



# PSCR 2021

## THE DIGITAL EXPERIENCE

#PSCR2021 • PSCR.GOV

NIST



# IOT DATA FOUNDATIONS: OUTCOMES AND ADVANCES

Alison Kahn Electronics Engineer



**PUBLIC  
SAFETY  
INTERNET  
OF THINGS**

**NIST**

#PSCR2021



  
**PSCR**

# DISCLAIMER

Certain commercial entities, equipment, or materials may be identified in this document in order to describe an experimental procedure or concept adequately.

Such identification is not intended to imply recommendation or endorsement by the National Institute of Standards and Technology, nor is it intended to imply that the entities, materials, or equipment are necessarily the best available for the purpose.

**\* Please note, unless mentioned in reference to a NIST Publication, all information and data presented is preliminary/in-progress and subject to change.**



THIS RESEARCH IS SPONSORED BY:







# INTRODUCTION

# PROJECT BACKGROUND & RESEARCH

- Initial Goal: research interoperability issues related to personal area network (PAN) sensor systems
  - For additional information, see previous PSCR Stakeholder sessions:
    - 2018: <https://www.nist.gov/ctl/pscr/2018-stakeholder-meeting-session-recordings/dhs-analytics>
    - 2019: (presented as “Next Generation First Responder Deployables and IoT Technology”): <https://www.nist.gov/ctl/pscr/2019-stakeholder-meeting-resilient-systems-sessions>
    - 2020: <https://www.nist.gov/ctl/pscr/iot-environments-examining-data-foundations>

# PROJECT BACKGROUND & RESEARCH

- Initial Goal: research interoperability issues related to personal area network sensor systems

# PROJECT BACKGROUND & RESEARCH

- Initial Goal: research interoperability issues related to personal area network sensor systems
- Numerous efforts are underway to standardize the way that public safety interacts with data

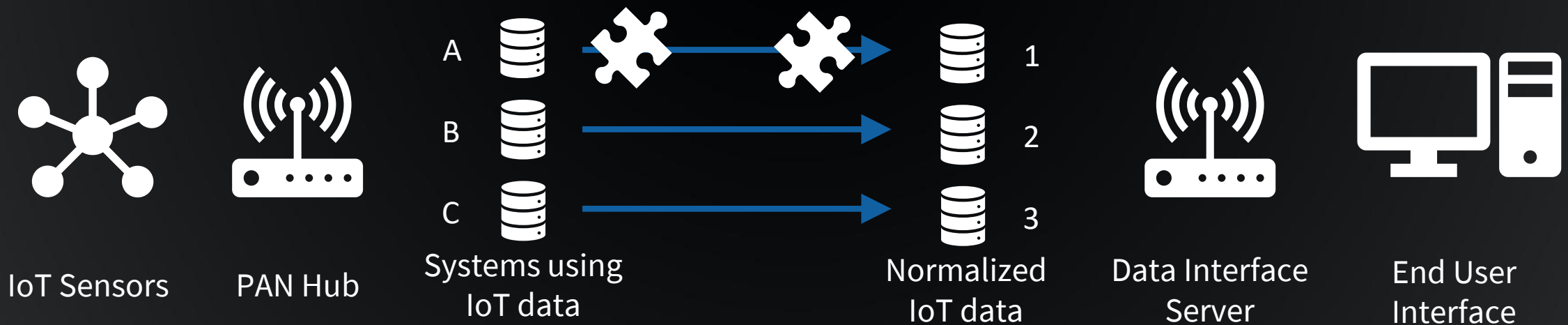


# PROJECT BACKGROUND & RESEARCH

- Initial Goal: research interoperability issues related to personal area network sensor systems
- Numerous efforts are underway to standardize the way that public safety interacts with data
- The data foundations research aims to identify and define a baseline set of information critical for use in public safety systems

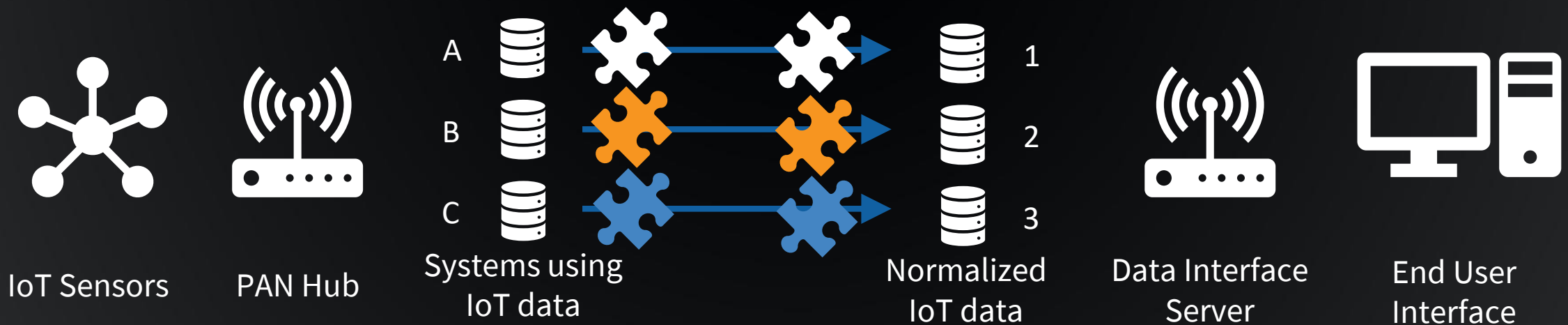
# DATA FOUNDATIONS CONCEPT

- Developing a best practice for defining data schemas in first responder systems can:
  - Provide data for first responders when needed
  - Interoperate with today's situational awareness and reporting systems
  - Create backward compatibility with future systems



# DATA FOUNDATIONS CONCEPT

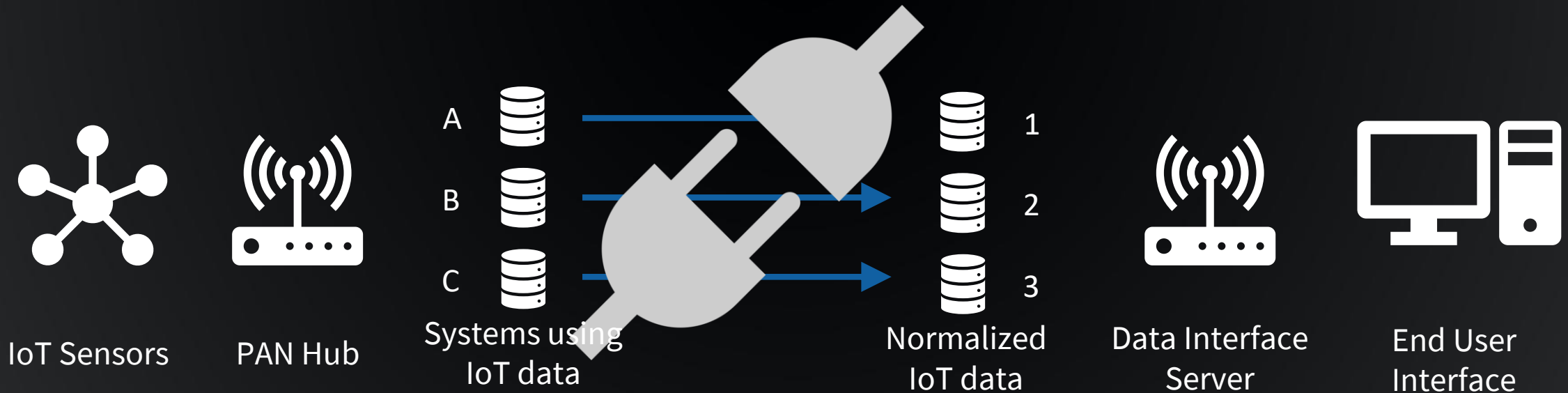
- Developing a best practice for defining data schemas in first responder systems can:
  - Provide data for first responders when needed
  - Interoperate with today's situational awareness and reporting systems
  - Create backward compatibility with future systems





# DATA FOUNDATIONS CONCEPT

- Developing a best practice for defining data schemas in first responder systems can:
  - Provide data for first responders when needed
  - Interoperate with today's situational awareness and reporting systems
  - Create backward compatibility with future systems





# OVERVIEW OF DATA FOUNDATIONS RESEARCH

# OUTREACH PROCESS

The Public Safety IoT  
Roundtable event,  
held in 2019, formed  
the basis for this  
research



**Interact**

**01**



# OUTREACH PROCESS

The Public Safety IoT Roundtable event, held in 2019, formed the basis for this research

02

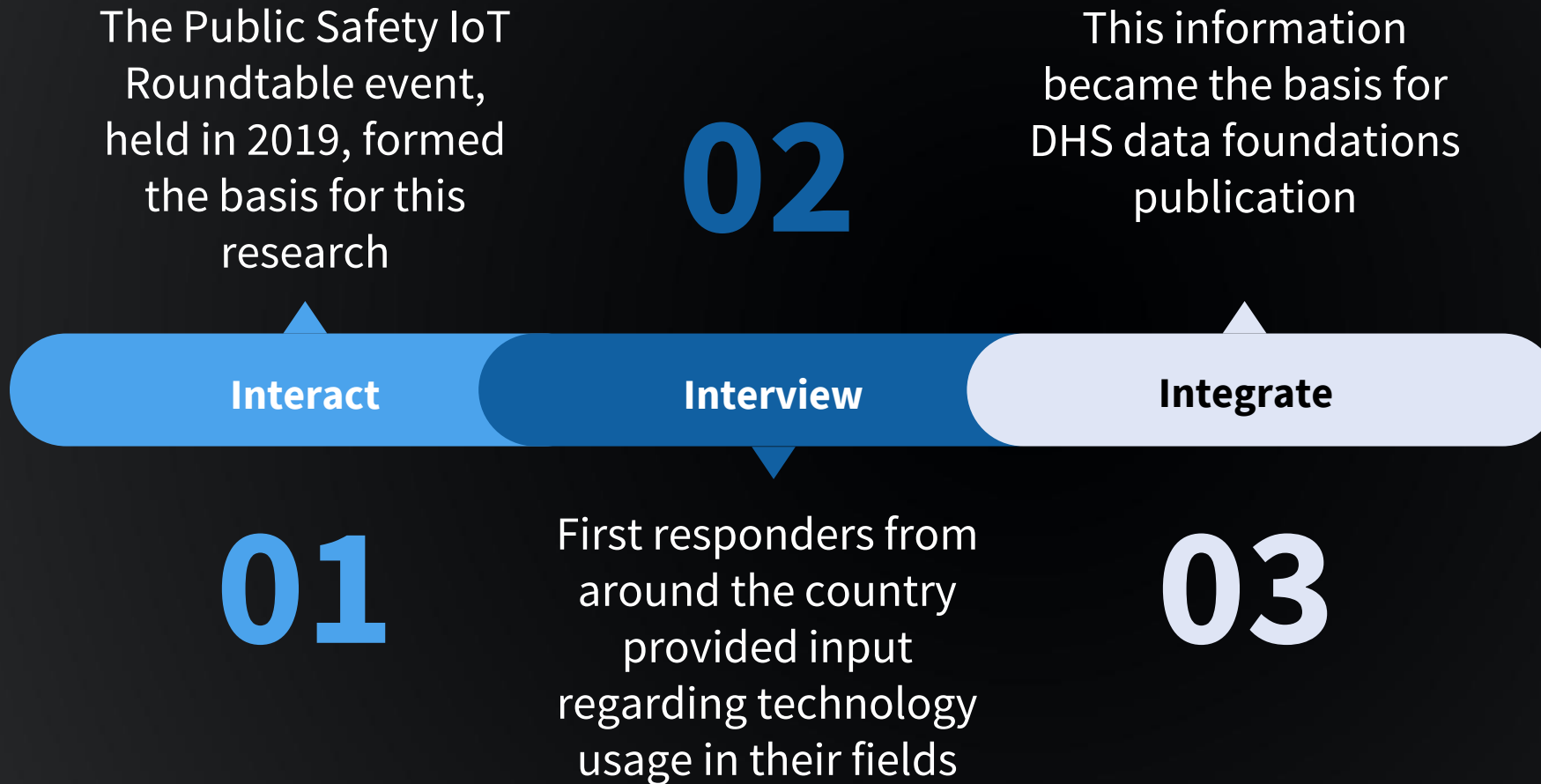
Interact

Interview

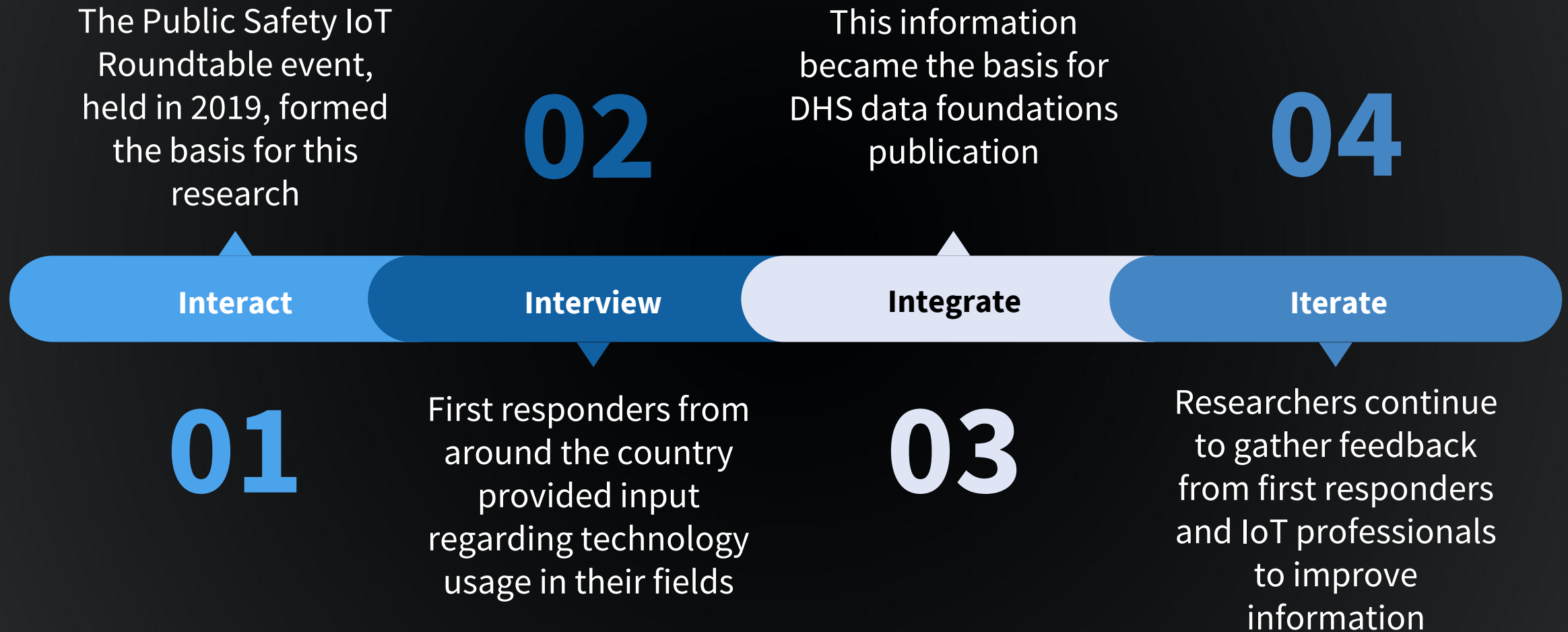
01

First responders from around the country provided input regarding technology usage in their fields

# OUTREACH PROCESS



# OUTREACH PROCESS





# DATA FOUNDATIONS OUTCOMES



## ENVIRONMENTAL

External environmental conditions at an event



## HEALTH / BIOMETRICS

Current health state of an individual



## LOCATION

Location of an individual/unit, or the event



## RESPONDER SPECIFIC

Information specific to the individual public safety entities

# DATA FOUNDATIONS REPORT

## IoT Data Foundations for First Responders

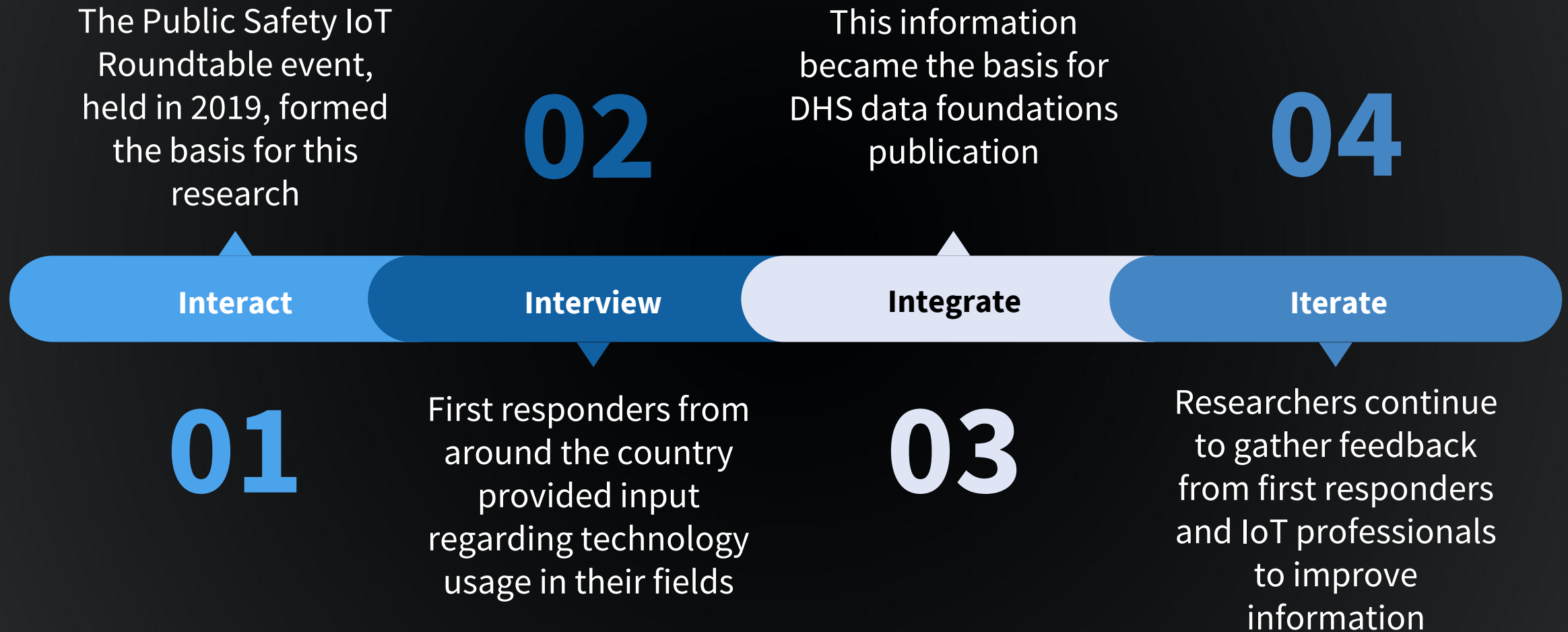
Report includes information on:

- First responder technology use results
- Indications for future technology usage in public safety
- How software data objects can simplify IoT connectivity

<https://www.dhs.gov/publication/iot-data-foundations-first-responders-fire-service-fy2020>



# OUTREACH PROCESS



# OUTREACH PROCESS

## 04

### Iterate

Researchers continue  
to gather feedback  
from first responders  
and IoT professionals  
to improve  
information

# GET CONNECTED



**ALISON.KAHN@NIST.GOV**



**<https://www.nist.gov/ctl/pscr/iot-data-foundations-project>**



**<https://www.dhs.gov/publication/iot-data-foundations-first-responders-fire-service-fy2020>**





# THANK YOU

#PSCR2021 • PSCR.GOV