“Transferring knowledge about the TSMO practice around the country”

Webinar #3 on TSMO Workforce

KSAs

Presented by: Stephanie Ivey
KSAs
Development of KSAs

- Job posting analysis
  - State DOTs
  - Online job boards such as indeed.com, monster.com and usajobs.gov
  - Hundreds of samples from public and private sector
Common KSAs

- Knowledge of transportation industry operations
- Communication skills
- Interpersonal skills
- Technical communication and report development
- Analytical, mathematical, or problem-solving skills
- Ability to work well on a team
Common KSAs – Leadership Level

- Leadership skills
- Professional judgement
- Ability to collect, enter, or **analyze data**
- Ability to be **innovative or creative**
Specialized KSAs – Knowledge

- Knowledge of ITS/CAV/Emerging Technologies – *TMC Manager*
- Knowledge of Multi-modal and Intermodal Operations – *CAV Program Manager*
- Knowledge of Cyber Security, Risk, Vulnerability Assessment – *Cyber Security Engineer*
- Knowledge of Machine Learning, Deep Learning Tools – *Artificial Intelligence Scientist*
- Knowledge of Geospatial Analysis Techniques and Software – *Traffic Data Scientist*
- Knowledge of Data Ethics, Compliance and Risk Management – *Transportation Data Ethicist*
Specialized KSAs – Skills

- Research skills – *Traffic Data Scientist*
- Time and task management skills – *TSMO Program Manager*
- Data analytics skills – *Transportation Systems Performance Manager*
- Entrepreneurial skills – *Emerging Technologies Industry Liaison*
Specialized KSAs – Abilities

- Ability to work in a fast-paced or stressful environment – *TMC Manager*
- Ability to be innovative or creative – *Visualization Specialist*
- Ability to develop credible conclusions from data analytics for performance measure analysis – *Transportation Systems Performance Manager*
**Specialized KSAs – Examples**

<table>
<thead>
<tr>
<th>Knowledge</th>
<th>Skills</th>
<th>Abilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Knowledge of Transportation Industry Operations</td>
<td>• Analytical, Mathematical, or Problem-Solving Skills</td>
<td>• Ability to Develop Credible Conclusions from Data Analytics for Performance Measure Analysis</td>
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<tr>
<td>• Knowledge of Local and State Policies</td>
<td>• Communication Skills, Written/Verbal</td>
<td>• Professional Judgment</td>
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<tr>
<td>• Knowledge of Engineering Practice and Design Principles</td>
<td>• Technical Communication, Report Development Skills</td>
<td>• Ability to Work Well on a Team</td>
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<tr>
<td>• Knowledge of Performance Testing, Metrics, Systems Analysis</td>
<td>• Data Analytics Skills</td>
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**Transportation Systems Performance Manager KSAs**
### Specialized KSAs – Examples

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| - Knowledge of Data/Computer Science, Programming, Software Engineering  
- Knowledge of Machine Learning, Deep Learning, AI Applications  
- Knowledge of Statistical Analysis, Modeling, Optimization  
- Knowledge of Big Data Analytics  
- Knowledge of Relevant Programming Languages  
- Knowledge of Natural Language Processing  | - Communication Skills, Written/Verbal  
- Technical Communication, Report Development Skills  
- Analytical, Mathematical, or Problem-Solving Skills  
- Research Skills, Application and Publications  | - Ability to Collect, Enter, or Analyze Data  
- Possess Professional Judgment  
- Possess Good Attitude/Work Ethic  
- Ability to Work Well on a Team  |

**Artificial Intelligence Scientist KSAs**