

What questions are we looking for?

[The 100 Questions Initiative](#) seeks to source questions that matter and could be answered using a combination of new data sources and data science methods enabled by [data collaboratives](#). We value questions that are specific and could provide actionable and/or scientific insight. The datasets required to answer the question should exist or be feasible to generate in the near term – even if they are not easily accessible – e.g., proprietary datasets held by companies.

CRITERIA - Please consider the following criteria when submitting your high-impact questions¹:

1. Practical and/or Scientific impact: “Does your question have the potential to transform our (scientific) understanding of the problem, fuel innovation or improve how we address societal challenges?”²
2. Novelty: “Has your question not been answered or analyzed before and would the answer confirm, refute or extend previous findings?”³
3. Feasibility: “How likely can your question be answered with existing data, scientific resources and methods?”⁴
4. Quality: “Does your question meet the requirements as outlined above?”

TYPES OF QUESTIONS: We also encourage you to consider the following types of questions:

Type 1: Improving situational awareness	Type 2: Cause and effect analysis
Situational analysis questions ask how increased access to previously inaccessible information might enable stakeholders across sectors to better understand the trends and the geographic distribution of various phenomena. <u>Examples:</u> • <i>What careers do high school dropouts hold five, ten and fifteen years after they left school?</i> • <i>What are today's eating patterns of teenagers in both developed and developing countries that will impact population health for the next generation?</i>	Cause-and-effect questions can help stakeholders better understand the key drivers and consequences of an observed situation. They aim to establish which variables make a difference for a problem and whether any issues might be caused. <u>Examples:</u> • <i>What is the effect on wages when acquiring one or more digital credentials?</i> • <i>What is the relationship between vehicular emissions in relation to children's asthma in local communities?</i>
Type 3: Prediction	Type 4: Impact assessment
These questions aim to enable new predictive capabilities to allow stakeholders to assess future risks, needs, and opportunities. <u>Examples:</u> • <i>What's the probability of where and when Ebola might re-emerge across the African continent based upon travel patterns from the Democratic Republic of Congo?</i> • <i>Which regions are most likely to benefit from targeted vocational training or apprenticeship programs, and what types of industries are most relevant to those regions?</i>	Impact assessment questions try to determine which, whether, and how various interventions affect certain conditions. They can also seek insight into the obstacles hampering the achievement of certain objectives or the success of particular experiments. <u>Examples:</u> • <i>What variables and data points are most effective in creating job training and placement interventions for students with less educational attainment?</i> • <i>What are the environmental effects created by the introduction of newly protected bike lanes in a city? How does that compare to the introduction of electric scooters? Ride-sharing restrictions or congestion pricing?</i>

¹ Beck, S., Brasseur, T.-M., Poetz, M., & Sauermann, H. 2019. What's the Problem? How Crowdsourcing Contributes to Identifying Scientific Research Questions. Paper presented at DRUID19 Conference, Frederiksberg, Denmark.

² De Vries (1990), as seen in Biesta, G. 2007. Bridging the gap between educational research and educational practice: The need for critical distance. *Educational Research and Evaluation* 13(3): 295-301.

³ Cummings, S. R., Browner, W. S., & Hulley, S. B. 2007. Conceiving the research question. In S. B. Hulley, S. R. Cummings, W. S. Browner, D. G. Grady, & T. B. Newman (Eds.), *Designing Clinical Research*, Vol. 3rd edition: Lippincott Williams & Wilkins.

⁴ Cummings, S. R., Browner, W. S., & Hulley, S. B. 2007. Conceiving the research question. In S. B. Hulley, S. R. Cummings, W. S. Browner, D. G. Grady, & T. B. Newman (Eds.), *Designing Clinical Research*, Vol. 3rd edition: Lippincott Williams & Wilkins.

