BIG DATA EVALUATION

Framework for Evaluating Big Data in Regional Travel and Mobility Analyses

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Travel Forecasting Subcommittee
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What is *Big Data?*

Big Data is an information asset with such high volume, velocity, and variety that specific technology and analytical methods are required for its transformation into value.[1]

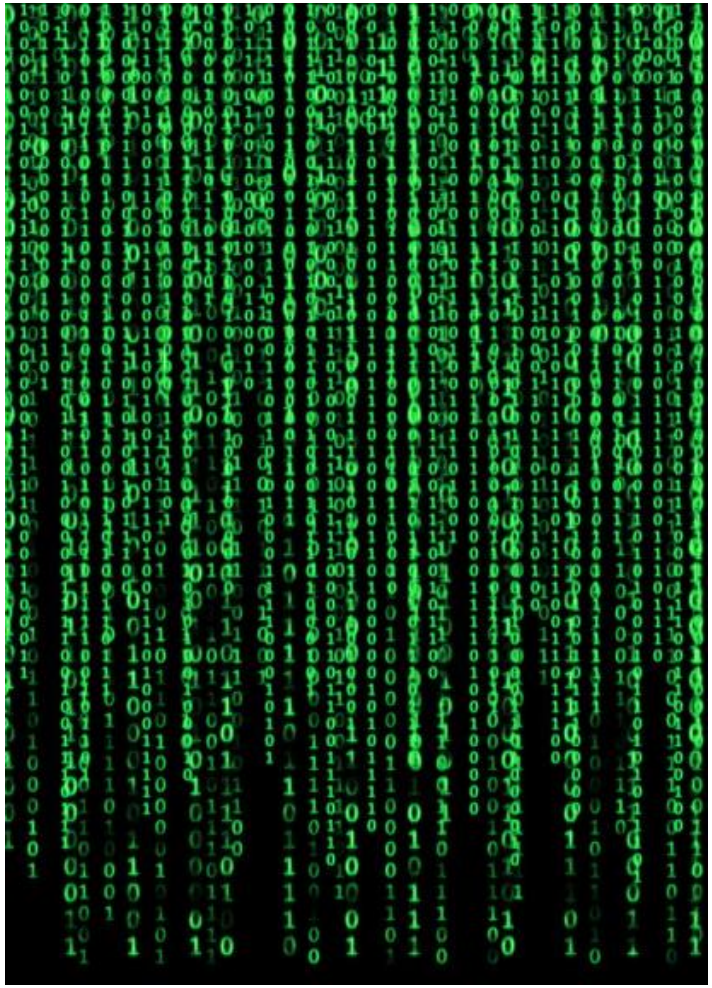
[1] *De Mauro, Greco, Grimaldi, (2016) "A formal definition of Big Data based on its essential features", Library Review, Vol. 65 Issue: 3, pp.122-135, https://doi.org/10.1108/LR-06-2015-0061*

Framework for Evaluating Big Data in Regional Travel and Mobility Analyses

- Conduct an independent evaluation of Big Data and its use and limitations in regional travel and mobility analyses and modelling.
- With processing and analytics tools, **Big Data can illustrate patterns and trends in human behavior and activity**.
- Big Data **sources** with transportation planning applications include passively collected data from mobile applications, including GPS traces and location-based services, on-board vehicle sensors, traffic sensors and cameras, unmanned aircraft/space-based radar used to monitor traffic flow, and smart card data, among others.

Project Background and Development

- Scope of work **collaboratively developed** with DDOT, MDOT, VDOT, DRPT, and WMATA through the TPB State Technical Working Group
- Prompted by interest to acquire Big Data to better understand impact of emerging regional travel trends such as TNC use and micro-mobility
- Initially implemented as a UPWP Technical Assistance project in FY 2019, but will be carried out primarily as UPWP Core Program project during FY 2020



Key Questions

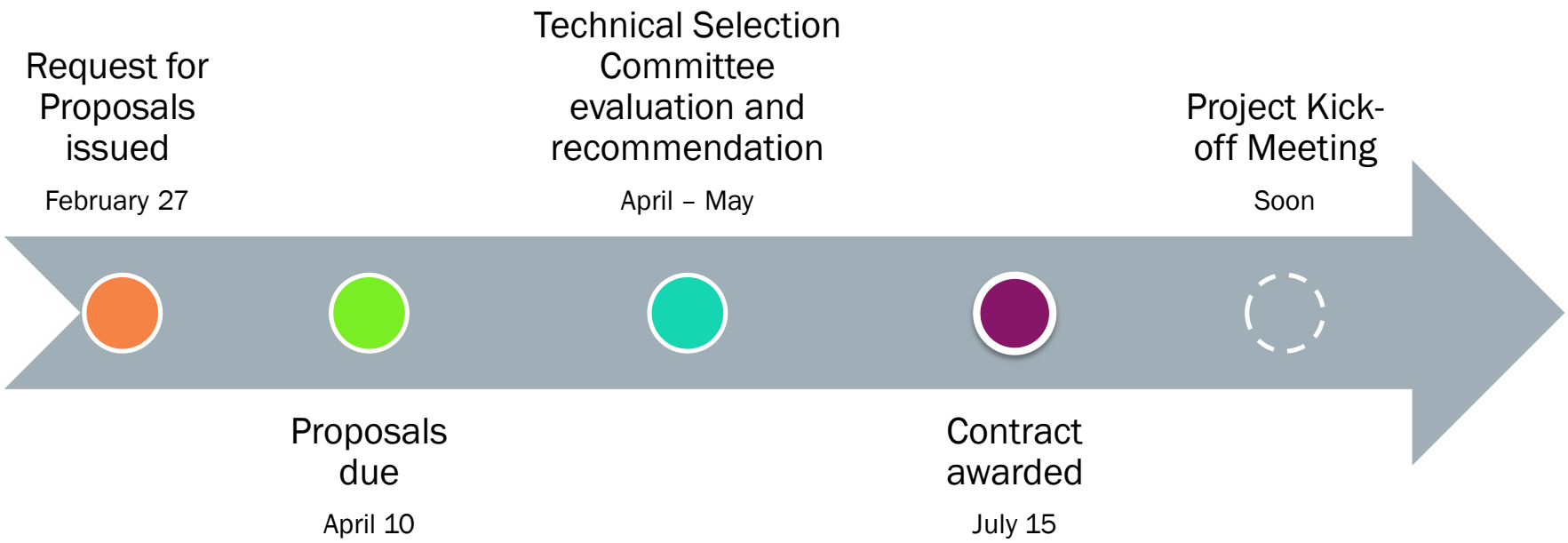
- Is Big Data the magic bullet and solution to all of our research challenges?
- Can Big Data be used to supplement or possibly replace TPB's methods and procedures used for transportation data analysis?
- Can Big Data be used to estimate, calibrate, and validate the regional travel demand model?
- How can Big Data be used to understand emerging trends and uncertainties?
- What are the costs (and opportunity costs) of investing in very expensive Big Data sources?
- What staff capabilities are necessary to develop a robust Big Data program? What training will be needed?

Research Considerations

The RFP identified a preliminary list of nearly 50 potential research considerations for the consultant to investigate. These considerations are grouped into seven (7) general categories:

1. Travel Demand Modelling
2. Transportation Network Companies (TNCs)
3. Travel Demand Management (TDM)
4. Connected Autonomous Vehicles (CAVs)
5. Traffic Counts
6. System Performance/Congestion Management
7. Other Research

Project Kick-off Meeting Soon!



Scope

1. Establish Study Work Group (membership, responsibilities, and meeting schedule) and study work plan
2. Develop understanding of TPB programmatic requirements and analytical/modelling processes
3. Review state of the practice of Big Data use and applications by other MPOs
4. Conduct an independent evaluation of Big Data sources for their potential in supporting TPB staff in meeting its programmatic requirements
5. Recommend options and considerations for acquiring Big Data
6. Prepare a final report

Committee Engagement

- The TPB Technical Committee, Travel Forecasting Subcommittee, and other appropriate technical subcommittees and working groups will receive periodic briefings at key milestones during the performance of the evaluation.
- Stakeholders will have opportunity to provide input and comments.

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