ESWC 2023 – The Next 20 Years

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Abstract

ESWC 2023 marks the 20th anniversary of what started as the European Semantic Web Conference. At this edition, aside from presenting the latest advances in the field, there were also events such as an experts' panel looking back on the developments of the past 20 years. With this special session, we wanted to look in the opposite direction and envision the field in 20 years, i.e., in 2043. Therefore, we asked participants to submit ficticious papers that could be published at ESWC 2043. This volume collects the most visionary and interesting submissions to this session and allows gaining insights into possible future research problems and directions.

Keywords
Semantic Web, Future Directions, Design Fiction

1. Scope of the Session

The original paper by Tim Berners-Lee envisioning the Semantic Web in 2001 [1] included a future scenario in which structured knowledge and web technologies provided effective solutions to everyday problems. More than 20 years later, a lot changed and evolved in the Semantic Web community and, even if that *exact* scenario did not become true as it was originally conceived, that vision has been the basic inspiration for our entire research field and the starting point for all the achievements in the Semantic Web realm and in related areas as well.

In its 2023 edition, ESWC celebrated its 20th anniversary and during the conference there was the chance to reflect on what happened during the last 20 years with a dedicated panel. The ESWC 2023 General Chair – Catia Pesquita – decided to provide room to discuss not only the past, but also the future of the research in our community. For this reason, the "Next 20 years" Special Track was introduced, with the idea of stimulating the collection of vision papers and we were appointed Track Chairs. However, 20 years is quite a long period of time and it may be hard to predict what the actual trends will be within such a temporal span. This is the reason why we decided to take a step forward into the future.

We were inspired by Design Fiction [2, 3], a practice that mixes design, fiction, narratives and speculations to create evocative "artifacts" that are aimed to represent the contexts and possible outcomes of change. As Bruce Sterling effectively explained [4], Design Fiction deliberately uses a set of prototypes (stories and artifacts that may support a story – in our case scientific
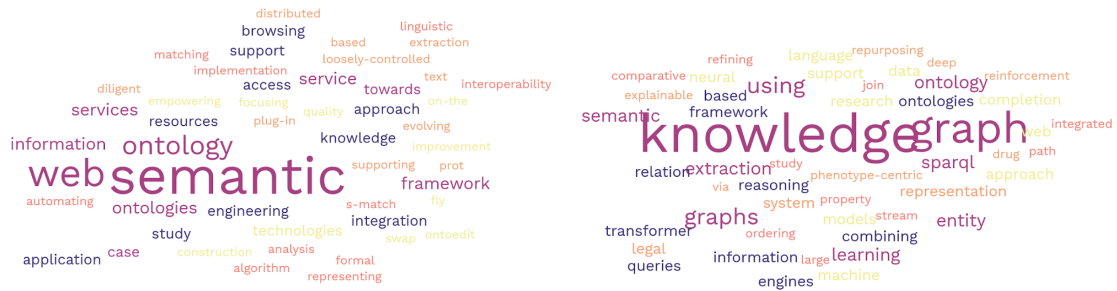
Figure 1: Word clouds compiled from accepted papers of the first edition of ESWC (left) and ESWC 2023 (right)

papers) in order to force an audience to "suspend their disbelief" about the future, thus being temporarily put in a different conceptual space (in our case, the future status of Semantic Web research).

Therefore, in the Call for Papers of the "Next 20 years" Special Track of ESWC, we invited the community to submit fictitious research papers, as they were actually prepared for ESCW 2043. The papers were expected to look and feel like a real paper, including research questions, references and state of the art, experimental results and possibly newer evaluation metrics, and of course future work (i.e., future future work), with the goal to get an idea of the research agenda for the late 2040s and early 2050s. We also encouraged the prospective authors to have their papers co-authored by an AI, thus imagining not only future research topics, but also future research practices.

2. Envisioning the Change of 20 Years in a Research Field

Asking for envisioning the change over a period as long as 20 years is quite challenging. In a tongue-in-cheek-statement in 1999, science fiction author Douglas Adams said [5]:

1. *Anything that is in the world when you're born is normal and ordinary and is just a natural part of the way the world works.*
2. *Anything that's invented between when you're fifteen and thirty-five is new and exciting and revolutionary and you can probably get a career in it.*
3. *Anything invented after you're thirty-five is against the natural order of things.*

Essentially, all attendees of ESWC will be over thirty-five at ESWC 2043[1], so this task boils down to predict very radical new inventions and changes.

In an attempt to anticipate the changes in the next 20 years, we took a look at the changes in the Semantic Web research field in the past 20 years. Figure 1 depicts word clouds compiled from the titles of accepted papers at the very first and the most recent edition of ESWC.

Another approach to illustrate the changes in the field over 20 years is looking back at the past 20 years and the key innovations brought forward by the Semantic Web research community. Some of those include:

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[1]To the best of the authors' knowledge, there were no attendees aged 15 or below at ESWC 2023.

- OWL (2004) and SPARQL (2008)
- FOAF (2004) and schema.org (2011)
- DBpedia (2007), Freebase (2007), Wikidata (2012)
- LOD Cloud (2007)
- R2RML (2012) and SHACL (2015)
- RESCAL (2011), TransE (2013), and RDF2vec (2016)

Considering how much we are used to these vocabularies, datasets, and techniques, some of them being referenced by hundreds and thousands of papers in the field, authors were asked to imagine a research landscape where inventions of similar impact have become normal day-to-day things to be used.

3. Contents of this Volume

In total, the session received ten submissions of authors accepting the very special challenge of this track, out of which five were accepted for long and three for short presentations. Afterwards, the floor was opened for a panel discussion with all presenters. This volume collects the papers of all works presented in the session.

4. Disclaimer

The papers is this volume are works of fiction, written in 2023 and describing research that may be carried out in 2043. For this reason, they may include citations to papers produced in the period 2024-2043, which have not been published (yet). Neither the editors nor the authors take responsibility for possible damages to citation databases and/or indices that may result from crawling and indexing these works.

Acknowledgments

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