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Paper title: Artificial intelligence as a driver of business process transformation

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Keywords specific to the paper: artificial intelligence; business processes; digitalization; business strategies; machine learning

Summary of the main contributions:

The purpose of this article is to study the role of Artificial Intelligence (AI) as a driver of business process transformation that contributes to the fast growth of business profitability through intelligent automation. It allows the creation of new innovative products, increases revenue and reduces costs, which improves customer satisfaction and enhances better companies' results. Its usage is mandatory to maintain a competitive advantage in the market. Additionally, the article talks about the challenges and opportunities associated with implementing AI in business processes, as well as potential future trends in AI-driven business transformation. For instance, results demonstrated in the study mostly mention the robotic business industry and its future compared to other industries. Despite increased productivity thanks to AI, robots can only act as intermediaries in the implementation of activities. Furthermore, it can negatively impact the socially balanced structure, as tasks and jobs can be redefined. Hence, the emergence of AI has enabled a digital transformation of business processes management, which reshaped the structure of the economic system.

It is said AI refers to the application of technology used to perform tasks that duplicate human cognitive functions. And since it is a technology created by humans, alongside automation of tasks, they can act in situations not provided by programmers and assess decisions by themselves in contrary of traditional software. Indeed, the study highlights the fact that AI is being used to improve efficiency and optimize decision-making across industries. It concentrates on specific AI applications such as machine learning, natural language processing, and robotics, and their roles in managing operations and driving innovation. The article emphasizes the different examples of business processes to show the importance and contribution of artificial intelligence in industries. Contributions made from improved algorithms, availability of large amounts of data and advanced technological equipment and software helped to analyze and monitor business processes to get better results and improve their efficiency in companies. Consequently, predicting results using different types of algorithms in AI is crucial. Nevertheless, AI constantly learns from any inaccurate definitions made by its applications.

The results presented by the paper reveal that AI and human collaboration is producing better results in business processes. It permits managers to predict the development of their business. Artificial intelligence can help organizations monitor their business processes by formulating hypotheses, identifying and testing new ideas. For example, in financial function, AI can help organizations reduce risks, actively prevent fraud and speed up due diligence processes for new suppliers. In the field of fraud, AI can provide faster and more reliable detection of criminal movements in a large volume of structured and unstructured data. Also, predictive monitoring systems with AI can positively affect critical parts of the production process of a company, such as the supply chain. To conclude, implementation of AI in business saves time by allowing staff to focus on more business-critical strategies and operations that require more creative skills and thoughts, and for the company to get better cost-effective results.

AI model used:

- **Introducing the AI models:**

The paper proposes an approach using machine learning and neural network model. Machine learning develops automated systems that can constantly learn and improve from experience without being repetitively programmed. It is a way for computers to learn from collected big data and make predictions or decisions based on that learning, without any human intervention in-between. Although, implementing human feedback can increase effectiveness and accuracy. As for neural networks, it is a method in AI that teaches computers to process big data, but they are imitating human cognitive skills. They are designed to solve multiple tasks, pattern recognition for monitoring included.

The paper illustrates its research by recognizing Support Vector Machine, Naive Bayes and Neural Networks as AI models. Support Vector Machine is associated with machine learning algorithm that is a supervised learning model (a subcategory of machine learning) to solve complex classification, and for detection problems by performing optimal data transformations. Naive Bayes is also a supervised machine learning algorithm based on predictive modeling, which is used for classification tasks and to solve multi-class prediction problems. Neural Networks model is a type of machine learning process, called deep learning, that uses interconnected nodes or neurons in a layered structure that resembles the human brain.

- **How do they contribute the idea proposed by the paper?**

The AI models propose how AI solves the problem of information, big data and monitoring of business processes. It is through algorithms that AI solves them. Given the paper's definition, *"an algorithm is a set of well-defined instructions"*. It is not programmed to perform a task but learn how to perform the said task. Analyzing AI-based results of AI monitoring systems to refine the model can help in improving the results in real-time for a business, because somehow according to the paper the absence of human feedback analysis over time can create incorrect results. It can provoke inefficiency, cause missed opportunities or new risks. AI applications contribute to expanding human knowledge and allow big data sharing and ideas. As algorithms permit forecasts for business processes, human participation is necessary during the entire usage of any AI application in companies, depending on their field. All these contribute to supporting decision-making in a company but also to providing efficient business process management.

Supported by a software application?

Proposed algorithms in the paper reveal that patterns based on huge amounts of data using machine learning techniques such as predicting purchasing behavior, assessing business sales issues or detecting fraud in activities are very important parts to analyze and monitor based off AI software applications. Because nowadays, cognitive interaction is associated with automatic communication with customers and employees using applications. Applications of AI through software include highly effective customer service and better internal management to improve the efficiency of business processes.

As a matter of fact, the paper does indicate that enterprises do use software applications powered by AI models to monitor their operations and processes evolutions. Unfortunately, the study does not specify or elaborate on them.