

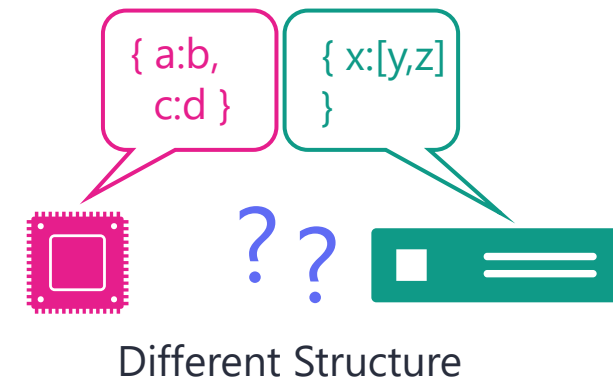
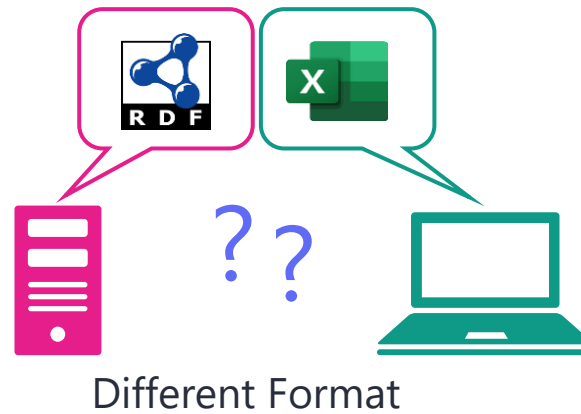
Semantic Interoperability with FIWARE and LLM

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Semantic Interoperability: A Translation Problem



Solution: Common Language & Translation



Translation often tedious!

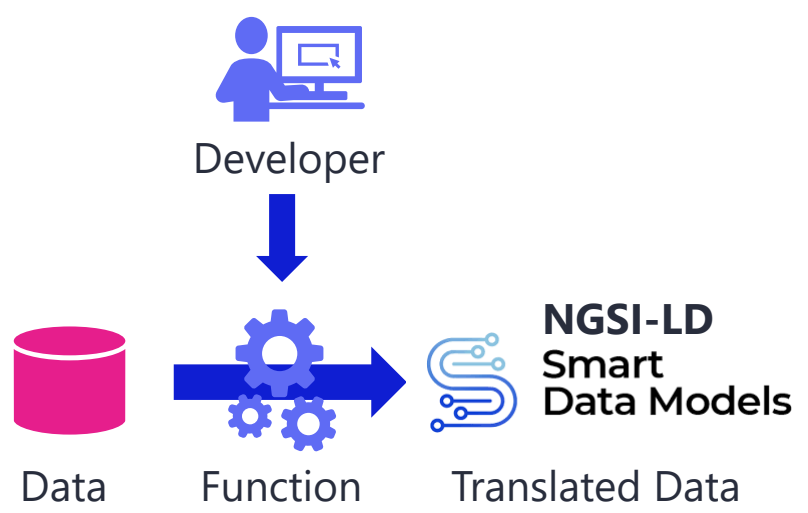
LLM to the rescue!



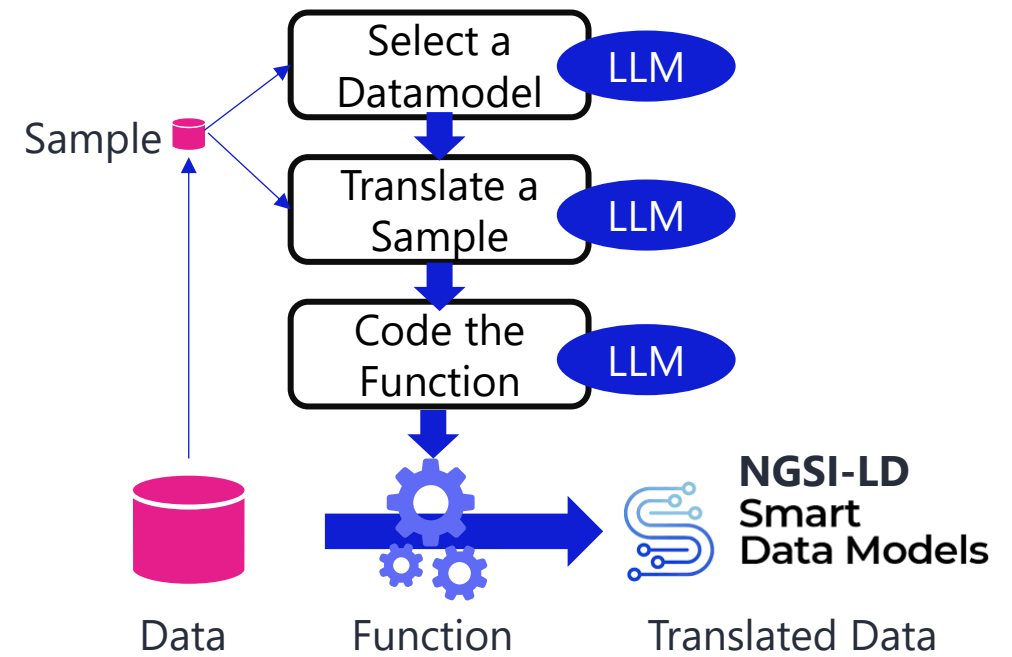
1. Structured Data → NGSI-LD Smart Data Models



Without LLM

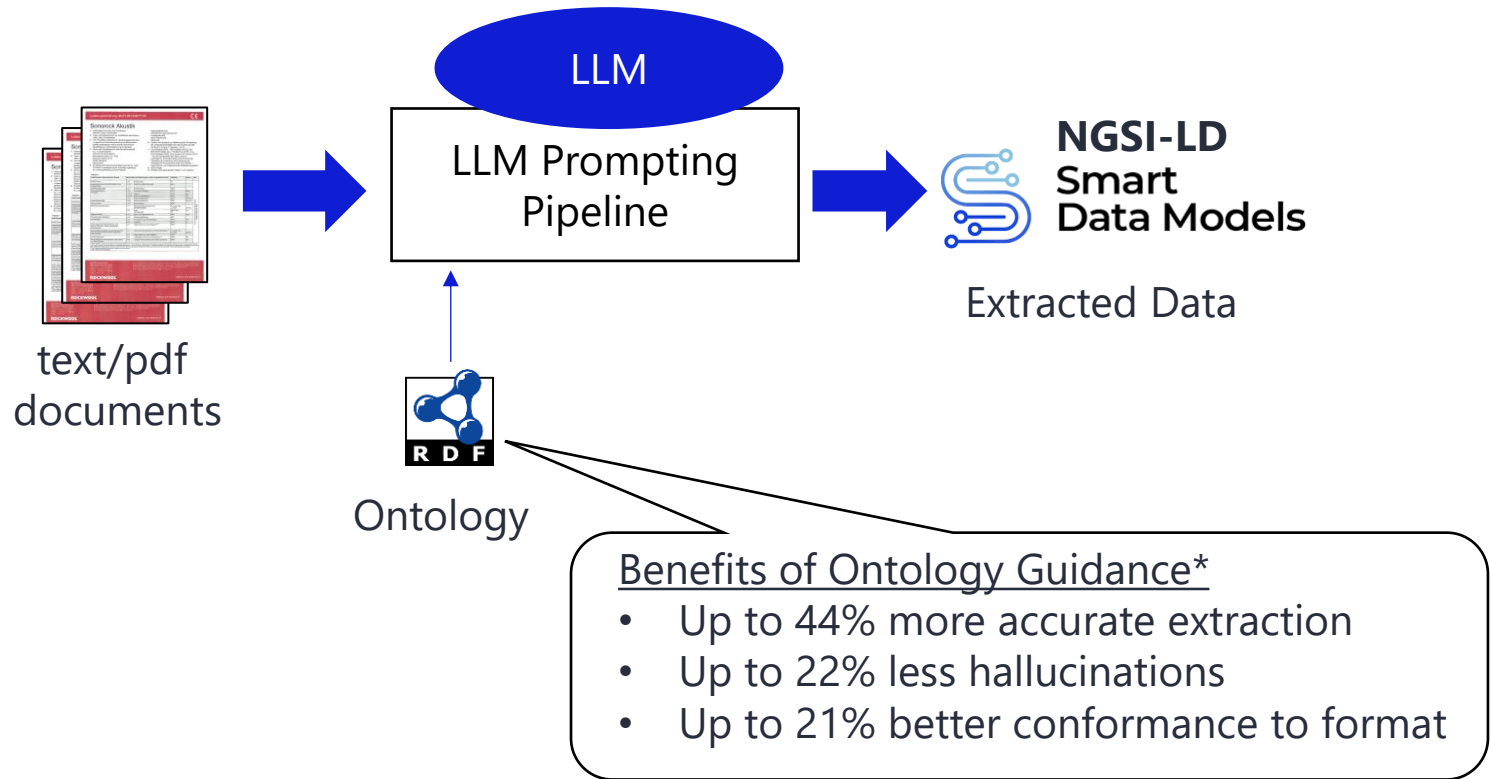


With LLM



2. Unstructured Data → NGSI-LD Smart Data Models

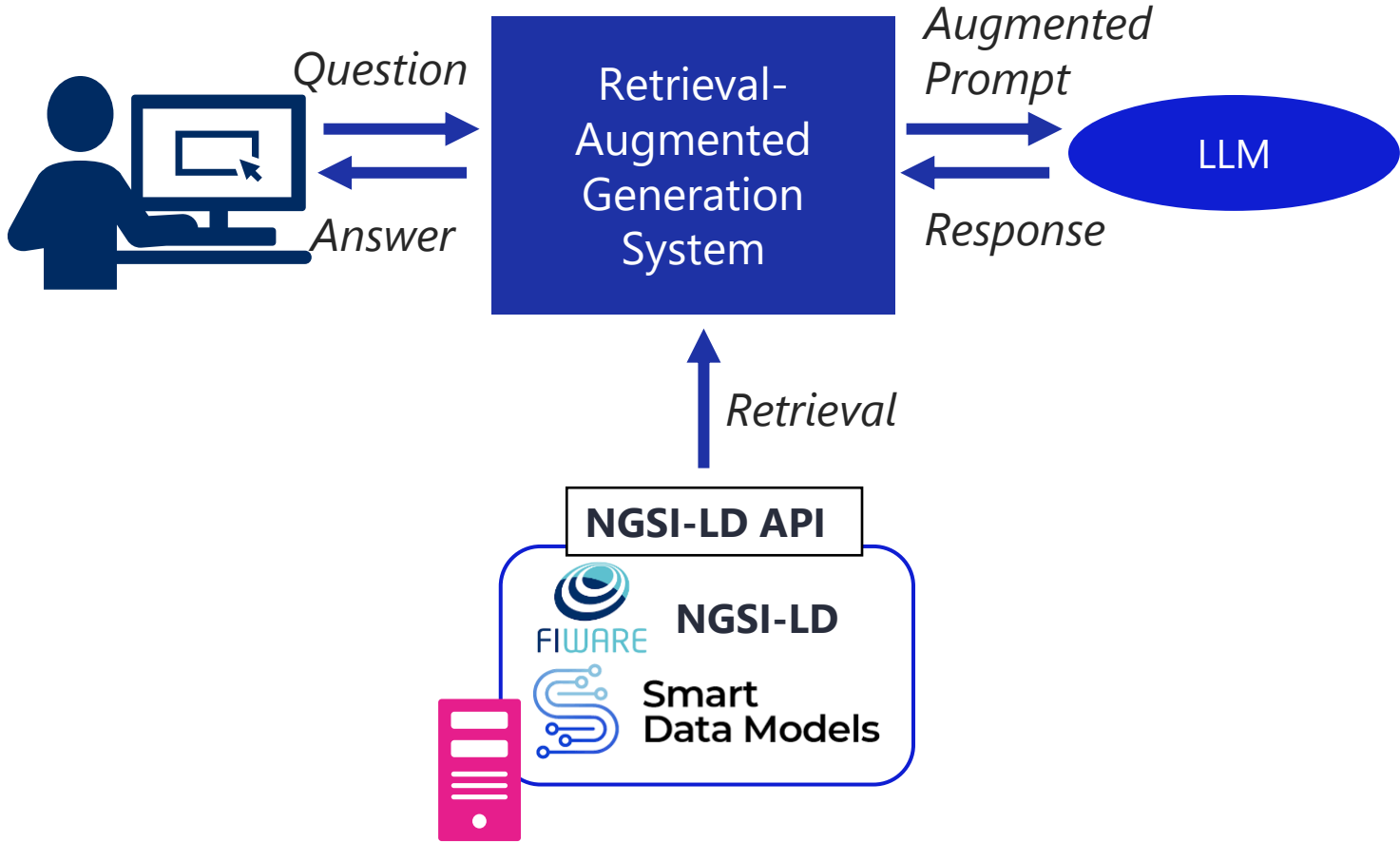
TextMine
Ontology-Guided
Knowledge Extraction



**tested on Humanitarian Mine Action Data; publication under review*

3.  **NGSI-LD Smart Data Models** → Question Answering

MML-RAG
Multi-Modal Retrieval-Augmented Generation



Conclusion

- With careful prompt engineering, today's LLMs are **capable to process data with formal semantics.**
- LLM can help with **tedious translation and interpretation** work.
- **Lowers adoption barrier** of semantically interoperable solutions.



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