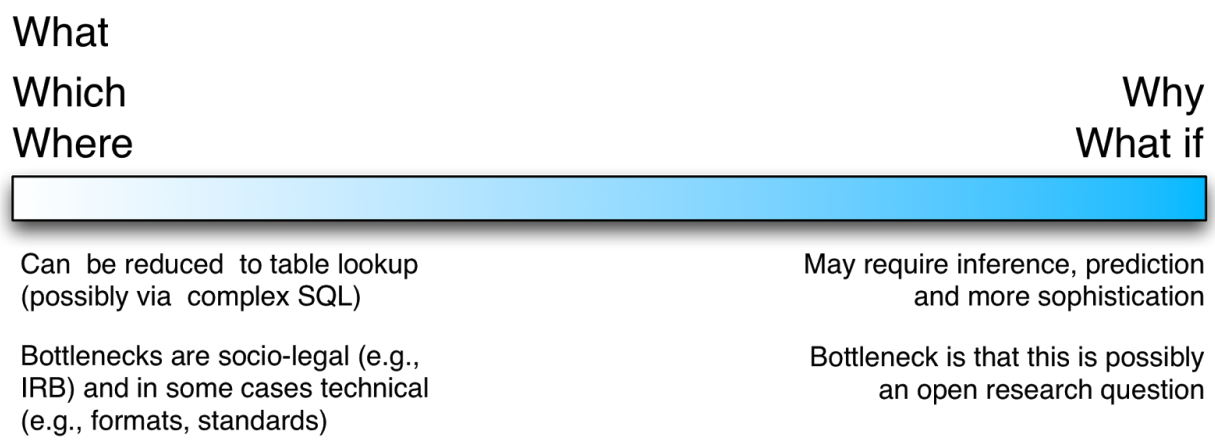
Background: Data assessment and infrastructure design phase

In September 2016, NCATS issued the first five awards supporting investigators from 11 institutions for the Biomedical Data Translator (Translator). During the initial project period, Translator teams formulated a series of "translational" questions that should be answerable computationally, provided the right combination of data sources would be available. There are many types of questions possible, and we can place them on a spectrum of "engineering feasibility", schematically shown below.



Questions on the left side correspond to (possibly complex) database queries which can be achieved if the appropriate data sources are merged, or connected. Fundamentally, these queries seek to pull out appropriate subsets of data from a set of data sources.

Questions on the right hand side are somewhat open ended and seek to identify an answer that may not be explicitly listed in any data source. These types of questions may involve inference or prediction. The reasoning tool is envisioned to ultimately be able to address questions on the right hand side of this spectrum.

This exercise is helping to not only identify high value data sources that would be needed for a comprehensive Translator, but also the infrastructure needed to support the interoperability of these data sources and methods for deriving knowledge from the integrated data.

It is envisioned that the output of the Translator would not simply be a statement addressing the question posed ("What is the answer to life, the universe and everything? Answer: 42"), but rather it would deliver a dossier of information that would allow the user to easily identify sources of information/knowledge and how the sources relate to one another. Thus, it enables the user to examine the information more deeply and draw their own conclusion or concur with the Translator's conclusion when an analysis is provided.

This funding opportunity is soliciting delivery of software, a reasoning tool, which can build dossiers by integrating biomedical facts, models and inferences that the existing Translator teams have assembled. Working with these existing components, the reasoning tool will optimize the application of the facts, models and inferences to a variety of important classes of translational research problems.

Applicants are encouraged to participate in a public meeting of the Biomedical Data Translator investigatorsin North Carolina, October 25, 2017 to learn about the current status of research efforts and infrastructure development.

Two-stage application process:

There are two-stages to the application process once the eligibility challenge is met:

1. Submission of a **concept letter** describing a short **proof-of-concept** software project that if selected, will be presented for evaluation in November
2. Selected concepts will be invited to submit a full **application to develop a reasoning tool** and to demonstrate the operation of their initial **proof-of-concept** software and present their 10-month plan to an objective review panel .

Key Events	**Dates**	**Action needed by applicants**
Qualification challenge opens	September 4, 2017 (9/18)	Solve challenge puzzle to qualify for eligibility and access FOA
Concept letters due	September 22, 2017 (10/2 at 8am EDT)	Concept letter submitted following instructions provided through the qualification challenge before 11PM EDT*
Objective review of concept letters completed; successful teams will receive written notification with instructions for submitting a full application and give virtual presentation to review panel	September 29, 2017 (10/12)	
Biomedical Data Translator public meeting	October 25, 2017	Attend in person (Optional)
Written application for reasoning tool development including milestones due	November 20, 2017	10-month plan and milestones emailed by AOR by 5pm local time*
SAM and DUNS number submitted	November 27, 2017	**Candidates e-mail their DUNS number and SAM account information

Virtual presentations of proof-of-concept software and 10-month project plan	November 28-29, 2017	***Candidates individually participate in virtual meeting with review panel
Milestone negotiations begin	December 4, 2017	Candidates and AOR (if applicable)
Awards announced	January 2018	

*Letters and applications received after these times will not be accepted.

**DUNS and SAM number registration can take 6 weeks or more. Candidates should begin the registration process at least 6 weeks prior to this deadline to ensure completion in time to provide these to NCATS.

***Applicants should save-the-date to ensure availability for the virtual interview.