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ECONOMIC ASSESSMENT OF PRODUCTION RISKS IN INDUSTRIAL ENTERPRISES

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Abstract
This article describes the forms, types and causes of economic risks that can be observed in industrial enterprises, and some methods for their assessment are presented. It also provides general conclusions on the calculation of the economic losses that may arise for an industrial enterprise as a result of these economic risks, their impact on the further activities of the enterprise, and the effective economic compensation of these losses.

Keywords: Economic risk, economic losses, risk management, economic consequences, effective strategy, rational exploitation of resources, resource scarcity.

Introduction

Production release in enterprises labor and financial safety provide - economic efficiency important factor calculated , this issue not only human his life protection to do , maybe of the enterprise economic stability provision also important for importance has . Traditional security measures own in place effective although modern of technologies development security in providing new opportunities The concept of "Industry 4.0" is creating current to be digital transformation speed up , safety protocols again seeing exit and new tools , methods using risks reduce opportunity This is giving . article industry working release in the field labor safety of providing innovative approaches study and their of the enterprise economic indicators the impact to evaluate focused .

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Uzbekistan in the economy industry development , its prospects provision and this through macroeconomic to stability contribution add today's on the day own relevance increasing is going on . So under the circumstances economic risks this wide extensive work done increase limits or known for a period of time delays . He knew this. without not only industry networks own internal laws and in the rules , but also in our country legislation also necessary in documents decrees determined , from the year per year in industry risks take is being thrown . That's how it is. of affairs bright example as Ministers Court by oh my god working release objects into account to take and state register to conduct order designation on the surface Uzbekistan " Dangerous" of the Republic working release of objects industry x amnesty "about" We quote Articles 5-18 of the resolution possible . [1] In our Republic this and so on economic risks to reduce related legal restrictions and measures done increased to the bride regardless , 2020-2024 between unplanned economic risks average 10-12 % to the indicator has become is standing and this industry product working release 14-16% increase in costs reason is happening . For this reason this processes study and prevent to take always importance save is standing .

Research Methodology

In the study mixture methods is applied , that is quantitative and quality information analysis Quantitative information various working release in enterprises security events about reports , production release efficiency indicators and websites information based on collected . Quality data and security managers and workers some industry in enterprises environment and economic to the situation gave descriptions through is taken . From this outside, academic magazines and industry reports such as secondary data analysis was don.

Literature review

Economist scientists losses minimize , property over control provision , information and legal security to provide , and of the enterprise economic safety provision issues see They came out . Russian from scientists V.K.Senchagov's point of view from the point of view of the enterprise

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economic safety these-factors combination own inside only internal to the situation related not , the enterprise external environment impact and of the enterprise economic to threats seeing measures defined as a set gives [2].

A.G Porshnev , Z.P. Rumyanseva and N.A. Salomatin stating that economic security external in the environment to changes own on time answer from giving consists of is , this is enterprise there is to the conditions adapt [3].

According to L.P. Goncharenko , according to the company economic safety these are threats prevent to take and of the enterprise stable performance provision for from resources effective use status as interpretation is being done .

The enterprise economic safety quality and quantitative indicators combination with described by A.H. Glumov and E.P. Kiselisy stating that the company economic safety this is an adjective and quantitative economic security level indicators sum with described , their the main thing economic security criteria according to enterprise from resources use status assessment through defined as defined gave . However in them industry of enterprises economic safety provision roads issue wide research not done .

In Uzbekistan enterprise economic dangers according to research relatively new industry is considered. Nevertheless , a row scientists this in the field important research take They went . Of them one is Hasan Abulqosimov is , it is economic security in the field many scientific affairs author and his research enterprise economic safety of providing theoretical and practical aspects dedicated .

Analysis and Results

Industrial enterprises for our economy other to networks relatively economic danger level one row to factors according to much high This is risks in detail study , level determine , solve to do for their types our determination need and their classification according to economic solutions We can provide . Below our analyses as a result found probable dangers types and their factors showing we want to go :

1. **Market risks** : on products was demand change , competitors activity , prices decrease or increase ;

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2. **Financial risks** : currency of courses change , credit percent rates rise or fall , liquidity problems such as financial factors ;
3. **Operation risks** : work release in the processes outages , technical malfunctions , raw material shortage or of quality lowness ;
4. **Regulator and legal risks** : legal changes , new taxes , license requirements increase or to the environment related of standards hardening ;
5. **Strategic risks** : the enterprise far term strategy wrong to be determined , incorrect investment decisions or the market wrong assessment ;
6. **Human factor with related risks** : employees incompetence , motivation shortage , work in place security to the rules compliance not to do ;
7. **Natural and ecological Hazards** : Natural disasters , climate changes , ecological violations or to the environment harmful effects ;
8. **Technological Risks** : New technologies current in the making difficulties , technological news fast wear and tear or cybersecurity problems .

And now this of risks nature , probability and economic damages to determine aimed at systematic to the approach has assessment methods offer we do :

❖ **Quality analysis (Qualitative Analysis)** :

- Feedback Delphi Method : Experts group by dangers about anonymous accordingly thoughts gathers and analysis will be done .
- Danger tree analysis (Hazard and Operability Study, HAZOP): Development release in the processes potential risks determination for systematic method

❖ **Quantitative analysis (Quantitative Analysis)** :

- Danger tree Fault Tree Analysis (FTA): Risk root the reasons determination and their probability calculation for logical diagrams application
- Probability and consequences Probabilistic Risk Assessment (PRA): Risk assessment probability and potential damage assessment for statistic and mathematician from models use .

❖ **Expert Reviews** :

- Danger index Risk Index Assessment **:** Experts to the mind based on the risks importance points through assessment .
- Danger Risk Matrix : Risk probability and weight assessment for two measurable matrix to compile .

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❖ **Statistical analysis** :

- Old to the information based Analysis : Past in the era unhappy events and malfunctions statistics based on risks assessment .
- Regression Analysis : Risks and their the reasons mutual tie for mathematician models build

❖ **Simulation methods** :

- Monte Carlo Simulation : Risks probability distributions calculation and the results random accordingly simulation to do
- Discrete events Simulation : Manufacturing release in the system events modeling and risks assessment .

In Figure 1, enterprises economic safety methodological level elements system in the form of shown . Systems mutual impact and dependence in learning , created model complexity abstraction at the level understanding Based on this model , all economic factors , including internal and external threats identified and effective in a way eliminate (Figure 1). It is known one of the enterprise economic security system , its socio-economic to the characteristics depending on the system objective requirements and corporate factors into account received without managed .

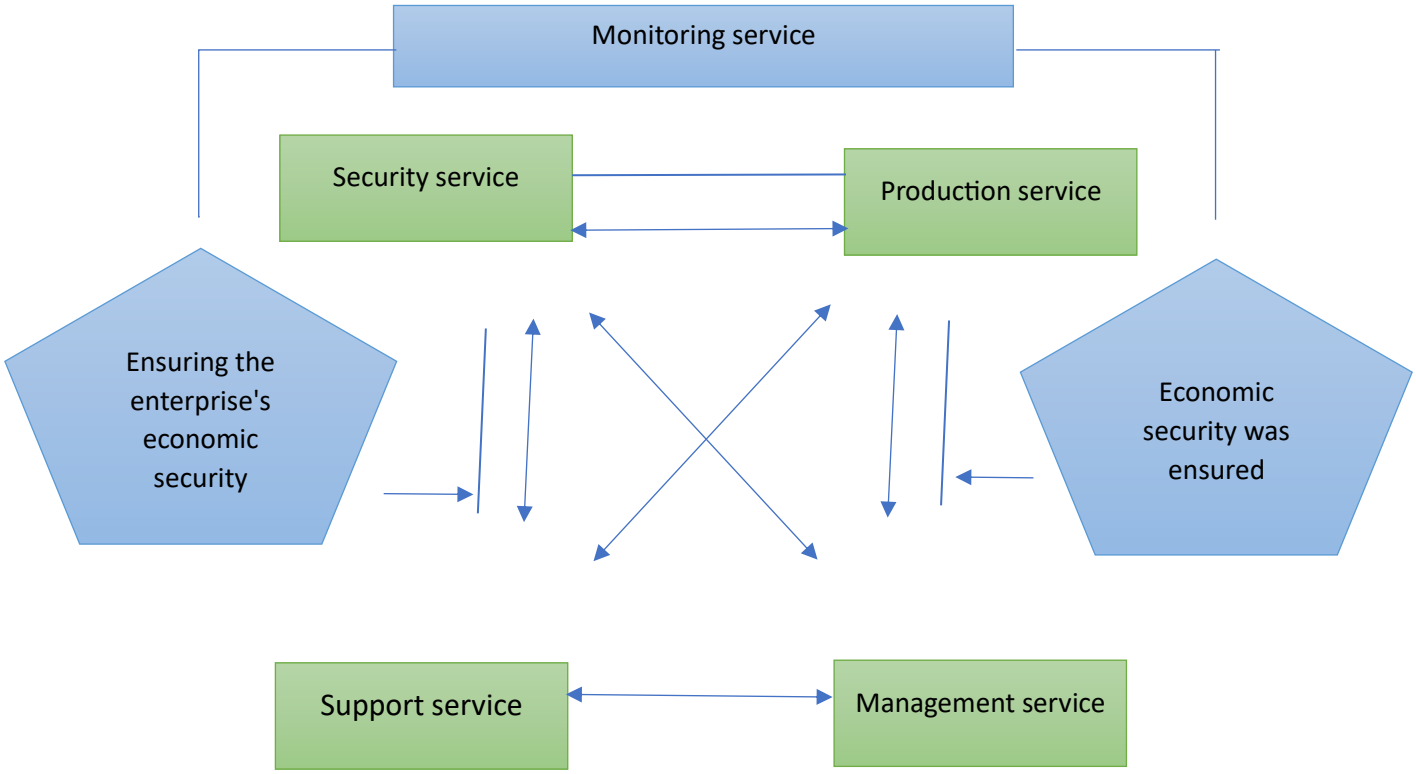

Figure 1. Enterprise economic safety provision model .

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Oil and gas " Probability" at the enterprise and consequences analysis " - **Probabilistic Risk Assessment (PRA)** from the method using risks economic evaluation how done increase possible Oil and gas industry , especially dangerous working release to the processes has is , this method risks in evaluation and to them related economic effects in determining This is useful . method how performance following example through further deeper we understand .

PRA method every one of danger probability we define :

- danger 1 (explosion) or fire): probability = 0.01 (i.e. 1% probability).
- risk 2 (equipment from work output): probability = 0.05 (i.e. 5% probability).
- danger 3 (liquid leak output): probability = 0.03 (i.e. 3% probability).
- risk 4 (environmental damage): probability = 0.02 (i.e. 2% probability).

The consequences evaluation - every one of danger economic consequences we define :

- danger 1 (explosion or fire): explosion or fire as a result oil pipe or gas of the pipe arbitrariness with loss , this enterprise for big damage The analysis is being carried out. In this case , we estimate the damage at 10,000,000 USD .
- risk 2 (equipment from work output): equipment from work output as a result working release stops , repairs expenses and working in the output losses . this In this case , we estimate the damage at 1,500,000 USD .
- danger 3 (liquid leak output): liquid leak output as a result to the environment damage to reach , to work in the output difficulties and enterprise to the reputation damage This damage is 2,000,000 USD organization will reac.
- risk 4 (environmental damage): ecological disaster (for example , at sea) oil as a result of the pouring ecological recovery and fines . In this case , we estimate the damage at 15,000,000 USD .

Probability and consequences merge : in the PRA method , each one danger for probability and economic consequences We calculate . This through we of dangers general economic risk Let's find out .

- danger 1 (explosion) or fire):

Risk= Probability×Consequence =0.01×10,000,000=100,000 USD

- x avf 2 (u skunas from work output):

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Risk= Probability×Consequence =0.05×1,500,000=75,000 USD

- x avf 3 (liquid leak output):

Risk= Probability×Consequence =0.03×2,000,000=60,000 USD

- x avf 4 (a to the environment damage):

Risk= Probability×Consequence =0.02×15,000,000=300,000 USD

General the danger Count : Now all dangers for calculated risks let's add and general economic the danger we define :

Total Risk=100,000+75,000+60,000+300,000=535,000 USD

This analysis through oil and gas in the enterprise to the surface arrival possible was risks and their economic consequences We evaluated . General risk (i.e. , enterprise for of dangers economic risk) 535,000 USD organization This will from our analysis received our conclusion from that consists of It turned out that the PRA method using oil and gas in the enterprise potential of dangers probabilities and to them related economic consequences enterprise to the leadership how to the dangers the most big attention focus necessary and them reduce for how measures see the necessity to understand help This method is especially useful for oil and gas in the industry risks management and to them preparation for effective tool to be possible .

Conclusion and Suggestions

The economic assessment of risks in industrial production processes is necessary because these processes can lead to various hazards and adverse consequences, negatively impacting the financial stability of enterprises. In Uzbekistan's industrial sector, particularly in the oil, gas, and chemical industries, the risks that arise lead to economic losses. For example, in recent years, industrial accidents have resulted in average damages of 2-3 billion soums, which once again emphasizes the importance of assessing production safety.

Thus, the economic assessment of risks in industrial enterprises not only helps manage hazards in processes but also ensures the stability of the enterprise, increases production efficiency, and creates opportunities for long-term economic benefits. Recognizing these necessities, we propose the following within the scope of the topic:

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1. **Applying Advanced Methods:** Expanding the use of the PRA (Probabilistic Risk Assessment) method in assessing risks in industrial enterprises. This will enable enterprises to more accurately identify potential hazards and assess their economic consequences.
2. **Improving the Legal Framework:** Developing new laws and normative documents related to ensuring industrial safety and managing risks. In Uzbekistan, the risks in the oil and gas industry, especially explosions and environmental disasters, can cause significant economic damage.
3. **Personnel Training:** Training specialists in the field of risk assessment and management in industrial enterprises, teaching other risk assessment methods, and introducing the application of advanced methods in risk identification.
4. **Introducing International Experience:** Studying international practices, such as advanced analysis methods like Monte Carlo simulation, and implementing them in industrial enterprises in Uzbekistan.
5. **Attracting Technological Investments:** Attracting investments in modern technologies to reduce risks and increase safety is crucial. This, in turn, will bring economic benefits and improve safety for industrial enterprises.

In this way, effectively implementing the economic assessment of risks in industrial enterprises and applying advanced methods and training personnel are necessary to prevent risks and reduce economic losses. This will not only ensure industrial safety but also serve to ensure the stable and efficient operation of enterprises.

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