

NATIONAL SCIENCE FOUNDATION
Proposal Abstract

Proposal:1936884

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Proposal Title: Convergence Accelerator Phase I: Network for Equity in the Era of Driverless Vehicles
Institution: University of Michigan Ann Arbor
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The NSF Convergence Accelerator supports team-based, multidisciplinary efforts that address challenges of national importance and show potential for deliverables in the near future.

The broader impact and potential societal benefit of this Convergence Accelerator Phase I project is to identify how major recent transportation innovations, including ridesourcing and driverless vehicles, can improve economic prosperity and the quality of life for all Americans. Citizens and policy makers need knowledge-based, data-driven responses to these massive disruptions of the transportation sector in order for the U.S. to be at the forefront of technological advances and to be able to provide equitable access to transportation. We propose to create an open knowledge network (OKN) for transportation and the emerging mobility ecosystem that leverages and links existing publicly available data (i.e. www.data.gov). To do this, we will integrate perspectives and insights from engineering, computer science, statistics, social and behavioral science, systems science and public policy. Our transdisciplinary, convergence team is a partnership between public, private and the not-for-profit sectors. The resulting knowledge network will result in better public policy decisions on the deployment of driverless vehicles, sustainable urban planning practices, and more equitable transportation systems design. Data deliverables from the project will empower our project partners and end users to develop innovation ecosystems specific to their local needs and populations of interest.

With the deployment of innovative transportation technologies such as driverless vehicles on the horizon, we need a more thorough and broader understanding of their potential economic and quality of life impacts. Our project speaks directly to this need by creating an open knowledge network to accelerate these innovations while being aware of their broader implications on society. Our research will link publicly available microdata and scientific inquiries on the impacts of new mobility modes. The objective is to gain deeper insights into the factors that prevent the development of transportation innovations but also to understand the ways in which transportation innovations contribute to societal well-being. Our proposed research addresses a myriad of factors such as ontology development, entity matching, synthetic entity generation, data normalization and linking strategies. The major tasks are 1) conducting a customer discovery process; 2) building a transdisciplinary convergence team; 3) developing a robust OKN research plan and 4) the creation of a minimum viable knowledge network (MVKN). The MVKN is expected to provide crucial insights, particularly at city or metropolitan level, to decision makers in the transportation arena.

This award reflects NSF's statutory mission and has been deemed worthy of support through evaluation using the Foundation's intellectual merit and broader impacts review criteria.