

Automation of customer feedback collection and processing in quality management systems using AI

Igor Kovalchuk

*Postgraduate student of the Educational and Scientific Program «Management», Department of Managerial Technologies, «KROK» University, Kyiv, Ukraine
e-mail: kovalchukis@krok.edu.ua,
ORCID: 0009-0008-7827-6804*

Olga Orlova-Kurilova

*Doctor of Economic Sciences, Associate Professor, Professor of the Department of Information Management, Mathematics and Statistics, «KROK» University, Kyiv, Ukraine
Scientific supervisor;
e-mail: orlovakov@krok.edu.ua,
ORCID: 0000-0001-8382-8070*

In the modern conditions of the competitive market, the quality of products and services is determined not only by technical characteristics, but also by the level of customer satisfaction. Therefore, rapid analysis of customer requests and feedback is a possible key for successful marketing of a product. Implementation of artificial intelligence (AI) in the process of collecting and analyzing feedback may be a good solution for increasing the efficiency of this process. However, implementation AI for enterprises QMS management processes is pretty limited in Ukraine. Advanced AI products open new horizons for automatization of some routine tasks of management processes, allowing to expand managers' capabilities, providing cost-effective and resource effective-solutions [1].

This study is aimed to analyze the potential of AI-technologies application in the sphere of customer related processes. The planned outcomes of this study are comprehensive analysis of advantages and disadvantages of artificial intelligence tools application for customer satisfaction evaluation as well as suggestions of ways for integration of AI assistants for Ukrainian enterprises.

The basic document that states the requirements for Quality Management Systems for Ukrainian enterprises is DSTU ISO 9001. According to clause 9 organization should track how customers perceive the extent to which their needs and expectations are met. It must establish methods for collecting, monitoring, and analyzing this information. Examples of customer satisfaction monitoring may include customer surveys, feedback on products and services, customer meetings, market share analysis, positive reviews, warranty claims, and reports from product distributors [2]. Analysis of this massive amount of information is time and resource consuming. Therefore, application of AI technologies may be a good option for QMS effectiveness optimization.

Artificial intelligence can automate feedback collection and analysis using the following technologies: Natural Language Processing (NLP), chatbots and voice assistants, sentiment analysis systems [3]. In scope of this study AI based chatbot

was developed to collect customer feedback. It automates the process of collecting, categorizing, and analyzing reviews using artificial intelligence. The bot uses text sentiment analysis to classify reviews into positive, negative, and neutral, storing them in Google Sheets for further analysis. This tool allows businesses to efficiently process large volumes of reviews and automatically generate reports to improve quality management.

The benefits of AI application for customer related processes management involve the high processing speed, as AI is able to analyze large massive of data in real time. Another positive outcome involves cost-effectiveness, as usage of machine base tools capable of automatically analyzing a lot of data eliminates the necessity for a lot of human resources required for manual processing of the same operations. Also, positive sides of AI usage are its high accuracy and response rapidity, as this reducing the human error as well as personal subjectivity in decision-making: Using AI to analyze feedback raises privacy and ethical issues, especially regarding the collection and processing of customer personal data. However, process automatization and elimination of humanized control create some possible risks and problems. For example, AI assistants may not take into account the emotional aspects of communication, which are important for understanding the true needs and expectations of customers, as well this may reduce the client's trust, especially if customers feel a lack of personalization. Another possible complication of AI application is privacy and ethical issues, especially regarding the collection and processing of personal customer data. Also, before implementation of AI assistance for customer process management risk analysis should be performed, as the effectiveness of AI is directly dependent on the quality and volume of data. Incomplete or inaccurate data can lead to incorrect conclusions [1; 3].

These findings and considerations of this study provide a potential mechanism for AI integration in quality management systems allows to significantly increase the efficiency of collecting and analyzing customer feedback, which correspondingly contributes to the improvement of products and services. The implementation of such technologies for Ukrainian enterprises will significantly contribute to their competitiveness and compliance with international standards. Future research should be devoted to optimization and validation of proposed tool for practical application, taking into account the specificities of enterprises and possible complications that may arise.

Key words: artificial intelligence, customer, quality management system.

References:

1. Saihi A. *Quality 4.0: leveraging Industry 4.0 technologies to improve quality management practices – a systematic review* / A. Saihi, M. Awad, M. Ben-Daya // *International Journal of Quality & Reliability Management*. – 2021. – Ahead-of-print. – DOI: 10.1108/IJQRM-09-2021-0305.
2. Popescu M. *Quality management and ISO 9001 requirements. Theory and applications* / M. Popescu, L. Mandru, E. Gogoncea. – 2017. – DOI: 10.2370/9783844057003.
3. Montenegro E. *Improving customer satisfaction through the ISO 9001 quality management system*

and quality control design: a case study / E. Montenegro, L. Aragón // 21st LACCEI International Multi-Conference for Engineering, Education, and Technology: “Leadership in Education and Innovation in Engineering in the Framework of Global Transformations: Integration and Alliances for Integral Development”, Hybrid Event, Buenos Aires, Argentina, July 17-21, 2023. – ISBN 978-628-95207-4-3. – ISSN 2414-6390. – DOI: 10.18687/LACCEI2023.1.1.692.