



Georgia Data  
Innovation Hub

*Carl Vinson Institute of Government*

UNIVERSITY OF GEORGIA

# Data Literacy

How to read, analyze, and use data

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# Why is Data Literacy Important?

**The Exponential Growth  
of Technology and Data**

?

**Data Literacy for the  
Individual**

?

**The Data Driven  
Organization**

?



# A Brief History of Technology



# Data is Everywhere



**Data + Technology =**

***THE WORLD IS SAVED***





# The Human Element

Data Literacy



**Data + Technology + Humanity =**

**THE WORLD IS A LITTLE**  
**BETTER OFF**



# Why is Data Literacy Important?

## The Exponential Growth of Technology and Data

- The prevalence of technology and data are growing rapidly
- Data and technology can be leveraged to make better decisions

## Data Literacy for the Individual

?

## The Data Driven Organization

?





# What Exactly is Data?

- Oxford dictionary defines data as follows:
  - Facts and statistics collected together for reference or analysis
- The word “data” is derived from the Latin datum
  - A piece of information; an assumption or premise from which inferences may be drawn
- **Data is more than just facts and figures, it can be a collection of our lived experiences!**
- To illustrate this...

# Story Time!



# Let's define Data Literacy!



# So What is Data Literacy?

- Per Raul Bhargava and Catherine D'ignazio from MIT and Emerson College, it is the ability to **read**, **analyze**, **utilize**, and **communicate** with data.
- Though it appears EXTREMELY simple, what adds complexity is the number of different tools and technique that facilitate each of these actions.

**In order to define these terms and explore how to do them...**



# It's Time for a Group Activity!

- Within your groups, please take turns introducing yourself with the following:
  - Your first name
  - Your job
  - How data and data literacy are/could be important to what you do.



# Group Activity: Building a Toolbox

- While the individual actions of data literacy are simple, there are skills and tools we have developed through work and life that aid us in performing those actions.
- We are going to go through each of the actions one-by-one.
- I will introduce the action, give its definition, and give examples of skills I use to help me perform the action.
- In your groups, please discuss skills and tools you personally use
- After 3 minutes, we will reconvene to discuss together, then move to the next action



# Read

- Definition
  - To comprehend meaning through interpretation
- **Keywords**
  - **Emphasis**
  - **Summarize**

## Things you might read

- Text
- Bar charts
- Scatter plots

## Example Skills

- Looking for bolded words
- Reading the summary first
- Looking at the graph scale

# Analyze

- Definition
  - To unveil structures and/or details
- **Keywords**
  - **Curiosity**
  - **Context**

## Things you might analyze

- Text
- Bar charts
- Scatter plots

## Example Skills

- Looking for maximum values in a chart
- Counting occurrences of a word in text



# Utilize

- Definition
  - To put into practice or make use of
- **Keywords**
  - **Critical thinking**
  - **Creativity**

## Things you might utilize

- Analyzed data set
- Organizational understanding

## Example Skills

- Checking that the data context is applicable (*Ex. A lemonade stand may not work dealing with mean northernes*)
- Knowing the limitations of the data (*Ex. I learned about lemonade stands, but not a stand selling cookies*)



# Communicate

- Definition
  - To share or exchange information
- **Keywords**
  - **Clarity**
  - **Context**

## How you might communicate

- An email
- A bar chart

## Example skills

- Using a BLUF
- Making the largest bar in a chart a different color

# Data Literacy Toolbox

- Though data literacy is as simple as **reading**, **analyzing**, **using**, and **communicating** data, there are a number of skills and tools we use to do those actions effectively.
- You can always seek to improve your data literacy capabilities by developing new skill sets

**Now that we've defined data literacy and developed our toolbox...**

# Let's practice!

*You're the decision maker*





# Case Study – ERET Transportation

- Group activity with the same people
- You will be presented with different text excerpts and graphs.
- We ask that you read the slide, write down what things stood out to you, what things you were looking for, and discuss with your group. We will then discuss as an overall group.
- You will then analyze the slide, using the techniques and points previously made to identify patterns and items of interest. We will then discuss this analysis.
- After we've been through all of the slides, we will synthesize that knowledge and discuss what could be done in this situation.

# Background Information

## ERET Transportation Study

How people with mental illness are transported to and from emergency receiving, evaluation, and treatment facilities.



# Slides We Will Read and Analyze

1. Purpose Statement
2. ERETs Providing Services
3. ERET Admission Rates
4. ERET Method of Transport



# Purpose Statement

The Governor's Office of Health Strategy and Coordination was directed in House Bill 1013 (lines 1347 to 1353) to conduct a study to understand the methods used to transport persons exhibiting mental illness to and from Emergency Receiving, Evaluation, and Treatment Centers (ERETs). This study was conducted by researchers at the Carl Vinson Institute of Government for the Governor's Office of Health Strategy and Coordination.

1. **READ** – Read the slide, write down what things stood out to you, what things you were looking for, and discuss with your group.
2. We'll discuss together
3. **ANALYZE** – Identify patterns, items of interest, and what you took from the slide. We will then discuss this analysis
4. We'll discuss together

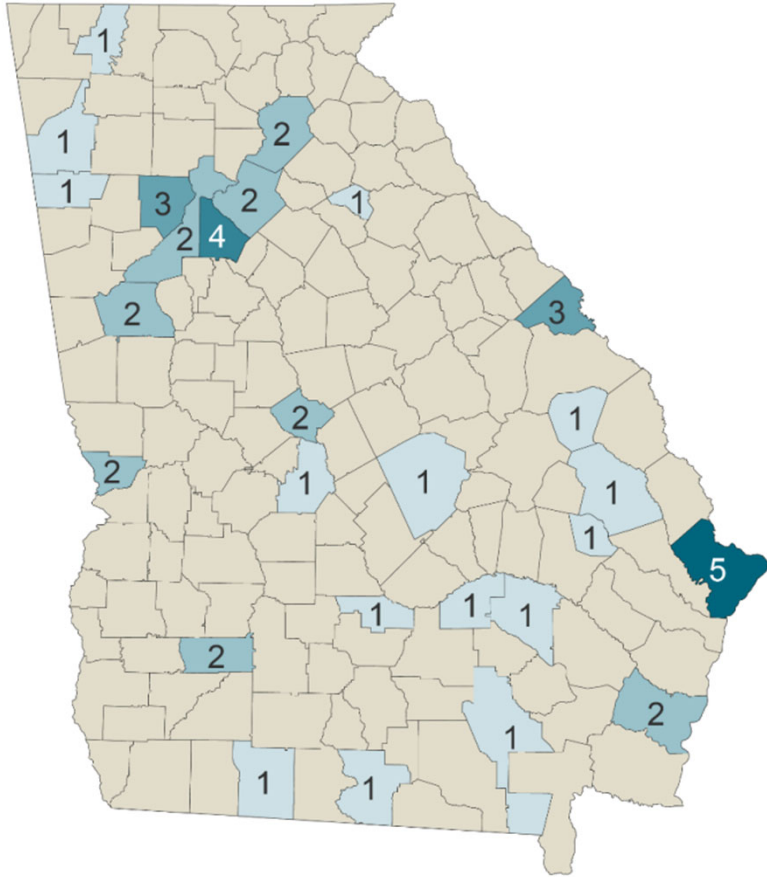


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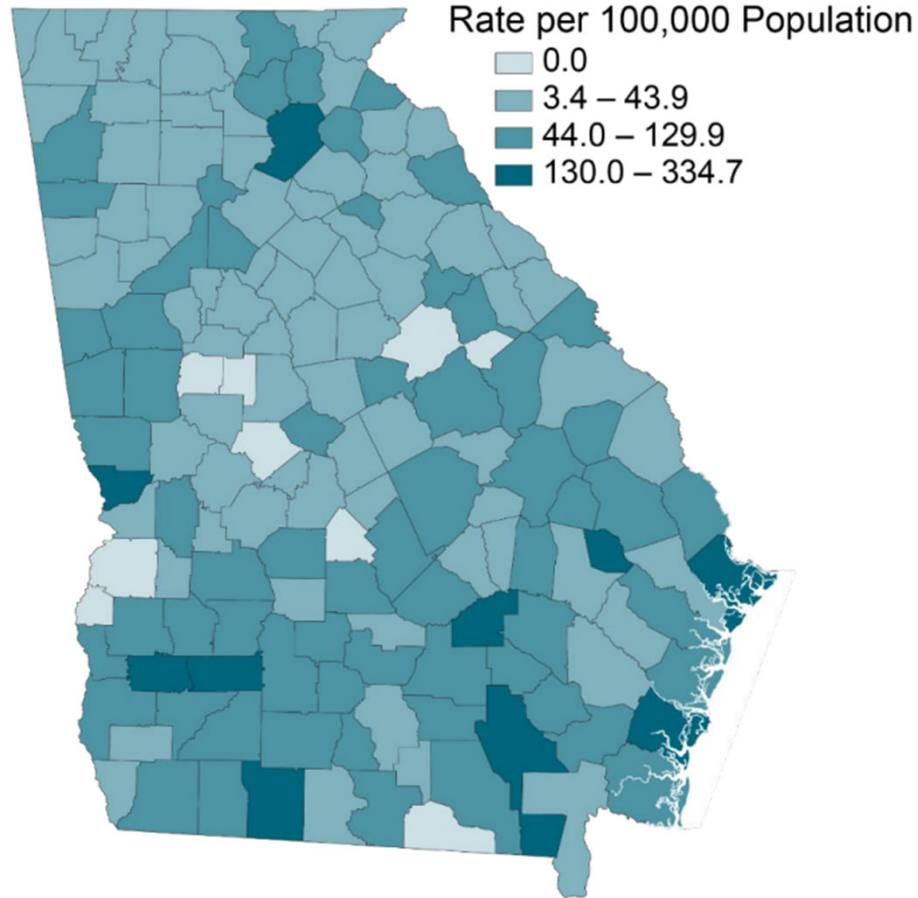
# ERETs Providing Services



1. **READ** – Read the slide, write down what things stood out to you, what things you were looking for, and discuss with your group.
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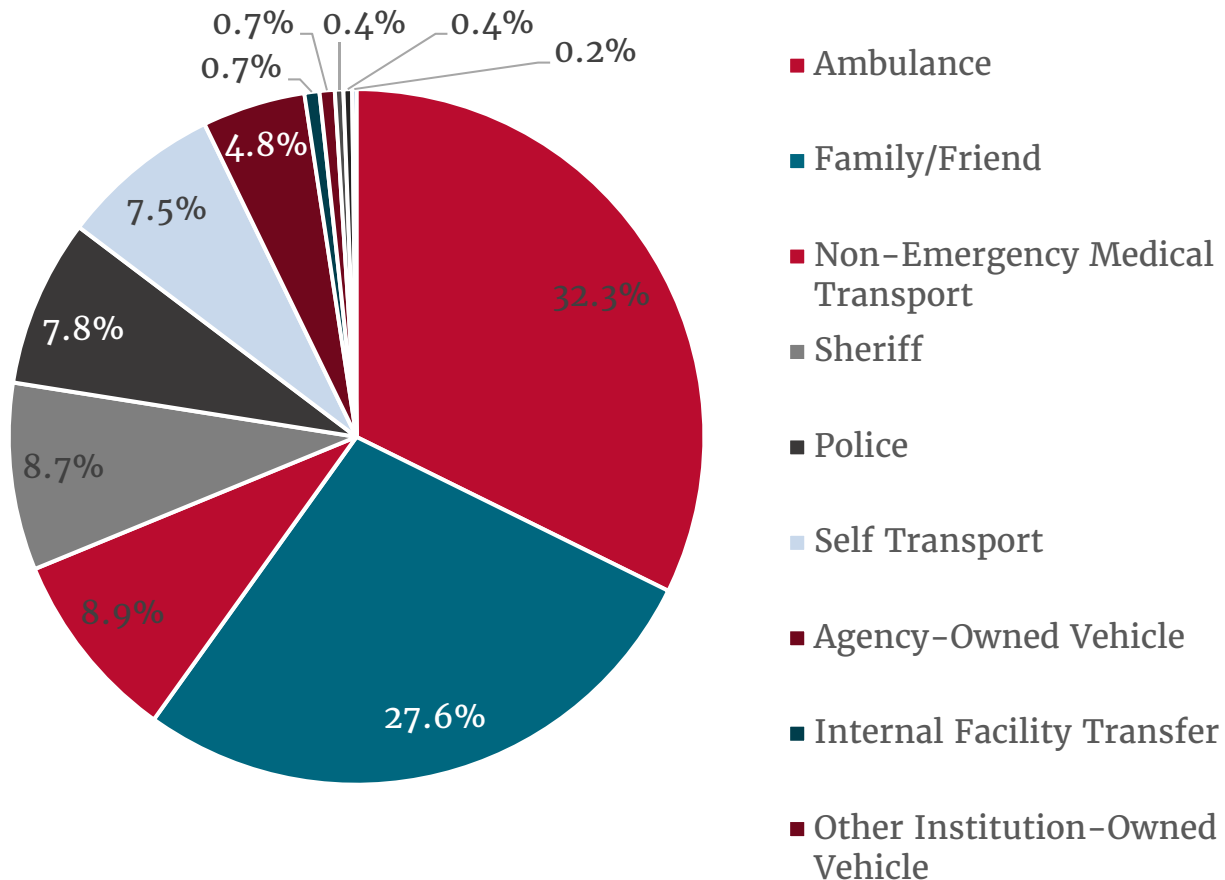
# ERET Admission Rates by County



1. **READ** – Read the slide, write down what things stood out to you, what things you were looking for, and discuss with your group.
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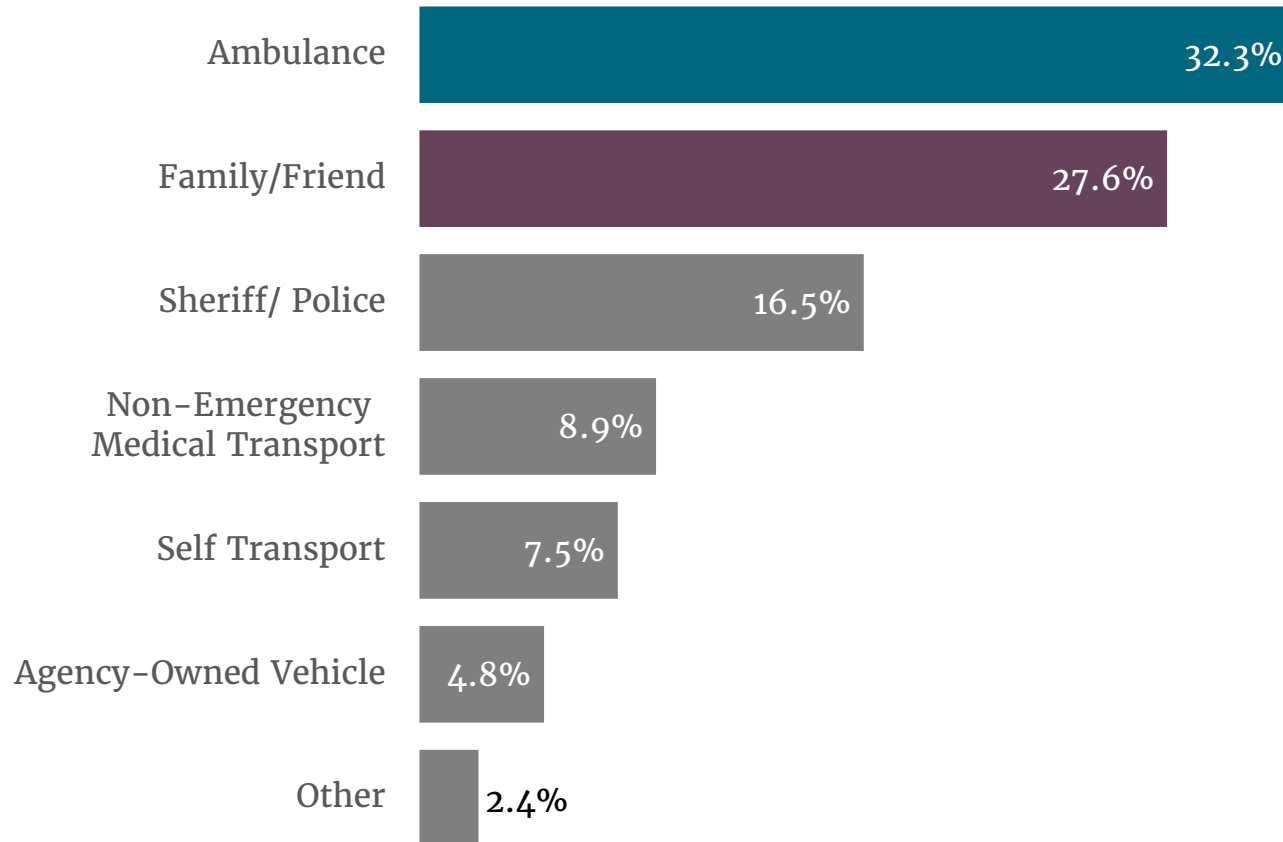
# ERET Method of Transport



1. **READ** – Read the slide, write down what things stood out to you, what things you were looking for, and discuss with your group.

2. We'll discuss together

# ERET Method of Transport



Note: "Other" includes taxi/ uber, co-responder unit, public transportation, internal facility transfer, and other institution owned vehicle.

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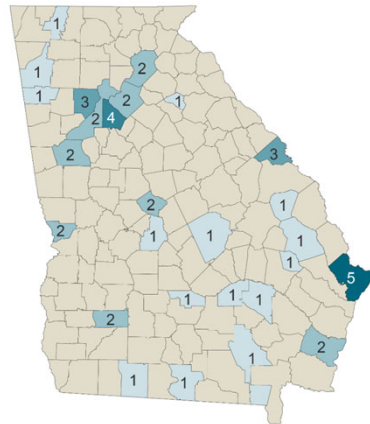


# By the size What What should be done? from each slide?

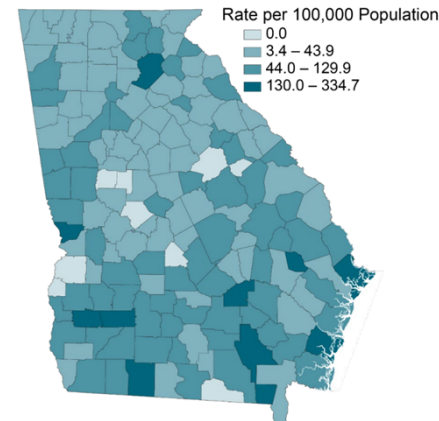
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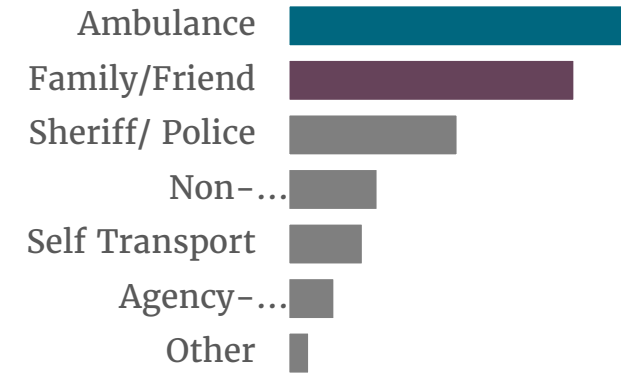
## ERETs Providing Services



## ERET Admission Rates



## ERET Method of Transportation



# What did we accomplish?

- We read and analyzed multiple data sets
- Synthesized that data together, along with our individual knowledge and experiences
- Proposed several different courses of action
- That's the power and importance of data literacy to the individual!

# Why is Data Literacy Important?

## The Exponential Growth of Technology and Data

- The prevalence of technology and data are growing rapidly
- Data and technology can be leveraged to make better decisions

## Data Literacy for the Individual

- Facilitates individual thought processes
- Facilitates individual decision making

## The Data Driven Organization

?





# The Data Driven Organization

Where do I fit in?



# Data Driven Organizations

## Five pillars of a data driven organization

- Strategy: Having the capacity to understand and utilize data
- Leadership: throughout the organization

## Culture

- Data and technology
- **Organizational data literacy**
  - Having an environment that is ready to engage with data
- **Culture**
  - data driven practices



# DIKW Pyramid

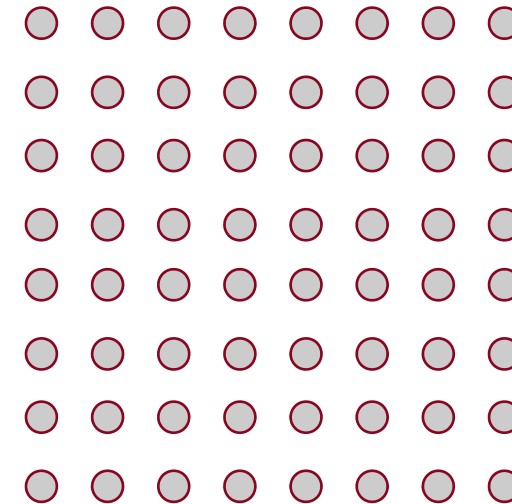
- Illustrates the structural and functional relationship between **Data**, **Information**, **Knowledge**, and **Wisdom**
- Can be used to illustrate individual understanding, but is also useful for structuring organizational knowledge
- To illustrate its use, we'll go through each step of the pyramid using my lemonade story, then connect that knowledge to how organizations can use it.

**Data**



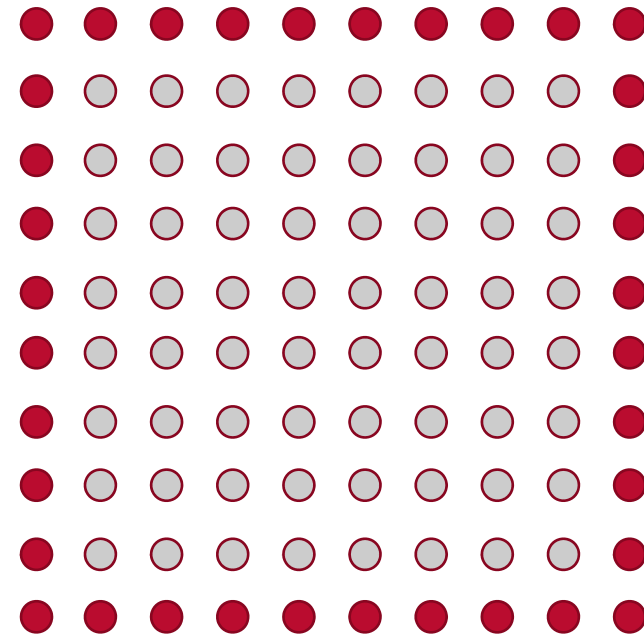
# Data

- Oxford dictionary defines data as follows:
  - **Facts and statistics collected together for reference or analysis**
- It is “raw” and inherently meaningless
- **Ex.** “It’s hot,” “I have no money,” “I can make lemonade”



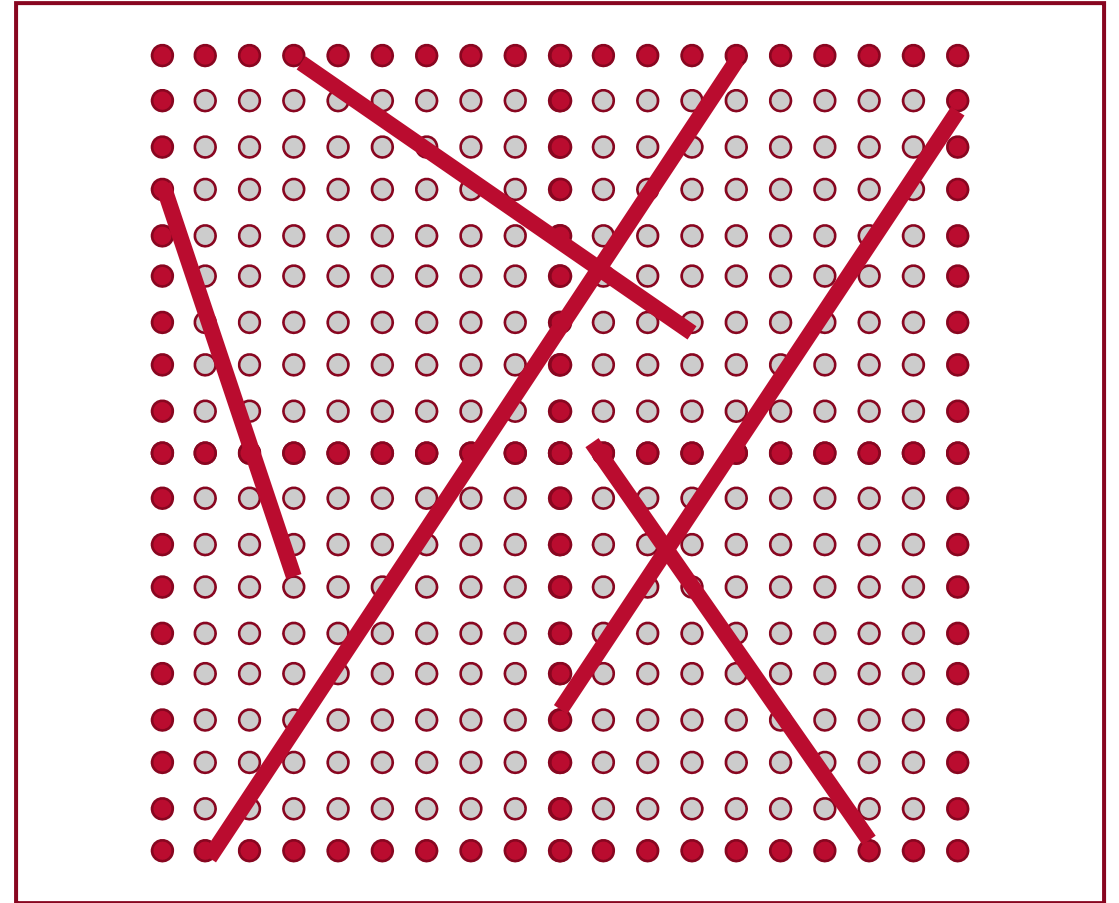
# Information

- Data that has context (through analysis or experience), providing meaning.
  - The 5 W's
- **Ex.** “It’s hot in the South,” “I’m a child with no money,” “People like the lemonade I make”



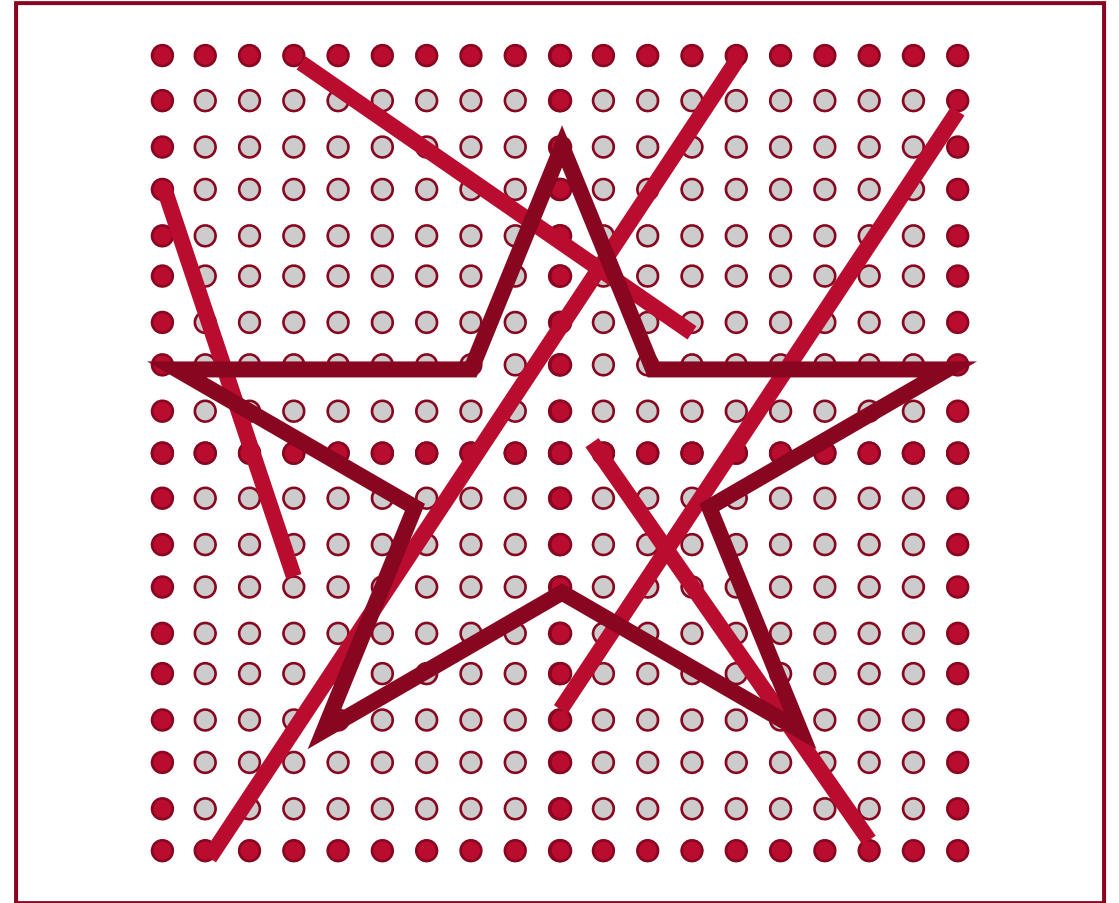
# Knowledge

- Information that has been structured for a purpose
  - This transformation is often through the lens of experience, be it work, study, or life
- **Ex.** “I can make money by selling lemonade to the nice Southern people, who are hot”

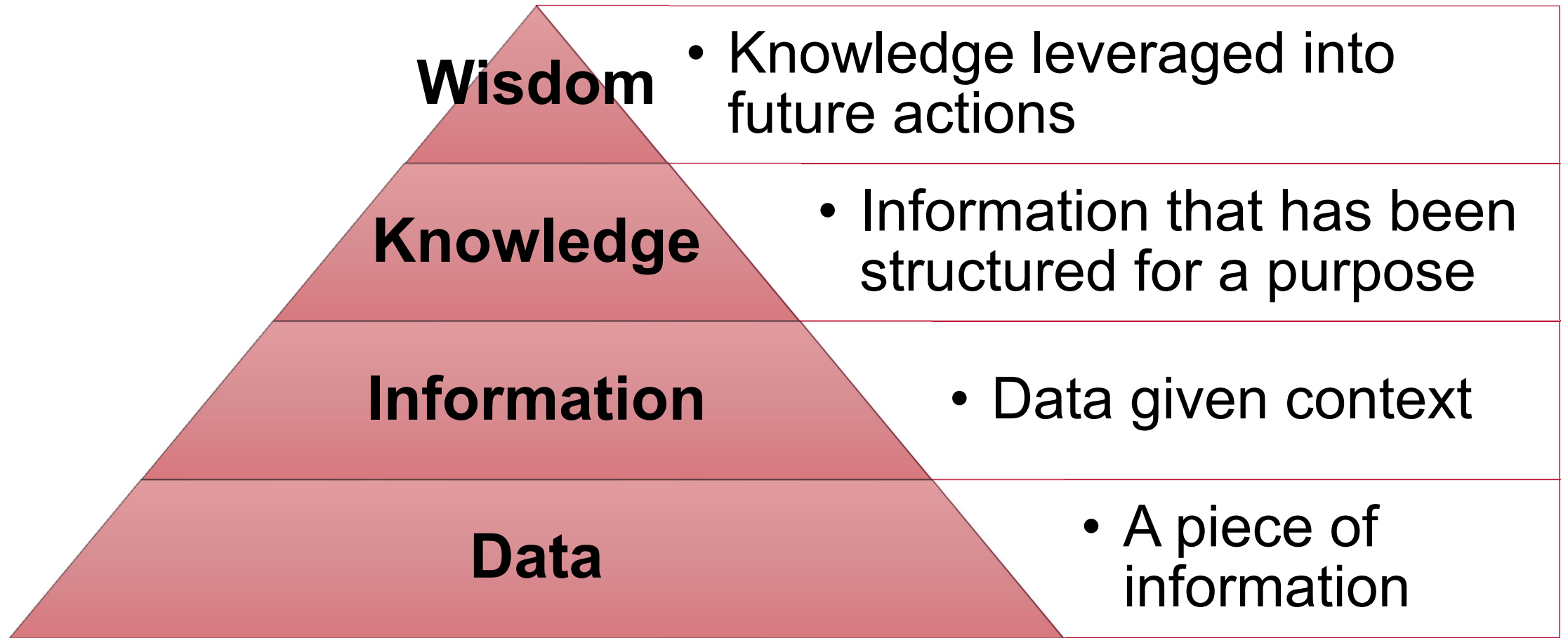


# Wisdom

- Knowledge that has been leveraged into future actions.
- Schema or “best practices”
- **Ex.** “If I’m in need of money again, I can sell lemonade on a hot day and use what I learned to improve profits”



# DIKW Pyramid

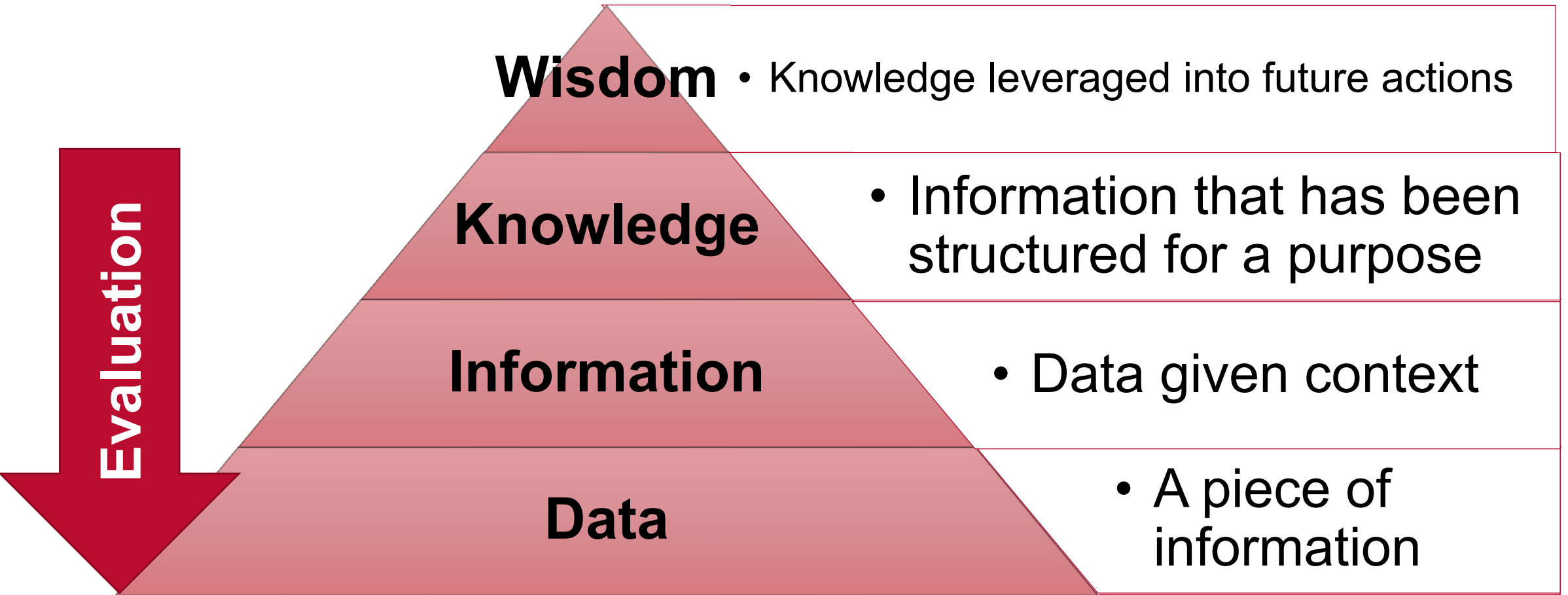




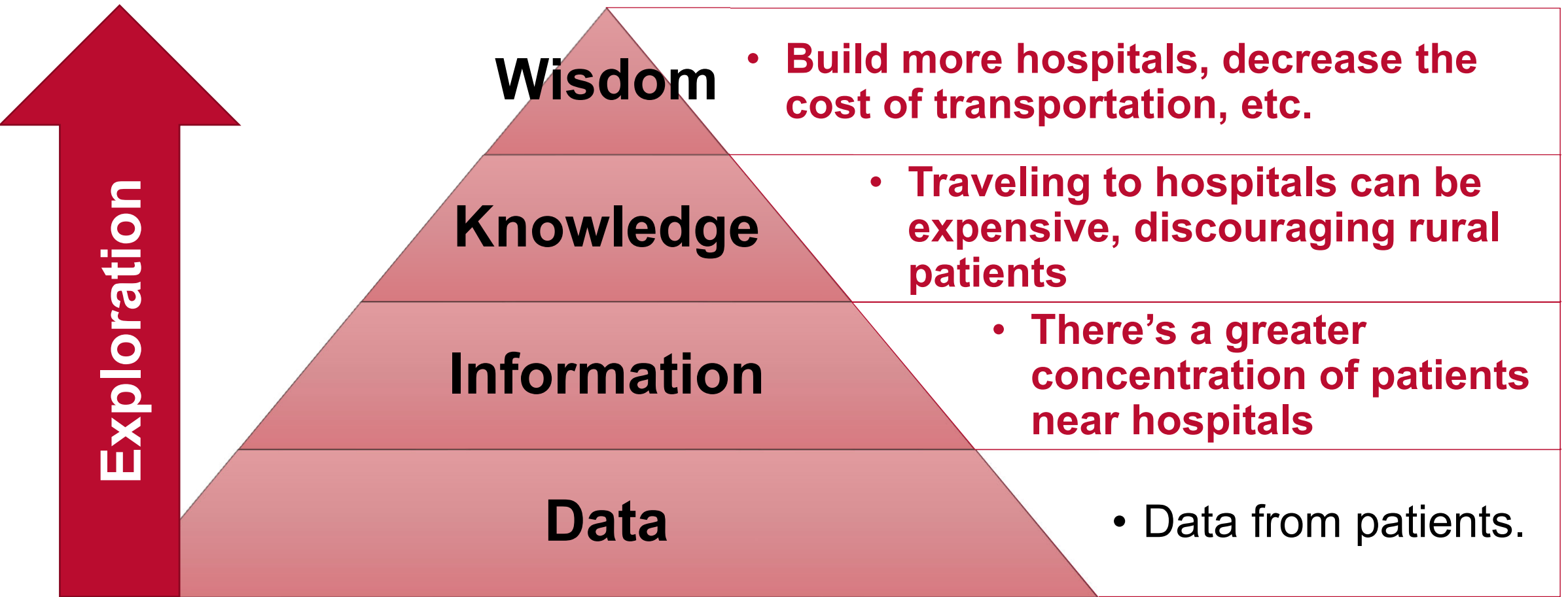
# There are two ways organizations can leverage the DIKW pyramid...

- Evaluation
  - Asking a question, often about “common knowledge” or current practices, and seeking data to answer that question.
    - Ex. Are we spending our money efficiently?
- Exploration
  - Analyzing data to understand why something is happening or what could be done in the future.
    - Ex. It looks like we’re spending a lot of money on office parties... Is there a reason for that?

# DIKW Pyramid – Organization Evaluation



# DIKW Pyramid – Organizational Exploration



# DIKW Pyramid – People in the organization

**Culture**



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## Data Literacy for the Individual

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## The Data Driven Organization

- Facilitates organizational data-driven decision making
- Reduces organizational ambiguity
- Promotes organizational consistency and transparency



# Muddiest Point / Reflections

What was the most useful thing today?

What is still unclear to you?

What do you wish we had covered?



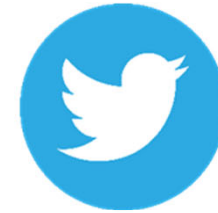
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