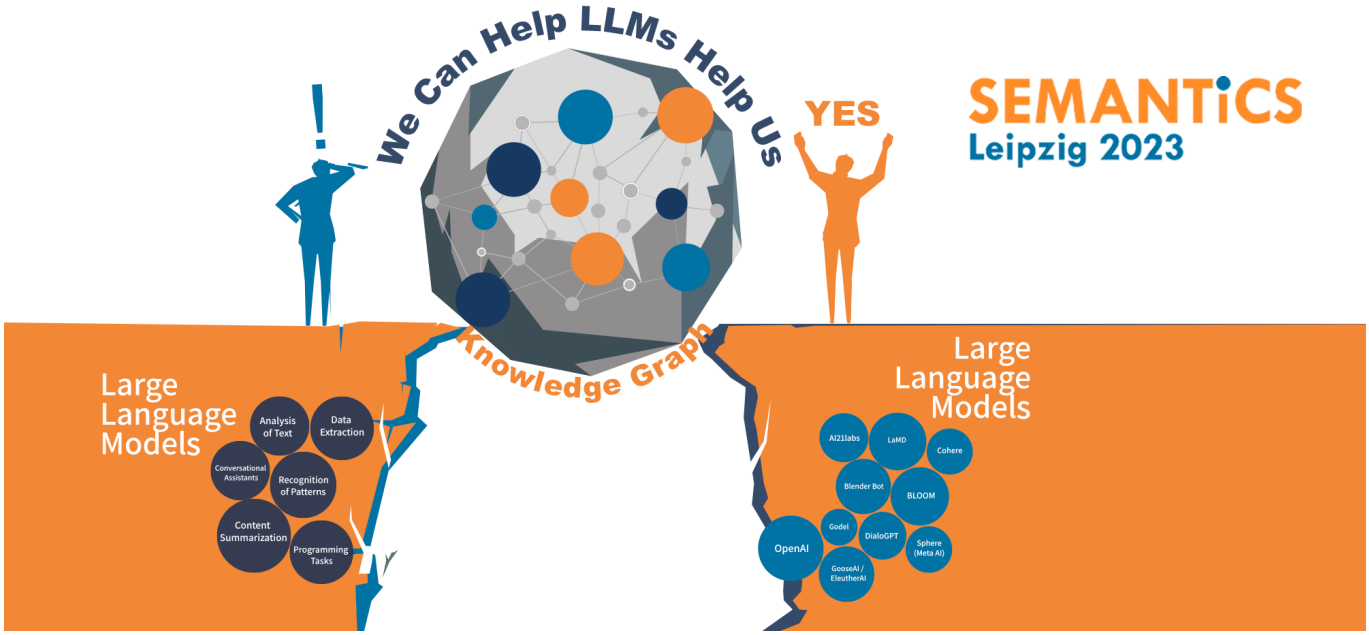

SEMANTiCS 2023 kicked off with a Pre-conference day that offered an awesome lineup of business and academia talks. These delved deep into the transformative potential of Large Language Models (LLMs) and the need for semantic technologies to ensure high-quality training data for these models.

Are LLMs Knowledgeable? (And Other Crazy Ideas)

The official conference started with a bang: Xina Lunda DongвЂ™s presentation: *Generations of Knowledge Graphs*: *The Crazy Ideas and the Business Impact* [PPT]. It was garnered with the characteristics of each generation of knowledge graphs and, what was more intriguing, the crazy ideas behind each and every part of the construction process.
Xina Lunda Dong, who had cooked this engaging narrative, led us through Entity-based, text-rich, and dual neural knowledge graphs. Having walked the path of three KG constructions while working at Google, Amazon, and currently Meta, Luna guided us through the implementation of her research philosophy. It was based on the dynamics of Roofshots (Deliver incrementally and make production impacts) and Moonshots (Strive to apply and invent the state-of-the-artвЂ‹).B

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Xina Lunda Dong at SEMANTiCS 2023, Source: SWC

The dynamics of Roofshots and Moonshots themes ran through her whole presentation and illustrated how the crazy idea that started each of the knowledge graphs led to a great product

Luna also shared that it takes 5 steps to go from 1 to 1 trillion, and these are:

1. Feasibility – a prototype, an experiment to show it is possible.
2. Quality Production – quality, End-to-End Minimum Viable Product (E2E MVP) experiences.
3. Repeatability – end-to-end pipelines and automations to allow for extensions to more domains.

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4. Scalability – a significant cost reduction forвЂЁscale-ups.
5. Ubiquity – high coverage, long-tail use cases, assumption removal, to the next cycle of inventions.

Last but not least, LunaвЂ™s talk was packed with research references to inspire the implementation of future crazy ideas.B

Can AI Become Responsible?

Responsible AI and LLMs was Andreas BlumauerвЂ™s second talk during the conference. Andreas is the CEO and co-founder of Semantic Web Company (SWC) – the developer of the PoolParty Semantic Platform. His presentation emphasized again the need for quality and standardized data in AI and in projects in general.B

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Andreas Blumauer presenting his talk: Responsible AI and LLMs SEMANTiCS 2023

Andreas focused on how we can take the best of both worlds and work on responsible, explainable generative AI. He also shared key findings on how companies use (not that responsibly) training data to work with models. He pointed out the common lack of information about the copyright of training data as well as the inconsistent and often blurred reporting on energy usage and emissions when it comes down to model exploitation. In addition, he also mentioned the lack of standardized measurements for understanding the impact and the potential harm AI-powered projects have and the risks they bring.

The talk was very much in line with what Andreas delivered on the pre-conference day. Yet, this seems like a crucial topic for the next years – namely the use of knowledge graphs in the Environmental вЂ“ Social вЂ“ Governance (ESG) domain. (You can also play with ESG +

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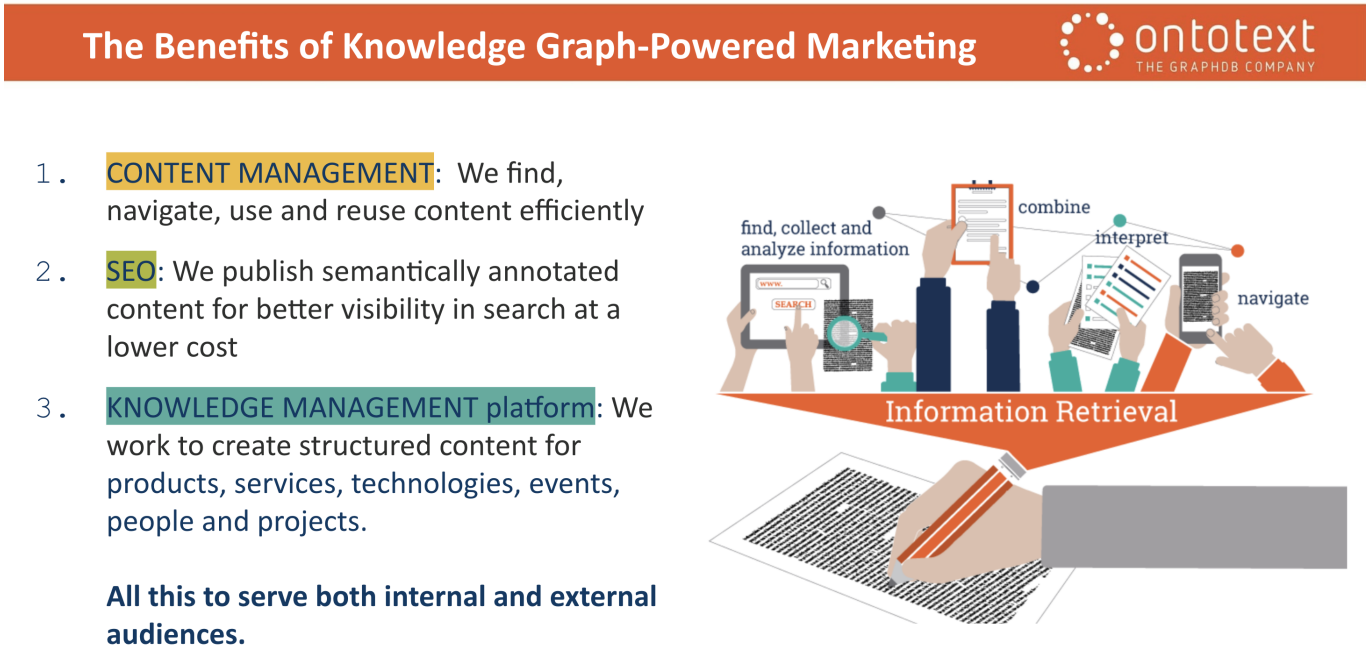
Knowledge Graph or read about PoolPary meeting ChatGPT).B

We Can Help LLMs Help Us?

And now, a talk I have the pleasure to present from the inside. Krasimira Bozhanova, OntotextвЂ™s Solution Architect, and I were part of the Knowledge Graphs Panel, moderated by Maribel Acosta, TUM School of Computation, Information and Technology. Krasimira showcased how knowledge graphs, combined with semantic metadata, enhance LLMs for better content discovery, understanding, and question-answering. This is the result of all the R&D weвЂ™ve done in the last 6 months to make it work as an enterprise-grade solution. In the first part of the talk, I presented the вЂњcrazy ideaвЂќ idea behind our knowledge graph, which back in 2022 resonated with our CEOвЂ™s long-term vision. Long story short, we wanted to use the power of knowledge graphs for marketing purposes. A year later, our project already reaps the benefits of knowledge-graph powered marketing.



Slide about the benefits of Knowledge-graph powered marketing from the presentation KGs, Semantic Metadata, and LLMs at Work for Marketing Content at SEMANTiCS 2023
All of these benefits were the result of the hard work Ontotext semantic technology experts

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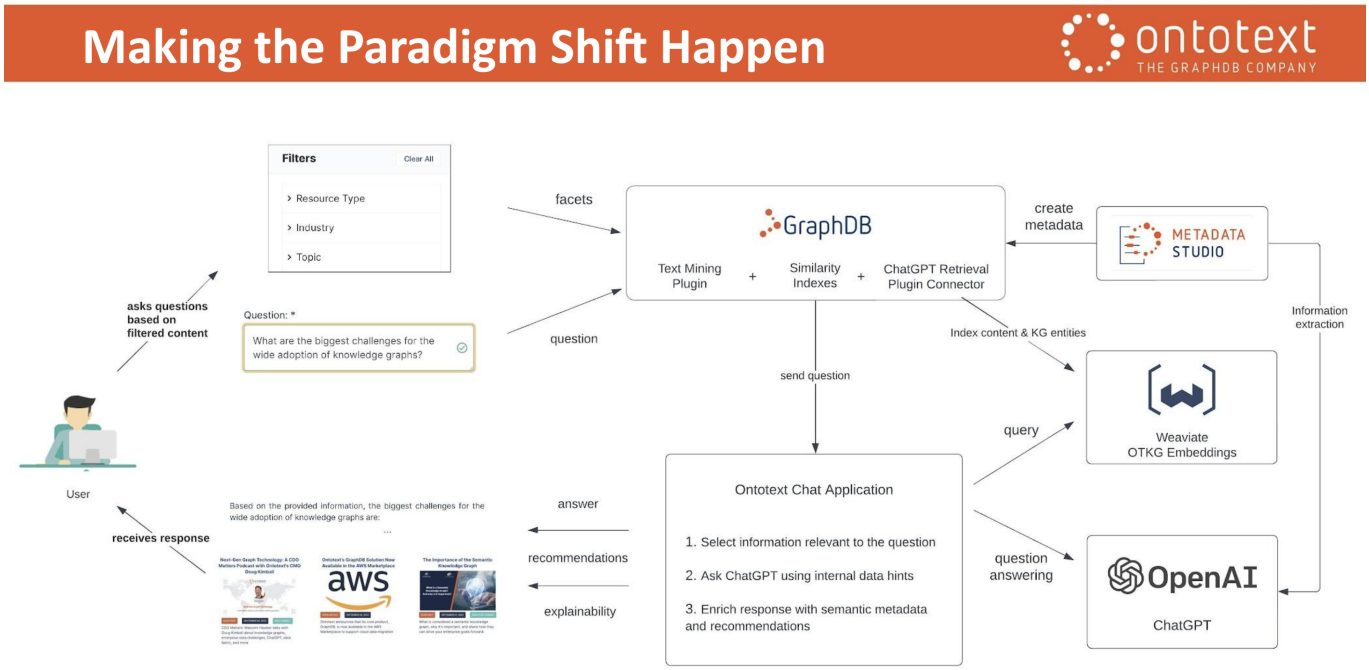
did to provide a technological backbone for the Ontotext Knowledge Graph (OTKG) vision. Krasimira Bozhanova presented the technicalities behind the knowledge graph and the implemented pipelines. She also elaborated on the details behind using semantic metadata and the R&D she and her team did with the ChatGPT integration.



Slide about the technologies and the pipelines used in Ontotext Knowledge Graph from the presentation KGs, Semantic Metadata, and LLMs at Work for Marketing Content at SEMANTiCS 2023

The result? A demonstrator. (very soon to be publicly available)

Overall, although pressed for time, we managed to share how the project evolved. It started as cleaning the house and adding semantic metadata to our marketing content but ended up as a tool that allows us to build conversational experiences based on ChatGPT and its integration with GraphDB. Needless to say, this is where our Ontotext Knowledge Graph lives. You can watch the entire presentation in the video below, courtesy of our partners The Semantic Web Company.

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Throughout Day 1, SEMANTiCS 2023 talks set the bar high, raising critical questions about responsible AI, and sustainable data management. They also proved that the role of semantic technologies is critical for shaping the future of AI-based projects.

Stay tuned for my report from Day 2, where people were talking about AI-based projects, responsibilities, and the ways we can make LLMs better!

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