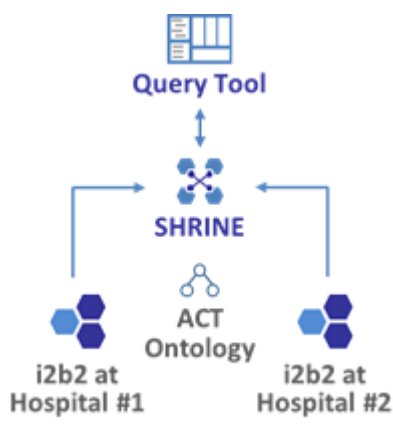
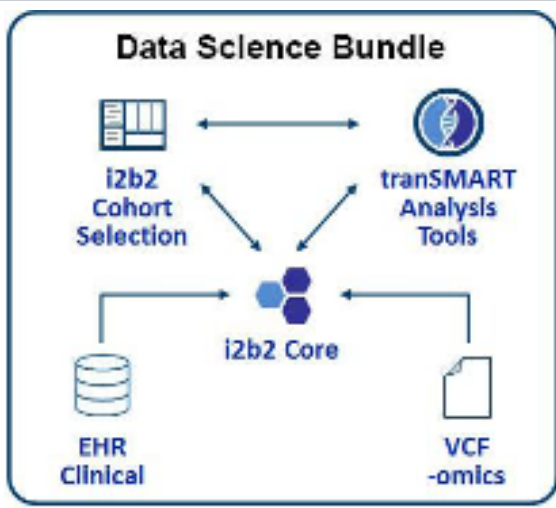


Bundles

Population-Wide Analysis Bundle	Data Science Bundle (draft version)
 The diagram illustrates the Population-Wide Analysis Bundle architecture. At the top is a 'Query Tool' icon. Below it is a central 'SHRINE' icon, which is connected to two 'i2b2 at Hospital #1' and 'i2b2 at Hospital #2' icons. A 'Query Tool' icon is also connected to the 'SHRINE' icon. Below the 'SHRINE' icon is an 'ACT Ontology' icon.	 The diagram illustrates the Data Science Bundle architecture. It features a central 'i2b2 Core' icon. Above it are 'i2b2 Cohort Selection' and 'transSMART Analysis Tools' icons. Below it are 'EHR Clinical' and 'VCF -omics' icons. Arrows indicate data flow between these components.
This population-wide analysis bundle provides researchers with real-time access to data on large patient populations at multiple healthcare organizations. It includes i2b2, which enables query and analysis of data within an institution, and SHRINE (Shared Health Research Information Network), which is a federated query tool that connects different sites' i2b2 systems. In this bundle, patient-level data never leaves an institution. The patient data are stored locally within each site's i2b2 database, and only aggregate counts and statistics are shared with others in the network through SHRINE. The bundle also includes a common ontology called ACT (Accrual for Clinical Trials), which has been implemented in a SHRINE network with more than 50 institutions and 125 million patients.	This data science bundle supports complex analyses of real-world clinical and genomic data. It includes i2b2, which enables query and cohort identification, and transSMART, adds a suite of tools for data exploration, R-based advanced analytics (e.g., correlation analysis, heat maps, PCA, etc.), and genomic modules for Genome Wide Association Studies (GWAS) and high dimensional data analysis such as RNAseq.