

Definition the Determinants of Influence on the Engineering Sector and the System of its Legal Regulation



Myroslav Kryshchanovych^{1*}, Elzara Topalova², Ilmira Tokhtarova², Natalija Pirozhenko³, Oksana Pronina²

¹ Department of Pedagogy and Innovative Education, Lviv Polytechnic National University, Lviv 79059, Ukraine

² Department Public Administration and Local Self-Government, Kherson National Technical University, Kherson 39000, Ukraine

³ Department of Public Administration and Regional Studies of Odessa Polytechnic National University, Odessa 49000, Ukraine

Corresponding Author Email: kryshchanovych.lpnu@gmail.com

<https://doi.org/10.18280/ijssse.120605>

ABSTRACT

Received: 23 October 2022

Accepted: 8 November 2022

Keywords:

engineering sector, regional authorities, vector diagram, engineering security, legal regulation

The main purpose of the article is definition the determinants of influence on the engineering sector and the system of its legal regulation for the reform of local regional authorities. The research methodology includes the use a vector diagram that clearly shows the influence of internal and external determinants on the engineering sector and the system of its legal regulation. Taking into account the fact that the authors of this study have been working and conducting scientific research in the field of regional management of the engineering sector for more than 5 years, we have systematized and identified the main determinants of the impact on the system of functioning of the legal link of engineering enterprises. As a result of using the modeling methodology through vector diagrams, which allows vector and graphic representation of the diagram of the influence of a certain process and phenomena, we have created a model of the influence of the determinants of influence on the engineering sector and the system of its legal regulation for the reform of local regional authorities. The study has its limitations, since the used modeling methodology through vector diagrams and the created model can currently be used in the realities of the countries of Central and Eastern Europe. In further research, the authors plan to adapt this model to the realities of other countries in Europe and the world.

1. INTRODUCTION

The modern economy and its various areas today need an integrated approach to the implementation of production and economic activities. It is not enough for an enterprise to purchase a production line, an information system, or other equipment.

Advanced technologies created by engineers should be immediately introduced into the production of efficient and reliable machines, devices, and technological lines. The high rating of mechanical engineering is due to its dependence on the sectoral and territorial structure of the industry on it. Mechanical engineering supplies all sectors of the economy with machines, equipment, and tools, and is engaged in the production of a variety of technical, household appliances, consumer goods, pre-selection, etc.

Another important feature of engineering activities in economically developed countries is the implementation by engineering companies as a general contractor for the modernization and construction of new production facilities. They determine what production areas should be, for what capacities, what the technological content of new workshops should be, etc. The main task of such companies is to create a product (section, workshop, plant, etc.) that will produce products with the expected parameters (cost, efficiency, quality, energy saving, environmental friendliness, flexibility,

etc.).

The activities of engineering enterprises in economically developed countries are based on a clearly regulated legal field, which makes it impossible or significantly reduces the possibility of legal conflicts.

In the conditions of market relations, an extremely important function of regional management on the part of the state of the engineering sphere remains, which consists in:

- 1) organization and implementation of strategic planning;
- 2) development and implementation of state regional policy measures;
- 3) methodological support of regional administration and local self-government;
- 4) development of interregional cooperation, exchange, etc.

In turn, the effectiveness of regional management requires streamlining and deepening the legal framework, and improving the administrative-territorial structure of the engineering sector.

Regional governments and their influence on the legal aspects of the activity of engineering enterprises are an important factor in the development of this sector in the region. In the event that local governments and engineering enterprises do not have organic interaction, a number of problems arise that may cover part or all of the activities of engineering enterprises:

- low level of use of opportunities of local tax instruments

by local governments;

- lack of a strategy and plan for the development of the business environment of the community, primarily in small towns, rural and settlement settlements;

- low level of training and lack of experience of representatives of local governments in the implementation of projects to attract and support enterprises on the territory of the company;

- a factor of the economic crisis in the country and an unstable socio-economic and political situation;

- the low economic activity of the population of rural and settlement territorial communities, as well as communities of small towns, lack of skills and experience in doing business, and lack of sufficient own financial resources;

- the difficulty of access to credit resources, their high price;

- lack of programs to attract funds from labor migrants to the development of small enterprises in the territory of society;

- non-use of financial resources of international and state technical assistance.

In this regard, an important goal for our study is to identify the main determinants of influence on the engineering sector and the system of its legal regulation for the reform of local regional authorities.

One of the key ideas is the use of modern vector diagram methodology to solve the problem of determining the determinants of the impact on the engineering sector and the system of its legal regulation. A significant number of scientists note that the determinants of influence on the engineering sector and the system of its legal regulation are dynamic, as they are transformed in accordance with changes in the external environment. The empirical basis of research is the aforementioned methodology, which has repeatedly proven its effectiveness and ease of understanding [1, 2, 3, 4]. Thus, our idea to apply this methodology has already been proven to be effective in other studies.

The innovation of our study lies in the fact that, with the help of vector diagrams, we were able to systematize and algorithmize the complex and often multi-vector process of legal support for the development of the engineering sector in the context of reforming local governments.

2. LITERATURE REVIEW

The interpretation of the concept of "engineering" according to the position of Rachmi et al. [5, 6], who defines engineering as a type of innovative activity. In this aspect, it should be noted that engineering is not always associated with innovations and innovative activities.

The problems of legal regulation of the engineering industry, both on the part of the central regulator and on the part of local governments, are a topical issue, given that the engineering industry has been and remains the key to the national economy and a condition for the prosperity of the region. Thus, scientists determine [7] that the successful implementation of legal regulation of the engineering industry creates a breeding ground for its development, reduces the level of crime in this area, and also stimulates the development of the region in which it operates. However, defining these key postulates, scientists [8, 9] also agree that this process is complex and inefficient due to the lack of proper information about the real and current needs of the

engineering sector, as well as a lack of understanding of the key factors in the functioning and development of this industry.

According to Matsuura [10] and Kryshchanovych et al. [11] the problem of forming a mechanism for regulating the activities of engineering enterprises by regional authorities is based on the need to apply an integrated approach to solving problems of development and effective use of production and export potential. A significant number of measures taken by regional authorities in accordance with the old model indicates their inconsistency and inconsistency, as well as the regressive influence of many levers and regulatory instruments on both foreign economic and general economic activities of the engineering complex [12, 13]. Given this, a particularly important issue is the reform of regional authorities, as well as its consequences.

In order to form a comprehensive, purposeful, and effective mechanism for regulating the activities of engineering enterprises by regional authorities, it is necessary to determine its essence, purpose, goals, and determinants of its functioning, the main components, and the nature of their influence on this activity, the foundations for the formation of new or improvement of existing components a regulatory mechanism based on methods, levers and instruments of influence of regional authorities [14, 15].

Considering that the engineering sector has been and remains to this day the leading sector of the economy in terms of exports and imports, the issue of its innovative and investment development, as well as the improvement of legal regulation is a particularly relevant topic today. Thus, a number of authors in their works formed models for the development of certain parts of the engineering sector in the context of optimizing financial and state control [16, 17].

In this context, some groups of authors believe that it is the regional authorities that play a key role in the development of the engineering sector, their qualitative and quantitative updating of the paradigm of their functioning, organization of monitoring, and stimulation of their development. These authors in their own works formed the prerequisites for the creation of new methods of cooperation and management [18, 19].

But all studies of the legal and social aspects of the regulation of the activities of engineering enterprises by regional authorities are poorly structured and chaotic. This fact represents a real obstacle in the development of engineering enterprises and the formation of sustainable communication between the private and public sectors. Given this, the topical issue today is the definition of the determinants of influence on the engineering sector and the system of its legal regulation for the reform of local regional authorities.

3. METHODOLOGY

The structure of our methodology includes the following theoretical research methods: theoretical method of data analysis, generalization, and systematization of auxiliary materials. These methods made it possible to form the basis for using the main research model: the methodology of functional demonstrative modeling.

The basic structure of the methodology we have chosen includes the following research methods: a theoretical analysis of specialized scientific and methodological

literature that relates to the activities of the engineering sector, in particular its legal aspects, as well as subsequent generalizations and structuring of the information received. The main element of our methodology is the modeling through vector diagrams.

The reason for choosing this model is the fact that it gives a practical and theoretical opportunity to demonstrate the processes and stages of a certain phenomenon in the most understandable graphical form.

Methodology of modeling through vector diagrams is a model design language that includes both the modeling language itself and the methodology for building and interpreting models.

One of the most important features of the methodology of modeling through vector diagrams is the gradual introduction of more and more detailed representations of the system model as individual diagrams are developed.

The model should be read from left to right, top to bottom. That is, first we read the name of the function, then what is included in it, what is entered, and what is output. And so step by step each model. Then, if we want to understand what we need for this function to work, we look at the arrows that go from bottom to top. These are the mechanisms that are needed: software, employees, and so on.

Thus, taking into account all the advantages of this model, in our opinion, it will be able to fully demonstrate the process of determining the external and internal determinants of influence on the engineering sector and the system of its legal regulation for the reform of local regional authorities.

The first step in the process of building a system of vector diagrams will be the definition of the primary goals of our model in accordance with the goal of the study - is the

definition of the determinants of influence on the engineering sector and the system of its legal regulation in context the reform of local regional authorities.

In our opinion, in order to better reveal the determinants for the engineering sector, they should be divided into external and internal. At the same time, it is important to build a system of vector diagrams for both types of impact determinants.

Thus, if we consider the external determinants of impact, then the basis for constructing the root vector diagram is the final subgoal - the definition of external determinants of influence on the engineering sector and the system of its legal regulation for the reform of local regional authorities. Let's designate this subgoal as S_0 .

To achieve this sub-goal, within this vector diagram, we have identified four stages that serve as the basis for achieving sub-goal S_0 . Within this vector diagram, each of the stages will be labeled S_1 - S_4 . It should be noted that the selection of these stages is not stochastic. All areas of this study are employees of the regional authority in the city of Krakow, whose scientific and practical methodological activities are specialized specifically in the development of the engineering sector of the city, in particular of the improvement of its legal regulation and the optimization of communication between the engineering sector and local governments. In our opinion, stages S_1 - S_4 should be considered the most optimal in the context of the chosen goal.

Thus, at the main formed stages of achieving the sub-goal S_0 , we will form a vector diagram of the process of the impact of external determinants on the engineering sector (Figure 1).

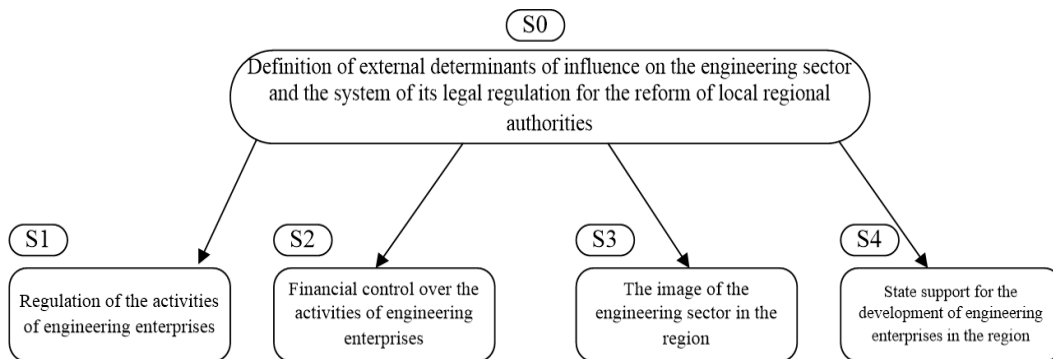


Figure 1. Vector diagram of the process of the impact of external determinants of influence on the engineering sector and the system of its legal regulation for the reform of local regional authorities

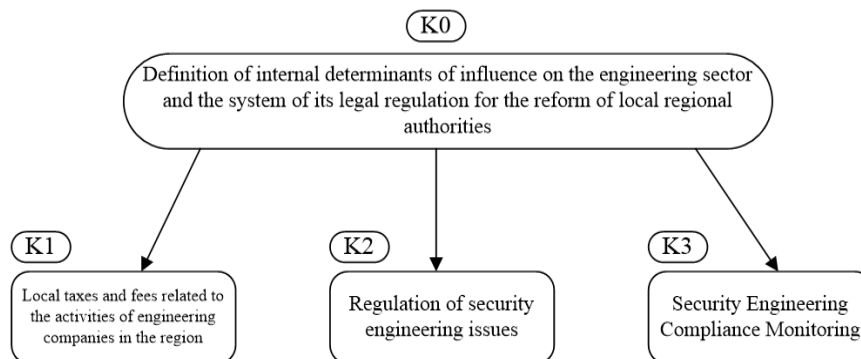


Figure 2. Vector diagram of the process of the impact of internal determinants of influence on the engineering sector and the system of its legal regulation for the reform of local regional authorities

The above vector diagram is the initial stage in the systematization and vectorization of the process of achieving subgoal S_0 . This vector diagram clearly demonstrates the basic steps of the entire process.

The next step in our study is the formation of a similar vector diagram for the definition of internal determinants of influence on the engineering sector and the system of its legal regulation for the reform of local regional authorities. Here the ultimate sub-goal will be to determine the internal determinants of influence on the engineering sector and the system of its legal regulation for the reform of local regional authorities. We denote this subgoal by K_0 . According to external determinants, we build a similar vector diagram for a given subgoal K_0 (Figure 2).

According to Figure 2, we have identified three main internal determinants of influence on the engineering sector

and the system of its legal regulation for the reform of local regional authorities.

4. RESEARCH RESULTS

For a better understanding of all the features of the implementation of the process of achieving sub-goals S_0 and K_0 , the next step in our study is to build a vector diagram of the desired effect from the external determinants of impact on the engineering sector and the system of its legal regulation for the reform of local regional authorities. In the context of external goals, this vector diagram will show the process of achieving the S_0 sub-goal, including elements such as inputs (I), outputs(O), mechanisms (M), and controls(C) (Figure 3).

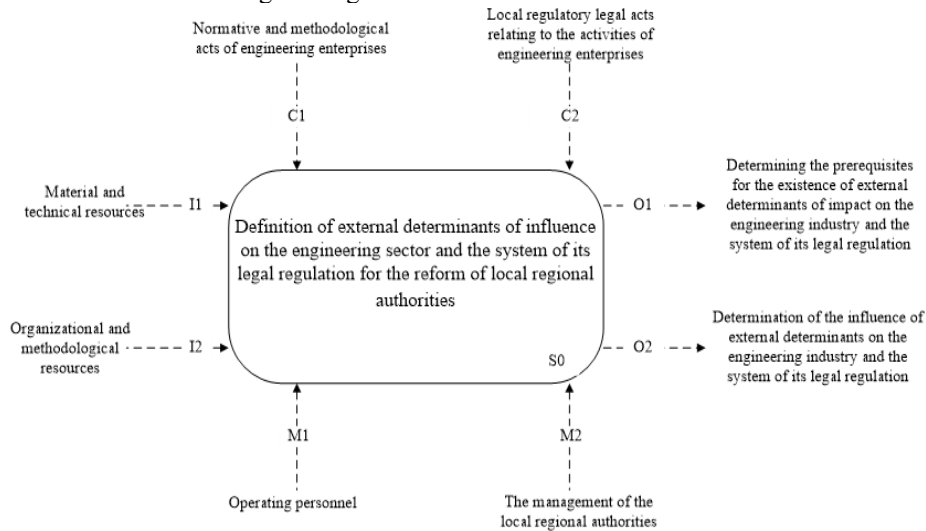


Figure 3. Vector diagram of the desired effect from the external determinants of impact on the engineering sector and the system of its legal regulation for the reform of local regional authorities

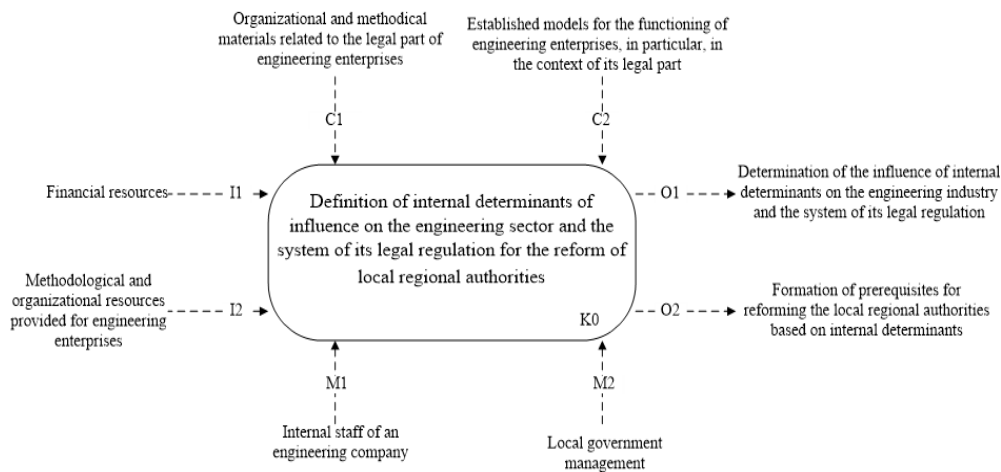


Figure 4. Vector diagram of the desired effect from the internal determinants of impact on the engineering sector and the system of its legal regulation for the reform of local regional authorities

For a better understanding of this stage, it will be important to identify all the new elements. Thus, the symbol (I) denotes inputs, which in these models can be generalized by the concept of available resources at the disposal of regional authorities or an engineering enterprise. Quantitative and qualitative indicators of resources may vary in accordance with the specifics of the region or the peculiarities of the functioning of the engineering sector and

its individual subjects. The following elements are the mechanisms (M), which can be interpreted as the main tools through which the subgoals K_0 and C_0 are realized. The controls (C) constitute all the theoretical and methodological foundations for achieving the final subgoal. These elements can be both internal regulations for the functioning of an engineering enterprise, and legislative documents of regional authorities. The final element of these diagrams is the initial

elements (O), demonstrating the final results of the process of performing certain stages.

Having outlined all the elements of this stage of building a vector model, we will build a similar vector diagram of the desired effect from the external determinants of impact on the engineering sector and the system of its legal regulation for the reform of local regional authorities (Figure 4)

It is important to note that all vector models and diagrams were built using specific software that specializes in building vector diagrams, algorithms and business diagrams.

The next and final stage of our study is the formation of models of external and internal determinants of impact on the engineering sector. These models are the summation of all previously passed stages and show all processes as the only goals. So, in Figure 5. a model of internal determinants of impact on the engineering sector is shown.

For a better understanding of the presented model of the influence of determinants on the engineering sector, it will be important to consider each of the stages S₁-S₄.

S₁ - Regulation of the activities of engineering enterprises. The engineering sector is a key link in the economy, the state, and the level of development that determine the industrial potential of the country, its competitiveness in international markets, as well as the level of its social development. Therefore, the need for constant monitoring of the state and development of the engineering sector and its industries becomes relevant.

The effective functioning of enterprises in the engineering sector in the current economic conditions is possible if the enterprise can respond in a timely manner to disruptive changes, and readjust its internal economic mechanism in accordance with changing business conditions since the performance indicators of the enterprise depend on internal activities. Without organizational and financial restructuring, a well-thought-out development strategy and professional management, stabilization, and growth in the output of the engineering sector are impossible.

S₂ - Financial control over the activities of engineering enterprises. In ensuring effective forms of management at domestic enterprises, an important role is played by the control of the financial activities of enterprises in the

engineering sector, which is responsible for the selection, evaluation, and interpretation of financial, economic, and other data that affect the process of making investment and financial management decisions. For the development of a financial control system, analysis and evaluation are important, which use the entire range of economic information, are operational in nature, and allow a realistic assessment of the state of affairs at an engineering enterprise.

The creation of a financial control system at an enterprise is an integral part of building the entire enterprise management system in order to ensure its effectiveness. The control of the financial activity of enterprises in the engineering sector is a method for assessing the retrospective and prospective financial condition of an enterprise, based on studying the dependence and dynamics of financial information indicators. The monetary control system uses different methods and techniques for diagnosing the financial and economic activities of companies in the engineering sector.

S₃ - The image of the engineering sector in the region. Ensuring a high level of style of an engineering company in the region is not only a factor in its competitiveness in the sales market but also a condition for the development of its investment attractiveness and the development of its innovative potential. The development and improvement of the image of an engineering enterprise can also be significantly stimulated by the regional authorities.

S₄ - State support for the development of engineering enterprises in the region. To ensure the development of the engineering sector, it is necessary to improve public administration based on an integrated, systematic, and strategic approach. The effectiveness of the implementation of the state policy for the development of the engineering sector is ensured with the predominant use of state support methods, among which public-private partnership should be identified as one of the promising ones, as well as by improving the mechanism of responsibility of management entities.

Similar to the first model of external determinants of impact on the engineering sector, we will form the same model for internal determinants (Figure 6).

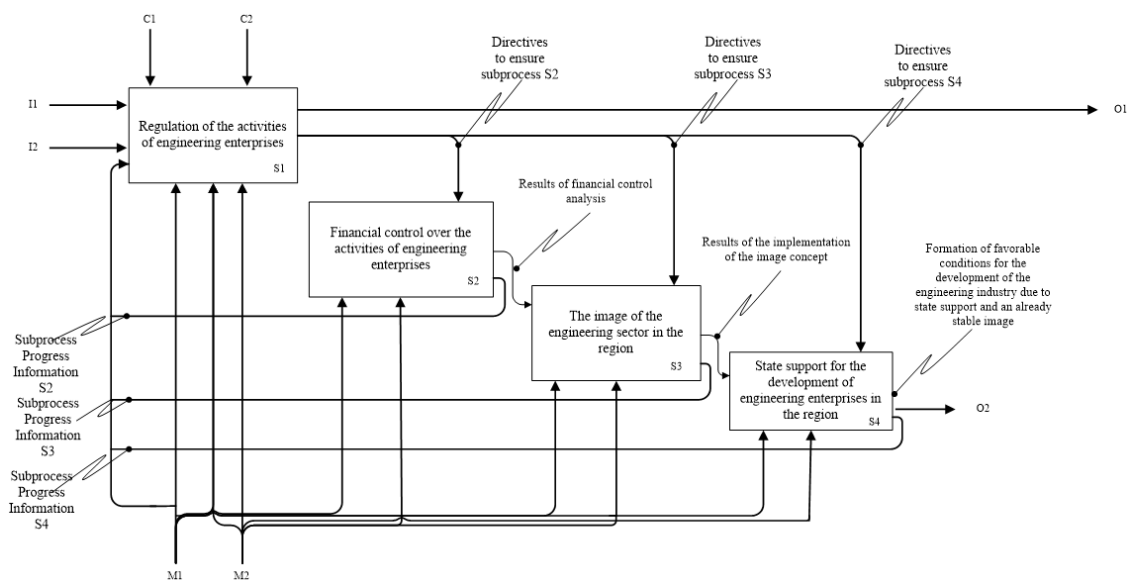


Figure 5. Model of external determinants of impact on the engineering sector

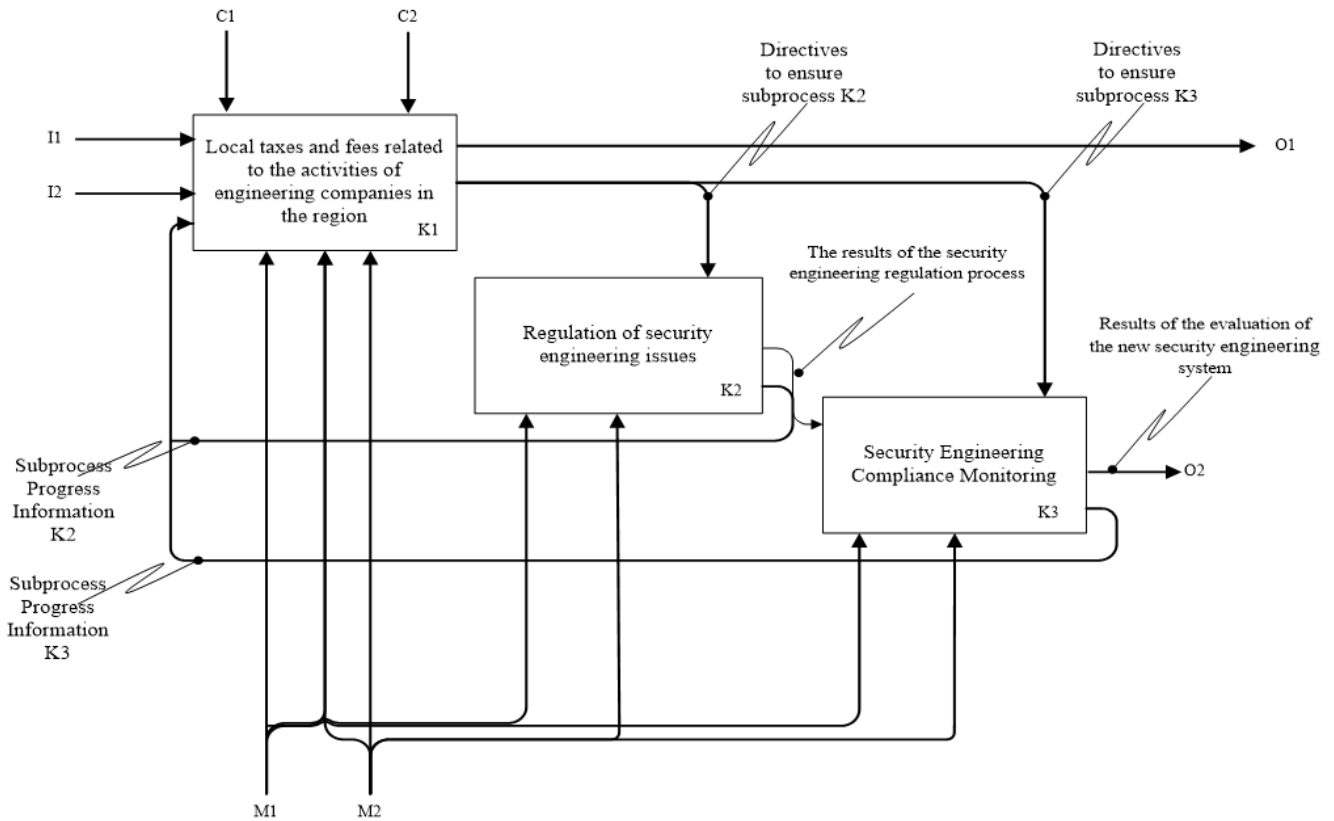


Figure 6. Model of internal determinants of impact on the engineering sector

For a better understanding of the presented model of the influence of determinants on the engineering sector, it will be important to consider each of the stages K_1 - K_3 .

K_1 - Local taxes and fees related to the activities of engineering companies in the region. For the effective management of an engineering enterprise, it is necessary not only to maximize the profit of the enterprise but first of all to improve the analysis of taxes by taking into account the tax burden of the enterprise. The use of the tax system to stimulate the innovative activity of enterprises, including the engineering sector, is an established fact. With this in mind, the lower and optimized the tax burden, the better and easier the development of the region.

K_2 - Regulation of security engineering issues. The problems of own security arise before each engineering enterprise not only in times of crisis but also when working in a stable economic environment, the set of targets solved in this case has a significant difference. As one of the goals of security monitoring, the engineering of an enterprise is the diagnosis of its state according to a system of indicators that take into account specific industry features that are most characteristic of this enterprise and which are of great strategic importance for the latter. The result of ensuring the safety of an engineering enterprise is the stability of its functioning, profitability, and personal safety of the personnel.

Ensuring an adequate level of security for an engineering enterprise means that the enterprise realizes its interests, that is, it sells products in the right quantity, is competitive, makes a profit, functions stably meets the needs of consumers, and can protect itself from external and internal threats. In other words, a successful enterprise is one in which security and all its components are at the proper level.

K_3 - Security Engineering Compliance Monitoring. The

purpose of monitoring the level of security of an engineering enterprise is to obtain information from the management of the enterprise about the level of efficiency and effectiveness of the enterprise's activities based on qualitative and quantitative analysis and assessment of relevant indicators and an assessment of the occurrence or possible threats and risks. The subject area of safety level monitoring is the determination of integral indicators of different types of security of an engineering enterprise according to the selected functional components. One of the conditions that the control algorithm must comply with is the possibility of quantifying all the studied indicators to determine the level of security of an engineering enterprise.

Thus, the innovativeness of this study lies in the fact that with the help of vector diagrams we have identified the main external and internal determinants of the impact on the engineering sector. Accounting for and compliance with these determinants will allow the development of the industry in the region and the formation of productive communication between the engineering industry and the regional authorities.

5. DISCUSSIONS

If we resort to discussing the results of the study and comparing it with other similar works, then it is worth noting the fact that today the issue of determining the main determinants of influence on the engineering sector and the system of its legal regulation for reforming local regional authorities is still insufficiently studied.

Yes, the works of Kryshtanovych, Lyubomudrova, Tymofeev, Shmygel, Komisarenko also address the issue of cooperation between regional authorities and the engineering sector, but this issue is considered mainly in the context of

defining and improving the regulatory and legislative framework for managing this sector and financial control. Some authors took a more detailed consideration of this issue and in their study, in addition to taking into account static legal acts, they also considered the issues of incentive mechanisms for the development of engineering enterprises. But all these studies refer only to a part of a significant set of determinants of influence on the engineering sector and the system of its legal regulation [20, 21]. While our study tried to generalize and systematize the most important determinants of influence on the development of the engineering sector by the regional authorities.

The use of certain systematization methodologies is a fairly popular direction in research, characterized by significant volumes of materials and the need for visual representation [22]. But our methodology differs from all others in that it has a complex character, including all the elements necessary for the determination of this process, in addition, it is distinguished by its extensiveness and consistency of presentation, which greatly facilitates its understanding.

Thus, our study differs from others in that it examines the determinants of the impact on the engineering industry and the system of its legal regulation on the reform of local regional authorities through the use of vector diagrams, which, in turn, allow you to systematize, generalize and easily understand significant amounts of information. This is where the innovativeness of this study lies, since not a single one was found in scientific sources that describes this process using vector diagrams. These vector diagrams make it possible to make local changes to the overall process. This is especially important because the system of regional authorities, despite the fact that it is based and operates on generally defined legal acts, in practice operates in various external and internal conditions, and faces various obstacles and challenges. With this in mind, the introduction of local changes will make it possible to adapt this model as much as possible to the realities of the existence of each individual machine-building industry and departments of regional authorities.

6. CONCLUSIONS

The development of the engineering sector (especially small and medium-sized innovative enterprises) plays an important role in the modern high-tech world economy and is due to the need for the effective functioning of enterprises both in the domestic and foreign markets. This was facilitated by the high general educational and professional level of domestic workers in the industry and the preserved scientific and technical potential of mechanical engineering, which is closely related to the development and preparation of the production process and ensuring the normal flow of the production process and the sale of products. In this context, a significant role is played by regional authorities, whose activities should be aimed at the development of the engineering sector.

Today, engineering companies automate individual nodes, workshops, or production units, build turnkey plants, provide the development of a technological scheme of production, taking into account the spatial distribution of the customer's production facilities and the characteristics of its energy supply, develop business plans, adapt them in accordance

with the requirements of the current import legislation. They are experts in their field, have established contacts with equipment manufacturers, and know its features, advantages, and disadvantages. In this regard, the issue of proper management of regional authorities is especially important. At the same time, it should be noted that in this context, a particularly topical issue is to determine the features and determinants of the impact of reforming these regional authorities.

As a result of the study, the main determinants of influence on the machine-building industry and the system of its legal regulation in the context of reforming local regional authorities were identified. These determinants are formed on the basis of the authors' own expert opinion, which was formed on the basis of experience gained in the field of regional management of the engineering industry. In our opinion, these determinants are relevant today and will better demonstrate the directions of the work of regional authorities in the context of the development of the engineering industry, the features of its legal foundations for functioning. The entire research process is based on the vector diagram modeling methodology. It allows vector and graphic representation of the schemes of the impact of processes and phenomena. According to the authors, this study will be useful, since this process is complex, and the use of vector diagrams will greatly simplify it.

The key subject of the study was to demonstrate the effectiveness of this methodological approach on the example of a specific region in order to demonstrate that this methodological approach, already tested by scientists, can work well in the context of determining the determinants of the influence of the engineering sector and its legal regulation, which was its first application in this area.

This study has its limitations since the model formed by the modeling methodology through vector diagrams can currently be used in the realities of the countries of Central and Eastern Europe. At this stage of the study, we can say that this is the initial demonstration of the model. In the future, in order to increase and color the empirical results of the study, a methodical approach will be introduced in detail on more complex socio-economic systems, taking into account their specifics and data.

REFERENCES

- [1] Verbivska, L., Lagodiienko, V., Filyppova, S., Papaika, O., Malin, O., Neustroiev, Y. (2022). Regulatory policy of the entrepreneurship development as a dominant of economic security of the national economy. *International Journal of Safety and Security Engineering*, 12(5): 543-552. <https://doi.org/10.18280/ijssse.120501>
- [2] Khomyshyn, I., Ortynska, N., Skochyliias-Pavliv, O., Andrusiak, I., Rym, O. (2022). The main systemic engineering problems of using computer and digital technologies in legal activities in the context of ensuring security. *International Journal of Safety and Security Engineering*, 12(5): 597-602. <https://doi.org/10.18280/ijssse.120507>
- [3] Tulchynska, S., Popelo, O., Tulchynskiy, R., Popelo, O., & Tkachenko, T. (2022). Innovative Development as Determinant of Corporate Economic Security, *Oppor Chall. Sustain.*, 1(1): 52-60. <https://doi.org/10.56578/ocs010106>.

- [4] Kucheriava, M. (2022). Institutional prerequisites for the development of a non-financial reporting organization model in countries with lower-middle-income economies (the case of Ukraine), *J. Corp. Gov. Insur. Risk Manag.*, 9(S1): 126-135. <https://doi.org/10.51410/jcgirm.9.1.8>.
- [5] Rachmi, Y., Mochtar, K. (2021). Legal aspect of value engineering implementation in Jakarta (Indonesia) construction projects. *International Journal of Construction Management*, 21(2): 131-139. <https://doi.org/10.1080/15623599.2018.1511946>
- [6] Semlinger, K. (2008). Cooperation and competition in network governance: regional networks in a globalised economy. *Entrepreneurship & Regional Development*, 20(6): 547-560. <https://doi.org/10.1080/08985620802462157>
- [7] Ekeocha, R. (2018). The Involvement of Law in Engineering Profession. *International Journal of Recent Contributions from Engineering, Science & IT (IJES)*, 6: 79. <https://doi.org/10.3991/ijes.v6i2.8837>
- [8] Kryshtanovych, M., Filippova, V., Huba, M., Kartashova, O., Molnar, O. (2020). Evaluation of the implementation of the circular economy in EU countries in the context of sustainable development. *Business: Theory and Practice*, 21(2): 704-712. <https://doi.org/10.3846/btp.2020.12482>
- [9] Kissi, E., Boateng, E.B., Adjei-Kumi, T., Badu, E. (2017). Principal component analysis of challenges facing the implementation of value engineering in public projects in developing countries. *International Journal of Construction Management*, 17(2): 142-150.
- [10] Matsuura, J. (2019). Engineering Codes of Ethics: Legal Protection and Empowerment for Engineers. In A. Abbas (Ed.), *Next-Generation Ethics: Engineering a Better Society*, 258-270. Cambridge: Cambridge University Press. <https://doi.org/10.1017/9781108616188.018>
- [11] Kryshtanovych, S., Gutsulyak, V., Huzii, I., Helzhynska, T., Shepitchak, V. (2021). Modeling the process of risk management response to the negative impact of risks as the basis for ensuring economic security. *Business, Management and Economics Engineering*, 19(2): 289-302. <https://doi.org/10.3846/bmee.2021.14798>
- [12] Ingrams, A., Piotrowski, S., Berliner, D. (2020). Learning from our mistakes: public management reform and the hope of open government. *Perspectives on Public Management and Governance*, 3(4): 257-272. <https://doi.org/10.1093/ppmgov/gvaa001>
- [13] Rutešić, S., Četković, J., Žarković, M., Knežević, M., Vatin, N. (2015). Analysis of the situation in montenegrin civil engineering sector from the point of application of national regulations and the EU technical standards in construction. *Procedia Engineering*, 117: 900-910. <https://doi.org/10.1016/j.proeng.2015.08.175>
- [14] Kryshtanovych, M., Antonova, L., Filippova, V., Dombrovska, S., Pidlisna, T. (2022). Influence of COVID-19 on the functional device of state governance of economic growth of countries in the context of ensuring security. *International Journal of Safety and Security Engineering*, 12(2): 193-199. <https://doi.org/10.18280/ijssse.120207>
- [15] Kryshtanovych, M., Akimova, L., Akimov, O., Kubiniy, N., Marhitich, V. (2021). Modeling the process of forming the safety potential of engineering enterprises. *International Journal of Safety and Security Engineering*, 11(3): 223-230. <https://doi.org/10.18280/ijssse.110302>
- [16] Zhang, B., Zhang, L., Wu, J., Wang, S. (2019). Factors affecting local governments' public-private partnership adoption in urban China. *Sustainability*, 11(23): 6831. <https://doi.org/10.3390/su11236831>
- [17] Saglie, J. (2020). Do party organizations integrate multi-level states? The case of the Norwegian Local Government Reform. *Regional & Federal Studies*, 30(4): 579-597. <https://doi.org/10.1080/13597566.2019.1684268>
- [18] Klausen, J.E., Askim, J., Christensen, T. (2021). Local government reform: Compromise through cross-cutting cleavages. *Political Studies Review*, 19(1): 111-126. <https://doi.org/10.1177/1478929919887649>
- [19] Boons, F., Spekkink, W., Isenmann, R., Baas, L., Eklund, M., Brullot, S. (2015). Comparing industrial symbiosis in Europe: towards a conceptual framework and research methodology. In *International perspectives on industrial ecology*. Edward Elgar Publishing. <https://doi.org/10.4337/9781781003572.00013>
- [20] Kryshtanovych, S., Lyubomudrova, N., Tymofeev, S., Shmygel, O., Komisarenko, A. (2022). Modeling ways of counteraction to external threats to corporate security of engineering enterprises in the context of COVID-19. *International Journal of Safety and Security Engineering*, 12(2): 217-222. <https://doi.org/10.18280/ijssse.120210>
- [21] Luma, A., Abazi, B. (2019). The importance of integration of information security management systems (ISMS) to the organization's. *Enterprise Information Systems (EIS)*, 1205-1208. <https://doi.org/10.23919/MIPRO.2019.8756645>
- [22] Hajduga, P., Pilewicz, T., Mempel-Śnieżyk, A. (2018). Cooperation between local authorities and economic entities in Polish economic zones-evidence from Lower Silesia in Poland. *Economics & Sociology*, 11(2). <https://doi.org/10.14254/2071-789X.2018/11-2/6>