

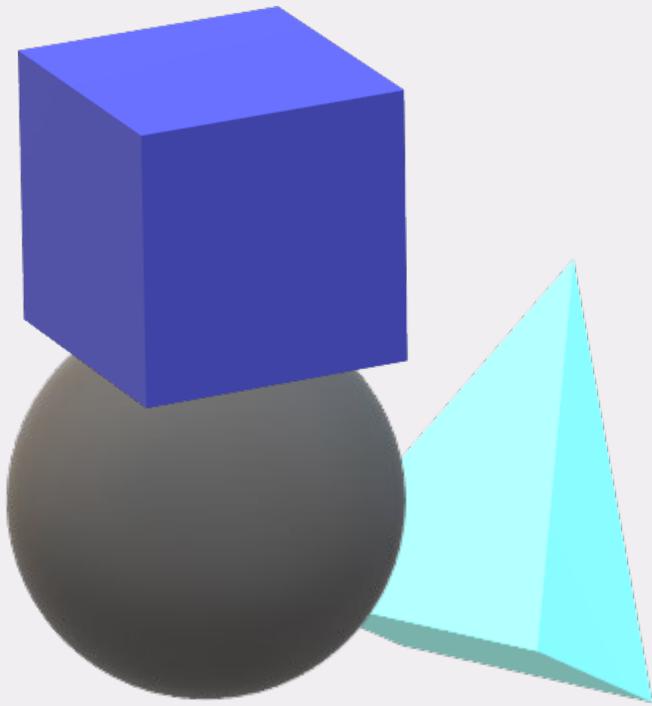
# Shaping Research

It Begins with an Idea

Amy Beise, P.E.

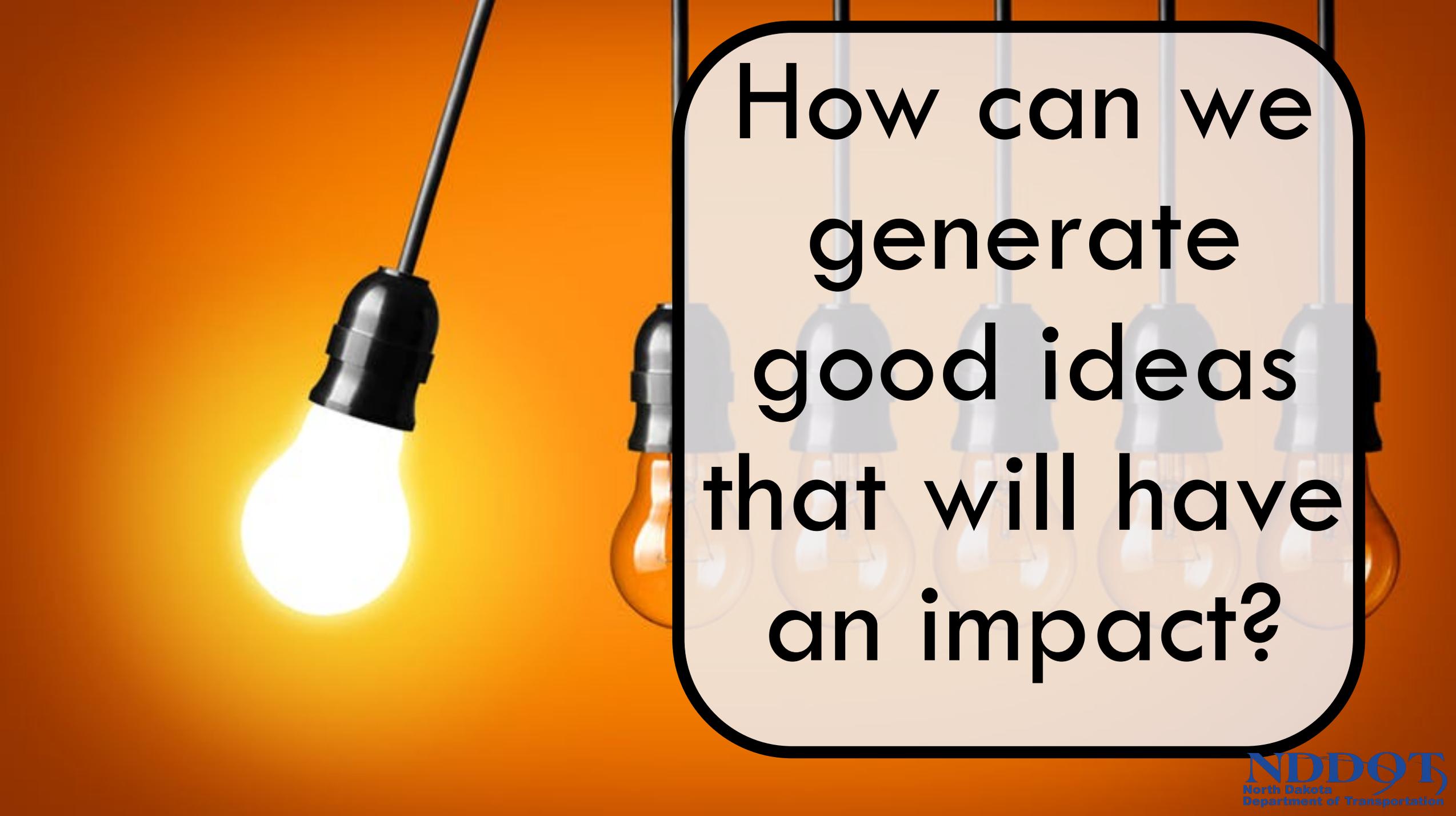
NDDOT Materials & Research

March 7<sup>th</sup>, 2019



Where do good  
ideas come from?





How can we  
generate  
good ideas  
that will have  
an impact?

**Relate**

**Question**

**Think**

**Think**

**1**

**Break Patterns**



**Question**

**2**

**Challenge Assumptions**



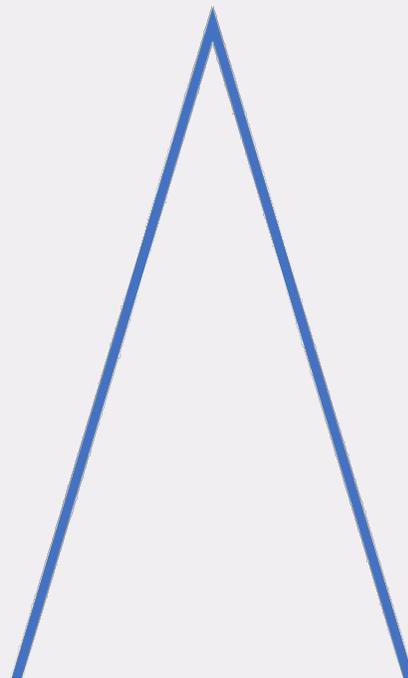
**Relate**

**3**

**Why is this so important**



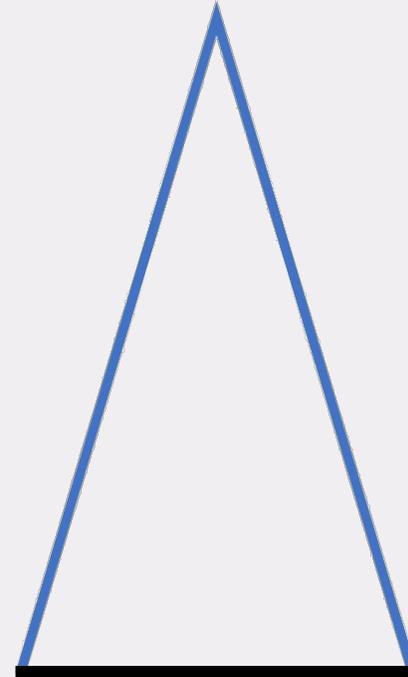
# Complete the Shape...



# Pattern Thinking

Based on:

- Repetitive Actions
- Commonly Accessed Knowledge



Think

# Pattern Thinking Advantages

 Quick

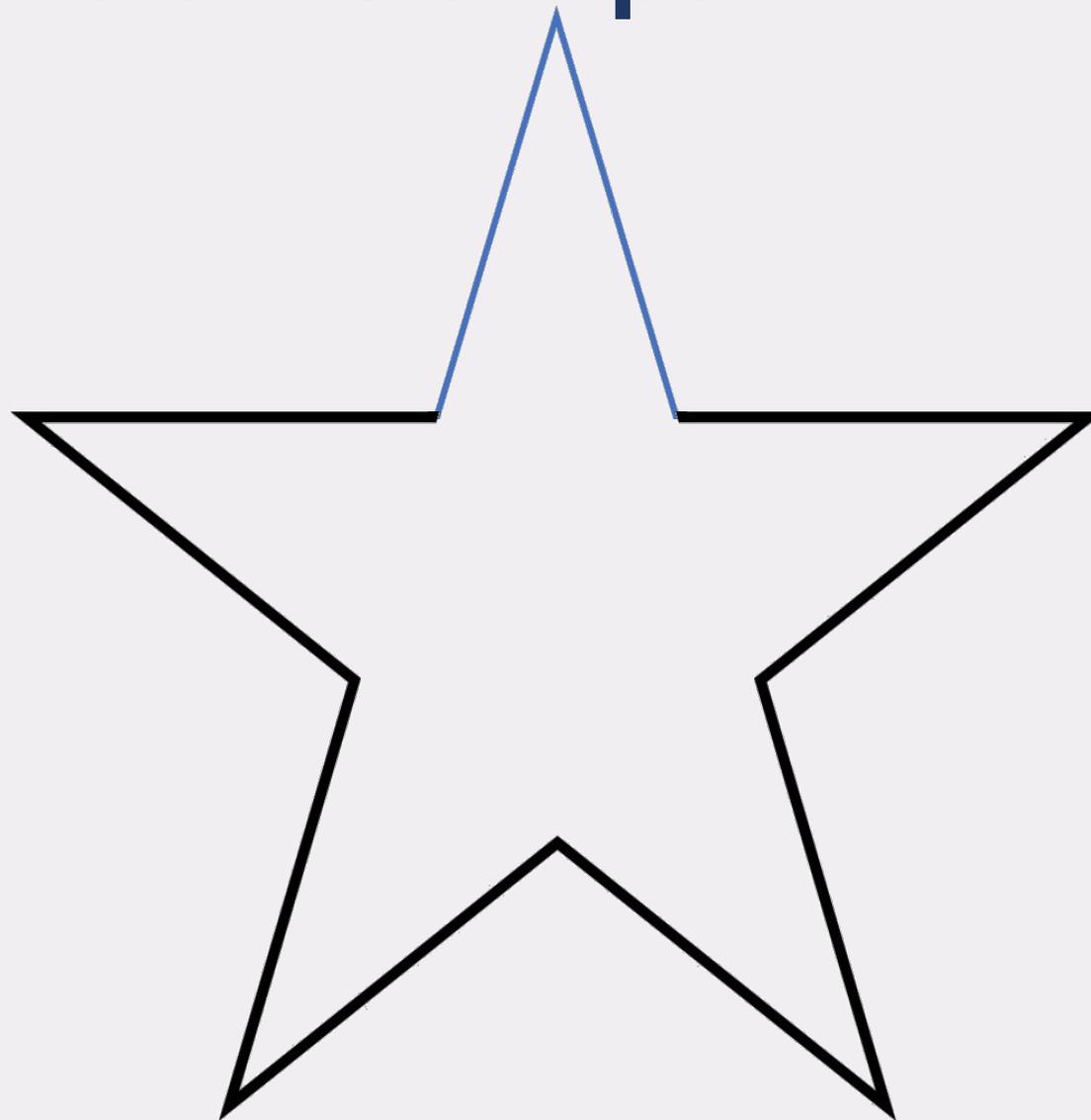
 Consistent

 Reduces Re-learning

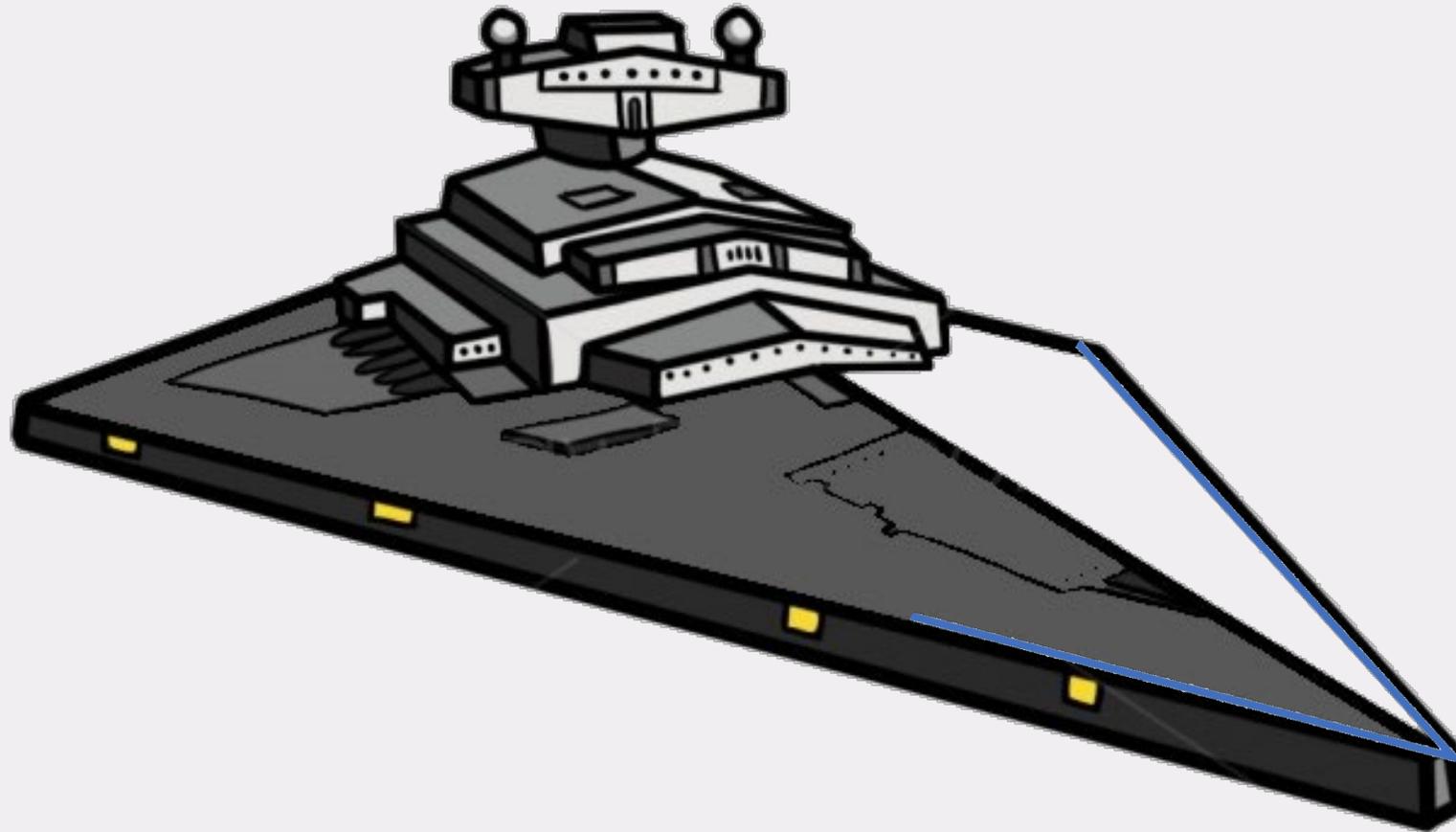


Think

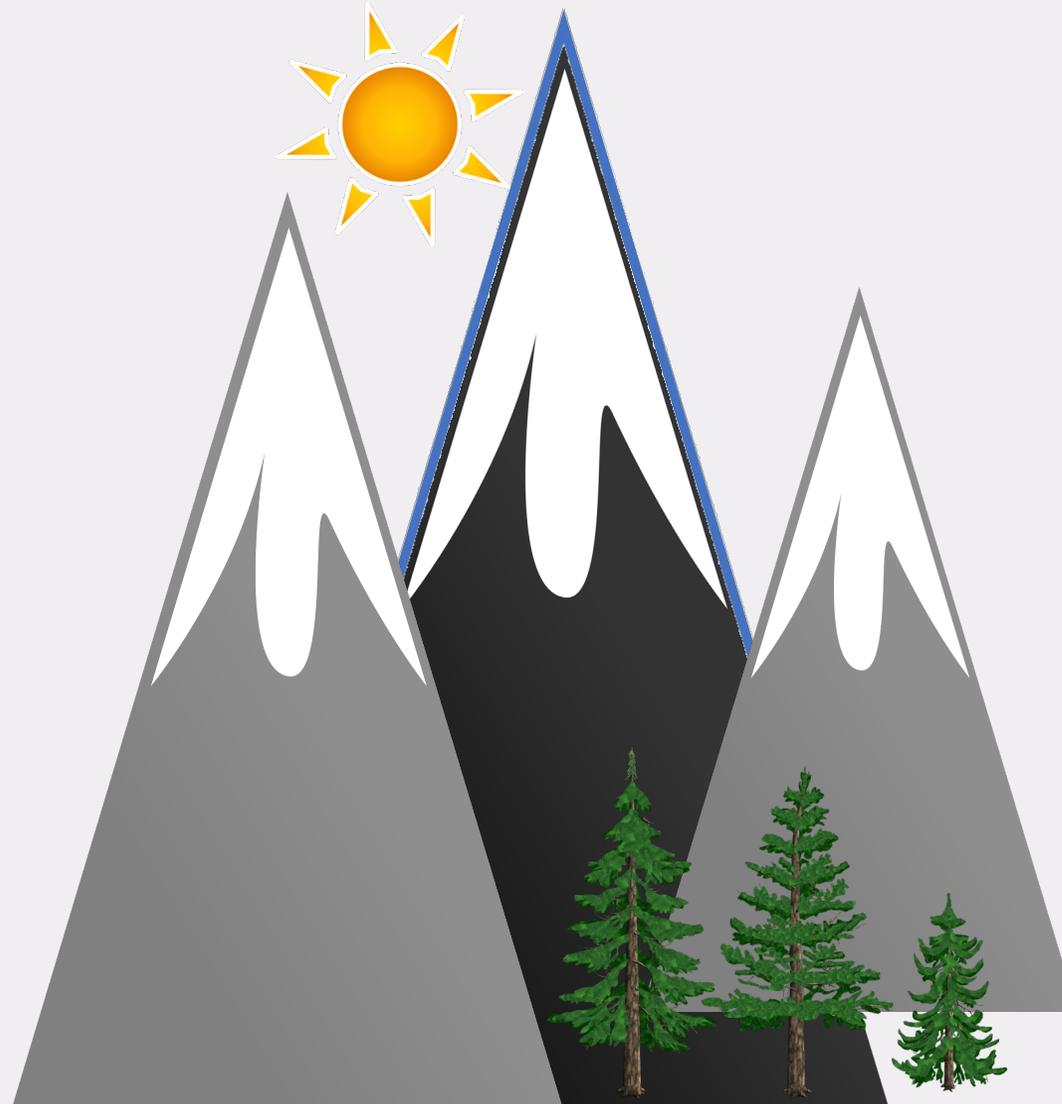
# Complete the Shape...



# Complete the Shape...



# Complete the Shape...



# Complete the Shape...

Creativity is infinite even for items that appear well defined



Think

Relate

Question

So how do  
we break  
the  
pattern?



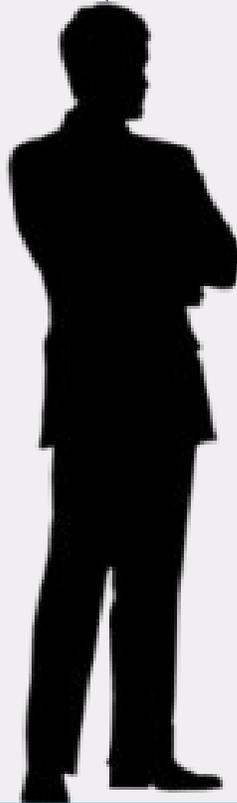
Think

Good ideas start with  
good questions.



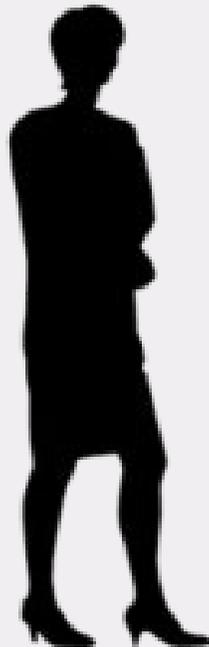
Relate

Why does this take forever?



Challenge Assumptions

What's the roadblock here?



Rephrase the Problem



Think in Reverse

Could this get any worse?



Question

Think



Needs, problems & insights



Relate



Question



Think



Relate



User

Why is more important than what



In ways that show you understand your user

LISTEN AND ACT



Relate



Question



Think

**Think**

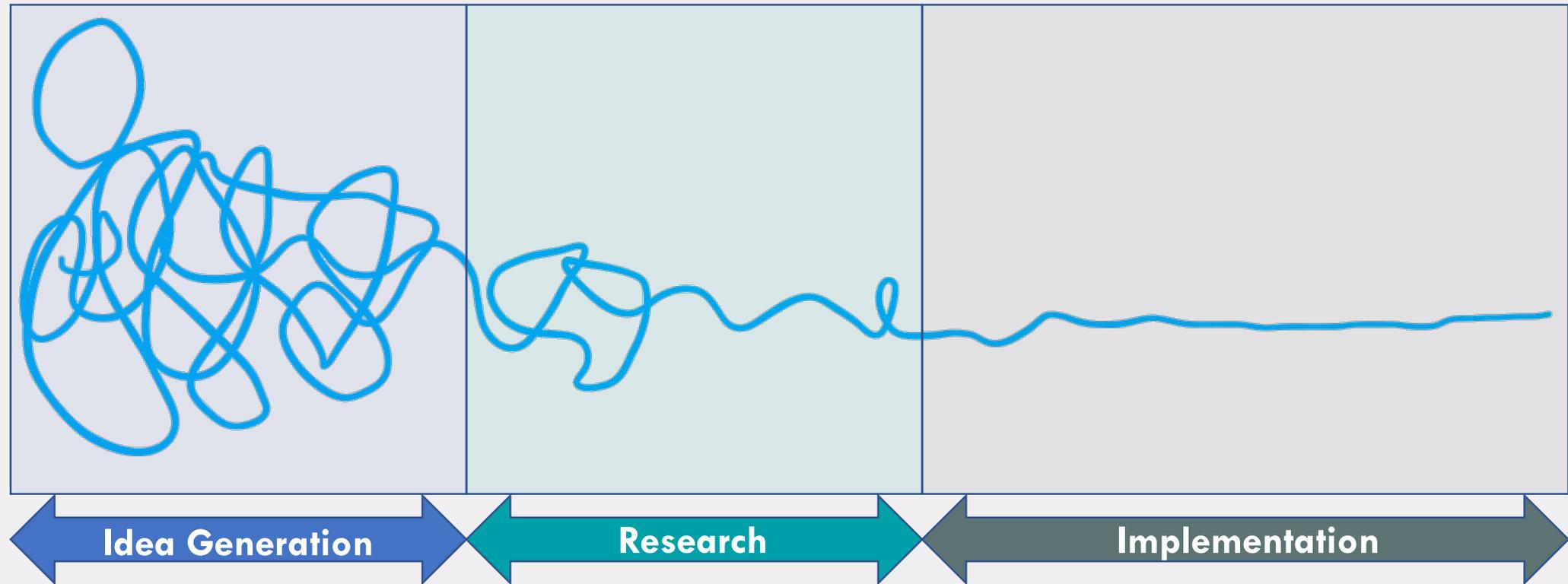
**Question**

**Relate**

**Idea**

**Shape a Research  
Problem Statement**

# Idea Generation is not a Linear Process



# Internal Research Staff



# University Partners

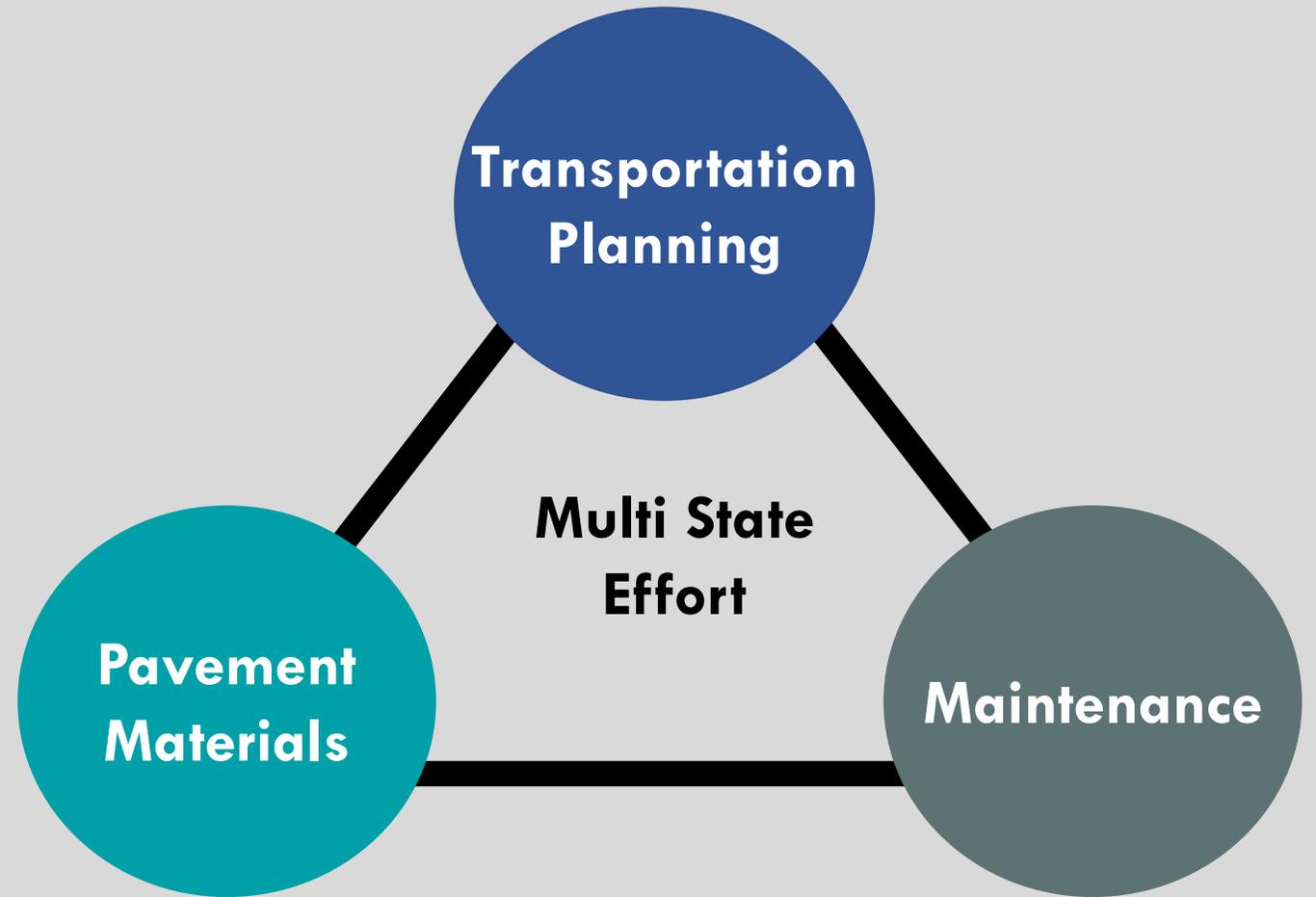
**UND** UNIVERSITY OF  
NORTH DAKOTA

**College of Engineering & Mines**

**NDSU** NORTH DAKOTA  
STATE UNIVERSITY

**NDDOT**  
North Dakota  
Department of Transportation

# Pooled Fund Studies



TRANSPORTATION POOLED FUND PROGRAM

**National**

**NCHRP**

**NATIONAL  
COOPERATIVE  
HIGHWAY  
RESEARCH  
PROGRAM**

**TRB**

**TRANSPORTATION RESEARCH BOARD**

**NRRRA**

**National Road Research Alliance**

**NDDOT**  
North Dakota  
Department of Transportation

# Research Advisory Committee

## Divisions

**Materials & Research:** Matt Linneman

**Materials & Research:** Clayton Schumaker

**Bridge:** Jason Thorenson

**Construction:** Jeff Jirava

**Design:** Derek Pfeifer

**ETS:** Justin Ramsey

**Local Government:** Bryon Fuchs

**Maintenance:** Brad Darr

**Planning:** Scott Zainhofsky

**Programming:** Logan Beise

**IT:** Carey Schreiner

## Districts

**Bismarck:** Tyler Wollmuth

**Devils Lake:** Wyatt Hanson

**Dickinson:** Belinda Urlacher

**Fargo:** Duane Carlstrom

**Grand Forks:** Curt Dunn

**Minot:** Greg Olson

**Valley City:** Jay Praska

**Williston:** Beth Skabo

# Tell me your Ideas!



**Amy Beise, PE**

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701-328-6921

# Thank You