Underlay

The Underlay is an open tool for building collaborative knowledge graphs. Built by Knowledge Futures Group, a non-profit organization building public knowledge infrastructure, The Underlay is designed to empower communities that organize and produce structured data in the course of a specific mission, such as, food safety, rating television entertainment, or geographic mapping. The Underlay also allows communities to combine their data with the broader world of publicly available structured knowledge. Most current knowledge graphs are either isolated, privately-owned graphs that are inaccessible to most, or loosely structured public graphs that are cumbersome in their generality. The Underlay provides an alternative: community-owned knowledge graphs that are focused, relevant, and meaningfully interoperable.

Data on the Underlay is organized into Collections. Each Collection is its own contained knowledge graph — collections are as big or as small, as simply structured or as complex, as openly editable or as permissioned as needed. Collections are powered by two technical features that unlock a myriad of useful collaborative mechanisms and application opportunities:

1. **Rich Provenance**: Collections provide a framing to understand data not as blind facts, but as assertions — statements made from a specific perspective. Since the credibility of the source is an important aspect of the assertion, provenance is critical to facilitating collaboration on and across knowledge graphs, as it lets the information be weighed and filtered based on the credibility of the source. It also provides a basis for discovery, as the provenance statements within a knowledge graph allow Collections to be composed of the data from other Collections while properly maintaining attribution and sourcing details.
2. **Explicit Typing**: Collections provide a database-agnostic means to explicitly describe the shape of the data they contain. This typing provides the technical foundation for the structure of the data to be transparently edited and migrated over versions, for data to be easily incorporated and reused in other knowledge graphs, and for schema consensus to develop from bottom-up activity rather than top-down mandate.

The Underlay's initial focus is a platform that allows Communities to organize themselves around the knowledge graphs, schemas, and processes they find important. The platform makes it simple to import existing datasets, discuss and establish shared schemas, organize trusted data sources, and publish knowledge graphs to a public (or private) Community hub for others to use in their own applications. Rather than publishing static, quickly-outdated .csv or .zip snapshots of data, or building and maintaining a cumbersome API, the Underlay allows Communities to create living Collections that are open to collaboration, explicit in their versioning, and easily exported to the database or file needed for custom applications.

The mission of the Underlay is to connect the world's knowledge. This is a long-term undertaking with the potential to transform our mechanism for sensemaking from isolated claims of fact to continuous collaboration around shared context. We believe the best strategy to do that is to grow the number of communities that can independently produce and maintain Collections that make their data more accessible, higher quality, and more visible. As such, our initial work is focused on facilitating the socio-technical processes that undergird a Community's ability to produce and maintain such Collections. We work directly with communities to help them form the structure, strategies, and collaborative approaches that result in long-lived, highly impactful knowledge graphs and data products that form the first steps in a new paradigm of collective understanding.