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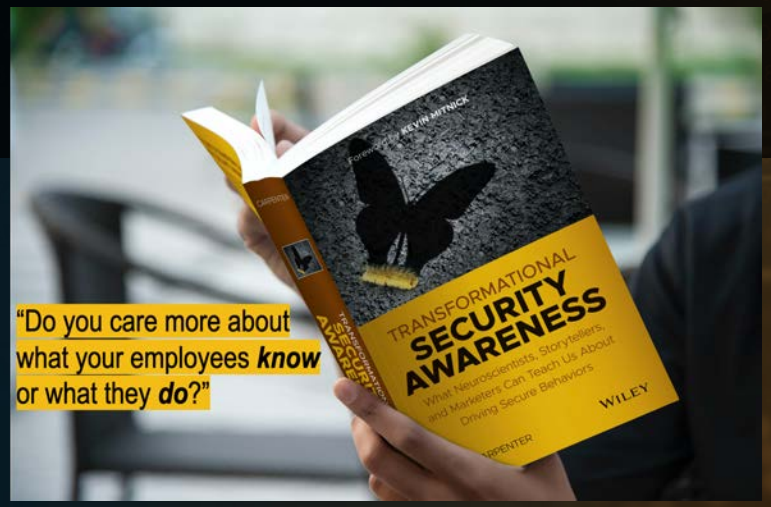
Human error. Conquered.

# The Art and Science of Driving Secure Behaviors

## Secrets of a Transformational Security Awareness Program

*ISACA San Diego*




Perry Carpenter
Chief Evangelist & Strategy Officer
KnowBe4, Inc.

# *Security Awareness* and *Secure Behavior* are NOT the Same Thing


**Traditional awareness programs fail to account for the *knowledge-intention-behavior gap***

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**Perry Carpenter**

**Chief Evangelist & Strategy Officer**

# About Perry

- MSIA, C|CISO
- Former Gartner Analyst leading research and advisory services to CISOs, Security Leaders, and security vendors around the world
- Led security initiatives at Fidelity Information Services, Alltel Telecommunications, and Wal-Mart Stores
- Lover of all things:
  - Security
  - Psychology
  - Behavioral Economics
  - Communication Theory
  - Magic, misdirection, and influence

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# Agenda

1. Why behavior?
2. How can you model and design secure behaviors to help shape good security hygiene?
3. How can you debug behavior?

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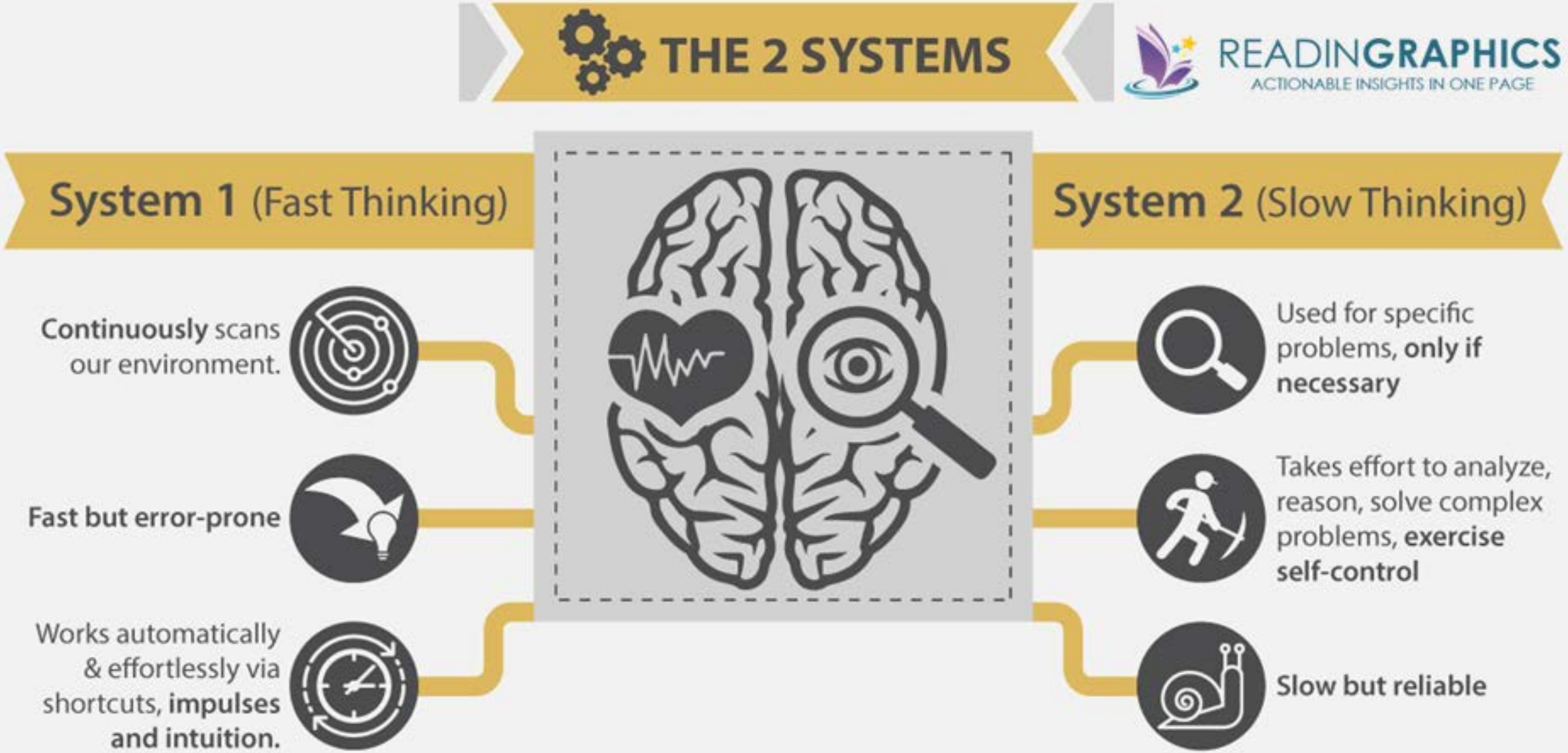
# *There are Three Realities of Security Awareness*


1. Just because I'm **aware** doesn't mean that I **care**.

2. If you try to work **against** human nature, you will **fail**.

3. What your employees **do** is way more important than what they **know**.

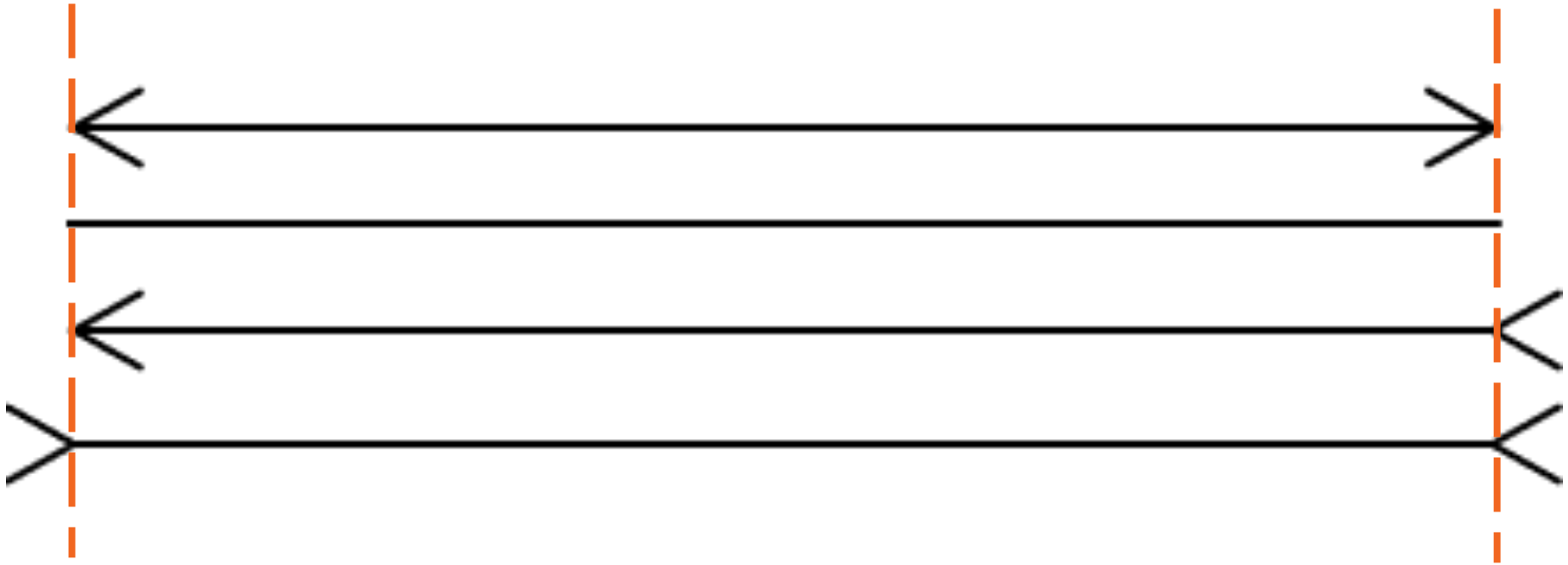
# Thinking, Fast & Slow (Daniel Kahneman)




Graphic Source: https://readingraphics.com/book-summary-thinking-fast-and-slow/

# System 1 Thinking Example

Which line is longest?



# System 2 Thinking Example

## Solve for x:

## 532 ÷ 86 = x

# *Your awareness program should not focus only on information delivery*

***Ask yourself:***

*Do you care more about what your people* ***know*** *or what they* ***do****?*

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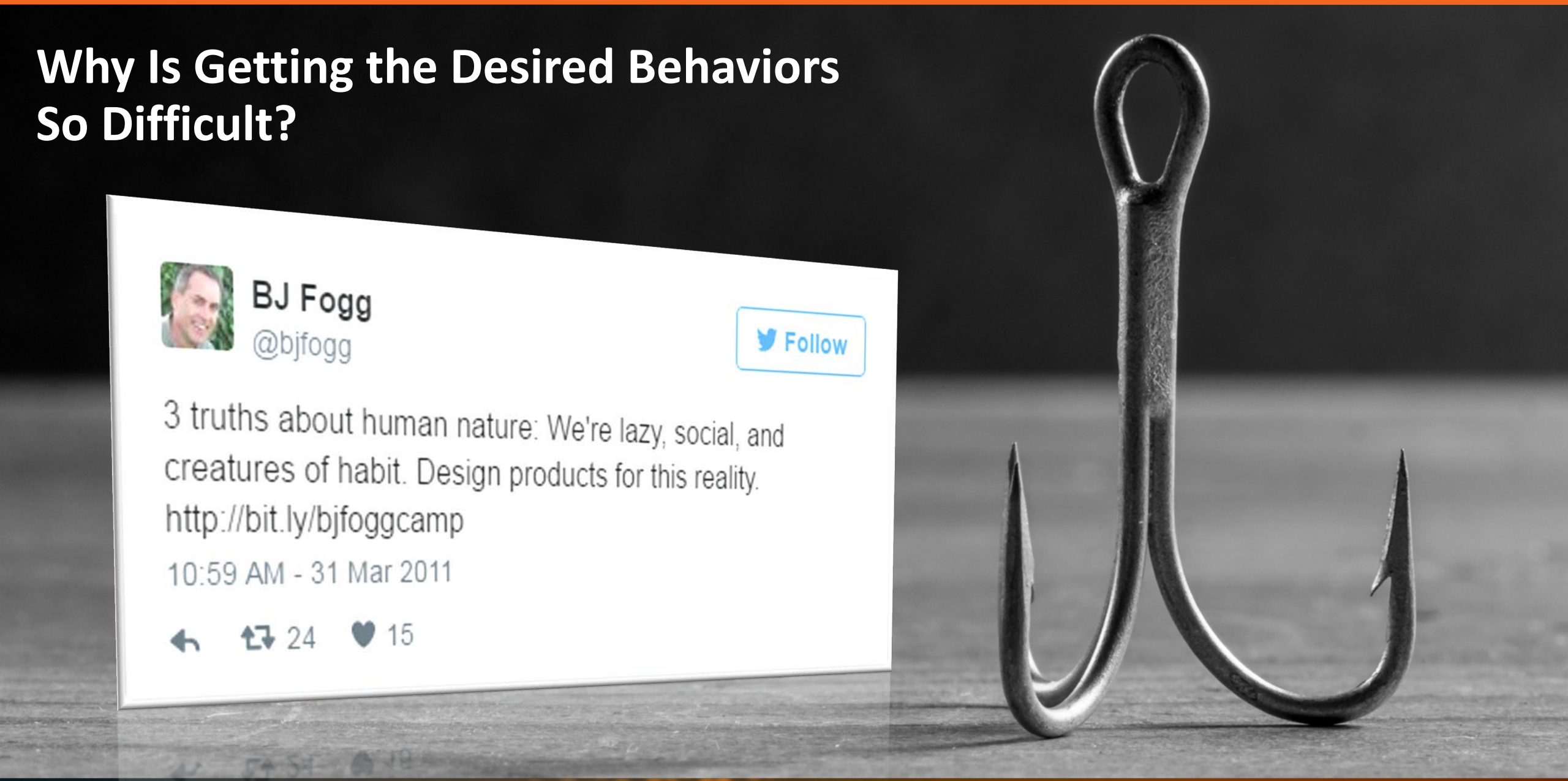
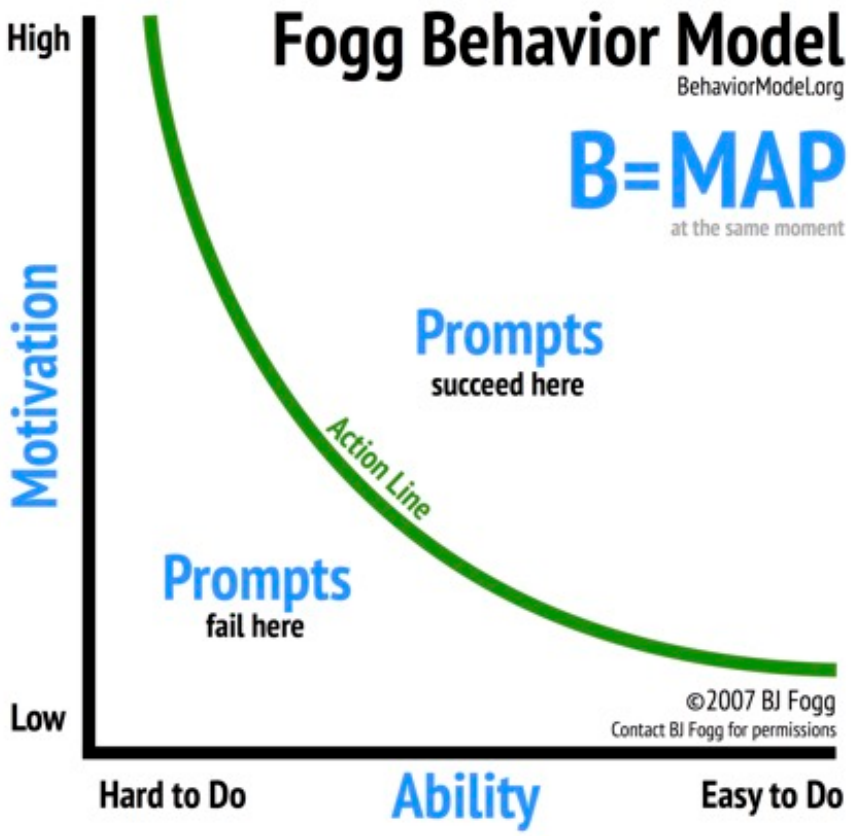
# Why Is Getting the Desired Behaviors So Difficult?



***BJ Fogg** is the father of a field now referred as **"Behavior Design."***




http://behaviormodel.org

***Behavior*** happens when three things come together at the same time:

***Motivation***, ***Ability***, and a ***Prompt*** to do the behavior…

# Get Specific:

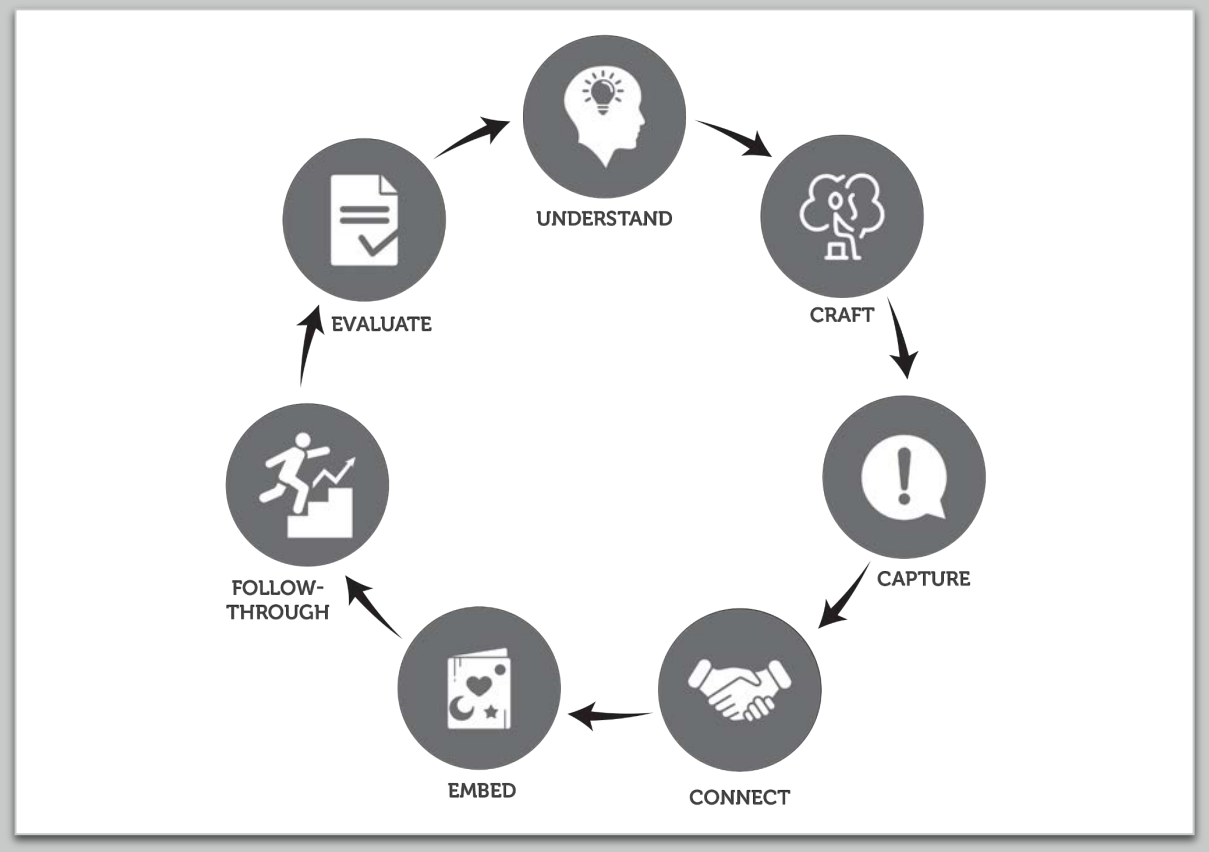
1. What behaviors, if adopted, would have the most security benefit for our organization?
2. Is this a group of behaviors, or is this a single behavior?
3. Is this a behavior that we have the appetite to take-on right now?

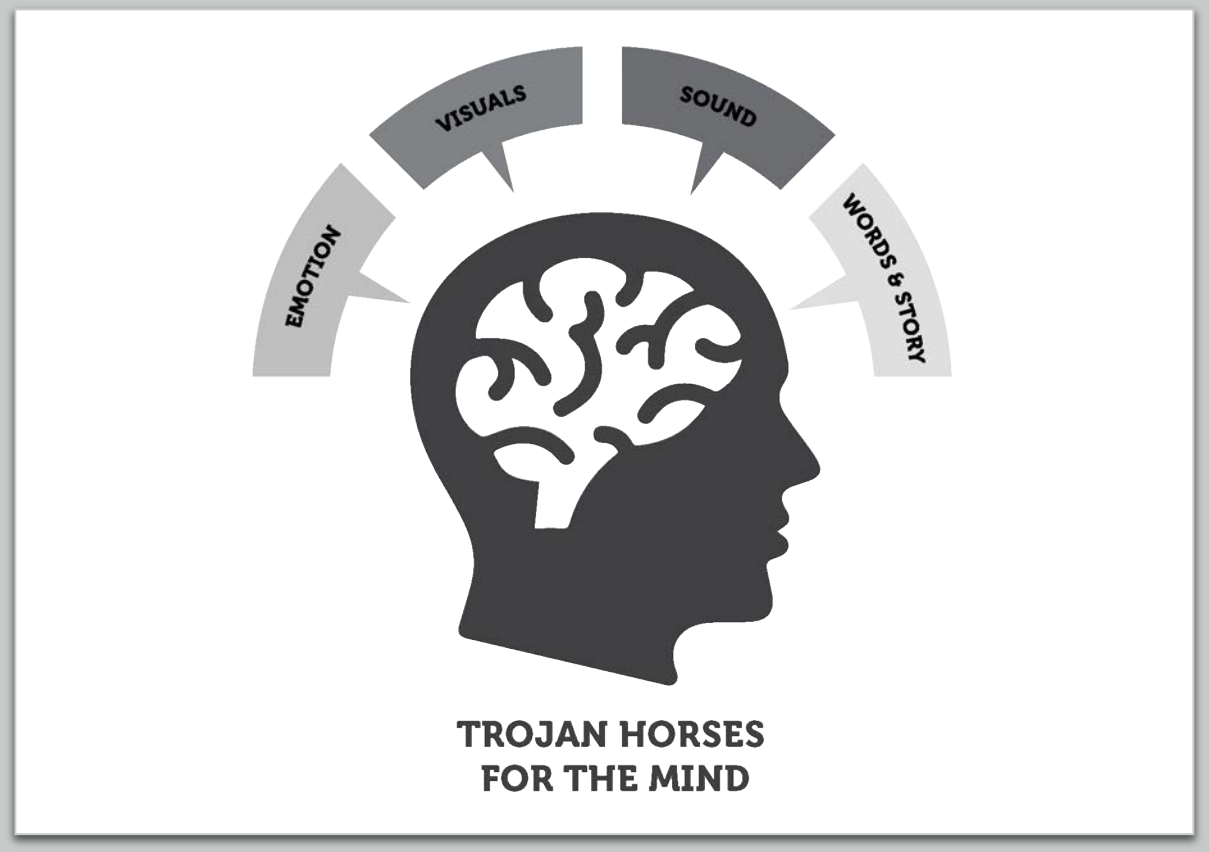
# Designing Behavior (A Non-Security Example)

| Fogg Behavior Model Component | Description |
|---|---|
| **Behavior(B): What specific behavior do we want someone to do?** | Drink a glass of water |
| **Motivation(M): What types of things might motivate someone to perform the B?** | • They could be thirsty<br>• The might want social acceptance (everyone else is doing it)<br>• They might want to avoid offending the person offering them water<br>• They believe that there are positive health benefits associated with staying hydrated<br>• Etc. |
| **Ability(A): What types of things must someone already be able to do or know to successfully perform the B?** | • A glass of water is available to the person or can be obtained with little effort<br>• The person's mouth is not taped shut<br>• The person is not asleep or otherwise incapacitated<br>• Etc… |
| **Prompts(P): What types of things can cue the B?** | • The person noticing that they are thirsty<br>• Someone offers the person a glass of water<br>• The person receives a prompt from a health-app reminding them to drink<br>• Etc. |

# *Thoughts on Designing for Each Element*

- Prompts
- Ability
- Motivation




# Learn from Marketers and Storytellers to Influence Motivation





# *Nudge* your audience toward the behavior

A nudge, as we will use the term, is any aspect of the choice architecture that alters people's behavior in a predictable way without forbidding any options or significantly changing their economic incentives. To count as a mere nudge, the intervention must be easy and cheap to avoid. Nudges are not mandates. Putting fruit at eye level counts as a nudge. Banning junk food does not.

**Nudge**: Improving Decisions About Health, Wealth, and Happiness, 2008

# *Nudge* them in the right direction

A nudge, as we will use the term, is any aspect of the choice architecture that alters people's behavior in a predictable way without forbidding any options or significantly changing their economic incentives. To count as a mere nudge, the intervention must be easy and cheap to avoid. Nudges are not mandates. Putting fruit at eye level counts as a nudge. Banning junk food does not.

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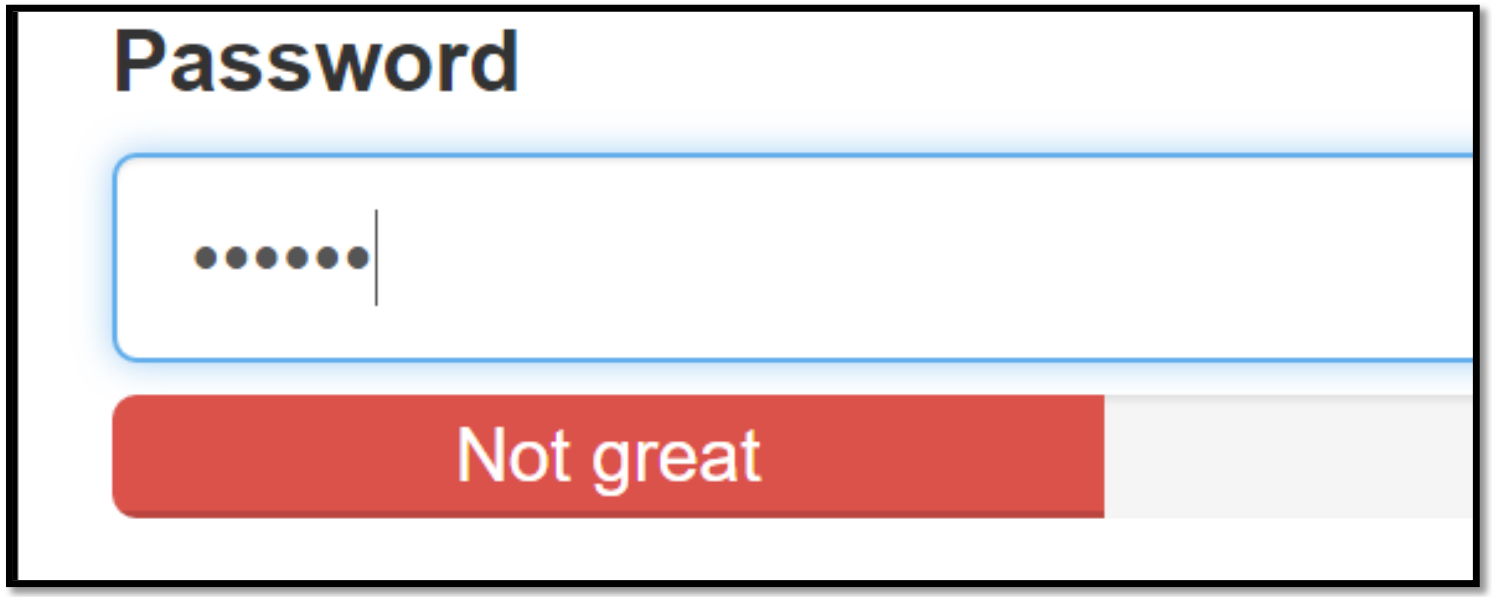
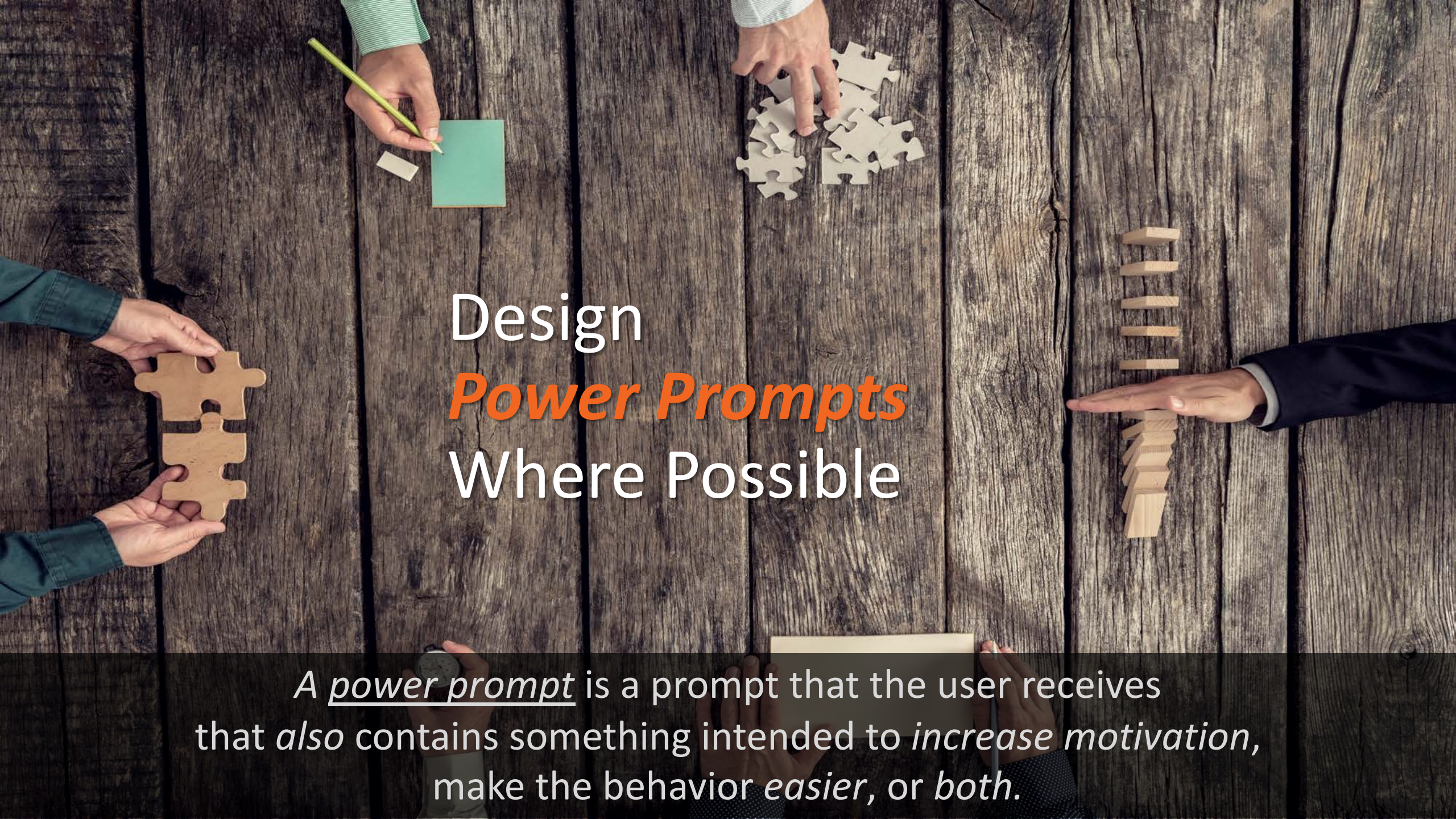



**Your password change portal is a great place to insert a nudge:**

- Strength Meters
- Videos on how to create & remember strong passwords
- Elective LMS modules
- etc.



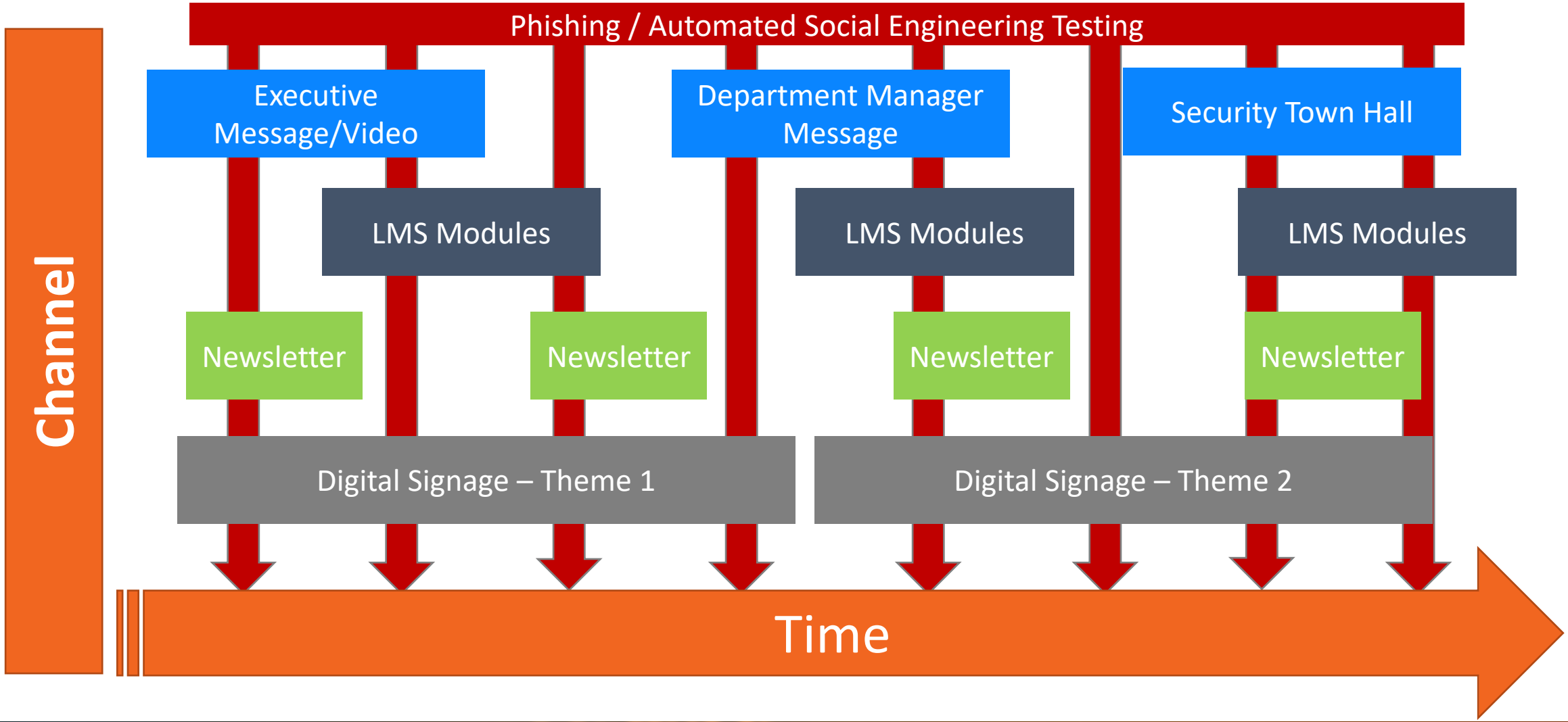
# Design *Power Prompts* Where Possible

*A power prompt* is a prompt that the user receives that *also* contains something intended to *increase motivation*, make the behavior *easier*, or *both*.

# Designing Behavior (A Security Example)

| Fogg Behavior Model Component | Description |
|---|---|
| **Behavior(B): What specific behavior do we want someone to do?** | Choose a good password |
| **Motivation(M): What types of things might motivate someone to perform the B?** | • They understand and appreciate the value of choosing a good password<br>• They feel empowered by choosing a good password<br>• They feel more secure by choosing a good password<br>• They are afraid that their current password has been (or might be) compromised due to its simplicity<br>• They feel pressure to create a better password because the organization is monitoring password strength |
| **Ability(A): What types of things must someone already be able to do or know to successfully perform the B?** | • The person has the required knowledge of how to construct a password that is both strong and memorable<br>• The person has tools that will help them construct a password that is both strong and memorable<br>• The person has tools that will choose a strong password and remember that password for them |
| **Prompts(P): What types of things can cue the B?** | • The person just feels like changing their password<br>• The person receives notification that it is time to change his/her password<br>• The person is locked-out of his/her account because they forgot their current password<br>• The organization issues a forced password reset<br>• The person receives a security tip that has advice on how to create and remember a good password<br>• The person forgot their current password and is about to perform a password reset<br>• The person receives a notification that his/her account was breached, and hackers may have accessed the password |

# Plan like a Marketer. Test like an Attacker.



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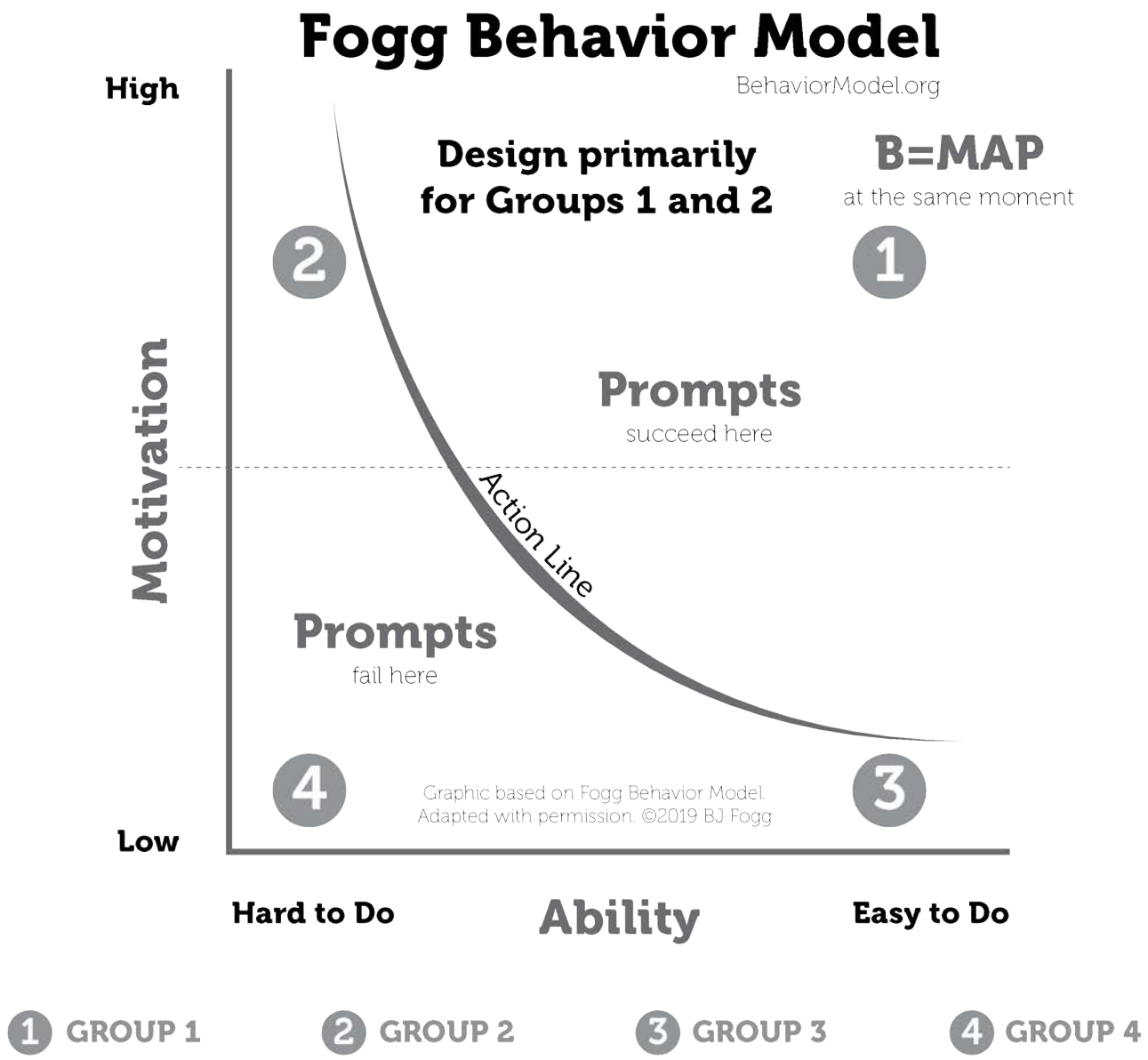
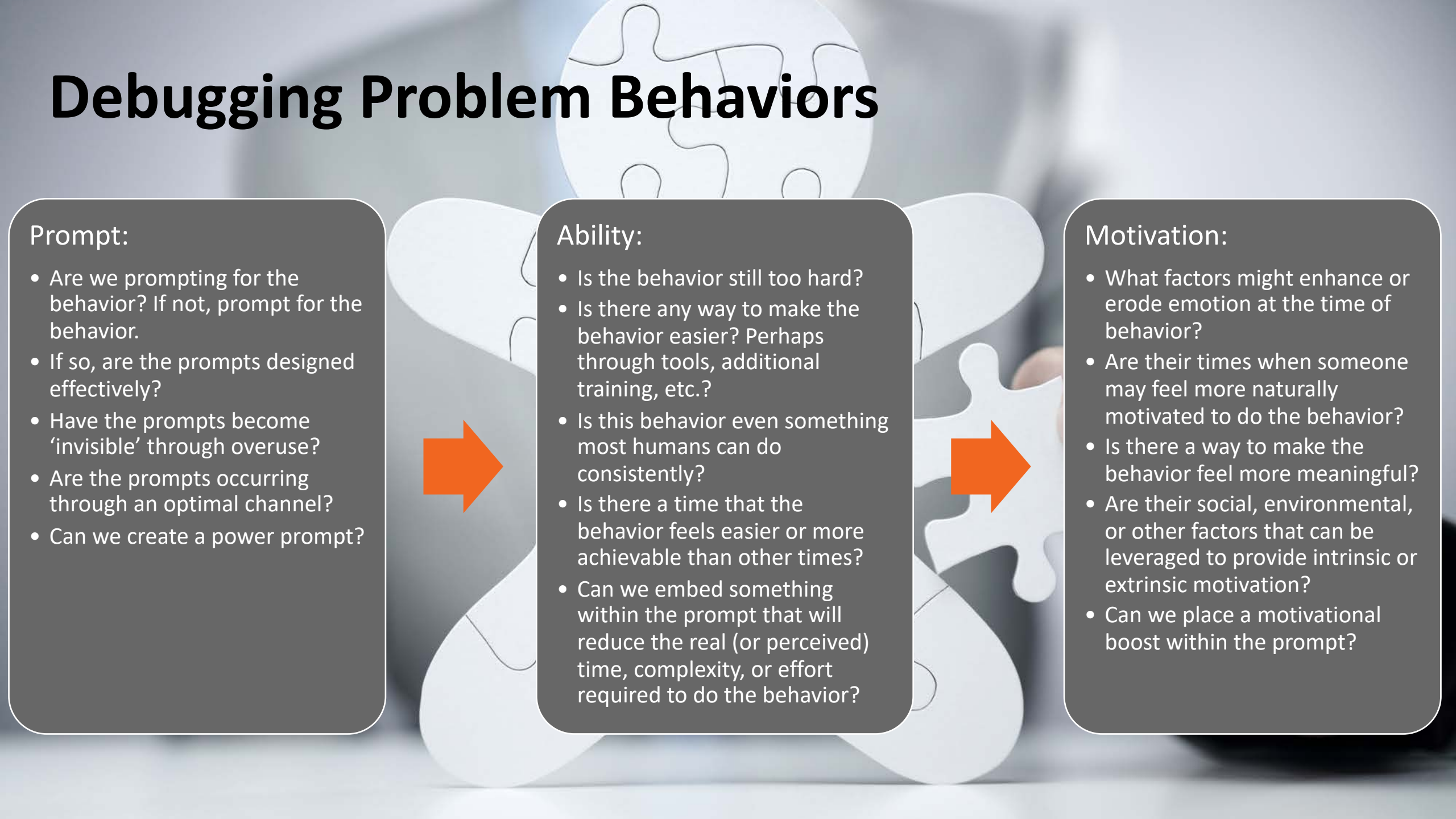
# Account for Behavioral Segments



# Debugging Problem Behaviors



## Prompt:

- Are we prompting for the behavior? If not, prompt for the behavior.
- If so, are the prompts designed effectively?
- Have the prompts become ‘invisible’ through overuse?
- Are the prompts occurring through an optimal channel?
- Can we create a power prompt?

## Ability:

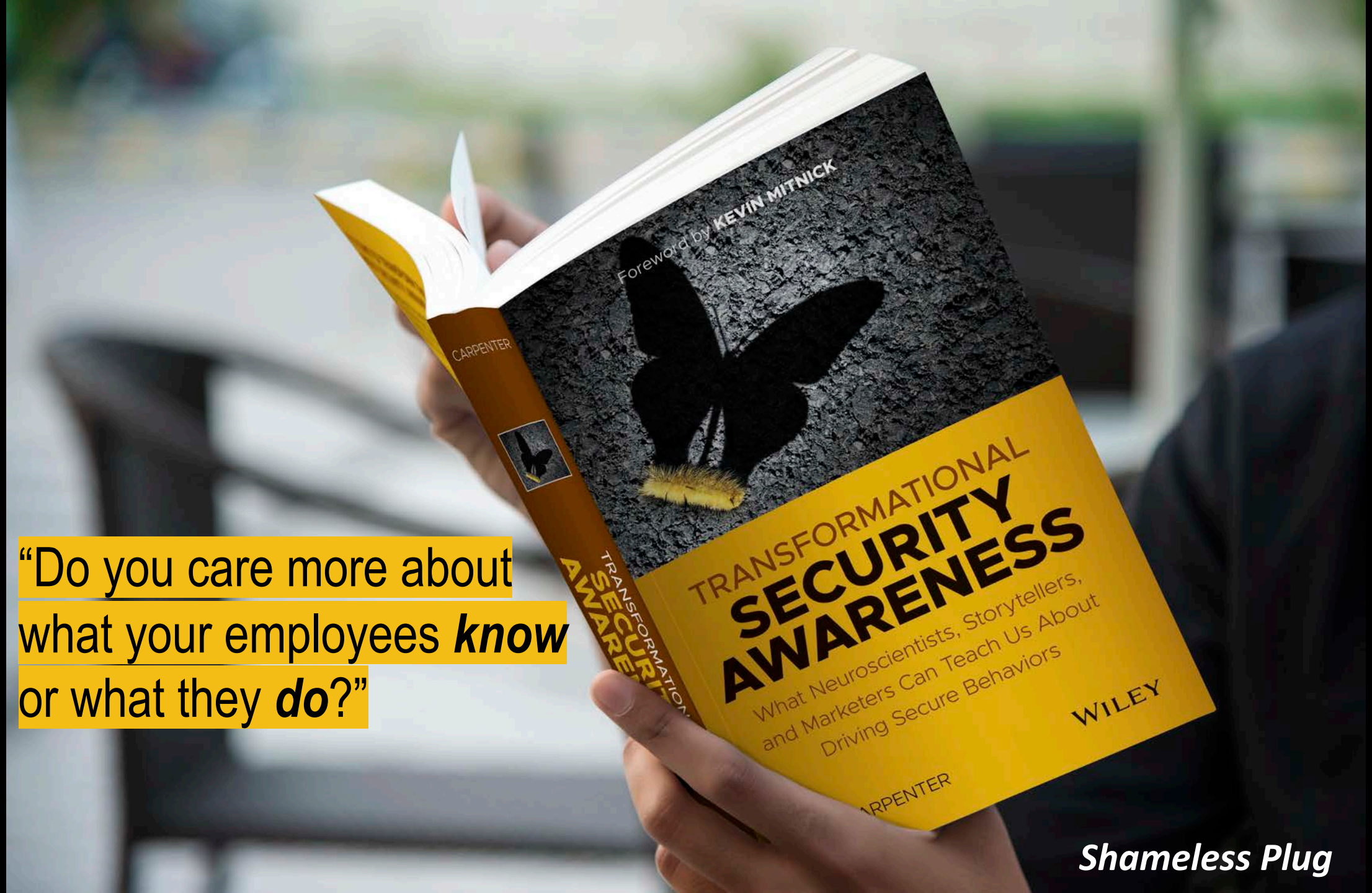
- Is the behavior still too hard?
- Is there any way to make the behavior easier? Perhaps through tools, additional training, etc.?
- Is this behavior even something most humans can do consistently?
- Is there a time that the behavior feels easier or more achievable than other times?
- Can we embed something within the prompt that will reduce the real (or perceived) time, complexity, or effort required to do the behavior?

## Motivation:

- What factors might enhance or erode emotion at the time of behavior?
- Are their times when someone may feel more naturally motivated to do the behavior?
- Is there a way to make the behavior feel more meaningful?
- Are their social, environmental, or other factors that can be leveraged to provide intrinsic or extrinsic motivation?
- Can we place a motivational boost within the prompt?


# Designing for the Larger Issue

*thinking about passwords*




"Do you care more about what your employees ***know*** or what they ***do***?"

***Shameless Plug***


# Thank You

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