German Research Center for Artificial Intelligence

CoMem

Realization of a Corporate Memory – AI to assist daily work in companies.

Artificial Intelligence is a key technology for companies that want to make knowledge sustainably available.

This is made possible by corporate memories that capture and structure data, information and knowledge and make them available proactively and context-dependent.

However, harnessing the potential of Artificial Intelligence poses major challenges for companies. To do so, they must first overcome several hurdles, such as a lack of or insufficient digitalization as well as evolved infrastructures, data silos and legacy systems. Employees must be convinced of the benefits of the new technologies.

The corporate memory DFKI CoMem addresses these challenges by unlocking the potential inherent in the various data sources using AI methods, and embedding them in employees' work environments. CoMem provides extensive knowledge about data and information spaces, tasks and processes, as well as decisions and experience made by users and the company in similar situations. For this purpose, distributed and heterogeneous sources are integrated, linked in knowledge graphs, aggregated, enriched and refined. Knowledge services are realized on this data treasure and integrated into the workplace as knowledge-based assistance. Embedded in the daily work of the users, CoMem creates clear work contexts, enables intelligent search, or provides recommendations for upcoming tasks. CoMem thus offers an ecosystem of knowledge services and interfaces for more efficient information and knowledge work in the company.

In the cooperation with envia Mitteldeutsche Energie AG (enviaM; an energy provider), DFKI demonstrates the practicality of the approach and the operational CoMem infrastructure as well as the potential for further application fields in corporate scenarios.

As a first pilot, CoMem was implemented in the real estate services in the area of property management. Data from a wide variety of sources, such as Excel files, shared drives, document and image collections, geo-information, and legacy systems of the property management, was semantically enriched in a knowledge graph with proper access rights. The knowledge graph contains, for example, statements about parcels of land, sites, and topics, but also resources such as contracts, e-mails, or official notices. The CoMem knowledge services enable various knowledge-based applications such as semantic analysis of documents and linking them to locations, structured searches or providing information on a specific (task) context and summarizing all this information in a specialized dashboard.

Different enterprise sources are connected via the knowledge graph and can then also be accessed directly, such as the property management's inventory file, cadastral information from the real estate system, book values from the ERP or documents from the network drives or document management system. In addition to being displayed in dashboards and search interfaces, plug-ins for email tools enable the assistance to be embedded in the employees' working environment. The assistance sidebar offers various services and, for example, generates a suitable suggestion for an e-mail selected by the user as to which site dashboard provides the information required for further processing. The user can also jump directly from there and continue working in the work context. This realizes an assistance embedded in the daily work that builds up work contexts and avoids unnecessary searching.

DFKI CoMem is on its way to becoming a product and can be adapted to further scenarios. For example, other scenarios are being implemented with enviaM, such as for municipal support, compliance management, construction projects, and a group-wide inbox record.

- CoMem provides an infrastructure for building and operating corporate memories using knowledge-based artificial intelligence methods
- CoMem creates added value from data (silos) in heterogeneous infrastructures through unified access & use of data
- CoMem knowledge graphs serve as intermediaries between legacy systems & data and knowledge services
- CoMem enables sustainable embedding in the daily work of information and knowledge workers

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