

AI-ENHANCED CONVERSATIONAL INTERFACES FOR WORKPLACE COLLABORATION

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Abstract

This article explores the potential of AI-enhanced conversational interfaces for improving workplace collaboration. The conversational interface facilitates natural and intuitive communication among team members while incorporating AI features that can enhance collaboration. These AI features include emotion monitoring and compliance checking, which can provide valuable insights into participants' emotional states and ensure adherence to company policies and regulations. Integrating AI-enhanced conversational interfaces with various applications in a company can significantly improve communication and productivity while promoting collaboration, co-creation, and emotional intelligence in the workplace. It is important to balance technological innovation with ethical considerations when designing conversational interfaces and to prioritise collaboration, co-creation, and emotional intelligence to create a more inclusive and effective workplace environment.

Keywords: artificial intelligence (AI), natural language processing (NLP), conversational interfaces

Collaboration and co-creation are essential for innovation and productivity in the workplace. However, effective collaboration can be challenging, especially in today's fast-paced and dynamic work environments. Conversational interfaces (Fadhil A., 2018), such as chatbots and virtual assistants, have emerged as a promising technology for improving workplace collaboration by facilitating communication and knowledge sharing. Moreover, conversational interfaces enhanced with artificial intelligence - AI (Dwivedik Y. *et al*, 2021) capabilities have the potential to revolutionise the way people collaborate at work. AI can help monitor participants' emotions and engagement levels during conversations, providing insights that can improve communication and collaboration.

Additionally, AI can help ensure compliance with rules and processes, reducing errors and improving the quality of work. Emotional intelligence is also an important factor in workplace collaboration. Emotional intelligence refers to the ability to recognise, understand, and manage one's own emotions, as well as the emotions of others. By incorporating AI features that can monitor emotions, conversational interfaces (Klopfenstein L. *et al*, 2017) can help improve emotional intelligence in the workplace, leading to better

communication and collaboration among team members.

MATERIAL AND METHOD

This article explores the potential of AI-enhanced conversational interfaces for improving workplace collaboration. We review existing research on the topic, discuss the benefits and challenges of using AI in workplace collaboration, and offer suggestions for future research and development. We also highlight the importance of designing conversational interfaces (Candello H., Pinhanez C., 2016) prioritising collaboration, co-creation, and emotional intelligence, while balancing technological innovation with ethical considerations.

RESULTS AND DISCUSSIONS

The central idea of this article is to propose a general architecture and a research plan to bring current business applications up to date with recent developments in artificial intelligence. The proposed ideas have wide applicability, ranging from service-based to production-based industries or agriculture, all of which can benefit from this approach.

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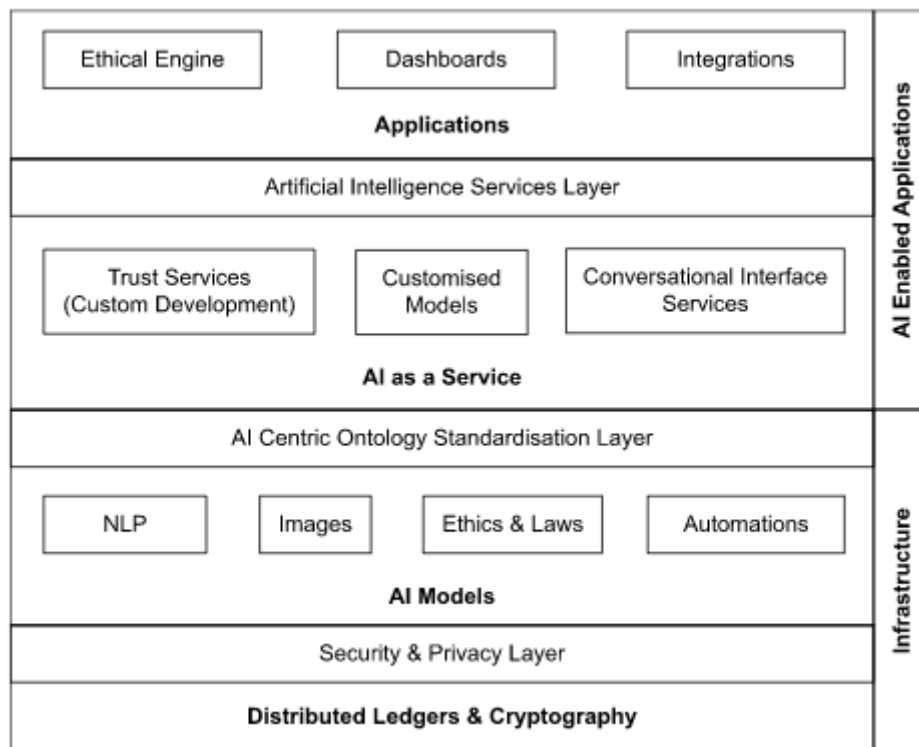


Figure 1 Main layers of architecture

The above diagram presents four main layers of architecture grouped into "Infrastructure" and "AI-Enabled Applications". Each layer highlights the technologies or main approach and the identified sub-components.

The top layer of the proposed architecture is dedicated to "Applications", which are the end products that users interact with. However, to leverage the benefits of AI, it is necessary to integrate custom components into these applications. These custom components can be tailored to specific use cases, such as the Ethical Engine and Dashboards, which can help ensure that the AI-enabled applications operate transparently and ethically.

The Ethical Engine is a customisable component that can be integrated into the applications to ensure that the AI algorithms operate ethically and transparently. This component can help identify potential biases and ensure that the AI models are not inadvertently perpetuating unfair practices. On the other hand, the Dashboard is a custom component that gives users real-time insights into the performance of the AI-enabled applications. By integrating custom components such as the Ethical Engine and Dashboard, organisations can improve their decision-making processes, increase productivity, and maintain ethical standards. The proposed architecture provides a roadmap for integrating AI-enabled

applications into various industries, including service-based, production-based, and agriculture.

The applications will be based on a series of services and models, including "Customized Models," "Trust Services," and "Conversational Interface Services." "Customized Models" refer to AI models tailored to specific use cases or industries, allowing for more accurate predictions and insights. "Trust Services" are imagined to have concrete rules and regulation-aware custom code that can be checked by the Ethical Engine, helping to build trust with users and stakeholders. Conversational Interface Services, on the other hand, focus on improving communication and collaboration among team members. These services include using natural language processing algorithms to facilitate communication, knowledge sharing, and emotion monitoring and compliance checking features to ensure that conversations adhere to company policies and regulations. Furthermore, the proposed architecture provides a framework for integrating AI-enabled applications into various industries, from service-based to production-based, while balancing technological innovation with ethical considerations.

The "AI Centric Ontology Standardization Layer" is proposed in the architecture that aims to provide predefined models for natural language processing - NLP (Nadkarni P.M. *et al*, 2011), image processing, an Ethics and Laws rule engine, and various automation, such as automated data

entry based on conversations, images, or events collected from the user's applications.

The NLP model can analyse and interpret natural language text, allowing for more efficient communication and knowledge sharing. The image processing model can be used to analyse and interpret images, providing valuable insights into various industries, such as healthcare or agriculture. The Ethics and Laws rule engine can be used to ensure that the AI-enabled applications operate transparently and ethically, adhering to relevant regulations and guidelines.

Furthermore, various automation can be integrated into the applications to improve productivity and reduce manual work. For example, automated data entry based on conversations or images can help streamline data entry processes and reduce the risk of errors. The proposed AI Centric Ontology Standardization Layer provides a standardised approach to developing AI models, promoting consistency and efficiency in the development process.

By leveraging these predefined models and automation, organisations can improve their decision-making processes, increase productivity, and maintain ethical standards. The proposed architecture provides a roadmap for integrating AI-enabled applications into various industries while ensuring that technological innovation is balanced with ethical considerations.

In addition to the custom integrations described above, this article also proposes pre-built applications that can integrate with the described architecture, such as a Chatbot for customer service, a Virtual assistant for team collaboration, Compliance monitoring software, and an Employee feedback system.

A chatbot can be integrated with a company's website or social media platform to provide customer support services. The chatbot can use natural language processing and sentiment analysis to understand customer inquiries and provide personalised responses.

A virtual assistant can be integrated with a team's communication platform to facilitate real-time communication and collaboration. The virtual assistant can use emotion monitoring and compliance checking features to improve the quality and effectiveness of team communication.

Compliance monitoring software can be integrated with a company's messaging or email system to monitor conversations and ensure compliance with company policies and regulations. The software can use AI features to detect inappropriate language or confidential information and alert participants if necessary.

Employee feedback system: An employee feedback system can be integrated with a company's communication platform to allow participants to rate the quality of conversations and provide feedback. The system can use AI features to analyse the feedback and provide insights for improving future interactions.

CONCLUSIONS

In conclusion, this article demonstrates the potential of AI-enhanced conversational interfaces for improving workplace collaboration by introducing AI-based conversational interfaces in the existing tools. The AI features of the conversational interface, including emotion monitoring and compliance checking, can provide valuable insights into participants' emotional states and ensure adherence to company policies and regulations. The personalised and transparent design of the interface also promotes collaboration, co-creation, and emotional intelligence in the workplace.

The integration of AI-enhanced conversational interfaces with various applications in a company can lead to significant improvements in communication and productivity. For example, a chatbot for customer service can use natural language processing and sentiment analysis to provide personalised and efficient customer support services. A virtual assistant for team collaboration can facilitate real-time communication and improve the quality of team interactions. Compliance monitoring software can help ensure legal and ethical compliance in conversations, while an employee feedback system can provide insights for improving future interactions.

AI-enhanced conversational interfaces can transform how people collaborate and communicate at work. We can create a more inclusive and effective workplace environment by designing interfaces prioritising collaboration, co-creation, and emotional intelligence while balancing technological innovation with ethical considerations.

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