



**7000+ First Responders
Have Something to Say:**

Are we listening?

#PSCR2019

NIST Usability Team

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Roadmap for **Today's Presentation**



Nationwide Survey Overview



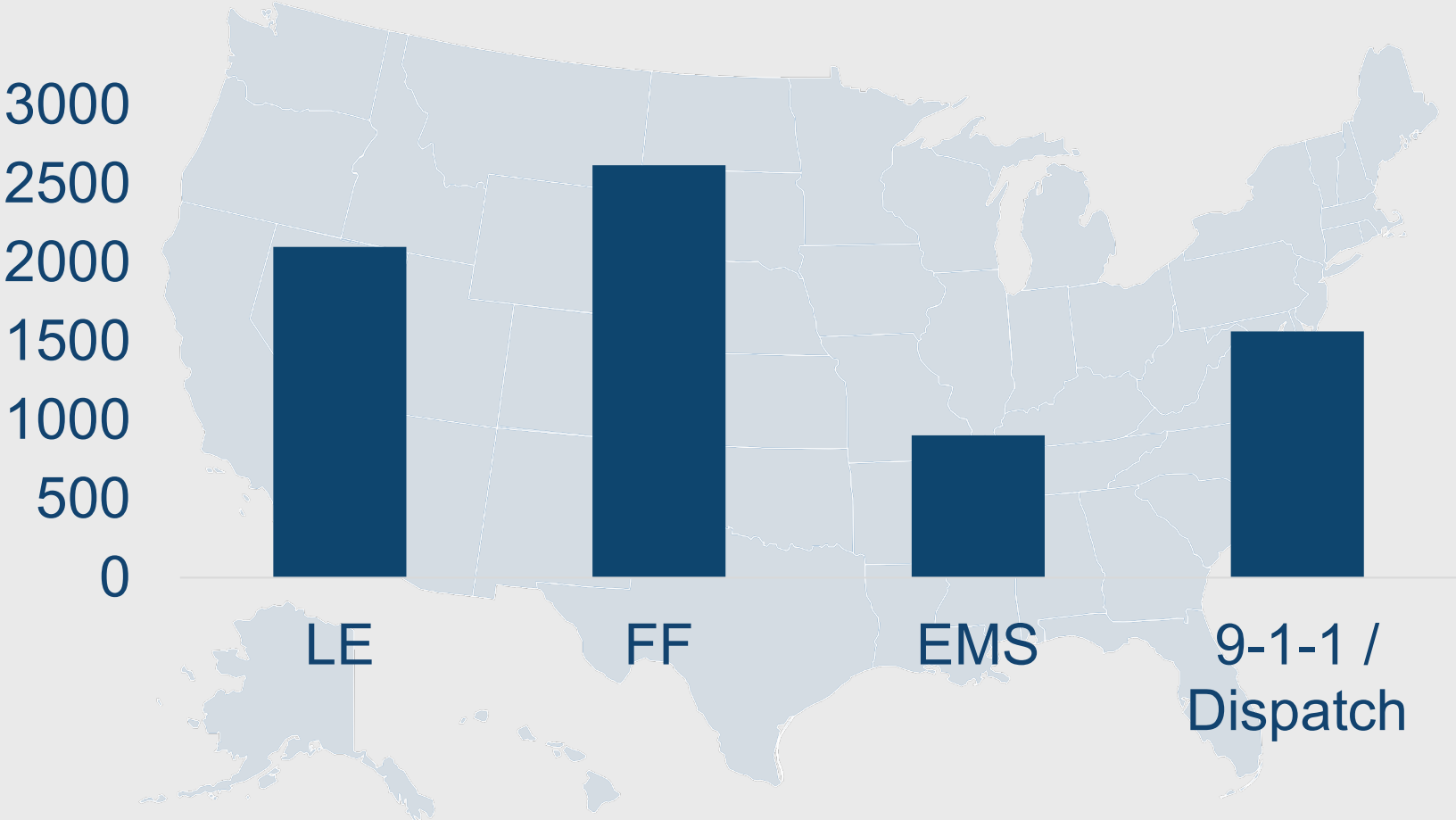
Survey Highlights



Challenge Areas In Focus

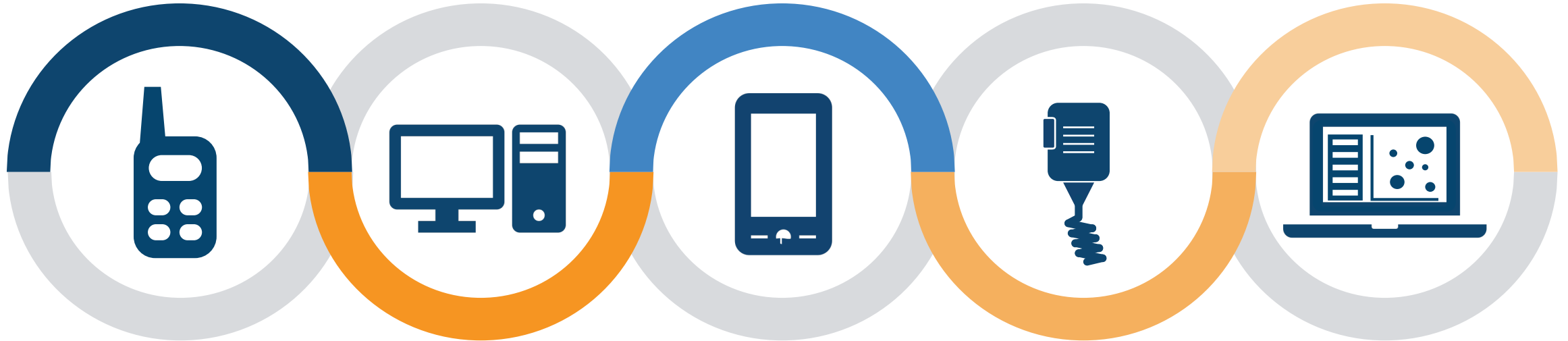
Nationwide First Responder Survey Participation

7182 Respondents



Most Used Devices

Across Disciplines, Day-to-Day Use



● Radio

● Laptop/
Computer

● Cellphone

● Mic

● MDT/MDC

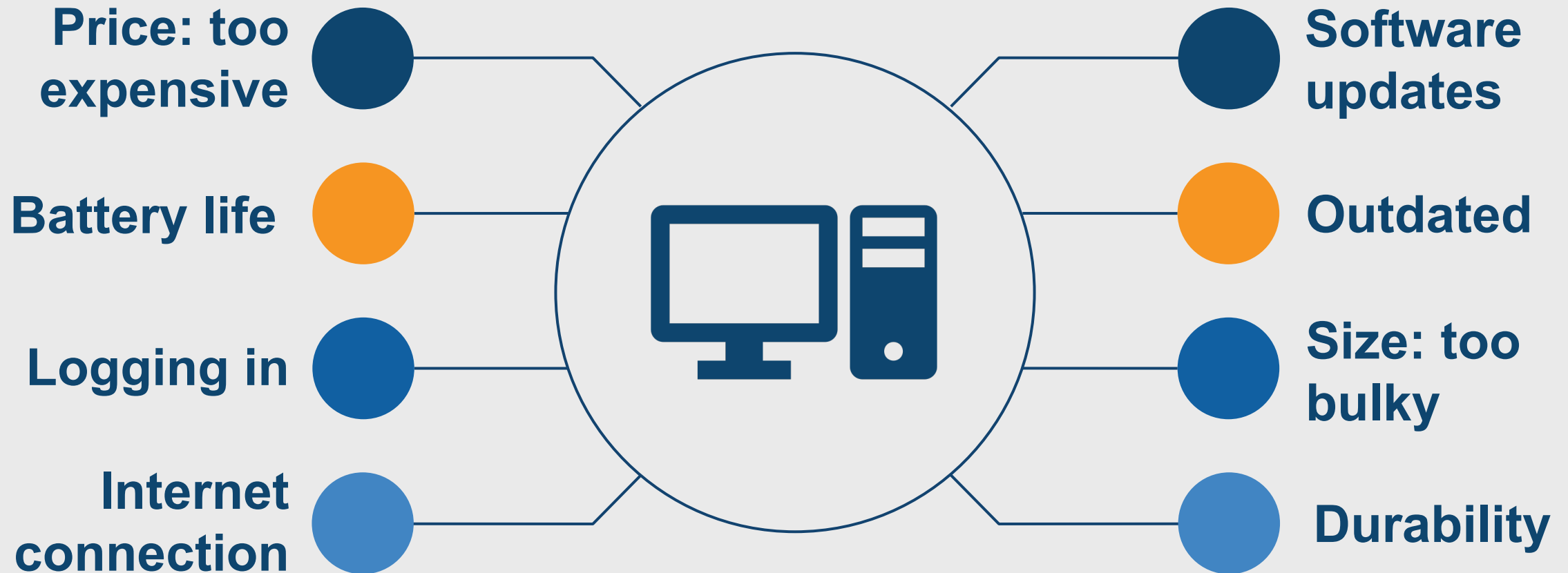
Radio Problems

Across Disciplines



Laptop/Computer Problems

Across Disciplines

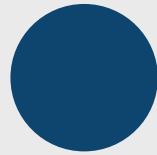


Cellphone Problems

Across Disciplines



Price: too expensive



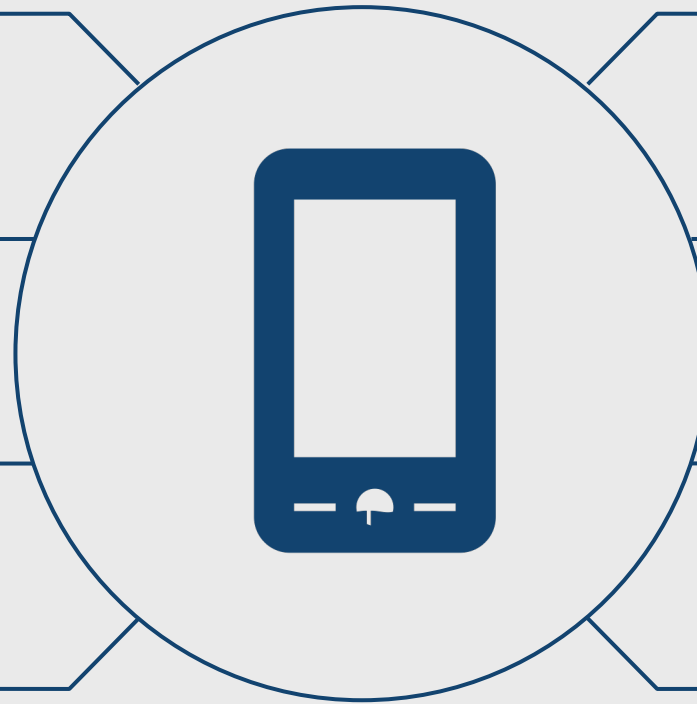
Personal phone subsidy



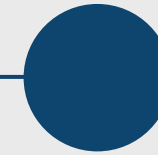
Subpoena possibility



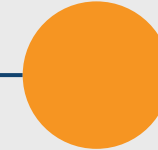
Battery life



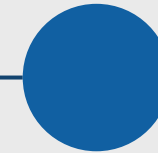
Coverage & dead zones



Logging in



Data plans, limits



Durability

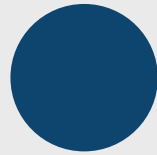


Microphone Problems

Across Disciplines



Price: too expensive



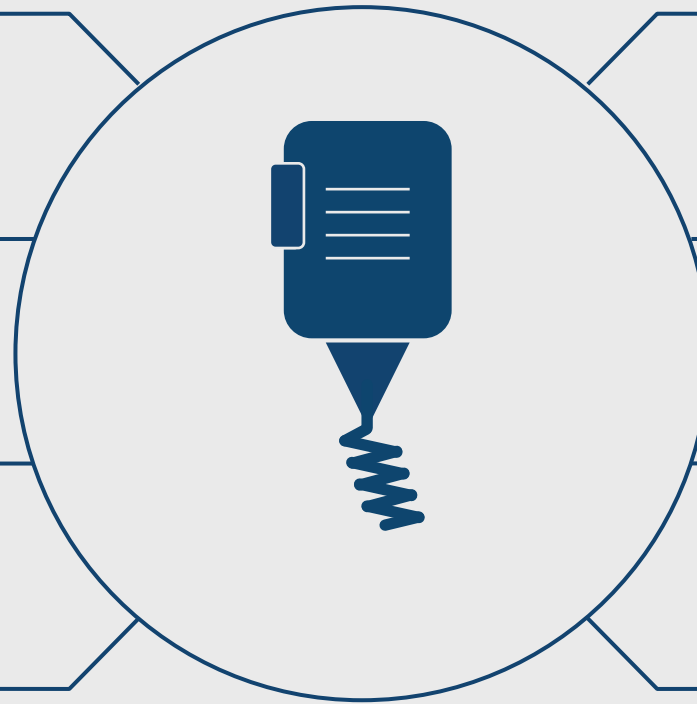
Outdated



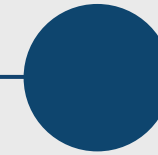
Placement on body



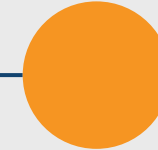
Button issues



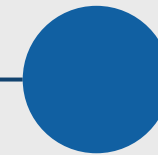
Falling off



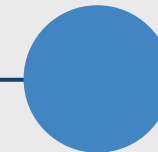
Cord issues



Durability



Audio quality



MDT/MDC Problems

Across Disciplines



Price: too expensive



Use while driving



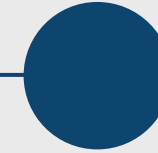
Lack of portability



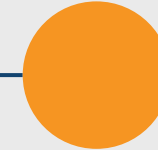
Outdated



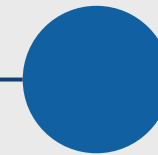
Mapping, navigation



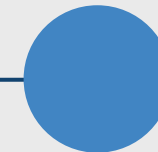
Size: too bulky



Logging in



Interoperability



Most Used Apps

Across Disciplines, Day-to-Day Use



● Email

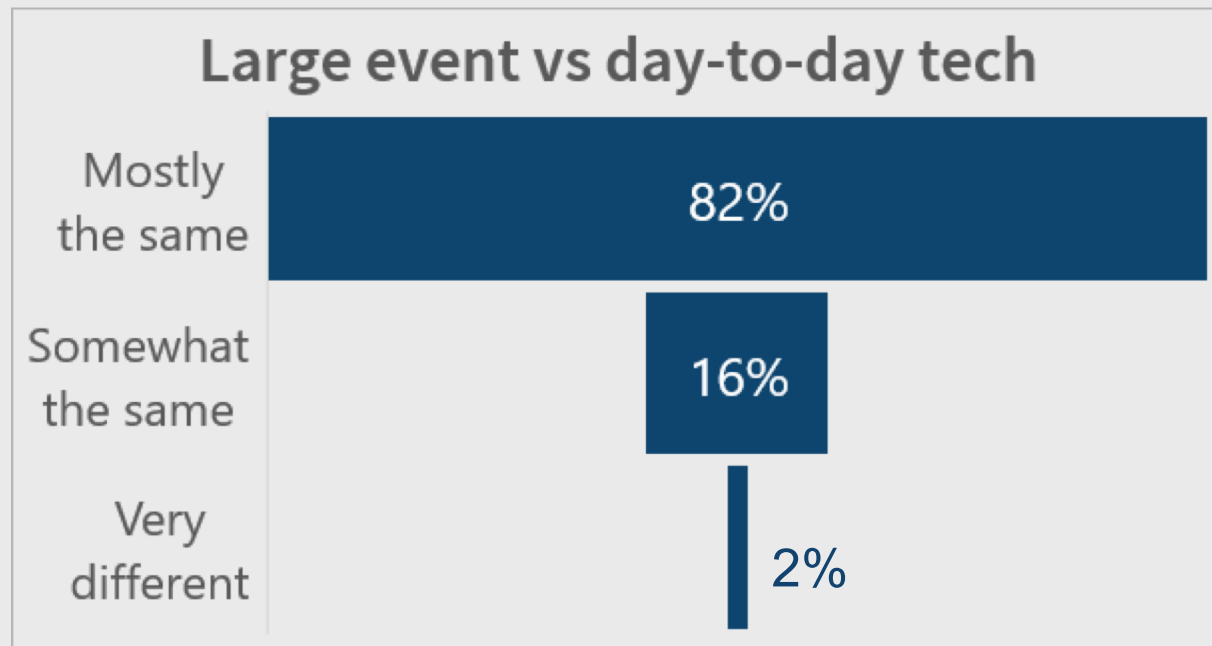
● CAD

● RMS

● Mapping/
driving
directions

● Weather

Major Disaster/Large Event: **Technology**



Special Tech Needs

Mobile Command Center

Deployables

Generators

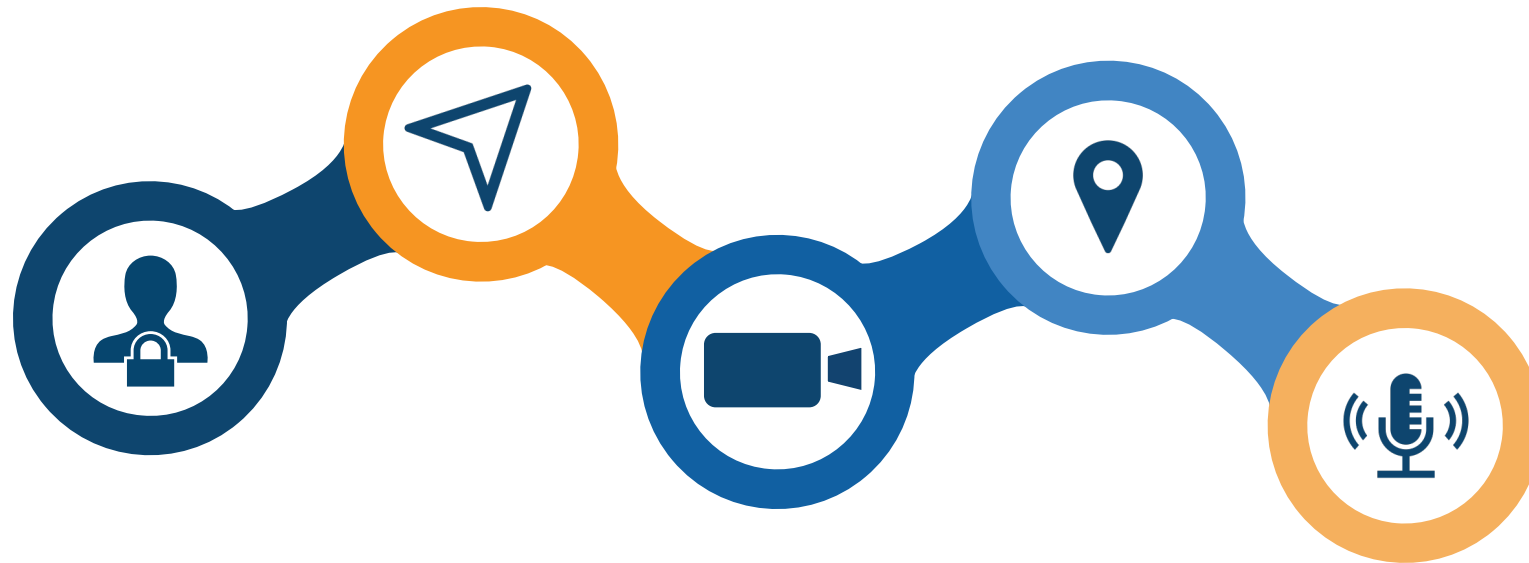
Drones

Helicopters

Remote sensing

Robots

Across Disciplines **Future Tech**



**One
login:**
single
sign-on

Tracking:
responders
and
vehicles

Real-time
on-scene
video

Indoor
mapping

Voice
control

Law Enforcement **Highlights**



Most used tech



Future tech

Law Enforcement Highlights



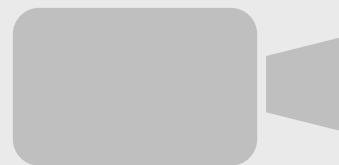
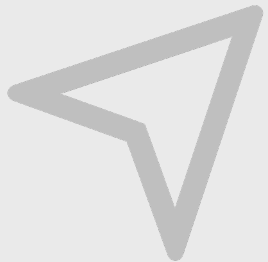
Most Used Day-to-Day Devices



Law Enforcement **Highlights**



Most Requested Future Capabilities



Fire Fighting Highlights



Most used tech



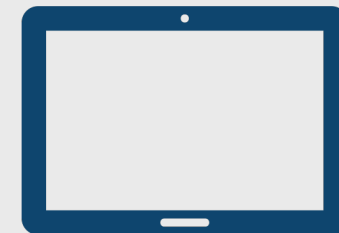
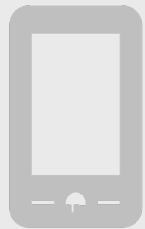
Future tech



Fire Fighting Highlights



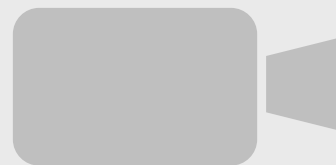
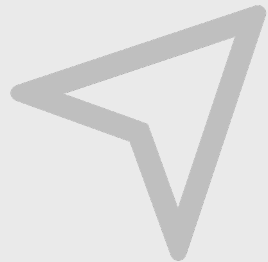
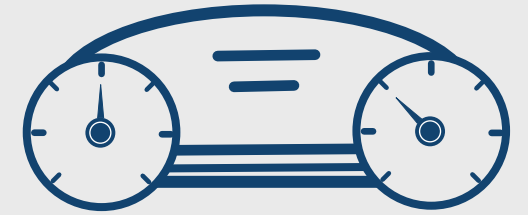
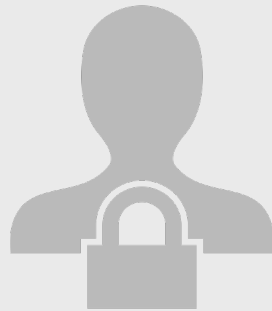
Most Used Day-to-Day Devices



Fire Fighting Highlights



Most Requested Future Capabilities



Emergency Medical Services **Highlights**



Most used tech



Future tech

EMS Highlights



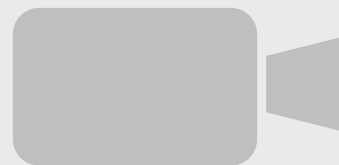
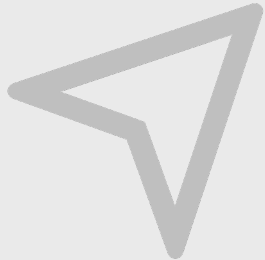
Most Used Day-to-Day Devices



EMS Highlights



Most Requested Future Capabilities



9-1-1/Dispatch Highlights



Unique problems



Most used tech



Future tech



9-1-1/Dispatch **Problems**



Caller information

Inaccurate or missing



Cellphone tracking

Inability to track



Overload

Too many calls, monitors,
channels



Maps/databases

Inaccurate or missing
data

9-1-1/Dispatch **Highlights**



Most Used Day-to-Day Devices



9-1-1/Dispatch **Highlights**



Most Requested Future Capabilities



In Focus: Rural and 9-1-1/Dispatch

Findings From In-Depth Interviews



Cambridge, MA (www.cambridgema.gov/emergencycommunications)

Rural Challenge Highlights



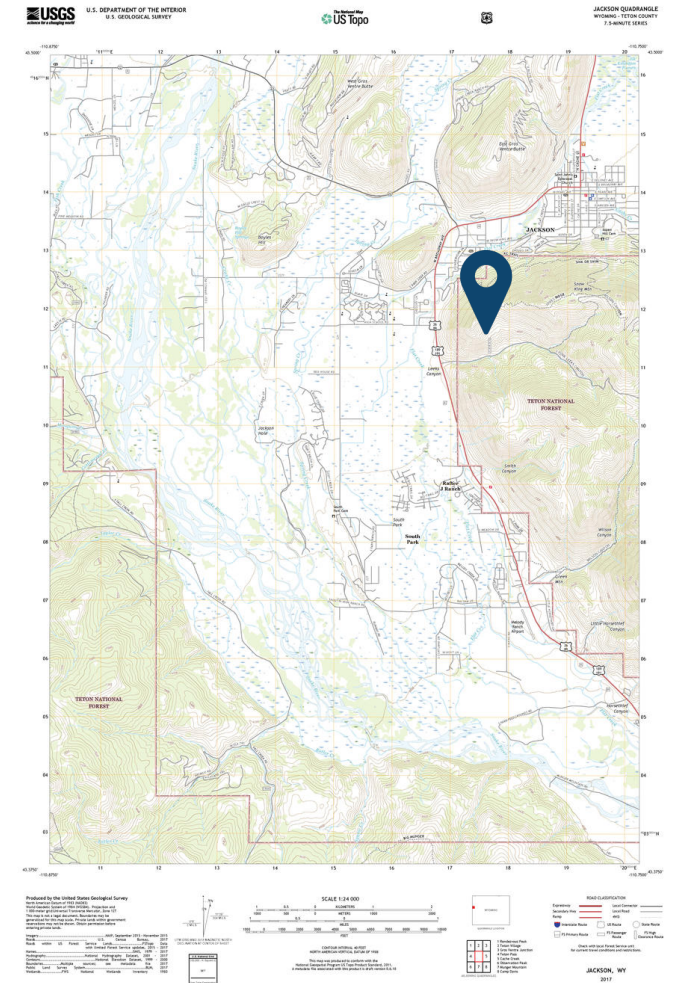
**Distance, Size,
Geography/topology**



Incident type



Resources



U.S. Geological Survey

Rural Challenges



Distance/Size/Topography

“We do have some **geographical challenges**. We have parts of our county where we have **no radio coverage** at all and it’s been that way for many, many years.” (LE-R-042)

Rural Challenges



Distance/Size/Topography

“We do have some **geographical challenges**. We have parts of our county where we have **no radio coverage** at all and it’s been that way for many, many years.” (LE-R-042)

Rural Challenges



Seasonal Nature of Incidents

“So there's rodeos ... There's white water stuff with kayaking...all stuff that just comes with the summer... **suddenly we have 30,000 extra people in town.**”
(EMS-R-007)

Rural Challenges



Seasonal Nature of Incidents

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(EMS-R-007)

Rural Challenges



Resources

“The only **volunteers** we're getting are the young college-age level kids that want a fire job, and so they're using this as a **gateway to get experience** and get in. And then as soon as they have the opportunity, **they're gone.**” (FF-R-019)

Rural Challenges



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Rural Challenges



Resources

“The guys get here, they put in four or five, **they get some training and experience,** and then they decide it's time to **start looking somewhere else.**” (LE-R-019)

Rural Challenges



Resources

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Rural Challenges



Resources

“...we got **gear** that’s been
out of date for ten years.”
(FF-R-048)

Rural Challenges

Resources



“...we got **gear** that’s been
out of date for ten years.”
(FF-R-048)

9-1-1/Dispatch Challenges



City of Strongsville, OH

-   **Behind the scenes**
-   **Caller-related issues**
-   **NG 9-1-1**

9-1-1/Dispatch Challenges



Behind the Scenes

“Many times **overwhelmed**... with the amount of responsibilities that they have... There are many, many police officers that walk into this room, firemen that sit here and go, God, I never thought it was like this. I mean **I thought you were just a secretary**. Just answering the phone. And **I couldn't sit here all day and do that.**”
(COMMS-R-016)

9-1-1/Dispatch Challenges



Behind the Scenes

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(COMMS-R-016)

9-1-1/Dispatch Challenges



Behind the Scenes

“So, you've got **10 new radio channels** but you've got **one dispatcher**. Are you expecting that one person to handle 10 channels? So, **what is the limit?**” (COMMS-R-019)

9-1-1/Dispatch Challenges



Behind the Scenes

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9-1-1/Dispatch Challenges



Behind the Scenes

“... multifaceted stressors. I think one of the biggest ones is that **they don't get the closure that a responder gets to see.**”
(COMMS-R-016)

9-1-1/Dispatch Challenges



Behind the Scenes

“... multifaceted stressors. I think one of the biggest ones is that **they don't get the closure that a responder gets to see.**”
(COMMS-R-016)

9-1-1/Dispatch Challenges



Caller-Related Issues

“Location information sometimes is **difficult to get from a cell phone.** ...we have a lot of visitors here. And they never know where they're at. Had no clue.”
(COMMS-R-002)

9-1-1/Dispatch Challenges



Caller-Related Issues

“Location information sometimes is **difficult to get from a cell phone.** ...we have a lot of visitors here. And they never know where they're at. Had no clue.”
(COMMS-R-002)

9-1-1/Dispatch Challenges



NG 911

[Re: texting] “I can’t tell if you’re crying or--that's **my fear with the Next Generation 9-1-1**, are we going to **lose that important piece of our communications** with technology? ... **90% of all communication is nonverbal** in nature. And hearing that voice... the background noise of a particular call gives us so much more information than just the words.”
(COMMS-R-016)

9-1-1/Dispatch Challenges



NG 911

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9-1-1/Dispatch Challenges



NG 911

“We have so many young alcohol induced stupid people, **our thought is we're probably going to get a lot of pictures of [...]. ...But is that something that we can choose not to look at. ...Or is it going to be something that's always there, regardless of what is sent and whether it makes any difference to the call or not?**” (COMMS-R-002)

9-1-1/Dispatch Challenges



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Focus on **User Needs**



RESPONDERS

Needs must drive
all technology
R&D



AFFORDABLE

#1 problem
is price, across
technologies,
disciplines



CURRENT

Fix current tech
first – it must be
reliable and work
as expected

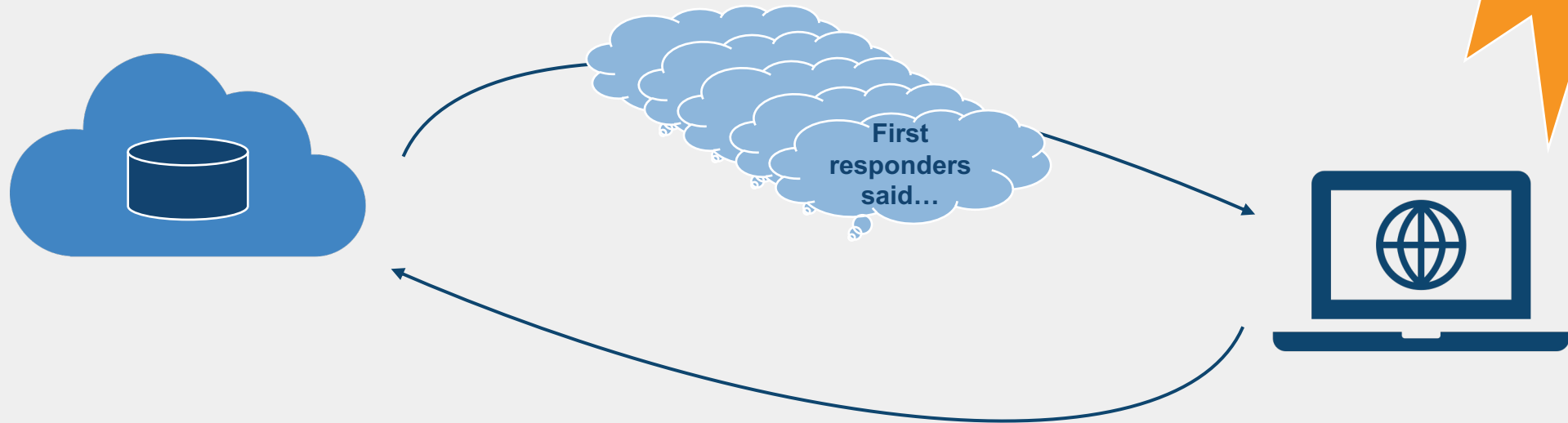


FUTURE

First responders
can envision utility
of new tech if it
meets their needs

Searchable Interview Quotes Online

NEW!



<https://publicsafety.nist.gov/QuotesSearch>

Online Resources



Voices of Responders
Volumes [1](#) & [2](#)



Summary [Infographic](#)



Usability [Handbook](#)

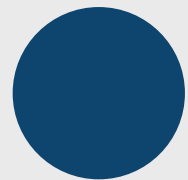


Incident [Scenarios](#)

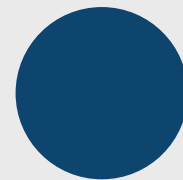


PSCR Search Tool: [First Responder Quotes](#)

Contact Us



usability@nist.gov



PSCR UI/UX
[Site](#)



THANK YOU

#PSCR2019

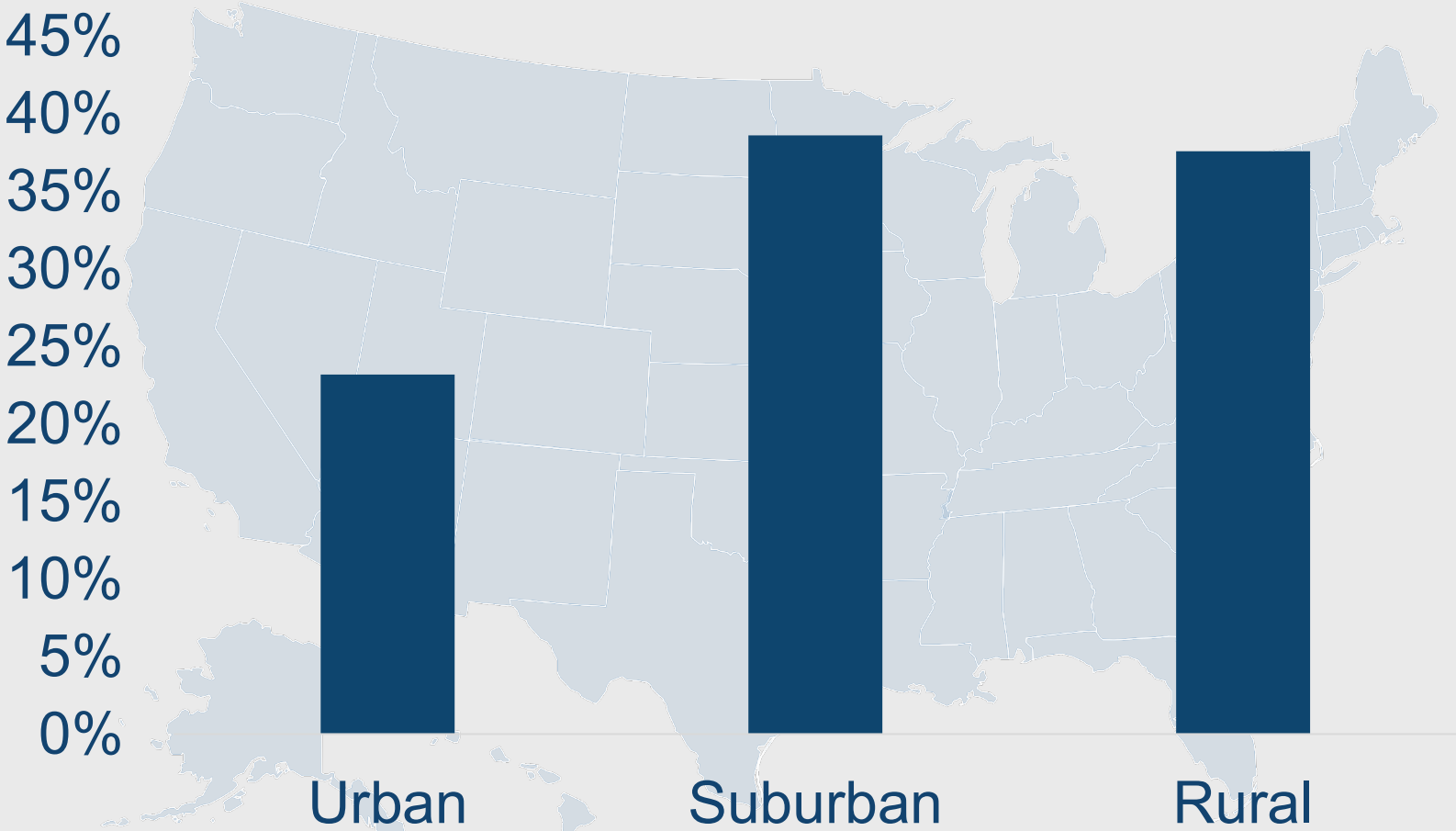
Break for
Lunch
BACK AT
1:00PM

Extra slides

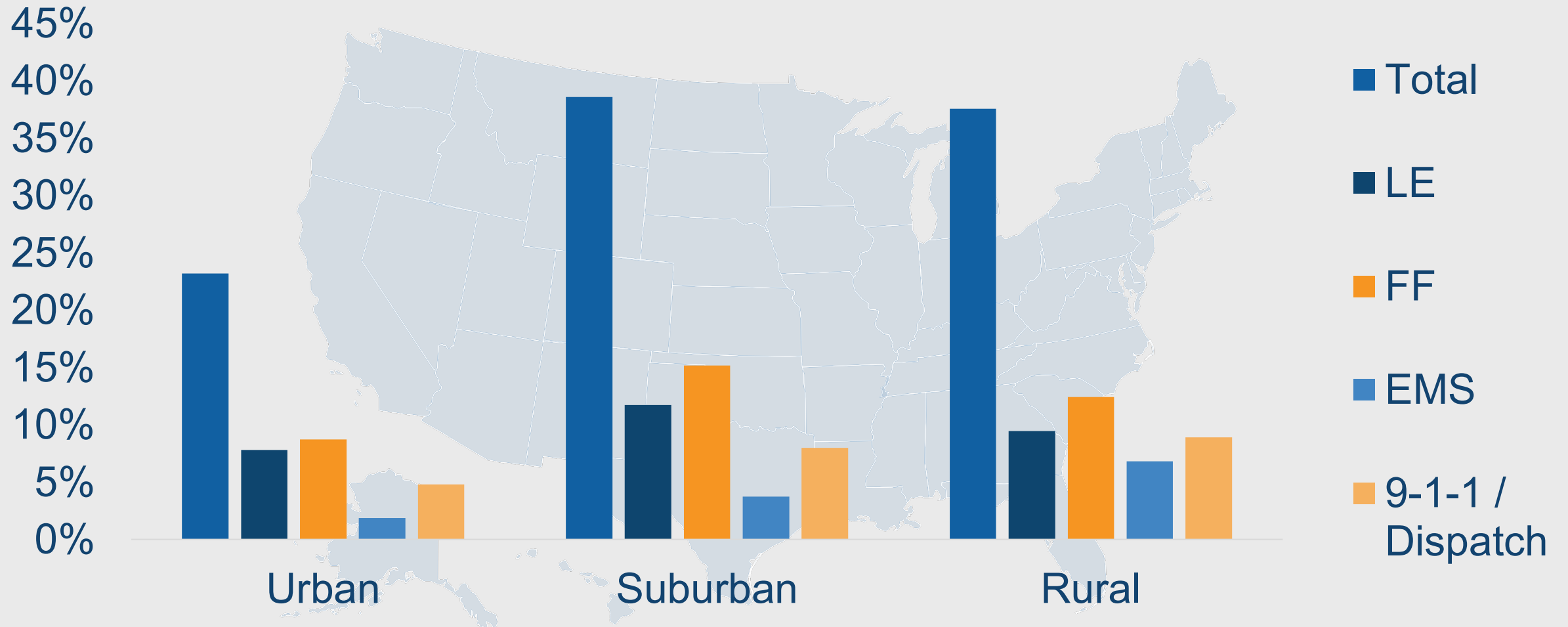
Nationwide First Responder Survey

Coverage

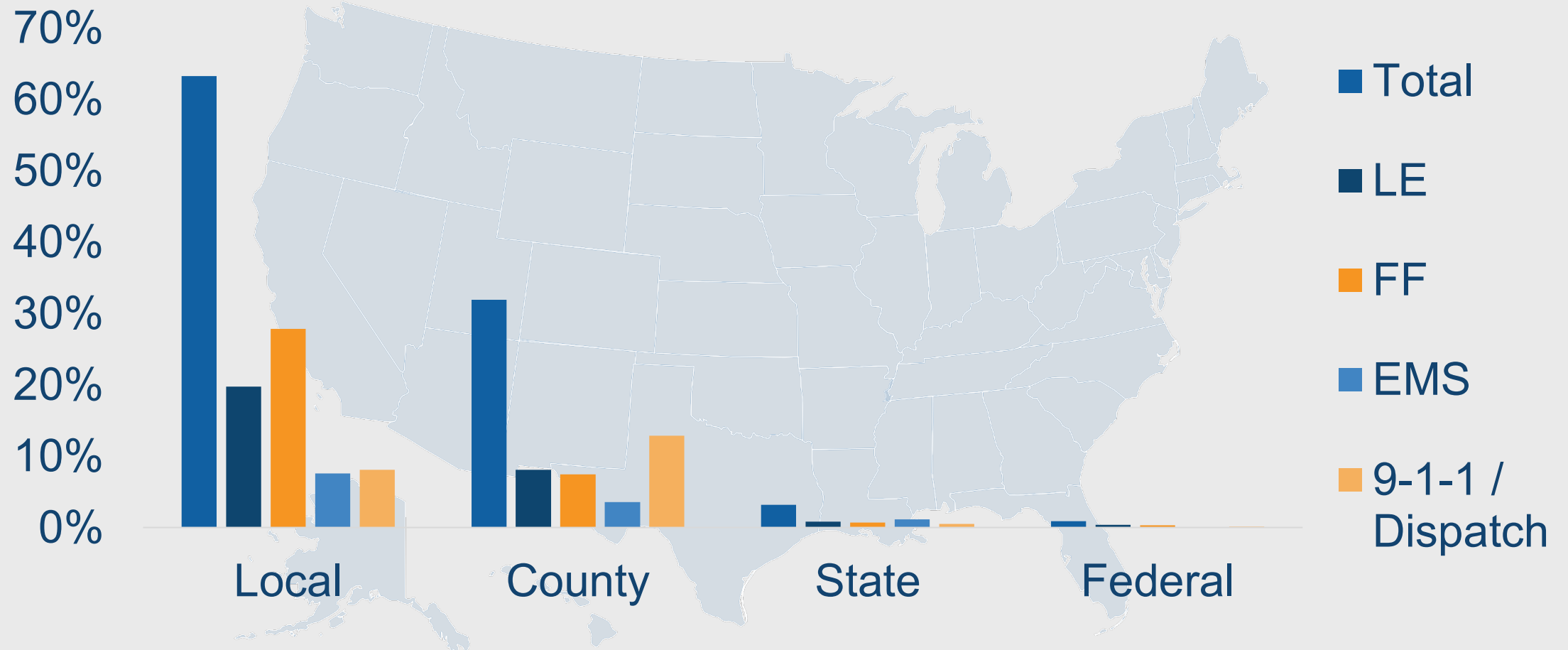
Percent participation by area type



Nationwide First Responder Survey Coverage

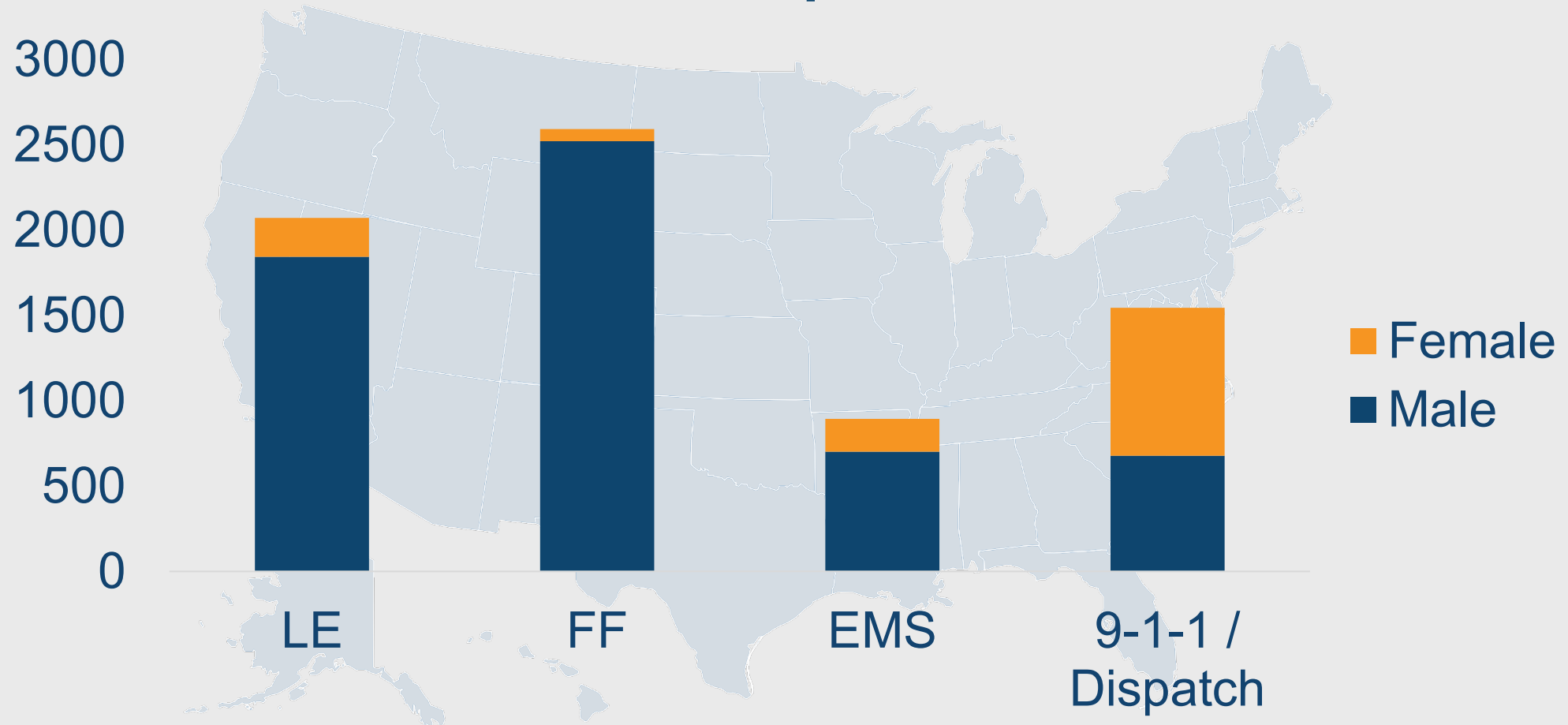


Nationwide First Responder Survey Coverage



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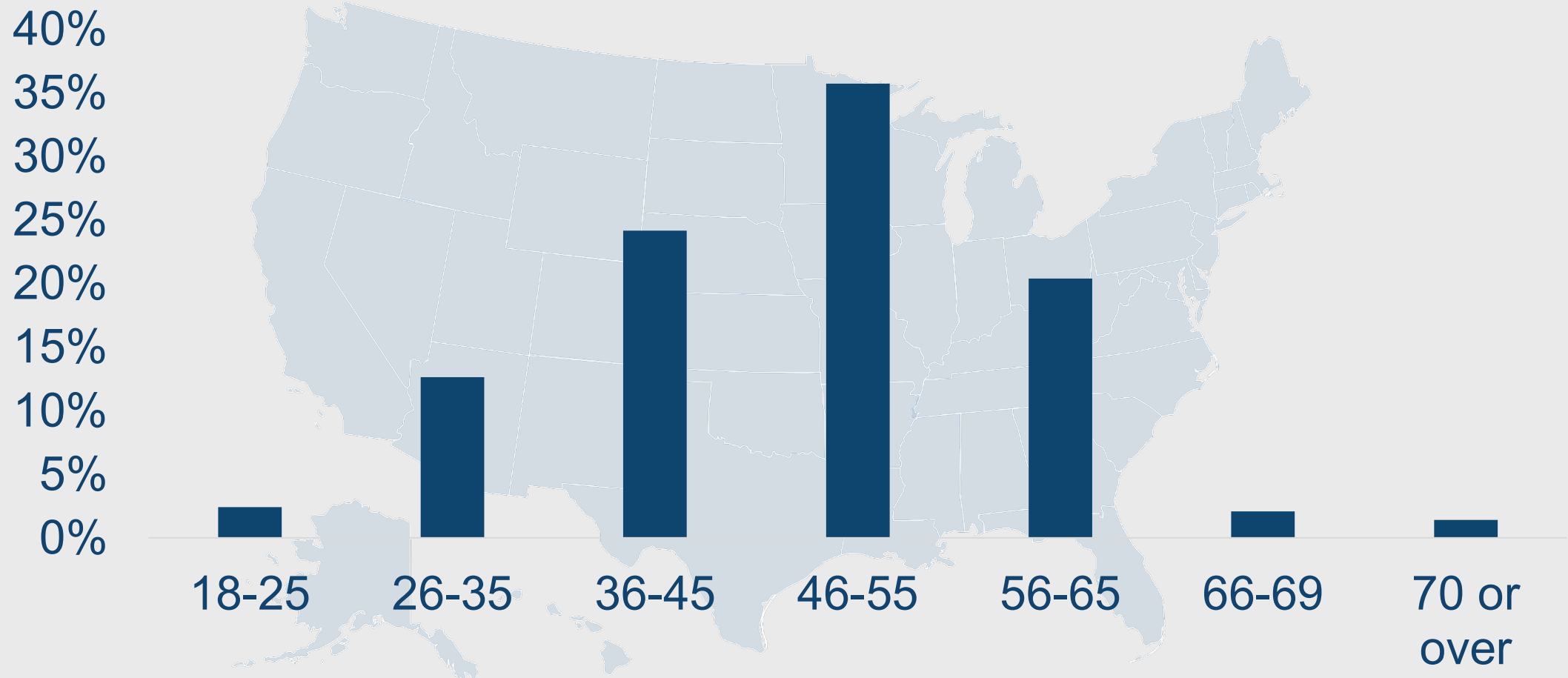
7182 Respondents



Nationwide First Responder Survey

Coverage

Age categories: all respondents



Nationwide First Responder Survey

Coverage

Total years of service: all respondents

