Quantifying road user safety

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Abstract: The study of road safety includes an examination of the user in different situations, recognizing their motivations for travel and their perceptions of safety. Crash data and surveys provide insights on actual and perceived risks, but other tools are needed for a more comprehensive understanding of the road user. For example, naturalistic driving data can provide information on driver interactions with existing technology and their potential impact on safety. However, they cannot be used to assess new technology that has yet to be deployed and their ability to establish crash causations are limited. Driving simulator studies can help guide the design of advanced driver support systems and identify the effectiveness of potential road improvements but they are limited in its ability to predict real-world crash risk. In summary, each data collection tool presents challenges and opportunities, but each also provides useful and complimentary insights on risk factors that evolve over time and location. Several case studies are presented to demonstrate the value of using a triangulation of data sources for a better understanding of the road user and the implications for overall road safety.

Bio: Linda Ng Boyle is professor and chair of the Industrial & Systems Engineering Department. She has a joint appointment in Civil & Environmental Engineering. She is the director of research for this region’s University Transportation Center (PacTrans), an associate editor for the journal Accident Analysis and Prevention, chair of the Transportation Research Board Committee on Statistical Methods, and an organizer for the Driving Assessment conferences.