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DECISION-MAKING PROBLEMS RELATED TO INTELLECTUAL CAPITAL CONTROL OF THE COMPANY

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Purpose: The purpose of the paper is to identify the main decision-making problems related to intellectual capital control of the company.
Design/methodology/approach: This study followed the methodology of a systematic review of literature, textual content analysis and deduction. In particular, it reviews papers published in the Web of Science database and presents the most critical decision-making problems.
Findings: Control is an integral part of intellectual capital management. Discovering and implementing effective intellectual capital control patterns require embedding the organization in an environment of complex interactions and taking into account the expectations of stakeholders. The issues of control (as a function of organization management) and the specificity of intellectual capital were the basis to identify decision-making problems related to the control of this intangible resource. Interesting managerial problems and dilemmas emerge when the concept of intellectual capital management is compared with the general issues of organization management and its classic approach, treated as a logical sequence of functions: planning, organizing, motivating and finally control, which is the focus of this study.
Practical implications: Recognizing the need for diagnosis and control of intellectual capital (IC) may be a premise for initiatives and changes in non-financial reporting by companies. Specific postulates can help decision-makers notice critical factors in the area of IC planning and control. However, the proposed list of decision-making problems is not complete; further diagnosis will help better adapt management solutions in the future.
Originality/value: The postulates regarding IC control activities are an original combination of research approaches presented in the literature.
Keywords: expectations of stakeholders, intellectual capital control.
Category of the paper: Conceptual paper.

1. Introduction

The review of literature dealing with the managing of intangible resources of the company reveals that this is a multithreaded research area. In particular, intellectual capital (IC) is indicated as a source of radical change in the way of thinking and acting of an organization (Farzaneh et al., 2022; Chen et al., 2021; Barpanda, Bontis, 2021). At the same time, the lack

of standards to verify or compare the level of this capital in companies of various industries and the high risk of making interpretation errors, resulting from imperfections of measurement methods, cause that theoretical approaches dominate in scientific studies, while practical applications of the IC management are greatly limited (e.g. to listed companies). Numerous research results are published, but their authors usually focus on a selected dimension of IC (human capital, structural capital, relational capital, green intellectual capital) or a specific sector (banking sector, technology listed companies, pharmaceutical industry) or type of organization. Despite the growing interest in the issue of IC management, there are still research gaps, including the systematization of the conceptual apparatus. The concepts of intellectual capital management are dispersed. Importantly, the mere possession and reporting of intellectual capital resources by a company does not guarantee success (Dumay et al., 2020; Mouritsen, Roslender, 2009). The effectiveness of activities aimed at continuous improvement depends on the process of control (Cyfert, Skorb-Gała, 2015, p. 177). However, the intangible nature of this capital means that the IC planning and control elude scientific explanation, these issues are omitted or studied in few works.

The purpose of the study is to identify the main decision-making problems related to intellectual capital control of the company.

The most important research paths, that have been widely explored so far, concern non-financial integrated reporting (Guthrie et al., 2012; Dumay et al., 2016). There is a shortage of methods for measuring intellectual capital and this has serious consequences for the process of control. Still a large value of intangible assets is not reported. As Urbanek emphasizes, the lack of reliable and generally accepted intellectual capital measurement methods leads to information asymmetry between stakeholders, biased market valuation of the company, fluctuations in capital markets and improper allocation of investment funds. Therefore, measurement is necessary to obtain the information that will help increase the transparency of markets (Urbanek, 2007). Also from the perspective of the inside of the organization, it is crucial to monitor the process of transforming intellectual resources into a specific added value. This is particularly problematic in complex and dynamic environmental conditions. All this makes it necessary to redefine management methods, also in relation to IC. Most researchers agree that the process of measuring intellectual capital is difficult, because it concerns factors that are hard to measure, and whose impact on the company's results is often very elusive (Frączek, 2012). Given the above, the conclusion can be drawn that the lack of standardized, objective and cyclical information on the state of intellectual capital results in inefficiency of its assessment, problems with audit and control systems. This gave rise to undertaking research in this area.

2. Planes and challenges for intellectual capital control – Literature review

According to literature, control is a comparison of the actual and planned state; it is a process of measuring effectiveness. According to Fayol, control is checking whether everything is going according to the plan, instructions and rules (Fayol, 1949, p. 107). The function of control is prevention and inspiration, and at a lower level of generalization, it has an informative, instructional, stimulating, signalling and prophylactic function. The process of control is based on at least four stages: 1. setting standards; 2. measuring; 3. comparison; 4. evaluation (Griffin, 1996). In the broader approach, it is also important to take actions to bring the results closer to the plans (Bieniok, 2011). There are many types of control: strategic, operational, tactical, current, periodic, segmental, comprehensive, functional, thematic, etc. (Szczepankowski, 2010). Control is distinguished from audit and controlling. A special form of control are external controls (e.g. by tax administration) and due diligence.

In Poland, Kotarbiński formulated numerous indications regarding the effectiveness of actions. They can be considered as benchmarks for control activities. These are: accuracy, productivity, economy, simplicity, efficiency, certainty, correctness, completeness of information, caution and boldness, energy and reliability (Kotarbiński, 1969). The effectiveness of control is increased by: accuracy of information (precision of standards and data), validity, objectivity of controllers, comprehensibility of work results, focus on important matters, realism (economic, social, cultural, political, organizational), coordination of activities, flexibility, normativity and operability (indications of improvement), social acceptance (Stoner, Wankel, 1997).

According to literature, control is an important factor in creating competitive advantage, determining the success of activities carried out in organizations (Simons, 1998). It can therefore be considered indispensable also in relation to intellectual capital, which is defined as knowledge that can be turned into profit (Sullivan, 2001) or as "the sum of hidden, not fully visible in the balance sheet, assets of the company" (Roos et al., 1997). At the same time, it is indicated that intellectual capital has certain characteristics similar to other forms of capital (physical, financial), therefore, it becomes reasonable to refer to the management function when identifying mechanisms for effective IC management. Classically, management is described as a set of activities in the area of planning, organization, motivation and control (Griffin, 1996). This logical sequence of functions, focused on the use of company resources, should streamline the process of decision-making. At the same time, it should be implemented in a way that ensures the full use of resources, both those recorded in the books of accounts and intangible assets.

There are original concepts and approaches to the process of intellectual capital management which covers certain components, from identification, through development and assessment, and includes human and structural capital. The last stage of the process is evaluation, i.e. obtaining feedback on the state of intellectual resources and the degree of their use. Sequences of the intellectual capital management are presented in Figure 1. The process of capital management requires identification and assessment of the role of intellectual capital resources already at the stage of formulating strategy. The diagnosis of intellectual capital is to be used in the next stage to develop methods for creating, acquiring, transferring and fully utilizing this asset. Creating conditions for implementation of the adopted methods includes, among others: investments in the development of modern information technologies, development and improvement of employees' qualifications and striving for effective information management. The whole process ends with the assessment of intellectual capital in the context of meeting the strategic goals of the company.

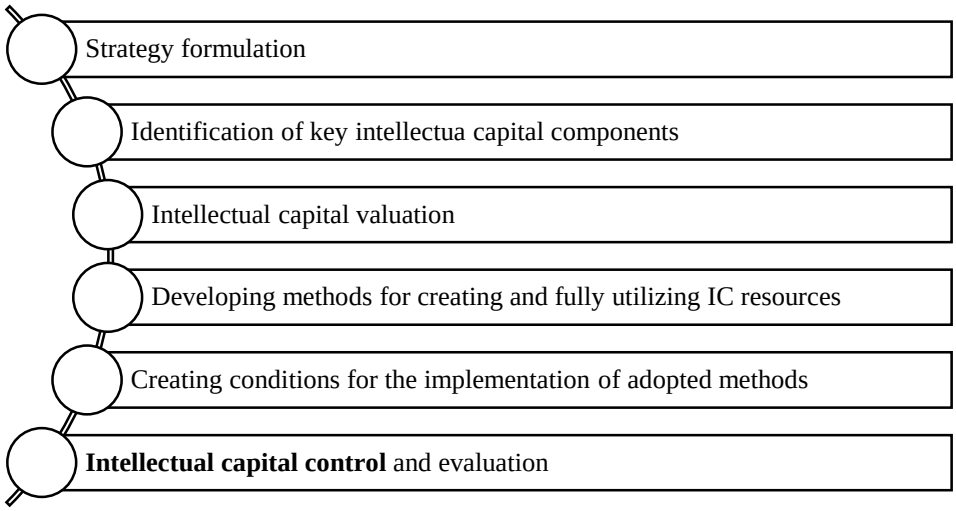

Figure 1. The process of managing the intellectual capital (IC).

Source: author's elaboration based on (Mikuła et al., 2007, p. 108).

The review of studies reveals that the area of intellectual capital control has been very poorly identified. The main reason for this seems to be understanding control as identification of deviations in the level of controlled resources using measurement methods. However, no standardized intellectual capital measurement methods have been proposed so far, which has far-reaching consequences.

An interest in this issue results from internal and external factors (Figure 2).

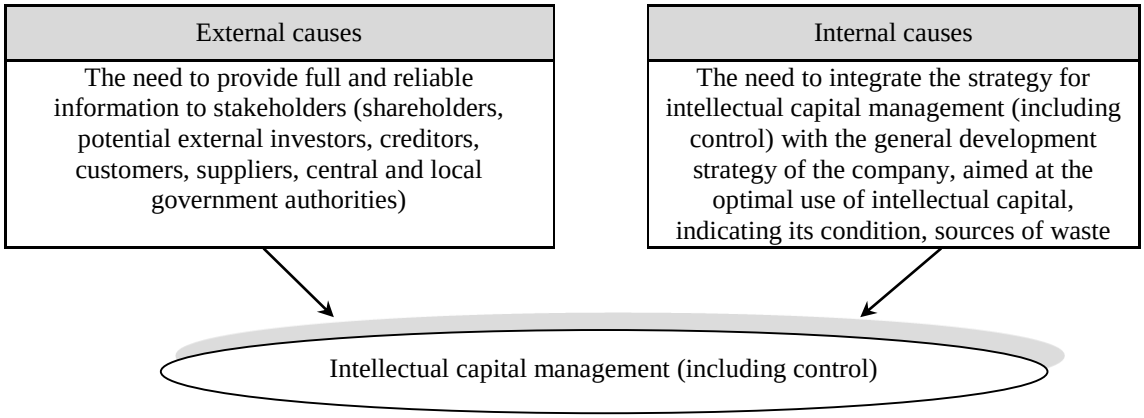

Figure 2. Reasons for interest in the intellectual capital management (including control).
Source: author's elaboration.

The process of intellectual capital management requires defining the concept of input and output data. As shown in Figure 3, the company needs to specify how it understands the term intellectual capital, identify its key components, design and implement the appropriate management system.

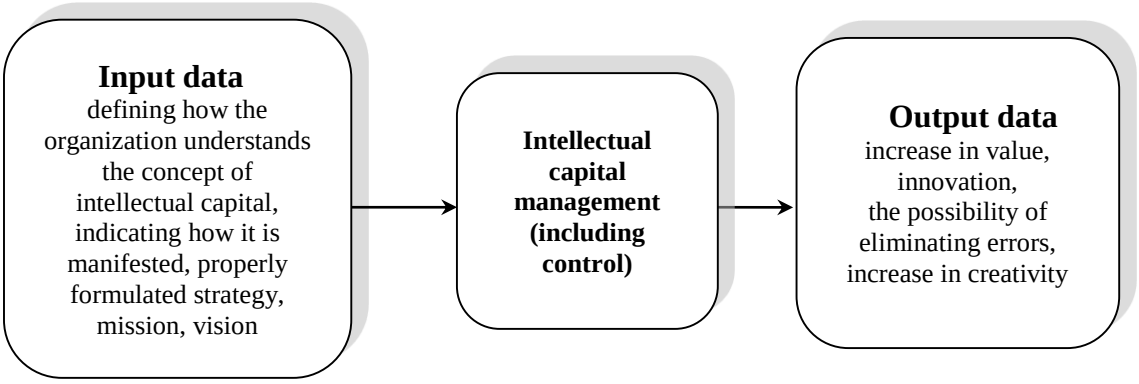

Figure 3. Intellectual capital management system - input and output data.
Source: author's elaboration.

The issue of control, audit and evaluation of intellectual capital involves defining several perspectives. The scope of control is derived from the range of valuation and management. From the perspective of usefulness, it is necessary to determine whether the intellectual capital control involves the entire company, individual departments or management levels. It is recommended that the level of control (and earlier valuation) be determined each time, individually for each organization, taking into account specificity of the company. The determinants of solutions include: size (in a small company the inspection may involve every employee), type of business, and finally the level of decision-makers' awareness.

The second key perspective is the subjective approach, i.e. presenting to stakeholders information on the state of intellectual capital in the form of a report as the final result of control. Stakeholders are interested in obtaining the information about the value of the company, development potential and results (Marcinkowska, 2005). The recipients of the information

about intellectual capital, its value and effectiveness include internal stakeholders (management staff, owners) and external stakeholders (capital providers, creditors), closer and further to the company. The post-inspection report on the state of intellectual capital is a communication channel to transfer information about the company to the outside world. Figure 4 illustrates the range of audit issues that are relevant to external and internal recipients.

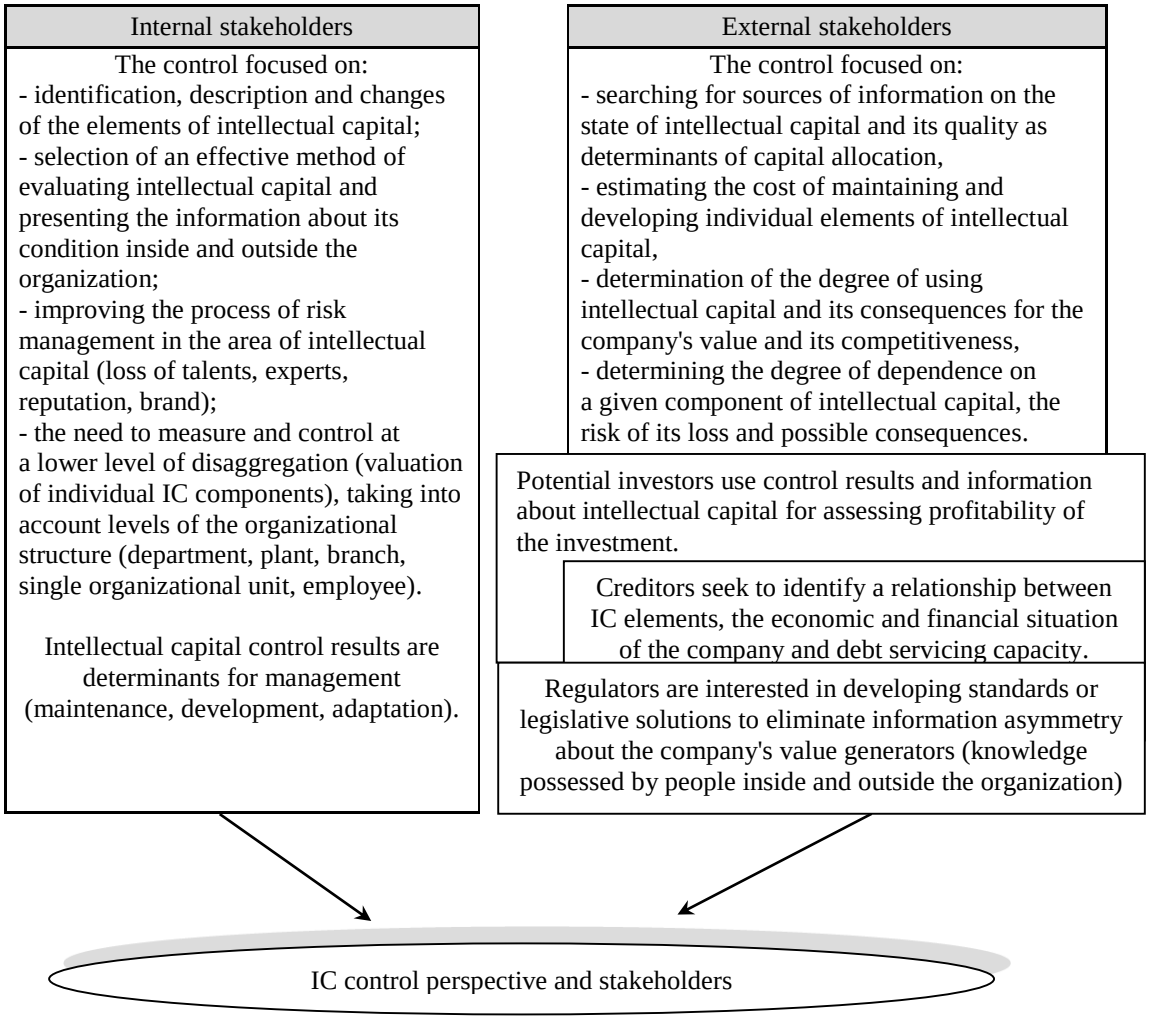

Figure 4. The planes of control and presentation of the results of intellectual capital assessment and types of stakeholders.

Source: author's elaboration based on (Cuganesan, 2006, pp. 164-188; Marcinkowska, 2005).

Regardless of the economic conditions, the main reasons for interest in the intellectual capital management (also control) include the need to provide complete and reliable information to stakeholders. However, in practice the area of reporting, which is supposed to provide such information, is rather neglected. The results of the author's analyses show that the reports on the intellectual capital status of the companies listed in the WIG-20 index are very limited. The analysis of documentation reveals that integrated reports, which are the basic tool for managing trust in relations with external stakeholders, are limited to determining in which areas the intellectual capital is manifested. There is no information about its condition or changes in value over the years. In the reports, companies usually include selected aspects of

the intellectual capital management, most often focusing on human capital. A fragmentary diagnosis of the state of intellectual capital does not favour accurate management decisions and effective control.

Standardized, cyclical and objective post-inspection information is a premise for decisions made by potential investors. In addition, quantification and monetary valuation allow for comparability and make the reports useful for decision-making purposes. The interest of internal management is somewhat different. Disclosure of key intellectual capital assets may have an undesirable effect. The recipients of the reports on the state of intellectual capital are not only potential investors, but also competitors who, in extreme cases, may act to the detriment of the company by, for example, taking over key resources (e.g. employed experts). The assumption is that intellectual resources are to contribute to gaining a competitive advantage. Therefore, it is inadvisable for information on the state of intellectual capital to be universal and rigid. For management purposes, it should be qualitative and non-monetary. This fact may affect the final shape of reports.

Measurement, evaluation and, consequently, reporting of intellectual capital should concern the same period for which the financial statement is prepared (Lev, 2001). Specific management needs may require increased frequency of reporting and control of intellectual capital. Then the information about the state of intellectual capital must be provided to decision-makers immediately. This means that the frequency of reporting should meet the expectations of internal stakeholders. The frequency of such disclosures for capital providers and potential investors is relatively lower and should be determined after cost-benefit analysis. In this context, it should be considered whether post-inspection reports should not consist of two parts - the one for external stakeholders and a separate one for decision-makers within the organization. However, this is in contradiction with the idea of integrated reporting, the purpose of which is to create a single, common report allowing to identify the sources of value creation in the company. Currently, potential users of financial statements have no possibility to demand reports tailored to their specific information needs (Turyna, 2005, p. 49).

Given the above, the following decision-making problems related to the intellectual capital control in the organization emerge:

1. What pattern of intellectual capital control/auditing should be adopted so that it is useful both for the management staff and potential investors?
2. What form should the report on the state of intellectual capital take in order to become useful for the implementation of all management objectives, including control?
3. Can the quality of information be guaranteed only if the assessment is made by external intellectual capital audit? Or, should the assessment be made by the company's departments due to the care to keep secrets about key resources?

The review of the literature does not provide unequivocal answers to these questions.

3. Methods

To achieve the aim formulated in the introduction, the systematic review of the literature was made, which focused on the part that deliberately, and not incidentally, refers to the control of intellectual capital. In other words, studies that were wholly or largely devoted to these aspects were taken into account.

Systematic review techniques are about to become the "new normal" in reviews of management research (Hiebl, 2023, p. 229).

The bibliometric analysis of the studies published by scientific centres revealed that the issue of intellectual capital control is a new area that requires research exploration. The search in the Web of Science database for the terms "intellectual capital" and "control" (in title or abstract) was limited to the English-language, open access articles in the "Management" and "Business" sections. As a result, only 41 records were obtained (Table 1).

Table 1.
Steps of a systematic literature review – database Web of Science (23.09.2024)

Steps of a systematic literature review	Number of results
1. Results for: Title or Abstract = “Intellectual capital” and “control”	492
2. Narrowing to Web of Science Categories = “Management” and “Business”	201
3. Narrowing to English language	193
4. Narrowing to Document types: Article (open access)	35

Source: author's elaboration.

Assuming the existence of scientific articles referring explicitly to the intellectual capital control, the database was also searched using the terms "audit" + "intellectual capital". Ultimately (using such a configuration of terms) the returned records did not refer to the subject in question (they contained research results combining issues such as the audit committee, the effectiveness of corporate governance), so they were not included in further analysis.

Ultimately, 35 studies dealing with the topic of intellectual capital control in various dimensions were obtained. Their analysis showed that most of the studies were proposals to expand financial reporting or they were critical analysis of the methods of quantification of intangible resources, ending with the conclusion that measurement tools are imperfect and, as a result, control activities are greatly hindered. Noteworthy is the study indicating the contribution and importance of intellectual capital monitoring to minimizing costs in public administration, but also this article does not strictly apply to the intellectual capital control (Sousa et al., 2016).

In the next step, the content analysis of the studies indicates the two research areas: result-oriented control (report) and process-oriented control (a significant deficiency can be observed in this area) (Table 2).

Table 2.
Review of selected studies on the IC control –database Web of Science

Author, year, title	Research areas
Wirasedana, I.W.P., Sudarma, M., Andayani, W., Mulawarman, A.D. (2024). The role of capital in microfinance financial performance and cultural sustainability	result-oriented control (report)
Kabuye, F., Alinda, K., Bugambiro, N., Kezaabu, S. (2021). Intellectual capital, isomorphic forces and internal controls over financial reporting in Ugandan microfinance institutions. Cogent Business & Management, 8(1), 1944960. doi:10.1080/23311975.2021.1944960	result-oriented control (report) and process-oriented control
Gavana, G., Gottardo, P., Moisello, A.M. (2021). Family control and influence on JV investment – the moderating effect of JV type and IC components.	result-oriented control (report)
Guerrero, M., Herrera, F., Urbano, D. (2021). Does policy enhance collaborative-opportunistic behaviours? Looking into the intellectual capital dynamics of subsidized industry–university partnerships.	result-oriented control
Oliveira, M., Curado, C., Balle, A.R., Kianto, A. (2020). Knowledge sharing, intellectual capital and organizational results in SMES: are they related?	result-oriented control (report)
Rabaya, A.J.R., Saleh, N.M., Hamzah, N. (2020). Intellectual Capital Performance and Firm Value: The Effect of MFRS 139	result-oriented control (report)
Tejedo-Romero, F., Araujo, J.F.F.E. (2020). The influence of corporate governance characteristics on human capital disclosure: the moderating role of managerial ownership.	result-oriented control (report) and process-oriented control
Hussinki, H., Ritala, P., Vanhala, M., Kianto, A. (2017). Intellectual capital, knowledge management practices and firm performance.	result-oriented control
Sousa, W.V.C., Ribeiro, C., Rodriguez, M.V.R.Y. (2016). The contribution of intellectual capital management to minimize the hidden costs in public administration.	result-oriented control (report)
Bontis, N., Girardi, J. (2000). Teaching knowledge management and intellectual capital lessons: an empirical examination of the Tango simulation.	process-oriented control

Source: author's elaboration.

The review of studies also shows that board composition and functioning are mechanisms of supervision, control and legitimacy that promote human capital disclosure, with managerial ownership acting as moderator for aligning interests between managers and stakeholders (Tejedo-Romero, Araujo, 2020, p. 342).

Given the above, the problems, postulates and recommendations regarding intellectual capital control activities (in the next part of the paper) are creative combinations of the few research ideas presented in the literature. Broker Technology by Brooking (1997), Intellectual Capital Statement (Bukh et al., 2001) and the knowledge management audit tool proposed by Kowalczyk and Nogalski (2007) were the theoretical framework for the issues discussed in the article. The research perspective presented by Ujwary-Gil (2017) was also used. It concerned a related topic - audit of intangible assets (a term broader than IC). Ujwary, who also points to the need for an iterative audit cycle of intangible assets, created a methodology for auditing organizational intangible assets using the approach developed by Hong, Van den Goor, Brinkkemper (1993).

4. Findings

The author's own research, to a certain extent, allowed to suggest a set of recommendations for solving decision-making problems by managers taking into account the role of intellectual capital for the success of the organization (Table 3). Bukowitz and Williams assume that management is a process through which an organization generates wealth based on intellectual capital (Bukowitz, Wiliams, 1999). When implementing the IC control, managers are forced to solve various decision-making problems. As shown in the Teable 3, it is necessary to perform risk calculation, to make decisions regarding the selection of a unit that audits intellectual capital and to identify recipients of the information on intellectual capital.

While financial information is dedicated to a fairly narrow group of specialists (financial directors, accountants, auditors, analysts, tax advisors, etc.), the information on intellectual capital is addressed to a much more diversified group of recipients, which has multifaceted consequences.

In addition, there are not enough external forces, such as legal regulations or forcing companies to measure and control intellectual capital (currently, the European Union directive imposes the obligation to report intellectual capital by selected companies). However, the measurement, management and control of intellectual capital is something illusory for the average manager, and for many companies the profit is still the priority.

Therefore, the table also presents a set of recommendations and postulates regarding decision-making problems.

Table 3.
Intellectual capital control problems and recommendations for their possible solution

Will the integrated model allow for a comprehensive diagnosis of the intellectual capital, its control and adoption of optimal solutions at the management level, or will it be necessary to control individual departments, management levels, etc.? What pattern of intellectual capital control/auditing should be adopted so that it is useful both for the management staff and potential investors?	
Problem 1 – the usefulness of control	
Control dedicated to internal stakeholders	Control dedicated to external stakeholders
Information "on demand", used for the process of decision making by the managerial staff, taking into account the context of the organization's functioning, having a quantitative and qualitative nature.	Cyclic, objective, standardized, quantitative information.
Recommendations	
It should be considered whether post-inspection reports should not consist of two parts - the one for external stakeholders and a separate one for decision-making processes within the organization. Reports for external stakeholders must be approved by the management board, while those for decision-making processes are approved by the steering committee.	
Problem 2 – the scope of diagnosis and control	
Total/holistic control	Control of individual departments
The results of this control are crucial for strategic management focused on improving the organization as a whole.	The results of this control are the basis for decisions at the operational level.

Cont. table 3.

Recommendations	
Determining the risk associated with the loss of intellectual capital requires control, ranging from a single organizational unit to the entire organization, so that the desired economic effect is possible to achieve. Prospective analysis always requires taking into account changes in the environment and planning rational protective measures (e.g. redundancies, acquiring talents). Priorities are set on a case-by-case basis based on the detailed equity value formula and the current situation. The scope of control must also take into account the legitimacy of the expenditure (time, labour, etc.).	
What form should the report on the state of intellectual capital take in order to become useful for the implementation of all management objectives, including control?	
Problem 3 – the form of report on the state of intellectual capital/scope of post-inspection information	
Universal, standardized form of IC control results presentation, mimetic.	Distinctiveness is a priority, non-standard form of the report, adapted to the specifics of the organization.
On the one hand, decision-makers strive to obtain comprehensive information to make optimal management decisions BUT Detailed post-inspection reports are laborious and costly. Too much information is as harmful as not enough. An increase in the amount of post-inspection information does not necessarily translate into the accuracy of making decisions. Competitors and independent analysts are a group particularly interested in increasing the amount of the information included in post-inspection reports.	
Can the quality of information be guaranteed only if the assessment is made by external intellectual capital audit? Or, should the assessment be made by the company's departments due to the care to keep secrets about key resources?	
Problem 4 – the scope of disclosure in control results	
Information protection and security	Transparency
Choosing an internal control unit guarantees confidentiality about key assets and involves less risk BUT the competencies of internal units do not guarantee maintaining the appropriate quality of procedures and thus obtaining reliable results	The choice of an external and independent control entity favours obtaining objective information BUT involves a greater risk of losing the intellectual capital and taking it over by competitors
Recommendations	
Cooperation with scientific research centres during the intellectual capital control may become a guarantee of confidentiality, adequate intensity and enrich management practices.	
Problem 5 – the intensity of control activities	
Low intensity of control activities	High intensity of control activities
It may result from the lack of adequate tools supporting the process of control, ignorance or reluctance to undertake control activities.	It may be too restrictive or it may be an excessive burden for employees, limiting freedom of actions and creativity, and even cause resistance.
Recommendations	
The need to adopt solutions appropriate for the specificity of the company, taking into account the dynamics of changes in the environment, which determines, for example, the intensity of control activities. The frequency and intensity of control activities should be determined after cost-benefit analysis.	
Problem 6 - priority of follow-up activities	
Emphasis on the economic effect	Emphasis on the non-economic effect
Focus on the effectiveness of intellectual capital manifested, among others, in generating profit.	Determining the best practices for using intellectual capital within the organization, creating conditions for their duplication or continuation, taking into account social and environmental effects, etc.
Recommendations	
Depending on the current trends, the emphasis (on economic and non-economic results) should be spread out so that the stock market value of the company increases.	

Source: author's elaboration.

The multidimensionality and complexity of decision-making problems is a serious management challenge, but the benefits that the control of intellectual capital resources and, consequently, their efficient management can bring, cannot be overestimated. These include:

a) increase in the value of intellectual capital and increase in the rate of return on capital invested in the company and the shareholder value. According to literature, IC is a driver of better business performance (Campos et al., 2022; Dumay, Garanina, 2013),
b) making conscious and well-thought-out decisions regarding development of the IC and identifying the most valuable IC components and providing them with the best protection, e.g. green intellectual capital (Sheikh, 2022; Asiaei et al., 2022; Bombiak, 2022).

5. Summary

The research results allowed the author to formulate the general conclusions. First of all, the intellectual capital control is an indispensable element of the effective company management. Its proper implementation and reconciliation of contradictions can increase the efficiency of the entire organization.

The review of the literature indicates that studies dealing with the result-oriented control (report) are numerous, while those focused on process-oriented control and decision-making problems are rare. Extending the intellectual capital by this aspect of control is important from a practical implementation.

The article presents fundamental contemporary challenges related to the development and exploitation of the idea of intellectual capital control. Interesting managerial problems and dilemmas emerge when the concepts of intellectual capital management are compared with the general issues of organization management. In the classic approach, management is treated as a logical sequence of the following functions: planning, organizing, motivating and controlling. They are to prepare, evaluate and improve decision-making processes and methods of implementing managerial choices. However, many reservations have been expressed against this simplification. Nevertheless, this approach is used for research and presentations aimed at transparently reaching the essence of managerial decisions, as indicated by Bieniok (2011) and Kostera (2014). The new approach to management and the results of own research revealed specific decision-making issues that need to be addressed in every organization aware of the opportunities created by the intellectual capital.

Recognizing the need for diagnosis and control of IC may be a premise for initiatives and changes in non-financial reporting by companies. Specific postulates can help decision-makers notice critical factors in the area of IC planning and control. However, the proposed list of decision-making problems is not complete; further diagnosis will help better adapt management solutions in the future.

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