires electricity generators to report selected information (the quantity of CO_2 emissions, environmental impacts, etc.) in a way enabling remote access.

It is possible to advocate that prior to 2007, research on non-financial reporting in the Czech Republic was very limited. There were some research outputs, but mostly in the Czech language and therefore inaccessible to the broader English-speaking research community. Since 2007, both non-academic subjects and several researchers started to investigate this topic more closely. Unfortunately, relatively large portion of this research was presented solely in the form of conference papers

with no full texts available. In the rest of this chapter, selected outputs prepared by non-academic subjects and articles published in academic journals are primarily addressed.

KPMG has been monitoring corporate responsibility reporting since 1993, but the Czech Republic was included into their publications as late as from year 2008. KPMG (2008, pp. 73–74) highlighted that corporate responsibility reporting in the Czech Republic was in its early phase but growing. Among top 100 Czech companies only 14% published stand-alone corporate responsibility report in period 2005–2008 and 67% of companies did not report on corporate responsibility at all (KPMG, 2008, p. 73). Another mention of the Czech Republic can be found in a KPMG report (2015, p. 33) which stated that the amount of non-financial reporting in the Czech Republic was low with only 43% of top 100 Czech companies; average rate of corporate responsibility reporting across the globe was 73%. The report by KPMG (2017) indicated strong growth in reporting in the Czech Republic resulting in reporting rate amounting to 51% in 2017.

The amount of academic research on non-financial reporting reflects a growing, but fragmented interest in sustainability issues. Early research usually found a low level of reporting (Kasparova & Skapa, 2007). Since 2010, multiple studies appeared. Kasparova (2011) analysed annual reports of manufacturing and construction companies and found that majority of annual reports dealt with environmental and social issues, but not beyond legal requirements (typically were disclosed only one or two sentences or one paragraph). Striteska and Bartakova (2012) analysed the reporting of 47 highly responsible companies and found that only 30% published standalone sustainability reports. This result was obviously influenced by the sample, which included solely highly responsible companies.

Kunz, Ferencova, Hronova, and Singer (2015) investigated non-financial reporting in web pages and the same topic was addressed by Tetrevova, Patak and Kyrylenko (2019). Reporting in more traditional media (annual reports, standalone corporate responsibility reports) was recently investigated by Sedlacek (2020) and Pelikanova (2019).

Our team of researchers based in the management accounting department, faculty of finance and accounting, Prague University of Economics and Business, has started to intensively investigate the area of non-financial reporting since 2014 and this activity resulted in numerous conference papers and journal articles (e.g. Horvath et al., 2017; Petera, Wagner, & Bouckova, 2014; Petera, Wagner, & Knorova, 2016; Petera & Wagner, 2017; Petera, Wagner, Paksiova, & Krehnacova, 2019). Considering the amount of this research, it is impossible to describe our results in detail, but it is feasible to sum up that from a quantitative point of view, our research (which included various methods of data gathering and analysis) repeatedly confirmed the low amount of non-financial reporting in standalone corporate responsibility reports, relative low amount of non-financial reporting

in annual reports and a relatively high occurrence of non-financial information in web pages. From the qualitative point of view, the majority of reports of Czech companies do not follow any internationally accepted non-financial reporting standards. On the other hand, the quantity and quality of non-financial reporting in the Czech Republic is slowly increasing.

In this chapter, the results of our latest (February 2018—April 2019) survey-based research into issues of sustainability management are presented. Only the part of the questionnaire related to non-financial reporting is addressed.

In total, 1,000 companies classified as for-profit, medium and large were randomly selected from Albertina CZ Gold Edition database and after removing companies with missing contacts, 984 companies were contacted. The questionnaire was distributed to one person in a given company and in total, 106 usable responses were obtained, which amounts to a response rate of 10.77%.

Basic characteristics of the respondents are as follows: the average number of full-time employees amounts to 943, average total assets are 177,544 thousand EUR, and average turnover equals to 208,246 thousand EUR.

Reporting practices in annual reports, standalone non-financial (sustainability, corporate responsibility) reports, web pages, press releases, and finally in other media are analysed.

5.3.1. Non-financial reporting in annual reports

Regarding annual reports, respondents were asked if their company published information on the environmental and social issues beyond the minimal legal requirements and graphical representation of results can be found in Figure 5.1.

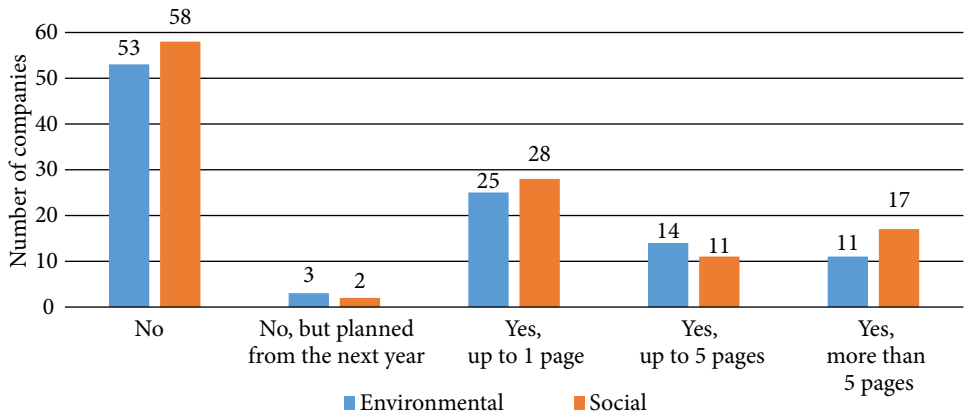

Figure 5.1. Non-financial information in annual reports

Source: The authors' own elaboration based on original empirical research.

The results depicted in Figure 5.1 show that 56 companies (52.83%) do not report environmental information beyond legal requirements in their annual report and social information beyond legal requirements is not reported by 61 companies (56.60%). Only 11 companies (10.38%) report on environmental issues on more than 5 pages of their annual reports and only 7 companies (6.60%) report on social issues on more than 5 pages of their annual reports.

These values confirm the relatively low amount of non-financial disclosure in annual reports. In this particular research, the type of reported information was not investigated. Nevertheless, our previous studies (e.g. Petera et al., 2019) discovered that reporting of Czech companies on environmental and social issues is mostly of narrative character. Similarly, KPMG (2017, p. 16) found that non-financial information was reported by only 51% of the investigated Czech companies.

5.3.2. Non-financial reporting in standalone corporate responsibility reports

Respondents were asked if their company publishes a standalone corporate responsibility (CR) report and their answers were measured on a 5 point scale, where (1) stands for "No", (2) for "No, but we assume to publish standalone corporate responsibility report from the next year", (3) for "Yes, but the report does follow any internationally recognized standards", (4) "Yes, the report follows an internationally recognized standard (e.g. GRI) but is not audited by a third party", (5) "Yes, the report follows an internationally recognized standard (e.g. GRI) and is audited by a third party". The overview of answers can be found in Figure 5.2.

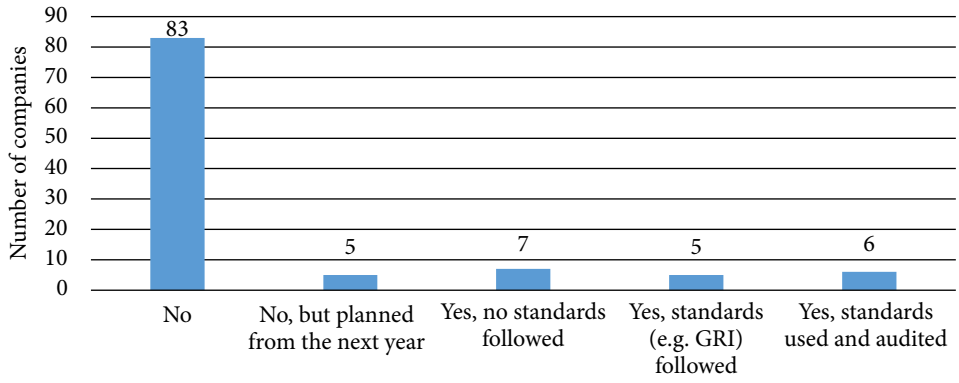

Figure 5.2. Non-financial information in standalone corporate responsibility reports

Source: The authors' own elaboration based on original empirical research.

The results confirm that standalone CR reports are scarce among Czech companies. In total, 88 companies (83.02%) indicated that they do not publish standalone CR reports. On the other hand, the fact that 5 companies (4.72%) intend to start publishing such report from the next year confirms assumption that the amount of non-financial reporting in the Czech Republic will grow. In total, 18 companies (16.98%) publish standalone CR reports. Seven companies (6.60%) issue CR reports without following any internationally recognized standard. Although the quality of reports was not investigated in this research, not following standards often leads to narrative reports with low informative value. Standalone CR reports following internationally acclaimed standards was seen in 11 companies, which amounted to 10.38%.

It is possible to assert that these findings indicate low utilization of standalone CR reports and are in accord with previous research. For example, Petera and others (2014) analysed reporting practices of the 50 largest companies with their seat in the Czech Republic and found that standalone CR reports were published by 7 companies (14%). Habek (2017, p. 8) mentioned that in 2014 there were 20 CSR reports from Czech Republic in the GRI database, which amounts to 19.6 reports per million enterprises.

Furthermore, the respondents were asked which kind of information was included in their standalone CR reports (economic, environmental, social) and how often the standalone CR report is published, responses are summarized in Tables 5.2 and 5.3.

Table 5.2. Content of standalone corporate responsibility reports

Type of information	Number of reports
Economic	12
Environmental	17
Social	15

Source: The authors' own elaboration based on original empirical research.

Table 5.2 informs that 12 out of 18 companies (66.67%) report economic information, 17 companies (94.44%) report environmental information and 15 companies (83.33%) report social information. The more in-detail analysis revealed that the majority of companies (11) include both economic, environmental and social information in their standalone CR reports.

Table 5.3. Publication frequency of standalone corporate responsibility reports

Frequency of publication	Frequency	Percent
Irregularly	2	11.11
Every year	15	83.33
More often	1	5.56
Total	18	100.00

Source: The authors' own elaboration based on original empirical research.

Table 5.3 shows that the vast majority (83.33%) of respondents publish their standalone CR report yearly, which is a standard approach.

5.3.3. Non-financial reporting in web pages, press releases and other media

Ultimately, respondents were asked whether they publish any social or environmental information in their web pages, press releases or other media. Majority of respondents (91 companies, i.e. 85.85%) indicated that they publish social or environmental information in their web pages and 44 companies (41.51%) indicated that they publish such information via press releases. Regarding other media, the most often mentioned were various social networks.

Results regarding non-financial information in web pages corroborate findings published in prior studies and indicate a high popularity of non-financial disclosure via web pages. Petera and others (2014) found that some information related to sustainability is included in web pages of the majority (around 82.00%) of the 50 investigated companies. Kunz and others (2015) found a bit lower albeit still significant share of companies with corporate responsibility information on their web pages (49.08%). Tetrevova and others (2019) investigated websites of top 100 companies in the Czech Republic (according to revenues) and found that all these companies have at least some information on corporate responsibility on their websites. All these results reflect the popularity of web pages as a media for communication of non-financial information in the Czech Republic.

5.4. Non-financial reporting in Poland

Poland is a member of the European Union, therefore Polish enterprises are obliged to present non-financial information in accordance with the Directive 2014/95/EU[2]. Moreover, in Poland, the requirement to present non-financial information relating to CSR was introduced by the Accounting Act. In accordance with the provisions of the Act, so-called public trust entities are required to present in the report on the activities a separate part called " Statement on non-financial information " (Act of 15 December 2016, Art. 49b. 1).

The statement should contain at least (Act of December 15, 2016, Art.49b. 2):

1) a brief description of the entity's business model;
2) key non-financial performance indicators related to the entity's operations;

[2] Details on the Directive 2014/95/EU are contained in subchapter 5.1.

3) a description of the policies applied by the unit in relation to social and labour issues, the natural environment, respect for human rights and counteracting corruption, as well as a description of the results of applying these policies;
4) description of due diligence procedures;
5) description of significant risks related to the activities of the entity that may have an adverse effect on the issues referred to in point 3, including risks related to the products of the entity or its relations with the external environment, including contractors, as well as a description of the management of these risks.

The information contained in the "Statement on non-financial information" is intended to help in assessing the development, performance and condition of the entity and the impact of its activities on the entity's environment. The above assessment will significantly help investors to make decisions regarding socially responsible investing by selecting companies implementing CSR concept.

Non-financial information may be presented in:

- a report on the company's operations as a separate part (statement on non-financial information), or
- a separate report, e.g. social report, CSR report, integrated report, impact report.

Decisions on the choice of the non-financial information presentation variant are made by the interested entities. The company may establish its own reporting rules or use any national, EU or international guidelines / standards. The reporting organization is required to indicate which principles or standards / guidelines have been used in preparing the statement or a separate non-financial report.

In 2017, the Polish Standard of Non-Financial Information (SIN, 2017) was published to help enterprises fulfil their obligations under the EU Directive.

SIN is designed to be a simplified form of the Global Guidelines Reporting Initiative. The internal structure of SIN is as follows:

1. Basic part which includes (SIN, 2017):
   - non-financial reporting and its scope,
   - national and industry specification,
   - significance of indicators and their selection from the point of view of capital markets,
   - scope of the standard and descriptions of individual reporting areas.
2. Appendix 1—legal interpretations of Directive 2014/95/EU—description of criteria, resulting in development of non-financial information reporting obligation.
3. Appendix 2—significance matrix—matrix connecting areas and indicators defined in the SIN standard regarding their potential significance with division into industries.
4. Appendix 3—interested parties and key responsibility areas—stressing the fundamental significance of relations between a company and its interested parties.

5. Appendix 5—significance of indicators and its selection from the point of view of capital markets, which as established are to make it possible to verify the degree of carrying out the goals and plans of a company.
6. Appendix 6—detailed description of areas: managerial (G), environmental (E), social and labour (S).

According to the SIN polish entities should disclose non-financial key performance indicators (KPIs). Key Performance Indicators relate to those aspects of the company's operations that are most important for its success now and in the future (Parmenter, 2010, p. 4). Non-financial KPIs are used by the entity's managers to monitor compliance with regulations and standards, make decisions on social and environmental issues, and inform stakeholders about achievements in these areas (Henri & Journeault, 2010). Table 5.4 shows the scope of the SIN along with the number of KPIs.

Table 5.4. Scope of the Standard of Non-Financial Information

Symbol	Reporting area	Numbers of indicators
G	**MANAGERIAL AREA**	**15**
G1.	Description of business model and strategic directions of development	2
G2.	Management order	3
G3.	Social and environmental risk management	2
G4.	Ethics management	8
E	**ENVIRONMENTAL AREA**	**30**
E1.	Direct and indirect impact: stock and materials	2
E2.	Direct and indirect impact: fuels and energy	3
E3.	Direct and indirect impact: water	3
E4.	Direct and indirect impact: biodiversity	4
E5.	Direct and indirect impact: atmospheric emissions	4
E6.	Direct and indirect impact: wastes and sewage waters	5
E7.	Other aspects of direct and indirect environmental impact	6
E8.	Extended environmental responsibility: products and services	3
S	**SOCIAL AND LABOUR AREA**	**72**
S1.	Using public help and public orders	2
S2.	Employment rate and salary level	15
S3.	Relations with employees and freedom of association	6
S4.	Occupational health and safety	11
S5.	Development and education	2
S6.	Diversity management	4
S7.	Human rights	6
S8.	Child labour and forced labour	4
S9.	Local communities and social engagement	6
S10.	Anti-bribery actions	3
S11.	Safety of products and consumers	2
S12.	Marketing communication	2
S13.	Privacy protection	2
S14.	Product labelling	2
S15.	Other social and market matters	5

Source: (Błażyńska, 2020, p. 11).

An example of a Non-financial report of "Zwykła spółka" S.A. according to SIN can be found at: https://seg.org.pl/sites/seg13.message-asp.com/files/przyklad-raportu-niefinansowego-zwyklej-spolki-wg-sin_0.pdf

The results of J. Błażyńska's research show that 55% of the surveyed companies did not comply with the Standard of Non-Financial Information. In 17% of companies, the potential in striving for better non-financial information reporting is clear, and in their cases the right approach postulation for them should be to start using KPIs. Such an approach will increase the comparability of reports, and their usefulness. Only 28% of the surveyed companies had added ideas of communication with interested parties with respect to non-financial reporting to their reports (Błażyńska, 2020, p. 17).

Another research conducted in 2018 by P. Biernacki shows that 96% of polish companies required to prepare a non-financial report prepared their own non-financial report. 51% of the surveyed companies applied the developed standards for reporting non-financial information (30%: GRI, 17%: SIN, 4%: other). On the other hand, 26% of the surveyed companies applied their own rules and 23%—no rules (Biernacki, 2018).

Questions / tasks

1. How is the Directive 2014/95/EU often called?
2. How has the Republic of Croatia harmonized its legislation with the Directive 2014/95/EU?
3. Which sustainability reporting standards are most commonly used for the preparation of non-financial reports in the Republic of Croatia?
4. Explain if Czech legislation in the area of non-financial reporting is in accord with European legislation.
5. Since when does KPMG include the Czech Republic into their international surveys of corporate responsibility reporting?
6. Is research conclusive regarding the amount of non-financial reporting in web pages of Czech companies?
7. Does the majority of Czech companies publishing standalone corporate responsibility reports follow internationally accepted standards (e.g. GRI)?
8. Describe the main weaknesses of non-financial reporting in the Czech Republic.
9. Would you agree with claim "The Czech Republic transposed Directive 2014/95/EU of the European Parliament including numerous changes, which demand companies to report very specific and detailed non-financial information"?
10. Describe the attitude of the majority of Czech companies towards disclosure of non-financial information?
11. Explain Polish legislation in the area of non-financial reporting.

12. Describe the parts that should be included in Polish "Statement on non-financial information".
13. Explain the scope of Polish Standard of Non-Financial Information.
14. What are the similarities and differences between Croatia, Czech Republic and Poland considering the harmonization of national legislations with the Directive 2014/95/EU?

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6.

SOCIALLY RESPONSIBLE INVESTMENTS

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Abstract: Socially responsible investing (SRI) is a decision making process concerning the allocation of free financial resources, where the investor aims at maximization of profit and minimization of risk on one part, and includes the socio-ethical and environmental-ecological considerations on the other. We can find four types of motives, describing them as mobilizing forces to undertake SRI. These are psychological and social, legal, economic and strategic, financial. Investors invest their funds in such investments by choosing the right investment strategy for them. We can find many different classifications relating to strategies and actions within the framework of SRI. The most important classifications of the SRI strategy were prepared by Global Sustainable Investment Review and Eurosif. These two organizations prepare also reports on SRI in the world and in Europe. The European market has the largest share in the global SRI market but the most dynamically developing market is Japan.

Keywords: Eurosif, GSIA, motives for SRI, socially responsible investments (SRI), strategy of SRI.

6.1. The essence of the concept of socially responsible investing

Socially responsible investments (SRI) in the modern era has placed itself as an alternative to the traditional forms of investments. SRI forms sort of an investment philosophy that links both the financial and non-financial criteria (Sparkes, 2002, p. 22). Kinder (Kinder, Lydenberg, & Domini, 1994) has a similar opinion, stressing the inclusion of social or ethical criteria in the process of investment decision making. Investors who choose to allocate their free pecuniary assets in this type of investments value the social and environmental questions as more, or at least equally important as the economic profits.

An extensive review of subject literature, however, has allowed us to come to the conclusion that such investments are a relatively new concept that is still evolving, and can not be defined unanimously. In the majority of work on SRI, the attention is brought to the need of inclusion of not just the financial conditions, but also the social and environmental factors in the investment process.

A good starting place for understating this concept lies in its definition by the European Sustainable Investment Forum (Eurosif) who cite SRI as a general concept including sustainable, ethical or responsible investments that link the financial objectives of investors with its care for the social, environmental and corporate order issues (European SRI Study, 2010, p. 8). The International Finance Corporation (IFC) proposes the term "sustainable investing" that—according to IFC—integrates the ESG factors in analyses concerning the selection of companies and in application of corporate laws, believing that these factors can beneficially influence the long-term efficiency of risk management (www.ifc.org).

According to Mansley (2000) responsible investing is an element of financial analysis, concentrating on social, environmental and ethical issues during decision making, management and realization of investment. SRI includes investments that integrate social, ethical, environmental and corporate orders in the investment process (Sandberg, Juravle, Hedesstrom, & Hamilton, 2009), meaning that the criteria for social responsibility of a business is as equally important as the economic criteria. It seems that it is effected not just by the social responsibility of investors, but also simple calculation that makes them realize that the chances for survival and profit are open for those businesses that harmonically adopt to the requirements of contemporaneity and future. This means that the stakeholders have to include the idea of social responsibility of businesses (Dziawgo, 2010, p. 16).

Munoz-Torres (Munoz-Torres, Fernandez-Izquierdo, & Balaguer-Franch, 2004) presents a similar opinion, defining SRI as investments that link financial objectives with social values. Such responsible investing does not contradict the essence of traditional investing as it does not put the importance of ethical questions over the issues of efficiency (Rogowski & Ulianiuk, 2012, p. 64). SRI is an investment

strategy that targets not only the achievement of particular economic profits, but also social and environmental effects. When principles are considered, the socially responsible investors select companies that keep high ethical standards and observe sustainable development principles in their activities.

The definitions of SRI quoted above broaden the notion of investment that was applied in the past. Up until recently only the cause-and-effect connection between investment expenditure and its effects was investigated, in form of the economic profits (return on capital). In case of SRI the investor also profits from the financial outcome of the invested capital, but has further non-financial profits, that can bring financial results in longer time perspective. SRI is a decision making process concerning the allocation of free financial resources, where the investor aims at maximization of profit and minimization of risk on one part, while including the socio-ethical and environmental-ecological considerations on the other.

6.2. Motives of SRI

In the traditional model of rational investor behaviour (homo economicus), the choice of the subject of the investment is made on the basis of the investor's knowledge and assets, taking into account the profit and risk criterion. In other words, the financial motive is the only significant criteria for selecting an investment portfolio. In the case of SRI, the financial motive is not the most important, and at times not even an important criterion for selecting the subject of the investment. This means that some investors are willing to invest their funds even if they expect a lower return compared to traditional investments with a similar level of risk (Riedl & Smeets, 2014, p. 12). This may be confirmed by the results of research conducted by Pasewark and Riley (2010), which show that less than half of SRI investors are interested solely in maximizing their wealth.

The motives of investors deciding to allocate their own funds in SRI are presented in Table 6.1.

Table 6.1. Motives of socially responsible investing

Type of motive	Characteristics of the motives	Literature
Financial	Searching for financial benefits. Investing in socially responsible companies so that they gain a competitive advantage, which will lead to an increase in their value. Failure to invest in responsible companies if it is to bring losses. Striving to reduce investment risk.	Auer, Schuhmacher, 2016; Revelli, 2016; Borghesi et al.., 2014; Beal et al., 2005; Glac, 2009; Jansson, Biel, 2014; Bauer et al., 2005; Kreander et al., 2005; Jansson, Biel, 2011

Type of motive	Characteristics of the motives	Literature
Ethical	Ethics and morality as investment criteria.	Lewis, Juravle, 2010; Scholtens, Sievänen, 2013; Beal et al., 2005; Cowton, 1994; Lewis, Juravle, 2010; Scholtens, Sievänen, 2013; Beal et al., 2005; Cowton, 1994
	Investor's ethical profile: idealism / relativism.	Park, 2005
	Managerial altruism: corporate managers convinced that they and the company they manage are morally obligated (imperative) to invest in social responsibility.	Borghesi et al., 2014
	Value-driven investors (VDI): Investors focused primarily on non-financial utility determinants willing to accept financial loss for social / environmental benefits.	Auer, Schuhmacher, 2016; Renneboog et al. 2008; Lewis, Mackenzie, 2000; Wins, Zwergel, 2016; Anand, Cowton, 1993; Michelson et al., 2004
Investor preferences	Pro-environmental preference: care for the environment.	Lewis, Webley, 1994; Vyvyan et al., 2007; Bengtsson, 2008; Richardson, Cragg, 2010
	Pro-social preference: concern for society.	Riedl, Smeets, 2014
	Pro-environmental and pro-social preference.	McLachlan, Gardner, 2004; Derwall et al., 2011; Beal, Goyen, 1998; Jansson, Biel, 2014; Bauer, Smeets, 2015
Striving to transform the socio-economic system	Striving to change current market practices, transform the relationship between the economy, society and the environment by investing funds in companies striving in this direction. The utility of an investment depends on the actual performance of the portfolio companies.	Beal et al., 2005; Lewis, 2001; Pasewark, Riley, 2010; Starr, 2008; Michelson et al., 2004
Shaping the investor's image	Perception of socially responsible investing in line with the investor's lifestyle and identity, willingness to manifest a lifestyle.	Glac, 2009; Statman, 2004
	Fashion / reputation: willingness to engage in activities that are well perceived and practiced by the investor's environment.	Beal et al., 2005; Riedl, Smeets, 2014

Source: (Doś & Foltyn-Zarychta, 2017, pp. 117–118).

Motivation to invest in SRI as one can observe from the above table is a complex issue, covering factors of both financial nature (rate of return, risk reduction) and non-financial: social, environmental, ethical.

Marcinek (2016, p. 80) indicates four types of motives, describing them as mobilizing forces to undertake SRI. These are:

- psychological and social,
- legal,
- economic and strategic,
- financial.

Psychological and social motives, which include the professed values and beliefs, may be of various nature, most often religious, moral, political, ecological, but also economic. Investors, acting in accordance with their beliefs and professed values, allocate their capital in order to positively influence the society. Psycho-social motives also include altruism and philanthropy.

Legal motives, in the case of institutional investors, legal regulations (legislation) are an important reason for engaging in SRI. An example may be the Scandinavian countries where, at the beginning of the 21st century, legislation strongly motivated pension funds to pursue SRI (Bengtsson, 2008, p. 969). In Norway, an example of motivating investors to allocate their funds in SRI investments is the Government Pension Fund of Norway, which—according to legal regulations—applies the highest environmental requirements and negative selection in investing.

Economic and strategic motives (related to the management of the entity) are mainly care for good reputation as well as transparency and provision of information, in particular in the field of CSR. Comprehensive information about the company's activities, and in particular about its social responsibility, is a fundamental condition for investor's trust in the company. Information on the ongoing CSR activities is a prerequisite for undertaking SRI.

Financial motives are those whose measurable effect is the rate of return on invested capital. The results of research on the effectiveness of SRI indicate that the long-term integration of ESG factors into the investment process does not adversely affect the financial result, but may have a positive impact on the risk-adjusted rate of return. Moreover, when analysing financial motives, one should also refer to risk, treating it as a reference point of the basic criterion, i.e. the rate of return. The results of research carried out by Clasen and Röder (2009, p. 21) indicate that almost 74% of the surveyed investors considered risk diversification as the most important motive for their investment decision in SRI, ahead of the ecological, financial and ethical motives.

The hierarchy and rank of the motives for investing by investors undergo (and will probably continue to change) over time. However, it should be noted that investors are now more and more inclusive of aspects related to the environment, society and corporate governance (ESG) when making investment decisions.

6.3. Strategies of SRI

Changes in capital markets have also changed the strategy of SRI. In scientific publications and reports of institutions related to the SRI market, you can find many different classifications relating to strategies and actions within the framework of SRI. One of them is available in the Global Sustainable Investment Review which is prepared by the Global Sustainable Investment Alliance (GSIA) whose mission is to deepen and expand the practice of sustainable investment through intentional international collaboration. GSIA uses a definition of sustainable investing, without drawing distinctions between this and related terms such as responsible investing and socially responsible investing.

Sustainable investment encompasses the following activities and strategies (GSIA, 2018, p. 7):

- **Negative/exclusionary screening**: the exclusion from a fund or portfolio of certain sectors, companies or practices based on specific ESG criteria.
- **Positive/best-in-class screening**: investment in sectors, companies or projects selected for positive ESG performance relative to industry peers.
- **Norms-based screening**: screening of investments against minimum standards of business practice based on international norms, such as those issued by the OECD, ILO, UN and UNICEF.
- **ESG integration**: the systematic and explicit inclusion by investment managers of environmental, social and governance factors into financial analysis.
- **Sustainability themed investing**: investment in themes or assets specifically related to sustainability such as clean energy, green technology and/or sustainable agriculture.
- **Impact/community investing**: targeted investments aimed at solving social or environmental problems, and including community investing, where capital is specifically directed to traditionally underserved individuals or communities, as well as financing that is provided to businesses with a clear social or environmental purpose.
- **Corporate engagement and shareholder action**: the use of shareholder power to influence corporate behaviour, including through direct corporate engagement (i.e. communicating with senior management and/or boards of companies), filing or co-filing shareholder proposals, and proxy voting that is guided by comprehensive ESG guidelines.

In Europe, the classification of the SRI strategy proposed by the Eurosif organization has been in force since 2012, according to which the following are distinguished (European SRI Study, 2016, p. 10):

- **Sustainability themed investment**: Strategy of investing in assets linked to the development of sustainability that concentrated on selected aspects of

ESG. Sustainability themed investments inherently contribute to addressing social and/or environmental challenges such as climate change, eco-efficiency and health.

- **Best-in-class investment selection**: investing in the most efficient assets in the respective category that still meet the ESG criteria. This approach involves the selection or weighing of the best performing or most improved companies or assets as identified by ESG analysis, within a defined investment universe. This approach includes best-in-class, best-in-universe, and best-effort.
- **Exclusion of holdings from investment universe**: a negative-selection type strategy, that comes down to exclusion of companies that have activities that are ethically or socially doubtful. Common criteria include weapons, pornography, tobacco and animal testing.
- **Norms-based screening**: the strategy comes down to exclusion, from the investment portfolio, of those companies that fail to conform with selected international ESG standards and norms. This approach involves the screening of investments based on international norms or combinations of norms covering ESG factors.
- **ESG Integration factors in financial analysis**: concerns the direct inclusion of risk and opportunities connected with ESG, concentrating on the potential impact of ESG factors on financial result of the business. This type covers explicit consideration of ESG factors alongside financial factors in the mainstream analysis of investments. The integration process focuses on the potential impact of ESG issues on company financials (positive and negative), which in turn may affect the investment decision.
- **Engagement and voting on sustainability matters**: the strategy of communicating with enterprises in order to change their practices in social, ethical and environmental protection issues. This is a long-term process, seeking to influence behaviour or increase disclosure.
- **Impact investment**: concerns direct investments in companies, organizations or funds, which apart from financial objective, aim to influence the society and environment in a positive way. Investments are often project-specific, and distinct from philanthropy, as the investor retains ownership of the asset and expects a positive financial return.

Similar, often even identical, strategies of SRI are presented by other supranational organizations, i.e.[1]:

- EFAMA—European Fund and Asset Management Association,
- PRI—Principles for Responsible Investment.

[1] EFAMA and PRI strategies are not discussed in this e-book due to the high similarity to the Eurosif strategy.

Regardless of the classification adopted, SRI strategies should provide an important guide to portfolio managers. On the other hand, enterprises that make SRI in accordance with the SRI strategy adopted in their investment policy should inform about it, because in this way they may attract potential investors to invest capital in their activities.

6.4. The market of SRI

Global sustainable investment assets are continuing to increase, albeit at a slower pace than in previous years. At the start of 2016, global sustainable investment reached $22.89 trillion, compared with $18.28 trillion in 2014, an increase of 25%. Previously, global sustainable investment assets grew 61% from 2012 to 2014. Still, nearly all regions saw increases in their SRI assets relative to their total professionally managed assets, with the greatest rise seen in Australia and New Zealand (GSIA, 2016, p. 8). At the start of 2018, global sustainable investment reached $30.7 trillion in the five major markets shown in Table 6.2, a 34% increase in two years.

Table 6.2. Growth of SRI assets by region 2014–2018

Region	2014	2016	2018	Growth per period (%)	
				2014–2016	2016–2018
Europe	10,775	12,040	14,075	12	17
United States	6,572	8,723	11,995	33	38
Canada	729	1,086	1,699	49	56
Australia & New Zealand	148	516	734	249	42
Asia (ex. Japan)	45	52	–	16	–
Japan	7	474	2,180	6 671	360
Total	**18,276**	**22,890**	**30,683**	**25**	**34**

Source: (GSIA, 2016, p. 7; 2018, p. 8).

Sustainable investment assets are continuing to climb globally, with some regions demonstrating stronger growth than others within their local currencies. As shown in Table 6.2, the largest increase over the past two years was in Japan, where sustainably managed assets grew over 300%. In the United States, growth from 2016 to 2018 is slightly higher than over the previous two years (38% versus 33%). Elsewhere, sustainable assets continued to rise, but at a slower pace than between 2014 and 2016. The proportion of global SRI by region is presented in Table 6.3.

Table 6.3. Proportion of SRI by region 2014–2018 (%)

Region	2014	2016	2018
Europe	58,96	52,60	45,87
United States	35,96	38,12	39,09
Canada	3,98	4,74	5,54
Australia & New Zealand	0,81	2,25	2,39
Asia (ex. Japan)	0,25	0,22	
Japan	0,04	2,07	7,11
Total	**100,00**	**100,00**	**100,00**

Source: (GSIA, 2016, p. 7; 2018, p. 8).

In terms of where sustainable and responsible investing assets are domiciled globally, Europe continues to manage the highest proportion, with nearly half of global sustainable investing assets. However, this is a decline from 2016 when Europe managed nearly 53% of sustainable investing assets. Meanwhile, Japan has shown impressive growth, as its proportion of global sustainable investing assets has quadrupled since 2016. The proportions of global sustainable investing assets in the United States, Canada and Australia / New Zealand have remained largely level over the past two years (GSIA, 2018, p. 9).

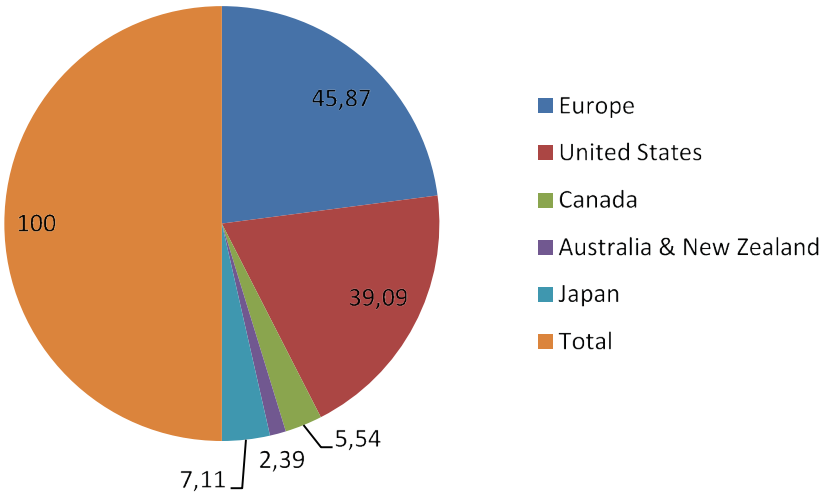
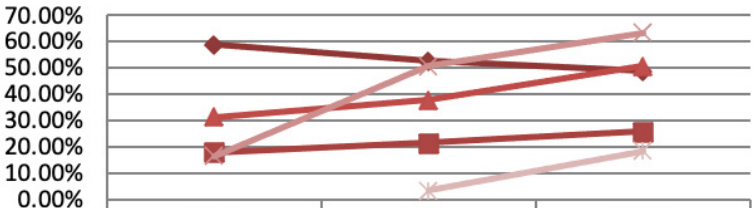


Figure 6.1. Proportion of global SRI by region (2018)

Source: (GSIA, 2018, p. 9).

The proportion of sustainable investing relative to total managed assets grew in almost every region, and in Canada and Australia / New Zealand responsible

investing assets now make up the majority of total assets under professional management. The exception to this trend is Europe, where sustainable investing assets have declined relative to total managed assets since 2014. At least part of the market share decline in Europe stems from a shift to stricter standards and definitions for sustainable investing. (see Figure 6.2).



	2014	2016	2018
Europe	58.80%	52.60%	48.80%
United States	17.90%	21.60%	25.70%
Canada	31.30%	37.80%	50.60%
Australia & New Zealand	16.60%	50.60%	63.20%
Japan		3.40%	18.30%

Figure 6.2. Proportion of SRI relative to total managed assets 2014–2018

Source: (GSIA, 2018, p. 9).

Important information is also the SRI value according to the investment strategy. The sum of the individual strategies (after adjusting for double counting since some assets are managed using more than one strategy) is presented by Figure 6.3.

Although total assets are much lower in the three strategies of sustainability-themed investing, positive or best-in-class screening and impact or community investing, all have shown impressive growth over the past two years, as shown in Figure 6.3. At the start of 2018, positive screening was deployed across $1.8 trillion in assets, followed by sustainability-themed investing with $1.0 trillion in assets, and impact/community investing with $444 billion in assets. Although norms-based screening remains more than double the size of these three strategies, it is the only strategy to have declined since 2016—a decrease of 24%—to $4.7 trillion in assets.

The largest sustainable investment strategy globally continues to be negative or exclusionary screening, with a combined $19.8 trillion in assets under management. This is followed by ESG integration, which has grown by 69% over the past two years, to $17.5 trillion in assets. Negative screening is the largest strategy in Europe, while ESG integration commands the majority of assets in the United States, Canada, Australia and New Zealand. Meanwhile, corporate engagement and shareholder action constitute the predominant strategy in Japan.

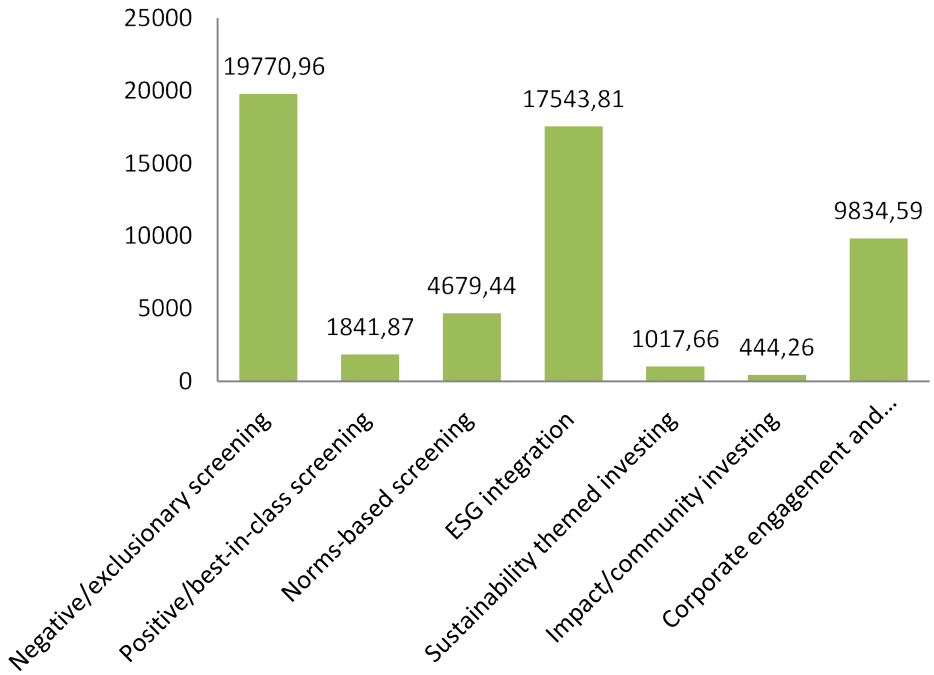


Figure 6.3. The global growth of SRI strategies (2018)

Source: (GSIA, 2018, p. 10).

The European market has the largest share in the global SRI market. According to the report prepared by Eurosif at the end of 2015, the value of SRI is increasing year by year and in the year of the study it amounted to over EUR 11 trillion, which means an increase of 11.7% compared to 2013 (European SRI Study, 2014, 2016). In 2017, the sum of SRI values according to the investment strategy amounted to EUR 23.5 trillion[2] (European SRI Study, 2018, pp. 16, 83). Table 6.4 presents data on the value of SRI made on the European market in 2005–2017.

Investors are most interested in the strategy "Exclusion of holdings from investment universe", which is included in the negative selection. In 2017, the value of investments managed in accordance with the exclusion strategy amounted to over EUR 10 trillion and was the largest group of SRI (44.33%). It should also be noted its annual increase, compared to 2015 by 2.6%, from 2013 by 51.95%, and from 2011 by 190.54%.

[2] This figure should be treated as a gross value as in some cases different socially responsible investing strategies may apply to the same investment. The analyzed report does not contain data on the overall value of SRI in Europe in 2017. There is also no report with the results of the research from 2019.

Table 6.4. The growth of SRI strategies in Europe (2005–2017)

Strategies SRI	2005	%	2007	%	2009	%	2011	%	2013	%	2015	%	2017	%
Total SRI	**1 033 105**	**x**	**2 665 400**	**x**	**4 986 000**	**x**	**6 763 347**	**x**	**9 884 966**	**x**	**11.045 479**	**x**	**no data**	**x**
Sustainability themed investment	6 914	0,39	26 468	0,65	25 361	0,34	48 090	0,44	58 961	0,37	145 249	0,63	148 817	0,63
Best-in-class investment selection	57 816	3,27	130 315	3,20	132 956	1,80	283 206	2,57	353 555	2,19	493 375	2,16	585 733	2,49
Exclusion of holdings from investment universe	335 544	18,98	1 532 865	37,70	1 749 432	23,72	3 584 498	32,52	6 853 954	42,58	10 150 595	44,34	10 414 558	44,33
Norms-based screening	–	–	–	–	988 756	13,41	2 132 394	19,34	3 633 794	22,58	5 087 774	22,23	3 142 463	13,38
ESG Integration factors in financial analysis	639 149	36,14	1 024 925	25,21	2 810 506	38,11	3 204 107	29,06	1 900 040	11,80	2 646 346	11,56	4 237 812	18,04
Engagement and voting on sustainability matters	728 837	41,22	1 351 303	33,24	1 668 473	22,62	1 762 687	15,99	3 275 930	20,35	4 270 045	18,65	4 855 429	20,67
Impact investment	–	–	–	–	–	–	8 750	0,08	20 269	0,13	98 329	0,43	108 576	0,46
The sum of the SRI values according to the strategy criterion3	**1 768 260**	**100,00**	**4 065 876**	**100,00**	**7 375 484**	**100,00**	**11 023 732**	**100,00**	**16 096 503**	**100,00**	**22 891 713**	**100,00**	**23 493 388**	**100,00**

Source: Own study based on (European SRI Study, 2010, 2012, 2014, 2016 & 2018).

[3] The application of different strategies of SRI in relation to the same investment causes that the sum of the SRI values according to the strategy criterion is not equal to (is higher) the total value of the SRI made.

The relatively "youngest" but promising strategy is the "Impact investment" strategy, which was first identified in 2011, with investments of more than EUR 8 billion. The value of these investments in 2017 is estimated at EUR 108.5 billion, which represents 0.46% of SRI made in Europe. Compared to 2015, this is an increase by 10.42%.

„Sustainability themed investment" amounted to EUR 148 billion in 2017 and accounted for 0.63% of total SRI. Comparing the value of strategy of Sustainability themed investments with the data from previous years, their increase by 2.46% in 2015 and 152.4% in 2013 can be noticed.

Figure 6.4. The growth of SRI strategies in Europe (2018)

Source: Own study based on Table 6.3.

Table 6.5 shows the results of the SRI dynamics analysis according to the strategy (2005–2017).

Table 6.5. The dynamics of SRI in Europe (2005–2017)

SRI Strategy	Dynamics index Previous year = 100%					
	2007	2009	2011	2013	2015	2017
Sustainability themed investment	382,82	95,82	189,62	122,72	246,35	102,46
Best-in-class investment selection	225,40	102,03	213,01	124,90	139,55	118,72

SRI Strategy	Dynamics index Previous year = 100%					
	2007	2009	2011	2013	2015	2017
Exclusion of holdings from investment universe	456,83	114,13	204,89	191,21	148,10	102,60
Norms-based screening	–	–	215,66	170,41	140,01	61,76
ESG Integration factors in financial analysis	160,36	274,22	114,00	59,30	139,28	160,14
Engagement and voting on sustainability matters	185,41	123,47	105,65	185,85	130,35	113,71
Impact investment	–	–	–	231,65	485,12	110,42

Source: Own study based on Table 6.3.

The research conducted by Eurosif covered 12 European countries (in 2015, the survey was conducted in 13 countries). Among the new EU member states, only Poland was included in the study. The value of SRI in individual examined European countries in 2015 and 2017 is presented in Table 6.6.

Table 6.6. SRI in European countries

Country	2015	2017	Dynamics index	(%)
Austria	52 184	118 512	227,10	0,50
Belgium	315 900	421 420	133,40	1,79
Denmark	118 376	301 640	254,82	1,29
Finland	67 978	bd	x	x
France	3 121 081	3 875 451	124,17	16,50
Germany	1 786 398	1 716 130	96,07	7,31
Italy	616 155	1 924 508	312,34	8,19
The Netherlands	991 427	2 800 676	282,49	11,92
Poland	5 998	21 953	366,01	0,09
Spain	95 334	300 014	314,69	1,28
Sweden	791 739	2 231 838	281,89	9,50
Switzerland	1 527 582	2 642 931	173,01	11,25
United Kingdom	1 555 328	7 138 315	458,96	30,38
Total	**11 045 479**	**23 493 388**	**212,69**	**100,00**

Source: Own study based on (European SRI Study, 2016, p. 57; 2018, p. 83).

The results presented in Table 6.6 show that the highest value of SRI is made in United Kingdom, France, the Netherlands, Switzerland and Sweden. Poland, on the other hand, has the lowest value of SRI. The reason may be the relatively short-lived capital market in Poland and little experience in the field of SRI in comparison with the older EU countries.

Based on the study so far, we can conclude that:

- there was a significant increase in the value of SRI in Europe,
- the highest increase in value (by 60.14% compared to the previous survey in 2015) can be found in the group of investments made in accordance with the strategy "ESG Integration factors in financial analysis", while the opposite was in "Norms-based screening",
- the most popular investment strategy is "Exclusion of holdings from investment universe" (44.34%), "Engagement and voting on sustainability matters" (20.67%) and "ESG Integration factors in financial analysis" (18.04%),
- we can observe a large geographic variation of the SRI; the largest share of SRI investments was recorded in United Kingdom (30.38%), while the lowest was in Poland (0.09%).

Questions / tasks

1. Explain the essence of socially responsible investments.
2. Define the main motives of socially responsible investing.
3. Specify the strategies of socially responsible investing according to GSIA and Eurosif.
4. Describe the global market of SRI.
5. Tell about SRI market in Europe.

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7.

EXTERNAL COSTS— ACCOUNTING PERSPECTIVE

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Abstract: Nowadays, shareholders would like to receive more information about companies' activities. They would like to know how the company treats their local community, how their activities influence the environment or even if the company's activities are harmful for society. This information is needed and has to do with costs for society. Tracking these costs, called external costs, more precisely seems to be becoming more important in accounting and is starting to become a new research area. The need for treating external costs like a part of research in accounting is indicated by a trend of the accounting of social responsibility, the theory of legitimacy in accounting, the concept of full cost accounting and the directive on disclosure of non-financial information. The use of the environment isn't free of charge for companies. According to national laws, companies are obligated to pay environmental fees or taxes when using the environment. Existing fees and taxes for using the environment don't resolve the problems of measuring and evaluating the external costs in companies. What is important to note is that external costs are connected with using goods such as air, soil, water, silence or the aesthetics of the surroundings. They all are non-marketable goods; they don't have prices on the market. Therefore, one of the non-market valuation methods could be used to evaluate them. One of the biggest problems for accounting in the future will be measuring the volume of using these goods or measuring the size of reduction in the quality of public goods suffered and assigning the decrease to particular companies.

Keywords: accounting for externalities, corporate reporting, directive on disclosure of non-financial information, evaluation in accounting, external costs, full cost accounting, sustainability accounting.

7.1. Why should external costs be a part of research in accounting?

The theory of accounting has a lot of research areas. The development of trends and companies around the world inspires new concepts, methods and theories. Sustainable development and everything which is connected with it creates new paths of research in accounting. Nowadays, companies, usually the biggest ones, publish not only financial information, but also non-financial information. The term "non-financial information" is defined in different ways. Mostly, we could define it as information which isn't presented in financial statements. More specifically, we can define it as information which concerns a company's activities which affect the environment, society, workers, human rights, etc. around it and how those activities influence them. Sustainable accounting is a new research area in accounting, that is seeing an increasing amount of research. For example, we noticed an article about the content of a CSR report, the challenges and needs for sustainable reporting, the level of companies' involvement in sustainable reporting, and the guidelines used most frequently in sustainability reports. Nowadays, shareholders would like to receive more information about companies' activities. They would like to know how the company treats their local community, how their activities influence the environment or even if the company's activities are harmful for society. The activities which have a positive influence on society and could have potential positive effects are also crucial for shareholders. This information is needed and has to do with the benefits and costs for society. Neither these benefits nor these costs are a part of financial performance. They haven't even been an area of research in accounting until recently. These costs, called external costs, are a part of the theory of economics. Nowadays it seems to be important to begin tracking external costs more precisely in accounting and start treating it as with a new research area. This is indicated by:

1. **A trend of accounting of social responsibility:** accounting which aim to account for the social burdens and benefits resulting from the activity of an economic operator, presented descriptively or in the form of value (Gabrusewicz, 2010, p. 60). Such consideration of social responsibility requires identifying, measuring and presenting social and environmental issues connected to the operations of an enterprise (Macuda, 2015, p. 1).
2. **The theory of legitimacy in accounting:** maintaining and growth of economic operators relies not only on high levels of economic prosperity, but also on the acceptance of the surroundings (Szadziewska, 2014, p. 262). Due to this, enterprises, as an element of social structure, will aim to obtain social acceptance (legitimacy) of the conducted operations (Matuszak, 2015, p. 114). Accounting in this case will be used as a means of obtaining, maintaining or regaining said

acceptance (Matuszak, 2015, p. 114). Acceptance will be granted on the basis of the available information. To grant acceptance, the society will require the enterprise to disclose information regarding the generated influence on the society and the environment. The trends in social development show that, for the society, information regarding the influence of the operations conducted by enterprises on the environment and the society will be crucial during its evaluation of the enterprise.

3. **The concept of full cost accounting:** aims to aid in identifying the internal and external costs (D'Onza, Greco, & Allergini, 2016, p. 60) of an enterprise. Moreover, this concept is aimed at evaluating the external influence generated by an enterprise (of both negative and positive nature), visible in the form of external effects of social and environmental nature (Bebbington & Gray, 2001, p. 11). The concept takes account for external costs, defined as the costs of external effects, as part of the overall costs in the science of accounting. The costs of external effects is the negative influence of the operations of enterprises on their surroundings: the society and the environment. To assess a complete cost account, it is crucial to present all costs in a universal measure: currency. It is thus important to constantly widen the practice of evaluation in the science of accounting.
4. **The directive on disclosure of non-financial information:** obliges certain operators to disclose non-financial information. The word 'non-financial' should not be understood literally as information that is not connected to finance or not expressed in currency. According to Krasodomska (2014, p. 26), non-financial information should be defined as information which has not so far been published as part of a financial report. The disclosed non-financial information should concern social and environmental issues. Among them, there should be a description of the operator's policies regarding these issues, along with the results of these policies.

7.2. Definition of external costs

External costs is a new research area in accounting. Therefore there isn't one single definition of this term. Mostly, the definition of external costs is connected with the definition presented in economics. External cost means the harmful and negative influence of a company's activities which are neither taken into account when assessing a company's performance nor in financial reports. External costs are borne by others such as the rest of the country, the continent, the world or the coming generations. Moreover, fixating on one definition for the term appears difficult. In literature, terms such as the following have been used: *externalities* (Dahlman, 1979, s. 141), *external effects* (Killinger, 2000, p. 25), *external economies*

(Scitovsky, 1954, p. 143), *third party-effects* (Lin, 1976, p. 1) or *spillover effects* (Lin, 1976, p. 1). These terms refer to not only the negative influence of a company's activity, but overall to the influence of a company's activity: both negative and positive on the environment and society, i.e. people not involved in a particular transaction. Different kinds of a company's activity could contribute to different externalities. For example, one of the most controversial types of business which is popular in the Polish news because of their harmful effects on society and its communities is the mink industry. One of the most visible negative externalities for society connected with this business is strong odour. Other external costs observed are environmental pollution, depletion of the aesthetic value of landscapes, depletion of biodiversity, noise pollution, etc. Even though the business activity creates new jobs and gives people the opportunity to earn money, get experience and develop themselves, it could also contribute to a decrease in human quality of life. Due to the limited nature of this text, in the next section, we will cover a few of the most popular industries which could have some of the highest external costs from their activities.

7.3. External costs of company's activities

The highest-priority financial goal for companies is to earn the highest possible profit in the short-term and increase company value in long-term. These goals can be achieved by employing a strategy appropriate for the business, good company organization and management, hiring experienced and educated workers, etc. All of a company's decisions have an influence on the extent of their costs. The costs of running a business are crucial for earning a profit as well as for increasing or maintaining company value. Such costs are diverse and could be divided into ones which are incurred by the company and those ones that exist but aren't taken into account by the company. The latter are external costs and they are incurred by society. This means that companies run their businesses using societal resources like the environment, peace and quiet, and the aesthetic of the surroundings without any payment or compensation to society. Due to the short length of this article, we will focus on the external costs of a few industries: transport, mining and agriculture.

7.3.1. External costs of the transport business

The transport business is divided into road transport, air transport and water transport. Each of these activities uses public goods such as roads and their surroundings, waterways, seas and/or rivers, peace and quiet in different places and clean air. The main external costs of the transport business are air pollution, climate change

and noise. The external costs of the transport business also include the time loss of all other road users due to a decrease in speed caused by additional vehicles on roadways (Mayere, Ochelen, & Proost, 1996, p. 112).

7.3.2. External costs of the mining business

The mining business is based on exploiting natural resources to convert them into ready-to-use products or to sell them as-is for further processing. The industry uses energy resources such as natural gas, crude oil, and coal whilst exploiting other natural resources such as stone, cupric, lead, zinc, iron, rock salt, bauxite, gypsum, etc. The environmental impacts of mining activity can have local, regional, and even global effects directly and indirectly. The impacts include erosion, loss of biodiversity, the contamination of soil, groundwater, and surface water by the chemicals emitted from mining processes, noise, nuisance and a decrease in the aesthetics of surroundings (Bebbington, Brown, & Frame, 2007, p. 229; Bebbington & Frame, 2003, pp. 12–13).

7.3.3. External costs of agricultural production

Agricultural production refers to the production of (Ritchie, 2020):

- crops (including cereals, roots and tubers, legumes and nuts, fruits and vegetables, sugar crops, oil crops, cocoa, coffee, tea and tobacco, etc.),
- meat (poultry, pork, beef, buffalo, sheep, goat, goose, guinea fowl, camel, horse, duck, wild game),
- dairy (milk and eggs),
- fish and seafood (freshwater fish, pelagic fish, demersal fish, marine fish, crustaceans, molluscs)—the world now produces more seafood from fish farms than wild catch.

Agricultural production affects the environment and human health. A literature review revealed data on such externalities in three broad damage categories: natural resources (comprised of water, soil and air subcategories), wildlife and ecosystem biodiversity and human health (comprised of pathogen and pesticide subcategories). The external costs of agricultural production could be presented in detail as per Tegtmeier and Duffy (2004, p.4):

1) damage to water resources: treatment of surface water for microbial pathogens, facility infrastructure needs for nitrate treatment, facility infrastructure needs for pesticide treatment,
2) damage to soil resources: cost of water industry, cost to replace lost capacity of reservoirs, water conveyance costs, flood damages, damages for recreational

activities, cost of navigation: shipping damages and dredging, instream impacts: commercial fisheries, preservation values, off-stream impacts: industrial users, steam power plants,
3) damage to air resources: cost of greenhouse gas emissions from cropland, cost of greenhouse gas emissions from livestock production,
4) damage to wildlife and ecosystem biodiversity: honeybee and pollination losses from pesticide use, loss of beneficial predators by pesticide applications, fish deaths due to pesticides, fish deaths due to manure spills, bird deaths due to pesticides,
5) damage to human health: cost of illnesses caused by common foodborne pathogens, pesticide poisonings and related illnesses.

7.4. Environmental fees versus external costs

Company activities are not free of charge when they must use the environment. According to national laws, companies are obligated to pay environmental fees or taxes when using the environment. The rules for charging environmental fees (charges or taxes) and the scope of entities and activities concerned with the environment differ among nations. For example, environmental fees and taxes are imposed in Poland in the areas of (Rogulski, 2015):

- emission of gases or dust into air,
- consumption of water,
- emission of wastewater into water and soil,
- storage of water.

Besides the fees for using the environment there also exist penalties and additional fees for inconsistent use of the environment. This means that additional fees and taxes from using the environment not as agreed are incurred by companies and this adds to the companies' costs. Those costs are taken into account when calculating a company's performance and it shows that companies bear the consequences of their influence on the environment and society. With this consideration the following questions come up:

1. Does the existence of environmental fees and taxes mean companies bear all consequences of their influence on the environment and society?
2. Should the environmental fees be equal to external costs?
3. Does the existence of environmental fees mean that external costs are taken into account to calculate a company's performance?
4. Does the existence of environmental fees and taxes mean new research in accounting around external costs are non-essential?

At the beginning of consideration of environmental fees, the aforementioned questions could undermine the importance of research in external costs. To

understand why environmental fees aren't external costs, wider consideration should be made. First of all, the existence of fees for using the environment doesn't mean that society isn't burdened by the company's activity. Those fees are usually given to repair damage to the environment. It means that society incurs the external costs such as air pollution. Even if the negative consequences of a company's activities are minimised by governments, there is some period of time when society is burdened by them. Moreover, we should notice the following differences between environmental fees and external costs:

- the scope of external costs could be wider than environmental fees,
- some of environmental fees could reflect the value of external costs,
- environmental fees and taxes are a payment to repair damage to the environment which means that a company's activity negatively influenced society and the environment for some period of time,
- environmental fees are only fiscal payment, the value of influence of company's activity could be different using market prices to evaluate,
- even though some environmental fees could be treated as external costs, not all external costs are taken into account to calculate performance in this way and the value of environmental fees probably doesn't reflect the true cost for society.

The following arguments show that existing fees and taxes for using the environment does not resolve the problems of measuring and evaluating the external costs in companies. According to full cost accounting, one must take into account external costs to calculate a company's performance.

7.5. Evaluation of external costs

Evaluations are an area of research in accounting. This is confirmed by the substantial amount of research regarding evaluations presented in literature concerning accounting. Evaluations in regard to accounting have, so far, been focused on the evaluation of phenomena, events or resources within an enterprise. However, the issue of evaluation in itself was boiled down to the choice of the right concepts and evaluation parameters in regard to the evaluated item, with the aim of determining its value for a certain purpose. The conducted research about evaluations in regard to accounting concerned areas, where evaluations are determined in monetary units. Aside from elements, which undoubtedly can be, and are, evaluated through accounting, there are also such, which have, so far, not been considered in terms of accounting, and which also require evaluation. Good examples of such elements are goods, such as air, silence, the environment or the aesthetics of the surroundings. The current direction of progress in accounting points to a need of including elements which have, so far, not been subject to evaluation in regard to the subject of evaluation in accounting. One of these subjects is external cost. What

is important, external cost is connected with using goods such as air, soil, water, silence or the aesthetics of the surroundings. They all are public goods. Based on the fundamental definition of the costs in accounting, it is seen that these costs are connected with using material or services which were the object of transaction on the market. The next approach to the cost in accounting is based on the decrease the value of assets. The influence of a company's activity on the environment and society (external costs) is connected with using or decreasing the quality of goods such as air, silence, soil and water. Thus, the approach to evaluation of external costs could be based on:

- the evaluation of the public goods (air, silent, soil and water) and measuring of the usage,
- the evaluation of the public goods (air, silent, soil and water) and measuring of the reduction in the quality of the public goods.

Goods like air, silence, soil, water and the aesthetics of the surroundings are non-marketable goods. They don't have prices on the market. Therefore, one of the non-market valuation methods could be used to evaluate them. The non-market valuation methods are divided into: contingent valuation, choice experiment method, avoided cost method, replacement cost method, travel cost method and hedonic pricing method. The most important information which describes these methods are presented below (Baker & Ruting, 2014; Zandersen, Bartczak, Czajkowski, Giergiczny, & Termansen, 2012):

- Contingent valuation involves asking people to make choices about environmental outcomes and payments that can be used to estimate how much they are willing to pay for a non-market outcome to be provided. This outcome, or 'good', is valued as a whole (e.g. the amount of money people would be willing to forgo through additional taxes for improvements in vegetation along a river). Typically, people are asked whether or not they would be willing to pay a set amount of money for the environmental outcome to occur.
- Choice experiment method involves offering people choices between different options that are made up of sets of attributes or characteristics that describe a policy outcome. For example, attributes might indicate numbers of birds and fish, an area of vegetation, and the cost to the individual or their household. 'Implicit prices' are then estimated for each attribute, reflecting average willingness to pay for an additional unit. The value placed on a particular policy option is the sum of the value of its attributes.
- Avoided cost method infers the value that people place on non-market outcomes by examining what they pay to avoid or mitigate negative impacts. For example, the amount of money that people spend on double glazing windows could proxy for the costs of traffic noise, but this may not be a reliable proxy if the double glazing does not fully mitigate the noise or if people also double glaze to save on heating costs.

- Replacement cost method strongly suggests that all goods can be replaced without loss of functions or values—in physical and biological terms and in the eyes of people. The more unique and complex a 'good' is, the harder it is to justify the use of this valuation method, as it would be almost impossible to copy and replace these goods. For example, if a forest is cleared, the value of that forest can be approximated with what it would cost to plant and maintain a similar forest somewhere else.
- Travel-cost method imputes the value that people place on visiting a recreation site by examining how much they spend to visit (including costs of transport, accommodation and park entry) and the cost of their time. These data are used to estimate the value of non-market goods like forests, nature parks, landscape parks etc.
- Hedonic pricing method deconstructs the price of market goods that are influenced by non-market outcomes. It involves estimating implicit prices for a number of characteristics that make up the good (in the case of housing, these could be the number of rooms, bushland views or proximity to a landfill). The method has often been used to estimate environmental amenity values by analysing house prices. It has also been used to estimate the value of a statistical life by analysing wages across jobs with different levels of risk.

Those methods aren't a quick and easy process. One of the biggest problems for accounting in the future will be measuring the volume of using them or measuring the size of reduction in the quality of the public goods and assigning it to particular companies.

Tasks

Check your knowledge about external costs in accounting and answer the following questions.

1. Define external cost.
2. Give examples of external costs.
3. Explain why external costs are a crucial and important research area in accounting.
4. Describe the differences between external costs and environmental fees.
5. Explain the problem of evaluating external costs in accounting.

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8.

DERIVATIVES IN ACCOUNTING

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Abstract: One type of financial instruments are derivatives whose price depends on the value of the underlying instrument. There are two different approaches to accounting of derivatives: general model—in which derivatives are presented as assets or financial liabilities, measured at fair value and referred to the financial result, and hedge accounting—which requires symmetrical recognition of changes in the value of the hedged item and the hedging instrument. Information on derivatives is presented in the financial statements. The derivative is reflected in the balance sheet of the entity that is a party to a given contract, while the result obtained on the derivative contract is presented in the profit and loss statement.

Keywords: derivatives, fair value, financial instruments, financial option, forward, futures, swap, valuation.

8.1. Classification of financial instruments

A financial instrument is a contract that gives rise to a financial asset for one party and a financial liability or equity instrument for the other party, provided that the contract between two or more parties clearly gives rise to economic effects, regardless of whether the obligations under the contract is unconditional or conditional.

Figure 8.1 shows the balance sheet effects of the occurrence of a financial instrument.

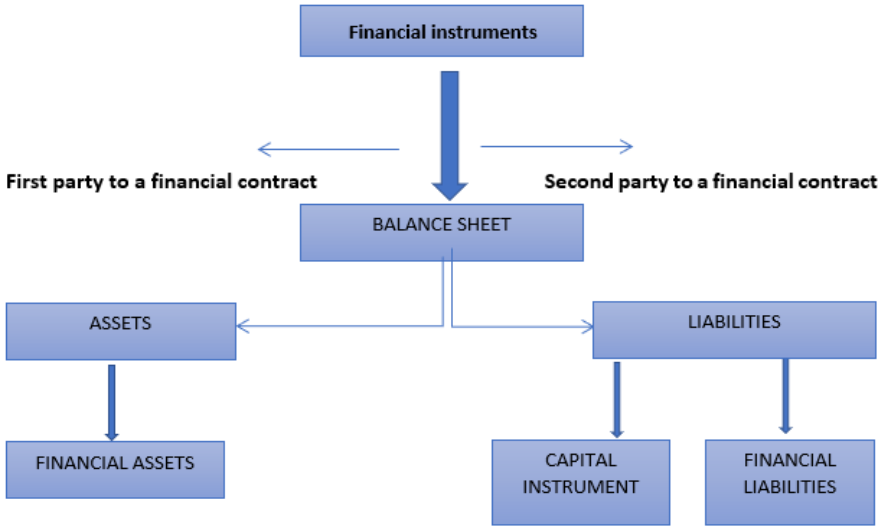


Figure 8.1. The balance sheet effects of the occurrence of a financial instrument

Source: Own study.

The classic division of instruments according to their economic nature includes three groups:

1) primary instruments,
2) derivatives,
3) compound instruments.

Primary financial instruments are financial assets or financial liabilities, which the entity will receive or pay in a fixed or determinable amount. Feature Primary instruments are highly liquid, which means they can be quickly converted for cash. The typical primary instruments include (Masztalerz, 2006):

- cash (e.g. cash on hand and in bank accounts, bills of exchange and checks),
- debt securities acquired or issued (e.g. bonds),
- equity securities acquired or issued (e.g. shares),
- contractual rights to receive or transfer money,

- financial assets (e.g. loans, credits).

Primary instruments may be of a monetary nature (when economic benefits are in the form of cash) or of a non-monetary nature (when the benefits are in the form of assets other than cash).

Financial derivatives are financial instruments, the value of which is derived from the value of the underlying instrument. A financial derivative instrument is considered to be a financial instrument for which the conditions are met:

- the value of the instrument depends on the change in the value of the underlying specific interest rate, price of a security or commodity, rate currency exchange, price or rate index, credit rating or index credit card or other similar amount,
- the acquisition does not incur any initial expenses or value net of these expenses is low compared to the value of other contracts whose price similarly depends on changing market conditions,
- settlement will take place in the future.

It is worth noting that in order for a financial instrument to be considered a derivative, all three conditions must be met simultaneously. For derivatives we include forward transactions (contracts) such as:

- forward contract: an agreement that requires one party to deliver, and the second the obligation to collect assets (e.g. commodities or securities), a specified date in the future and at a specified price at the time conclusion of a contract,
- futures contract: an agreement with specific standard characteristics, being subject to public trading, imposing an obligation on one party delivery, and on the other—the obligation to collect assets of a certain amount, in a specified date in the future and at a specified price at the conclusion of a contract,
- option: a contract that gives an entity the right to purchase assets (call option) or sell assets (put option) at a predetermined rate price within a specified time,
- swap contract: an agreement to swap future payments on terms in advance specified by the parties to the contract.

Compound financial instruments are contracts that consist of an equity instrument and financial or other obligations. Composite instrument can be a combination of:

1) two primary instruments (e.g. bonds convertible into shares),
2) the primary instrument and derivative (e.g. bonds with built-in early redemption option).

In the second case, we are dealing with the so-called embedded derivative, which has been defined in the Polish balance sheet law as resulting from the concluded contract, terms that cause some or all of the cash flows contract yield changes in a manner similar to what it would cause stand-alone derivative. Common embedded derivatives can include:

- contracts in which the amounts due are indexed, e.g., according to the inflation rate, rates interest rates and/or exchange rates,
- early redemption options for debt securities (bonds).

8.2. Types of derivatives

Derivatives are one of the groups of financial instruments.. The word comes from Latin from the word 'derivatio', which in free translation means creating one thing on the basis of another, already in circulation (Remlein, 2011, pp. 149–150).

In the case of forward and futures, both parties are obligated to perform the terms of the contract within a specified future date. Final settlement is made at the forward rate, i.e. the price set for a given day in future.

In practice, futures contracts are very often used for hedging receivables or liabilities in foreign currencies. If, for example, a company has 1,000 euros to pay and is afraid of unfavourable changes in the exchange rate, it may purchase a futures contract for 1000 euros. In the case of receivables, hedging against foreign exchange risk will be to sell the contract. Futures and forward contracts, despite their many similarities (in terms of profitability profile of the parties to the contract and obligations under the contract), are significantly different from each other. The most important differences are presented in Table 8.1.

Table 8.1. Comparison of forward and futures contracts

Forward	Futures
Private agreement between the parties	Subject of exchange trading
No standardization	Standardization (price, date, conditions)
Single delivery date specified	Date range during which delivery is possible
Settled at the end of the contract validity	Settled daily
Physical delivery is common	Physical delivery is missing
No deposit	No deposit required

Source: (Masztalerz, 2006).

In the case of an option contract, the purchaser of the option has the right to buy or sell a specific instrument, while the writer of the option is required to exercise on demand the buyer's contractual rights. For the privilege of the right to exercise the option, the buyer pays a premium. Obviously, the buyer will exercise the option only if the current instrument price the underlying will be higher (for a call option) or lower (for a put option) than the price the exercise of options (forward price determined at the moment of concluding the contract).

The premium paid is for the option buyer the maximum loss that he may incur: if the buyer chooses not to exercise the option, he will only lose the premium paid. Potential profit for the option buyer is theoretically unlimited. The situation is a much riskier option for the writer for whom the premium is the maximum yield on the contract, provided that the buyer does not exercise the option.

Swap contracts concern an exchange of obligations between the parties to a contract. Typical transactions in this group include:

- an interest rate swap, which consists of the conversion of interest payments (on liabilities in that the same amount and in the same currency) between the parties to the contract, one of which pays the fixed interest rate and floating rates for other party,
- foreign exchange swap, which involves the exchange of liabilities expressed in different currencies between the parties to the contract (e.g. one party has a loan in CHF and the other the party in PLN and as a result of concluding a swap contract "swap" with payments),
- a commodity swap, which swaps payments based on prices for the agreed quantity of the specified goods. With swap contracts, there is no physical delivery, only financial settlement as the effects of the transaction.

8.3. Valuation

The concept and scope of financial instruments have not changed. However, the attitude towards the classification of financial instruments is changing (Barczyk, 2018, p. 8). IFRS 9 is addictive classification by two factors (IFRS 9, 2016, par. 4.1):

1) the business model that is applicable to the particular business a financial asset,
2) characteristics of the contractual cash flows of the given component financial assets.

Taking into account the above-mentioned factors, financial assets are classified after initial recognition at an amortized cost or at fair value through profit or loss or other comprehensive income (IFRS 9, 2016, par. 4.1.1). After initial recognition, financial liabilities are measured at amortized basis cost. There are few exceptions to this rule, such as derivative instruments measured at fair value through profit or loss, financial guarantee contracts or loan commitments with an interest rate below the market interest rate valued according to separate principles (IFRS 9, 2016, par. 4.2.1).

Financial assets measured at fair value can be divided into two subcategories (Barczyk, 2018, p. 8-9):

1) financial assets at fair value through profit or loss,
2) financial assets measured at fair value through other comprehensive income.

In the case of the first sub-category, gains and losses on financial assets at fair value will be recognized in the result for the current period, and for the second sub-category of financial assets, valuation gains and losses will be recognized in other comprehensive income.

The initial recognition of derivative instruments depends on the manner of concluding the transaction. It is measured differently and recognized in the books

of account as at the acquisition date and as at the balance sheet date. A different treatment applies to transactions for which:

- there are no cash flows at the inception,
- concluding the transaction requires the payment of a deposit,
- concluding a transaction requires payment (or receipt) of the so-called bonus.

In the case of a forward contract, there are no initial cash flows from the contract when the contract is concluded. The fair value at this point is nil. This results in a lack of recognition in the balance sheet as at the date of contact. Such a transaction is initially recorded in off-balance sheet records. Only at the time of balance sheet valuation is the forward contract recognized in the financial statements. The positive fair value of the forward contract is recognized as a financial asset. The negative fair value of the contract is recognized in financial liabilities.

Characteristics of futures contracts are similar to those of forward contracts. Contrary to forward contracts, they require a deposit. The initial deposit paid cannot be equated with the initial investment, i.e. with the expenditure to purchase a derivative. The cash deposited reduces the cash balance of the entity's balance sheet, while the deposit should be accounted for as a deposit receivable from the exchange clearing house where the transaction was made. The fair value of the futures contract on initial recognition in the accounting records is zero. Example 8.1 shows the initial valuation of a futures contract.

Company X concluded a futures contract on a regulated exchange for the sale of 100 tons of wheat at a price of EUR 500 / t. We assume that the terms of such transaction require a 6% deposit.

Contract nominal value: 50 000 EUR (100 t x 500 EUR/t)

Deposit value: 3000 EUR (6% x 50 000 EUR)

ASSETS		LIABILITIES
Receivables from deposit	↑ 3000	
Cash	↓ 3000	

Example 8.1. Initial valuation of a futures contract

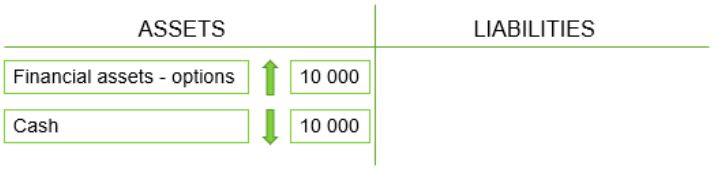
Source: Own work.

Financial options are the only derivative instruments that require an initial outlay to conclude. When an entity purchases an option, it must pay the writer

a specified amount of cash that will reflect the original value of the option. When an entity sells an option, the amount of the premium received determines the initial value of the option to be recognized as a financial liability. Examples 8.2 and 8.3 show the initial valuation of a put option and call option.

Company X buys a put option entitling it to sell for six months of the sale EUR 100,000 at the rate of PLN / EUR 4.3. The option price was set at 1,000 basis points. The price for 1 basis point is PLN 10

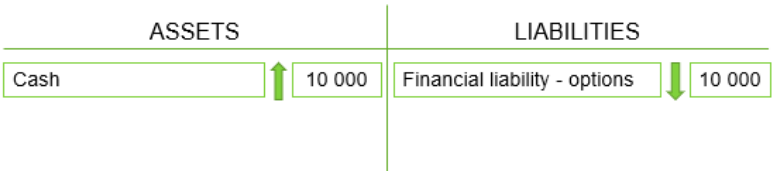
Bonus value: PLN 10,000 (1,000 basis points x PLN 10)



Example 8.2. Initial valuation of a put option

Source: Own work.

Company X issues a put option, committing itself to buy EUR 100,000 for six months at the rate of PLN 4.3 / EUR. The option premium is PLN 10,000.

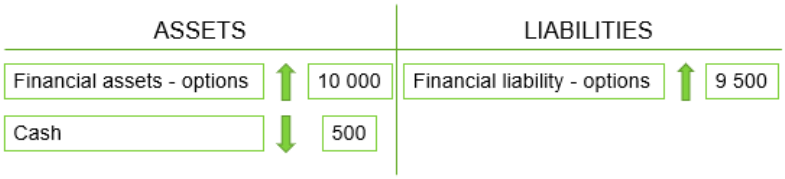


Example 8.3. Initial valuation of a call option

Source: Own work.

In business practice, linked transaction to financial options are often concluded. In this situation, one entity issues the other a put option and the other a call option. Example 8.4 shows the valuation and initial recognition of a linked transaction.

Company X bought an option from the bank, the price of which is EUR 10,000. At the same time, the company sold an option to this bank, the price of which is EUR 9,500. In such a situation, the physical cash flow was EUR 500, which was paid by company X. The fair value of the bought and sold options are their prices (option premiums).



Example 8.4. Initial valuation of a linked transaction

Source: Own work.

As at the balance sheet date, derivative instruments are measured at fair value. The recognition of the effects of the measurement depends on the purpose of the transaction that resulted in the creation of the derivative. Due to the purpose of the transaction, the following are distinguished:

- derivative instruments concluded for commercial purposes (non-hedging, speculative),
- derivatives contracted for hedging purposes.

Derivatives concluded for hedging purposes as at the balance sheet date are measured not later than at the end of the reporting period, at a reliably determined fair value without reducing it by transaction costs that the entity would incur by selling these assets or by derecognition of them from the books of account for other reasons, unless the amount of these costs would be significant. In addition, for derivatives, additional documentation is required in the form of:

- defining the goal and risk management strategy,
- identification of both the hedging instrument and the hedged item,
- characteristics of the risk associated with the hedged item,
- the duration of the security,
- a description of the selected method of assessing the effectiveness of the hedge of changes in the fair value or cash flows of the hedged item related to a given type of risk.

The condition for applying hedge accounting is assessing the effectiveness of the hedge, both ex ante and ex post. Hedge effectiveness is the degree to which the loss on the hedged item is covered by the profit (loss) earned on the hedging

instrument. Hedge effectiveness is measured both ex ante and ex post. An effective hedging is in the range of 80%–125%.

Derivative instruments concluded for trading purposes are recognized as assets held for trading. As at the balance sheet date, they are measured at fair value. The effects of the measurement are recognized in the financial result of the entity as:

- financial income: increase in fair value,
- finance costs: decline in fair value.

Example 8.5 shows the valuation of a forward contract at the balance sheet date when the fair value of the contract increases. Conversely, Example 8.6 shows the effect of a decline in fair value.

Company X has entered into a forward contract. As at the balance sheet valuation date, the contract's fair value is positive and amounts to EUR 1,000.

ASSETS		LIABILITIES	
Financial assets - *forward*	1 000	Financial result	1 000

Example 8.5. Balance sheet valuation of forward contract—increase in fair value

Source: Own work.

Company X has entered into a forward contract. As at the balance sheet valuation date, the contract's fair value is negative and amounts to EUR 600.

ASSETS	LIABILITIES	
	Financial result	600
	Financial liability	600

Example 8.6. Balance sheet valuation of forward contract—declining fair value

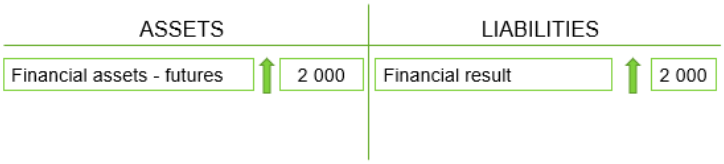
Source: Own work.

Examples 8.7 and 8.8 show the balance sheet valuation of a futures contract. Example 8.7 shows the effects of the futures contract valuation resulting in an

increase in the fair value. Example 8.8 shows the effects of a decline in the fair value of a futures contract.

Company X entered into a futures contract on the exchange that required a deposit of EUR 5,000. The current balance of the deposit is EUR 7,000. In the period from the conclusion of the contract to the valuation date, company X did not have to replenish the deposit.

Fair value of the futures contract at the measurement date: EUR 2,000.



Example 8.7. Balance sheet valuation of futures contract—increase in fair value

Source: Own work.

Company X entered into a futures contract on the exchange that required a deposit of EUR 5,000. Initially, the contract was losing value, so the company had to top up the deposit by making a deposit of EUR 3,000. The current deposit balance is EUR 5,000.

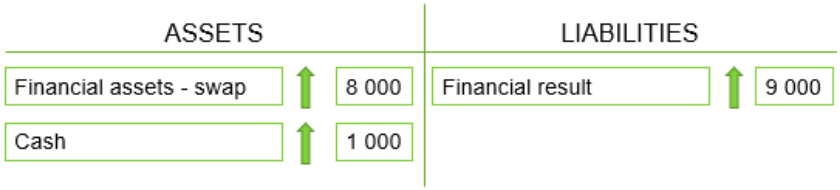
Fair value of the futures contract at the measurement date: - EUR 3000.

Example 8.8. Balance sheet valuation of futures contract—declining fair value

Source: Own work.

Swap contracts are a special case of derivatives. At the time of their valuation, there are usually cash flows from the partial settlement of the transaction. All effects arising from this situation should be reflected in the balance sheet. An example of swap contract settlement as at the balance sheet date is presented in example 8.9.

Company X has entered into a swap. As of the date of the initial valuation after its inception, positive cash flows of EUR 1,000 are realized. The fair value of the remainder of the swap is EUR 8,000.



Example 8.9. Balance sheet valuation of swap

Source: Own work.

Both the initial and balance sheet valuation of derivative instruments depends on the type of derivative and its purpose. The valuation of derivative instruments as at the purchase date in the case of forward contracts is not recognized in the financial statements at all. In turn, the initial valuation of futures contracts includes the value of the deposit made. In the case of an option, the initial value of the option is the paid-in option premium.

As at the balance sheet date, all derivative instruments are measured at fair value. When derivative instruments are acquired for commercial purposes, the effects of changes in fair value are recognized in the entity's financial result. Increasing the fair value of a derivative increases financial income, while decreasing the fair value causes financial costs. If the derivative was purchased to hedge against financial risk, then additional documentation of the hedge effectiveness is required.

8.4. Presentation of derivates

Financial instruments can protect the fair value of certain company's assets or their cash flow. They can be useful for companies which sell to foreign receivers and are paid in foreign currency but have expenditures in domestic currency. They need to protect themselves against unfavorable currency fluctuations.

One type of financial instruments are derivatives. The feature that distinguishes a derivative from other financial instruments is the volatility of the price which depends on the value of the underlying instrument.

The complexity of derivatives and standards concerning generally financial instruments may cause that these operations are complicated to measure and disclose (Malaquias & Zambra, 2019).

In Poland, accounting for derivative instruments is regulated by the following acts:

- the Act of September 29, 1994 on accounting,
- the Ordinance of the Minister of Finance of December 12, 2001 on specific matters principles of recognition of valuation methods, scope of disclosure and method of presentation financial instruments,
- International Financial Reporting Standards adopted for application in the European Union, for entities applying IFRS for purposes of financial reporting and in matters not regulated by national regulations.

Regulatory issues related to accounting for derivatives were included in International Accounting Standards (IAS) and International Financial Reporting standards (IFRS).

International Accounting Standard 39 (IAS 39) has been replaced by the International Standard Financial Reporting 9 (IFRS 9) which entered into force on January 1, 2018. IFRS 9 should be used by companies listed on regulated markets in the European Economic Area. The aim of this Standard is to "establish principles for the financial reporting of financial assets and financial liabilities that will present relevant and useful information to users of financial statements for their assessment of the amounts, timing and uncertainty of an entity's future cash flows" (IFRS 9, 2016).

People who use financial information provided by entities in reports created in accounting system to make decisions need, among others, data about the usage of financial instruments, including derivatives. Information on derivatives can be found in the financial statements. However, it is necessary to know where to look for and understand what the information disclosed and presented by the entity means.

There are two different approaches to accounting of derivatives:

- general model—in which derivatives are presented as assets or financial liabilities measured at fair value and referred to the financial result,
- hedge accounting—requires symmetrical recognition of changes in the value of the hedged item and the hedging instrument.

From a company's point of view hedge accounting is preferred because it allows to get a reduction in volatility of earnings. In the case of hedge accounting, gains or losses on a particular used instrument are recognized in the profit and loss statement together with losses and gains on the item being hedged.

There are three variants of hedge accounting. In the first, the fair value of the derivative is set on the balance sheet as an asset or a liability, while gains and losses are presented in the income statement immediately. In the second, the fair value of the derivative is set on the balance sheet as an asset or a liability. Gains and losses are presented as solo item on the balance sheet, an adjustment to the reserves and the disclosure in the statement of total recognized gains and losses take place. In the third variant the derivative is an off-balance sheet item until time

of the establishment of a position. Hedge accounting complies with the matching concept (Dunne, Helliar, & Power, 2003, p. 23).

In the case of hedging against currency risk, the hedging instrument may be a derivative, whose fair value or cash flows resulting because of this is expected to be offset by the changes of the fair value or cash flows of the hedged item (Ring, 1997).

The entity has the right, but not the obligation, to apply hedge accounting for derivatives that are used for hedging purposes. In order to be able to apply these different accounting principles, the requirements of IFRS 9 must be met.

In case of a failure to meet the conditions or with respect to derivatives used for purposes other than hedging, the entity is required to apply the general rules. In such a case, such instruments should be classified in financial assets or liabilities measured at fair value and the effects of this valuation should be referred to the financial result. There is a need to measure the instruments at fair value at each balance sheet date. Effects of value changes are shown in the profit and loss statement.

Both derivative accounting models do not allow to show in the statement of financial position specific hedged items at the value resulting from the posted (e.g. inventory values). During the period of the relationship, the carrying amount of the hedged asset or liability is adjusted for changes in fair value caused by the materialization of the hedged risk. However, the fair value of the hedging instrument is presented separately as financial assets or liabilities (Andrzejewski, Dunal, & Ożga, 2018, p. 196).

The aim of hedge accounting is to present in the financial statements the effect of the usage of financial instruments to risk management activities which can have an effect on profit or loss (PWC, 2016). In other words, hedge accounting is a technique in which associated hedging instruments and hedged items are recognized in profit and loss statements in the same period.

In IFRS 9 there are three hedge accounting models:

- fair value hedge (a change in the fair value of an asset or liability is hedged),
- cash flow hedge (the exposure to variability in cash flows is hedged),
- net investment hedge (the currency risk concerning the translation of the net assets of foreign operations can be hedged).

In hedge accounting there are required among others disclosures concerning (PWC, 2016):

- the risk management strategy and its application,
- the possible impact of hedging activities on cash flows,
- the effect of hedge accounting on an entity's financial statements.

The requirements for these areas are detailed so entities should make an effort to meet all of these. Hedge accounting is an exception of some kind in accounting system. Its use is a privilege, not duty. The possibility of using it requires meeting specific conditions (Żebruń, 2010). An entity may apply hedge accounting to a specific group of derivatives and the general model relative to the rest at the same time.

In Polish law, general conditions for the application of hedge accounting were indicated in the Accounting Act of September 29, 1994. In this legal act, the financial instruments for security purposes were posted.

Due to the voluntary application of hedge accounting, hedging instruments may be presented in the financial statements in the same way as speculative instruments, that is, according to the general model. Selective application of the hedge accounting model may therefore lead to profit management (Ryan et al., 2002).

The derivative is reflected in the balance sheet of the entity that is party to a given contract. The balance sheet is a great source of information on the use of derivatives. Information on derivatives is important both for external and internal users of accounting information.

Balance sheet law imposes certain disclosures and ways of presenting derivatives in their financial statements to provide stakeholders with information about the instruments that companies use.

For derivatives, on the side of assets there are reflected the effects of the right to exchange financial instruments with another enterprise on terms that are potentially favourable to it. However, on the liabilities side, the entity's contractual obligations are recorded to this exchange when its conditions are unfavourable at the moment (Krzywda, 2005).

Pursuant to the Polish balance sheet law, entities are recommended to describe in the notes to the financial statements the basic data on the instruments used, including derivatives. These disclosures are intended to help stakeholders understand the relevance of the instruments used to the entity's situation and performance (Kotyla & Bucior, 2008, p. 83).

The presentation of derivatives may be presented on the example of one of the most frequently used instruments, which is forward.

Buying a forward causes on the date of conclusion the contract an increase in financial assets and financial liabilities by the contract value. On the balance sheet date the forward contract is measured at fair value. Then, the value of financial assets or liabilities is increased or decreased by the result on the hedging instrument. If the price of the underlying instrument shapes such that it will occur the profit on the hedging instrument, that is, the fair value of the contract will be positive, the financial assets will be increased by its value. However, if it is the loss (when the fair value of the contract is negative) it will increase the liabilities (Gawrońska, 2018).

The forward contract is measured at the balance sheet date at fair value. In most cases, the fair value information is obtained by entities from the bank with which they concluded the contract. The effects of the revaluation of the forward value are recognized as financial revenues or costs in the period, in which the valuation was made. Effects of valuation of forward currency contracts do not constitute exchange rate differences (Gofin, 2011).

In the financial statements prepared in accordance with the Polish balance sheet law, the increase in the value of forward contracts is shown in the profit and loss statement on the side of financial revenues "Revaluation of investments". However, the decrease in value is shown on the side of financial costs in the item "Revaluation of investment". In case of a negative fair value, the contract is recognized in the liabilities of the balance sheet under the item "Short-term liabilities towards related entities - other" "Liabilities short-term to other entities—other financial liabilities. If the fair value of contract is positive, such contract is recognized in the balance sheet as assets under position "Short-term investments—other short-term financial assets" (Gofin, 2011).

Derivative contract balance sheet valuation does not result in cash flows. Therefore, no cash flow from financing activities is shown in the cash flow statement. The corresponding adjustment should be included in the net profit adjustments (Gofin, 2019). Pursuant to Polish regulations, this adjustment is made in the item "Profit (loss) on investment activities" or in the item "Other adjustments" in the cash flow statement prepared using the indirect method.

Questions / tasks

1. Please list the types of derivatives.
2. How are derivatives valued at the date of acquisition?
3. How are derivatives valued at the balance sheet date?
4. Does the designation of a derivative affect its valuation?
5. Point and describe two different approaches to accounting of derivatives.
6. Explain in which reports stakeholders can find information about the derivatives used by companies.
7. Explain the presentation of the forward in financial statements.

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9.

COSTS OF RESEARCH AND DEVELOPMENT

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Abstract: Year by year, research and development works constitute an increasingly important element of the functioning of enterprises. Appropriate recording of expenditure and settlement of their effects requires (above all) determination of the actual stage of works. Consequently, there is a distinction between research and development works. Another aspect that determines the principles of recognizing expenditure in the accounting books is to determine whether the developed product/technology belongs to the area economically developed by the unit or to the unrecognized area. The adequate determination will help to place expenses either in the sphere of activity and basic unit or in the sphere of other operating activity. Financial reporting for intangible assets is perhaps one of the most difficult and most controversial topics of financial reporting. In this article it is compared three concepts of financial reporting for R&D costs: IFRS approach, Czech approach for non-profit organizations and Czech approach for profit organizations.

Keywords: costs, costs of development works, cost of research and development, cost of research works, CZ GAAP, financial reporting, IFRS, R&D.

9.1. Reasons for the development of R&D activities

The social and technical changes over the last decades have had an impact on the change of the economic environment. In particular, the progressing globalization process and shortening of the supply chains has caused the necessity to reorganize the work of many business units. In order to remain competitive on the market, enterprises cannot be limited only to the optimization of the production process, but also look for competitive advantages in new products and services. The main sources of activation in terms of R&D activities are presented in Figure 9.1.

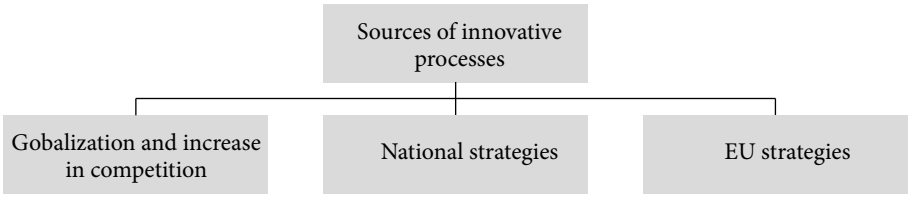

Figure 9.1. Sources of innovative processes in an enterprise.

Source: Own study.

As shown above, stimulating factors can be divided into internal and external factors. The internal stream is the product of the business strategy adopted within the unit (based on the development of new products and technologies). A business entity that wants to increase its competitive advantages looks for either process optimization or new markets. Research and development works, being a response to the internal needs concerning the realization of increases, occur naturally. An individual, who encounters a problem in the real business, looks for new solutions with the use of technological and market knowledge.

Externally stimulated R&D activities may be different. The aforementioned globalization processes cause not only the opening of new sales markets, but also a drain of resources. In particular, European and American companies face the problem in the field of achieving competitive cost levels for their activities in relation to developing countries. Wage pressures and unfavourable demographic trends are connected with the need to look for other answers. This trend was also noticed by legislators. Therefore, many programs have been created in order to support the initiation of research and development initiatives. These activities have national nature (implemented by individual countries), as well as international nature (the aim of the adopted aid system is to stimulate pro-development activities in units). An illustration of the above-mentioned trend may be the change in the value of projects co-financed by the NCBR[1]—i.e. a dedicated entity to support the innovativeness of Polish enterprises.

[1] Narodowe Centrum Badań i Rozwoju—National Centre for Research and Development.

Table 9.1. R&D projects in 2014–2018 years in Poland

Category	2014	2015	2016	2017	2018
Number of programs	46	53	81	64	61
Amount in the NCBR's budget	5318 million PLN	5805 million PLN	3 billion PLN	7.9 billion PLN	6.8 billion PLN
Value of signed contracts	2.6 billion PLN	3.5 billion PLN	5.6 billion PLN	7.67 billion PLN	6.57 billion PLN

Source: (The National Centre for Research and Development, 2015–2019a).

The data in Table 9.1 show a high level of interest in undertaking activities in the research area by Polish enterprises. Therefore, there is a growing interest in recognition of settlements in the field of innovative projects in the accounting system.

9.2. Types of research conducted in the enterprise

Regardless of the source that stimulates the undertaking of innovative works, units can conduct various types of research.[2] Appropriate recognition of their nature is essential due to significant differences in recognition in the accounting system.

Individual types of research have been discussed in detail in various types of regulations in the scope of conducting research and development activities. In the case of Polish enterprises, provisions included in the following tree documents should be presented:

- the Act of 30 April 2010 on the principles for the financing of science,
- IAS 38. Intangible assets,
- NCRD 2020. Levels of technological readiness.

Consequently, two main types of research should be identified:

- research works,
- development works.

When analysing the regulations, it should be noted that research in entities is subject to significant division. This was presented in Figure 9.2.

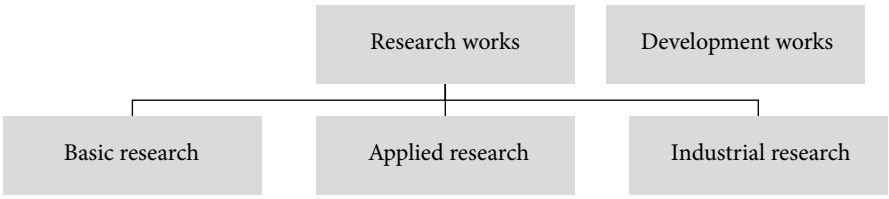

Figure 9.2. Division of research and development works

Source: (Act of 30 April 2010).

[2] This will be discussed in the next points.

Elementary activities in research works include basic research, which includes original experimental or theoretical research undertaken (primarily) in order to gain new knowledge about the foundations of phenomena and observable facts without any direct commercial use (Act of 30 April 2010).

The second group includes applied research, undertaken in order to acquire new knowledge. They are primarily oriented on practical use (Act of 30 April 2010).

From the point of view of enterprises, industrial research is important. They are aimed to acquire new knowledge and skills in order to develop new products, processes and services or make significant improvements to existing products, processes and services. The research includes the creation of components of complex systems, the construction of prototypes in a laboratory environment and in an environment that stimulates existing systems, especially to evaluate the suitability of given types of technologies, as well as to build pilot lines (necessary for these tests) and obtain evidence in the case of generic technologies (Act of 30 April 2010).

According to international regulations, examples of research works are (IAS, 2020):

- activities aimed at acquiring new knowledge,
- searching, evaluation and final selection of methods for the use of results from research works or other types of knowledge,
- searching for alternative materials, devices, products, processes, systems or services,
- formulation, design, estimation and final selection of new or improved materials, devices, products, processes, systems or services.

As presented, the second main type of innovative works observed in enterprises includes development works.

Development works are understood as the acquisition, combination, shaping and use of currently available knowledge and skills in the field of science, technology and business, as well as other knowledge and skills for the planning of production, creation and design of new, changed or improved products, processes and services, excluding works involving routine and periodic changes to products, production lines, manufacturing processes, existing services or other operations in progress—even if such changes strive to introduce improvements (Act of 30 April 2010).

In particular, development works include (Act of 30 April 2010):

- preparation of prototypes and pilot projects, as well as demonstrations, testing and validation of new or improved products, processes or services in the environment constituting a model of the conditions of actual functioning, the main goal of which is further technical improvement of products, processes or services, the final shape of which has not been determined;
- preparation of prototypes and pilot projects that can be used for commercial purposes—when the prototype or pilot project is a finished product (ready for commercial use) and its production solely for demonstration and validation purposes is too costly.

Examples of activities undertaken within the framework of development works according to IAS (IAS, 2020):

- design, production and testing of prototypes and experimental models (before their implementation into serial production or use),
- design of tools, processing devices, moulds and dies with the use of a new technology,
- design, production and operation of a pilot line, the size of which does not enable to run an economically reasonable production intended for sale,
- design, production and testing of selected solutions in the field of new or improved materials, devices, products, processes, systems or services.

9.3. Technology advancement phases

The occurrence of two types of works characterized by an innovative nature is caused by the structure of the research and development process. A unit, which wants to develop and implement a new product or technology, should move from the stage of initial concept development to testing of the adopted solutions. Therefore, the types of research presented in the previous section can be entered into the technology advancement phases by dividing them into the following areas (NCRD, 2020):

- research works (levels from I to VI),
- development works (levels from VII to IX).

The characteristics of individual phases are presented in Table 9.2.

Table 9.2. Phases of technology's development

Area of works	Technology readiness phase	Characteristics of a phase
Research works	Level I	Basic principles of a certain phenomenon were observed and described. The lowest level of technology readiness means the commencement of scientific research in order to use the research's results in future application. The research includes (*inter alia*) research on the basic properties of technology.
	Level II	The concept of the technology or its future application was defined. This means the beginning of the process of searching for the potential application of the technology. From the moment of observing the basic principles describing the new technology, its practical application can be postulated (it is based on predictions). There is no evidence or a detailed analysis supporting the assumptions yet.
	Level III	Critical functions or concepts of the technology have been confirmed (analytically and experimentally). This means the performance of analytical and laboratory tests aimed at confirming the predictions of scientific research for selected elements of the technology. The research includes components that are not (yet) fully integrated or not representative for the entire technology.

Area of works	Technology readiness phase	Characteristics of a phase
Research works	Level IV	Components of the technology or its basic subsystems were verified in laboratory conditions. This process means that basic components of the technology have been integrated. They include "ad hoc" models integrated in the laboratory. An overall image of the target system was obtained in laboratory conditions.
	Level V	Components or basic subsystems of the technology were verified in an environment similar to a real one. The basic components of the technology are integrated with real supporting elements. The technology can be tested under simulated operating conditions.
	Level VI	A prototype or a model of the system or technology was demonstrated in conditions similar to real conditions. This means that a representative mode or a prototype of the system, which is much more advanced than the system examined at level V, was tested under conditions similar to real ones. Tests at this level include tests of a prototype in laboratory conditions that reproduce the real conditions with high accuracy or under simulated operating conditions.
Development works	Level VII	The technology's prototype was demonstrated in operational conditions. The prototype is almost at the operating system level. This level represents a significant advance compared to level VI and it requires demonstration that the technology (under development) is applicable under operational conditions. The tests at this level include examinations of prototypes on the so-called research platforms.
	Level VIII	Research and demonstration of the final form of the technology have been completed. This means that it was confirmed that the target level of the technology has been achieved and the technology can be used in the determined conditions. Practically, this level represents the end of the demonstration. Examples include tests and evaluation of systems in order to confirm the fulfilment of design assumptions, including assumptions concerning logistical security and training.
	Level IX	Inspection of the technology in real conditions brought the desired effect. This indicates that the demonstrated technology is already in its final form and it can be implemented in the target system. This concern, among others, the use of the developed systems in real conditions.

Source: Levels of technological readiness (NCRD, 2020).

Example 9.1. Phases of technology

The Alfa unit produces insulations for pipes. The R&D department observed that modification of the foam composition changes its flammable properties. A decision concerning the performance of research and development works was made.

Solution:

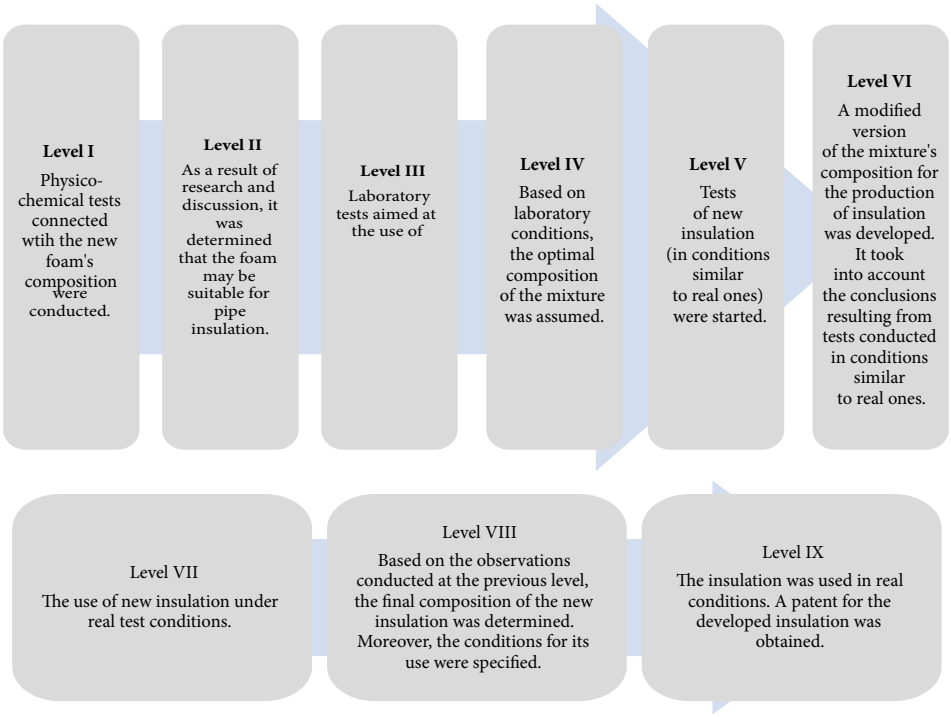

Figure 9.3. Phases of technology—example 9.1

Source: Own study.

9.4. Register of research and development works in the accounting system

The appropriate identification of the current technology readiness phase, and determination of the area of works (research od and development) will have a direct impact on the principles of recording expenditure in the accounting system. Detailed solutions in the field of presenting the effects of the concept of innovative works result from the provisions of the Accounting Act, and especially from the provisions of Article 3 section 1 point 14, Article 33 section 2 and Article 33 section 3.

The final form of the register will depend on two elements:

- the degree of connection of works with the unit's activity (operating activities or other operating activities),

- nature of the final result—success of implementation, creating a component of intangible assets.

Referring to the areas of conducted works and the above-mentioned conditions, it can be stated that research works may be carried out in the area, which is developed or underdeveloped by a unit. Furthermore, the initial nature of research works causes that they do not result in the creation of an intangible assets. Therefore, at the stage of conducting research works, the register of costs[3] will be distinguished according to the sphere of activity related to works. From the point of view of the unit's activity, research works may include:

- developed area,
- underdeveloped area.

In the first case, the unit conducts research works in the sphere of its current economic activity. In practice, these activities are usually connected with the preparation of a new version of the already offered product or a product that replaces the product located in the company's portfolio. Activities in the identified area also include the development of a concept for a product's replacement that was offered for sale, but the unit was not its manufacturer.

In the case of conducting research in the identified area, the register of expenditure should be kept with the use of operating cost accounts, i.e. accounts of "4" generic and "5" functional-calculation groups.

In the case of using the double system of costs, the register is kept as in Table 9.3.

Table 9.3. Register of research expenditure in the identified area

Description	Debit account	Credit account
Incurring of a cost	Cost accounts (group 4)	Accounts of various groups, e.g. 1,2,3
Parallel entry (taking into account double registration)	Cost accounts (group 5)	490 – settlement of costs

Source: Own study.

Example 9.2. Research works (1)

Unit A (in order to expand its current activity) started a research project. Within the framework of conducted activities, it incurred the costs of employee remuneration related to the preparation of the concept of a new technology at the earliest stage of research. The unit has a R&D department.

In which account should the expenditure be recorded?

[3] In the further part of the study, an abbreviation that identifies costs with inputs was used.

Solution:

Due to the fact that the unit conducts research within the developed area, the records should be carried out as presented in the table.

Description	Debit account	Credit account
Calculation of payroll	404 – remuneration	230-1 – settlements for remuneration
Parallel record	505-a-b – RD costs, a: research project No. 1 b: remuneration	490 – settlement of costs by type

The second of the above-mentioned cases is to taken actions in an unrecognized area. If the research activities are conducted in an undeveloped area, it means that the unit has no experience in this part of the market and activities cannot be included in the basic activity. Consequently, the expenditure incurred by the unit should be included in the accounts of other operating costs—i.e. accounts of group "7".

Table 9.4. Records of research expenditure in an unidentified area

Description	Debit account	Credit account
Incurring a cost	Account of other operating costs of group 7	Accounts of various groups, e.g. 1,2,3

Source: Own study.

Example 9.3. Research works (2)

Unit B (in order to diversify its activity) started a research project. Within the framework of conducted activities, it incurred costs of employee remuneration related to the development of the concept of a new technology at the earliest stage of research. The unit does not have an R&D department.

In which accounts should be expenditure be recorded?

Solution:

Due to the fact that the unit conducts research within the undeveloped area, the records should be carried out as presented in the table.

Description	Debit account	Credit account
Calculation of payroll	765-a – other operating costs of research projects, a: remuneration	230 – settlements for remuneration

From the point of view of an individual, it becomes more problematic to record expenditure in further phrases of innovative works, covering the area of development works. Like in the case of research works, development works can be conducted in the area developed or underdeveloped by the unit. Furthermore, unlike research works, development works may result in the creation of a new intangible asset. In other words, in this case, the selection of the recording method will depend not only on the sphere of the company's activity, within which the research is carried out, but also on the results of this research.

At this point, the achievable result of the research activities should be defined. Within the framework of the accounting system (Act of 29 April 1994), costs of completed development works may be recognized. They constitute the effect of completed development works carried out by the unit for its own needs (incurred before the beginning of production or applying the technology). These costs can be included in intangible assets if:

- product or manufacturing technology is strictly defined, and development costs relating to them are reliably determined.
- technical suitability of the product or technology has been established and properly documented, and the unit (on this basis) has decided to manufacture these products or use the technology.
- R&D costs will be covered—in relation to expectations—with revenues from the sale of these products or use of the technology.

Due to the assumed effect in the form of an asset, the expenditure incurred as a part of development works cannot be recognized (when incurred) as period costs. Records (corresponding to the accruals principle) are carried out with the use of active accruals, i.e. on the basis of accounts of group 6.

The scheme of incurring expenses within the framework of development works is presented in Table 9.5.

Table 9.5. Records of expenditures related to development works in the identified area

Description	Debit account	Credit account
Incurring the cost of development works	Cost accounts (group 4)	Accounts of various groups, e.g. 1,2,3
Parallel record connected with the suspension of the cost	Group 6 account – prepayments	490 – settlement of costs

Source: Own study.

Example 9.4. Development works

The unit C conducts research related to the new production technology of its products. The anticipated effect is a new technological line. The unit completed the stage

of conceptual and research works, and it started the phase of development works. The enterprise purchased materials, which are necessary to create a prototype.

In which accounts should expenditure be recorded?

Solution:

Due to the fact that the unit conducts research within the developed area, the records should be carried out as presented in the table.

Description	Debit account	Credit account
Purchase and consumption of materials	401 – consumption of materials and energy	202 – settlements with suppliers
Parallel record connected with the suspension of the cost	640 – prepayments	490 – settlement of costs

Example 9.5. Development works

The unit D conducts research related to the new production technology of its products. The unit completed the stages of research and development works. Finally, the conducted research did not allow the achievement of the assumed goals and did not contribute to the creation of the new technology. The unit proceeded to settle the suspended costs. The enterprise has a R&D department.

In which accounts should expenditure be recorded?

Solution:

Due to the fact that the unit conducts research within the underdeveloped area, the records should be carried out as presented in the table.

Description	Debit account	Credit account
Settlement of the completion of works	505-a – costs of the R&D department a: various costs by type	640 – prepayments

Further proceedings of the accounting services depend on the result of the conducted research and (possibly) the sphere of activity, within which the research is conducted.

In the event of a positive realization of the research, i.e. the creation of a new asset, the register is connected with the transferring accumulated outlays from accruals to intangible assets balace sheet category. However, it should be remembered that simple accounting on the accounts of the group 6 (accruals) and group 0 (intangible assets) will disturb the circle of costs in the enterprise. Therefore, the records (related to the acceptance of costs of completed development works) should

be connected with a parallel recognition of internal turnover and costs of internal turnover (accounts of the group 7). Thanks to this accounting, it will be possible to maintain the compliance between the records of costs incurred in a given period and costs connected with a certain period.

Table 9.6. Record concerning the completion of development works

Description	Debit account	Credit account
Completion of works	Account (group 02) – intangible assets	Account (group 6) – prepayments
Parallel entry that enables to close the circle of costs	Costs of internal turnover	Internal turnover

Source: Own study.

In other words, the records of costs regarding development works, taking into account their settlement at the time of completion of these works, may be associated with the occurrence of costs (on the balance sheet date) suspended on the account of prepayments. In such a case, these costs should be differentiated in terms of the estimated time for the completion of development works. Costs related to works, the completion of which is expected in a period longer than 12 months, should be presented in the part of the balance sheet concerning the non-current assets. Other costs are recognized as short-term prepayments.

Example 9.6. Development works

The unit E conducts research connected with the new production technology of its products. The unit completed the stages of research and development works. Finally, the conducted research did not allow the achievement of the assumed goals and did not contribute to the creation of the new technology. The unit proceeded to settle the suspended costs. The works concerned a new area of the enterprise's activity.

In which accounts should the utilization of expenditure be recorded?

Solution:

Description	Debit account	Credit account
Settlement concerning the completion of works	764-a – other operating costs of research projects a: various costs by type	640 – prepayments
Parallel record	791 – costs of internal turnover	790 – internal turnover

Example 9.7. Development works

The unit F conducts research connected with the new production technology of its products. The unit completed the stages of research and development works. Finally, the conducted research did not allow the achievement of the assumed goals and did not contribute to the creation of the new technology. The unit proceeded to settle the suspended costs. The works concerned a new area of the enterprise's activity.

In which accounts should adoption of the technology be recorded?

Solution:

Description	Debit account	Credit account
Settlement concerning the completion of works	764-a – other operating costs of research projects a: various costs by type	640 – prepayments
Parallel record	791 – costs of internal turnover	790 – internal turnover

9.5. International harmonization of financial reporting for R&D

There used to be three major sources of harmonization of financial reporting: accounting standards adopted by the U.S. Securities and Exchange Commission (also known as US GAAP), International Financial Reporting Standards (IFRS, formerly known as International Accounting Standards) and regulations of the European Union. Since the European Union decided to adopt IFRS as its main tool for regulating financial reporting of entities whose securities are traded at the European capital markets, only the first two sources of harmonization remain. In this chapter we focus on International Financial Reporting Standards as these are mandatory for financial reporting of European entities whose securities are listed on any of EU's capital market. Moreover, IFRS are very often used as a paragon for member states such as Poland or the Czech Republic when formulating their national regulation of financial accounting and reporting. The perspective of IFRS is supplemented by the accounting treatment prescribed by Czech accounting regulation.

9.5.1. The difference between research and development

Before we delve into the issue of reporting cost for research and development, let us take a closer look at what research and development is, what is the difference

between those two categories and what is their outcome. Understanding the differences is crucial for correct financial reporting and in some instances for financing R&D as well.

IFRS define the research as follows: "Research is original and planned investigation undertaken with the prospect of gaining new scientific or technical knowledge and understanding" (IASB, 2004, p. 1447). Goldense recognizes two levels of research: a basic research and an applied research: "In Basic Research, discovery targets are very broad. Scientists and researchers look for capabilities that have 'some efficacy' with an articulated broad market or targeted need. Some Basic Research is truly blue sky, but that has decreased over the past few decades as few can afford it. Basic Research often just rules out things that won't work and inventories what might work" (Goldense, 2016, p. 80). This kind of research is often carried out at universities and some research institutions, often financed by the government or its agencies. The applied research on the other hand is much more concentrated on given subject and may follow up on the findings of the basic research. "There is some known problem, opportunity, or application area where an economic gain or social improvements is possible. Applied Research picks up by taking things that might work and attempts to narrow down the feasible solutions" (Goldense, 2016, p. 80).

Development is different to research. IFRS define the development as follows: "Development is the application of research findings or other knowledge to a plan or design for the production of new or substantially improved materials, devices, products, processes, systems or services before the start of commercial production or use" (IASB, 2004, p. 1447). Goldense recognizes two levels of development: an advanced development and a product development: "Advanced Development takes the feasible solutions and culls out the best alternative(s) to achieve a target capability or feature to incorporate into products" (Goldense, 2016, p. 80). Although advanced development is considered as development stage it is sometimes viewed as a transition between (general and applied) research and development of a product. Advanced development takes over the findings of the applied research and focuses on narrowing-down feasible (and marketable) solutions. The outcome of the advanced development is usually a prototype of a product together with a list of other possible variations which were rejected during the development. Following advanced development is product development which deals with issues of how to adjust the prototype to make it easier and less costly to produce, how to make its production and its use more safe, how to pack and deliver the product to the customers and so on. "Product Development packages feasible and risk reduced features and capabilities in both form and function into products planned for release to the marketplace" (Goldense, 2016, p. 80).

9.5.2. The regulation for R&D cost reporting under the IFRS

The costs of research and development activities from the accounting point of view are just that: costs, i.e. the decrease in economic resources of an entity. The question is, when (in which accounting period) should these costs be expensed (i.e. charged to profit or loss)? To expense a cost means to recognize it as a decrease of profit or an increase of loss. In principle there are two options for an initial cost recognition: either as an expense or as an asset. If an entity decides to recognize the cost as an asset, then it needs to depreciate (amortize) the asset in the following periods and/or to perform an impairment test to allocate the cost to the P&L eventually. The depreciation (amortization) method should faithfully represent the manner of using the asset—it should represent how the entity consumes the benefits embodied in the asset and how the asset contributes to earning revenues.

How does the entity decide whether the R&D costs should be expensed or capitalized (i.e. brought to the balance sheet as an asset)? The guidelines for this decision-making process are formulated in the Conceptual Framework for Financial Reporting and in the IAS 38 Intangible Assets. The Conceptual Framework for Financial Reporting defines what is an asset. Should the R&D cost fail this definition they must be expensed. "An asset is a present economic resource controlled by the entity as a result of past events. An economic resource is a right that has the potential to produce economic benefits" (IASB, 2018, p. 34). The Conceptual Framework then explains what is considered "a right" and what is considered "a potential to produce economic benefits". We can simplify this and say that for an entity to recognize cost as an asset, it must be able to show that this asset will probably (not certainly) bring the entity revenues in the future and that the entity controls the asset. This definition is very general, and, in many cases, it is quite difficult to apply this definition to intangible item as R&D cost. That is why IAS 38 includes number of additional defining characteristics of R&D cost eligible for recognition as an intangible asset.

While the two basic criteria for intangible asset recognition included in IAS 38 are the same as stipulated by the Conceptual Framework (i.e. existence of future benefits and control over the resource of those economic benefits), there are additional criteria set out by IAS 38. These are: identifiability, ability to measure the asset reliably and the probability that the economic benefits expressed by (concentrated in) the asset will flow to the entity.

Identifiability criterion does not pose an issue when dealing with tangible assets be it property, plant, equipment, or inventory. It does however pose an issue when dealing with intangible assets, especially when these assets are developed internally as it might be quite difficult to distinguish them from internally generated goodwill. Therefore IAS 38 sets out a rule that intangible assets must be identifiable in

order to be recognized in entity's balance sheet. According to IAS 38 "an asset is identifiable if it either:

- is separable, i.e. is capable of being separated or divided from the entity and sold, transferred, licensed, rented or exchanged, either individually or together with a related contract, identifiable asset or liability,
- arises from contractual or other legal rights, regardless of whether those rights are transferable or separable from the entity or from other rights and obligations" (IASB, 2004, p. 1448).

The requirement to measure the asset reliably ties to the principle that both acquired intangible assets as well as internally developed intangible assets are to be recognized at their costs, which presumes that the entity is able to measure these costs reliably. This is a bare necessity and an effective barrier for management to "discover" (usually at the end of the reporting period, when the profit for the period is lower than expected) internally developed intangible assets for which they somehow "forgot" to document the development process and did not track the development costs properly. Let us keep in mind that costs of R&D are often quite high and without the strict rules of IAS 38 might be used for "creative accounting" or even an intentional misstatement. With all these additional recognition criteria, IAS 38 only sets ground for fair and reliable presentation of internally developed intangible assets while making sure that it does not provide management with tools to manipulate the profit or loss.

The biggest challenge for an entity when dealing with recognition of internally developed intangible assets is to show the probability that the economic benefits expressed by (concentrated in) the asset will flow to the entity. To help entities comply with this requirement, IAS 38 lists five aspects which must be fulfilled:

- "the technical feasibility of completing the intangible asset to the technical feasibility of completing the intangible asset so that it will be available for use or sale,
- its intention to complete the intangible asset and use or sell it,
- its ability to use or sell the intangible asset,
- how the intangible asset will generate probable future economic benefits. Among other things, the entity can demonstrate the existence of a market for the output of the intangible asset or the intangible asset itself or, if it is to be used internally, the usefulness of the intangible asset,
- the availability of adequate technical, financial and other resources to complete the development and to use or sell the intangible asset" (IASB, 2004, p. 1456).

To make the recognition process easier, IAS 38 includes a rule that all cost incurred during the research phase of the project must be always expensed. That means that no costs of the research phase of any project are eligible for recognition as an asset. The reason for this rule is that it is an inherent trait of research that its outcome is very uncertain and the probability that it will bring any economic benefits is not high enough. This is different from the development phase. The

development phase deals with design, construction and testing prototypes, models or various pilot project for which their market potential is much easier to demonstrate. To demonstrate the marketability of the development output an entity may use for example market studies which confirms that there is a demand for product under development and support it with business plan which shows there is enough resources to finish the development and start the production.

9.5.3. Measuring the development costs in compliance with the IFRS

At this point it should be obvious that while all the costs incurred during the research phase of the R&D project should be expensed, some of the costs incurred during the development phase of the R&D project should not be expensed, instead they should be recognized as an intangible asset. Measuring the Development costs to be recognized as an intangible asset should rely on development plan (which should include projection of costs) and reliable book-keeping. The difficult task is to determine at which point in time the R&D project had entered the development phase and more importantly at which point during the development phase the project reached the criteria set out by IAS 38 for recognition of the intangible assets. It may happen that even though the project successfully finished the research phase and entered the development phase, not all requirements of IAS 38 for recognition of internally developed intangible assets were met. According to IAS 38 only those costs incurred at the point in time when all requirements were met or later shall be recognized as intangible asset. In other words, progressing with the project from the research phase to the development phase is a required but it is not sufficient. R&D projects are usually long-term projects and sometimes the market conditions change during the project. It may be that the entity started the R&D project when the demand for the newly developed product was strong but later on the demand decreased significantly because a substitute was introduced to the market. Such change in the market conditions might cause that the entity fails the requirement of IAS 38 to show that it can use or sell the intangible asset once its development is finished, therefore all the costs for this project would be expensed.

IAS 38 also lists some common examples of expenditures which management tend to perceive as cost of development projects but according to IAS 38 must always be expensed. These expenditures include:

- "selling, administrative and other general overhead expenditure unless this expenditure can be directly attributed to preparing the asset for use expenditure on training staff to operate the asset;
- identified inefficiencies and initial operating losses incurred before the asset achieves planned performance; and

- expenditure on training staff to operate the asset" (IASB, 2004, p. 1458).

Moreover, costs incurred for developing brands, mastheads, publishing titles, customer lists and items similar in substance, plus expenditures on advertising and promotional activities or start-up costs shall not be recognized as intangible assets according to IAS 38 because these items are viewed as integral part of internally generated goodwill of the entity.

Finally, IAS 38 does not allow to recognize costs as an intangible asset if these costs were initially recognized as expenses. With this rule IAS 38 prohibits to take expenses out of the P&L account and reclassify them as part of the costs of intangible asset.

9.6. National regulation—the case of the Czech Republic

The accounting and financial reporting in the Czech Republic is regulated by the law, more specifically by the Act No. 563/1991 Sb. and the regulations of the Czech Ministry of Finance. However, while the Act No. 563/1991 Sb. is applicable to all entities, there are different regulations of Czech Ministry of Finance for different types of entities. The regulation No. 500/2002 Sb. is applicable to business entities, while for example the regulation No. 504/2002 Sb. is applicable to non-profit organizations (e.g. non-profit research institutions). A comparison of these two regulations is in order as it is quite common for businesses to cooperate on their development projects with universities, research government agencies or other research non-profit organizations which usually carry-out the research phase while the businesses continue with the development phase. Unfortunately, these two regulations of the Czech Ministry of Finance approach the issue of internally developed intangible asset slightly differently, which introduces discrepancies in financial reporting of R&D costs.

Let us concentrate on the criteria set out by Czech accounting regulation for recognition of internally developed intangible assets:

- the useful life of the asset must exceed one year;
- the cost exceeds the amount set by the entity in its accounting policy for long-term intangible assets;
- the asset was developed in order to sell it or license it.

The regulation No. 500/2002 Sb. (applicable to business entities) lists one additional criterion—only costs incurred during the development phase shall be recognized as internally developed intangible asset. Thus, it is prohibited for business entities to recognize any research cost as an intangible asset. This is where the regulation for business entities differs from the regulation for non-profit organization (e.g. universities) which does not exclude the research cost to be recognized as part of the internally developed asset.

There is another source of financial accounting regulation in the Czech Republic. The Czech Accounting Standards were issued by Czech Ministry of Finance but unlike the Act No. 563/1991 Sb. or the accompanying regulations, the Czech Accounting Standards are not legally binding. Rather it is a set of generally accepted and recommended rules for financial accounting. Like the regulations of Czech Ministry of Finance, there are different sets of Czech Accounting Standards for different types of entities. Czech Accounting Standard for business entities provide another option for reporting R&D costs—instead of recognizing those costs as long-term intangible asset or as an expense it is possible to recognize them as a special accrual item: complex deferred expenditures. This item allows to "capture" different types of expenditures related to research and development and recognize them as an asset. This asset should be amortized over the period of four years or sooner. This create another dissimilarity when compared to applicable regulation for non-profit organizations for which no such item as complex deferred expenditures is allowed.

Some experts consider the option for business entities to recognize the R&D cost as complex deferred expenditures an unnecessary or detrimental as it allows to by-pass the principles set out in the regulation No. 500/2002 Sb. for internally developed intangible assets, which is (compared to IAS 38) quite permissive but compared to the option of complex deferred expenditures still prescriptive and limiting to some extent. To address this issue the National Board for Financial reporting issued an interpretation dealing with R&D costs. In its interpretation the Board aimed to implement the core principals of IAS 38 to the extent that is compatible with the Czech legal regulation of financial reporting and thus imposed set of additional requirements for recognizing R&D costs as an asset. Interpretations issued by the Board are not legally binding, instead they serve as a recommendation and additional guidance.

9.7. Case study

In this final chapter we will discuss a case study describing the decision-making process related to presentation of the incurred costs and adopted solutions of entities undertaking research and development activities.

9.7.1. The case of mobile mini-power plant

Czech limited liability company ENERGY together with one of the Czech technical universities launch a joint project of mobile mini power plant development which should be able to produce heat and electricity from several sources simultaneously. The considered sources of energy are burning of vegetable oil or ethanol, solar

power, and wind power. To goal of the project is to combine all three resources to a mobile power plant and achieve the highest possible efficiency. In the R&D project two goals are set: first to develop a fully functional prototype of such mobile power plant and second, to develop highly effective processes for heating plants and use them in the form of a handbook dealing with optimalization process in heating plants and power plants. The project is divided into three phases:

- Concept development.
- Implementation.
- Testing and finalization.

The goal for the first phase is to find a functional solution for each part of the power plant and to find a way to integrate them in the most efficient way. There is no similar solution available at this time, so this phase of the project is expected to yield new technical procedures in burning the renewable fuel such as vegetable oil and ethanol as well as new knowledge on combining different sources of energies, creating synergies and/or minimizing losses during the process. According to the project most of the work during the first phase of the project shall be carried out by the university.

The second phase of the project shall utilize the findings of the first phase and use it to construct a prototype of mini power plant and then perform series of tests to verify its functionality while searching for ways to increase its overall efficiency. Both parties of the project shall participate at this stage equally.

During the third phase of the project the prototype will be tested for safety measures and compliance with all applicable legal requirements. Moreover, researchers will engage potential manufacturers and suppliers of components to improve the prototype in way that makes it easier to produce and decrease its production cost. Finally, the researchers will gather all their findings and forge them into a handbook / manual for process control and increasing efficiency in the common heat plants and powers plants. According to the project most of the work during the third phase of the project shall be carried out by ENERGY.

The parties expect that several patents will be registered during the R&D project. These patents will mostly likely be bound to the prototype itself, not to the processes described in the handbook. It is expected that the prototype will be licensed to a manufacturer who will start its production. The handbook can be used by both partners of the project in providing consulting services to various heat plants and power plants.

According to the project there will be a period of approximately five years after the project ends referred to as "sustainability period" during which both parties are required to assist each other in providing technical support, dealing with various technical issues that might occur during the production process, even to perform some minor improvements. It is expected that the total expenditures for the activities in the "sustainability period" will not exceed 10 % of the total project cost.

The management of ENERGY as well as the university need to find the appropriate accounting treatment for all the expenditures that will arise during the R&D project. They seek to find the correct way to report those expenditures in their financial statements to comply with IFRS as they both prepare their annual financial statements according to IFRS. They also need to find the correct accounting treatment under the Czech national regulation in order to determine the correct taxable income for Czech income tax.

9.7.2. The deliberations and solution—IFRS approach

Let us start with the IFRS point of view—we need to test whether the outcomes of the R&D project meet the characteristics of an asset. We need to determine whether the prototype of the mini power plant and the handbook for process optimalization (each individually):

- are results of past events,
- their costs can be measured reliably,
- present economic resource,
- are controlled by the entity,
- are identifiable.

Both the prototype and the handbook are results of past transactions—they are the result of the research project for which ENERGY and the university incurred expenditures. Since there was a budget for the project and both partners keep a very thorough record of the project costs, we can conclude that the second criterion is also fulfilled. The third criterion is difficult to evaluate and is closely tied to the fourth and fifth criterion. Let us evaluate these last three criteria together. To show an ability to control the asset means that the entity is able to use it in its business activities and at the same time prevent others from using it. It is rather easy to do when dealing with tangible asset, because you have the physical possession of that particular asset. But how does one prevent others from using ideas or technical solutions? One can either keep those ideas and solutions a secret (think of Coca-Cola recipe) or to have his idea protected by a patent (or similar legal instrument). There is a limited scope of intangible assets that can be protected by a patent. Patents are intended to protect inventions, and technical solutions, not general ideas, artwork, recipe, working-procedures and so on. This means that the researchers can apply for patent to protect their findings and technical solutions concerning the construction of the mini power plant, however they cannot apply for patent to protect their knowledge and experience described in the handbook. The only way to protect what they learned during the R&D project about heat and power optimalization processes is to keep them a secret, but that would make it

impossible to provide consultancy services to heat and powerplants as they intent to do. At his point we can conclude that while the R&D outcomes connected to the prototype of the mini power plant fulfil the requirement of identifiability and control, the R&D outcomes connected to the handbook do not. Thus, all the cost incurred in the handbook development must be expensed right away.

Now, we continue our analysis only for the R&D costs which were incurred as a result of the development of the prototype of the mini power plant. We need to evaluate whether the R&D costs for the prototype present an economic resource. For this IAS 38 provides a guidance: costs incurred during the research phase must be expensed (because at that stage the probability of gaining economic benefits in the future is too low), costs incurred during the development phase shall be recognized as an intangible asset only if all the additional criteria are met (see IASB, 2004, p. 1456 or the subchapter 9.5. above).

The characteristics of the first phase of the project (Concept development) meet the characteristics of the applied research as defined above because in this phase the researchers are supposed to look for a solution, which is not yet existent. It is not certain that they will find one. They might even conclude that there is no viable solutions which would satisfy the aim of the project. The level of uncertainty about finding the solution and being able to sell or license the outcome is too high at this stage of the project. Therefore, all the costs incurred during the first phase of the project shall be expensed. Please bear in mind that at this point of our analysis we are dealing with the R&D costs related to the prototype of the mini power plant only.

Now let us skip the second phase for now and let us evaluate the third phase of the project (Testing and finalization) first. This is clearly the final phase of the development when the researchers have their fully functional prototype, and their goal is to find the best way to start the production—they perform some final testing and trimming and get ready to launch their product. This is the product development phase. At this stage, the researchers have found the viable solution and since there is a demand for their product (otherwise they would probably not proceed with this stage at all) they are getting their product ready for the launch. Costs incurred during the third phase of the project should be recognized as part of the initial valuation of an intangible asset (i.e. cost of the asset).

Evaluation of the second phase of the R&D project (Implementation) is not so straightforward. Although the characteristics of the second phase are in line with the characteristics of the development phase as described by IAS 38, until all recognition requirements of IAS 38 are met, even the costs of the development phase must be expensed; put in other words: an entity must gather evidence that it has got the resources (be it technical, financial or other) to finish the project, it must show that there is a demand for the asset being developed and that it has the means

to distribute the asset to the customers. All the requirements of IAS 38 (see IASB, 2004, p. 1456 or the subchapter 9.5. above) must be met to start accumulating the development costs as a cost of internally developed intangible asset. Unfortunately, the deliberations on meeting the criteria do not end here. Development projects are long-term project, should the circumstances change, and the project would stop meeting the requirements for recognition set out by IAS 38, all subsequent cost must be expensed (i.e. accounted to P&L). Moreover, any expenditures previously recognized as cost of internally developed intangible asset must undertake impairment testing under IAS 36 Impairment of Assets which might cause some or all of the cost recognized as intangible asset (to this date) be written off to P&L.

At last, we need to evaluate the treatment of the subsequent expenditures during the five-year "sustainability period". These are expenditures which occurred after the R&D project ends and the intangible asset (if any) was recognized. The entity started to use that asset and probably even to amortize the asset. Should these subsequent expenditures be recognized as an increase of the value of the intangible asset or should they be expensed? Firstly, we need to distinguish between the subsequent expenditures on prototype and handbook. All subsequent expenditures on handbook must be expensed for the same reasons it was unacceptable to recognize the cost for development of the handbook itself. What about the subsequent expenditures on technical support and minor improvements of the prototype? IAS 38 states that it is highly unlikely that any of the subsequent expenditure would enhance the internally developed asset significantly and fulfil the requirements of the IAS 38. Therefore, it is recommended to charge all the subsequent expenditures directly do P&L (i.e. to expense them).

9.7.3. The deliberations and solution—Czech approach

The solution will differ for ENERGY and for the university because the applicable regulations of the Czech Ministry of Finance are different. While the university (non-profit entity) will recognize all of the R&D costs as its intangible asset, ENERGY (business entity) must distinguish costs incurred during the research phase of the project from those incurred during the development phase. ENERGY will expense all costs incurred during the research phase, but the cost incurred during the development phase will be recognized as an intangible asset. This is because all three criteria for internally developed intangible assets (see the second paragraph of subchapter 9.6.) are met.

As you can see the criteria for recognition of an internally developed intangible asset are rather vague in the accounting regulation of the Czech Republic.

Unfortunately, this lack of thoroughness or strictness in the national regulation provides a leeway for "creative accounting" or even (intentional) misstatement. This increases the pressure especially on auditors to uphold the general principals of financial accounting and prudency and to implore the management to follow principles described in IAS 38 or interpretations of the National Board for Financial reporting even though these are not enforceable and can be used as a "best-practice" approach only.

To complete the depiction, it is a fact that many of the R&D project are subsidized by government or its agencies. Once the subsidy is awarded to the project, the structure of costs that the agency is willing to refund is "set in stone" in the application for the subsidy and no changes are allowed. The refundable expenditures are usually defined by their nature (e.g. salary, rent, electricity, travel expenses) and the measurement of the expenditures eligible for refund is based on audited financial statements. It can happen that most of these expenditures incurred during the R&D project will be recognized as an intangible asset. That means that these costs will not be expensed directly, instead they will be charged to the P&L through amortization once the project is completed. This can pose a very serious obstacle for refunding the R&D costs by the government through a subsidy, because the researchers never reported salary expenses or travel expense in their income statement, instead they reported amortization charges for which they did not apply in their subsidy request. That is another case when the auditors face immense pressure to accept "alternative" accounting treatments which are not in line with Czech national regulation.

Finally, let us deal with the subsequent expenditures according to Czech regulation. Unfortunately, all the relevant regulations are silent on this topic. Hence, only the general principles of financial accounting remain. The treatment should be as follows: if the subsequent expenditures add some new functionality or significantly improve the usefulness of the previously recognized intangible asset, such subsequent expenditure should be recognized as an increase in the gross and net value of the intangible asset. Otherwise, the subsequent expenditure should be expensed.

Questions / tasks

1. Explain the difference between research and development.
2. What effects can be achieved as a result of research works and which as a result of development works?
3. In what area are the costs of discontinued research and development recognized?

4. Which of the three outlined concepts for reporting R&D costs (i.e. IFRS approach, Czech approach for non-profit organizations and Czech approach for profit organizations) is the most informative in your opinion?
5. What might be the benefits of reporting research costs as an asset and what might be the risks?
6. Do you see any reason why there should be different concepts of R&D costs reporting between profit and non-profit organizations (as it is currently in Czechia)?
7. Think about the following scenario: as a financial manager of ENERGY, you are participating in a meeting with other managers. The goal of the meeting is to set the internal procedures and policies for the upcoming joint R&D project described above. What would be your major concerns? What would be the procedures which you would wish to implement for this project?

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10.

CRYPTOASSETS—NATURE, VALUATION AND DISCLOSURES IN ACCOUNTING

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Abstract: Within cryptoassets we can find cryptocurrencies (e.g. Bitcoin, Ethereum) and digital tokens which are specific right or value representatives. One of areas that there are a lot of doubts regarding these new technological solutions is accounting. It is not clear how we can classify particular groups of cryptoassets and how to value them in financial statement. The aim of the chapter is to present the essence, use and valuation issues of cryptoassets and also to review the definitions of selected asset groups in the currently applicable accounting regulations to identify those asset groups to which cryptocurrencies can be classified. The chapter also discusses available accounting models under IFRS, with a major focus being put on the recognition and presentation in balance sheet. The assessment of models is based on distinguishing different types of tokens (payment, security, utility) as well as on differentiating between holders' and issuers' perspective.

Keywords: accounting, Bitcoin, blockchain, cryptoassets, cryptocurrency, IFRS, tokens, valuation.

10.1. Introduction

Scientific considerations according to the indications of Meredyk (2003, p. 51) should refer to the so-called cognitive problems, what essentially comes down to no solutions or imperfect solutions to these problems. One of the reasons for the lack of knowledge in the field of economic sciences is the dynamic development of the financial market and the creation of new products, services, systems and other solutions used in the areas of finance, investments and payment systems. This is the result of technological progress, but primarily of the modern, creative financial architecture. Currently, an area of lack of knowledge that is significant for the field of accounting is the functioning of one of such modern electronic payment systems, created thanks to the possibilities offered by new technologies. This product is cryptocurrencies, part of broader group of modern assets called cryptoassets. As indicated by Remlein (2015, p. 150), a significant source of financial information necessary to assess the activity of an economic entity, as well as determining investment decisions, is the financial statement, which is the final product of accounting. Cryptoassets, which, like all other components, can be treated as part of the company's assets, should therefore be properly measured and then presented in the above-mentioned final product of accounting. To be able to measure an asset, you should first determine what type of asset it is, because different valuation methods are indicated for each groups of assets. In the international regulatory zone, there are no solutions clearly indicating how to treat cryptoassets. The authors therefore present the essence and usage of cryptoassets and then undertake the analysis of the definitions of selected groups of assets in order to identify whether the IFRS can be applied to cryptoassets. The aim of the chapter is to review the definitions of selected groups of assets to identify where cryptoassets may be classified in financial statement and to present applicable accounting models.

10.2. The essence and usage of cryptoassets

As was mentioned in the introduction, technological revolution allowed us to face the birth of digital assets commonly known and described as cryptocurrencies, or more broadly, cryptoassets. Indeed, cryptoassets is a broader term than cryptocurrencies. We may describe cryptoassets as digital assets that may depend on cryptography and are based on a distributed ledger technology. Within this definition there are several separate types of assets, considering their features, purposes of use and other details. There are various approaches to classify cryptoassets. In this paper, as presented in Figure 10.1, we divide cryptoassets into two separate groups of assets—cryptocurrencies and digital tokens. There are four types of tokens: payment tokens, utility tokens, security (asset, investment) tokens and hybrid tokens.

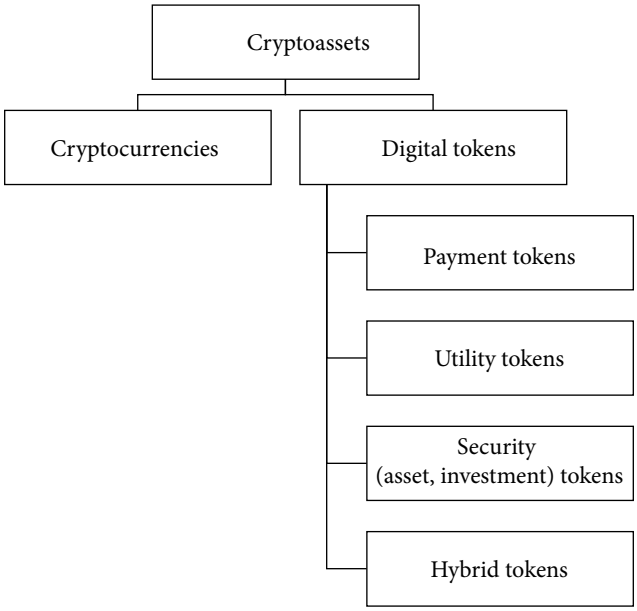


Figure 10.1. Classification of cryptoassets

Source: Own elaboration based on (Dinenzon, Josyula, Moreno-Ramirez, Dippelsman, & Razin, 2018, pp. 4, 6–7).

Cryptocurrencies are presented as a separate group because, unlike tokens, they do not give the holder any rights. Of course, they may be held by one company as an investment or be a product of mining for another one, but their functional role goes down to a medium of exchange.

10.2.1. Cryptocurrencies—definitions and characteristics

The explanation of the essence of cryptocurrencies should be preceded by an explanation of what the author is really going to describe. The ambiguity of virtual currencies begins at the very basis of this innovation. Generally, it is even difficult to put it into a uniform terminological framework. Virtual money has the same name neither from the point of view of accounting, nor in relation to other disciplines. To describe this phenomenon, a lot of terms have been used up to now—internet currencies or cyber currencies (Przyłuska-Schmitt, 2016), cryptocurrencies (Sobiecki, 2015), virtual currencies (Wiszniowski, 2015a, 2015b) and digital currencies (Bradbury, 2014). Although they are all used interchangeably, the author believes that the term cryptocurrency is not synonymous with the others. To illustrate the author's doubts, examples of definitions are presented in Table 10.1.

Table 10.1. Chosen definitions of virtual money

Term	Definition	Source
Virtual currencies	They are a means of payment not issued by any banking institution, a unit of exchange between the issuer (publisher) and the user or between a group of users, playing the role of a universal equivalent in a given network, within strictly defined limits, **and is mainly used to purchase virtual items**.	(Chen, Wu, 2009, p. 5)
	Type of unregulated, digital money, which is issued and usually controlled by its developers, and used and accepted among the members of a specific virtual community	(ECB, 2012, p. 5)
	They are a digital representation of value that can be digitally traded and functions as (1) **a medium of exchange; and/or (2) a unit of account; and/or (3) a store of value** but does not have legal tender status in any jurisdiction. It is not issued nor guaranteed by any jurisdiction and fulfils the above functions only by agreement within the community of users of the virtual currency.	(FATF, 2014, p. 4)
Cryptocurrencies	A type of digital token based on cryptography used to digitally sign transactions and to control token supply growth. (…) Cryptocurrencies are value carriers. Some of them fulfil all or some of the functions of money, such as divisibility, preserving value (…), convertibility.	(Piech, 2016, p. 9)

Source: Own elaboration based on indicated publications.

Each description in the table above, according to the dictionary, defines the same concept, but the differences in the understanding of virtual money by individual authors are clearly visible. It can be observed that with the passage of time the interpretation of the term departs from the virtual world to the real world. This is related to the development and use of broadly understood virtual currencies, which can be divided into three categories indicated in Figure 10.2. In author's opinion, the presence of these three forms of virtual currencies is one of the causes of the terminological hype in this regard. The different types of virtual money are defined by the same concepts. Meanwhile, the term 'cryptocurrencies' refers only to one of these three categories of virtual money, so it should be used in a narrower sense than the term 'virtual' or 'digital' currencies.

According to the scheme presented, the European Central Bank distinguished three types of virtual currencies:

1) inconvertible, functioning only in the virtual world—these are virtual currencies that are not cryptocurrencies;
2) unidirectionally convertible—these are virtual currencies that are not cryptocurrencies;
3) bidirectionally exchangeable—these are virtual currencies based on cryptography, so they can be called cryptocurrencies.

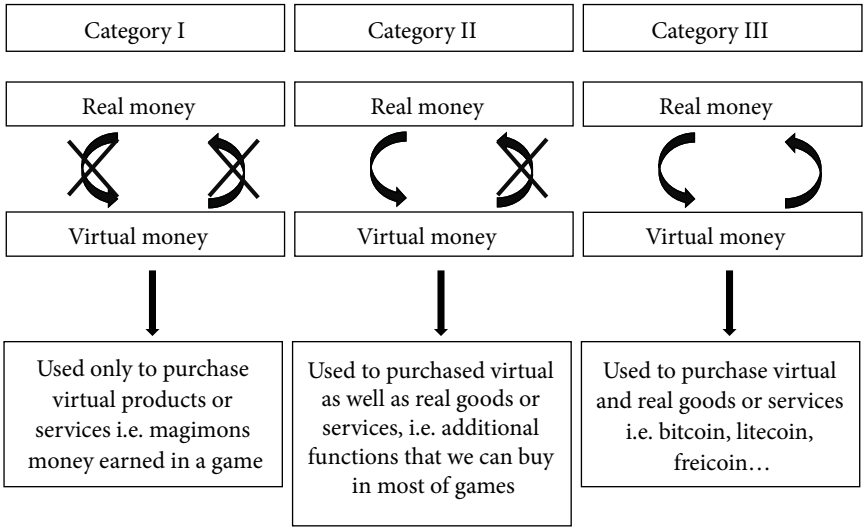


Figure 10.2. Categories of virtual money

Source: (ECB, 2012, p. 15).

The first type of currency, the oldest one, began to be used along with the development of the world of digital games, as early as in the 1990s. The game participant received remuneration in the form of virtual money for specific activities and tasks performed in the game. However, they could not buy this currency for real money or exchange it into real money after obtaining it for tasks in the game. An example of this type of money are magimons, i.e. coins used in game The Sims: Abrakadabra. The player could gain them in three ways—by selling magic items to vendors, by wizards' fights in the arena or by performing on stage or on special objects.

The second type of currency, which is currently used in most games, is one-way convertible. This means that the player can buy virtual coins with real money but cannot resell them or buy real goods using them. This type is mainly used to increase player satisfaction, which is achieved by purchasing extra lives, special powers for their characters etc.

The third category of virtual currencies are cryptocurrencies—the part of virtual money that covers also cryptoassets definition. This type of virtual money is convertible in both ways, which means that cryptocurrencies can be purchased for real money and then exchanged again to fiat money.

Summarizing, it should be emphasized that due to analysis presented above we may clearly say that virtual currency is a broader term than cryptocurrency. Not every virtual currency (category I and II) is a cryptocurrency, but on the other hand, there is no doubt that every cryptocurrency is a digital currency. From now on, the author, using the three terms indicated above, will only refer to category III of virtual money.

A cryptocurrency defined above is based on trust in a private issuer and its functioning is based on a decentralized database (*peer-to-peer*). This means that, unlike traditional, cryptocurrency transactions take place directly between users, by passing the central server (Lis-Markiewicz & Nowak, 2015, p. 11), as shown in Figure 10.3. The risk associated with the lack of participation of the controlling parent institution is limited by the use of the encryption functions, which generally function as digital signatures that can only be made by the owner of a currency unit who has specific data describing these units. On their basis, so-called private key that allows to approve the transaction and guarantees its uniqueness are created. The virtual currency unit is the only and unique sequence of alphanumeric characters encrypted in the form of a file saved on the disk, which can be sent to any user of the Internet network (Wiszniowski, 2015b, p. 277).

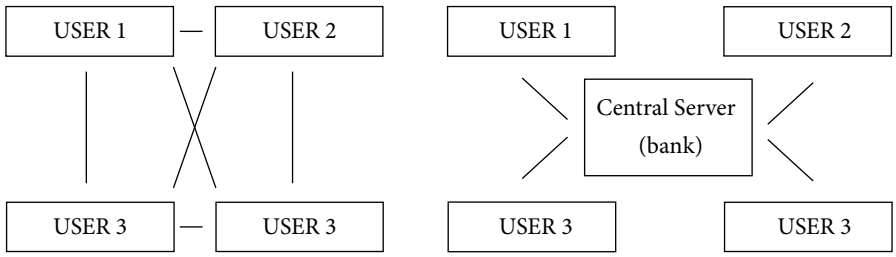


Figure 10.3. *Peer-to peer* network versus traditional architecture

Source: Own elaboration based on (Szymankiewicz, 2014, pp. 38–39; Oluwatosin, 2014, pp. 67–68).

As shown in the above diagram, in a traditional client-server network architecture, each information sent between users is mediated by a central server, which in the case of financial transactions is usually a bank's server. This is the reason for the lack of anonymity of users making transactions in traditional financial systems, because the superior institution collects information from whom to whom the flow takes place, in what amount and for what. A specific element of cryptocurrencies is the ability to remain anonymous. This is thanks to the storing of digital currency in a wallet created by the user himself, and there is no limit to the number of opened wallets. Public keys, which are somewhat equivalent to a bank account number, are a random string of characters and are not determined in a centralized manner. Moreover, no specific personal data is attached to transactions between wallets (Bubiel, 2015, p. 3). Details of the inability to discover the data of the transaction participant are described by Wiszniowski (2015a, pp. 51–52).

Another unique aspect of cryptocurrencies is the speed of the transactions. Thanks to their functioning in the above-mentioned *peer-to-peer* system, the transferred funds are not stopped anywhere, which means that the flows occur within a few minutes. Moreover, transactions in virtual currencies do not bear the same

intermediation costs as traditional money transfers. These and other features make people attracted to cryptocurrencies. The following charts present how cryptocurrency market develops and confirm large and constantly growing interest in cryptocurrencies.

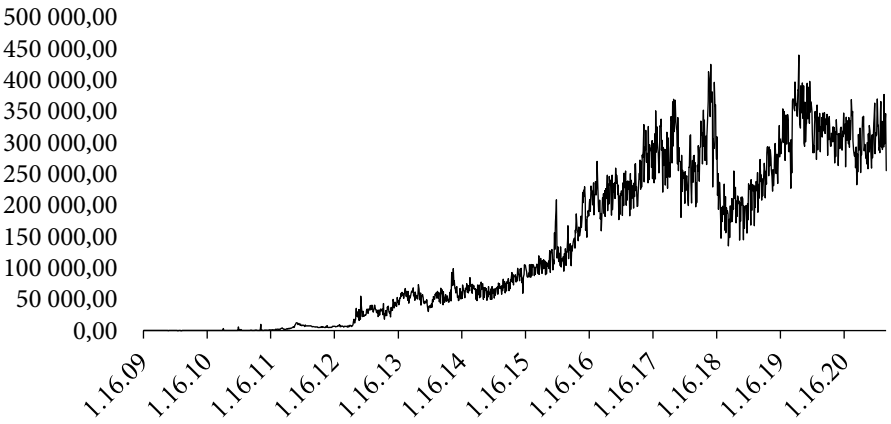


Figure 10.4. Daily number of transactions in Bitcoin blockchain (2009–2020)

Source: Own elaboration based on (blockchain.info data).

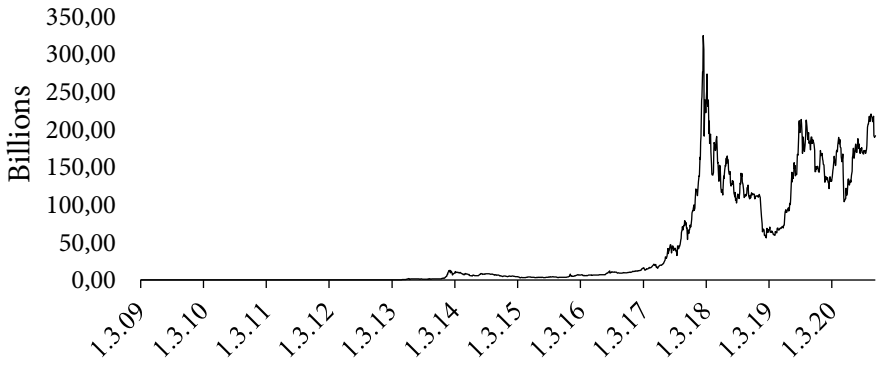


Figure 10.5. Market capitalization in Bitcoin blockchain in USD billions (2009–2020)

Source: Own elaboration based on(blockchain.info data).

Above presented figures undoubtedly confirm strong development of cryptocurrency market. Within eleven years the average number of transactions increased from 90 transactions daily in 2009 to almost 307,000 transactions per day in 2020 and capitalization raised from value close to 0 in 2009 to more than 190 billion USD. Percentage growth seems to be tremendous and irrefutable.

10.2.2. Digital tokens—definitions and characteristics

Another group of cryptoassets we may observe are digital tokens, which as it was mentioned, offer its holders some kind of rights, depending on the type of token. According to European Securities and Market Authority (ESMA) they can represent economic (profit), governance, utility or consumption rights and many have hybrid features or may evolve over time (ESMA, 2019, p. 8). Generally speaking, they are digital representations of interests, or rights to (access) certain assets, products or services (Houben & Snyers, 2020, p. 18). Tokens are typically issued on an existing platform or blockchain to raise funds for projects, or to fund start-ups or the development of innovative services (Annunziata, 2019, pp. 4–8). Tokens became widely popular by the end of 2017. This became a trend that persists until this day. They are, what could be called, the second generation of cryptoassets.

As was presented in Figure 10.1 we may highlight four most common groups of digital tokens—payment tokens, utility tokens, security (asset, investment) tokens and hybrid tokens. Payment tokens are intended to become cryptocurrency and to be used universally as unit of account, store of value or mean of payment, e.g. Bitcoin (Dinenzon et al., 2018, p. 8). It is worth to say that in some publications and policy documentation, the term 'payment token' is used synonymously with 'cryptocurrency', 'exchange token' or 'currency token' (see EBA, 2019, p. 7). In author's opinion this terminology is mistaken and may cause misunderstanding. According to Houben and Snyers where tokens typically represent an entitlement to some right or asset, cryptocurrencies—or at least traditional, non-backed, cryptocurrencies—generally do not embody intrinsic rights and entitlements (Houben & Snyers, 2020, p. 18).

Another type, utility token, is a type of cryptoasset that allows users to purchase goods or services that are offered or will be offered in the future by a token issuer or entitle to a discount for such goods or services. Utility tokens in their function may be compared by analogy to discount coupons, gift cards, or vouchers, issued by entrepreneurs and entitling to the purchase or discount for the purchase of predetermined goods or services (UKNF, 2020, p. 14).

Third group of digital tokens is referred to by various expressions—security, asset or investment tokens. All of these terms mean the same as these are tied to an underlying physical asset and represent a fractional ownership of the overall value, although not the asset itself (e.g. earnings streams, or an entitlement to dividends or interest payments). Investment tokens offer rights to future profits and, under securities law, would generally be considered as financial instruments, financial products, securities etc. (Annunziata, 2019, p. 23).

Market offers also hybrid tokens, which are designed to have several elements allowing to classify them as investment-type, utility-type and payment-type cryptoassets at once (Maas, 2019, p. 24).

10.2.3. Cryptoassets origination

The genesis of cryptoassets is related to Satoshi Nakamoto, the author of the so-called Satoshi Nakamoto's Manifesto, a document explaining the essence of the first cryptocurrency Bitcoin entitled *Bitcoin: A Peer-to-Peer Electronic Cash System*. It can be clearly concluded from the publication that the main reason for Bitcoin creation was the loss of confidence in the financial institutions that mediate all payment transactions. The innovative currency was introduced in 2009, so the above-mentioned loss of faith in the traditional financial system can be directly attributed to the outbreak of the financial crisis in 2007, as a result of which financial market participants lost a significant part of their capital (Nakamoto, 2008, p. 1). Nakamoto designed a decentralized and distributed open source database in a peer-to-peer network without central computers and no centralized data storage place, used for transactions, payments or other records encrypted with cryptographic algorithms, what is commonly called blockchain. After Bitcoin blockchain there were thousands of other blockchains created. Some of them were a mirror of Bitcoin, but a lot of them started to offer new possibilities e.g. issuing tokens. They are created using smart contracts in a specific blockchain network, and such smart contracts can be created without limitations, so different tokens may be available in the same network.

There are several ways of creating cryptoassets. Regarding to cryptocurrencies this process is called *mining* and for digital tokens there is public offering that can be divided into three separate types, depending on its specific features—ICO (*Initial Coin Offering*), IEO (*Initial Exchange Offering*) and STO (*Security Token Offering*).

Mining is the integral process of generation, transmission and validation of transactions of cryptocurrencies. It ensures stable, secure and safe propagation of the currency from one side to another. Cryptocurrencies overcome traditional payment architecture by implementing a mining system where people in the network, called 'miners' or 'nodes', monitor and validate transactions which generates currency (Krishnan, Saketh, & Vaibhav, 2015, p. 115). In fact, it happens in some reproducible way. First of all, blockchain hast to have users that will transfer specific cryptocurrency. The transaction made by the initiating user is properly encrypted using both information the identifier of the previous transaction—hash and the recipient's address, and then sent to all system participants (nodes). The transaction becomes an entry in the block, which is the subject of miners' work, and is visible to all other participants of the system. After the block is full (its capacity varies depending on the network), the miners work on a proof of work (PoW) solution, and the miner who finds a solution first adds the block to an existing blockchain in such a way that the previous block hash is part of the current block identifier. This ensures the continuity of the system and protects it from making changes to past records (changing one of the earlier blocks requires changing all previous blocks and

thus solving all previous PoWs). All system participants are immediately informed about the added block, and their copies are automatically updated, showing the current status, consistent with the record on all copies owned by other participants. When more than 51% of participants confirm the compliance of entries made in a block, it becomes part of the network and the basis for building another block. Then, the miner who first solved the problem is rewarded by the system accordingly to its rules (Ciupa, 2019, pp. 307–308). The reward paid to the miner is at the same time the issue of new currency units in the specific network and this is the way of creating cryptocurrency coins. Apart from mining we can of course purchase cryptocurrency from other users via cryptocurrency exchanges or we can accept payments for goods and services in cryptocurrency to get it from other people.

The situation looks different relating to digital tokens as they are not generated via mining. The first process to be implemented in 2013 was ICO, a term describing a limited period, in which a company sells a predefined number of digital tokens directly to the public, in exchange for cryptocurrencies or fiat currencies (PWC, 2020, p. 2). This is a method of raising capital (crowdfunding) in the form to finance a venture as the main idea of this concept was to provide start-ups with the necessary funding to build their services. The issued tokens can serve multiple purposes and mainly act as incentives that gives investors as well as developers access to the company's future services (Lipusch, 2018, pp. 3–4). ICO is often compared to Initial Public Offering, what is a process in which companies raise funds through issuing shares for the first time via a public offering. Regarding Lahajnar and Rozanec, companies use the ICO to overreach a rigorous and precisely regulated process of raising funds demanded by institutional investors in the classical procedures of the public offering of shares. Moreover, thanks to the innovations provided by the blockchain technology, the cost of this process using cryptocurrency exchange platforms is up to ten times cheaper than the costs of traditional IPO on the stock market (Lahajnar & Rozanec, 2018, p. 169).

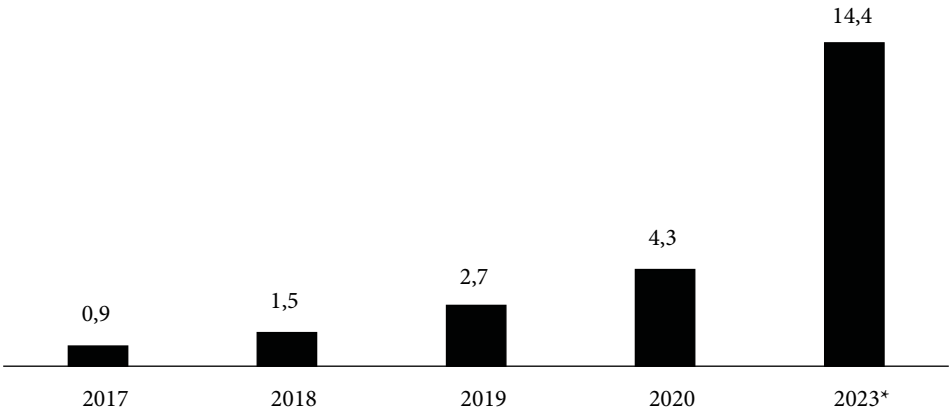
The idea of the ICO process as we know it today, was first invented by Willett, who posted on the Bitcoin open forum in 2012 a White Paper entitled "The Second Bitcoin White Paper". In the paper, he presented the idea that the existing Bitcoin network could serve as the basic protocol level over which to build new protocol levels (for new cryptocurrency) with their own rules. The first ICO was launched by Willett in 2013 under the name Mastercoin and he gained USD 500,000 through this offering. Another milestone was the creation of Ethereum company by Vitalik Buterin who organized sales of Ether tokens and raised over USD 18 millions as a capital for his project. Ethereum platform has brought important innovation—programmable smart contracts, among which the most widespread today is ERC-20, as it is widely used by start-up companies to raise new capital. The ERC-20 is a smart contract that allows to create new crypto tokens and execute a transaction with them (Lahajnar & Rozanec, 2018, p. 170).

Despite the fact, that ICO is a symptom of technological genius it has a lot of disadvantages. Firstly, this process is not regulated in most of the countries. Secondly, money invested in tokens issued through ICO are transferred directly to issuers. These two defects caused a lot of frauds and among others that was the reason to develop and transform Initial Coin Offering to Initial Exchange Offering, which is an offering exclusively conducted on the platform of a cryptocurrency exchange. IEOs are administered by the crypto exchange on behalf of the issuing company, which seeks to raise funds with its newly issued tokens (PWC, 2020, p. 2). It is clear and indisputable that this form is much safer than ICO. What is more, the risk of scams for investors is lower also because of the fact that the project is launched at the crypto exchange after profound verification. The exchange rejects a dubious project to keep up its reputation. According to Myalo, the IEO is a new ICO, where the exchange platform becomes the key marketing partner of the offering company, and the listing of coins is carried out only a couple of days after the campaign ends. Actually, the cryptocurrency exchange distributes digital assets among interested investors, who are verified users of the trading platform (Myalo, 2019, p. 13).

As it turned out over time, IEO also ceased to be the perfect solution. The popular utility tokens used in the ICO have a major disadvantage: investors are not compensated in case of failure of the ICO, since utility tokens are not securities, which leads to the absence of any obligations to create favourable conditions for investors. The best solution for that was the issuance of security tokens. Due to that new process was created: Security Token Offering. STO is a sale of tokens with features comparable to normal securities, i.e., fully regulated and approved within at least one jurisdiction (PWC, 2020, p. 2). It is assumed that the security token is a cryptographic token that reflects the real capital, e.g. in the form of shares in a company, bonds, real estate ownership or works of art. As part of the STO issue, one of the parties entrusts funds, and the other issues tokens that give the investor the right to participate in the company's profits or guarantee a fixed rate of return on investment. When dealing with a security token, this contract is secured by blockchain technology. In this way, ownership is confirmed. So it may be assumed that security tokens offer the holder the same right as shares or bonds. STO is a more complicated process than classic ICOs. It requires compliance with the regulations governing trading in financial instruments, because as was mentioned before, security tokens are equivalent to traditional financial instruments. STO increases investors' sense of security as they have the right to pursue their claims. This is crucial, especially in a situation where the issuer declares its bankruptcy. While utility tokens do not entitle investor to recover money as part of repaying the company's liabilities, security tokens do because they represent real-world assets. This fundamental difference allows to conclude that STO repaired the weaknesses of the ICO.

10.2.4. Examples of use of blockchain technology and cryptoassets

Blockchain technology is a modern and innovative solution, that thanks to its features allows for an alternative approach—decentralized economy, decentralized way of management of resources. Blockchain makes it possible to automate repetitive processes, thus freeing up human resources that can be used in the processes of creating value. Blockchain make it possible to control processes, transfers etc. automatically thanks to the mechanism of smart contracts. This decentralization ability is a huge advantage of this technology. As pointed out by Ciupa, the blockchain concept, indeed, is a new technological solution, however, due to the fact that it enables the creation of decentralized structures, it can be perceived as a new stage on the path of developing business models and forms of organization (Ciupa, 2019, pp. 312–313). Blockchain is therefore not a new technology in a strict sense, but a solution that allows building new, decentralized, economic and social dependencies, creating innovative business models, and shaping an unprecedented institutional framework (Ciupa, 2019, p. 313). It makes blockchain technology more and more popular not only in private sector but also among public institutions. The confirmation of this fact is Figure 10.6 presenting global spending on blockchain technology usage.



* forecast

Figure 10.6. Worldwide spending on blockchain technology solutions from 2017 to 2023 in USD billion

Source: Own elaboration based on IDC Worldwide Semiannual Blockchain Spending Guide.

In 2017, global spending on blockchain solutions amounted to USD 950 million. In the next twelve months, this figure raised to USD 1.5 billion. The data shows

the growing trend in the global blockchain solutions spending continued in 2019, with the amount rising to USD 2.7 billion, a 185% jump in two years. Like all technology investments, spending on blockchain projects has also been affected by the impacts of the COVID-19 pandemic. According to the IDC data, the global spending on blockchain solutions is expected to reach USD 4.3 billion in 2020, a 6% drop compared to the pre-COVID-19 forecast. Nevertheless, this figure represents almost 58% increase compared to 2019 amount. The IDC report also revealed that all regions are expected to witness double-digit spending growth in the next three years, led by Europe with a combined five-year CAGR of over 63%.

Despite the increasing spending on blockchain solutions, currently the most famous example of the use of this technology are cryptocurrencies, with Bitcoin on top. However, there is much more than cryptocurrencies or even broadly—cryptoassets. Blockchain is extremely attractive, primarily from the point of view of banks, insurance institutions and public administration, as the transactions and documents stored in this way are resistant to copying and any kind of manipulation. Works on the implementation of this technology in the financial industry is carried out by the largest banks, or stock exchange platforms, which are intended to clear transactions much faster than traditional exchanges (Rot & Zygała, 2018, p. 126). The financial industry was the first to recognize the enormous potential of blockchain. For several years, there has been a lot of start-ups founded that develop blockchain-based solutions. A new industry is emerging, called the FinTech industry for finance and technology, and Insurance Tech in the insurance industry (Rutkowski, 2018). One of many examples of blockchain use in financial sector is Banco Santander with headquarters in Spain, which announced that it has issued the first end-to-end blockchain bond. The bank issued the bond directly onto the blockchain and the bond will also continue to exist only on the blockchain: a first step towards a potential secondary market for mainstream security tokens in the future. What is more, currency exchange and interbank transactions will be carried out by faster, more reliable systems. In addition, blockchain can be the basis for creating a global network of money transfers and financial loans that eliminates intermediaries.

Another promising example of use of blockchain are smart contracts, which can be used in varying industries. A smart contract is a sort of code containing a set of business rules agreed by the contracting parties. A smart contract is saved on the blockchain, so it cannot be changed or cancelled. Once the pre-established conditions are met, the contract is automatically and irrevocably executed. This mechanism involves digital assets and at least two parties to a transaction. Assets belonging to one party are automatically redistributed according to the rules of the contract, i.e. the contract initiates one or more transactions that are recorded on the blockchain and change its status (PIIT, 2018, p. 25). Smart contracts may set out the rules for the delivery of products or services for a specific price, agreed between the seller and the buyer. A smart contract allows the involvement of

many parties to the transaction in one or more settlement systems, operating under a transparent settlement model. In practice, smart contracts may be used for example (PIIT, 2018, p. 10):

1) in insurance to settle car insurance costs in real time, depending, among others, on how safely the car has been driven and on the average level of safety we obtain compared to other insured drivers;
2) in real estate for automatic notarial approval of a change of ownership as soon as all conditions agreed by the parties are met (e.g. payment of the agreed amount of money);
3) in telecommunications for subscription for services.

Another possible area of use of this technology is property law, which is particularly important today from the point of view of the protection of intellectual property or copyrights. Blockchain makes it possible to confirm that a given thing or good belongs undeniably to a specific person and stores this information in a permanent and unchanging manner. This offers great application possibilities in the field of various property rights registers, e.g. to confirm the authorship of all kinds of documents, files or media (e.g. photo or audio-video recordings). This is possible thank to the so-called Proof of Existence (Rutkowski, 2018). The authors of this project use blockchain to ensure the existence of a document and its creation date without revealing its contents.

What is also important, and we were able to find it out during pandemic is voting. For several years e-voting has been considered while COVID-19 pandemic showed that this is essential for modern countries that want to guarantee citizens their rights execution. Decentralized voting systems such as Liquid Democracy (Schiener, 2016) and BitCongress (Varshneya, Poudel, & Vyas, 2015, p. 8) propose frameworks to enforce distributed decision making. Such systems as BitCongress provide the graphical user interface for the user to commit votes, create legislations, discuss amendments and view their voting record. As pointed out by Schiener, with e-voting platforms based on blockchain community could vote not only in political elections but they can either vote directly on specific issues that are currently being proceeded by members of parliament. This solution would be revolutionary not only from a democracy point of view, but also taking into consideration the cost reductions thanks to technological progress.

Last but not least, blockchain may be used in initiatives aimed at environment protection and halting climate change. A national accounting of emissions, connected through a ledger recording international transfer of emissions reductions, enables transparency and accountability on who is doing what for the climate. Relating to UNFCCC blockchain may be helpful in several areas (UNFCCC, 2017):

1) improvement of the system of carbon asset transactions, e.g. development of a blockchain platform for trading carbon assets in China to guarantee transparency and ensure that transactions are valid and settled automatically;

2) peer to peer trade of clean energy, for certified and facilitated transactions among consumers;
3) providing more transparency regarding greenhouse gas emissions and making it easier to track and report emission reductions, blockchain could serve as a tool to monitor the progress made in implementing the Nationally Determined Contributions under the Paris Agreement, as well as in company targets.

Apart from the aforementioned, blockchain has much more to offer and it is visible both in private zone as well as in public agencies. Undoubtedly, the use of blockchain technology increases the effectiveness of enterprises and improves the quality of life of ordinary people. Enormous potential of this technology will generate more and more practical application. Thus, both regulatory institutions and the scientists should work on identifying and deepening this technology, and also create appropriate standards, frameworks and regulations which, while ensuring safety, would not limit the potential of these solutions. As was mentioned in the introduction, blockchain and cryptoassets lack of regulations or unclear standards may cause a lot of doubts, problems. One of the examples is accounting area, which after 11 years from introducing Bitcoin still works on solutions how to present and valuate cryptoassets for financial statement purposes.

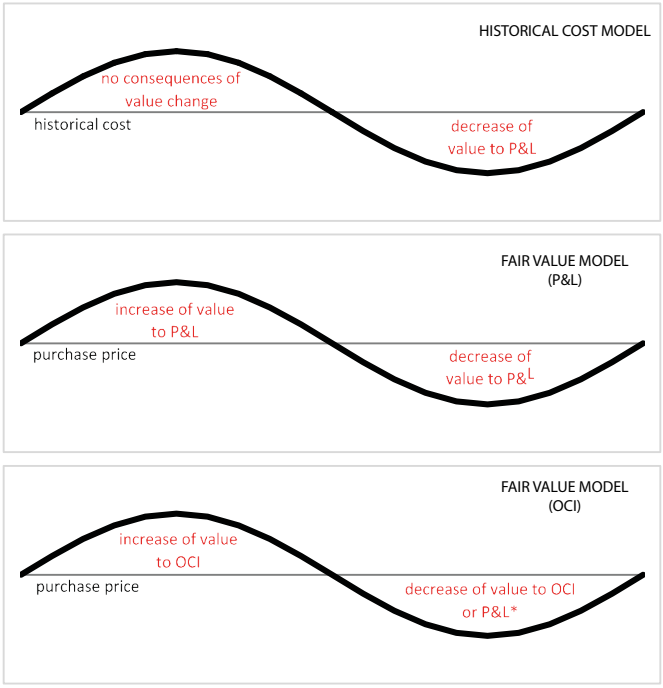
10.2.5. Valuation of cryptoassets

As Surdykowska points out, the 21st century brought a new challenge to accounting. The author claims that it is a measurement of the value of an economic entity (Surdykowska, 2001, p. 265). Gmytrasiewicz has a similar opinion, adding that such measurement is the expectation of capital owners and managers, because the new economy requires accounting based on the theory of value (Gmytrasiewicz, 2008, p. 68). Kamela-Sowińska adds that the essence of today's world is measuring, because almost everything is measured: time, distance, money, the level of competition or even social moods. The quality of measurement has always been supervised by accounting, which, according to Kamela-Sowińska, is currently no longer a tool for presenting a true and fair view of an entity. International solutions, including IAS and IFRS, provide accountants with more and more general and flexible indications for booking and valuation (Kamela-Sowińska, 2008, p. 84).

It is difficult to disagree with the opinions indicated above, especially with the last one, emphasizing imperfections of the science of accounting itself as well as the tools it develops. One of the reasons for the doubts in valuation area is the changing approach to the issue and methods of valuation in accounting. On the basis of the valuation methods in accounting, three basic models of valuation of assets and liabilities have been developed—historical cost model, fair value model and mixed models (Rówińska, 2008, pp. 223–224). The first model relates to the expenditure incurred

by an entity at the time of gaining control over an asset. On the other hand, the fair value model relates to the benefits that can be obtained from an asset by selling or exchanging it in the market. This amount does not reflect the entity's expectations about using the asset and obtaining future benefits from it, but the expectations of market participants. The perspective used in the valuation is therefore a significant differentiating factor between the historical cost and the fair value. Cost is a value specific for an individual, and the fair value reflects objective market expectations (Kabalski & Frendzel, 2011, pp. 176–177). The essence of mixed models is based on the principle of prudent valuation and consists of measuring the component at the lower value (production cost, purchase price or fair value), and therefore the value of the component will never exceed the initial value (Rówińska, 2008, p. 224).

It is a hard nut to crack which method can be applied for cryptoassets, because results of valuation of cryptoassets in each model may differ very much. It is caused by the differences in accounting treatment of market price fluctuations (Procházka, 2017, p. 176). Below you can see Figure 10.7 presenting all three possible models based on historical cost and fair value.



* The effects of impairment are referred to the Profit and Loss statement if there was no earlier increases presented on Revaluation Reserve.

Figure 10.7. Assets' valuation models in accounting and its consequences

Source: Own elaboration.

As it is presented in Figure 10.7, the valuation method applied for specific cryptoassets may have a crucial impact on company's financials. Of course, the first step to choose an appropriate model is to overview current regulations and to classify the particular cryptoassets that a company has, and this step will be broadly discussed further in this chapter. When we know specifically how we can classify our asset in balance sheet then we can choose the valuation model—and this is the easier part. The real job for accountants or auditors starts when it comes to evaluating the fair value of the cryptoassets at the year-end. How to do this when for example such cryptocurrency as Bitcoin changed its market value from USD 10,000 to USD 17,000 within a month at the end of 2017, what is presented in the chart below.

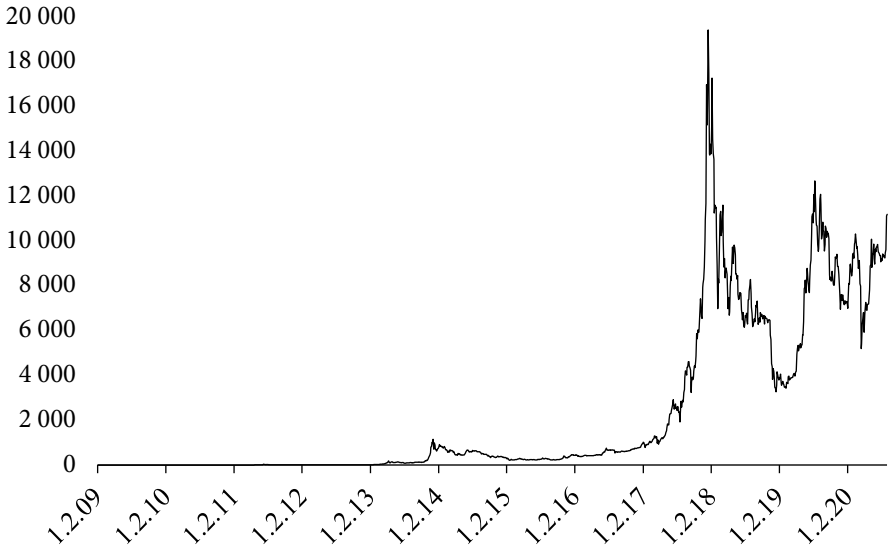


Figure 10.8. Bitcoin average price changes in USD (2009–2020)

Source: Own elaboration based on blockchain.info.

As we can see in Figure 10.8, Bitcoin value was quite stable until the end of 2017, when its price increased from USD ~10,000 on December 1st, 2017 to USD ~17,000 on January 6th, 2018. Then within a few weeks price decreased rapidly to previous value. This situation made Bitcoin's value unstable up to now.

In the research on the value of cryptocurrencies so far, various models, mainly econometric, have been used. The purpose of them was to determine the factors affecting the past value of cryptocurrencies. The analysis of scientific achievements in this area presented below shows that the authors not only used various econometric models, but also took into account different variables influencing the value

of virtual currencies. The most cited authors relating to cryptocurrency valuation are Kristoufek (2013 and 2015), Garcia, Tessone, Mavrodiev and Perony (2014), Bouoiyour and Selmi (2015), Polasik, Piotrowska, Wiśniewski, Kotkowski and Lightfoot (2015), Hayes (2015 and 2017), Ciaian, Rajcaniova and d'Artis Kancs (2016b), Peterson (2017), Li and Wang (2017) and Van Vliet (2018). As mentioned above, the authors studied various aspects affecting the value of a cryptocurrency, a synthetic summary of which is provided in Table 10.2.

Table 10.2. The models used and the variables tested in the research on the valuation of cryptocurrencies

Authors	Model used	Variables tested by model
Kristoufek (2013)	VECM	– popularity (*Google Trends and Wikipedia Views*)
Garcia, Tessone, Mavrodiev and Perony (2014)	VAR	– popularity (*Google Trends*) – number of users – *word-of-mouth* measured by number of tweets and news in media
Bouoiyour and Selmi (2015)	ARDL bounds testing	– popularity (*Google Trends*) – trade volume – velocity – computational power – gold price – Shanghai Composite Index
Kristoufek (2015)	Wavelet analysis	– number of Bitcoins generated so far – number of transactions – daily trade volume – trade volume related to transactions volume – computational power – difficulty of mining
Polasik, Piotrowska, Wiśniewski, Kotkowski and Lightfoot (2015)	VAR	– Bitcoin rate of return – number of news with „Bitcoin" word – popularity (*Google Trends*) – attitude in media and news (positive versus negative) – monthly growth of transactions number – changes in Bitcoin supply – changes of exchange USD/BTC, EUR/BTC – production growth by OECD – harmonised unemployment rate by OECD – inflation by OECD
Hayes (2015 and 2017)	VAR	– exchange USD/BTC – computational power – speed of mining – supply share in total supply of Bitcoin – type of encryption applied in the network – cryptocurrency's life length

Authors	Model used	Variables tested by model
Ciaian, Rajcaniova and d'Artis Kancs (2016b)	VAR, VECM and ARDL	– exchange USD/BTC – number of transactions – Bitcoin supply – number of users – cryptocurrencies' life length – Dow Jones Index – popularity (*Wikipedia Views*) – exchange EUR/USD – petroleum price – number of news on Bitcoin – number of transactions
Peterson (2017)	VAR based on Metcalfe's law	– number of unique Bitcoin wallets – Bitcoin supply – Bitcoin market price
Li and Wang (2017)	ARDL	– exchange USD/BTC – USD supply – U.S. GDP – U.S. reference interest – U.S. inflation rate – Bitcoin supply – Bitcoin trade volume – Bitcoin transactions number – Bitcoin rate volatility – popularity (*Google Trends*) – number of tweets – difficulty of mining
Van Vliet (2018)	VAR based on Metcalfe's law	– exchange USD/BTC – network power – Bitcoin total supply

Source: Own elaboration based on indicated publications.

As shown in the table above, the approach to the valuation of cryptocurrencies has evolved over the past few years. Initially, mainly elements determining the popularity of cryptocurrencies, such as searches in Google or Wikipedia, articles in the press, or the number of users were taken into account. In the next phase of the research, the indicators related to the cryptocurrency market were analysed, e.g. the trading volume, computational power in the cryptocurrency market, the difficulty of mining. Finally, economic parameters were also tested, including stock indexes or major currencies exchange. As for the models used for the evaluation of variables, the authors mainly used the VAR, VECM and ARDL models (including bounds testing). It is worth to emphasize that some authors based their regression models on Metcalfe's law, assuming that the utility of the network grows in proportion to the square of the number of devices connected to it (Van Vliet, 2018,

p. 70), which allowed for a significant reduction in the set of tested variables, while keeping a very high quality of results (R2 within 85%–99.8%).

Unfortunately, no model was recommended for accounting purposes by authorities so far. It makes accountants and auditors, who mostly are not experts in econometrics, responsible for valuation of cryptoassets by their own. We should ask a question to ourselves: is this true and fair view of the company when such complicated processes are unregulated?

10.3. Theoretical background of accounting for cryptoassets

The paper of Nakamoto (2008) introducing a new system cash transactions operated in a decentralized manner launched an economic revolution involving cryptocurrencies (Rosic, 2017) and other cryptoassets (called tokens) based on blockchain technology (D'Aliessi, 2016). A public verification is applicable not only in "monetary-like" exchanges and transactions, but it steadily infilters into many areas, where independent (decentralized) verification is required. As with other new technologies, cryptoassets do evolve quicker than their regulation. No agreement exists upon a commonly accepted or legally binding definition of such assets and the meaning of these assets depends on the context in which they are used. The Discussion Paper published by EFRAG (2020, p. 22) defines cryptoassets "as a digital representation of value or contractual rights created, transferred and stored on some type of distributed ledger technology (DLT) network (e.g. Blockchain) and authenticated through cryptography. In addition, 'crypto-liabilities' are defined as obligations that arise from the issuance of cryptoassets resulting in a present obligation for the issuing entity to transfer or grant access to an economic resource in digital or non-digital form".

The best-known example of a cryptoasset is Bitcoin. Together with other cryptocurrencies they can be labelled as payment tokens. The principal function of cryptocurrencies is to offer an alternative method of payments (Ciaian, Rajcaniova, d'Artis Kancs, 2016a; Cermak, 2017), but without granting any right of a holder against the issuer. Payment tokens possess some features of currency, but as they are not issued by central authorities, they do not serve as a legal tender. The second group of cryptoassets consists of security (or assets) tokens, which—as its name suggests—serve as a crypto-alternative to traditional investment instruments (granting interest in an entity or entitling to cash or other financial instruments). Assets tokens are connected with smart contracts and traded on exchanges utilizing the blockchain technology similarly as cryptocurrencies. Finally, utility tokens permit access to current or future products and services within a blockchain platform. In practice, the features of payment, asset and utility tokens can be combined to create hybrid tokens.

10.4. Accounting framework for cryptoassets under IFRS

Currently, there is no specific guidance for cryptoassets in IFRS. However, the IFRS Interpretations Committee discussed the issue of accounting of holdings of cryptocurrencies.[1] The Committee acknowledges the existence of a wide range of cryptoassets, but the final statement issued refers only to cryptocurrencies—with the following characteristics:

- a cryptocurrency is a digital or virtual currency that is recorded on a distributed ledger and uses cryptography for security;
- a cryptocurrency is not issued by a jurisdictional authority or other party;
- holding of a cryptocurrency does not give rise to a contract between the holder and another party.

Under such conditions, cryptocurrencies comply with IAS 38.8, which defines an intangible asset as an identifiable non-monetary asset without physical substance. A non-monetary asset is such an asset with the absence of a right to receive (or an obligation to deliver) a fixed or determinable number of units of currency according to IAS21.16. However, despite cryptocurrencies can meet the definition of an intangible asset, the scope exemptions included in current standards may lead to other classification in balance sheet. The Committee concluded that the application of IAS 2 Inventory is more appropriate if:

- the intention of holdings of cryptocurrencies is to sell them in the ordinary course of business;
- an entity is a broker-trader of cryptocurrencies, then the entity shall consider the IAS2.3b and to measure the holdings at fair value less cost to sell.

In other instances, IAS 38 shall be applied for cryptocurrencies held. Furthermore, the Committee observes that other classification of cryptocurrencies (e.g. cash or financial assets) does not comply with qualifying conditions of respective standards and such presentation would not be appropriate.

The above-summarized analysis of the Committee, however, omits two important activities connected with the acquisitions and holdings of cryptocurrencies. Firstly, cryptocurrencies can be acquired with a view to realize future profits, once being sold for a higher price. In case of "investment motive", the cryptocurrencies do not meet the definition of financial assets according to IAS 32, but the economic nature is the same as of other non-financial investments. Unfortunately, accounting guidance for non-financial investments is limited under IFRS as well.[2]

[1] Detailed information available on the IASB website: https://www.ifrs.org/projects/2019/holdings-of-cryptocurrencies/

[2] There is one specific standard IAS 40 for investment property. Some indirect guidance for gold is under IFRS 9, IAS 2 and IAS 21. Other non-financial investments are not covered by IFRS.

Secondly, cryptocurrencies can be originated by an entity itself through so-called mining, which is a process encompassing verification of transactions waiting in the blockchain. If an entity is engaged in verification of transaction and is successful in the race for being the first to resolve a cryptographic puzzle, it is rewarded by cryptocurrencies for this success. Mining is analogous to manufacturing of own products and the entity needs to determine the measurement of mined cryptocurrencies in a similar way to production costs of inventory.

Open issues not addressed by IASB or IFRS IC bring strong arguments that a more comprehensive approach to accounting for cryptocurrencies, but also for other cryptoassets, is necessary to capture relevant scenarios in which cryptoassets are vehicles of business transactions frequently. In the following text, we will discuss other possible models of accounting for cryptoassets, including the conditions under which their application would be plausible.[3]

In deliberating the appropriate accounting treatment, one should bear on mind that the way how cryptoassets are used as well as the commitments of issuers, the token contains, have a decisive impact on the selection of accounting policy. Until a new standard or amendments to current standards are published, judgement in developing and applying an accounting policy, in the absence of IFRS, that specifically applies to a transaction, other event or condition would be required according to IAS 8.10. Accounting policy adopted is supposed to result in information relevant to the economic decision-making needs of users which may, however, be difficult to assess due to the specific nature of cryptoassets. To avoid any misinterpretation, holders' accounting models and issuers' accounting models are to be discussed separately.

10.4.1. Accounting for cryptoassets by holders

Accounting by holders may affect both current and non-current assets.[4] In case of payment tokens (cryptocurrencies), inventory may be relevant, if:

- tokens are acquired with a view to resell them in the ordinary course of an entity's business;
- tokens are held by a broker-trader;
- cryptocurrencies are "produced" through mining.

[3] However, following exposition is not legally or otherwise binding, it is only based on the judgemental interpretation of the current wording of standards and requires caution and detailed assessment of all relevant circumstances in each particular business case. Furthermore, it may happen that by the time of publication of this book a new guidance can be drafted or even published.

[4] We agree with the prevailing reasoning that cryptoassets do meet the definition of an asset outlined by the Conceptual Framework (for a detail analysis, refer to EFRAG, 2020, pp. 42–44).

The first two cases are covered by the IFRS IC opinion, being discussed above. The third scenario leading to recognition of payment tokens as inventory relates to mining. In general, cryptocurrencies are a by-product of the verification process of electronic transactions waiting in the blockchain (public ledger). To verify the transaction, the miner shall resolve a cryptographic puzzle by "guessing" a number, which connects data in the block with a hash function to get an output being in line with the publicly known rules for the verification. As the level of encryption is not trivial, a specialized hardware and software equipment is needed. Such equipment forms a "production machinery" for mining of cryptocurrencies. In general, IAS 2 guidance dealing with the cost of conversion is relevant for accounting consequences of mining. The costs of conversion are defined as costs directly related to the units of production as well as a systematic allocation of fixed and variable production overheads (IAS 2.11). Electricity consumed during the mining is a typical example of the direct costs. Depreciation of hardware and amortization of specific mining software, wages of programmers, etc. would form the indirect overheads. If mining is successful, the cryptocurrencies measured at cost shall be recognized on balance sheet. Their subsequent measurement depends on the purpose of holding.[5]

In many cases, payment tokens are acquired to realize future capital gains, as the holder expects the market price to move up. A natural description of such a motive for acquisition would be "an investment". As payment tokens generally do not comply with the definition of cash, nor a financial asset under IAS 32, the guidance of IFRS 9 for the classification and measurement is not directly binding. On the other hand, the purpose of investments is to realize future profits and such information should be presented in financial statements, e.g., by classifying holdings of tokens for investment purposes under "non-financial investments" or "other investments". Furthermore, the time horizon determined by a holder to monitor the conditions for apt sale can be the indicator of a measurement model. As IFRS regulate accounting for non-financial investments rarely, then fair value through profit or loss (when a short-term perspective of selling is adopted) or fair value through other comprehensive income (when a long-term perspective of selling is adopted) are two reasonable options, supposing that fair value can be determined reliably.

Finally, if no previous scenario is relevant, the recognition of payment tokens as intangible assets as proposed by the IFRS IC can be an acceptable approach to presentation. However, such a classification is partially disputable, taken into account the nature of intangibles to which the nature of cryptocurrencies hardly fits. Furthermore, the classification as an intangible asset raises questions about the

[5] Other relevant accounting aspects of mining are discussed by Procházka (2018), including lease accounting in mining industry.

particularities of accounting guidance for this type of assets, e.g., how to apply the revaluation model (the condition of an active market needs to be fulfilled) or how to apply the impairment test (theoretically, it shall be done each reporting period, as payment tokens are, in general, assets with indefinite useful life). A more detailed discussion is available in Procházka (2018).

The second group of cryptoassets are asset (security) tokens, which may qualify for the recognition as a financial asset. IAS 32.11 defines a financial asset as any asset that is:

a) cash;
b) an equity instrument of another entity;
c) a contractual right to receive cash or another financial asset from another entity; or to exchange financial assets or financial liabilities with another entity under conditions that are potentially favourable to the entity;
d) a contract that will or may be settled in the entity's own equity instruments and is a nonderivative for which the entity is or may be obliged to receive a variable number of the entity's own equity instruments; or a derivative that will or may be settled other than by the exchange of a fixed amount of cash or another financial asset for a fixed number of the entity's own equity instruments.

Referring to the definition, the asset (security) tokens may grant its holders with the right to receive a stream of cash-flows or another financial asset or may contain the right to participate on voting of an entity, and may, thus, comply with the definition of a financial asset. The decision, whether a utility token meets the definition requires an appropriate assessment of issuance documentation.[6]

Finally, utility tokens usually entitle their holders to receive services or goods in future and possess similar characteristics to traditional business transactions like service prepayments, memberships, loyalty programs, etc. Then, the same accounting treatment like for traditional transactions should apply. In most instances, receivable (prepaid expenses) will be presented on the current or non-current assets. However, if a utility token confirms rights to acquire future services or goods for free or at a discount as a reward for current purchases of services or goods, such tokens held shall be considered as a discount granted, lowering, thus, the acquisition costs of products received. Finally, as the characteristics of cryptoassets are not always straightforward, the presentation of utility tokens as non-financial investment is conceivable as well.

Table 10.3 summarizes potential accounting treatment of cryptoassets by holders, depending on the way of usage of tokens in particular case.

[6] A supportive argument that a particular security token meets the definition of a financial asset is that it is a subject of regulation by the local authorities (like the Security and Exchange Commission).

Table 10.3. Accounting for cryptoassets by holders

Purpose	Accounting treatment
(1) Payment tokens	
Mining	IAS 2: mining as a production; initial measurement at cost of conversion Subsequent measurement depending on the purpose of holding
Broker / Trading	IAS 2: Fair value less costs to sell into Profit and loss
Sale in the ordinary course of business	IAS 2: accounting as for "normal" inventory, i.e. measurement at lower of cost and net realisable value with impairment losses into Profit and loss
Investment	Non-financial investment not treated under IFRS → application of Cost model or FVPL model or FVOCI model
Other	IAS 38: a solution preferred by IFRS IC (except for the cases where IAS 2 is more appropriate)
(2) Asset tokens	
Investment: financial asset	IAS 32: if definition of a financial asset met, measurement models of IFRS 9 applies
Investment: non-financial asset	Non-financial investment not treated under IFRS → application of Cost model or FVPL model or FVOCI model
(3) Utility tokens	
Prepayments of services	Presentation as prepaid expenses (distinguishing current and non-current nature).
Investment: non-financial asset	Non-financial investment not treated under IFRS → application of Cost model or FVPL model or FVOCI model

Source: Own elaboration.

10.4.2. Accounting for cryptoassets by issuers

There is no authoritative guidance for issuers under IFRS. In addition, the issuance of crypto-assets (sometimes labelled as Initial Coin Offering—ICO) is usually unregulated and takes many forms (Adhami, Giudici, & Martinazzi, 2018), including considerable differences in terms and conditions, constituting the issuer's obligations and holders' rights or claims. The general procedure of IAS 8 is, therefore, applicable in selecting appropriate accounting policy reflecting the economic nature of cryptoassets issued. In the first step, the issuer of a cryptocurrency shall assess whether it has any remaining obligation to the holder, once the exchange of issued tokens is completed. If there is no remaining holder's claim, then the issuer shall recognize revenue following the IFRS 15 revenue recognition model or other income if the transaction is not in scope of IFRS 15.[7] Such accounting treatment

[7] IFRS 15 defines revenue as income arising in the course of an entity's ordinary activities. Income, as a broader category, is defined as increases in economic benefits during the accounting period in the form of inflows or enhancements of assets or decreases of liabilities that result in an increase in equity, other than those relating to contributions from equity participants.

will be typical for cryptocurrencies and utility tokens possessing the characteristics of E-money.

IFRS 15 solution can also be relevant in some of those cases, when cryptoassets do contain issuer's obligations. For example utility tokens which give the right to customer to receive future services or goods, are performance obligations under IFRS 15. Revenue shall be recognized once the performance obligation is satisfied. However, utility tokens can also relate to the definition of a (constructive) obligation under IAS 37 rather than complying with the definition of a performance obligation under IFRS. In such circumstance, the liability (provision according to IAS 37)[8] shall be recognized.

Finally, assets (security) tokens meeting the definition of a financial asset by holders are likely to meet the definition of a financial liability or, less frequently, the definition of equity by the issuer. The distinction between financial liability and equity[9] should be based on the assessment of issuance documentation and rights and obligations constituting the token.

Questions / tasks

1. Describe main features of cryptoassets.
2. List the types of digital tokens.
3. What are the differences between the three categories of cryptocurrencies?
4. Who designed Bitcoin?
5. List a few examples of use of blockchain technology in practice.
6. Describe the meaning of ICO, IEO and STO.
7. What would you consider as key factors for cryptocurrency valuation? Why?

Case 1

SHARK is an IT start-up searching for and utilizing of imperfections in capital and commodity markets. The firm developed a mathematical algorithm, identifying

[8] A liability is defined by the Conceptual Framework as a present obligation of the entity to transfer an economic resource as a result of past events. According to IAS 37, a provision is a liability of uncertain timing or amount.

[9] Using definitions of IAS 32, a financial liability is any liability that is: (a) a contractual obligation to deliver cash or another financial asset to another entity; or to exchange financial assets or financial liabilities with another entity under conditions that are potentially unfavorable to the entity; or (b) a contract that will or may be settled in the entity's own equity instruments and is: a nonderivative for which the entity is or may be obliged to deliver a variable number of the entity's own equity instruments; or a derivative that will or may be settled other than by the exchange of a fixed amount of cash or another financial asset for a fixed number of the entity's own equity instruments. An equity instrument is defined, in line with the Conceptual Framework, as any contract that evidences a residual interest in the assets of an entity after deducting all of its liabilities.

mispriced instruments and commodities to realize gains from their speculative purchases or short sales. On June 3rd 2018, the algorithm reveals that Bitcoin is under-priced and company buys 1,000 Bitcoins on that day for €6,583.47 per unit.

Tasks:

1. Discuss how the holdings of Bitcoins would be classified and presented on balance sheet as of June 30th 2018.
2. Based on your answer to the previous question, calculate the carrying amount in which the holdings of Bitcoins will be measurement as of June 30th 2018 (if necessary, use real market data for measurement).
3. Describe and calculate all amounts impacting the balance sheet, income statement and cash flows statement since the purchase of Bitcoins on June 3rd 2018 to the balance sheet date on June 30th 2018.

Case 2

CHOCO is the best chocolate and sweets producer in the city. The customers can buy its products only for Bitcoin-cash. The holdings of cryptocurrencies received from customers are used to settle bills to the CHOCO's suppliers of accounting, tax, and IT services as well as to pay the employees' wages. The remainder is changed to fiat money. On June 3rd 2018, COLD earns 5.66 Bitcoin-cash, out of which 4 units are retained for the payment purposes and 1.66 was sold for €945.34/unit.

Tasks:

1. Discuss how the holdings of Bitcoins would be classified and presented on balance sheet as of June 30th 2018.
2. Based on your answer to the previous question, calculate the carrying amount in which the holdings of Bitcoins will be measured as of June 30th 2018 (if necessary, use real market data for measurement).
3. Describe and calculate all amounts impacting the balance sheet, income statement and cash flows statement since the purchase of Bitcoins on June 3rd 2018 to the balance sheet date on June 30th 2018.

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