



Behavioral PM  
&  
PROJECT  
SCIENCE

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# Purpose

## From Project Management to *Project Science*

- Projects are not just business endeavors
- Projects deliver dreams – huge scientific endeavors thought up by the greatest minds
- Accelerating the delivery of these human endeavors is accomplished through the science of the brain and evidence-based project methods



# Problem

## Little Science in Project Management

1. Current methods usually are not built on scientific testing – they are based on anecdote, opinion, and committee votes
2. Current methods are not designed around cognition – how the brain responds
3. Many methods are in conflict with a scientific approach, especially some of the heavy EVMS compliance measures



Currently, “we’re bringing management to science –  
this offers a way to bring science to management”

*~ Wayne Abba*



# Project Science, UNexplored

Google Scholar

2,020,000

PMBOK

2



○  
explore it...  
●





# As Scientists We Understand...

...the brain is central to our inventions and problem-solving. Project Management is a problem-solving discipline. Most every step we take relies on logic that occurs between our ears.

Project Management is a science of the brain.

Information  
comes in >

The brain  
processes it >

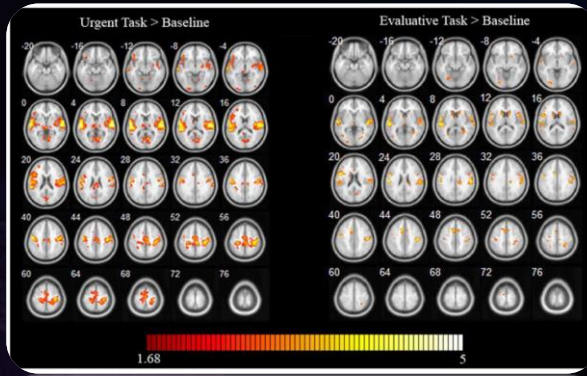
The brain makes a  
decision



# Design Project Management

## *Around the Brain*

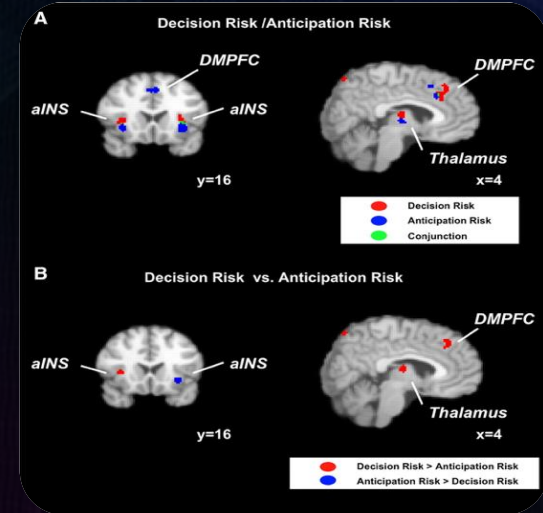




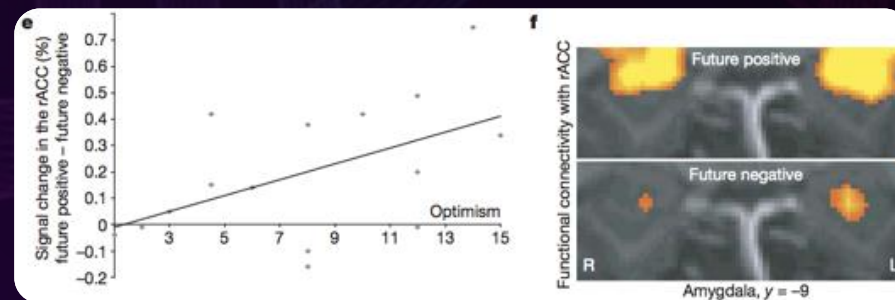
Megias, A., Navas, J. F., Petrova, D., Cándido, A., Maldonado, A., Garcia-Retamero, R., & Catena, A. (August 01, 2015). Neural mechanisms underlying urgent and evaluative behaviors: An fMRI study on the interaction of automatic and controlled processes. *Human Brain Mapping*, 36, 8, 2853-2864.

# The Brain – The Most Important Computer

- On time pressure
- On risk
- On prediction



Mohr, P. N., Biele, G., & Heekeren, H. R. (January 01, 2010). Neural processing of risk. *The Journal of Neuroscience : the Official Journal of the Society for Neuroscience*, 30, 19, 6613-9.

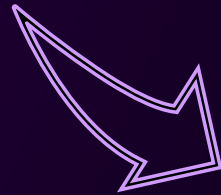


Sharot, T., Riccardi, A. M., Raio, C. M., & Phelps, E. A. (2007). Neural mechanisms mediating optimism bias. *Nature*, 450(7166), 102-5. <http://dx.doi.org/10.1038/nature06280>



# Behavioral and Neuroscience is the gateway to *Project Science*

Just like we study  
*artificial neural*  
*networks* (AI)



We can study *organic neural*  
*networks* (the brain) to test how  
humans can make better decisions  
in projects



# *Project Science* and EVMS

# Make it Easier

## Present State

- Endless methods used  
BECAUSE they don't know  
which one will work better

## Future State

- Narrow the methods down to  
the most effective ones  
through scientific testing



# Striking Balance

- Balance *insight* (via EVM) with *oversight*
- Insight gives the brain feedback for project improvements (Tetlock and Gardner, 2015)
- Oversight is QA on the mechanisms that should drive insight
- Oversight that drifts into what science shows as counterproductive to good decision-making, inhibits the quality of the insight



# Some EVMS in Conflict with Science

Earned Value as a principle is complementary to the scientific approach as performance feedback, but many EVMS compliance measures are in conflict

Planning Packages

Some Forecast Updates Restricted

Cognitive Load and Noise

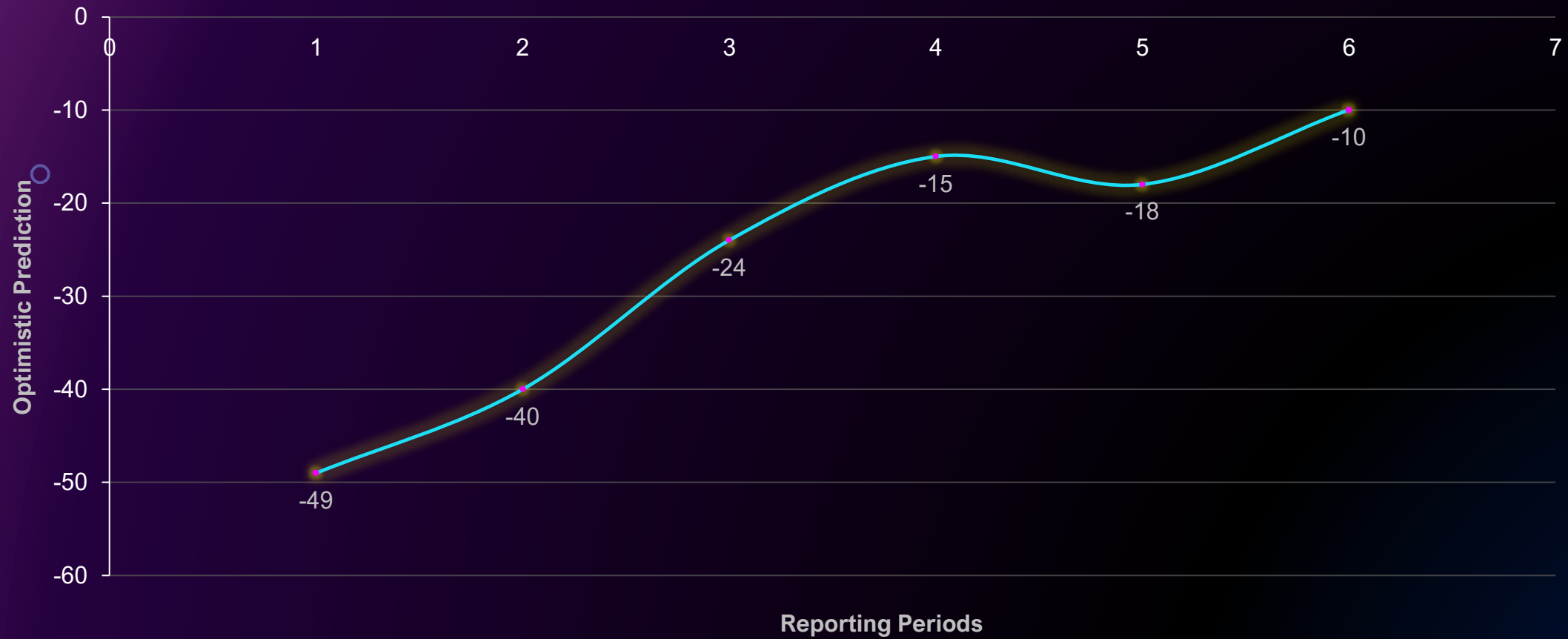


# *Project Science* Getting Results

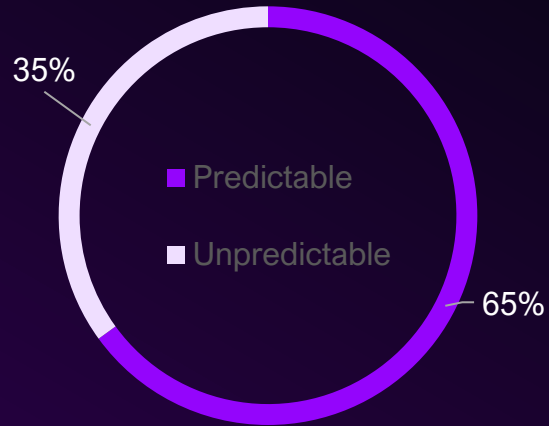
for *Science Projects*...



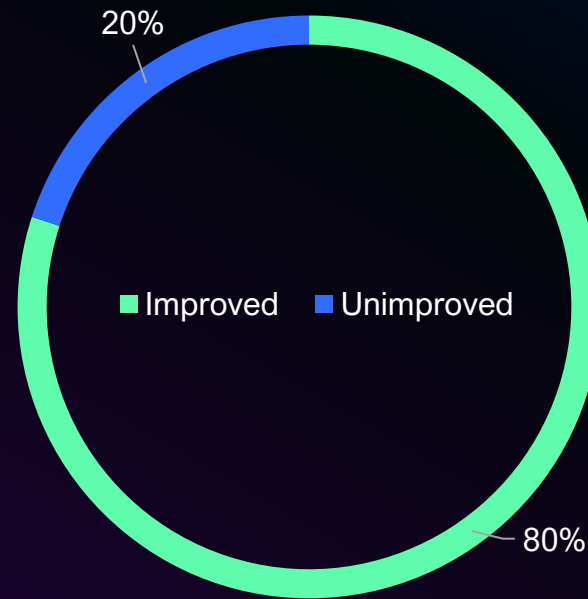
# Pilot Study on Planning Accuracy



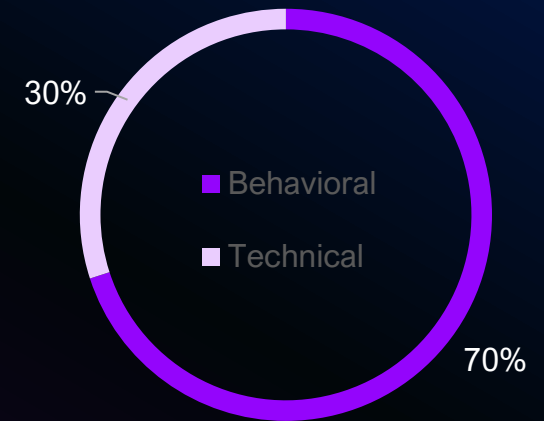
# The Data



65% of Delays May be Predictable



Pilot Studies Show Science Gets Results



The Brain Impacts More

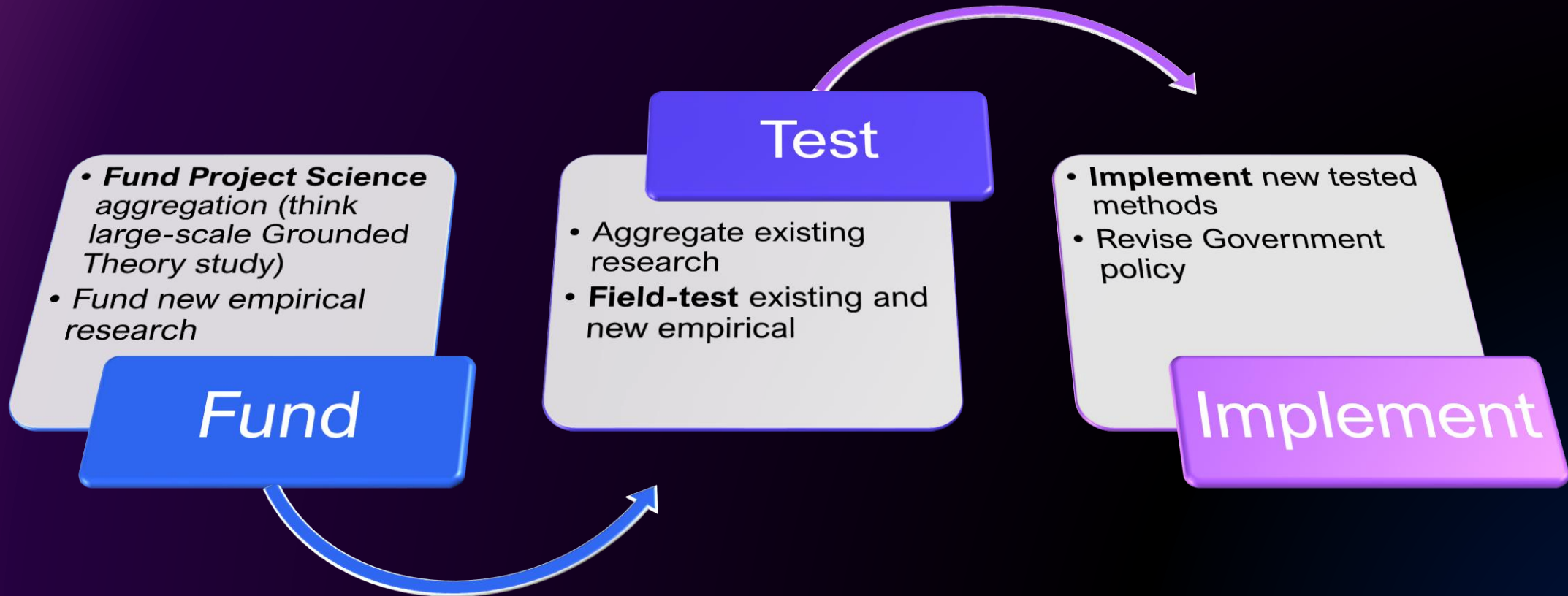


# Foundational Philosophy Change

1. Instead of spending decades going down the wrong path to “save time” at the beginning (wasting billions in inefficiency long-term), spend a little extra time upfront and **TEST methods before implementing** them.
2. \$3.7 trillion in the U.S. (inflation-adjusted) annual government budget is estimated to be spent on projects (Schwalbe, 2004). Of that, about **\$480 billion is project management/controls**, which represents between 9 and 15% of the total budget (Byrne, 1999).
3. Based on our pilot studies, the conservative extrapolation is a potential annual government savings of between \$233 and \$776 billion. That’s up to **\$776 billion more for science** and other projects that may have been rejected for lack of funding.
4. The next step will be **starting Project Science research**, which could be a mere 0.0015% of our annual project management budget, propelling us into the forefront of innovation.

Why wouldn't we use science instead of guesswork?

# The Future, Now – Our Next Steps



The framework is ready

Some science is ready for implementation *today*

**Behavioral PM Modalities Matrix**

|                           | <i>Designing Project Management Around the Brain</i> | <b>Operational Modes</b>                                                    |                                                                                                            |                                                                                         |                                                                                                                |
|---------------------------|------------------------------------------------------|-----------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|
|                           |                                                      | Processes                                                                   | Interfaces                                                                                                 | Metrics                                                                                 | Skills                                                                                                         |
| <b>Decision Modifiers</b> | Design                                               | Design cognitive error reduction into standard project management processes |                                                                                                            |                                                                                         |                                                                                                                |
|                           | Awareness                                            |                                                                             |                                                                                                            | Develop customized organizational assessments to determine which factors need improving | Develop awareness of cognitive errors, and skills to recognize and correct those errors during decision-making |
|                           | Visualization                                        |                                                                             | Emphasize visualization of decision-making data in software and other mediums to improve decision accuracy |                                                                                         |                                                                                                                |
|                           | Feedback                                             |                                                                             | Provide personal prediction feedback data through software interfaces                                      |                                                                                         |                                                                                                                |
|                           | Intention                                            |                                                                             |                                                                                                            |                                                                                         | Coach practitioners to reframe intentions to improve decisions                                                 |





There are risks and costs to action.

But they are far less than the long-range risks of comfortable inaction.

*- John F. Kennedy*



# Let's Connect





# With Thanks to:

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- Wayne Abba
- Matt Hawkins
- Dr. Jodi Wilson
- Dr. Shari DeBaets





# Q & A

## *The Science of Delivering Dreams*