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METHODS FOR MANAGING INTANGIBLE ASSETS AND ECOMMERCE RESOURCES: SYSTEMATIC REVIEW

MÉTODOS DE GESTÃO DE ACTIVOS INTANGÍVEIS E RECURSOS DO COMÉRCIO ELECTRÓNICO: REVISÃO SISTEMÁTICA

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ABSTRACT

Objective: The study aims at classifying and supplementing general and special methods for managing intangible assets and eCommerce resources. The present stage of management science is characterized by an insufficient number and incomplete nature of the existing studies on the structure of methods for managing intangible assets and eCommerce resources, which is mainly due to the relative novelty of the Internet environment and its management. The challenge of solving this issue is the intangibility of the management object under study (intangible assets and resources) and the intangibility of the management environment (Internet environment), which makes management in such conditions more difficult.

Methods: When preparing this article, we used qualitative research methods, including grouping sets of homogeneous management methods, systematizing such methods according to homogeneous features, comparing different methods with each other, and generalizing the obtained groups of methods to draw conclusions and recommendations. When grouping methods for managing intangible assets and eCommerce resources, we took the classification according to a functional attribute as the basis.

REVISTA RELAÇÕES INTERNACIONAIS DO MUNDO ATUAL

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Results: As a result of the study, the authors have revealed that the management of intangible assets and eCommerce resources requires the full range of general management methods (planning, organizational, evaluation, accounting, analytical, motivational, control, and coordination methods), special methods for managing intangible assets and resources (identification, visualization, and security methods), as well as specific methods for managing intangible assets and resources in the Internet environment (online methods).

Conclusion: Based on the study results, it has been concluded that online management methods are most actively developing in the modern market, and in the near future the importance of these methods will increase. The novelty of the study is to determine the presence and composition of previously unexplored groups of management methods applied to intangible assets and eCommerce resources.

Keywords: Intellectual resources; Intellectual property; Intellectual capital; Values-based approach.

RESUMO

Objectivo: O estudo visa classificar e complementar métodos gerais e especiais de gestão de activos intangíveis e recursos do comércio electrónico. A actual fase da ciência de gestão caracteriza-se por um número insuficiente e pela natureza incompleta dos estudos existentes sobre a estrutura dos métodos de gestão dos activos intangíveis e dos recursos do comércio electrónico, o que se deve principalmente à relativa novidade do ambiente da Internet e da sua gestão. O desafio de resolver esta questão é a intangibilidade do objecto de gestão em estudo (activos intangíveis e recursos) e a intangibilidade do ambiente de gestão (ambiente Internet), o que torna a gestão em tais condições mais difícil.

Os métodos: Ao preparar este artigo, utilizámos métodos de investigação qualitativa, incluindo agrupar conjuntos de métodos de gestão homogéneos, sistematizar tais métodos de acordo com características homogéneas, comparar diferentes métodos entre si, e generalizar os grupos de métodos obtidos para tirar conclusões e recomendações. Ao agrupar métodos de gestão de activos intangíveis e recursos de comércio electrónico, tomámos como base a classificação de acordo com um atributo funcional.

Resultados: Como resultado do estudo, os autores revelaram que a gestão dos activos intangíveis e dos recursos do comércio electrónico requer a gama completa de métodos de gestão geral (métodos de planeamento, organização, avaliação, contabilidade, analíticos, motivacionais, de controlo e coordenação), métodos especiais de gestão dos activos intangíveis e dos recursos (métodos de identificação, visualização e segurança), bem como métodos específicos de gestão dos activos intangíveis e dos recursos no ambiente da Internet (métodos on-line).

Conclusão: Com base nos resultados do estudo, concluiu-se que os métodos de gestão em linha estão a desenvolver-se mais activamente no mercado moderno, e num futuro próximo a importância destes métodos irá aumentar. A novidade do estudo é determinar a presença e composição de grupos anteriormente inexplorados de métodos de gestão aplicados a bens intangíveis e recursos do comércio electrónico.

REVISTA RELAÇÕES INTERNACIONAIS DO MUNDO ATUAL

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Palavras-chave: Recursos intelectuais; Propriedade intelectual; Capital intelectual; Abordagem baseada em valores.

1 INTRODUCTION

The management of intangible assets and resources is a fundamental condition for growing the financial performance of an enterprise. Currently, many scholars prove a direct relationship between improving the performance of an organization and the better management of intangible assets and resources (Matos et al., 2016). At the same time, the direct impact of the subject on the control object is carried out using a certain set of control methods, so their scientific justification is an important research task.

The analysis of corporate management methods began with the advent of management science and now general management methods are quite well studied.

However, when managing various types of resources, it is necessary to apply special management methods that acquire additional features if used in relation to various types of management objects or applied in various fields of activity. So far, specific management methods have not been sufficiently studied. This refers to methods for managing intangible assets and resources of any industry, as well as methods for managing intangible assets and eCommerce resources. The main reason there are few works concerned with methods for managing intangible assets and eCommerce resources are as follows:

1) Major differences between separate control methods associated with possible ways of influencing the control object. This forms classifications and groupings of management methods that differ among different authors, which makes it difficult to further develop methods on a unified basis;

2) A significant unidentifiable part within intangible assets and resources. This situation creates difficulties in developing management methods for unidentified resources;

3) The relative novelty of online trading. As a result, methods for managing intangible assets and eCommerce resources are still under development.To fully study

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methods for managing intangible assets and eCommerce resources, it is necessary to define the concept of this term since the focus and content of the study will depend on this.

Considering various definitions of the concept (Bekh, 2014; Kendyukhov, 2008), methods for managing intangible assets and eCommerce resources are understood as the methods of influencing intangible assets and resources used in all spheres and channels of online activity to help an enterprise achieve its goal.

The overall goal of managing intangible assets and resources corresponds to the purpose of the organization's activities since intangible assets and resources are an integral part of the overall resource potential and are formed to ensure such activities (Lentjušenkova & Lapiņa, 2020). Intangible assets and resources are one of the means to achieve the goal of the organization's activities.

In modern scientific research, methods for managing intangible assets and resources are most often studied as methods for evaluating these resources and assets (Kiselitsa & Stroikin, 2013; Sirazetdinov & Ustinova, 2015). This one-sided approach is largely related to the content of official legal documents regulating intangible assets, including the international standard for the valuation of intangible assets (International Valuation Standards Council, 2016). The specified international standard provides approaches and methods for determining the value of intangible assets. The existing approaches include comparative, cost- and income-related, each of which might use certain valuation methods.

In general, it is difficult to agree with a narrow understanding of methods for managing intangible assets and resources only on the basis of their assessment. Therefore, we studied other scientific works which followed a broader approach to determining the structure of methods for managing intangible assets and resources.

Let us consider available approaches to determining methods for managing intangible assets and resources and form the most complete set of possible methods for each classification.

Most scientific works classify control methods according to the mechanism of influence on the control object. Such groupings correspond to the general classification of

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management methods if such a classification is applied to intangible assets and resources.

Based on the mechanism of influence, scholars highlight the following groups of methods for managing intangible assets and resources:

- Administrative (Bekh, 2014; Ermishina & Makurina, 2020; Kendyukhov, 2008);
- Economic (Bekh, 2014; Ermishina & Makurina, 2020; Kendyukhov, 2008);
- Social-psychological (Bekh, 2014; Ermishina & Makurina, 2020; Kendyukhov, 2008);
- Legal (Bekh, 2014; Kendyukhov, 2008).

Administrative management methods represent the impact on intangible assets and resources based on the adoption of operational decisions by employees of the management apparatus, the established order of business processes, and requirements of the organization's local regulatory documents. These methods for managing intangible assets and resources generally control such resources and assets through the distribution of powers, responsibilities, and functions of managerial employees, as well as by establishing the necessary organizational relationships of personnel. Administrative methods include the definition of goals, objectives, functions, and structure of intangible assets and resources management bodies; the development and approval of standard indicators; the adoption of local regulations; instruction; the selection and appointment of management personnel; the development of job descriptions; the approval of methods and rules; the establishment of administrative sanctions and incentives; the adoption of other regulatory documents.

Economic management methods represent the impact on intangible assets and resources by providing economic benefits to various parties to activities. Economic methods of managing intangible assets and resources ensure the use and reproduction of these resources and assets. Economic methods comprise investing in intangible assets and resources; asset pricing; material incentives for the work of subjects managing intangible assets; expenses for promoting these resources and assets, etc.

REVISTA RELAÇÕES INTERNACIONAIS DO MUNDO ATUAL

unicuritiba

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Socio-psychological management methods represent the impact on intangible assets and resources by satisfying the non-economic interests of various parties to activities. Socio-psychological methods for managing intangible assets and resources ensure the formation of a benevolent attitude towards these types of funds on the part of various parties to trading activities. They include the following methods: the formation of corporate values and behavioral patterns of employees; the creation of corporate culture; building the organization's image and its resources; public relations for a favorable attitude towards the organization; a psychological impact on clients, etc. Legal management methods represent the impact on intangible assets and resources through established state norms that are mandatory for business entities. Legal methods for managing intangible assets and resources provide for the use of laws and other regulatory legal acts to establish and protect rights to these resources and assets. Legal methods have the following structure: the protection of intellectual property rights; the regulation of relationships between subjects of management; protection from unfair competition, etc.

In addition to classifications, there is another approach to their division based on management functions. According to this approach, methods for managing intangible assets and resources are formed separately for each stage (function) of management. Various scholars emphasize the following groups of methods:

- Identification methods for defining features of intangible assets and resources (Batsina et al., 2018; Mahardhika et al., 2019). Such methods include documentation, rights registration, etc.;
- Planning methods for developing tasks for the formation and use of intangible assets and resources (Krasnova & Kravets, 2019; Mahardhika et al., 2019; Paramonova, 2016; Taranenko et al., 2021). Their possible structure includes a "tree of goals", business planning, investment design, economic and mathematical modeling, etc.
- Administrative methods for building an infrastructure of managing intangible assets and resources, as well as conditions and procedures of activity (Krasnova &

unicuritiba
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ISSN: **2316-2880**

Kravets, 2019; Taranenko et al., 2021). The range of possible methods includes the organizational structure of management, the classification of management functions, etc.;

● Evaluation (measuring) methods for calculating the cost of intangible assets and resources (Kiselitsa & Stroikin, 2013; Mahardhika et al., 2019; Osinski et al., 2017; Paramonova, 2016; Shakina et al., 2021; Sirazetdinov & Ustinova, 2015; Sveiby, 2001). Such methods often comprise comparative, cost- and income-related (including methods of saving on royalties, advantages in profits, and excess income) according to IVS 210: Intangible Assets (International Valuation Standards Council, 2016);

● Accounting methods for representing the number and cost of intangible assets and resources in accounting and tax accounting (Shumilin et al., 2021). These methods include documentation, double entry, inventory, etc.;

● Analytical methods for identifying the state, dynamics, and effective use of intangible assets and resources. Possible methods are as follows: the determination of Tobin's coefficient, payback period, etc. (Bilorus et al., 2018; Campisi & Costa, 2008; Mahardhika et al., 2019; Shakina et al., 2021; Van Hoa et al., 2018);

● Motivational methods for influencing employees in order to the effective formation and use of intangible assets and resources (Krasnova & Kravets, 2019). These methods comprise wages, bonuses, non-material incentives, etc.;

● Controlling methods for identifying the correspondence between the set of goals and the results of managing intangible assets and resources (Mahardhika et al., 2019; Paramonova, 2016; Taranenko et al., 2021). These methods include internal and external audit, budget control, etc.;

● Coordinating methods for ensuring consistency in the management of intangible assets and resources (Krasnova & Kravets, 2019; Paramonova, 2016; Taranenko et al., 2021). These methods are not sufficiently studied in the relevant literature but are represented by expert conclusions;

● Protective methods for ensuring the safety of intangible assets and resources, and preventing their complete or partial loss due to the actions of various entities inside or outside the organization (Peskova et al., 2019).

unicuritiba
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Thus, the study of available publications on methods for managing intangible assets and resources has shown that some scholars do not provide a complete set of possible methods. The classifications and groupings of methods are different for different authors, and in all cases, the lists are not exhaustive. In addition, an overview of studies has shown that the existing works do not define the specific structure of methods for managing intangible assets and eCommerce resources. This confirms the relevance and determines the further direction and content of this research.

2 MATERIALS AND METHODS

The study aims at classifying and developing groups of methods used to manage intangible assets and eCommerce resources.

To achieve this goal, we have solved the following tasks:

1) To determine the features of intangible assets and eCommerce resources that form specific methods for managing these assets and resources in online activities;
2) To form an up-to-date classification and the most complete groups of methods for managing intangible assets and eCommerce resources, including those common to all resources, specific to intangible assets and resources, and specific to intangible assets and eCommerce resources.

To conduct the study, we considered publications on the research topic contained in the Scopus and RSCI databases.

The information obtained was processed using various research methods. Qualitative methods were used, including grouping, systematization, comparison, and generalization.

The grouping method was used to form sets of homogeneous methods for managing intangible assets and resources allocated according to certain classification criteria.

unicuritiba
Submetido em: 30/01/23
Aprovado em: 14/02/2023
Avaliação: *Double Blind Review*e-
ISSN: **2316-2880**

The systematization method was used to combine the results of disparate studies on methods for managing intangible assets and resources and to form the most complete structure of these methods based on a number of classification features.

The comparison method was used to compare general management methods that are applicable not only to intangible assets and resources or to the field of Internet sales with methods that can be used in relation to intangible assets and eCommerce resources.

The generalization method was used to draw conclusions and recommendations for the further development of methods for managing intangible assets and eCommerce resources.

In general, the use of various research methods allows us to achieve the goal of this research and draw certain conclusions.

3 RESULTS

As indicated in the introduction of this article, some authors have studied and described general and special methods for managing the intangible assets and resources of traditional enterprises to a greater or lesser extent. However, there are practically no works that study a set of specific methods for managing intangible assets and eCommerce resources operating in a virtual sphere of activity.

To substantiate the structure of specific methods for managing intangible assets and eCommerce resources, the classification of methods according to management functions was taken as a basis since this classification allowed to determine specific methods for managing intangible assets and resources at the stage of literature overview in the introduction of this article. In the field of Internet activities, specific methods for managing intangible assets and resources are also developing, which is typical only in this area.

We have identified the features of intangible assets and eCommerce resources that affect the structure and development of methods for managing these assets and resources. In particular, such features are as follows:

REVISTA RELAÇÕES INTERNACIONAIS DO MUNDO ATUAL

unicuritiba

Submetido em: 30/01/23
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1) Certain types of intangible assets and resources of an e-company correspond to their structure in traditional trade but there are also intangible assets and resources that exist only on the Internet. Those intangible assets and resources that have the same structure in both traditional and virtual areas of activity have identical qualitative features and the same management methods can be applied to them. Special intangible assets and resources of an e-company require the use of special management methods;

2) The total number of intangible assets and resources of an e-company is made up of technologies, which is explained by the replacement of business processes used in traditional trade with the participation of material and labor resources by Internet sales technologies. Accordingly, management methods on the Internet are mainly represented by electronic management technologies;

3) The share of intangible assets and resources of an e-company in its total available resources is more significant than in traditional trade, which is associated with the intangibility of an e-company and the minimization of its material and labor resources. This structure of resources makes the management of intangible assets and resources more significant since it is the main type of their resources;

4) The share of unidentifiable intangible resources of an e-company is lower than in traditional trade, which is a consequence of the dominance of intangible assets in the property of an e-company. Without formalization, this leads to a lack of property. This structure of resources also confirms the higher importance of intangible assets and resources for an e-company;

5) When managing intangible assets and resources of an e-company, certain challenges arise that are untypical of traditional trade, associated with an excessive amount of incoming information (Zeebaree et al., 2020), indirect contact between the subject and object of management, the lack of necessary technologies to provide service of high quality if compared to traditional service, etc. To solve specific management problems in the Internet field of activity, special management methods are required.

REVISTA RELAÇÕES INTERNACIONAIS DO MUNDO ATUAL

unicuritiba

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Within the framework of this study, we have identified groups of methods for managing intangible assets and resources with due regard to the features of such resources and the Internet environment of activity (Figure 1).

Methods for managing intangible assets and resources		
Common for all types of resources	Specific for intangible assets and resources (intangible management objects)	Specific for eCommerce (Internet environment)
- Planning	- Identification	- Online
- Administrative	- Visualization	
- Evaluation	- Protective	
- Accounting		
- Analytical		
- Motivational		
- Controlling		
- Coordinating		

Figure 1. General and special methods for managing intangible assets and eCommerce resources Source: compiled by the authors,

Let us describe specific methods for managing intangible assets and resources, including eCommerce resources, which are highlighted in this study.

We determined that special visualization management methods are used in relation to all intangible assets and resources. These are methods for forming the distinctive features of intangible assets and resources perceived with the help of the human sense organs. Visualization methods include documentation, photo, video, and audio accompaniment, and other methods and means of materializing the accompanying features of intangible assets. The need to use visualization management methods is due to the fact that in the absence of material manifestations of intangible assets and resources their existence and value are not properly perceived by various stakeholders. As a result, the full-fledged use and efficiency of these assets and resources decrease. For example, if an entity does not have a commercial designation its visibility in the market is deteriorating and the potential value of goodwill is reduced. Another example is that if there is no indication of copyright (a copyright mark) on an intangible asset, there is an increase in infringement of that right.

We identified that special online methods for managing intangible assets and resources are used in the virtual field of activity. These are digital (electronic) methods for managing assets and resources on the Internet. Online management methods include,

REVISTA RELAÇÕES INTERNACIONAIS DO MUNDO ATUAL

unicuritiba

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first of all, methods based on the Internet of Things (methods for exchanging information between inanimate objects), as well as methods based on artificial intelligence (methods for making decisions by computer programs based on imitation of the human brain). The emergence of online management methods became possible due to the creation of digital management technologies and the formation of a virtual environment for activities. In addition, the reason for the development of online management methods was the lack of functionality of general management methods when applied on the Internet. The key advantages that the Internet environment of activity has formed for management include constant communication between counterparties, instant transfer of information, fixation of all data, lack of binding to a specific physical location of the subject and object of management, the possibility of multi-channel transactions, etc.

The Russian statistics confirm the main role of trade in the formation of digital management methods (Table 1) which are developing primarily in the electronic environment as online methods.

Table 1. The share of enterprises using digital technologies, % of their total number

Branch of activity	Cloud-based services	Big Data	Digital platforms	Geo-information systems	Internet of Things	RFID technologies	Artificial intelligence	Robotics
Retail and wholesale	38.3	25.9	30.3	13.8	24.4	22.3	13.0	12.0
Branches in total	25.7	22.4	17.2	13.0	13.0	10.8	5.4	4.3
Ratio of the trade indicator to the indicator of all industries, coefficient	1.48	1.16	1.76	1.06	1.88	2.06	2.41	2.79

Source: the Russian statistics (Gokhberg et al., 2022).

Table 1 demonstrates that the share of trade enterprises using all types of digital technologies is higher than the total economic indicators. At the same time, the highest indicators are shown by robotics, artificial intelligence, RFID technologies, and the Internet of Things. Thus, trade is one of the main industries using digital management

unicuritiba
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methods, which reflects good prospects for the subsequent development of these methods, including on the Internet as part of online methods.

In general, online management methods have formed a new stage in the development of management, and we expect the most active increase in this particular group in the future.

3 DISCUSSION

The methods of managing intangible assets and resources justified in this study and used in eCommerce were critically analyzed in terms of their novelty and belonging to an independent group of methods.

The research of publications on the topic under consideration has shown that most scholars studying management methods consider their limited number, including planning, organization, motivation, control, and coordination. This corresponds to the initial classification of management functions developed by H. Fayol (1949) as part of five functions.

However, modern scholars specializing in corporate management try to divide the entire set of management methods into multiple groups. In addition to general methods for managing the above-mentioned resources, they also include goal setting, regulation, management, communication, development, and adoption of managerial decisions, and forecasting methods (Kharitonovich, 2019). Some other works overspecify control methods.

We believe that many general management methods are unreasonably singled out as independent groups and duplicate the existing groups of methods.

Thus, goal formation methods are an integral part of planning methods since the main objective of any commercial activity is already determined (profit). Private goals are formed at the planning stage using planning methods. To single out goal formation methods as a separate group, the ongoing work is not enough.

Regulation methods aim at the development of corrective measures to eliminate identified deviations from the plans in the management results. However, the regulation

unicuritiba
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ISSN: **2316-2880**

does not exist by itself, it is applied to other management methods to adjust them. Moreover, regulation can be used in relation to planning, organization, motivation, control, etc. In other words, regulation methods cannot be considered an independent group of methods, they are used as part of other groups of methods.

Administrative methods are part of management methods since they consist in the issuance of local regulations, which is part of management. Therefore, there are no grounds for singling methods represented by the narrow function of issuing legal documents out of management methods.

Communication methods cannot be recognized as an independent group of management methods since communications are used in all other management methods and communications themselves are not a separate type of management.

Methods for developing and making management decisions also duplicate the methods already included in other groups. Since management decisions do not exist on their own, they provide certain management functions: planning, organization, motivation, etc.

Forecasting methods also cannot be regarded as an independent group of management methods as they do not have their own value for management: they either serve as the basis for planning or are used as a basis for comparison when analyzing management results.

It is worth mentioning that general management methods are sufficiently studied and fully applied in relation to traditional enterprises and material resources. However, non- material means of production and non-material areas of activity have appeared and are actively developing in the modern market, therefore many varieties of traditional management methods become inapplicable or their use is limited due to the specifics of the management object and management environment. At the same time, new management methods are being created that are typical of the non-material sphere.

The validity of creating an independent group of online methods for managing intangible assets and resources is due to the fact that these methods cannot be used in the traditional physical environment for carrying out activities since the impact of the subject on the control object is indirect (through electronic means of communication) and

unicuritiba
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a continuous exchange of information is necessary through the Internet in the process of management.

Inside online management methods, there are those that can be attributed to general groups of methods since they perform planning, organization, control, and other general management functions. For example, ERP (representing planning methods), SRM (representing coordination methods), CRM (representing motivational methods), and other systems and technologies fulfill general management functions on the Internet.

As part of online management methods, there are special ones that are used only on the Internet. For example, artificial intelligence technologies in the form of voice assistants (representing organizational methods), IoT in the form of blockchain technologies (representing accounting methods), and many other examples are management methods that are specific to Internet-related activity.

It is noteworthy that the group of online methods is limited by a constant Internet connection and virtual environment for control. They are not applicable to traditional enterprises without the use of the Internet. In this regard, the group of online management methods is separated into an independent group.

5 CONCLUSION

The research we conducted allowed us to obtain the following results.

To manage intangible assets and eCommerce resources, a broader range of methods are used than to control other types of resources in traditional physical activities.

In relation to intangible assets and eCommerce resources, the general management methods used for all resources are primarily applied. Within the framework of this study, several general management methods were formed based on the classification of methods by their management functions. The structure of general methods for managing intangible assets and eCommerce resources was made by planning, administrative, evaluation, accounting, analytical, motivational, controlling, and coordinating groups of methods. As part of these general methods, some groups were identified at the beginning of the science of management methods, including planning,

unicuritiba
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Aprovado em: 14/02/2023
Avaliação: *Double Blind Reviewe*-
ISSN: **2316-2880**

administrative, motivational, controlling, and coordinating. The rest of the general methods, such as evaluation, accounting, and analytical, should be singled out into independent groups as is also proposed in other scientific papers since those fulfill independent management functions and have faced great development.

Evaluation management methods are substantiated not only in a large number of works of modern scholars but are also enshrined in the international regulatory document IVS 210: Intangible Assets (International Valuation Standards Council, 2016). Accounting management methods stand out as a separate group due to the opportunity for modern organizations to use various ways of reflecting intangible assets and resources as part of their property within the framework of different policies, including accounting and tax. Analytical management methods are a separate group in connection with the dynamic development of methods and analysis tools in recent years.

In addition to general management methods, special methods are also used in relation to intangible assets and resources (which is possible only in relation to these resources), and these methods include identification, visualization, and protective. Some of such methods are analyzed by modern authors, including identification and protective. However, we became the first to define visualization methods as an independent group of methods.

The need to put identification management methods into an independent group is due to the fact that many intangible resources are not explicit and, as a result, are not identified (not included in the list of assets). Therefore, it is necessary to recognize these resources and their properties that are significant for activities. This approach is impossible in relation to any other resources that have a full or limited set of external features and make the resources clearly identifiable.

Protective management methods are singled out as an independent group due to the fact that non-material resources require additional means of protection against loss and reduction in their value, as well as state protective means cannot fully preserve property rights to implicit and often unidentified objects.

Visualization methods for managing intangible assets and resources are defined as an independent group of methods due to the fact that in order to perceive the value of intangible assets and resources, the stakeholders of an organization should clearly

unicuritiba
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Aprovado em: 14/02/2023
Avaliação: *Double Blind Review*e-
ISSN: **2316-2880**

understand the main characteristics of these assets and resources, otherwise the use of intangible assets and their effectiveness will decrease. Visualization requires the use of various methods and means of providing accompanying material features for intangible assets that will be perceived by the sense organs.

In addition to general and special methods for managing intangible assets and resources, we identified a group of specific management methods on the Internet, which we called online management methods. Online management methods are singled out as an independent group in connection with the development of online activity and electronic management technologies. Online management methods include, first of all, management methods based on artificial intelligence and the Internet of things.

The practical significance of this study lies in the most complete classification of methods for managing intangible assets and resources on a functional basis, including previously unknown groups of methods.

Further research on the topic should dwell on the essence of methods for managing intangible assets and resources, including on the Internet. First of all, it is necessary to determine the structure of identification, visualization, protective, and online methods for managing intangible assets and resources, which are still under development.

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