SCIENTIFIC REVIEW

MANAGEMENT OF ECO-HOTEL NEW PRODUCT USING ARTIFICIAL INTELLIGENCE

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ABSTRACT

The modern economy rests on industrial development and production with the application of new technologies, knowledge and achievements in technique, technology, economy, ecology, organization, management, informatics and other branches of science and profession. Processes are being innovated in order to achieve products and services of higher quality and performance, in accordance with increasingly strict market requirements. Today, KETs (Key Enabling Technologies) are increasingly being used, which represent a narrower set of six KETs that enable innovations: micro and nanoelectronics, nanotechnology, industrial biotechnology, advanced materials, photonics and advanced production technologies.

Ideas for sustainable hotels are in line with the application of environmentally friendly and automated processes, products and services, which with the application of artificial intelligence (AI) can become green (or even greener). The world's best brands (hotels) have become green thanks to the solutions created by the application of VI, with the launch of many green initiatives (ie. smart showers, solar energy installations, waste reduction and diversion, energy and water consumption savings, etc.). A full understanding of sustainability is important for the hotel industry. The best sustainable hotels are businesses that significantly reduce their impact on the environment through best green practices in maintenance, services, logistics, products and supplies. A hotel that is serious about sustainability must expect large capital expenditures, such as modernization (ie replacement) of HVAC systems (ventilation and air conditioning systems, with the extension to mechanical cleaning and dry cleaning).

When hotels go green, they do much less harm to the environment, reduce costs and win the goodwill of guests. Sustainability in the business world is key to achieving supplier growth and customer satisfaction. Consumers are increasingly looking for green businesses and paying more for environmentally friendly products and services. One in three consumers prefers sustainable brands, and the travel industry is taking note.

The research results in this paper are mainly presented according to the dominant program criteria and variables, at the level of ecology or the application of artificial intelligence at the level of products and systems.

Keywords: *management, hotel, artificial intelligence, ecology, product, service*

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INTRODUCTION

The modern economy rests on industrial development and production with the application of new technologies, knowledge and achievements in technology, technique, economy, organization, management, informatics and other branches of science and profession. Processes are being innovated in order to achieve products and services of higher quality and performance, in accordance with increasingly strict market requirements. Today it is necessary (and in the future it will be even more pronounced) to shorten the deadlines for the development of new solutions, and in the production and placement of new generation products and services it becomes imperative to generate good business results in the interest of satisfying the most diverse customer/user needs, as well as for the survival, growth and development of companies.

KETs (Key Enabling Technologies), represent a narrower set of six technologies that enable innovations: micro and nanoelectronics, nanotechnology, industrial biotechnology, advanced materials, photonics and advanced manufacturing technologies. [9], [10]

KETs provide the basis for innovation in multiple industrial sectors. Companies operating in sectors such as the food industry, transportation and healthcare use regional channels of innovative infrastructure and technological services. The KETGATE project brings together entrepreneurial organizations and research institutes from eight countries, with the aim of enabling SMEs access to high-tech services in order to strengthen partnership cooperation in the area of research, development and application of new technologies for industrial production as well as for the service industry. The project will develop "starter sets" and "toolkits" for encouraging the connection of KETs with innovation systems (eg, at the "KET Innovation Ecosystem" level). As a result, SMEs will more quickly and efficiently place smart product and service solutions on the market, influence private and public investments and support the dynamic development of knowledge based on KETs technologies as well as encouraging their application in industrial production and in other complementary areas. KETs could be displayed more widely. [10]

Today, advanced and successful business systems possess modern infrastructure, production and service capacities, have a reliable supply system, and also, using advanced methods and technologies, successfully work on the placement of products and services; considerations related to industrial hospitality will not be necessary to be represented through specificity at any cost, because today's new achievements imply generally accepted solutions to a large extent at the level of application of KETs and artificial intelligence, which is dominantly reflected in implemented solutions at the level of flexible industry, automated design and automated realization of products and services, obviously at the level of application of technical- technological-informatics achievements, as well as in terms of accepted socio-humanistic goals (directly related to advanced CAD design using AI, with the definition of "digital twins" (Digital twin - DT), [11] smart circular supply, smart production, green economy, green transport, human health protection, environmental protection, etc.). The possibilities of applying new KETs technologies are discussed in detail in [1], [10].

STARTING BASICS OF INTEREST FOR THE APPLICATION OF NEW TECHNOLOGIES

There are a lot of models for analyzing system efficiency depending on available data, process specifics, environmental conditions or specific management requirements. The authors consider that, in accordance with the topic, practical supply would be key at all levels of system functioning in the hotel industry (dominantly a business-service system where services are typically supported by products, from e-cards to heating, ventilation and air conditioning systems), from resource, maintenance and providing services and logistics to customers (consumers, guests) to improving the service process, training staff and solving waste problems.

Key trends in the development of supply chains (SC). There are several trends shaping the future of supply chain management, with emphasized application of KETs, digitalization and the combination of AI and automation (of course, often involving robots as highly automated machines). [10]

The implementation of KETs is particularly noteworthy at the levels of:

- virtual and augmented reality (VAR), with inclusion in,
- modeling and simulation technologies (M&S), in addition to
- social network analysis (SNA).

Very often, in the nomenclature of development trends, AI can also be found at the level of support for other technologies. Thus, cases can be cited where new materials are presented, at the level of an integrated concept with technologies or individually (at the level of nanotechnologies, industrial biotechnologies, advanced materials, and advanced production technologies), etc. [10]

Modeling and Simulation (M&S) are technologies that involve partially or fully human participation, as well as the pursuit of a possible different goal, VAR is most often treated separately. In social network analysis (SNA), a social network is defined as a finite set of actors such as people, organizations or technologies, with the relationships between them. SNA is developed among these Key Enabling Technologies (KETs), to highlight their correlations and connections. As a result, artificial intelligence (AI) can also be highlighted as a support for other technologies and processes, such as vertical integration of production control systems (e.g. connectivity, internet of things, collaborative robotics, etc.), horizontal integration of value networks (e.g. cyber security, diversification, etc.) and life cycle reengineering (e.g. drones, 3D printing - DP, virtual and augmented reality, remote sensing networks, robotics, etc.). [10]

Digitization refers to the practice of obtaining information in a digital format. Effective digitalization can make the entire system become modernized, more functional, mobile and dynamic, etc., which is all of great benefit to the business of the company through the achievement of highly valuable end results. [10], [11]

Similar to digitization, cloud-based software solutions (CBS-Cloud Based Solutions) are the way of the future in systems management. Regardless of the division of development trends, the essence of novelty can be presented according to the following:

- Artificial intelligence and automation in SC;
- A related approach to sustainability of SC;
- Adaptation of SC. [10]

Circular supply chain. At the level of the traditional understanding of SC, chains have always been viewed as linear. A chain that functions in such a way that it begins with the identification of suitable suppliers of raw materials, goes to the level of the flow of goods that takes place in a straight line through the supply chain until it becomes a disposable finished product. Instead of a linear model, it is now, practically always, a circular supply chain, where raw materials and even discarded products are recycled and reintroduced (reintroduced as input) into the production process [10]. The circular chain model helps with environmental sustainability efforts, but also has significant economic benefits for a particular organization. Savings can also be made at the level of reducing storage and transport costs, as well as in terms of administrative costs. Enhanced professional relationships and increased reliance on technology (including AI and IoT) can also help companies' efforts to operate within a circular supply chain.

Cloud Based Solutions (CBS). Similar to digitization, cloud-based software solutions (CBS-Cloud Based Solutions) are the way of the future in Supply Chain management. Traditional and localized SC management solutions will not, and cannot, prevent this. Concretization implies the use of precise, agile and affordable solutions for such organizations that have advanced functioning systems based on digital processes. [10], [11]

A POSSIBLE APPROACH TO THE IDENTIFICATION OF SIGNIFICANT DEVELOPMENT TRENDS

Here, it is useful to refer to the content of the paper, called "Imputation of Single Center from Multiple Chained Equation (SICE)", by the company Sharcx.datasets, because everything is e.g. arranged at the library level and, if necessary, a sample can be ordered. Essential data refers to:

- Savings in research or search time. Detailed data is obtained, which is covering a set of 11+ million data. The datasets are sorted by topic (more than 85 topics). Data is obtained live from over 20+ sources, continuously. [10]
- Ease of use. Savings related to the creation of individual systems of integration of different data sets, data types and data structures for the considered project. [10]
- Improving data science models. Savings in time devoted to data engineering. The topics are already pre-processed by recognized data experts and the data is ready to use. [10]

The sets of business data should serve for the identification of development trends and the concretization of projects of system and program nature. In accordance with the topic of this paper, it is possible to identify several aspects of the development of future smart hotels, and all of them deal with the dominant view of new trends and technologies that shape the hospitality industry. [21]

The hospitality industry has always been among the innovative industries, because hotels are constantly looking for new ways to improve their services and provide exceptional experience to their guests. The digital age, with smart hotel technologies, provides a focus for actions to drive change in this industry. The hotel experience needs to be critically reviewed and redefined for both guests and hoteliers. [21]

AI-driven personalization. Today, AI has made significant progress in the hospitality industry as well, as smart hotels can offer a level of personalization that was previously unattainable. Machine learning algorithms can analyze guests' preferences, behavior and previous stays to provide customized recommendations and services. This may include personalized room settings, selected entertainment options or customized dining experiences based on dietary preferences. AI personalization not only improves the guest experience, but also encourages customer loyalty and more reliable repetition of processes and execution of jobs. [21]

Guest experience enhanced by virtual reality. Virtual reality (VR) technology has advanced rapidly in recent years, offering incredible potential for creating impressive guest experience. Smart hotels can use VR to transport guests to virtual environments or offer unique experiences such as virtual tours of nearby attractions, guided relaxation sessions or even remote attendance of events and conferences. By integrating VR into their offerings, hotels can create unforgettable experiences that extend beyond the traditional boundaries of their properties. [21]

Loyalty programs based on blockchain. Blockchain technology has the potential to significantly improve a lot of industries, as well as the hospitality sector (e.g., the application of blockchain technology in the development of decentralized loyalty programs enables greater transparency and security, allowing guests to easily track and use their rewards in multiple hotels and partner businesses). In addition, by using blockchain technology, hotels can minimize fraud, reduce administrative costs and create an impeccable experience for their loyal guests. [21]

Figure 1. Model of a sustainable hotel (Eco-Friendly-Hotel) [15]

Robot help. The use of robotics in smart hotels is becoming a standard. Robots are applied from the level of automated baggage handling and room service delivery to more advanced tasks such as high-end maintenance of hotel equipment and installations. They reduce labor costs and improve guest experience by offering efficient and personalized service, or even more creative applications in the future hotel industry. [21]

Sustainable and environmentally friendly solutions. Sustainability has become the main focus for companies in all industries, and for hotels it is one of the most important imperatives. Smart hotels integrate environmentally friendly technologies and practices into their operations to minimize their impact on the environment. That can include the use of energy efficient appliances and lighting, water saving measures and purchasing locally produced, sustainable food for restaurants. By adopting sustainable practices, hotels can not only reduce their operating costs but also attract an increasing number of environmentally conscious guests. [21]

The future of the hotel industry is on the rise with the goal of creating smart hotels. By adopting innovative technologies such as AI-driven personalization, virtual reality enhanced experiences, blockchain based loyalty programs, robotic assistance and sustainable practices, hotels can stand out as examples of excellent business systems in an increasingly competitive and demanding market. KETs technologies certainly have the potential to reshape the way the hotel industry operates and the level of management in it. Parallel with smart hotels, work must be done on the program-technological development of the hotel hospitality landscape (practically, the region as a smaller spatial entity whose boundaries are more or less precisely defined). [21]

INNOVATION OF BUSINESS AND PRODUCTION MANAGEMENT FROM THE ASPECT OF APPLICATION OF MECHATRONIC SYSTEMS

The authors also point out to innovations in the field of production management, without which there is no creation of new goods. The basic process of every company refers to: operational planning, scheduling, allocating resources for work, opening work tasks and work orders, launching, material requirements, workshop preparation, production monitoring, i.e. dispatching, internal transport, delivery of finished products to the warehouse of finished products, maintenance of machines and equipment, energy management, etc. [10]

Document management and electronic business provide opportunities at the level of B2B, B2C, C2C, and others, where one should keep in mind CRM (Customer Relationship Management), which represents a complex set of business processes and technologies for "managing relationships with existing and potential users and business partners" etc. New concepts, methodologies and models should lead to "personalization", where each of the clients will have a special treatment and an offer that suits them best at a given moment and which will apply exclusively to them. [10]

Everything that is realized at the software level is not so obvious despite its contribution to the automation of processes, products and services, as it is at the level of hardware (of course, supported by a computer) which is basically a product or a system of mechatronic configuration. [13]

Mechatronics is a word derived from the words "MECHAnics" and "elecTRONICS". One of the more widely accepted definitions of mechatronics reads: "Mechatronics is the synergistic integration of mechanical engineering with electronics and intelligent computer control in the design and manufacture of industrial products and processes." [12]

The key feature of Mechatronics is the synergy that exists between electro-control systems and mechanical machines that are operated according to the principle of regulation. Today, the meaning of the term has been expanded to include the integration of several other disciplines, including sensor technique, signal theory, computer science, system engineering and programming. [13]

The enabling role of production. The "Europe 2020" strategy emphasizes the role of "technology" as the final supplier or supplier of products or services, i.e. solutions based on KETs technologies. Potential solutions are otherwise facing the challenge of increasing European economic growth and creating new jobs. It shows the way forward as an investment in key enabling technologies (KETs), which will help turn innovative ideas into new products and services that create growth, highly skilled jobs with added value and help solve European and global social challenges. [13]

The application of technological innovations in connection with the commercialization of competitively marketed goods and services is enabled precisely by technologically advanced production. Advanced production systems (as well as logistics systems) play a key role in the development of KETs solutions and make new products competitive, acceptable and affordable (while improving the overall social and economic benefit from the aspect of KETs application). Products of high value and superior features cannot create any value for society and the economy if they are not affordable or if they come to the market late. [13]

Advanced production enables economical, resource-efficient and timely production and commercialization. Definitely, KETs have very wide applications and appear in adaptive and smart manufacturing equipment and systems, including mechatronics, robotics, photonics, logistics systems and tracking systems. In accordance with the PLANTCockpit project, it should be said that the research project "Production Logistics and Sustainability Cockpit" (PLANTCockpit) aims to incorporate existing enterprise resource planning systems, as well as MES (manufacturing execution systems), SCADA (supervisory control and data acquisition) and special purpose solutions. [11]

It provides the integration of visibility and processes needed to truly identify potential and optimize intralogistics processes in terms of profit, quality, energy consumption and other similar indicators.

PLANTCockpit should serve production organizations (that is, the industrial sector) as a central environment for monitoring and controlling all intralogistics processes. The goal is to provide supervision over production, foremen and line managers, where it is necessary to provide visibility for making decisions based on good information to optimize processes in industry (factory, hotel or other organization). PLANTCockpit prototypes are currently being demonstrated in five use cases, which are documented in terms of industrial context, regarding the focus on different application areas and realization of business benefits.

The TAPAS project, focused on robotics-enabled logistics and support services for the transformable factory of the future, is of particular interest to this paper. [16]

TAPAS will enable future factories to engage in more efficient and effective production, regardless of changes in the volume of production, degree of complexity of the process and types of products. TAPAS focuses on tasks such as: developing mobile robots with arms to make logistics tasks more flexible and automating the realization of ancillary tasks that naturally build upon logistics tasks (e.g. preintegration or maintenance of machines with inherent quality control). Through this additional creation of value, faster adaptation to changes and with tasks completed in less time, TAPAS will bring a much earlier return of investment and deliver better results as such. [16]

Mobility will play a key role in the workplace of the future by arming both workers and managers with critical data at their fingertips. ICT should focus on the infrastructure for automated manufacturing and the ActionPlanT Roadmap on manufacturing mechanisms beyond pure manufacturing connectivity, which support the business needs of manufacture (e.g. flexible manufacturing services in the cloud for storage and computing, robust and efficient security and payment mechanisms, as well as means of dedicated information collection and process analytics). Furthermore, the next generation of mobility-enabled manufacturing applications should be developed, such as production and logistics traceability, product genealogy, multi-channel product distribution and "manufacturing app stores".

Ultimately, ICT research in manufacturing intelligence will assimilate the vast amount of data that comes as a result of increased collaboration and connectivity and provide meaningful information on the go on mobile devices for managers and supervisors in stores. It is essential to achieve progress beyond the state of technique in complex event processing, real-time data analysis, and predicting complex scenarios originating in the workplaces of the future. Research, Development and Innovation (RD&I) in this area aims to ensure full transparency in all stages of the production process. This transparency is necessary to optimize operational efficiency and guarantee immaculate tracking, tracing and compliance. Currently, most business intelligence systems only allow the user to analyze this data in reporting mode; however, with technology in memory, the future manufacturing businesses (as well as hotels) will be able to analyze and “play” with data in real time. [17]

Advantages of automated logistics data collection. Savings of countless working hours in processing requests, studying documents and creating your own documentation (e.g. offer, order, delivery note and invoice). Therefore, if hundreds of invoices, order confirmations and delivery notices are received, and it needs to be processed regularly, then manual work is practically very inefficient and should be replaced by a more modern realization of the work process. Namely, the costs of manual data entry are certainly very significant (high) as a share of the total cost. Using the right automated solution for data collection will reduce the time spent processing documents (from hours to minutes), and automating processes for faster output can become your competitive advantage in an industry where time is of great importance. In addition, data collection software is the most cost-effective logistics automation system you can implement. [17]

AUTOMATION AND ROBOTIZATION IN THE CREATION OF NEW PRODUCTS

Regarding automation and robotization, which can be seen at the level of automatic control (as it is with technical systems), here we will consider the possibilities of its application in business or business-production processes, as well as at the level of automation and robotization of service potentials (from infrastructure and service environment to robots that directly participate in the service process, or specifically serve customers or guests in a restaurant), or at the level of system and equipment solutions that are represented on mechatronic configuration products (automatic machines, manipulators, robots, vehicles, ships, airplanes or spaceships). An overview of the flow of information will be further given (relatively information management), as well as the specifics of documentation and the movement of documentation that are observed in electronic business (therefore, e-documentation is dominant, practically without the presence of paper documentation), and then also at the level of performance of success indicators of some processes, as well as the effects of placed products or services (at the level of completed tasks, achieved goals and overall performance of the organization), of interest for the

evaluation of the integral quality and general success of the work done at the level of the business system. The robots of the future represent products at the level of intelligent machines that can serve various purposes, from manufacturing and servicing products to various types of services in transport and manipulation of cargo, all the way to interactive robot pets (a type of robotic toy or pet that can communicate with humans. [18]

Having in mind that this is a common interactive work with the continuous development of technology, it will raise the functionality and performance of interactive robotic systems in wide application and robotic practice. Simulating the characteristics and behavior of new generation robots enables the design of advanced automated systems with advanced sensors, so interactive robots will be able to react to touch, sound and other stimuli in a clearly defined environment. The robots will be equipped with advanced software and machine learning algorithms that allow them to learn and adapt to their environment over time. [18]

Robots will be able to perform complex behaviors such as socialization and giving emotional responses. The most modern technology provides users with the possibility that, by connecting to a mobile phone, they can remotely control factories, shops, watch the work of employees and have, when they judge it is necessary, video calls with them. Robots can provide reports with expressive action comments, making it a new level of interactive work and experience.

Robot solution at the level of application of Industry 4.0 technologies. Industry 4.0 is also becoming a reality in the case of the SOTO-robot (for work in production halls, at airports or in train logistics) that brings material to the production line, exactly on time and completely autonomously. SOTO reacts flexibly with a dynamic environment and easily adapts to changes. [19]

SOTO's most flexible gripper was developed as a rotating gripper that allows bags of different sizes to be turned by 90° or 180° inside the robot box. Full bags can be lowered onto the shelf on the long side, and empty bags can be stored on the short side. The gripper is also flexible in terms of height (load transfer takes place at heights of 40-160 cm above ground). Depending on their size, SOTO can simultaneously store between 8 and 24 bags in its "backpack", making the most efficient use of the existing space for stacking packages). SOTO can be individually controlled and precisely maneuvered in the tightest space. [19]

The future of robot work that will change the world. Robots are currently being used in great measure, yet their configuration, function and application could shape a different world in the future. (https://www.futurelearn.com/info/blog/general/introduction-robotics-future-robots) The future of robot work of more advanced configurations could be imagined at the level of automated machines inspired by science fiction. The concept of robot operation defines an automated machine that differs from other types of machines. Namely, because of the way they communicate with people and the environment, robots can change their environment based on their actions and react more significantly to the world around them. "Robotic systems can be defined as interconnected, interactive, cognitive and physical tools that are able to perceive the environment using sensors, think about events and execute planned work using programs in the production system enabled by actuators". So, robots are tools that can autonomously "feel, think, plan and act" (does "robot=forced labor" still apply!?) and can extend human capabilities and imitate human actions. [20]

Today there are robots whose role is irreplaceable, e.g. "AI and medical robots". To define and make an advanced robot, research into its parameters must be multidisciplinary at the intersection of computer science, engineering, and technology, with the focus on design, construction, operation and use in a variety of environments. The latest developments in machine learning (ML) and artificial intelligence (AI) mean that we can see an increase in interaction between humans and robots at work in the future. Much of the economic growth in the world comes from the realization of professional services that meet various useful requirements for people (from cleaning and manufacturing to transport and delivery of products).

Today, the field of robotics offers solutions for many different problems (in the future it will all be expanded and improved). The future of work could change the world we live in, but that does not mean the new technology does not have its drawbacks. Through research, the University of Reading came to the conclusion that there are, in addition to advantages, various disadvantages of using labor in the modern world.

The advantages of robots in work are obvious: increased productivity, efficiency, quality and consistency in certain environments. Unlike humans, robots work and do not get bored by constantly repeating the same processes. They can be very precise, which makes them particularly useful in microelectronics production. Robots can work in environments that are not safe for humans, such as hazardous chemicals or in areas of high radiation, because they do not have the same physical or environmental needs as humans. For some jobs, robots have sensors and actuators that are more capable than humans. [20]

Disadvantages of robot work: in some industries, they work and replace human jobs, which can create an economic problem (increase in unemployment). Robots cannot improvise (although artificial

intelligence and machine learning are changing that). Current work technology means that most machines are less prepared than humans and cannot qualitatively compete with the human ability to understand what they can see. It is about making robots feel the world better. Robots with practical applications are generally more expensive in terms of initial costs, maintenance, the need for additional components and the need for programming to complete tasks. [20]

However, it is evident that robots are already all around us, whether they are automated machines that assemble our vehicles or virtual assistants that use conversion interfaces to help people (tourists, hotel guests or household members). Nevertheless, the robots of the current generation are not suitable for all areas of life. Despite fears of an AI takeover, where machines replace humans as the dominant intelligence on the planet, such a scenario seems unlikely. However, the PvC business network predicts that up to 30% of jobs could be automated by the mid-2030s.[20]

Workers will need new technological skills; a lot of new roles will require social and emotional skills, especially in roles where robots are not a good substitute, such as caregiving and teaching. We may also see robots able to use computer vision and natural language processing, so we may see machines that can interact more with the world, such as self-driving cars or the case of digitalized assistants. [20]

Robots are already serving guests in restaurants, but robots may shape the future of medicine (surgical work can be performed by robots in extremely precise operations, and with advances in AI, they could eventually perform surgeries independently).

CONCLUSION

The modern economy rests on industrial development and production with the application of new technologies, knowledge and achievements in technique, technology, economy, ecology, organization, management, informatics and other branches of science and profession. Processes are being innovated in order to achieve products and services of higher quality and performance, in accordance with increasingly strict market requirements. Today, KETs (Key Enabling Technologies) are increasingly being used, which represent a narrower set of six KETs that enable innovations: micro and nanoelectronics, nanotechnology, industrial biotechnology, advanced materials, photonics and advanced production technologies.

Today, advanced and successful business systems possess modern infrastructure, production and service capacities, have a reliable supply system, and also, using advanced methods and technologies, successfully work on the placement of products and services; considerations related to industrial hospitality will not be necessary to be represented through specificity at any cost, because today's new achievements imply to a large extent generally accepted solutions at the level of application of KETs and artificial intelligence, which is dominantly reflected in implemented solutions at the level of flexible industry, automated design and automated realization of products and services, obviously at the level of application of technical- technological and IT achievements, as well as in terms of accepted socio-humanistic goals (directly related to advanced CAD design using AI, smart circular supply, smart production, green economy, green transport, human health protection, environmental protection, etc.). Everything that is realized at the software level is not so obvious despite its contribution to the automation of processes, products and services, as it is at the level of hardware (of course, supported by a computer) which is basically a product or a system of mechatronic configuration.

TripAdvisor, for example, developed its GreenLeaders program, which shows conscientious travelers hotels with the best examples of environmental practices, LEED (Leadership in Energy and Environmental Design) level. Moving towards sustainability means reducing costs but also hiring staff to perform maintenance work and guest services (make the staff environmentally friendly).

Future work implies that robots can adapt to their environment, master new processes and change their behavior (this would be practically appropriate for more complex and dynamic tasks). Robots can work to improve health and protect human lives (they could improve health care, make transport more efficient, and give people more freedom to pursue creative endeavors).

Of course, all of this could be elaborated on a larger scale, but the authors will devote themselves to this in more detail in future development research, and in particular apply the AI level of new generation robots.

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