

THE IMPACT OF MECHATRONICS ON THE ECONOMY

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In the world of modern technologies, mechatronics is one of the key industries involving the integration of mechanical, electrical and computer systems. This term, which originated in Japan in the 1970s, has firmly entered the lexicon of engineers and designers, emphasizing the importance of integrating various disciplines to create innovative products. Mechatronics, synthesizing mechanics, electronics and computing technology, plays an essential role in the transformation of production processes and the economic environment as a whole. Its impact extends far beyond technical engineering, having a profound impact on the economies of various countries and the global market [1].

Improving Productivity and Efficiency: mechatronics provides automation, optimization and management of production processes, which leads to an increase in the overall productivity of enterprises. The integration of modern technologies makes it possible to significantly reduce the production time, reduce energy and material costs, and bring production facilities to a new level of efficiency.

Reducing Costs and Increasing Competitiveness: optimization of production processes, control over product quality and resources, as well as improved automation of tasks contribute to reducing enterprise costs. This, in turn, makes products more competitive in the market, allowing them to retain and expand their share in the economic sector.

Formation of New Market Trends: the development of mechatronics stimulates the emergence of new market opportunities and trends. Innovative products and services entering the market thanks to mechatronic solutions create new demand segments, increase competition and promote diversity and development of business models.

Technological Leadership and Stimulating Innovation: mechatronics is a catalyst for technological development and innovation. The devel-

opment of new technologies, autonomous systems and smart devices allows companies to be at the forefront, ensuring long-term technological leadership and contributing to innovative development in general.

Economic Growth and Job Creation, Demand for Qualified Specialists: the development of electronics requires highly qualified specialists in engineering, electronics, programming and automation. This leads to an increase in demand for specialized professionals, which in turn contributes to the creation of new jobs.

Increasing Demand for Specialized Knowledge, Growth of Professional Niches: the field of mechatronics creates new professional niches that require in-depth knowledge and competencies in various fields. Specialists specializing in mechatronics have the opportunity to develop in specialized areas, which expands the range of professional opportunities and contributes to the formation of new jobs.

Automation and Robotization: creation of jobs in the service sector; the widespread introduction of robotics and automation in various industries leads to the creation of jobs in the service sector, programming, and technical support.

Integration with Artificial Intelligence and Machine Learning: the synergy between mechatronics and artificial intelligence technologies leads to intelligent systems capable of autonomous decision-making and adaptive behavior. The fusion of these disciplines opens up new horizons for smart technologies and autonomous devices. Integration with Artificial Intelligence and Machine Learning: The synergy between mechatronics and artificial intelligence technologies leads to intelligent systems capable of autonomous decision-making and adaptive behavior. The fusion of these disciplines opens up new horizons for smart technologies and autonomous devices [2].

References

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