



## Soft Skills in Management Using Artificial Intelligence

Maia Lomsadze-Kutchava<sup>1</sup>, Tamar Tsereteli<sup>2</sup>, Ketevan Kutateladze<sup>3</sup>

<sup>1</sup>Professor Georgian Technical University, <sup>2</sup>Associate Professor Georgian Technical University,

<sup>3</sup>Professor Georgian Technical University

### Abstract

This research investigates the effectiveness of Artificial Intelligence (AI) technologies in developing managers' soft skills. The study employed a mixed methodology approach involving 150 managers from various industries. The research included online surveys, in-depth interviews, case studies, and a controlled experiment.

Results demonstrated significant positive impact of AI tools on soft skills development: 78% of respondents reported improvement in communication skills, 82% in decision-making processes, and 71% in conflict resolution abilities. AI-based simulations proved most effective (85%), particularly for developing conflict resolution and negotiation skills.

The study revealed challenges including privacy concerns (68%), risk of over-dependence on technology (57%), and difficulties in measuring ROI (72%). At the organizational level, AI implementation resulted in 27% increase in employee engagement, 31% improvement in retention rates, and 23% productivity growth.

The research resulted in recommendations for organizations, including developing strategic approaches, investing in AI simulations, creating balanced methodologies, and establishing ethical usage policies. The study concludes that while AI represents a powerful tool for enhancing managerial soft skills, it should complement rather than replace human interaction, particularly in areas requiring empathy and emotional intelligence.

**Keywords:** soft skills, artificial intelligence, management, leadership, emotional intelligence, communication, organizational development

### Introduction

In the field of modern management, soft skills play an increasingly important role in achieving organizational success. At the same time, the rapid development of artificial intelligence technologies creates new opportunities for improving and strengthening these skills. The aim of this study is to study the effectiveness of using artificial intelligence in developing managers' soft skills, analyze current trends and practices, identify challenges and develop recommendations for organizations.

The study aims to explore the following questions: How can artificial intelligence improve managers' soft skills? What types of AI tools are most effective for developing various soft skills? What challenges exist regarding the integration of AI in the field of management? What is the impact of these technologies on organizational culture and effectiveness?

Modern scientific literature indicates the growing importance of soft skills in the field of management. Studies have shown that managers who possess strong emotional intelligence, communication skills, conflict resolution skills, and teamwork skills achieve better results in terms of employee satisfaction, retention, and productivity (Goleman, 2020; Bradberry & Greaves, 2019).

At the same time, in recent years, there has been an increase in the number of studies examining the use of artificial intelligence in various fields, including management. Some studies indicate that AI tools can play an important role in developing managers' soft skills (Chen & Thompson, 2023; Mikalef & Gupta, 2021). However, there is a difference of opinion about the extent to which technology can improve such deeply human skills as empathy and emotional intelligence (Davenport, 2022).

### **Main part**

In the modern business environment, the effectiveness of management depends significantly not only on technical knowledge, but also on the so-called "soft skills". These skills include emotional intelligence, communication skills, conflict resolution and teamwork. The development of artificial intelligence has created new opportunities for improving and strengthening these skills. This article discusses how artificial intelligence can help managers develop soft skills and use them effectively.

Using artificial intelligence to develop soft skills is an innovative approach that helps managers become more effective leaders. AI systems can analyze communication, detect emotional tone and provide recommendations for improving communication. For example, AI tools for analyzing emails can help managers write more effectively and empathetically, which improves the quality of their communication with employees.

Emotional intelligence is one of the most important soft skills for managers. Artificial intelligence can help managers better understand their own emotions and those of others. AI-based applications that analyze tone of voice, facial expressions, and the nuances of textual communication provide valuable information about how others perceive a manager's communication. This information can be used to improve one's own emotional intelligence and develop a more effective leadership style.

Conflict resolution is another important soft skill that can be improved through the use of artificial intelligence. AI systems can analyze conflict situations and suggest solutions based on past successful examples. Artificial intelligence-based simulations can be used by managers to practice conflict resolution skills in a safe environment where mistakes do not have real-world consequences.

Facilitating teamwork is a critical part of the manager's role. Artificial intelligence can help managers better understand the skills and personality traits of their employees, allowing them to build more effective teams. AI analytics can reveal team dynamics and relationships, helping managers identify problems before they escalate.

Improving decision-making is another area where AI can help managers develop soft skills. AI can process large amounts of data and present information in an understandable format, helping

managers make better decisions. However, it is important to note that AI cannot replace human judgment and intuition, but should be used as a supporting tool.

Continuous learning and development are important characteristics of a successful manager. AI can create personalized learning experiences that are tailored to the specific needs of the manager. AI-based learning platforms can adapt to a manager's learning style and schedule, facilitating continuous professional development.

Cultural sensitivity and diversity management are important soft skills in a globalized business environment. Artificial intelligence can help managers understand different cultural contexts and effectively manage diverse teams. AI tools that analyze cultural differences and their impact on communication can be very useful for managing global teams.

Time management and productivity are areas where the use of AI can be particularly effective. AI-based scheduling tools can help managers better plan their time and prioritize tasks. These tools can also be used to better manage employee time and effectively coordinate projects.

Challenges in using AI to develop soft skills include privacy concerns and the risk of over-reliance on technology. It is important for managers to maintain a balance between the use of AI tools and human relationships. Artificial intelligence should be used as an aid, not a replacement for human relationships.

In the future, the role of artificial intelligence in management and soft skills development is likely to increase. AI systems will become more sophisticated and will be able to analyze more complex aspects of human relationships and behavior. However, it is important to remember that successful management always requires a human touch and empathy, which no technology can replace.

A mixed research methodology was used for the article, which included both qualitative and quantitative methods. 150 managers from various fields who had been using AI tools for at least 6 months were selected as study participants. The study included the following stages:

1. Online survey – managers completed a structured questionnaire that assessed their experience in using AI tools for soft skills development.
2. In-depth interviews – interviews were conducted with 30 selected managers about their experience using AI tools.
3. Case studies – A detailed analysis was conducted in 5 organizations that successfully implemented AI tools in their management development programs.
4. Experiment – 50 managers were divided into control and experimental groups. The experimental group used a specially developed AI platform for soft skills development for 3 months, and then the results of both groups were compared.

Statistical methods (SPSS software) and thematic analysis of information obtained from interviews (NVivo software) were used to analyze the data.

The study showed that the use of artificial intelligence had a significant positive impact on the development of soft skills of managers. The analysis of quantitative data revealed the following trends:

- 78% of managers noted an improvement in communication skills as a result of using AI tools.
- 65% noted an improvement in the components of emotional intelligence, especially in terms of self-assessment and perception of others' emotions.
- 82% noted an improvement in the decision-making process.

- 71% reported improved conflict resolution skills.

### Soft Skills Development Index (SSDI)

$$SSDI = (P_{post} - P_{pre}) / P_{pre} \times 100\%$$

Where:

- SSDI = Soft Skills Development Index
- $P_{post}$  = Post-AI intervention skills assessment
- $P_{pre}$  = Pre-AI intervention skills assessment

Combined Skills Development Coefficient (CSDC)

$$CSDC = \sum(W_i \times S_i) / \sum(W_i)$$

Where:

- CSDC = Combined Skills Development Coefficient
- $W_i$  = Weight (importance) of a specific soft skill
- $S_i$  = Score of a specific soft skill

Skills Utilization Effectiveness (SUE)

$$SUE = (FA \times PA) / 100$$

Where:

- SUE = Skills Utilization Effectiveness
- FA = Frequency of Skill Utilization (%)
- PA = Proficiency of Skill Utilization (%)

These results are also supported by data from an experiment, where the experimental group showed statistically significant improvements ( $p<0.05$ ) in all measured aspects of soft skills compared to the control group.

The study revealed that different types of AI tools are characterized by different effectiveness in developing different soft skills:

### AI-Enhanced Managerial Effectiveness (AIEME)

$$AIEME = (PE \times TQ \times AI\_util) / 100$$

Where:

- AIEME = AI-Enhanced Managerial Effectiveness
- PE = Personal Effectiveness (on a scale of 1-100)
- TQ = Team Quality (on a scale of 1-100)
- AI\_util = AI Utilization Rate (%)

### Soft Skills Composite Index (SSCI)

$$SSCI = (C + EI + CM + TL + DM) / 5$$

Where:

- SSCI = Soft Skills Composite Index
- C = Communication Skills (1-10)
- EI = Emotional Intelligence (1-10)
- CM = Conflict Management (1-10)
- TL = Team Leadership (1-10)

- DM = Decision Making (1-10)

AI Organizational Impact Index (AOII)

$$AOII = (EE \times 0.3) + (ER \times 0.25) + (CR \times 0.2) + (PR \times 0.15) + (IC \times 0.1)$$

Where:

- AOII = AI Organizational Impact Index
- EE = Employee Engagement Increase (%)
- ER = Employee Retention Improvement (%)
- CR = Conflict Reduction (%)
- PR = Productivity Increase (%)
- IC = Innovation Culture Enhancement (Increase in New Ideas %)

This formulation is given below:

- Text Analysis AI Tools (78% Effectiveness) – Were Particularly Effective for Improving Written Communication.
  - Voice Analysis Tools (72% Effectiveness) – Helped Managers Improve the Tone, Clarity, and Persuasiveness of Oral Communication.
  - Emotion Analysis Tools (68% Effectiveness) – Helped Managers Develop Emotional Intelligence.
  - AI-based simulations (85% effectiveness) – were particularly effective for developing conflict resolution, negotiation and difficult conversation skills.
  - Personalized learning systems (81% effectiveness) – helped managers identify gaps and create personalized development plans.

The study identified several significant challenges associated with using AI tools for soft skills development:

- Privacy and data protection issues (mentioned by 68% of respondents).
- Risk of over-reliance on technological solutions (mentioned by 57%).
- Difficulty in accurately calibrating systems in different cultural contexts (mentioned by 61%).
- Risk of reducing the human element in management (mentioned by 53%).
- Cost and difficulty in measuring return on investment (ROI) (mentioned by 72%).

Case studies examined in the study revealed that the implementation of AI tools had the following organizational impacts:

- 27% increase in employee engagement on average.
- 31% improvement in employee retention.
- 45% reduction in the number of conflicts.
- 23% increase in productivity.
- Strengthening of the culture of innovation, which was reflected in a 34% increase in new ideas.

The results of the study confirm that artificial intelligence is a powerful tool that can significantly improve managers' soft skills. Of particular interest is the fact that AI-based simulations had the highest effectiveness. This may be explained by the fact that simulations allow managers to practice different approaches in a safe environment, receive real-time feedback, and iterate the process as needed.

It is also important to note that AI tools were particularly effective for analytical soft skills, such as decision-making, but were less effective for deeply human skills, such as empathy. This suggests that artificial intelligence should be viewed as an aid, not a complete replacement for human relationships.

The challenges identified, especially privacy and data protection issues, indicate that organizations need to develop clear policies and procedures for the ethical use of AI systems. However, the difficulty of measuring ROI (Return on Investment) in soft skills development using AI is a significant challenge. Overcoming the difficulty of measuring ROI requires a comprehensive approach that combines both quantitative and qualitative metrics and takes a long-term perspective. Organizations should develop clear pre- and post-measurement systems to better assess the impact of AI investments on soft skills development.

### **Conclusions and Recommendations**

Based on the results of the study, we can draw the following conclusions:

1. Artificial intelligence tools are an effective tool for developing managers' soft skills, especially in areas such as communication, decision-making, and conflict resolution.
2. Different types of AI tools are characterized by different effectiveness, so it is important to choose the right tool for developing a specific soft skill.
3. The use of AI tools involves significant challenges that must be considered during the implementation process.
4. The implementation of AI technologies has a positive impact at the organizational level, which is reflected in improved employee engagement, retention, and productivity.

Based on these findings, the following recommendations for organizations have been developed:

1. Develop a strategic approach to implementing AI technologies in management development programs, which includes clear goals and evaluation metrics.
2. Invest in AI-based simulations that allow for practical experience in a safe environment.
3. Develop a balanced approach that combines AI tools and traditional human interaction, especially for the development of empathy and emotional intelligence.
4. Create clear policies and procedures to ensure confidentiality and data protection.
5. Foster a culture that values continuous learning and innovation to maximize the potential of AI technologies.
6. Invest in training managers on how to use AI tools effectively.
7. Develop an adaptive approach that takes into account the rapidly changing technological landscape and organizational needs.

In conclusion, artificial intelligence is a powerful tool for managers who want to improve their soft skills. By using AI, managers can better understand and manage emotions, improve communication, resolve conflicts, and strengthen teamwork. However, it is important to use this technology in a balanced and ethical way that complements and enhances human skills, rather than replacing them.

### **Bibliography**

1. Bradberry, T., & Greaves, J. (2019). Emotional Intelligence 2.0. TalentSmart.

- Chen, L., & Thompson, P. (2023). Artificial Intelligence in Management Development: A Comprehensive Review. *Journal of Management Studies*, 60(3), 512-541.
- Davenport, T. H. (2022). *The AI Advantage: How to Put the Artificial Intelligence Revolution to Work*. MIT Press.
- Goleman, D. (2020). *Emotional Intelligence: Why It Can Matter More Than IQ*. Bantam Books.
- Mikalef, P., & Gupta, M. (2021). Artificial intelligence capability: Conceptualization, measurement calibration, and empirical study on its impact on organizational creativity and firm performance. *Information & Management*, 58(3), 103434.
- World Economic Forum. (2023). *Future of Jobs Report 2023*. WEF.
- Zhang, K., & Asahi, H. (2022). AI-driven Soft Skills Development for Leaders: Empirical Evidence from Multinational Corporations. *Leadership Quarterly*, 33(4), 101622.

## მენეჯმენტში რბილი უნარები ხელოვნური ინტელექტის გამოყენებით მაია ლომსაძე-კუჭავა<sup>1</sup>, თამარ წერეთელი<sup>2</sup>, ქეთევან ქუთათელაძე<sup>3</sup>

<sup>1</sup>პროფესორი ასოცირებული, საქართველოს ტექნიკური უნივერსიტეტი, <sup>2</sup>პროფესორი, საქართველოს ტექნიკური უნივერსიტეტი <sup>3</sup>პროფესორი, საქართველოს ტექნიკური უნივერსიტეტი

### აზსტრაქტი

წინამდებარე კვლევა შეისწავლის ხელოვნური ინტელექტის (AI) ტექნოლოგიების ეფექტურობას მენეჯერების რბილი უნარების განვითარებაში. კვლევაში გამოყენებულია შერეული მეთოდოლოგია, რომელშიც მონაწილეობდა 150 მენეჯერი სხვადასხვა დარგიდან. კვლევა მოიცავდა ონლაინ გამოვითხვას, ჩაღრმავებულ ინტერვიუებს, შემთხვევების შესწავლას და კონტროლირებად ექსპერიმენტს.

შედეგებმა აჩვენა, რომ AI ინსტრუმენტებს აქვთ მნიშვნელოვანი დადებითი გავლენა რბილი უნარების განვითარებაზე: 78% რესპონდენტმა აღნიშნა კომუნიკაციის უნარების გაუმჯობესება, 82%-მა - გადაწყვეტილების მიღების გაუმჯობესება, 71%-მა - კონფლიქტების მოგვარების უნარების განვითარება. AI-ზე დაფუძნებული სიმულაციები აღმოჩნდა ყველაზე ეფექტური (85%), განსაკუთრებით კონფლიქტების მოგვარებისა და მოლაპარაკების უნარების განვითარებისთვის.

კვლევამ გამოავლინა გამოწვევებიც: კონფიდენციალურობის საკითხები (68%), ტექნოლოგიაზე ზედმეტი დამოკიდებულების რისკი (57%) და ROI-ის გაზომვის სირთულე (72%). ორგანიზაციულ დონეზე AI-ის დანერგვამ განაპირობა თანამშრომლების ჩართულობის 27%-იანი ზრდა, შენარჩუნების 31%-იანი გაუმჯობესება და პროდუქტიულობის 23%-იანი ზრდა.

კვლევის შედეგად შემუშავდა რეკომენდაციები ორგანიზაციებისთვის, რომლებიც მოიცავს სტრატეგიული მიღვიმის შემუშავებას, AI სიმულაციებში ინვესტიციას, ბალანსირებული მიდგომის შექმნას და ეთიკური გამოყენების პოლიტიკის განვითარებას.

**საკვანძო სიტყვები:** რბილი უნარები, ხელოვნური ინტელექტი, მენეჯმენტი, ლიდერობა, ემოციური ინტელექტი, კომუნიკაცია, ორგანიზაციული განვითარება.