AI AND OTHER INNOVATIONS

Vladimir Majano, SFTO, and Sunil Doddapaneni were the facilitators of this session, welcoming everyone and explaining the purpose of the breakout room. Discussion in the session centered on the following key themes regarding the emerging uses of AI for modeling:

- The biggest theme was the use of machine learning to help with development and calibration of individual model components. Destination choice models and their calibration was mentioned as an example. Theory behind the application was discussed along with comparisons with traditional discrete choice approach and the limitations of use for each. It was thought that eventually a hybrid approach may evolve to combine elements of traditional discrete choice modeling and AI methods.

- Others in the audience mentioned work has commenced on auto-calibration of other model components; promising to aid in speeding up the process of estimating and calibrating models significantly.

- Questions were then asked whether AI may eventually replace current model development processes entirely. The consensus was this scenario is much further off. Especially as some processes like development of future land use are not likely to be amenable to AI approaches due to the human political element involved. It was felt however, that where it works, AI may help improve predictive accuracy of models.

- The use of AI applications to process drone data, which are then used for network coding and QA/QC applications was then brought up. This approach significantly speeds up the process of input data collection.

- ChatGPT was brought up as low hanging fruit, particularly as it relates to use in aiding model documentation. This is being done in District 5. Concepts like inherent bias in how the models are “trained” were then brought up as potential areas for caution regarding the use of such data.

- The use of ChatGPT to aid in the development of model code was also discussed, particularly related to the speed at which usable code may be implemented. It was explained that it is now increasingly being used to translate code from one language to another. This could have far reaching implications, not just in the modeling community but the larger community of IT professionals. It allows for a significant increase in productivity and/or a reduction in required personnel involved to get tasks completed. A comment was made regarding the increased use of AI and the threat that practitioners may not fully understand the basic concepts of modeling, programming, etc. Caution was suggested in the way AI technology is deployed.

- There was then discussion of various AI platforms such as Claude, Copilot versus ChatGPT and their differences. The takeaway was that personal preferences with usability were the strongest determinant as the platforms were pretty similar in performance.

- The reliability and acceptability of AI generated results was then discussed. Concern was expressed that poorly trained or maliciously trained AI models will cause increased skepticism of model results, which is the opposite direction from where the modeling community would like to head. It was agreed that working on acceptability will need to be a key focus, particularly with clients like FDOT and its associated AI policy.

- Following up on the earlier discussion regarding machine learning, a question was asked regarding what the inevitable limitations of the approach versus the traditional approaches will be.

- One theme that also arose was the issue of hosting data in foreign lands and the conflicts with existing policy that prohibits that approach of data governance and management. Can this prohibition be maintained, or will the general bureaucracy have to retract this? It is understood that there are concerns of possible threats that hostile agents may pose, particularly those located overseas.

Vladamir Majano then thanked everyone for attending and encouraged everyone to participate in the summary session on Thursday to hear the summary report of the session by Jason Learned.