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THE CONCEPT OF RESPONSIBLE INNOVATION IN THE CONTEXT OF EUROPEAN INTEGRATION

КОНЦЕПЦІЯ ВІДПОВІДАЛЬНИХ ІННОВАЦІЙ У КОНТЕКСТІ ЄВРОПЕЙСЬКОЇ ІНТЕГРАЦІЇ

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Іванова Т.В., Манаєнко І.М., Шкробот М.В. Концепція відповідальних інновацій у контексті європейської інтеграції. Науково-методична стаття.

У статті розроблено наукові положення щодо відповідальних інновацій, що призведе до розвитку підприємств України в контексті міжнародної інтеграції. Узагальнено основні принципи відповідальних інновацій, які пропонуються у науковій літературі. Запропоновано основні принципи, на яких має будуватися діяльність підприємства з відповідальними інноваціями. Виділено основні постулати впровадження відповідальних інновацій у діяльність вітчизняних підприємств, які за своїм впливом запропоновано поділяти на нейтральні, негативні та позитивні. Досліджено бар'єри, з якими стикаються підприємства при впровадженні відповідальних інновацій. Для подолання цих бар'єрів, запропоновано певні заходи, що сприятимуть підвищенню ефективності діяльності підприємства та його розвитку в умовах європейської інтеграції.

Ключові слова: відповідальні інновації, принципи, постулати, бар'єри, стимули

Ivanova T.V., Manaenko I.M., Shkrobot M.V. The concept of responsible innovation in the context of European integration. Scientific and methodical article.

The article develops scientific provisions on responsible innovations that will lead to the development of Ukrainian enterprises in the context of international integration. The basic principles of responsible innovations offered in the scientific literature are generalized. The principles on which the activities of the enterprise with responsible innovations should be based are offered. The main postulates of the introduction of responsible innovations in the activities of domestic enterprises are highlighted, which according to their influence are proposed to be divided into neutral, negative and positive. The barriers faced by enterprises in implementing responsible innovations have been studied. To overcome these barriers, certain measures have been proposed that will help increase the efficiency of the enterprise and its development in the context of European integration.

Keywords: responsible innovation, principles, postulates, barriers, incentives

Transformation and globalization of the world market has a significant impact on the activities of Ukrainian enterprises. The priority tasks of enterprises are to adapt and develop an effective strategy with the involvement of innovative components that will promote international integration. Therefore, research on the theoretical basis of responsible innovation is relevant.

Analysis of recent researches and publications

The main provisions concerning responsible innovations have been studied in the works of the following scientists: Adams et al. [1], Burget et al. [2], Lubberink et al. [3], Voegtlin et al. [4], Hadj [5], Gonzales-Gemio et al. [6], Valkenburg et al. [7], Reber [8] and others. However, based on the analysis, it was found that insufficient attention is paid to the basic concepts of responsible innovation.

The main purpose of this study is to systematize and substantiate the basic concepts of responsible innovation. To achieve this goal, the following tasks are solved: to generalize approaches to the principles of

responsible innovation; to form the basic postulates of responsible innovations; analyze barriers to responsible innovation.

The main part

Principles of responsible innovation. The principles of responsible innovation highlighted in Stilgoe, Owen et al. [9] are generally accepted and include four main principles: forecasting, reflexivity, inclusion, and discussion as well as response. Dreyer et al. [10, p.3], in their work accept and agree that these are the principles to which responsible innovation must adhere. Grounding on this approach, some authors suggest their own classification on the basis of generalization and addition.

Berkowitz [11], for instance, mentions in his work that for the development and implementation of responsible innovation, six principles need to be considered, such as: anticipating future changes and negative external impacts of innovation, resilience to change, reflectivity of the environment, society and change, responsiveness, i.e. the ability to adapt to changing circumstances, the inclusion of stakeholders and accountability to them. This implies that the author complements the classification by Stilgoe, Owen et al. [9] on such principles as sustainability and responsibility, but does not include the principle of discussion. The official report of the European Commission [12] covers the main principles of RRI: inclusion (also called interaction or community engagement), forecasting (early-stage assessment and development of benefits and risks to make informed choices), reflexivity (reflecting values and beliefs in research and development) and responsiveness (the ability to change procedures, structures and systems to adapt to changing circumstances and new perspectives). Van de Poel et al. [13] distinguish five basic principles, among which are: foresight, inclusiveness, reflexivity, conformity to values and needs, conformity with new developments.

In their work, Long and Blok [14], grounded on analysis, conclude that it is necessary to distinguish the following principles of responsible innovation: anticipation, inclusion, reflexivity, conformity. It means that in these classifications there are no principles of discussion and response. Gurzawska et al. [15, p.3] propose the following principles for responsible innovation: inclusion (also called interaction or community engagement), forecasting (early-stage assessment and risk/benefit development in order to make informed choices), reflexivity (reflecting values and beliefs in research and development) and response (ability to change procedures, structures and systems to adapt to changing circumstances and new insights. Van de Poel et al. [13, p.12] suggests distinguishing the following principles: anticipation, inclusion, reflexivity, compliance, relevance to values and needs, and compliance with new developments. On the basis of the analysis made, we believe that the following principles should be included in those of responsible innovation (table 1): substantiality, iteration, adaptability, inclusion, responsibility, coherence, the principle of accounting resource constraints, the principle of financial relations of terms, etc.

Table 1. Principles of responsible innovation

Principle	Characteristics of the principle
1. Substantiality	Development of several scenarios for enterprise development as a result of the introduction of responsible investments, risk assessment, and choice of the best option.
2. Iteration	Organization of the process that allows for multi-vectoring of the process of developing and implementing responsible innovation in the activities of the enterprise, as well as, if necessary, returning to the previous stages, depending on the results obtained.
3. Adaptability	The ability of the enterprise, as a result of the introduction of responsible innovation, to adapt and respond quickly to changes in the factors of the internal and external environment, together with adaptability without significant resource losses.
4. Inclusion	Involvement of stakeholders in the innovation process at all stages of the development and implementation of responsible innovation in the activities of the enterprise.
5. Responsibility	It is considered in several aspects: first, the responsibility of the initiator and the project manager to his project team; secondly, the responsibility of the project team and stakeholders to the society and consumers of responsible innovation.
6. Coherence	Implies checking the idea and mission of innovation as for consistency of normative, legal, methodological and software activities of the enterprise.
7. The principle of accounting resource constraints	The development and implementation of responsible innovation should be based on the fact that the number of reproductive and, in particular, nonreproductive resources is limited, which may provoke future reorientation to use another type of resource.
8. The principle of financial relations of terms	Acquisition and spending of funds should take place in due time, and innovative projects with long payback periods should be financed by long-term borrowings (long-term bank loans and bonds), which actually happens when implementing responsible innovation.

Source: authors' own development

The above principles of responsible innovation, in the authors' viewpoint, are not a complete list, but only the main ones indicated. It is worth noting that for the successful process of developing and implementing responsible innovation in enterprise activities, it is necessary to rely on a set of principles, rather than on individual ones. In addition, these principles may be subject to modifications in the process of developing and implementing responsible innovation, depending on the industry, country, etc.

It is also important that the implementation of the principles of responsible innovation depends on the model of integration processes. As the EU is considered an economic union, the implementation of the principles of responsible innovation on its territory will be based on the harmonization of all economic and financial links of the innovation activities of the EU member states.

Postulates of responsible innovation. In addition, to substantiate the theoretical basis for the implementation of responsible innovation in industrial enterprises, it is necessary to determine the main postulates of the methodology of the formation and implementation of responsible innovation. In this case, the following groups are distinguished among the main postulates in the works (Boyarinova and Mironyuk [16]; Kreidych and Tovmasyan [17]): of negative, neutral and positive influence. Our postulates of introducing responsible innovation into the activities of domestic enterprises are shown in table. 2.

Table 2. Postulates of the methodology of the formation and implementation of responsible innovation of industrial enterprises

Postulates of negative impact	Postulates of neutral impact	Postulates of positive impact
Lack of understanding of what responsible innovation is, the need for the development of measures and their implementation	Prejudice that any innovation is responsible	Introduction of responsible innovation will increase the effectiveness of the enterprise
Lack of support for the implementation of responsible innovation at the state level	Risks from introducing responsible innovation	Increase of competitiveness level of the enterprise as a result of introduction of responsible innovation
Lack of regulatory innovation activity at the legislative level	Application of advanced technologies as a result of developing measures for the implementation of responsible innovation	Creating a positive image of the company in the international market
Unstable political situation in the country	Reducing the payback period as a result of the introduction of responsible innovation	Development of the innovation market at the state level, which will help to increase its rating in the international arena

Source: authors' own development

We will analyze the defined postulates of the methodology of the formation and implementation of responsible innovation. These are the postulates of negative and neutral influence that mainly affect the determination of the need to develop certain measures to improve the performance of the enterprise. However, the most deceptive are the postulates of neutral influence, since they tend to change in either negative or positive direction, depending on the influence of external conditions.

In our opinion, the unawareness of the society and administration of the industrial enterprises regarding the essence of responsible innovation, leads to the fact that they do not suppose it advisable to move in this direction because they do not consider it appropriate or believe that these measures will not lead to an increase in the efficiency of the enterprise activities.

On the state level, the conditions should be created that will stimulate enterprises to develop certain measures to implement responsible innovation in their activities. Moreover, at the legislative level, the essence, principles, and the role of relevant innovations should be defined. In addition, unstable economic situation negatively affects any activity of enterprises in the state, as it introduces some ambiguity in their future, therefore, enterprises try to maintain existing positions, but they do not risk introducing something new.

In our opinion, one of the neutral postulates is the bias that any innovation is responsible. However, not every innovation implemented at the enterprise can be responsible, because certain factors (including ethical or social ones) must be considered for this purpose.

We believe that the development of certain measures should consider certain risks that may arise when implementing responsible innovation. The risks can be the following: resistance to changes at the enterprise, misunderstanding of the environment, etc.

In addition, the following neutralizing postulates include: the use of advanced technologies as a result of developing measures for the implementation of responsible innovation; reduction of the payback period as a result of the introduction of responsible innovation.

The positive postulates of the methodology of the formation and implementation of responsible innovation are the following: the introduction of responsible innovation will contribute to improving the performance of the enterprise; the increase of the enterprise's competitiveness level as a result of introduction of responsible innovation; creating a positive image of the company in the international market; development of the market of innovation at the state level, which will help to increase its rating in the international arena.

To implement responsible innovation into the activities of industrial enterprises, it is necessary to use postulates of positive and neutral influence, but it is not necessary to reject the postulates of negative influence. Under the appropriate use of all the postulates, the enterprise can achieve the best results from its innovation activities.

Barriers and incentives for introducing responsible innovation. Quite a large number of researchers, analyzing the activities of enterprises, identify certain barriers to the introduction of responsible innovation, as well as offer the guidelines for submitting these obstacles.

Inigo et al. [18, p.3] identify five components of responsible innovation: operational, collaborative, organizational, instrumental, and holistic.

In their work, Hoop et al. [19, p.124] distinguish the following barriers to responsible innovation:

- material barriers to innovation;
- the price of ex-novating an existing practice;
- power differences and dependencies;
- lack of clear demarcation of responsibilities;
- strategic behaviour;
- different, diverging and contradictory interests.

Gauttier et al. [20, p.17] believe that there are the following obstacles to implementing responsible innovation into the activities of the enterprise:

- collection and preservation of data confidentiality;
- development and implementation of responsible developments that are not properly perceived by the management of the enterprise;
- complexity in identifying consumers of responsible innovation.

Garst et al. [21] distinguish three types of motives for the implementation of responsible innovation: instrumental; moral; relational.

Gauttier et al. [20, pp.12-13] distinguish the following measures to overcome the obstacles to the implementation of responsible innovation:

- analysis of the experience of implementing responsible innovation at other enterprises;
- use of best practices for the implementation of responsible innovation;
- analysis of literature on the implementation of responsible innovation.

Gurzawska et al. [15, p.17] emphasize that the incentives for introducing responsible innovation in industrial enterprises depend on the following factors: the size of the enterprise; type of industry.

Stahl et al. [22, p.4] indicate that the main motives for implementing responsible innovation are:

- improvement of the image of the enterprise through strengthening of relations with clients or increasing the welfare of workers;
- fulfillment of existing obligations of the enterprise, in particular the continuation of work on corporate social responsibility;
- the special significance of responsible innovation in certain branches of industry.

In our opinion, when developing and implementing responsible innovation in the activities of an industrial enterprise, there may be certain barriers, the main ones of which are given in Table 3. Based on the analysis of these, we propose to apply the following basic measures to overcome them (Table 3).

Table 3. The main incentives for the development and implementation of responsible innovation in the activities of the enterprise

Major barriers	Measures to overcome the barriers
1	2
Unawareness of managers and employees of the company about responsible innovation	1) Development of measures to overcome management's resistance to changes at the enterprise. 2) Development of measures to overcome employees' resistance to changes at the enterprise. 3) Conducting training (trainings, seminars) on relevant topics. 4) Bringing up current information to contemporary theoretical research in the world practice. 5) Mistaken assumption about inexpediency of development and introduction of innovation in the activities of the enterprise (including responsible innovation).
Insufficient financing of innovation activity	1) Stimulation of the state. 2) Financing responsible innovation from certain nonstate funds. 3) Reduction of the level of taxes for the enterprises that implement responsible innovation in their activities.
Negative experience of implementing responsible innovation at other enterprises	1) Analysis and consideration of mistakes made at other enterprises during their activities: avoidance of the development of measures that cannot be implemented at the enterprise or which do not correspond to the branch the enterprise works in. 2) Utilisation of best practices for the implementation of responsible innovation in the activities of the enterprise.

Continuation of Table 3.

The image of the enterprise	1) Increasing media attention to the companies that implement responsible innovation. 2) Encouragement at the level of local communities or state for implementing responsible innovation.
Competitiveness of goods	Interest in creating a competitive product in the domestic or international market.

Source: authors' own development

However, what is shown in Table 3 is not a complete list of incentives for implementing responsible innovation in the activities of enterprises. Instead, the main barriers identified and examples of measures to overcome them, considering external challenges and threats in the context of European integration, are presented.

Consequently, an increase in the number of socially responsible financing projects is implemented in the practices of domestic enterprises, which will promote the development, solving socio-environmental issues, and integration into international markets.

Conclusions

The article further develops the theoretical approaches to the formation of basic provisions for responsible innovation. The principles of postulates and barriers that may arise during the enterprise are defined. The proposed measures will contribute to a clearer understanding of the processes taking place in the process of implementing responsible innovations in domestic enterprises, as well as allow them to integrate into international markets.

The scientific novelty is to improve the basic approaches to responsible innovation in enterprises of Ukraine.

The obtained results deepen the concept of responsible innovation. This will allow business managers and stakeholders to get acquainted with the specifics of responsible innovation, as well as to develop certain measures in this direction.

Further research is needed to assess the effectiveness of the implementation of responsible innovations in the activities of domestic enterprises.

Abstract

The article is devoted to the development of scientific provisions on responsible innovations that will promote the development of domestic enterprises in the context of European integration. Rapid globalization and crisis trends in the international market contribute to the search for new management solutions. In particular, one of the tools that helps to adapt to new operating conditions is the introduction of responsible innovations. The main purpose of this study is to systematize and substantiate the basic concepts of responsible innovation. To achieve this goal, the following tasks are solved: to generalize approaches to the principles of responsible innovation; to form the basic postulates of responsible innovations; analyze barriers to responsible innovation.

The research methodology includes general scientific methods, the main of which are: systematization, comparative analysis; specification; generalization method. The article analyzes the principles of responsible innovation provided by economists. Based on the research, the following principles of responsible innovation are proposed: substantiality, iteration, adaptability, inclusion, responsibility, coherence, accounting resource constraints, and financial relations of terms. The main postulates of the introduction of responsible innovations in the activities of enterprises are divided into the postulates: negative, neutral and positive impact. Scientists' approaches to barriers to the implementation of responsible innovations are highlighted.

The main barriers that may arise in the process of implementing responsible innovations by enterprises are identified, in particular: unawareness of managers and employees of the company about responsible innovation; insufficient financing of innovation activity; negative experience of implementing responsible innovation at other enterprises; the image of the enterprise; competitiveness of goods.

The main measures that will help to overcome the identified barriers are proposed. This will increase the efficiency of Ukrainian enterprises in terms of adaptation to the European Economic Area. All above will lead to a broader understanding of the need to implement responsible innovations in the activities of domestic enterprises, as well as contribute to the development of appropriate management decisions.

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