Leveraging Ontologies and Biomedical Standards for Data Governance, Process Optimization, and Product Findability

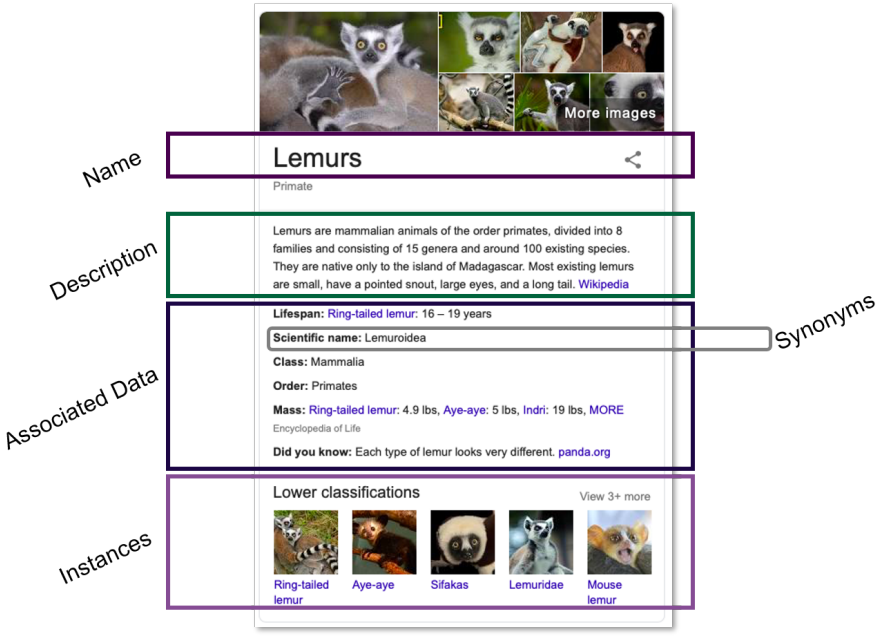
The Challenge

A global veterinary company that provides a comprehensive suite of products, software, and services for veterinary professionals needed an effective taxonomy and ontology design to provide easy and consistent ways to find and use data in order to inform machine learning activities and derive business intelligence. Specifically, the organization needed a way to model and describe their business processes and data flow between individual veterinary practices and enrich and align their ontology and data model with industry standards as part of their content and data normalization services and team initiatives. They sought to do this in order to improve efficiency and create the ability to report on the data across practices as well as trends within a specific practice, such as the adherence to prescribed medications.Their two primary stakeholders included:

- Data Scientists, who analyze and interpret data to manage the relationships at more granular levels with minimal effort, and inform machine learning activities and derive business intelligence; and
- Organizational Divisions who provide easy and consistent ways to find and use data.

The Solution

Enterprise Knowledge (EK) partnered with the organization to implement an enterprise taxonomy/ontology design, data strategy, management tool, and governance processes that provide consistent and effective approaches for data management and interactions. EK first enriched the taxonomy through the addition of synonyms, definitions, and scope notes to ensure broader and more accurate application of tags to the data being mapped. Then, leveraging the taxonomy, EK built an ontology which was then managed in an enterprise taxonomy/ontology management tool to link symptoms, illnesses, treatments, medications and other related products effectively. Synonyms and new terms were harvested and compared from multiple industry giants including Plumb's Veterinary Drugs and Hill's Prescription Diets. Additional metadata, such as breed definitions, was integrated with the tool through linked data, specifically DBPedia. Next, EK mapped the provided data sets to the ontology and leveraged industry benchmarking to ensure the interoperability of the ontology design. Finally, EK recommended a customized ontology governance plan including roles, processes, and cadences that leveraged best practices for maintaining and managing the ontology at a scale.



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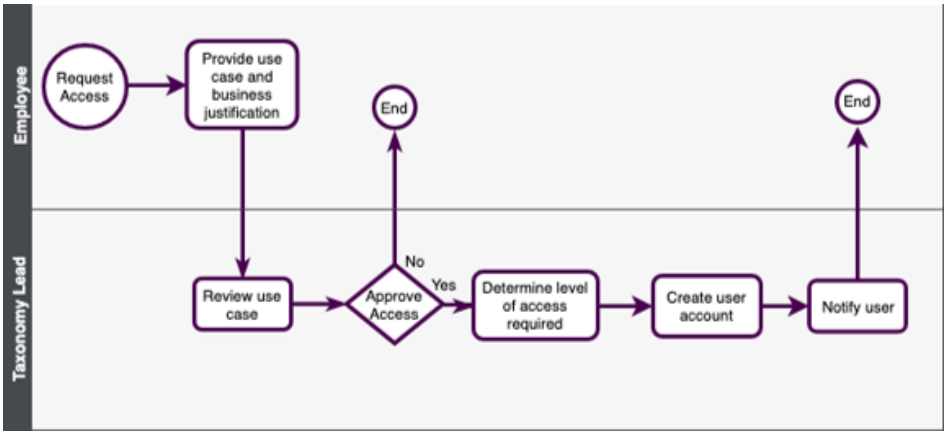
The EK Difference

EK's ontology industry experience and linked open data expertise ensured that the taxonomy and ontology design developed for the organization was not only relevant to the veterinary domain within their realm, but also relevant to the veterinary industry at large. We worked collaboratively with SMEs at the organization to identify and leverage industry standards and models within the ontology design, customizing where necessary but ensuring interoperability.

The Results

Leveraging EK's Semantic Enterprise Architecture approach in combination with the maturity matrix, the agency has clear architectural descriptions of applications, information assets, data assets, business processes, and organizational roles cleanly organized in a flexible graph database. This allowed for better short-term and long-term strategic decision making around data, security, integration, new design requirements, sustainability, and future support. Further, the agency now has clear visibility of applications across the organization that need to be updated or retired. This visibility, combined with the current state architecture and the maturity assessment, allows the agency to see not only when an application needs to be updated or retired, but also how it is addressing business problems and who in the organization is impacted by the retirement of applications.



Enterprise Knowledge (EK) is a services firm that integrates Knowledge Management, Information Management, Information Technology, and Agile Approaches to deliver comprehensive solutions. Our mission is to form true partnerships with our clients, listening and collaborating to create tailored, practical, and results-oriented solutions that enable them to thrive and adapt to changing needs.

Our core services include strategy, design, and development of Knowledge and Information Management systems, with proven approaches for Data and Information Management, Knowledge Graph Implementation in support of NPL, ML, and AI initiatives, Taxonomy Design, Project Strategy and Road Mapping, Brand and Content Strategy, Change Management and Communication, and Agile Transformation and Facilitation. At the heart of these services, we always focus on working alongside our clients to understand their needs, ensuring we can provide practical and achievable solutions on an iterative, ongoing basis.

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