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ПРОМЫШЛЕННЫЙ ИНТЕРНЕТ ВЕЩЕЙ В РОССИИ

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Промышленный Интернет вещей (IIoT) — это новая технология, которая находит все более широкое применение в различных отраслях промышленности по всему миру. Россия также начала внедрять IIoT в своем промышленном секторе. В этой статье исследуется текущее состояние IIoT в России и его потенциал для роста в будущем. Анализируются проблемы, с которыми сталкивается российская промышленность при внедрении IIoT, и меры, принимаемые правительством для преодоления этих проблем. Также подчеркиваются преимущества IIoT для российской промышленности и влияние, которое оно может оказать на экономику страны.

Ключевые слова: Промышленный интернет вещей, IIoT, Россия, промышленность, экономика.

INDUSTRIAL INTERNET OF THINGS IN RUSSIA

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The Industrial Internet of Things (IIoT) is an emerging technology that has been increasingly adopted in various industries across the world. Russia has also started to embrace IIoT in its industrial sector. This article revealed the lack of state of IIoT in Russia and its potential for growth in the future. The problems in which the Russian industry is considered in the implementation of the IIoT are analyzed, and the decisions taken to solve these problems are made. The advantage of IIoT for the Russian industry and the impact that may have an impact on the participation of the country is also amplified

Keywords: Industrial Internet of Things, IIoT, Russia, industry, economy.

The Industrial Internet of Things (IIoT) is a technology that involves the integration of various physical devices, machines, and sensors with software and network connectivity to collect and analyze data. IIoT has the potential to transform industries by increasing efficiency, reducing costs, and improving productivity. In recent years, IIoT has gained significant attention in Russia, with various industries starting to adopt this technology. This article aims to explore the current state of IIoT in Russia, the challenges faced by industries in adopting it, and the measures taken by the government to promote IIoT in the country.

Russia is a country with a significant industrial base, and IIoT has the potential to enhance the competitiveness of its industries. The adoption of IIoT in Russia is still in its early stages, but various industries have started to implement IIoT solutions. The oil and gas, manufacturing, and

transportation industries are some of the sectors that have started to adopt IIoT in Russia. For example, in the oil and gas industry, IIoT is being used to monitor the condition of pipelines, detect leaks, and predict maintenance requirements.

The adoption of IIoT in Russia is not without challenges. One of the significant challenges is the lack of awareness and understanding of IIoT among Russian industries. Many companies do not fully understand the potential benefits of IIoT, and some are skeptical about the technology. The lack of skilled workers and the high cost of implementing IIoT solutions are also significant challenges faced by Russian industries.

The Russian government has recognized the potential benefits of IIoT and has taken measures to promote its adoption in the country. The government has developed a roadmap for the implementation of IIoT in Russia, which includes the development of standards, the promotion of research and development, and the establishment of IIoT centers of excellence. The government is also providing financial incentives to companies that adopt IIoT solutions and is working to improve the availability of skilled workers in the field [1-2].

There are several examples of the IIoT in. Examples of IIoT in Russia:

1. Smart Oil Field - In Russia, the Smart Oil Field project uses IIoT to monitor oil wells and pipelines, detect leaks, and predict maintenance requirements.
2. Smart Grid - The Russian power grid is being upgraded with IIoT technology to improve efficiency and reduce power outages.
3. Smart Transportation - IIoT is being used to monitor the condition of railway tracks and predict maintenance requirements to improve safety and efficiency.

The effectiveness of the IIoT can be measured in various ways, such as increased productivity, reduced costs, improved safety, and enhanced efficiency. Here are some statistics that demonstrate the effectiveness of IIoT:

1. Increased productivity: According to a study by Accenture, IIoT can increase labor productivity by up to 25%. Another study by GE Digital found that IIoT can increase equipment uptime by up to 10%.
2. Reduced costs: A study by McKinsey & Company found that IIoT can reduce maintenance costs by up to 40% and energy costs by up to 20%. IIoT can also reduce downtime and improve the overall equipment effectiveness (OEE).
3. Improved safety: IIoT can improve workplace safety by identifying and addressing potential hazards before accidents occur. According to a study by Deloitte, IIoT can reduce workplace accidents by up to 25%.
4. Enhanced efficiency: IIoT can optimize processes and workflows, leading to improved efficiency. A study by the International Data Corporation (IDC) found that IIoT can increase equipment efficiency by up to 20%.
5. Economic impact: IIoT has the potential to generate significant economic impact. A study by the Boston Consulting Group (BCG) estimated that IIoT could create up to \$11.1 trillion in economic value by 2025 [3-4].

IIoT can be implemented in a wide range of enterprises in Russia, regardless of their size or industry. However, certain enterprises are likely to benefit more from IIoT implementation than others. Here are some enterprises in Russia where it would be most appropriate to implement IIoT:

1. Manufacturing: IIoT can be implemented in manufacturing enterprises to optimize production processes, reduce waste, and improve product quality. Manufacturing enterprises in

Russia can benefit from IIoT by using it to monitor equipment and processes, and to predict maintenance requirements.

2. Energy and utilities: IIoT can be implemented in the energy and utilities sector to optimize power generation and distribution, predict demand, and reduce energy waste. In Russia, IIoT can be used to monitor and manage the power grid, optimize energy consumption, and reduce costs.

3. Transportation and logistics: IIoT can be implemented in transportation and logistics enterprises to optimize routes, reduce fuel consumption, and improve supply chain efficiency. In Russia, IIoT can be used to monitor the condition of railways, roads, and airports, and to optimize transportation routes and logistics processes.

4. Oil and gas: IIoT can be implemented in oil and gas enterprises to optimize drilling, production, and distribution processes, and to improve safety and environmental sustainability. In Russia, IIoT can be used to monitor oil wells and pipelines, detect leaks, and predict maintenance requirements.

5. Agriculture: IIoT can be implemented in agriculture enterprises to optimize crop yields, reduce water usage, and improve crop quality. In Russia, IIoT can be used to monitor soil moisture, crop health, and weather conditions, and to optimize irrigation and fertilization processes.

Overall, any enterprise that relies on industrial processes and equipment can benefit from IIoT implementation in Russia. Enterprises that adopt IIoT can increase productivity, reduce costs, improve safety, and enhance efficiency, leading to significant economic impact.

Benefits of IIoT for Russian industries: The adoption of IIoT can bring significant benefits to Russian industries. IIoT can improve productivity, reduce costs, and increase efficiency. IIoT can also help companies to optimize their supply chains, improve product quality, and reduce downtime. The adoption of IIoT can also enhance safety and environmental sustainability in industries [5-6].

The Industrial Internet of Things is a technology that has the potential to transform industries across the world. Russia has also recognized the potential benefits of IIoT and has started to adopt this technology in its industrial sector. However, there are still challenges that need to be overcome, such as the lack of awareness and understanding of IIoT among industries. The Russian government has taken measures to promote the adoption of IIoT and is providing financial incentives to companies that adopt this technology. The adoption of IIoT can bring significant benefits to Russian industries, including improved productivity, reduced costs, and increased efficiency.

Список литературы

1. Shvab, K. Chetvertaja promyshlennaja revoljucija. [Text] / K. Shvab // Bombora. – 2016. – p. 230
2. Dementev, S. Y. Production modernization toolkit for the transition to Industry 4.0 / S. Y. Dementev // . – 2022. – No. 21. – p.p 243-245. – EDN HWTEDK.
3. Dementev, S. Yu. Smart lighting in Industry 4.0 / S. Yu. Dementev, A. V. Murygin // International Journal of Information Technology and Energy Efficiency. – 2023. – Vol. 8, No. 1(27). – p.p. 118-121. – EDN VHGCXQ.
4. Henrik, B. Mashinnoe obuchenie. [Text]. / B. Henrik, M. Feverolf, Dzh. Richards // Piter. – 2017. – p. 336
5. Dement'ev, S. Ju. Metody avtomaticheskoy gruppировки dlja povysheniya jekonomicheskoy jeffektivnosti v industrii 4.0 / S. Ju. Dement'ev, M. P. Roza // Jekonomika i predprinimatel'stvo.

– 2022. – № 10(147). – p.p. 1390-1393. – DOI 10.34925/EIP.2022.147.10.278. – EDN YDFFDH.

6. Sheffer, Je. Industrija H.O. Preimushhestva cifrovih tehnologij dlja proizvodstva. [Text]. / Je. Sheffer // 2019. – p .320

References

1. Shvab, K. Chetvertaja promyshlennaja revoljucija. [Text] / K. Shvab // Bombora. – 2016. – p. 230
 2. Dementev, S. Y. Production modernization toolkit for the transition to Industry 4.0 / S. Y. Dementev // . – 2022. – No. 21. – p.p 243-245. – EDN HWTEDK.
 3. Dementev, S. Yu. Smart lighting in Industry 4.0 / S. Yu. Dementev, A. V. Murygin // International Journal of Information Technology and Energy Efficiency. – 2023. – Vol. 8, No. 1(27). – p.p. 118-121. – EDN VHGCXQ.
 4. Henrik, B. Mashinnoe obuchenie. [Text]. / B. Henrik, M. Feverolf, Dzh. Richards // Piter. – 2017. – p. 336
 5. Dement'ev, S. Ju. Metody avtomaticheskoy gruppirovki dlja povyshenija jekonomicheskoy jeffektivnosti v industrii 4.0 / S. Ju. Dement'ev, M. P. Roza // Jekonomika i predprinimatel'stvo. – 2022. – № 10(147). – p.p. 1390-1393. – DOI 10.34925/EIP.2022.147.10.278. – EDN YDFFDH.
 6. Sheffer, Je. Industrija H.O. Preimushhestva cifrovih tehnologij dlja proizvodstva. [Text]. / Je. Sheffer // 2019. – p .320
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