The Third International Workshop on Knowledge Graphs for Sustainability (KG4S2025) – Foreword

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Workshop Overview

Knowledge Graphs (KGs) are a core part of the Semantic Web and have in the past decade emerged as a central theme on the Web, powering many real-world applications. Not the least because of an increased focus on Explainable AI and Data Science, where KGs can play a key role in both providing semantic interoperability and data integration (linking), as well as reasoning with the represented knowledge. KGs have been applied both in general scenarios, such as Web search and retrieval, as well as in many domain-specific applications. This workshop targets KGs specifically for sustainability, i.e., applications of KGs targeting sustainability challenges.

This is highly timely and important due to the current state of the world, including ecological challenges such as the global climate crisis, acute loss of biodiversity, as well as social sustainability challenges such as increased unrest and threats to democracy in many countries around the world. The foundation of the global transformation towards sustainability is the fact that since 2015 the *2030 Agenda for Sustainable Development* [1] has been adopted by all UN member states. As researchers of Semantic Web technologies, such as KGs, we should answer to these challenges and contribute to their resolution. This also shows in an increased amount of funded projects targeting technological solutions with sustainability goals in mind, as well as industry initiatives, such as the DataCommons sustainability KGs promoted by Google [2].

With this workshop, we therefore want to highlight the intersection between Knowledge Graphs on the Web, and sustainability research. This workshop specifically targets approaches from the Semantic Web research community for improving sustainability using, for instance, KG technologies. The objectives of the workshop are both to share preliminary research results from academia and industry, as well as identifying challenges and opportunities that can lead to new collaborations, new directions, and future research. Ultimately, the aim is to increase the contribution of KGs to the transformation towards global sustainability.

This is the third instance of the workshop, where the first one was held at The ACM Web Conference in 2023 and the second one was held at the Extended Semantic Web Conference in 2024 in Hersonissos, Crete (Grece). This year's edition of the workshop is colocated with the Extended Semantic Web Conference on June 1st 2025, in Portoroz, Slovenia. In response to our call for papers we received overall 10 submissions (including both short and long papers, as well as one paper summary), and after a thorough review process where each submission got at least 3 high-quality reviews by the Program Committee, 6 of those are included in these workshop proceedings, and 3 were accepted as presentation only. In addition, the workshop featured a keynote talk by Eva Blomqvist, Linköping University, Sweden, entitled "Semantic Web for the Circular Economy – Challenges and Opportunities" as well as an interactive discussion session where participants contrasted their works and discussed whether are we really contributing to sustainability. The main topics of the submitted papers were: KGs for managing environmental data, life-cycle assessment using KGs, and circular economy and digital product passports using KGs and the Semantic Web.

Program Committee

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Acknowledgments

References

[1] U. Nations, Transforming our world: the 2030 agenda for sustainable development, 2015. URL: https://sdgs.un.org/2030agenda.

[2] R. Guha, Data commons: Making sustainability data accessible, 2022. URL: https://blog.google/outreach-initiatives/sustainability/data-commons-sustainability/.