Est. Dec. 2014

Key cultural factors affecting access and utilization of workforce training resources (State DOT sample)

Presented by: Nic Ward, Jay Otto (CHSC), & Danena Gaines (CS)

Webinar Logistics

- Duration is 11:00 AM - 12:30 PM Mountain

- Webinar – recorded and archived on website. For quality of recording, phone will be muted during presentation

- If listening on the phone, please mute your computer

- To maximize the presentation on your screen click the 4 arrows in the top right of the presentation

- At the end of each section, there will be time for Q&A

- There is a handout pod at the bottom of the screen

- Please complete follow-up surveys; they are vital to assessing the webinar quality

Today's Presenters

Nic Ward
CHSC

Jay Otto
CHSC

Danena Gaines
CS

Webinar Goal

Once you have completed this webinar, you will:

Have an overview of the program of research undertaken by the Safety Center to understand the cultural and operational factors within traffic safety organizations that predict utilization of (effective) resources and tools for workforce training and education.

Learning Outcomes

To achieve the webinar goal, you will learn to:

Describe a proposed model that relates cultural factors of an organization to the access and the utilization of workforce training.

Understand which factors are most predictive of access and utilization with a sample of state DOTs.

Discuss different forms of strategy that state DOTs can undertake to increase future utilization of workforce training and education tools and resources.

Nic Ward, CHSC

Describe a proposed model that relates cultural factors of an organization to the access and the utilization of workforce training.

Understand those factors that are most predictive of such utilization with a sample of state DOTs.

Discuss different forms of strategy that state DOTs can undertake to increase future utilization of workforce training and education tools and resources.

Premise

- For transportation agencies, an important goal of workforce training is to increase roadway safety knowledge and skills.

- However, effective workforce training requires more than accessibility to effective resources.

- It also requires that agencies foster a culture that encourages utilization of those resources.

- If the prevailing culture does not support workforce training, even the most effective resources will be ignored and roadway safety knowledge and skills will stagnate.

Conclusion

Therefore – as a center of excellence – it is important that the Safety Center understands the cultural factors within transportation agencies that support **access** and **utilization** of workforce training resources that **transfer** knowledge and skill to the job (safety related decisions).

Analogy
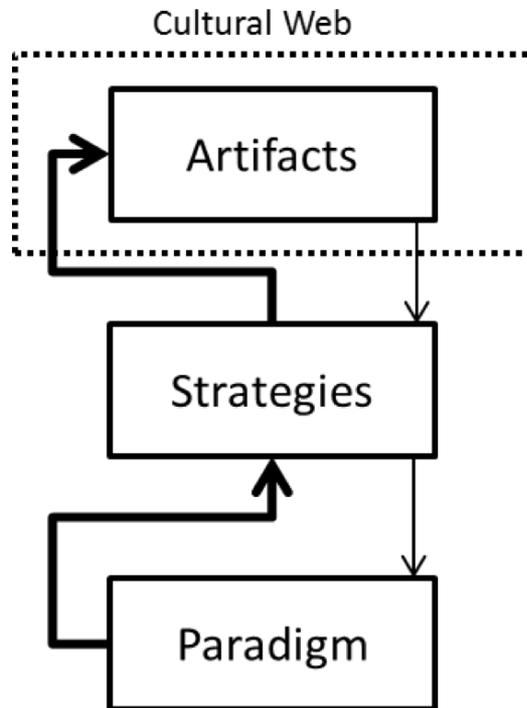
Product	Culture

Organization Culture

"Shared values (what is important) and beliefs (how things work) that interact with a company's people, organizational structures and operations to produce behavioral norms (the way we do things around here)."

Source: Uttal (1983)

Organization Culture

Cultural Web

Control systems (documented policy/strategy), Organization structures, Rituals and routines, Stories and myths, Symbols.
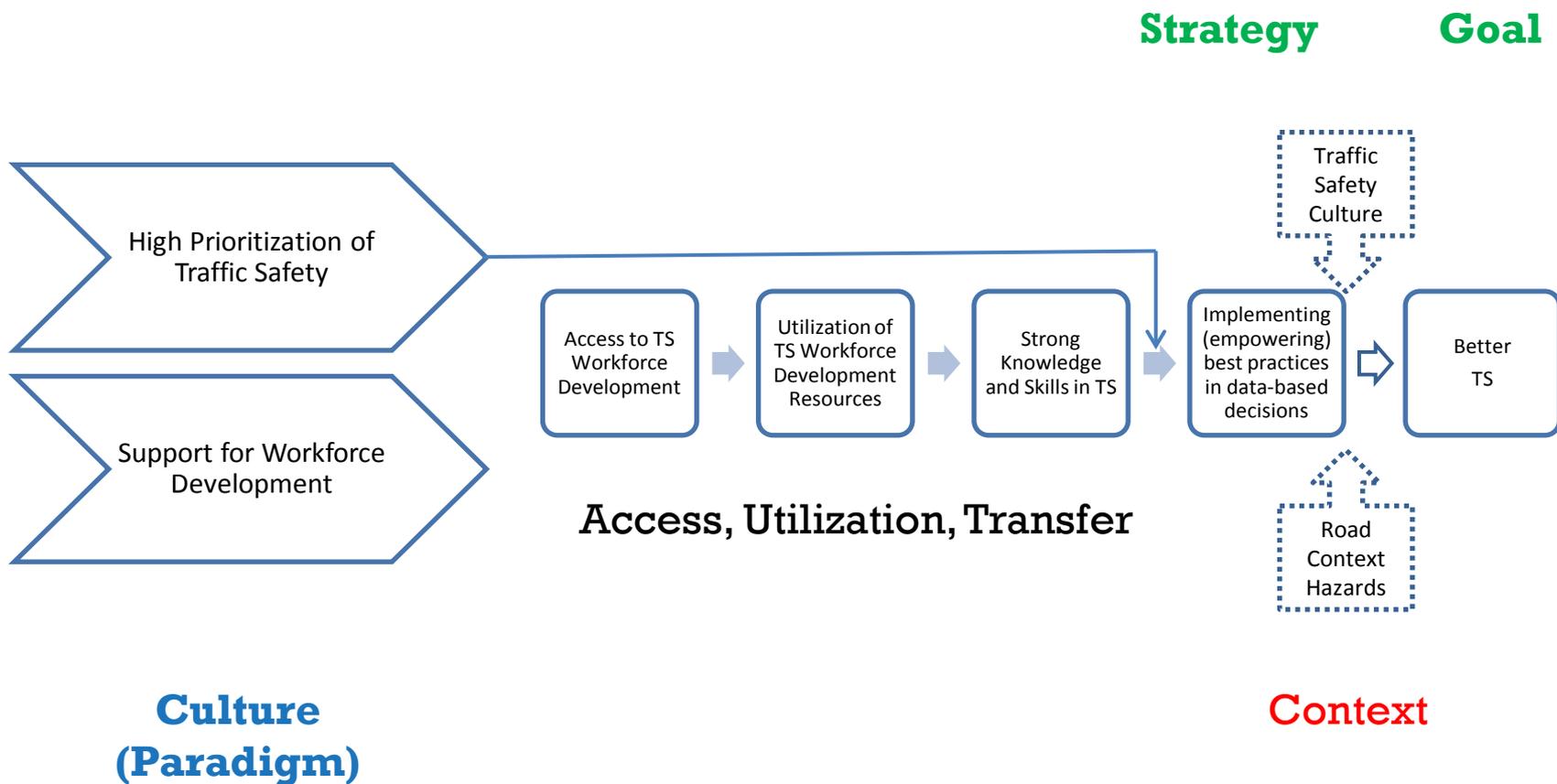
Risk perceptions (agency, environment), Shared Response Action (goals, effort),

Core assumptions (Primary Values, System Beliefs)

(based on Guldenmund, 2000 and Johnson, 1992)

Predictive Model

Strategy   **Goal**

High Prioritization of Traffic Safety

Support for Workforce Development

Access to TS Workforce Development → Utilization of TS Workforce Development Resources → Strong Knowledge and Skills in TS → Implementing (empowering) best practices in data-based decisions → Better TS

Traffic Safety Culture

Road Context Hazards

Access, Utilization, Transfer

Culture (Paradigm)   **Context**

Directing Your Questions via the Chat

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3. Answers will appear here unless addressed verbally

Chat   (Everyone)

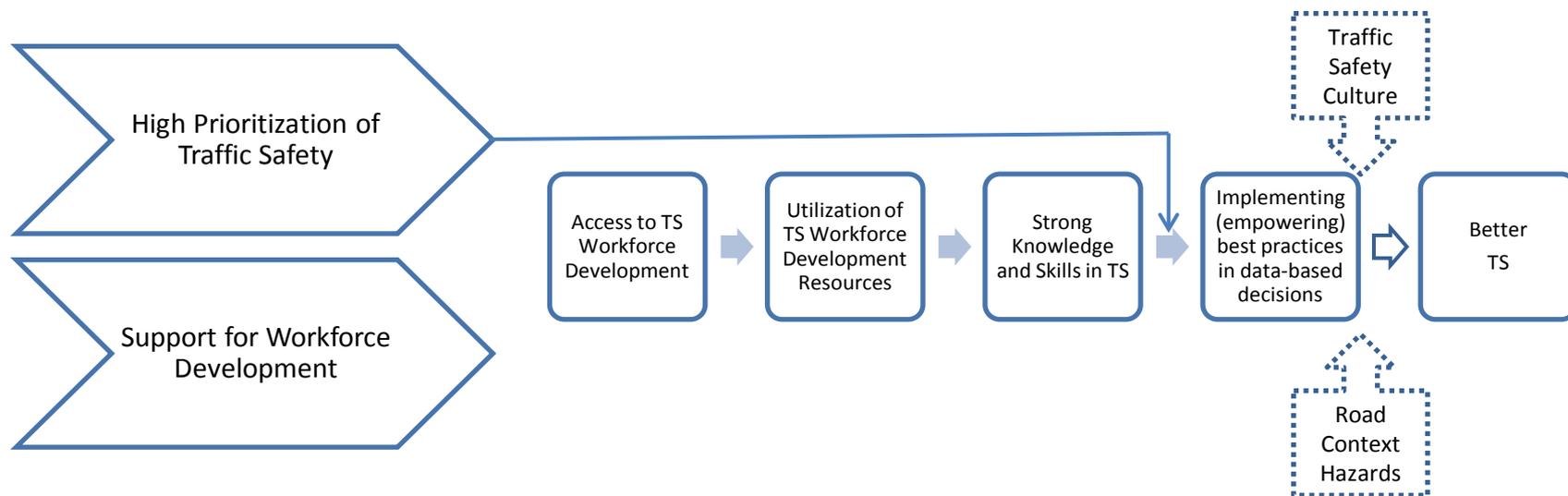2. Type your question or comment here

Everyone

Jay Otto, CHSC

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Traffic Safety Culture

Road Context Hazards

Recruitment

- Ranked states in terms of safety performance metrics (2003 – 2013):
  - Average annual change in fatalities per VMT over past 10 years
  - Average annual change in fatalities per capita over past 10 years
  - Average fatalities per VMT over past 10 years
  - Average fatalities per capita over past 10 years

- Identified top and bottom quartiles (4 or 3 of metrics)

- Invited state DOTs to participate
  - Six states (4 top quartile, 2 bottom quartile)
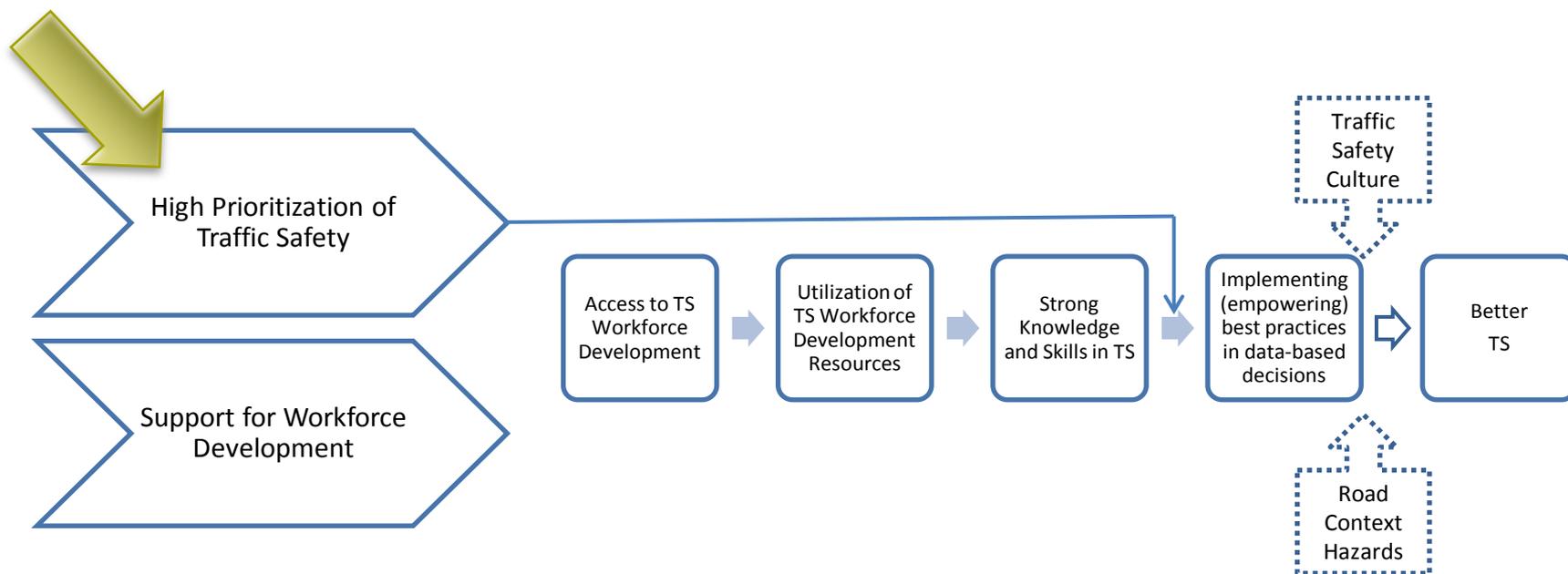 - N = 2,592

Model Summary
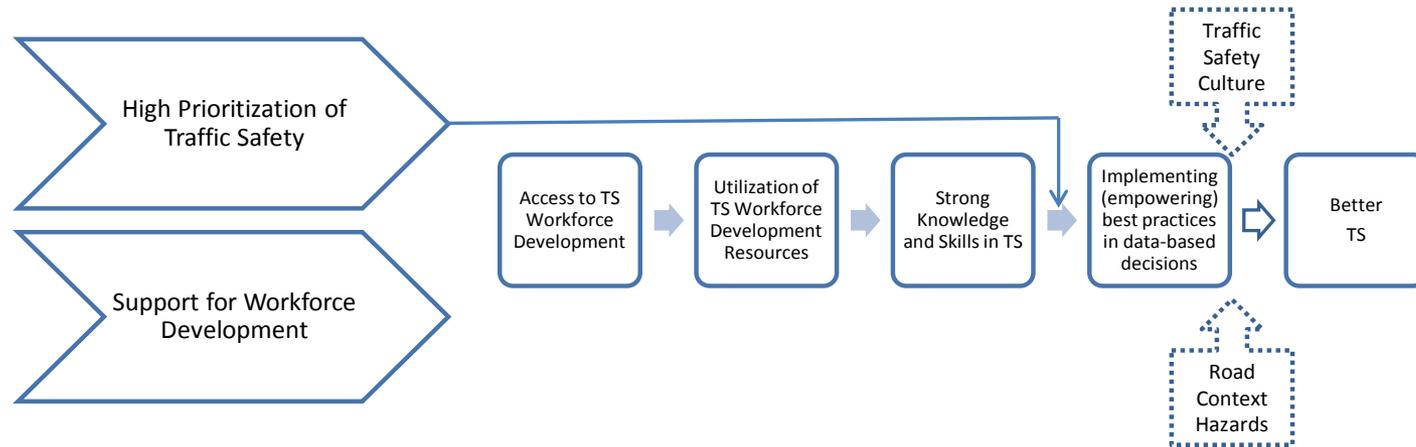
Spearman Correlation Coefficients

	N	Mean	Std. Deviation	Prioritization of Safety	Support	Access	Utilization	Safety Skills
Prioritization of Safety	2592	6.17	0.77	1.00	.72**	.48**	.29**	.09**
Support	2476	5.98	0.75		1.00	.51**	.31**	.10**
Access	2325	4.30	1.09			1.00	.49**	.21**
Utilization	2202	1.95	0.70				1.00	.25**
Safety Skills	2272	2.88	1.79					1.00

**Correlation is significant at the 0.01 level (2-tailed).

*Correlation is significant at the 0.05 level (2-tailed).

Predictive Model

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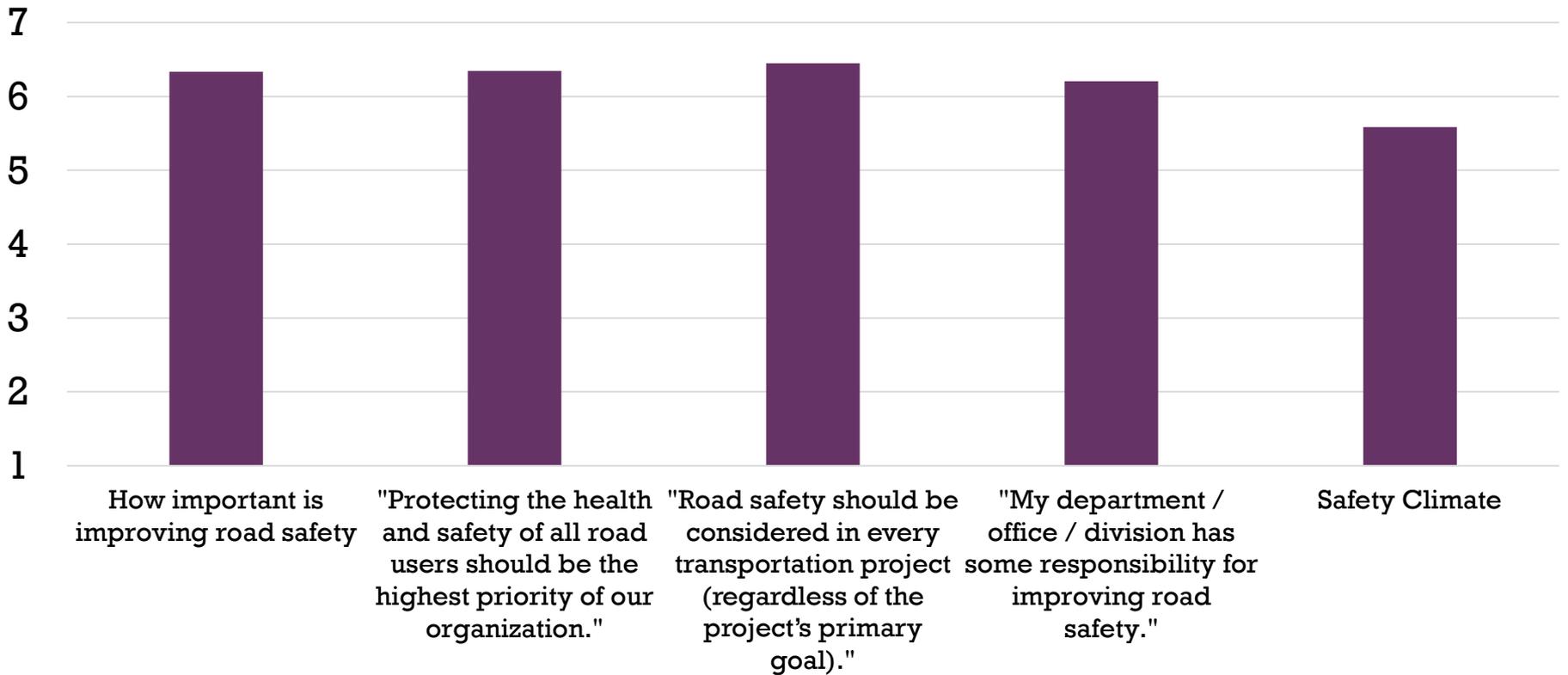Traffic Safety Culture

Road Context Hazards

Scales

- **Prioritization of Safety** (Chronbach Alpha = .87)
  - "Protecting the health and safety of all road users should be the highest priority of our organization."
  - "Road safety should be considered in every transportation project (regardless of the project's primary goal)."
  - Safety Climate Scale
    - Level of agreement with five statements about internal safety practices
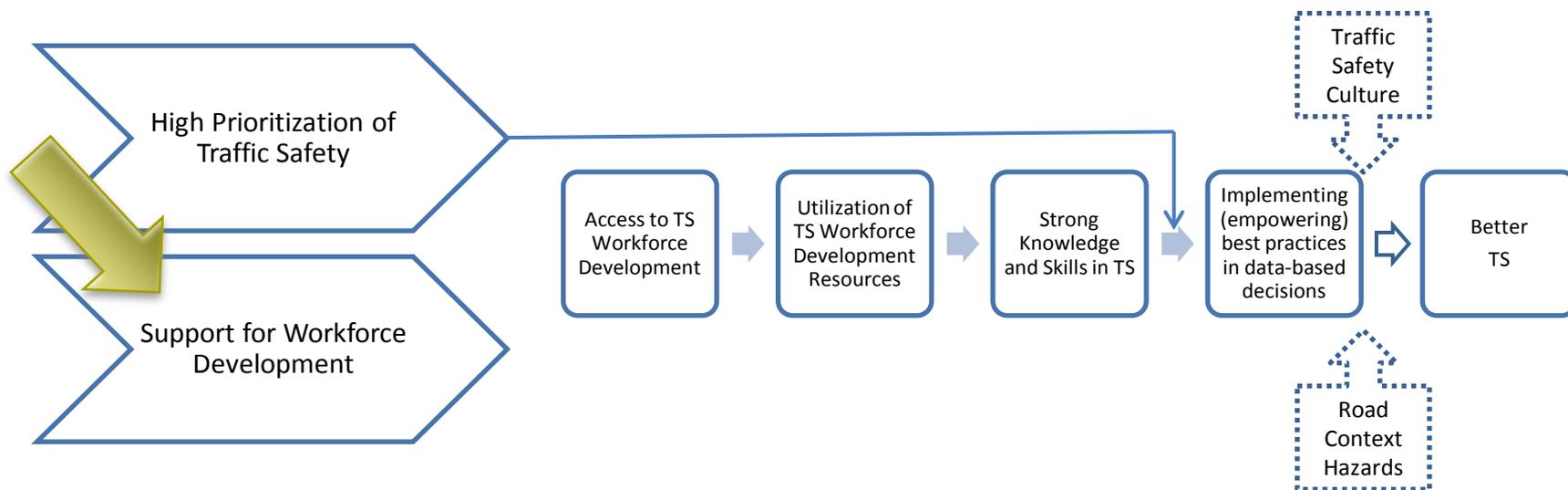
Results: Prioritization of Safety

Predictive Model

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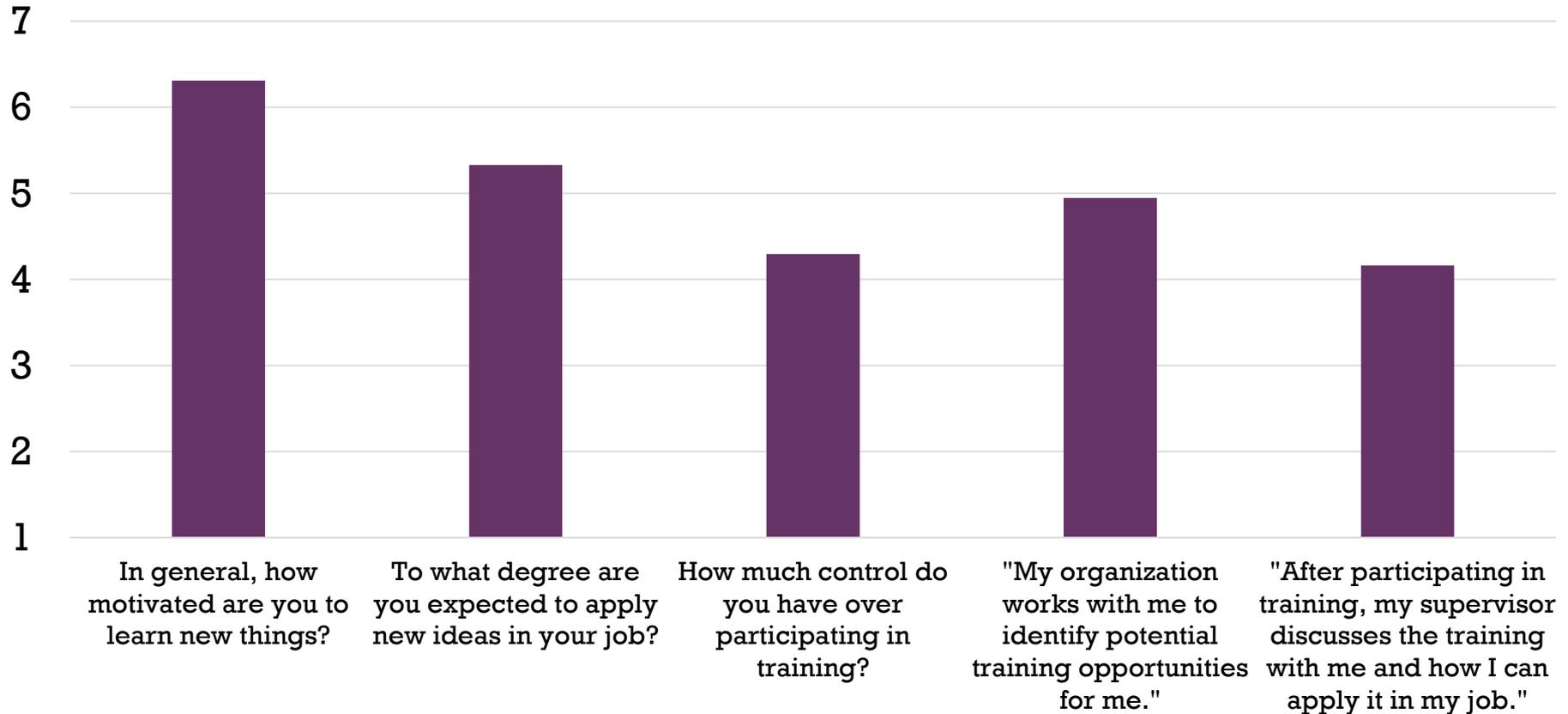Traffic Safety Culture

Road Context Hazards

Scales

- **Support for Workforce Development** (Chronbach Alpha = .90)
  - "Participating in training that improves the safety of the transportation system is a valuable investment."
  - Individual Readiness
    - In general, how motivated are you to learn new things?
    - To what degree are you expected to apply new ideas in your job?
    - How much control do you have over participating in training?
    - "My organization works with me to identify potential training opportunities for me."
    - "After participating in training, my supervisor discusses the training with me and how I can apply it in my job."

Results: Support for Workforce Dev
Individual Readiness

Bar chart showing average ratings (scale 1–7) for five questions:
- In general, how motivated are you to learn new things? — ~6.3
- To what degree are you expected to apply new ideas in your job? — ~5.3
- How much control do you have over participating in training? — ~4.3
- "My organization works with me to identify potential training opportunities for me." — ~4.9
- "After participating in training, my supervisor discusses the training with me and how I can apply it in my job." — ~4.2

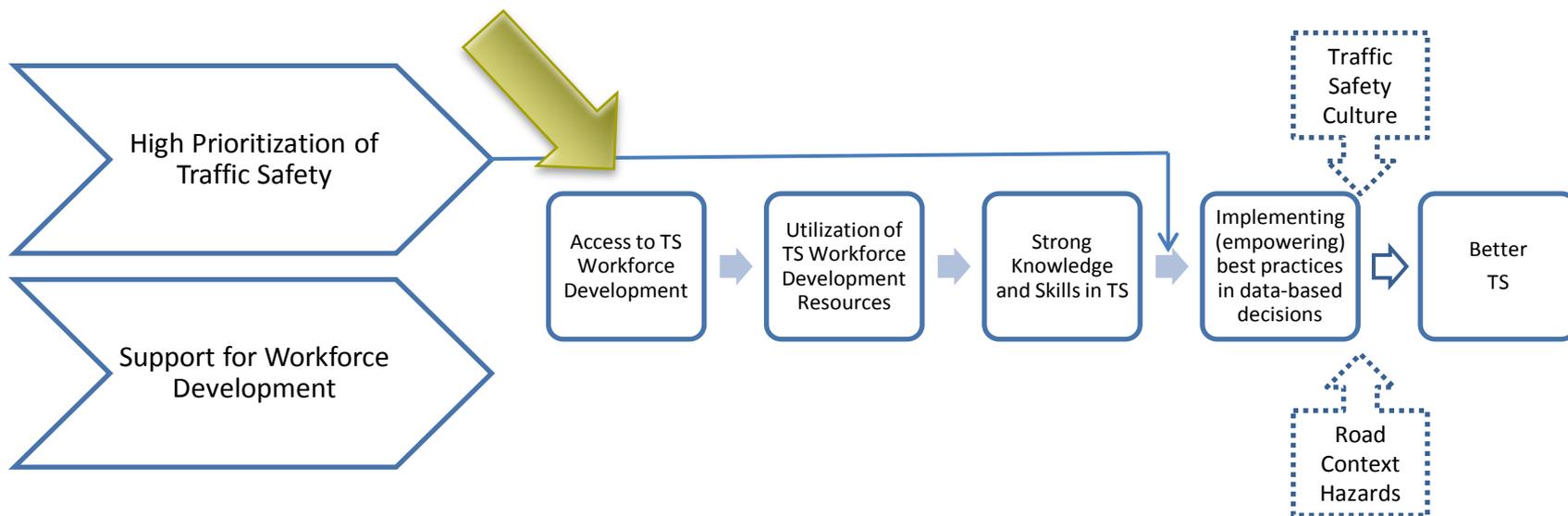# Key Insights

- Safety Climate
  - Internal safety climate correlates with utilization of safety training

- Individual Readiness
  - Opportunities for improvement
    - Establishing expectations to apply new ideas
    - Enhance identification of opportunities
    - Enhance post-training efforts to connect learning to job roles

Predictive Model

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Traffic Safety Culture

Road Context Hazards

Better TS

Scales

- **Access to Training and Educational Resources** (Chronbach Alpha = .96)
  - General: "How accessible are the following training resources to you?"
    - Online training classes
    - Training conducted using printed materials or books that you complete on your own
    - Training provided by your organization
    - Training provided by outside agencies
  - Safety Specific: "How accessible are the following training resources to you?"
    - Training about improving the safety of the transportation system
    - Training about using roadway safety data to make better decisions
    - Training about how to assess the effectiveness of safety strategies
    - Training about how to make safety decisions that result in the most value (that is, decisions that result in the best financial outcomes)
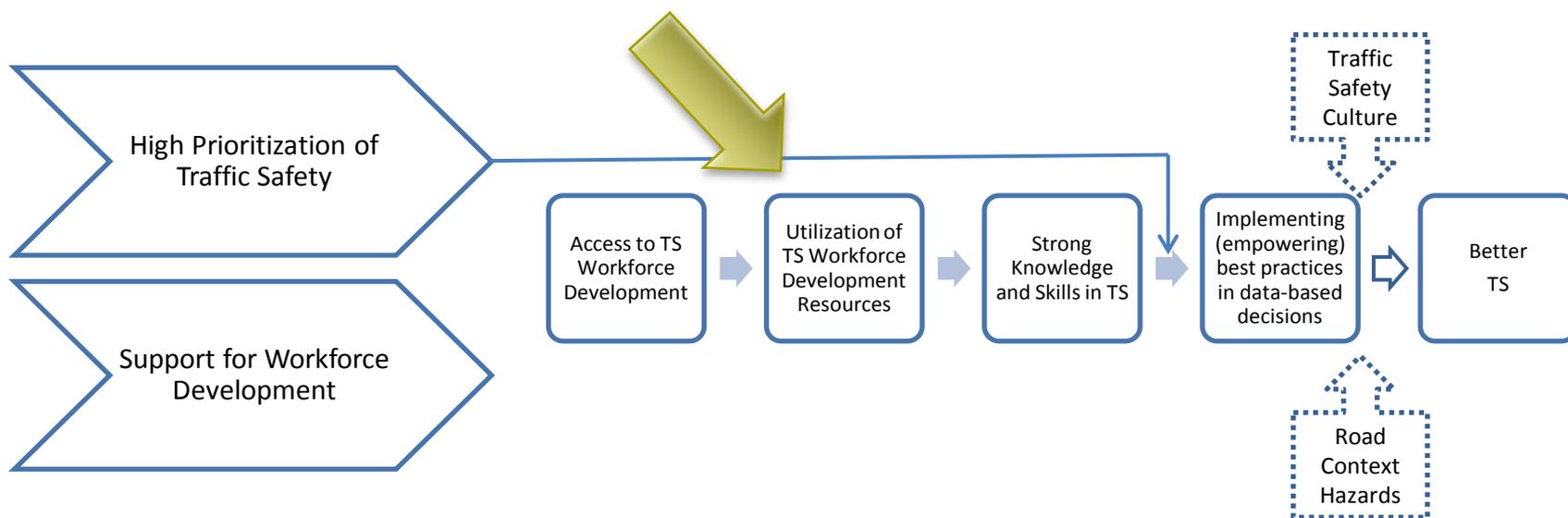
Results: Access to Training
General

How accessible are the following training resources to you?
(1= "Not at all accessible" to 7= "Extremely accessible")
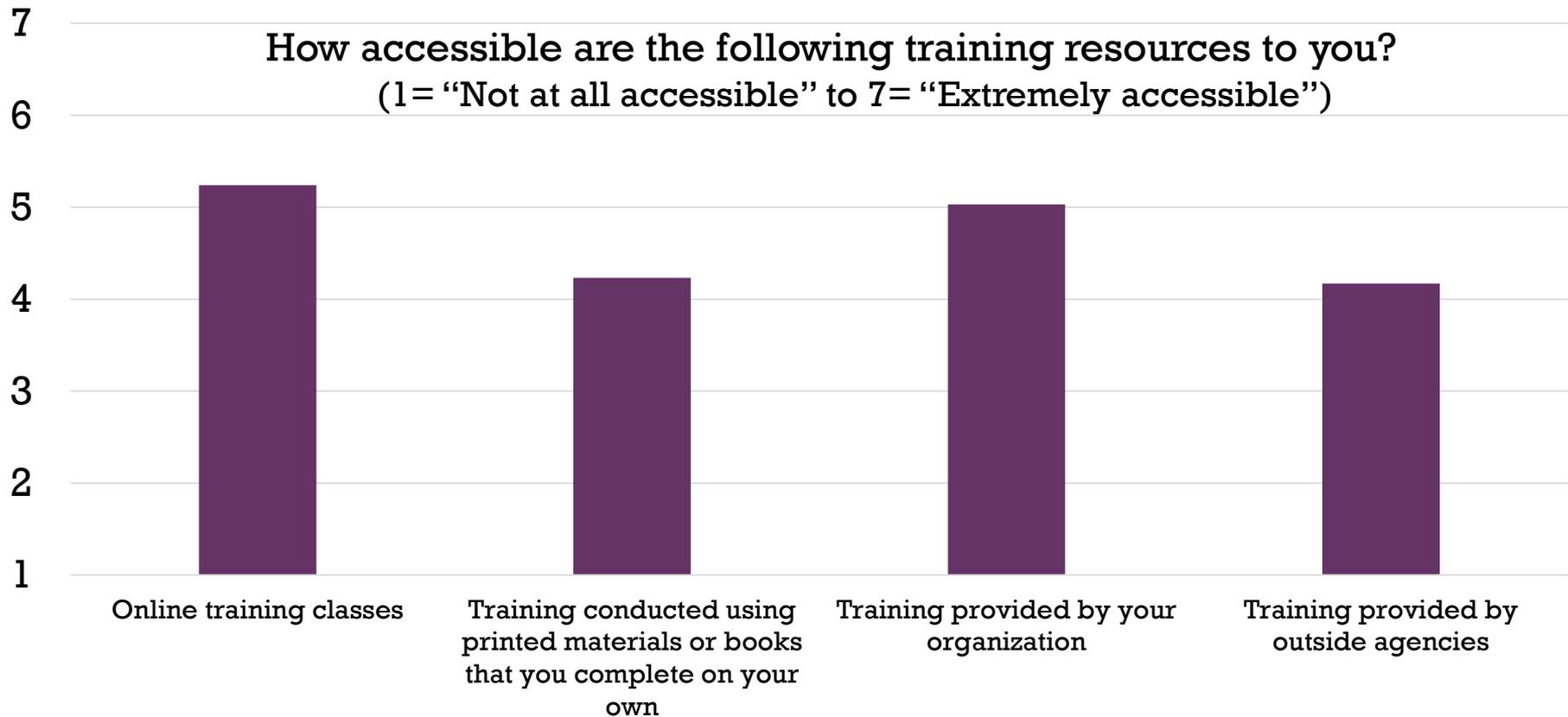
Results: Access to Training
Safety Specific

How accessible are the following training resources to you?
(1= "Not at all accessible" to 7= "Extremely accessible")

Training about improving the safety of the transportation system

Training about using roadway safety data to make better decisions

Training about how to assess the effectiveness of safety strategies

Training about how to make safety decisions that result in the most value (that is, decisions that result in the best financial outcomes)
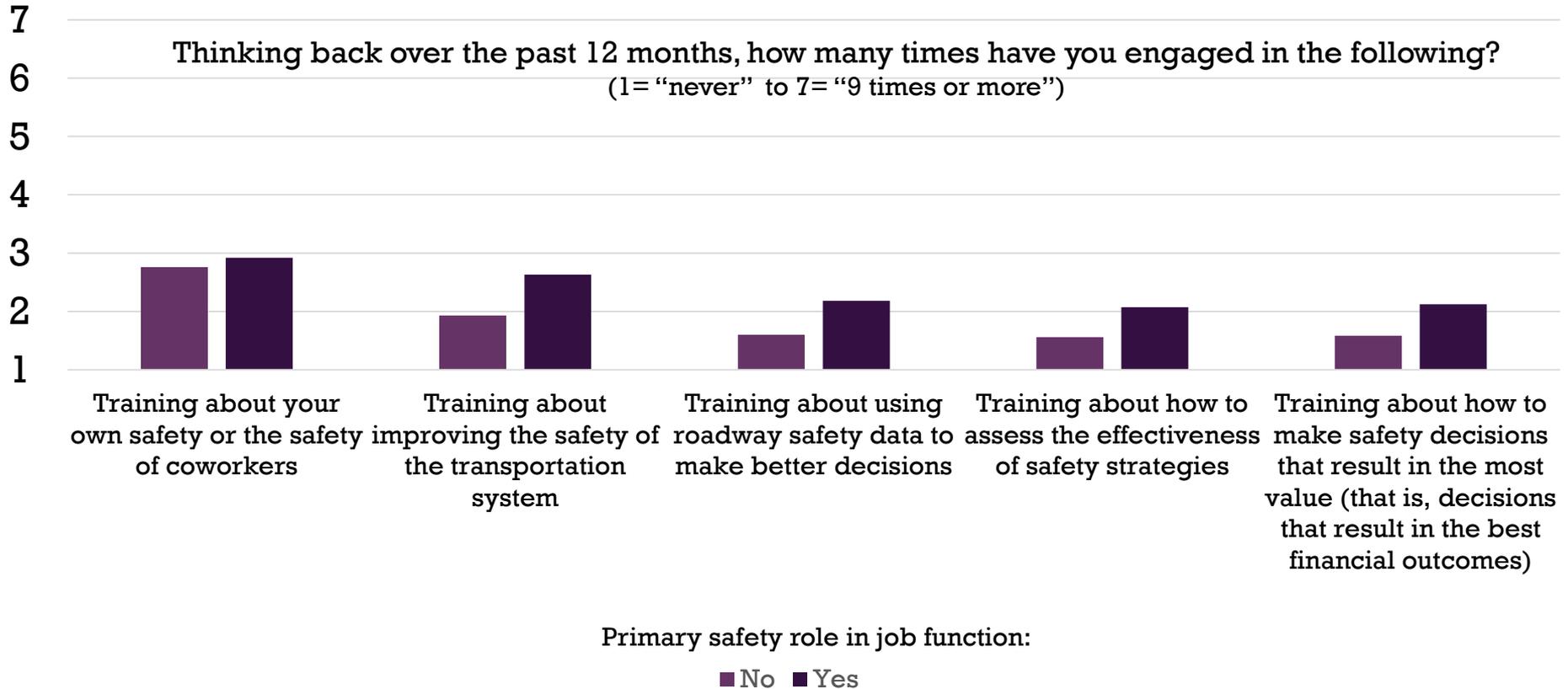
Predictive Model

Scales

- **Utilization of Training Resources** (Chronbach Alpha = .90)
  - General: "Thinking back over the past 12 months, how many times have you engaged in the following?"
    - Online training classes
    - Training conducted using printed materials or books that you complete on your own
    - Training provided by your organization
    - Training provided by outside agencies
  - Safety Specific: "Thinking back over the past 12 months, how many times have you engaged in the following?"
    - Training about your own safety or the safety of coworkers
    - Training about improving the safety of the transportation system
    - Training about using roadway safety data to make better decisions
    - Training about how to assess the effectiveness of safety strategies
    - Training about how to make safety decisions that result in the most value (that is, decisions that result in the best financial outcomes)
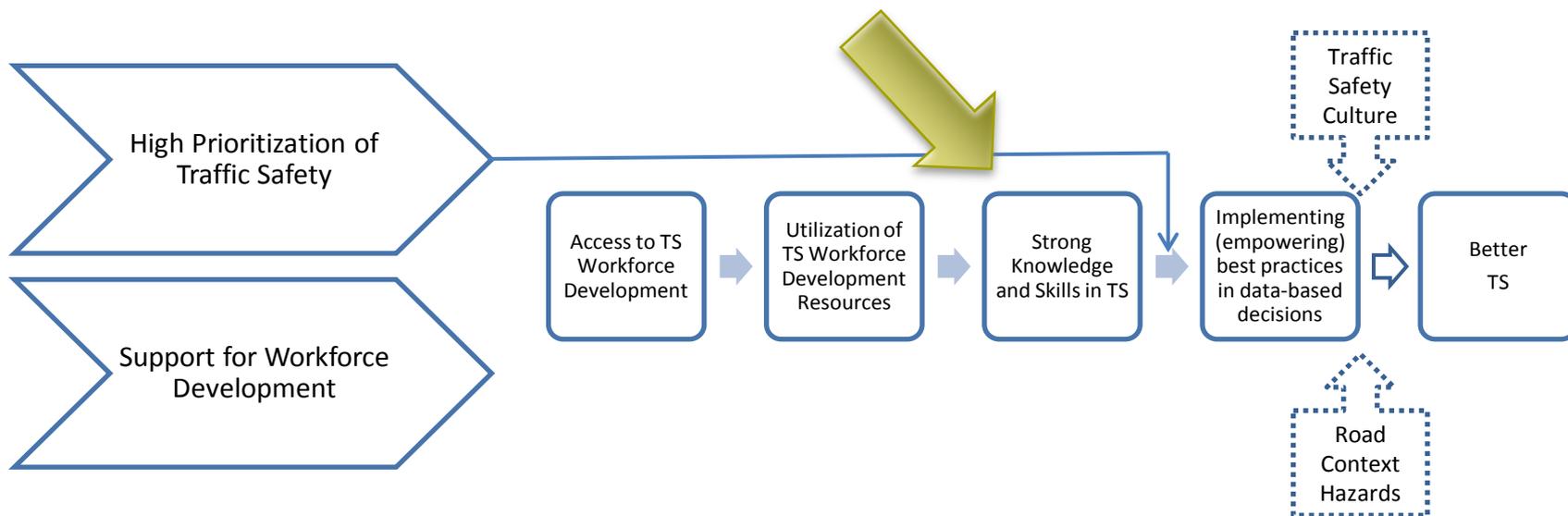
Results: Utilization of Training
Safety Specific

Thinking back over the past 12 months, how many times have you engaged in the following?
(1= "never" to 7= "9 times or more")

Training about your own safety or the safety of coworkers

Training about improving the safety of the transportation system

Training about using roadway safety data to make better decisions

Training about how to assess the effectiveness of safety strategies

Training about how to make safety decisions that result in the most value (that is, decisions that result in the best financial outcomes)

Primary safety role in job function:
■ No ■ Yes

Predictive Model

Scales

- **Safety Knowledge and Skills** (Chronbach Alpha = .98)
  - "How would you rate your ability to …"
    - Access crash data for your jurisdiction
    - Understand crash data
    - Determine contributing factors based on crash data
    - Prioritize contributing factors for your jurisdiction
    - Identify strategies to reduce contributing factors
    - Deploy strategies to reduce contributing factors
    - Conduct evaluations of strategies used to reduce contributing factors
    - Interpret evaluations of strategies used to reduce contributing factors
    - Make data-driven decisions about investing resources to improve roadway safety based on analyses of crash data and effectiveness of potential strategies to reduce contributing factors

Results: Skills / Knowledge

How would you rate your ability to do the following?
(1= "Cannot do"; 4= "Moderately certain can do"; 7= "Absolutely certain can do")
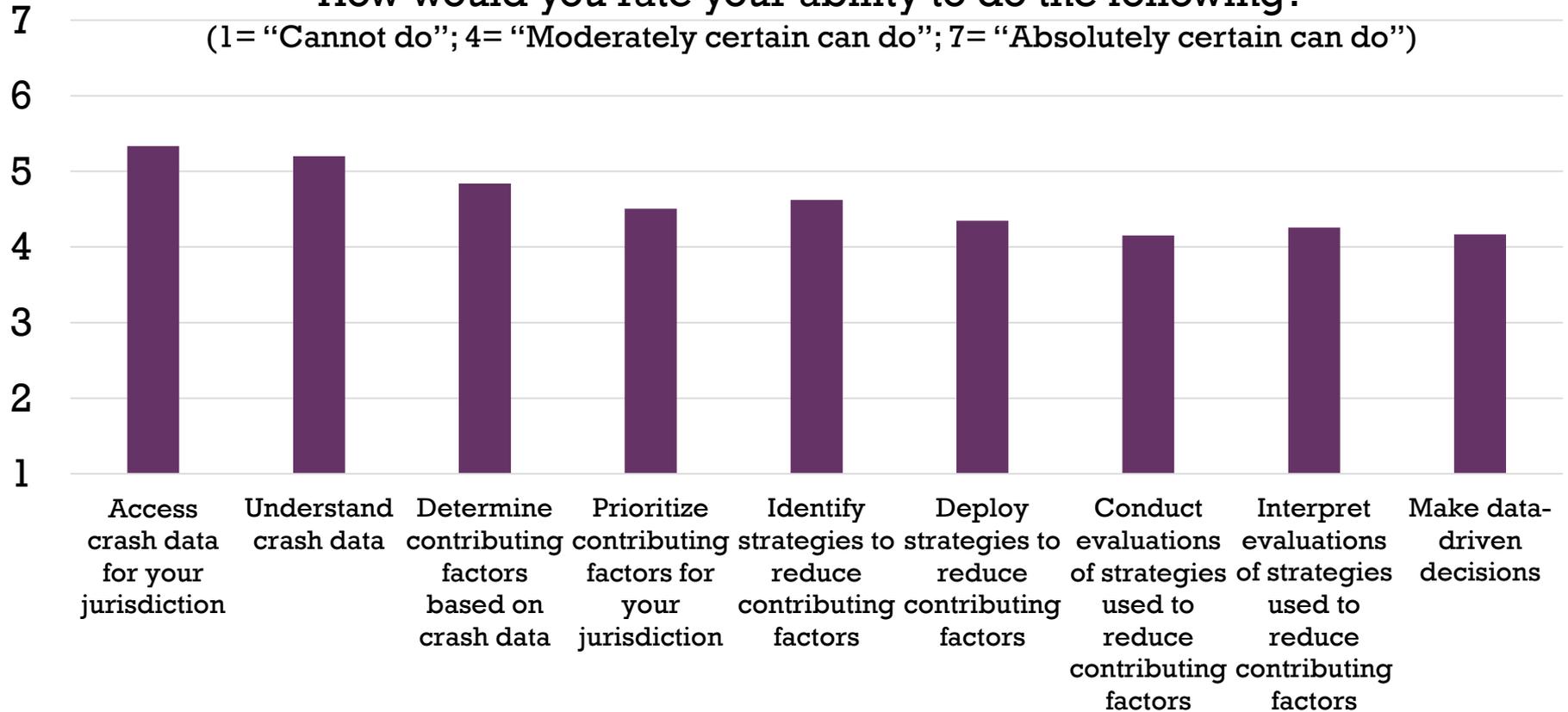
Key Insights

- There is room for improving safety skills

- Need more training opportunities for higher-level skills

- Enhance access to training
  - Online training and internal trainers are most accessible

Directing Your Questions via the Chat

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Chat (Everyone)

2. Type your question or comment here

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Danena Gaines, CS

Jay Otto, CHSC

National Center for Rural Road Safety

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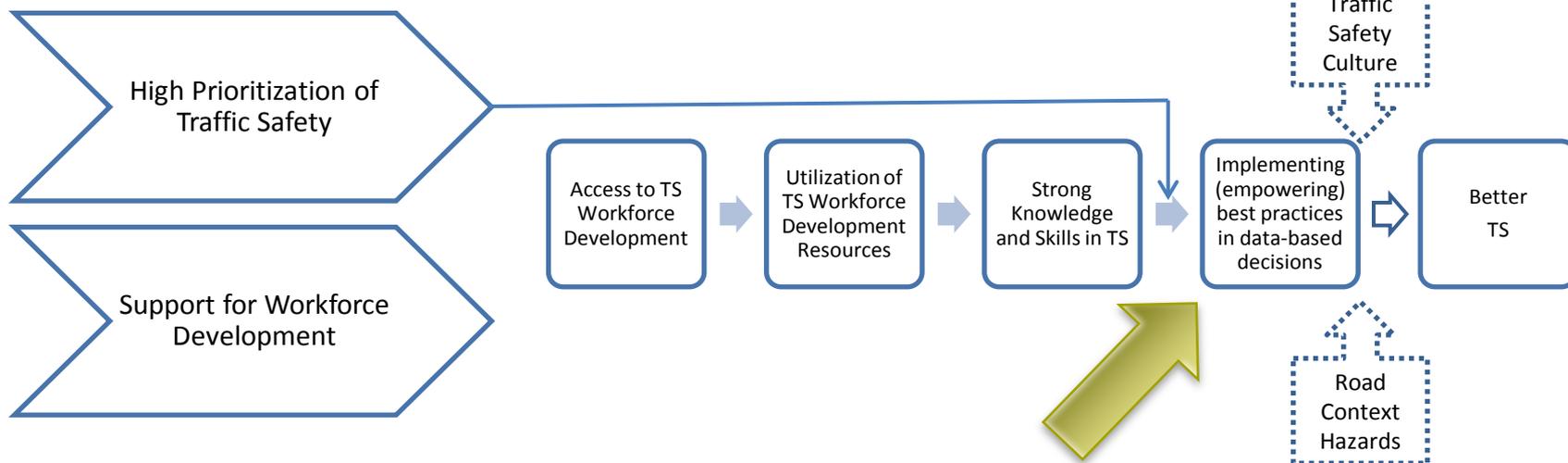
Discuss different forms of strategy that state DOTs can undertake to increase future utilization of workforce training and education tools and resources.

Predictive Model

Danena Gaines, CS

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State Profiles

- 4 States interviewed (2 high performing states, 2 low performing states)

- Geographically distributed

- Approximately 12,000 to 57,500 VMT

- Fatality Rate in 2014 ranged from 0.57 to 1.58 (national rate 1.08)

Building Capacity in the Workforce

Roadway Safety Data & Analysis

- Analyze crash and other safety data
- Identify safety challenges, prioritizing projects

Safety Effectiveness Evaluations

- Evaluate project effectiveness
- Evaluate safety program effectiveness

Investment Decision Making

- Estimate potential project cost benefits
- Identify projects and programs with greatest impact

Roadway Safety Analysis

- Develop in house analytical tools and provide staff training

- Incorporate safety analysis in standard procedures

- Following national research on data analysis and host training on new practices

- Provide on-the-job training

Safety Effectiveness Evaluations

- Provide on-the-job training opportunities

- Build capacity in targeted staff to allow repeat experience and uniform procedures

- Provide Highway Safety Manual (HSM) training beyond introductory content

- Conduct peer-to-peer exchanges with other states to build additional capacity

Investment Decision Making

- Developing in-house tools to streamline processes

- Expose new staff to project specific work and on-the-job training

- Cross train staff with other planning areas

Opportunities

Jay Otto, CHSC

- Safety Climate
  - Focusing on internal safety climate may bolster overall safety performance

- Individual Readiness for Training
  - Build capacity of supervisors/managers to
    - Establish expectations to apply new ideas
    - Enhance identification of opportunities
    - Enhance post-training efforts to connect learning to job roles

Opportunities

- Focus on improving safety skills
  - Roadway Safety Data & Analysis
  - Safety Effectiveness Evaluations
  - Investment Decision-Making

- Increase training opportunities for higher-level skills

- Enhance access to training
  - Future resources should leverage online training and DOT internal trainers (train-the-trainer)

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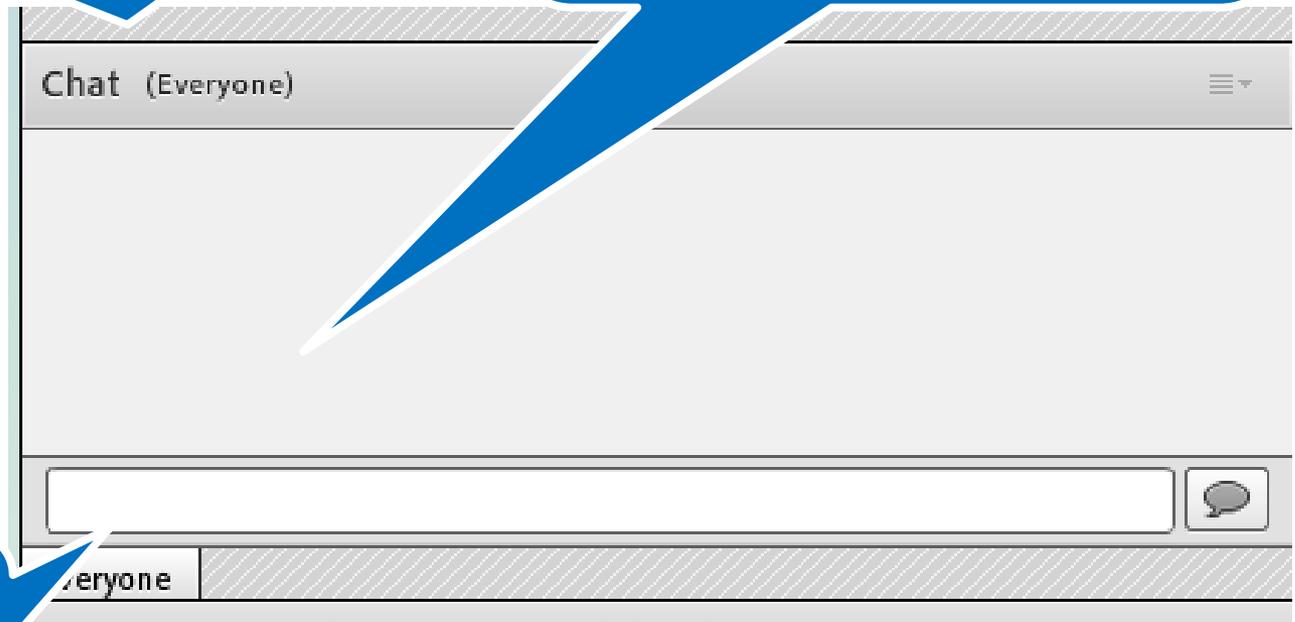
2. Type your question or comment here

Everyone

Final Report

Final Report available late February.

Posted [here](#) when available.

Future Research: Next Steps

How do these results translate to unique conditions of Local and Tribal Traffic Safety Professionals?

We are seeking local (county) and tribal agency partners!

Please contact Nic Ward (nward@montana.edu) to facilitate participation by local and Tribal traffic safety professionals.

Learning Outcomes

In this webinar, you have learned to:

Describe a proposed model that relates cultural and operational factors to the utilization of workforce training and education tools and resources.

Understand those factors that are most predictive of such utilization with a sample of state DOTs.

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Upcoming 2017 Webinars

Small Town and Rural Multi-Modal Networks Guide

Tues., Feb. 14, 2017 11:00-12:30 PM Mountain

Safety Performance Management

Thurs., March 9, 2017 11:00-12:30 PM Mountain

Unpaved Roads

Tues., April 4, 2017 11:00-12:30 PM Mountain

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Training Videos

Introduction to Road Safety Culture

Watch this video

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Contact Information

If you have any questions related to this presentation, please contact:

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