Proposals and Opportunities

Selected List of Proposals Submitted in February

Proposal Title/Topic: Guidelines for Integration of UAS LiDAR and Photogrammetry to Enhance Land Surveying Capabilities
Funding Agency: Texas Department of Transportation

Proposal Title/Topic: Develop Texas Electric Vehicle Charging Infrastructure Readiness Plan
Funding Agency: Texas Department of Transportation

Proposals in Development

Proposal Title/Topic: Aviation Research
Funding Agency: Federal Aviation Agency
Proposal Due Date: open

Proposal Title/Topic: Human Networks and Data Science
Funding Agency: National Science Foundation
Proposal Due Date: July 14, 2022

Funding Opportunities

If interested in applying, please email Kathy Dreyer

Proposal Title/Topic: Strengthening American Infrastructure
Funding Agency: National Science Foundation
Proposal Due Date: May 5, 2022

Proposal Title/Topic: Civic Innovation Challenge
Funding Agency: National Science Foundation
Proposal Due Date: May 5, 2022
Research Profile
Jacob Maywald

Background:
Jacob Maywald is an active duty United States Air Force officer and third-year logistics doctoral student at the G. Brint Ryan College of Business. His professional background includes leadership tours managing aircraft fuel and spare parts, and directing Air Force enterprise supply chain management. He currently holds a master’s degree in logistics and supply chain management and plans to teach at the Air Force Institute of Technology after completing his PhD.

Research Interests:
- Technology integration
- Grounded theory methodology
- Behavioral research in SCM

Research Summary:
Retail warehouse and distribution centers are facing intense pressure to increase operational efficiency and effectiveness in response to growing e-commerce and omni-channel distribution demands. Warehouse automation has the potential to reduce operational costs, optimize space, increase picking accuracy, and minimize delivery response, yet most warehouses still rely on manual, picker-to-part strategies due to cost and loss-of-flexibility concerns.

Autonomous mobile robots (AMRs), are a new class of highly interactive “cobots”, or collaborative robots, designed to work alongside human operators and increase task efficiency. Compared to traditional automation, AMRs are more flexible, scalable, and cost-effective. Leveraging artificial intelligence and machine learning, AMRs operate autonomously and are designed specifically to interact with human counterparts continually, acting as “intelligent assistants” in shared workspaces. In this way, AMRs’ autonomous and interactive qualities make them more akin to a new form of worker. Thus, factors affecting successful integration of this new form of technology are presumed to be fundamentally different than traditional types of warehouse automation.

Examining external technology integration (ETI) in the context of warehouse AMR, we employ grounded theory methodology to develop a conceptual framework identifying key sources of uncertainty during integration and the organizational strategies firms take to overcome them. Our model extends prior models of ETI, positing that uncertainty during project execution is a product of technology, process, user, and contextual uncertainty. Furthermore, borrowing from the theoretical lens of organizational information processing theory (OIPT), we show that establishing joint teams capable of efficiently sharing knowledge is effective at mitigating the effects of task uncertainty.