Artificial Intelligence: Insights Into Industrial Purchasing

Laila El Shafie
Student of Software Engineering and Management
Institute of Business Economics and Industrial Sociology
Graz University of Technology
Graz, Austria
laila.elshafie@student.tugraz.at

Volker Koch
Post - Doc
Institute of Business Economics and Industrial Sociology
Faculty of Mechanical Engineering
Graz University of Technology
Graz, Austria
volker.koch@tugraz.at

Abstract

The use of Artificial Intelligence (AI) is crucial in a world where manufacturing is experiencing a digital transition and embracing the concept of Industry 4.0. As manufacturing processes become increasingly automated and digitalized, new activities and departments must adapt and integrate in order to provide a pleasant work environment where machines and humans coexist. This is vital for a company's existence. Ordering and purchasing, risk management related with the supplier and product being purchased, creation of vendor and supply chain processes, and performance analysis of the suppliers and vendors involved are all responsibilities performed by purchasing and supply chain management personnel. Decades of outmoded buying procedures must be changed to be more effective and profitable in the digital world. The purpose of this article is to provide a high-level overview of artificial intelligence, its advantages and disadvantages, future possibilities, and how it can be integrated into purchasing and supply management processes to increase their effectiveness and efficiency while also improving their quality.

As a result of this, research was done with buyers from a variety of significant industries, manufacturers, and other firms in Austria. Surveys and interviews were used as a research method and the data were collected by a questionnaire.

The findings of this research show that numerous businesses are seeing the value of investing in artificial intelligence, regardless of whether it has been used in their operations. Large amounts of procurement data collect over time and get spread across the organization, making it difficult for procurement firms to extract the maximum value from the data. Given that the pandemic has reintroduced this, a kind of technology is necessary to reply more rapidly and remotely. Artificial intelligence may be used to fill in for absent personnel or to perform typical job activities. In return, it frees up individuals to participate in activities that need their physical presence. This includes, but is not limited to, difficulties with creativity and interpersonal connections. This has the potential to result in the development of new employment. Humans, on the other hand, will always be necessary for digitization and process standardization/simplification, since robots will always require maintenance. It was said that the older generation will struggle with it, whilst the next generation will not. Children should be regarded since they are already growing up in a digitalized culture with constantly changing requirements. In their daily lives, AI will be woven into the fabric of human life and will be unavoidable.

While this study helps us understand how AI may increase buying, performance, and new task completion, it has some limits. Interviews and archive data are particularly valuable. Other data sources and gathering techniques may be useful. Future research should address this problem using ethnographic methodologies.

The cases were chosen for their reputation as the greatest in their disciplines. Future research should concentrate on a less reputable AI system, particularly in German-speaking regions. This may help uncover new AI demands. Finally, future research should quantify the influence of AI on performance, rather than relying on qualitative measurements.

Keywords
Artificial Intelligence, Industrial Purchasing, Procurement, Machine Learning, Industry 4.0

Biographies
El Shafie Laila is a Software Engineering and Management student at the Graz University of Graz. As her bachelor thesis she did this research in "Artificial Intelligence: Insights Into Industrial Purchasing".

Volker Koch, Ph.D. is a Post-Doc of the Institute of Business Economics and Industrial Sociology at Graz University of Technology (TU Graz). His current research interests are in the field of "Purchasing Professionals" as well as "Individual Purchasing Performance". Besides, he teaches several lectures and exercises in the field of Business Economics and social skills.