

# How to Make Your PhD Work

## A Guide for Creating a Career in Science and Engineering

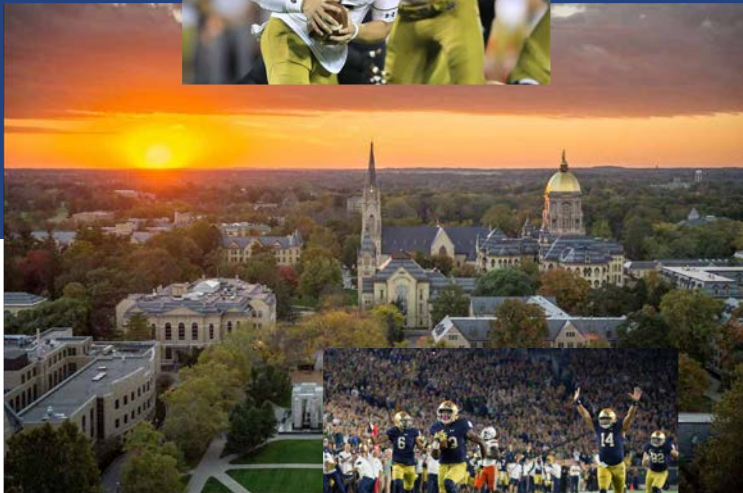


Thomas R Coughlin, PhD

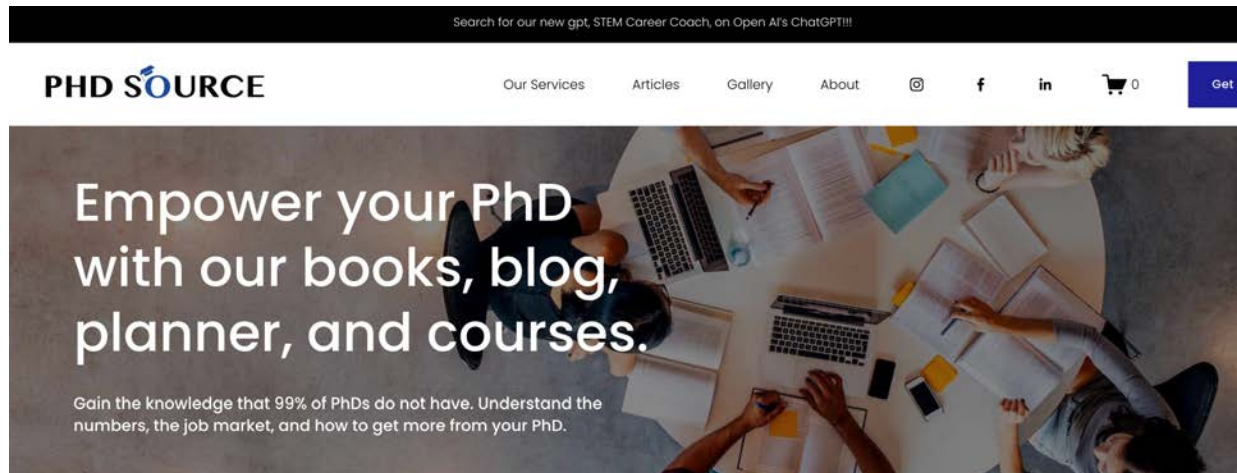
Rutgers University

January 31, 2024

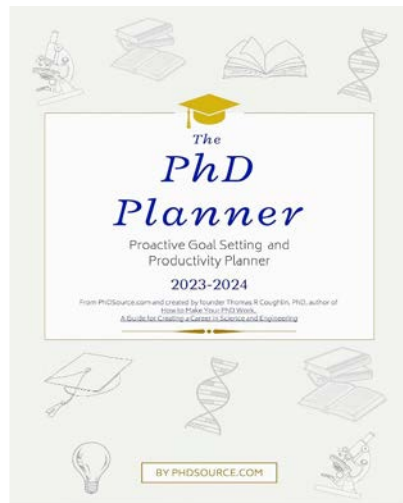
# About Me



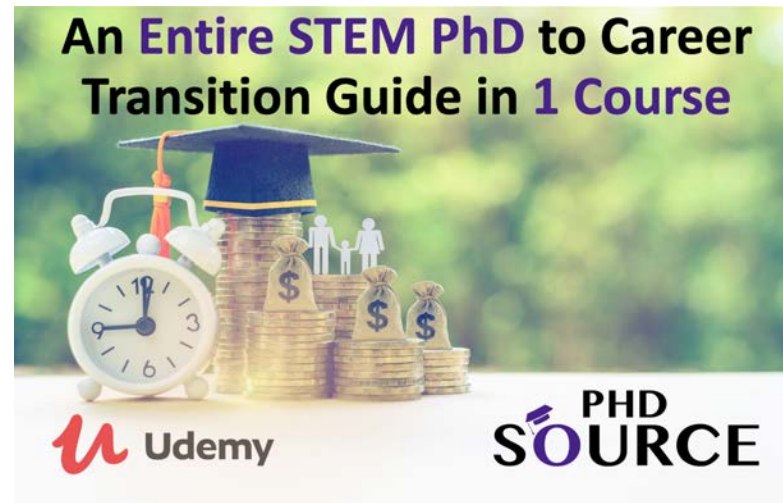
## Website + Articles + Free Stuff



### Planner



### Udemy Course



[www.PhDSource.com](http://www.PhDSource.com)

# How to Make Your PhD Work

A Guide for Creating a Career in Science and Engineering

Thomas R. Coughlin, PhD



WILEY



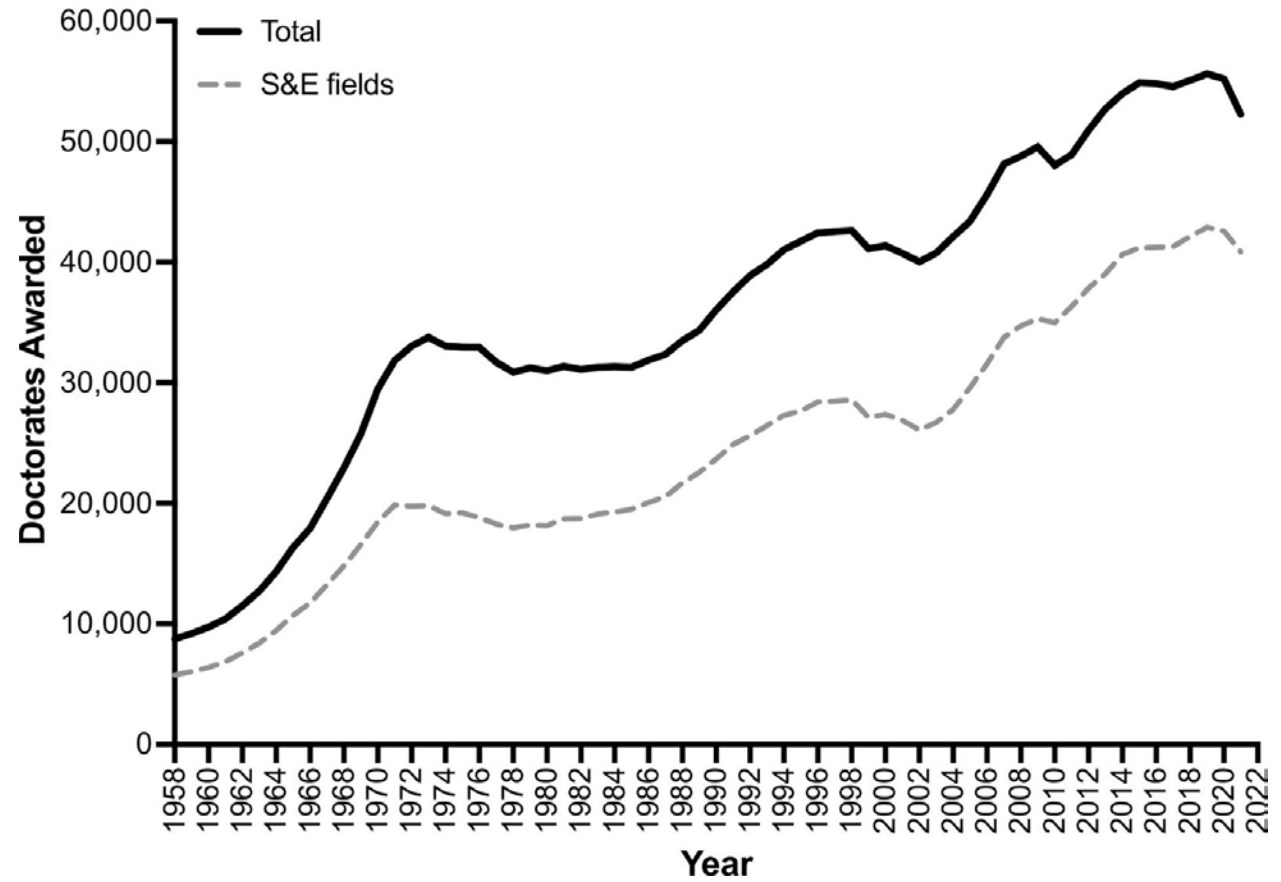
PART I  
You Are Here

**At the start of your PhD, what career were you thinking of doing after?**



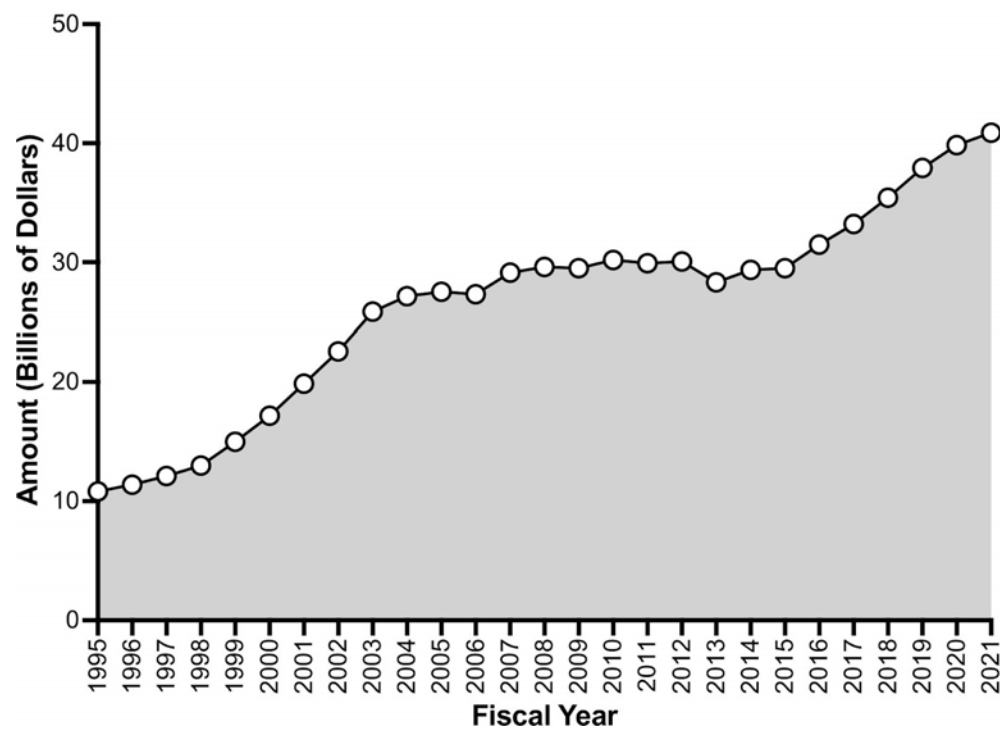


**Doctorates Awarded by U.S. Colleges and Universities  
(1958-2021)**

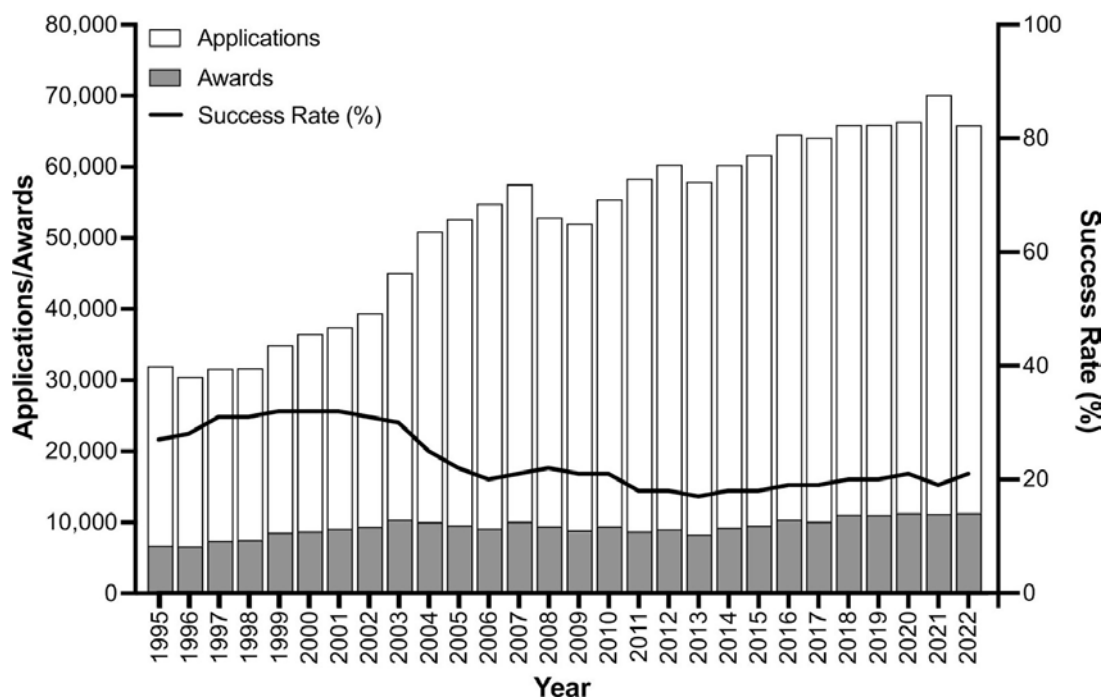


# Increasing Budget, But More Applications, Lower Funding Rate

NIH Budget



Research Project Grants:  
Competing Applications, Awards, and Success Rates



# Fewer Professor Postings



2000

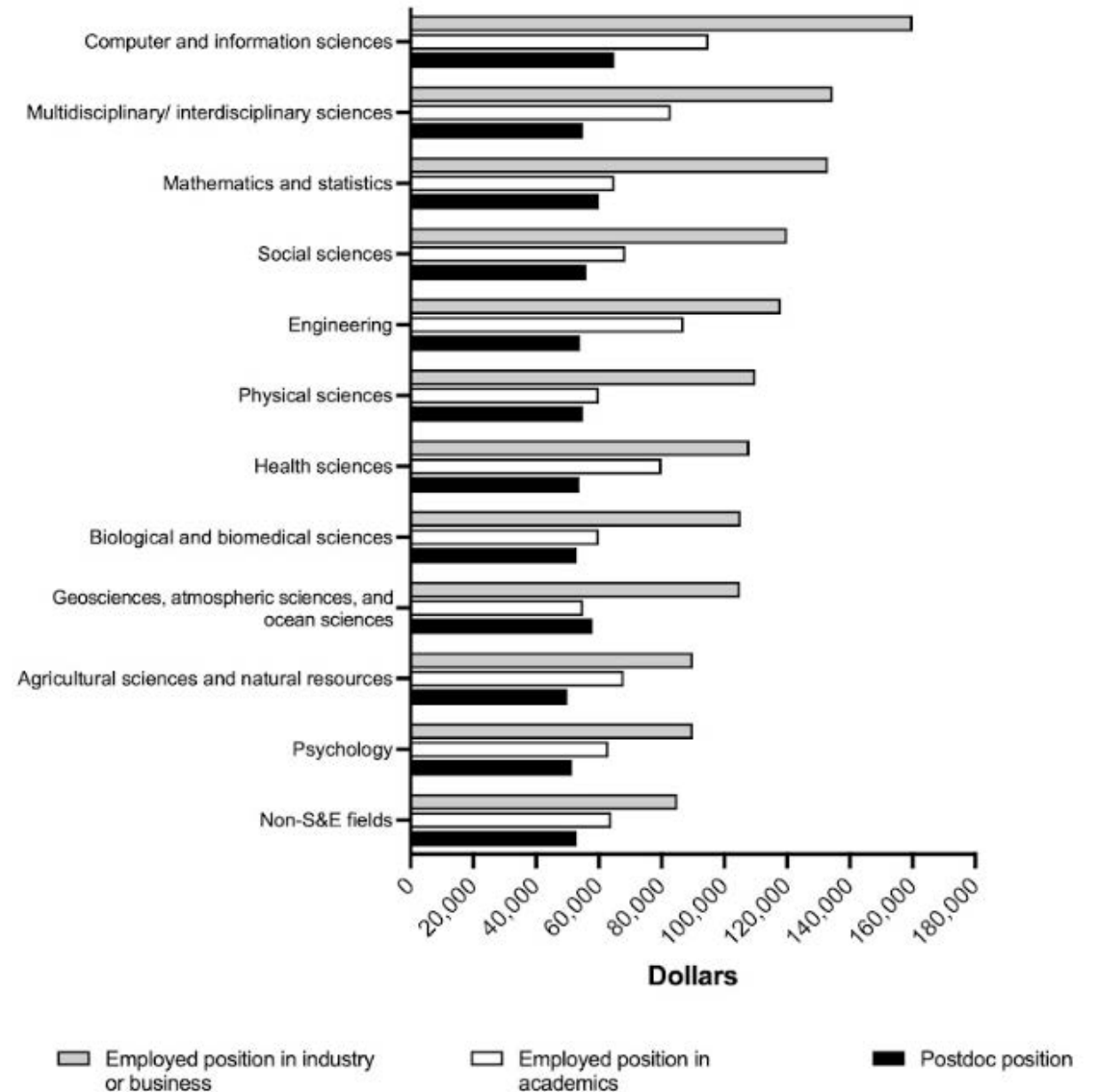


2021

**Where are PhDs getting jobs after their degree?**

# Where Are PhDs Going

**Median annual salary of doctorate recipients with definite commitments in the United States, by position type and broad field: 2021**





## PhD Careers

*I'd show you the way  
but this door's locks are  
different from when I  
went through it.*

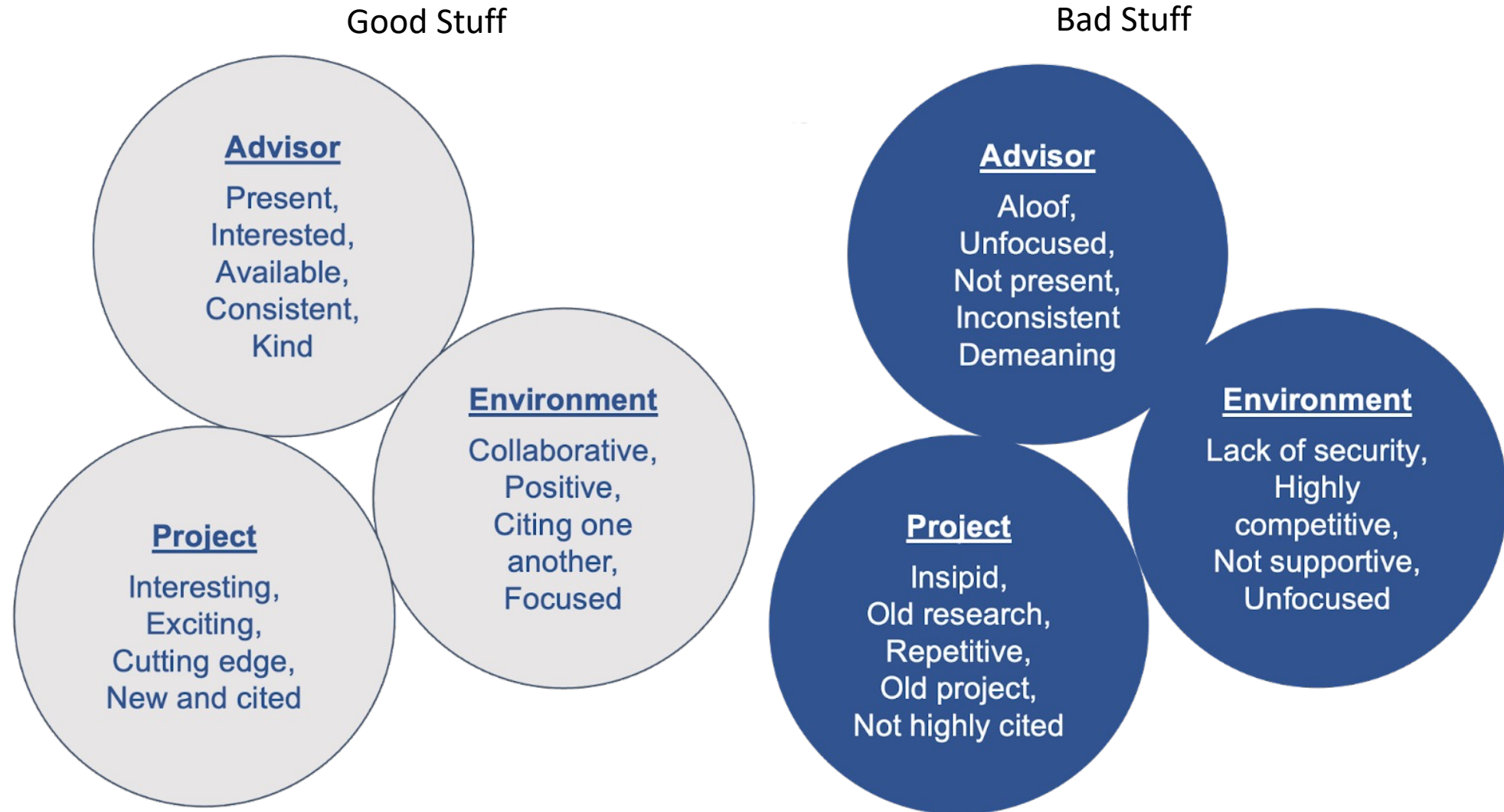


# Despite the odds of making it in academics, many PhDs persist

- So are you competitive for an academic position?

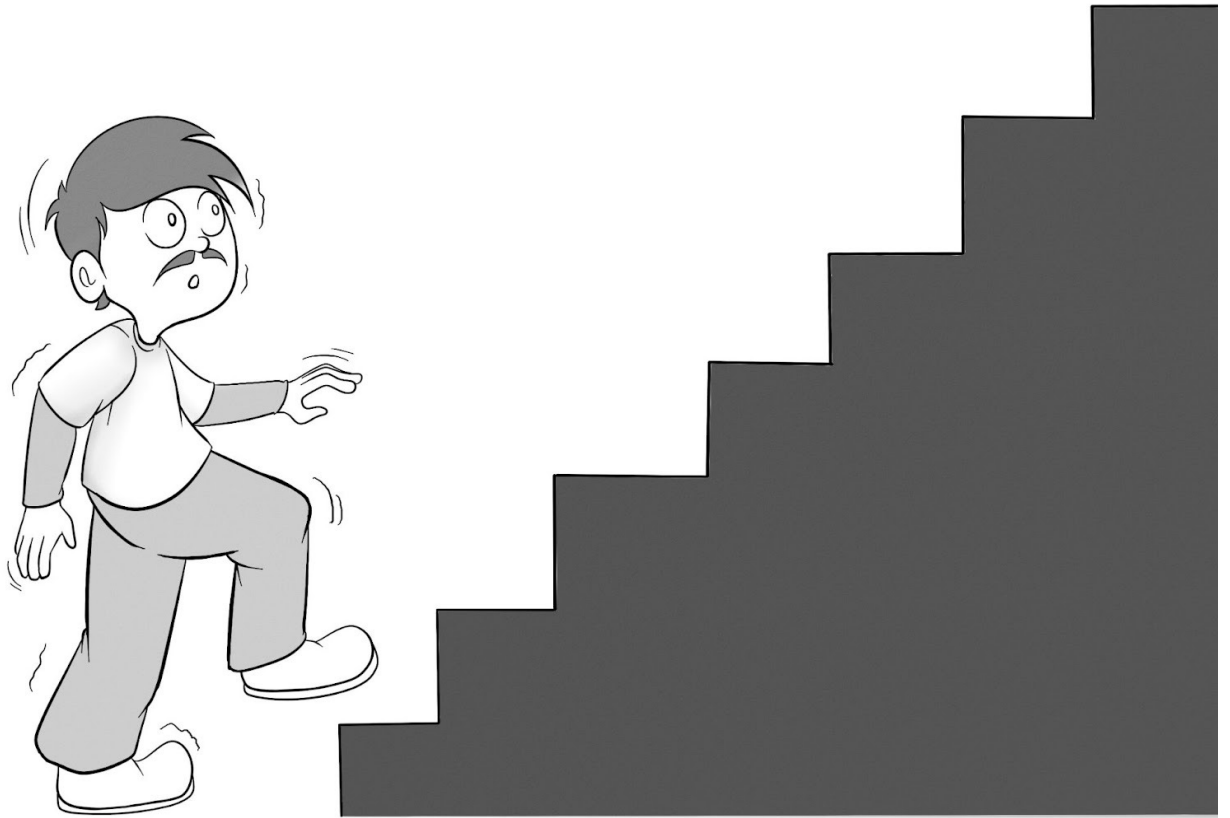


# You Cannot Build a Good PhD On A Bad Foundation



# Taking the First Step: Our PhD Diagnostics Test

- Advisors
- Project
- Environment



# PhD Career Assessment Loop





# PART II

## Your Academic Path

# So you want to be an academic?

- Improve your PhD experience
- Conduct a Postdoc
- Learn the Academic Careers

# Improve your PhD experience



# Conduct a Postdoc

Right Reasons for a Postdoc	Wrong Reasons for a Postdoc
<p><b>Bridging from PhD to academic job by:</b></p> <ul style="list-style-type: none"><li>•Defining your niche</li><li>•Leverage your PhD skills</li><li>•K99/R00 postdoctoral training grant</li></ul> <p><b>Moving from PhD to nonacademic job by:</b></p> <ul style="list-style-type: none"><li>•Training that has proven to lead to a career</li></ul>	<p><b>Utilizing a postdoc for:</b></p> <ul style="list-style-type: none"><li>•Gaining research skills</li><li>•Deciding what you want to do with your career</li><li>•Determine if academics is right for you</li><li>•Learning what you like</li></ul>

# Learn the Academic Careers

- **Teaching-intensive careers in academia**
  - A primarily teaching faculty position in a research university, liberal arts college, or community college.
- **Combined research and teaching careers:**
  - Faculty at a liberal arts college or university whose job includes both research and major teaching responsibilities.
- **Principal investigator in a research-intensive institution:**
  - Independent researcher at a medical school, private research institute, government lab, or university with minimal teaching responsibilities.
- **Research staff in a research-intensive institution:**
  - Staff scientist or researcher in academia or government, lab manager, director of a multi-user research facility in an academic institution.

## How to Transition

Teaching  
experience

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Might need postdoc

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Postdoc

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Apply direct

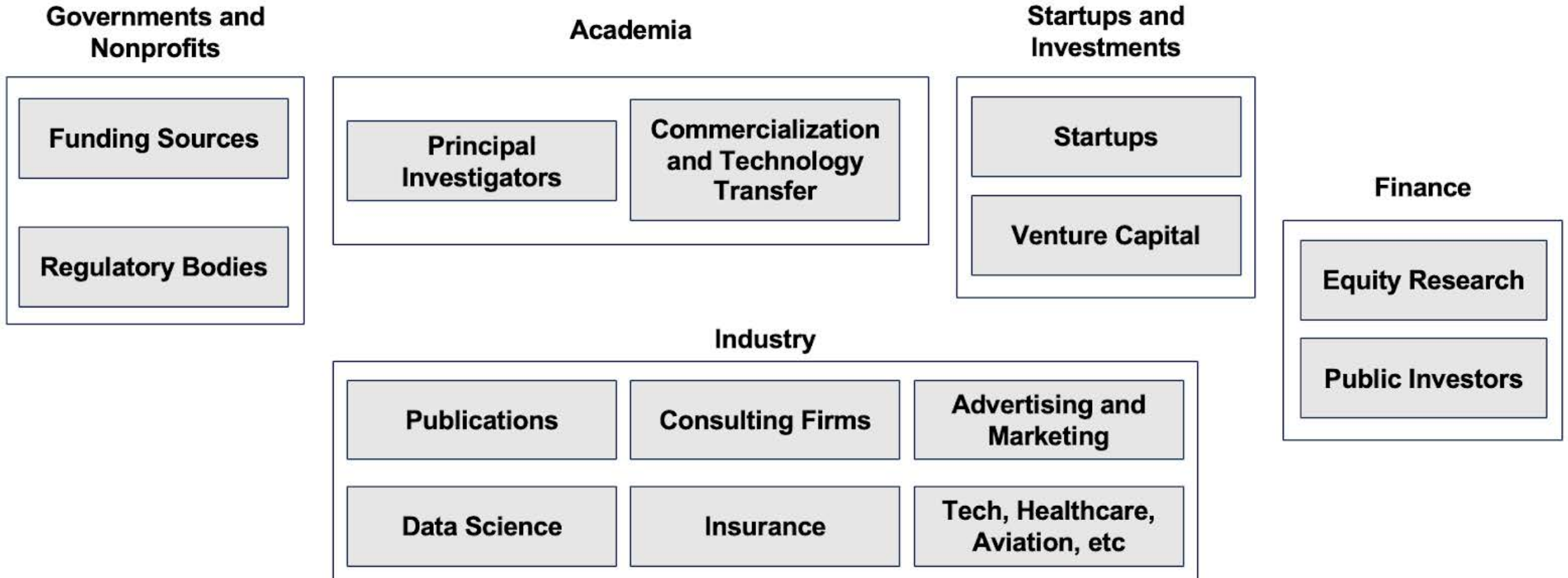


PART III  
Your Nonacademic Path

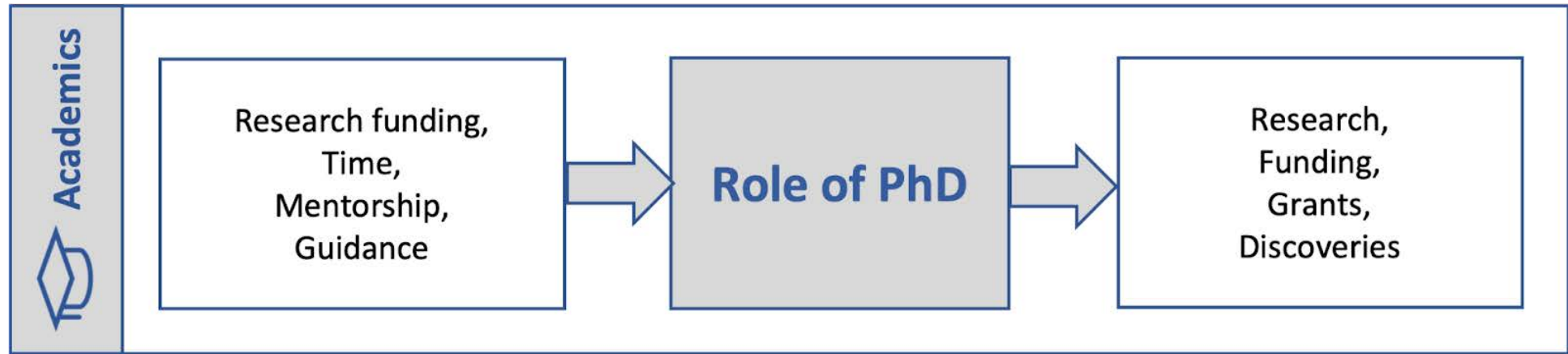


**Where are your peers and other graduates working?**

# Sectors where PhDs can work



# Industry: A Different Mindset



# Different Success Metrics

## Success Metrics of a Research Group or Company



# PhD Career Assessment Loop

*A continuous process...*



# 3 Questions to Ask Yourself

1. *What's motivating the next step? Is it stability? Working in a startup? Leaving the bench? Making money?*
2. *What are the talents that I will bring?*
3. *Do I want to work at the research bench?*

# What's Motivating Your Next Step

Criteria	Importance for Next Job		
<b>Fulfillment</b>	Low	Medium	High
<b>Career growth</b>	Low	Medium	High
<b>Wealth</b>	Low	Medium	High
<b>Work/Life balance</b>	Low	Medium	High

# Explore Your Top 5 Careers

- ***Job Analysis One.*** *Job Title / Career Direction:* \_\_\_\_\_
- *Does it meet my need for what is motivating my next step?*
- *What type of work does the job do? (pharma, government, venture research, etc)*
- *My transferable skills that I would use?*
- *Subjects in this area that are new to me?*
- *Subjects I find interesting?*
- *Informational gathering?*
- *What is the day-to-day?*
- *Do you work on teams?*
- *Is it remote or office or lab-based?*
- *Does it have a career trajectory? (yes/no)*
- *What are the hours?*
- *Most appealing part about the job?*
- *Least appealing part about the job?*

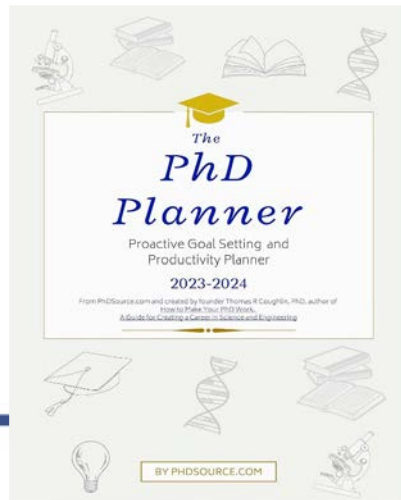




PART IV  
Today's PhD:  
The Proactive PhD

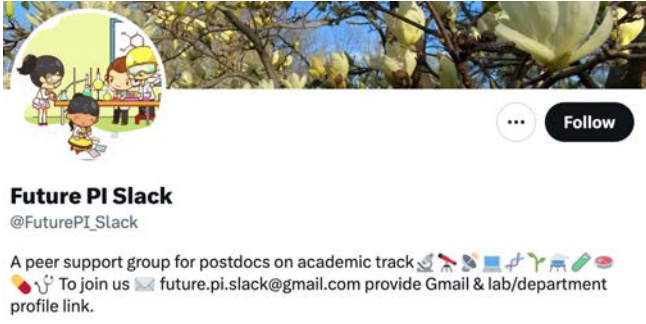
# The Difference a Plan Makes

No Plan



Time

# Pay it Forward: PhDs Are More Than Willing to Help



**RUTGERS  
AAUP-AFT**

American Association of University Professors  
American Federation of Teachers • AFL-CIO



**PHD SOURCE**



**STEMPEERS**