

Application and Utilization of Privacy Indicators and Control Interactions for Smart Watches in an Employee Context

Alexander Richter, Patrick Kühtreiber, Delphine Reinhardt
University of Göttingen

An IFIP SELECT paper for IT-professionals based on the research paper:

Richter, A., Kühtreiber, P., Reinhardt, D. (2022). Enhanced Privacy in Smart Workplaces: Employees' Preferences for Transparency Indicators and Control Interactions in the Case of Data Collection with Smart Watches. In: Meng, W., Fischer-Hübner, S., Jensen, C.D. (eds) ICT Systems Security and Privacy Protection. SEC 2022. IFIP Advances in Information and Communication Technology, vol 648. Springer, Cham.
https://doi.org/10.1007/978-3-031-06975-8_3

Introduction

Due to enhanced occupational safety [1], well-being [2], and faster access to information [3, 4], companies are increasingly providing their employees with smart watches [5, 6]. Besides their beneficial effects on the employee's daily work, they pose serious privacy risks based on their huge potential for gathering sensitive data. Our work [7, 8, 9] addresses these issues twofold. First, we evaluate privacy indicators (see Figure 1) serving to raise awareness about data collection, and second, we analyze which methods are suitable for employees to interrupt such data collection.

This document presents the relevance of our results and how they can be utilized in practice.



Figure 1 Examples of proposed indicators to visualize the collection of health data on a smart watch

Relevance

IT professionals can benefit from our results as they improve the understanding of employees' requirements and preferences regarding indicators of data collection. Furthermore, we present concrete methods to implement transparency and control mechanisms for smart watches when used in a corporate context. This way, our results empower IT professionals to improve their companies' data collection processes by considering a user-centric approach to privacy.

Utilization

Our work addresses the problem of balancing organizations' need for data collection and its potential negative impact on employees. Therefore, our work lies at the intersection of (1) empowering corporations to ensure employee health and safety, (2) optimizing their processes, and (3) the privacy needs and rights of employees. These rights can be found, e.g., in the European General Data Protection Regulation (GDPR).

IT professionals can use our results to increase the efficiency of data protection measures using our user-friendly privacy indicators. Moreover, the efficacy of IT systems can be enhanced by improving users' trust in data protection by empowering employees to control data gathering. Finally, we take into account the aesthetics of our indicators and the suitability of methods for the interruption of data collection.

Support of UN activities

The foundation of our research results can support the activities of the United Nations—particularly the Sustainable Development Goals (SDGs). This is because improving privacy contributes to the responsible use of technology and, thus, promotes SDG 16 [10].

Our research is especially interesting for the International Labour Organization (ILO). The ILO deals, i.a., with the protection of workers' privacy [11]. Our proposed privacy indicators and data control mechanisms directly support ILO's goals by providing a transparent way of data collection. Furthermore, our methods of data collection interruption foster a privacy-friendly working environment. Hence, both of our main contributions can be used for future standards by the ILO.

References

- [1] Barata, J., da Cunha, P.R.: Safety Is the New Black: The Increasing Role of Wearables in Occupational Health and Safety in Construction. In: Proc. of the 22nd International Conference on Business Information Systems (BIS) (2019)

- [2] Glance, D.G., Ooi, E., Berman, Y., Glance, C.F., Barrej, H.R.: Impact of a Digital Activity Tracker-Based Workplace Activity Program on Health and Wellbeing. In: Proc. of the 6th International Conference on Digital Health Conference (DH) (2016)
- [3] Peissner, M., Hipp, C.: Potenziale der Mensch-Technik-Interaktion für die effiziente und vernetzte Produktion von morgen. Fraunhofer-Verlag Stujgart (2013)
- [4] Stocker, A., Brandl, P., Michalczuk, R., Rosenberger, M.: Menschzentrierte IKT-Lösungen in einer Smart Factory. e & i Elektrotechnik und Informationstechnik 131 (7) (2014)
- [5] Maltseva, K.: Wearables in the Workplace: The Brave New World of Employee Engagement. Business Horizons (2020)
- [6] Zebra Technologies: Quality Drives a Smarter Plant Floor: Manufacturing Vision Study (2017)
- [7] A. Richter, P. Kühntreiber, D. Reinhardt. On the Impact of Information Provided to Employees on their Intention to Disclose Data Collected by Smart Watches to their Employers. Proceedings of the 30th European Conference on Information Systems (ECIS), 2022.
- [8] A. Richter, P. Kühntreiber, D. Reinhardt. Enhanced Privacy in Smart Workplaces: Employees' Preferences for Transparency Indicators and Control Interactions in the Case of Data Collection with Smart Watches. Proceedings of the 37th International Conference on ICT Systems Security and Privacy Protection (IFIP SEC), 2022.
- [9] A. Richter, P. Kühntreiber, D. Reinhardt. Exploration of Factors that can Impact the Willingness of Employees to Share Smart Watch Data with their Employers. Privacy and Identity Management. Between Data Protection and Security, 2022.
- [10] Michael, K., Kobran, S., Abbas, R., & Hamdoun, S.: Privacy, Data Rights and Cybersecurity: Technology for Good in the Achievement of Sustainable Development Goals. International Symposium on Technology and Society (ISTAS) IEEE (2019).
- [11] Hendrickx, F: Protection of Workers' Personal Data: General Principles, ILO Working Paper 62, 2022, <https://www.ilo.org/publications/protection-workers-personal-datageneral-principles>