

# Framework of a Job Lexicon for Future Transportation Workforce

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Research conducted by



## Problem Statement

- The rapid growth of disruptive transportation technologies such as artificial intelligence, **big data analytics, the Internet of Things, cyber-physical infrastructure, connected and autonomous vehicles, on-demand ride-sharing services, Mobility as a Service, fifth generation (5G) wireless technologies, 3D/4D printing, block chain, flying car**, and **smart dust** are changing not only the behavior but also the expectations of both roadway users and stakeholders.
- There is a need to advance the understanding of the potential impacts that emerging technologies will have on the overall performance of transportation workforce.

## Methodology

- We acquired Occupational Information Network (O\*NET), an organization under the sponsorship of the U.S. Department of Labor/Employment and Training Administration, database to develop a framework of ‘Transportation Job Lexicon (TJL)’ with a comprehensive list of occupational descriptors associated with the new and disruptive transportation technologies.
- We used pre-trained word embeddings to cluster the words associated with job descriptors categories in the TJL.

## Transportation Sector Job Titles (partial list)

O*NET-SOC Code	Title
53-3041.00	Taxi Drivers and Chauffeurs
49-3093.00	Tire Repairers and Changers
53-6041.00	Traffic Technicians
33-3052.00	Transit and Railroad Police
53-6061.00	Transportation Attendants, Except Flight Attendants
17-2051.01	Transportation Engineers
11-3071.01	Transportation Managers
19-3099.01	Transportation Planners
33-9093.00	Transportation Security Screeners
53-6051.07	Transportation Vehicle, Equipment and Systems Inspectors, Except Aviation
41-3041.00	Travel Agents
39-7012.00	Travel Guides

## Key Findings

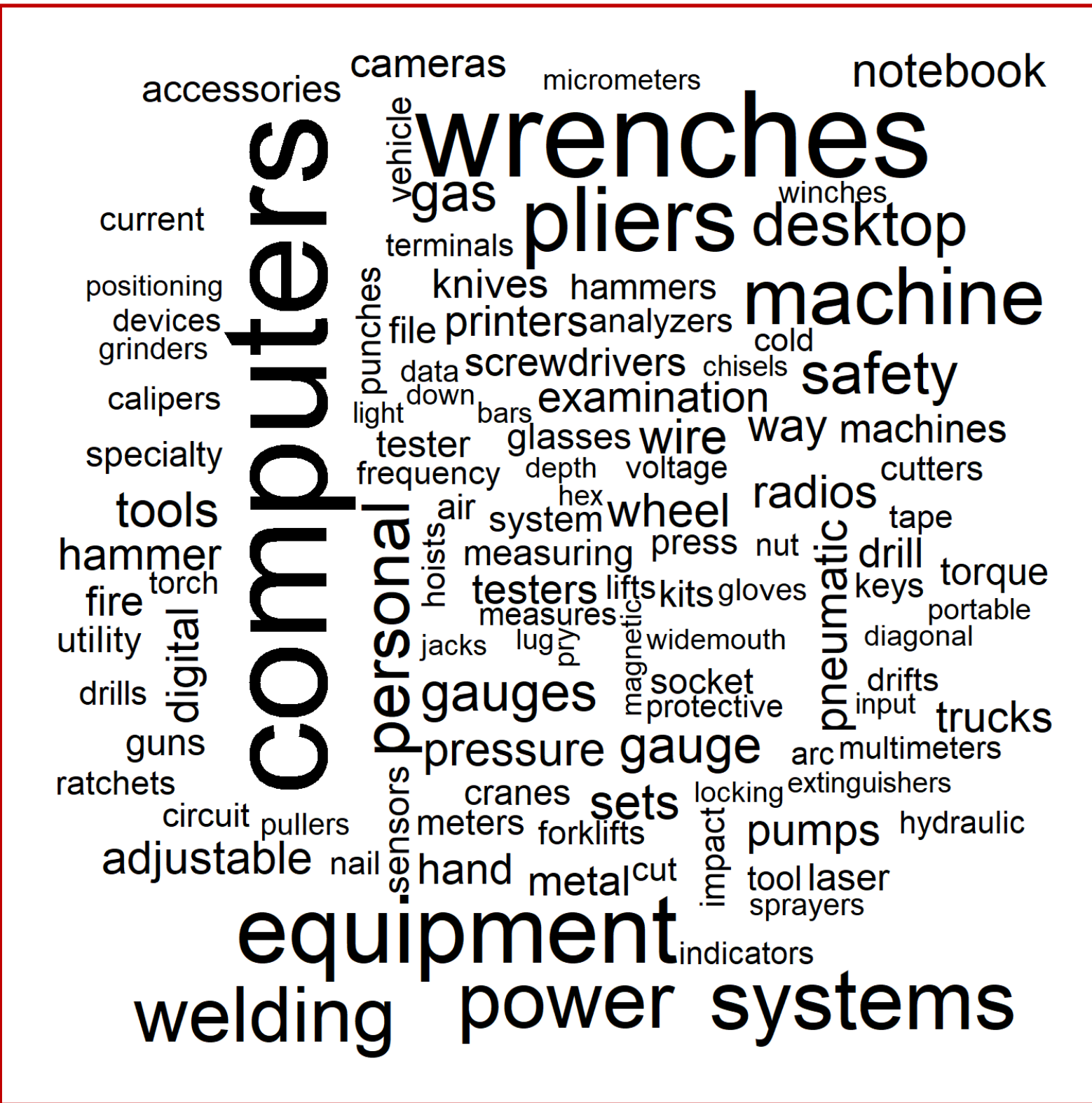
- Out of 974 unique job titles, 64 job titles are directly related to the transportation sector.
- Lexicon development was done based on several key attributes: 1) task details, 2) work context, 3) tools used, and 4) technology used.
- The framework of TJL contains a guideline of the job responsibility and learning path for getting adapted with newer technologies.
- TJL can be beneficial in identifying the workforce skills and core competencies for the future workforce.
- The recruiters can use TJL as a guideline for recruiting and maintaining or upgrading a high-tech workforce for emerging and disruptive technologies.



Task description



Work context



Tools



Technology