Impact Assessment Report

Meeting Companion

deployment

Section 1 Information on the System's Use and Teams

1.1 **System's Use.**

Purpose. Monitoring employee behaviour during meetings.
Capability. Speech recognition, automatic summarization, and language processing technologies.
Domain. Employment and workers management.
AI User. Technology companies.
AI Subject. Employees of the companies.

1.2 **System Components.** The meeting companion consists of two models (a logistic regression and a random forest) classifying whether a meeting was successful. It is entirely under human control, with end users having the option to opt out of any analytics and developers retaining the ability to shut down the companion. In order to monitor the performance of the meeting companion and identify areas for improvement, developers have established a dedicated feedback page and email for reporting malfunctions. These malfunctions may arise from two primary technical factors. Firstly, errors may be introduced by the third-party application used for conversation recording. Secondly, issues with employees' equipment, such as malfunctioning microphones, could result in poor audio quality. These factors may subsequently have an impact on transcription accuracy and, in turn, affect the outcomes of real-time analytics and the automatic summary provided at the end of the meeting.

1.3 System Data. **The input data** for this system includes audio recordings of the meetings, which are the primary source for speech recognition and auditory analysis. From these recordings, the system generates textual transcriptions to analyze the content, structure, and sentiment of conversations. It also examines auditorelements such as emotional pitch, energy, speech rate, and prosody, providing insights into the nuances of verbal communication. Additionally, the system utilizes accelerometer and gyroscope data from participants' smartwatches to gather information about physical movements and device orientations during the meetings. **The training audio data** encompassed 72 hours of meeting conversations sourced from 85 real-world virtual meetings. The training dataset is built upon metrics derived from accelerometer and gyroscope data, encompassing features related to the textual content and sentiment of conversations, as well as auditory elements such as sentiment, emotional pitch, energy, speech rate, and prosody. Importantly, no individual protected attributes were utilized at any stage of the analysis. To ensure security and confidentiality, the data were stored on a server positioned behind a firewall. Additionally, any user credentials were stored in an anonymous format, adding an extra layer of protection to the stored information.

1.4 **System Evaluation.**

Evaluation at development stage. The models were evaluated in using standard classification metrics (e.g., F1-score and AUC), and the evaluations were documented in research papers. The team that developed the models had regular code reviews and used system versioning tools to ensure code quality.

Evaluation at deployment tage. At the deployment stage, the system's performance was evaluated through real-time meeting scenarios against predefined benchmarks and further enhanced by user studies, which captured feedback from participants to gauge the system's accuracy in speech recognition, effectiveness in sentiment analysis, and the reliability of its summarization and behavioral insights.

1.5 **Teams.** The developers of the meeting companion were male, each with distinct skill sets, and all underwent mandatory training at the company.

Section 2 Risks

The primary risks associated with the meeting companion system include potential privacy breaches from specific components: unauthorized access to audiorecordings that may contain confidential discussions, misuse of textual transcripts containing sensitive business information, and the potential for data leaks involving accelerometer and gyroscope metrics that could reveal personal behavior patterns of participants. These breaches potentially have an indirect impact on working relationships.

2.1 **Risks for the AI User.**

Privacy invasion in work-related meetings. The meeting companion monitors employee behavior during meetings. This system is high-risk because it is `intended for monitoring and evaluating the performance and behavior of individuals in work-related contractual relationships' (EU Annex III), and that is a sensitive domain with potential opportunities for privacy violations (EU Article 6). These violations also undermine the rights to liberty and security (HR Article 3) and to the privacy of correspondence (HR Article 12), as well as fundamental freedoms (Goal 16).

Suppresing freedom of opinion and expression. The meeting can be misused to monitor and control the opinions expressed by employees during meetings, potentially suppressing the right to freedom of opinion and expression (HR Article 19).

2.2 **Risks for AI Subject.**

Unfair discrimination among employees. The meeting companion poses a high-risk because it can influence decisions on work-related relationships, undermin equal pay for equal work and favorable working conditions (HR Article 23), and disadvantage vulnerable groups in the workplace (Goal 5).

2.3 **Risks for Institutions, General Public and Environment.**

Contributing to a broader surveillance culture. The use of meeting companion might contribute to a broader acceptance of surveillance technologies, potentially impacting public attitudes towards privacy and surveillance. This could lead to increased tolerance of similar technologies in public spaces, educational institutions, and other areas of life, eroding the general expectation of privacy and potentially affecting the public's behavior and freedom of expression.

Section 3 Mitigation Strategies

Mitigation strategies for the meeting companion should be implemented during re-development stage and through post-deployment auditing.

3.1 **Mitigations of the risks for AI User.**

Privacy invasion in work-related meetings. To mitigate privacy risks, the meeting companion could limit data processing to meeting-relevant information, avoid recording or storing personal conversations, and implement robust data protection measures. These measures include anonymizing meeting data and using it solely for the intended purpose. Moreover, the companion could be categorized as low risk according to the EU AI Act if it were re-developed to only provide general meeting summaries without monitoring individual behavior.

Suppresing freedom of opinion and expression. To mitigate risks to freedom of opinion, the use of the meeting companion should undergo regular audits to ensure it does not penalize or discriminate against employees based on their opinions or expressions during meeting.

3.2 **Mitigations of the risks for AI Subject.**

Unfair discrimination among employees. To mitigate discrimination risks, the meeting companion should not be used for making decisions about work-related contractual relationships, such as promotions, task allocations, or terminations. The companion should be trained using diverse and representative training data, and should be regularly audited to ensure it treats all employees fairly, regardless of their gender.

3.3 **Mitigations of the risks for Institutions, General Public and Environment.**

Contributing to a broader surveillance culture. To mitigate this risk, companies can conduct or commission studies to understand how the use of meeting companions influences societal norms around privacy and surveillance. This can include surveys and focus groups. **The findings of these studies should be regularly published, showing commitment to transparency.**

Section 4 Benefits

The meeting companion can bring benefits to both enterprises and individuals within those enterprises.

4.1 **Benefits for AI User.**

Personalized Feedback for Professional Development. Employees can receive personalized feedback on their communication style, engagement level, and other soft skills, which is valuable for personal and professional growth.
Better Meeting Preparation and Follow-Up. Automated summaries and action items help employees prepare for meetings more effectively and follow up on decisions and tasks more efficiently.
Reduced Cognitive Load. By automating summarizing, the system reduces the cognitive load, allowing employees to concentrate more on the discussion and creative aspects of their work.

4.2 **Benefits for AI Subject.**

Enterprise Growth and Self-Employment Support. The meeting companion can support both traditional and self-operated enterprises by improving economic productivity (Goal 8), upgrading their technological capabilities (Goal 9) and fostering transparent and accountable institutions (Goal 16).

Fair treatment among employees. The meeting companion can provide unbiased records for the fair treatment of employees (HR Article 23), facilitate freedom of expression in meetings (HR Article 19), and promote equality by amplifying voices of vulnerable groups (Goal 5).

4.3 **Benefits for Institutions, General Public and Environment.**

Educational Enhancement in Universities and Schools. The system can be adapted for educational settings, where it can analyze classroom discussions or lectures. For instance, in a university setting, it could provide feedback to educators on their teaching methods based on speech patterns and student engagement. It could also help in assessing group projects or discussions, providing students with feedback on their communication and collaboration skills.