

cycle, which can range from a few seconds to a couple of minutes. The main advantage for the economy in using graphene energy batteries is that it is possible to produce graphene on an industrial scale in a cheap way.

Today, there is also a trend in the world to incorporate biological foundations into solutions to global problems. Scientists suggested using high molecular weight compounds as an alternative way to store electricity. The researchers have developed an artificial metabolic pathway that uses electricity to produce adenosine triphosphate (ATP), a high-energy biomolecule that can then be used to form energy-rich chemical compounds. The metabolic pathway was named "AAA Cycle". It contains a minimal set of enzymes and does not require membrane charge separation. This is a completely new technology that radically changes the very understanding of energy storage, and it is too early to say whether it can be widely used.

To summarize, the main trend in the economy of this industry is modernization and search for new methods. Despite the fact that there is only one undisputed leader, there are many cool modern projects being prepared to replace it. Time will tell what the batteries of the future will be like. But the development of this industry will not stop, because energy is life, so the preservation of clean energy is the key to the successful development of the human race.

**Y. Kaznacheeva**

**Ю.В. Казначеева**

БГЭУ (Минск)

*Научный руководитель Е.Н. Дудко*

## **INTERNAL FACTORS OF LOW PATENT ACTIVITY**

### **Внутренние факторы низкой патентной активности**

Despite the increasing importance of patent activity in the modern world economy, currently there still is a specific problem of low interest in patenting on the part of inventors and companies. Theoretical sources traditionally refer to high financial costs of patenting and low popularization of information about the necessity of this procedure as the main problems of lack of interest in patent protection of created technologies. However, this unfavorable circumstance can also be caused by other factors.

The purpose of this study is to determine the social causes of low patent activity and to identify possible ways to minimize it.

Some of the previously mentioned reasons include:

1. Difficulties in determining the feasibility of creating and commercializing products. One of the constraining factors in making a decision on patenting may be the lack of complete information about the situation on the technological market. Thus, in order to minimize the risks of financial costs during the development and release of products, it is necessary to analyze patent and non-patent information at all stages of the life cycle of production and sale of such products.

2. Lack of time and resources. The procedure for issuing patents is quite a long and labor-intensive process. In addition, long delays in filing an application and long preparatory procedures for patenting can lead to both to the increase in financial costs and to the loss of a free technological niche. Therefore, organizations need to create structural units of patent engineers, business analysts and intellectual property lawyers. In order to minimize the financial costs of such a department, companies can apply different management concepts. For example, the Law Firm Lane Powell PC together with its clients applied the Lean Six Sigma method in the implementation of patent activities. The application of this concept helped to reduce the costs of filing patent applications and improve their quality [1].

3. Fear of information disclosure. One of the main features of product patent protection is the disclosure of technical information. However, protection of developments solely as trade secrets significantly increases the risk of industrial espionage. In this regard, companies need to ensure comprehensive protection of their technical solutions in order to minimize negative risks.

4. Misconception of the need to ensure absolute novelty of patented products. In order to grant legal protection, technical solutions must meet the criterion of novelty. However, confirmation of this criterion means that the prior art has not become generally available in the world before the priority date. In addition, various companies conduct re-engineering (third-party research on prior art) in order to create innovative and protectable technical solutions.

In summary, to minimize these negative factors, companies need to develop an effective model of technology creation and management.

### **Reference**

1. LANE POWELL [Electronic resource]. – Mode of access <https://www.lanepowell.com/>. – Date of access: 10.10.2023.