Abstract: Driving is an integral component of many operational systems and any small improvement in driving quality can have significant effect on accidents, traffic, pollution, and the economy in general. However, the complexity and multidimensionality of driving as a task make it challenging to improve. With motor vehicles at the core of their business processes, many industries employ financial and non-financial incentives for their drivers to promote better driving. Such interventions are often expensive and not very effective as evident from accident statistics. Instead, we devise and test a behavioral intervention called a nudge in a field experiment. We use telematics technology (i.e., real-time sensor data in a mobile device such as accelerometer and gyroscope) to measure driving performance as well as to deliver nudges to the drivers via notifications. Leveraging a smartphone application launched by our industry partners, we sent three types of performance nudges to drivers, indicating how they performed with respect to their personal best, personal average, and latest driving performance. We are the first to study effectiveness of different types of nudges and compare their relative strength in the context of driving in a field experiment. We find that personal best and personal average nudges improve driving performance, on average, by 18.17% and 18.71% standard deviations of the performance scores calculated by the application respectively, translating into an increase in the inter-accident time by nearly 1.8 years, while also improving driving performance consistency (as measured by the coefficient of variation of the performance score). We further study heterogeneity of this effect using generalized random forest. We show that high-performing drivers who are not frequent feedback seekers benefit the most from personal best nudges, while low-performing drivers who are also frequent feedback seekers benefit the most from the personal average nudges. Using these findings, we construct personalized nudges that outperform either of these nudges.

Bio: Vivek is a Ph.D. candidate in Technology & Operations Management at INSEAD. He is passionate about Empirical Operations Management problems, driven by the motivation to provide actionable managerial insights grounded in rigorous analysis. He is interested in understanding how factors such as technology, human behavior, resource allocation, and product design impact the performance of business processes. His research can be broadly categorized into two streams: Behavioral Operations Management and Supply Chain Management. His recent work examines the implications of technology on driving behavior and devises interventions to improve performance in the field. He employs various empirical methodologies such as econometric methods, machine learning, and field experiments. Prior to joining INSEAD, he was a consultant at McKinsey & Company.