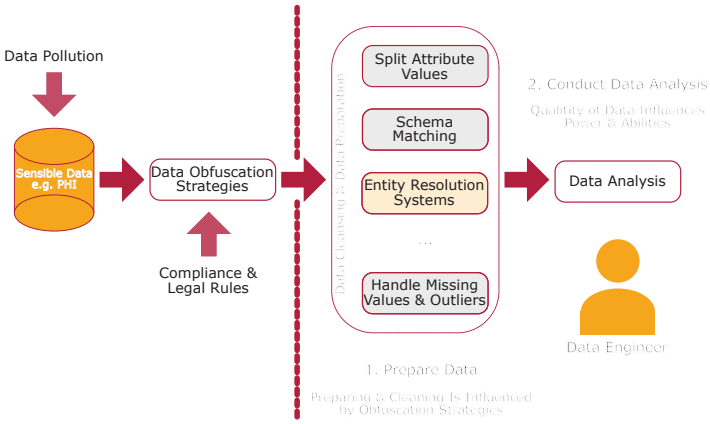
Analyzing the Impact of Data Obfuscation Strategies on Entity Resolution Systems

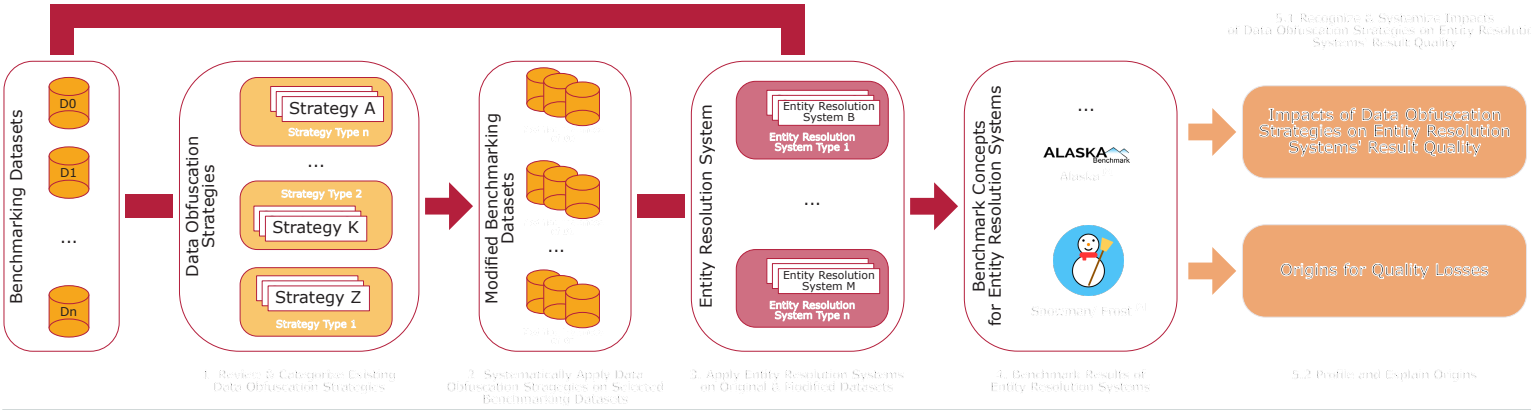
Data Obfuscation methods are used for de-identifying data while preserving original data formats and data types. **Entity Resolution** systems search for entries in the dataset that reference the same real-world object, so-called duplicates.

Data Obfuscation methods and *Entity Resolution* systems are common parts of real-world data integration pipelines. Recent research neglected the impact of *Data Obfuscation* methods on the quality of *Entity Resolution* systems' results. Hence, I propose a research project to close this gap.

Problem. Legal and compliance rules require the application of *Data Obfuscation* strategies before sensitive datasets are handed to data engineers. For instance, only *Data Obfuscation* strategies allow sharing Protected Health Information (PHI) with data engineers. In practice, *duplicates* represent one main cause of dirty data which can be cleaned with *Entity Resolution* systems. Recent studies analyzed the impact of *Data Obfuscation* strategies on *Entity Recognition* systems[1][3] and *Collaborative Filter* systems[4]. However, data engineers cannot estimate if and how previously applied *Data Obfuscation* strategies worse *Entity Resolution* systems' result qualities due to missing studies.



Analyze the impact of actual Data Obfuscation strategies on Entity Resolution systems' result quality and trace origins of quality losses.



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- Prof. Markl envisions a unified asset ecosystem, called AGORA[5]. First, its market aggregator may use *Entity Resolution* systems for finding equivalences among data assets. Furthermore, data asset constraints may allow a broader sharing of sensitive data if Data Obfuscation strategies were applied.
- Prof. Rahm emphasizes the relevance of Entity Resolution systems in data integration pipelines as well as for enabling automatic creation and refinement of large-scale knowledge graphs[7].

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