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PROBLEMS REGARDING THE ASSESSMENT OF THE BOOK VALUE OF A BUSINESS IN THE KNOWLEDGE ECONOMY

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ABSTRACT

Significant changes in the society starting from the end of last century, have transformed the industrial age into the new post industrial age, which could colloquially be denominated as information age. One of vital characteristics of that economy is the transition from matter management to data management. Data is, at the same time, a basis for business processes management, a means for completing business processes, as well as a product of business processes. Thus, data is simultaneously a raw material, as well as semi-finished goods and finished goods, but also a management resource and company equity. The thesis that data resources are the key to a successful business of a modern business entity is today accepted in an axiomatic manner, in theory. Therefore, a question whether the power of a business entity in contemporary circumstances of doing business should be measured by the value of its tangible assets as it was done in the industrial age should be rightfully raised, or is its value a product of its intangible assets, i.e. its organized repositories of data, information and knowledge. In the bookkeeping assessment of the economic value of a business, material assets are still the key factor, and accounting is the only activity oriented towards maintaining the material essence of a business. Such accounting is not updated, therefore it is necessary to implement new ways of bookkeeping assessment of the economic value of a business, which shall accept the value of data, information and knowledge that the business possesses.

Keywords: *knowledge economy, data basis intellectual capital, bookkeeping assessment of the economic value, information, knowledge*

1. INTRODUCTION

Humanity stands at the threshold of the new information age. It is hard to envision all the implications of the new age at the moment, however, it is evident that many principles of life and work in the new age are changing and that the science would have to offer answers and explanations for various newly-created processes very soon. One of such processes is a transfer to electronic, or virtual forms of doing business. Namely, most of business processes are information communication processes, so instead of making use of physical communication channels, these processes today are realized virtually, in the framework of global information network, meaning Internet. Internet facilitates not only virtual trade, virtual products distribution, marketing, payments, administrative and management transactions, etc., it also facilitates social contact. In other words, it provides new forms of social interaction among people which globalize the world and make it a sole entirety regardless of a spatial and cultural distance between people. Considering the availability of information communication technology and the possibilities of its use for performing various jobs, and considering that most of jobs in mass production are performed by robots, the forms of work are changing, and as a result, the role of urban centers as points of attraction of industrial workforce is changing, too. It can be expected that fixed working hours and fixed work place will gradually become extinct and replaced by temporary project-orientated jobs, which will require a more flexible workforce, especially in terms of skills and knowledge. It is important to bear in mind that the human self-consciousness evolves with the increase of knowledge and the availability of information, and that individuals from an impersonal part of amorphous mass of humanity transform themselves into conscious individuals with all their peculiarities and needs. This already has an effect on consumption, where people began asking for tailor-made products in accordance with their needs instead of uniform products of mass production. Such approach shall certainly affect the transformation of a larger part of mass production into individualized production which would comply with individual needs of each person. The increase in the volume of the data, which includes the increase in the share of information and knowledge, makes this new age essentially different than the industrial age that preceded. All the above mentioned leads to a change in the system of values, so the previous meaning of fortune has been fundamentally changed. In the new age the fortune shall be the data or information potentials, as well as potentials of knowledge, whether it be tacit knowledge, knowledge of people or explicit, externalized knowledge, saved in a virtual environment. New systems of value require different approaches to the evaluation of the book value of business entities, particularly capital companies in the knowledge economy.

2. METHODOLOGY OF RESEARCH

The today's bookkeeping is a product of the industrial age, and is, as such, focused on a classic industrial viewpoint of the value of business entities. To that regard, the focus is on material and financial assets, meaning the "visible" and the financial assets of a business entity. Externalized data, whether it be the presentation of information or knowledge, or internalized (tacit) knowledge and information which people possess, comprise assets with completely different characteristics from the classic operating assets which are wasted during the reproduction cycle. On the contrary, unlike the land, data is not wasted with the exploitation; it actually increases in volume over time, which consequently increases its value. Therefore, it shows that classic accounting has no answer to the question about the capital value of data resources. On the basis of the aforementioned, the following hypothesis has been formed:

Accounting in its today's form and with its current principles of functioning does not generate a real image of the value of business entities organized as capital companies, and as such is not adequate for the evaluation of the value of business entities in the knowledge economy.

Objectives of research are the following:

1. Giving an overview of the basic terminology
2. Giving an overview of the principles for assessing the value of business entities
3. Determining the strengths and weaknesses of the accounting in the registration of data resources considered to be a basis for obtaining the information and knowledge
4. Defining the course that the accounting shall take in order to be able to change and show a realistic picture of business transactions of companies in the information age

The following scientific methods have been used in this research: method of deduction, historical method, method of analysis, method of generalization, method of specialization, method of combination, method of causal conclusion, method of analogy, method of descriptive modelling and other scientific methods. Written and digital secondary data resources have been used in the research. The results of the research presented are a product of a year-long systematic dedication of the author to the changes brought by this age and the reflections on the implications of transition occurring at the shift from the industrial to the new information age, meaning the age of knowledge.

3. RESEARCH RESULTS

Bookkeeping can be perceived as a subset of accounting. While bookkeeping is focused on keeping the books, that is registering business transactions, accounting deals with:¹

- Continuous monitoring of legal rules and regulations
- Business analysis
- Identifying and pointing out mistakes
- Searching for the most adequate solution for the improvement of business operations.

Elaborating the balance sheet, profit and loss account and other financial reports belongs to the scope of accounting. It also deals with the evaluation of the economic value of a business. Assessments of the economic value are usually performed with a view to:²

- Assessing the value of private limited companies, so the owners can determine the value of their property
- Choosing the optimal stock portfolio of public listed companies for the needs of investors
- Determining the value of companies or their parts which are being purchased, sold or merged
- Assessing the effects of the business strategy, because a business should follow a strategy that maximizes the value of its equity
- Assessing market and economic prospects, considering that they are contained in the value of public listed companies

Business entities in the Republic of Croatia can be established according to different models, meaning on different legal basis. In accordance with the positive legal regulations in the Republic of Croatia, the basic legal forms of business entities are the following:³

1. Companies: Simple limited liability company (j.d.o.o.), Limited liability company (d.o.o.), Joint stock companies (d.d.), Limited partnerships (k.d.)
2. Crafts and freelancers
3. Cooperatives, Partnerships, Family Run Farms (OPG), Associations, Institutions, Trusts, Foundations

¹ <http://www.ergon.hr/pitanja-i-odgovori-klijenata/znate-li-razliku-izmedu-knjigovodstvenih-racunovodstvenih-usluga/> [17.1.2017]

² <http://www.poslovnih.hr/tips-and-tricks/ovako-se-procjenjuje-vrijednost-poduzeca-metodom-diskontiranja-novcanog-toka-239766> [20.1.2017]

³ <http://ekonoss.hr/portfolio-view/pravni-oblici-poduzetnistva-i-dio/> [1.4.2016]

Companies can be founded by individual entrepreneurs or groups of entrepreneurs in accordance with the Companies Act⁴. The Companies Act establishes a difference between:⁵

- Private companies
 - Public companies
 - Limited partnerships
- Companies
 - Limited liability companies (d.o.o.)
 - Joint stock companies (d.d.)

As regards companies, equity must to be defined. It can be concluded that: "Equity is the value of assets invested into a business venture by an entrepreneur with a view to gaining profit."⁶ Regarding the gains, meaning profit, the following applies: "The word originates from Latin, where it stood for 'making (achieving) progress'. It came into Croatian directly from a French word 'profit' – which means a positive return on investment made by an individual or generated by a business operation. The size of net results is obtained by deducting the total expenses from the total income"⁷. Consequently, vital feature for the activities of business entities is entrepreneurial behavior, investments of capital with a view to making profit. The most common form of business entities is a limited liability company.

Investments of capital in a business venture, as regards business entities, can be made in form of:⁸

- a). One's own capital (equity) – value of own capital invested
- b). Debts or liabilities – capital of others

Invested capital can appear in the following forms:⁹

- a). In form of money
- b). In form of things (tangible assets)
- a) In form of rights (intangible assets)

It should be observed that the information and knowledge, meaning data and human resources are at present not considered as equity within the mean-

⁴ <https://www.zakon.hr/z/546/Zakon-o-trgova%C4%8Dkimdru%C5%A1tviman> [20.12.2016]

⁵ <http://poslovnj-plan.hr/trgovacka-drustva/> [21.12.2016]

⁶ <http://knjigovodstvo-racunovodstvo.blogspot.hr/2009/11/kapital-pojam-podjela-oblici-temeljni.html> [20.12.2016]

⁷ <http://www.raza.hr/Poduzetnicki-pojmovnik/Profit-dobit> [20.12.2016]

⁸ <http://knjigovodstvo-racunovodstvo.blogspot.hr/2009/11/kapital-pojam-podjela-oblici-temeljni.html> [20.12.2016]

⁹ Ibid.

ing of investments. On the other hand, even though investments in inventions or rights to an invention are considered equity, the mentioned category does not include those resources which will most certainly become the basis of a company capital in the new age. Therefore, from the viewpoint of importance, the following capital structure can be expected:

- a). In form of human resources (intangible assets)
- b). In form of data resources (intangible assets)
- c). In form of rights (intangible assets)
- d). In form of money
- e). In form of things (tangible assets)

It is to be realistically expected that the evaluation of economic value of human resources will cause mayor problems, since human resources appear as an expense, but also as an important resource in terms of capital investments. Another problem, just as important as the previous one, is the one that is the focal point of this research, the problem of assessing the value of intangible assets in the sense of data resources. Data per se has no value or its value equals the purchase price if the data was bought, or equals the expenses for the data production in the sense of gathering, preparation for the entry and the entry itself in structured, semi-structured and unstructured data repositories, and finally the cost of its processing and distribution. Data, as a capital base, as well as human resources, can be observed from several viewpoints: both as capital assets and as provisions of materials, as well as semi-finished products, and in certain circumstances, when data is a commodity, as a finished product. But, information sciences state that data cannot be considered to be a finished product, because it is only a resource for acquiring information and knowledge. Namely, a hidden value of data is manifested in the concept of data as the resource of information, i.e. the resource of knowledge. Since knowledge and information constitute the capital base of the new economy, their correct bookkeeping leads to a significant change in the value of a business entity. In the aforementioned list, which brings an overview of the position of each capital base in the new age, rights are rightfully placed in third place. Unlike the industrial age, which is essentially a reproductive age focused on the production of the largest possible scale of identical products, the new age is focused on production of individualized, mostly digital, products for each and every person. Under such circumstances, innovation and creativity are becoming important features, and protection of innovative and creative solutions will evolve from individual cases into a common practice. The discrepancy from this projected behavior is possible in case where the future economy is reorganized in a manner to make all innovations and creations a public good, which is not to

be realistically expected. Furthermore, the following item on the list is money as permanent capital equivalent to value, but money also tends to transform from a physical into a completely virtual equivalent. In the distribution of a capital base of the modern economy, the equity in form of things comes last as the least important element of the assessment of economic value.

In principle, before considering human or data resources as capital resources, their real position in terms of assets of a business entity or the origin of assets of a business entity should be observed. Therefore, a potential position of human, i.e. data resources should be reflected upon in a balance sheet. To that regard, the following should be taken into account: "Balance sheet is a two-sided accounting expression with a balanced left and right side. It consists of two component parts, assets and liabilities. In the accounting language, the property is called assets, and the origins of property in our past practice is called liabilities. Balance sheet identifies the entire assets (property) and liabilities (financial sources). It provides the users with the information on the company's possessions on a certain date (assets), the information on its debts and where it stands after the liabilities are deducted from the assets. Balance sheet is a basis for a financial analysis, an analysis of indebtedness, profitability, liquidity and activity."¹⁰ As regards data resources, having in mind that they belong to intangible assets which are not wasted in the process of reproduction, its essential characteristics match the position of fixed assets. The source of such assets can be equity, but the value of such assets can change under the influence of business processes. Digital business processes shall, in principle, increase the volume of data resources, thus changing the volume of useful information and knowledge. Considering the importance of information and knowledge in terms of assessing the economic value of a business entity, the problem regarding the bookkeeping expression of a value equivalent to data resources remains.

Each assessment of economic value of a business entity is based on a bookkeeping evaluation of equity value. In principle, the book value of company equity is calculated according to the following equation:¹¹

$$BVE=BVA-BVL$$

In which:

BVE means book value of equity

BVA means book value of assets

BVL means book value of total liabilities

¹⁰ <http://www.poslovnih.hr/trzista/bilanca-je-najvazniji-dokument-tvrtke-149649> [10.1.2017]

¹¹ [http://www.poslovnih-info.eu/sadrzaj/menadzment/koliko-vrijedi-poduzece-\(saznajte-iz-bilance\)/](http://www.poslovnih-info.eu/sadrzaj/menadzment/koliko-vrijedi-poduzece-(saznajte-iz-bilance)/) [10.1.2017]

In respect of the assessment of the economic value of a business entity, it can be stated the following: "In order for the assessed book value to be realistic, the data used as a basis for the assessment must be realistic. However, when using the data from accounting records, a manager must be aware that in bookkeeping, hence in the balance sheet as well, the stated values show more or less discrepancies as compared to market values. Those discrepancies are inevitable even when the financial reports had been checked by an authorized auditor who had issued a positive report. Namely, even in cases when accounting regulations and standards are fully applied, due to the permitted use of different accounting principles and politics and allowed approximations, the discrepancies from market values appear. If the book value is not accurate enough, the value of company can be evaluated with more precision by adjusting the balance sheet positions. In such evaluation, the amounts stated on balance sheet positions, which significantly defer from reality, shall be adjusted to market values. In such a manner, and depending on used methods and depreciation rates, technological advances/obsolescence and changes in market prices, the value of capital assets is increased or decreased, and the real value of provisions, receivables, liabilities, etc. can be verified. Adjusted data are entered into the balance sheet instead of bookkeeping data, and the difference between the adjusted and book values increases or reduces own capital."¹²

It is clear from the quote above that the economic theory has at its disposal mechanisms which can adjust the book value according to the real value of a business entity. However, all methods of adjusting the book value to a real value make sense in case where there is a rather small discrepancy between the book value and the real value. In case of large discrepancies, the accounting records which prove to be completely inaccurate from the very beginning should be questioned. The existence of such a phenomenon regarding the book value of a business in the knowledge economy for business entities whose equity shall be based on data resources is to be realistically expected.

4. CONCLUSION

Each era in the development of humanity has been marked by a certain capital base which has defined the forms of management, i.e. the forms of company organization. The transition periods until the full maturity of a certain characteristic or individual eras in the development of human community have been marked by transitions in which characteristics of a previous period were mixed with the characteristics of a succeeding period. Such transitional

¹² Ibid.

periods are extremely interesting from a scientific point of view, because science is required to give plenty answers regarding the new evolutionary period or the new economic form. It is precisely the modern economy that finds itself in such a transitional period, meaning shifting from the industrial to the information age, or the age of knowledge.

The change in the structure of consumption, meaning the increase in the share of digital products, and the increase in the share of products based on information and knowledge, changes at the same time the capital base of the economy in which the economy of tangible assets is becoming the economy of intangible assets in which information and knowledge are the capital base of the business. Considering that people are holders of information and knowledge, i.e. data resources in which the information and knowledge are externalized, they are becoming the capital base of the economy in the new age, which means the basic economic resource. It means that in the emerging information society, or knowledge economy, competitiveness will be achieved based on quality and volume of factors which define the information and knowledge, and these are human resources and data resources. Yet, taking into account the fact that these resources have up until recently been seen as an expense, which means that they have not frequently been included in the capital base of a company, and that from the actual time position the value of these resources is hardly or not at all perceived nor evaluated, it can be concluded that the actual system of monitoring of business entities is not apt for this new age. The primary question here refers to bookkeeping principles oriented towards monitoring the material processes and evaluating physical, meaning monetary capital base.

The existing bookkeeping is a product of the industrial age, hence it is reasonable that such accounting seeks changes and adjustments to the new age. Without significant changes in relation to the capital base of business entities, accounting records are becoming inaccurate and incomplete, which distorts basic accounting principles. This research was carried out with the aim to find the answers to the questions whether the today's accounting can provide a concrete data regarding the economic value of business entities, of companies in the emerging information economy, i.e. knowledge economy. Having analyzed the bibliographical resources and having performed experiments on models of bookkeeping records of various types of business entities of the information age, whose basis for business operations are data resources, meaning information and knowledge, it has been concluded that there are true problems regarding the assessment of the economic value of such business entities, and that the actual methods of assessment of book value do not provide relevant answers, not because of the methods of bookkeeping assess-

ment of the economic value themselves, but because of inadequate book-keeping treatment of the value of intangible assets. Therefore, the modern bookkeeping should be adjusted to the new age and correctly accept both the data resources and human resources, i.e. information and knowledge for the correct assessment of the economic value of a business entity, and for maintaining this substance as a vital capital base in modern business entities.

The follow-up of the research regarding the transformation of the book-keeping records and its adjustment to the new age is planned for the forthcoming period. To that regard, the models for the assessment and maintenance of the value of data and human capital shall be elaborated, as well methods for the monitoring of those resources through the balance sheet. Finally, it can be concluded that the previous research has shown that the accounting in its present form and with its present operating principles does not provide a realistic picture of the economic value of business entities organized as capital companies, therefore it is not, as such, convenient for the assessment of the economic value of business entities in the knowledge economy. Future research should resolve this problem through concrete model solutions.

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PROBLEMI PROCJENE KNJIGOVODSTVENE VRIJEDNOSTI DRUŠTVA U EKONOMIJI ZNANJA

SAŽETAK RADA:

Znatne promjene u društvu koje su započele krajem prošlog stoljeća rezultirale su transformacijom iz industrijske ere u novu post-industrijsku eru, koja bi se kolokvijalno mogla nazvati era informacija. Jedna od najvažnijih karakteristika takve ekonomije je prijelaz iz upravljanja materijom u upravljanje podacima. Podaci su također i osnova za upravljanje poslovnim procesima, sredstvo pomoću kojeg se završavaju poslovni procesi, a predstavljaju i proizvod poslovnog procesa. Na taj način podaci predstavljaju sirovinu, polugotov i gotov proizvod, ali i resurs za upravljanje i kapital društva. Teza da su izvori podataka ključni za uspješno poslovanje modernog društva se danas prihvaća u teoriji kao aksiom. Stoga je opravdano postaviti pitanje je li se snaga nekog društva u modernim okolnostima poslovanja treba određivati vrijednošću njegove materijalne imovine, kao što se to činilo u industrijskoj eri, ili njegova vrijednost leži u proizvodu nematerijalne imovine, tj. njegovom organiziranom repozitoriju podataka, informacija i znanja. S knjigovodstvenog gledišta procjene njegove ekonomske vrijednosti, materijalna imovina se još uvijek smatra glavnim čimbenikom a računovodstvo je jedina aktivnost orijentirana na održavanje materijalne biti društva. Takvo računovodstvo nije modernizirano. Stoga je potrebno implementirati nove načine knjigovodstvene procjene ekonomske vrijednosti društva koji će uvažiti vrijednost podataka, informacija i znanja koje određeno društvo posjeduje.

Ključne riječi: ekonomija znanja, baza podataka intelektualnog kapitala, knjigovodstvena procjena ekonomske vrijednosti, informacije, znanje

