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Phase AI

Planning Your Path: How To Become a Leader in Data & AI

March 2024

Today's Agenda

- 1 Introduction
- 2 Planning for 2024
- 3 Long-Term Planning for AI/ML Careers
- 4 Frameworks and Strategies
- 5 Pivoting
- 6 Panel Discussion

Introduction

Hello, I'm Wojciech (w@phaseai.com)

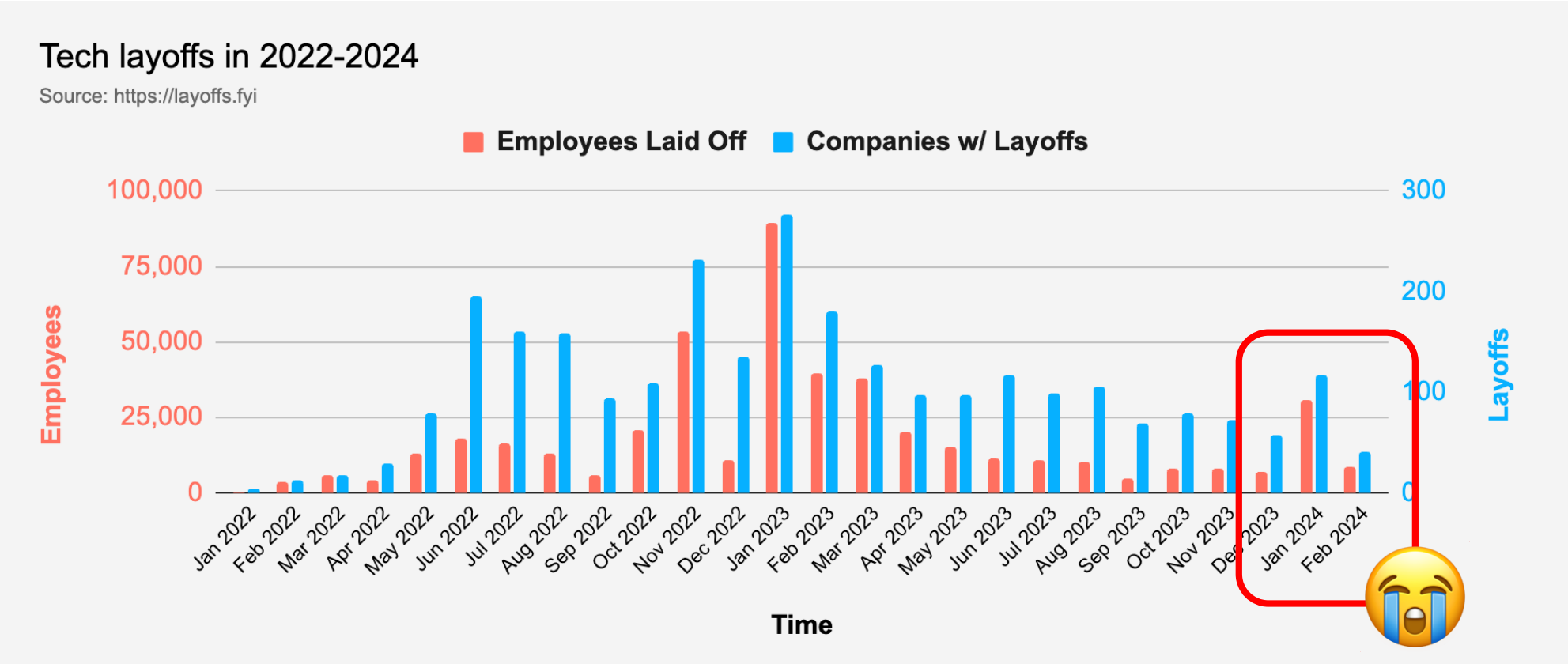


Q&A

How do you feel about the job market today?

Planning for 2024

Layoffs and fears are persistent



Sources

[1] <https://layoffs.fyi/>

... but there is good news!



“The agency’s survey found employment rose in professional, scientific and technical services, after little change the previous three months, and also increase in health care and social assistance, but jobs fell in wholesale and retail trade for a third consecutive month.”

ECONOMY | CENTRAL BANKING

Canada Unemployment Rate Steadies at 5.8% in December

By [Robb M. Stewart](#) [Follow](#)

Jan. 5, 2024 9:38 am ET

[Share](#) [Bookmark](#) [AA](#) [Resize](#) | [Gift unlocked article](#) | [Listen](#) (4 min) [More](#)

Sources

[1] <https://www.wsj.com/economy/central-banking/canada-unemployment-rate-stadies-at-5-8-in-december-12562905>

Why are companies hiring and laying people off at the same time?

- Reskilling and repurposing employees for the AI-powered future
- Example: sales/marketing team layoffs while AI-focused hiring still taking place



Case in point...



AI and jobs [+ Add to myFT](#)

Tech companies axe 34,000 jobs since start of year in pivot to AI

Microsoft, eBay and PayPal have each cut thousands of jobs since the start of the year



Companies are reshuffling resources to invest in new areas such as generative AI while also showing shareholders a focus on cost discipline © FT montage/Getty Images

Sources

[1] <https://www.ft.com/content/9bace2e9-3ecb-4651-a6c0-b16f0226c0e0>

Trends starting today, that will last into 2030+

- “AI” skills are permeating existing job postings; emphasize your flexibility and broader skillsets
- Concerns and challenges with productization of AI systems
- AI transformations
- AI policy, guidance, regulatory fears
- Very few companies are actually building GenAI models from scratch

Sources

[1] <https://www.bnnbloomberg.ca/ai-skills-in-demand-as-companies-develop-2024-hiring-plans-for-canada-1.2020155>

[2] <https://www.oecd-ilibrary.org/sites/f2d118bd-en/index.html?itemId=/content/component/f2d118bd-en>

Avoid AI demos where you simply use GenAI APIs



Avoid skill spam; focus on unique skills and expertise



Some advice from 1:1s

- Canadian versus international experience
- 1 or 2 pages? Resume flow?
Prioritize your story
- Consistently build your network
(e.g., 2 people per working day)



Remember...

- Work on your personal brand
- Find your niche
- Use AI for coaching feedback

Getting Ahead and Staying Ahead

<https://www.youtube.com/watch?v=KkVB8ZjSOVI>



Q&A

What are your top questions and concerns?

Long-Term Planning for AI/ML Careers

An aerial photograph of a dirt road that winds through a dense, green forest. The road starts from the left, curves to the right, then loops back to the left, and finally curves to the right again. The forest is thick with various shades of green, and the road is a light brown color. The overall scene is serene and natural.

Let's start with your goals,
a few years out

1 I know exactly

2 I'm not sure...

Poll Question (Answers)

Do you have a POV on where you want to be in 5+ years?

It's OK not to know;
and it's OK for plans to change

Let's look at four career paths



Cathy

Head of ML for a fintech unicorn



Bob

Data Science Manager at a FAANG



Shirley

VP of Data Science at a consumer tech company



Mike

Chief Analytics Officer at a pharma company

Cathy

Head of ML for a
fintech unicorn



Start

- PhD in Physics
- Cofounder / CTO at a startup
- Joined a fintech startup, moved from data science to engineering management

A Fork in the Road

- Stay in management role in engineering? Or focus on data science?

Today

- Back in data science (and ML), managing smaller team at a much larger company

Bob

Data Science Manager
at a FAANG



Start

- Undergrad in Commerce
- Business, Data Analyst roles at Media Co.
- Data Scientist and Manager at Tech Startup

A Fork in the Road

- Continue with startups? Take a title “downgrade” to work at a FAANG?

Today

- Data Science Manager at a FAANG

Shirley

VP of Data Science at
a consumer tech
company



Start

- Undergrad in Economics
- Analyst at a small consulting firm
- Analyst at a cybersecurity company
- Analyst at a large bank

} ~12 months each

A Fork in the Road (#1)

- Do I get a Master's degree? (yes, in statistics)

A Fork in the Road (#2)

- Do I focus on business ops or stats? (ops)

Today-ish

- 4 roles in ops, focusing on customer data
- VP of Data Science at Huge Consumer Products Co.

Mike

Chief Analytics Officer
at a pharma company



Start

- PhD in Computer Science
- Consultant and Team Lead (at consultancy)

A Fork in the Road

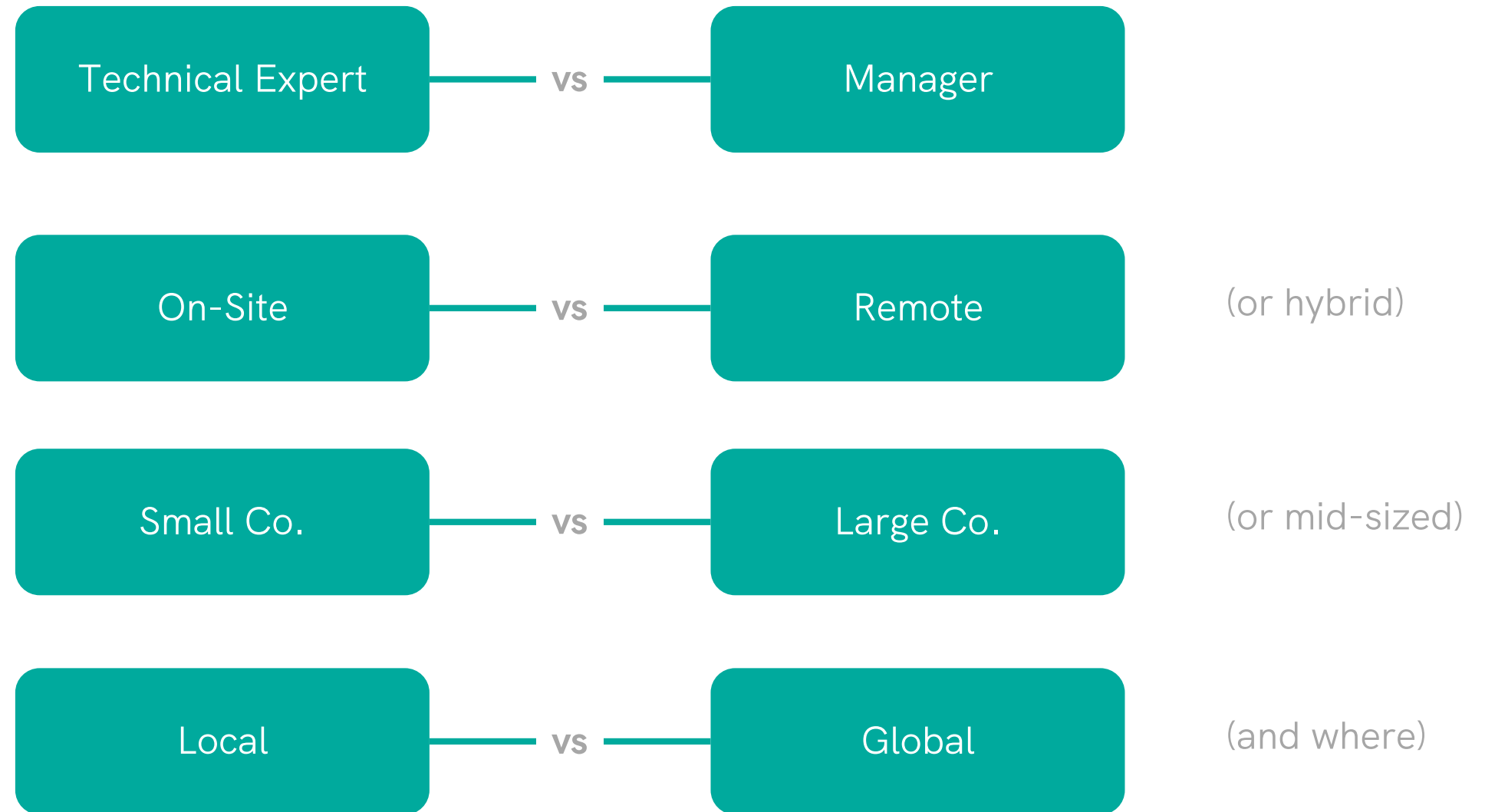
- Stay in consulting? Move client-side?

Then...

- VP, Behavioral Analytics in Real Estate
- VP, Marketing Analytics in CPG
- VP, Customer Data in Tech
- Chief Analytics Officer in Pharma

One Foot In,
One Foot Out

So, what are the options to consider?



Technical Expert vs Manager paths

Technical Expert

vs

Manager

The Story

I'm very good at technical problems, architecture, and design. I want to double down on these skills.

I enjoy the challenges of coordinating lots of different people, ideas, opinions, and plans.

Starting Points

Analyst, engineer, developer, etc.
You'll start in a technical role and you'll stay in one.

Analyst, engineer, developer, etc.
Can also start in more generalist roles.

Skills

Architecture, systems design, deep focus on specific technology, technical speed, mentorship.

Architecture, systems design, planning, coordinating stakeholders, communication.

Qualities

Likes to focus on the details of specific problems. Focusing on optimization.

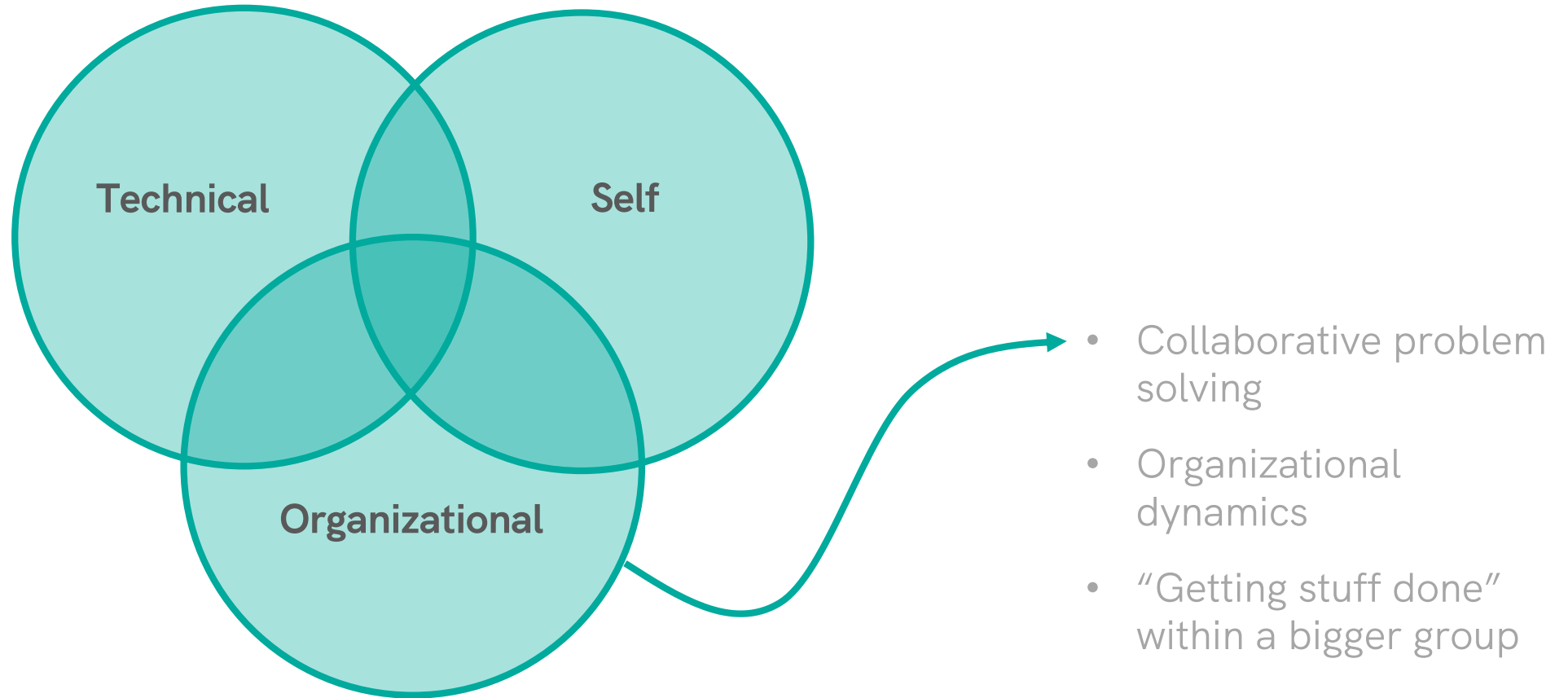
Enjoys coordinating and spending time with people. Shipping business results.

How to Progress

Go deeper on technical problems. Take bigger R&D risks.

Start by mentoring, then facilitating, then managing. Take bigger risks around coordination.

The role of "Organizational Competence"



Sources

[1] <https://thelsweekly.substack.com/p/pillars-of-career-success>

[2] <https://www.lennyspodcast.com/the-essence-of-product-management-christian-idiodi-svpg/>

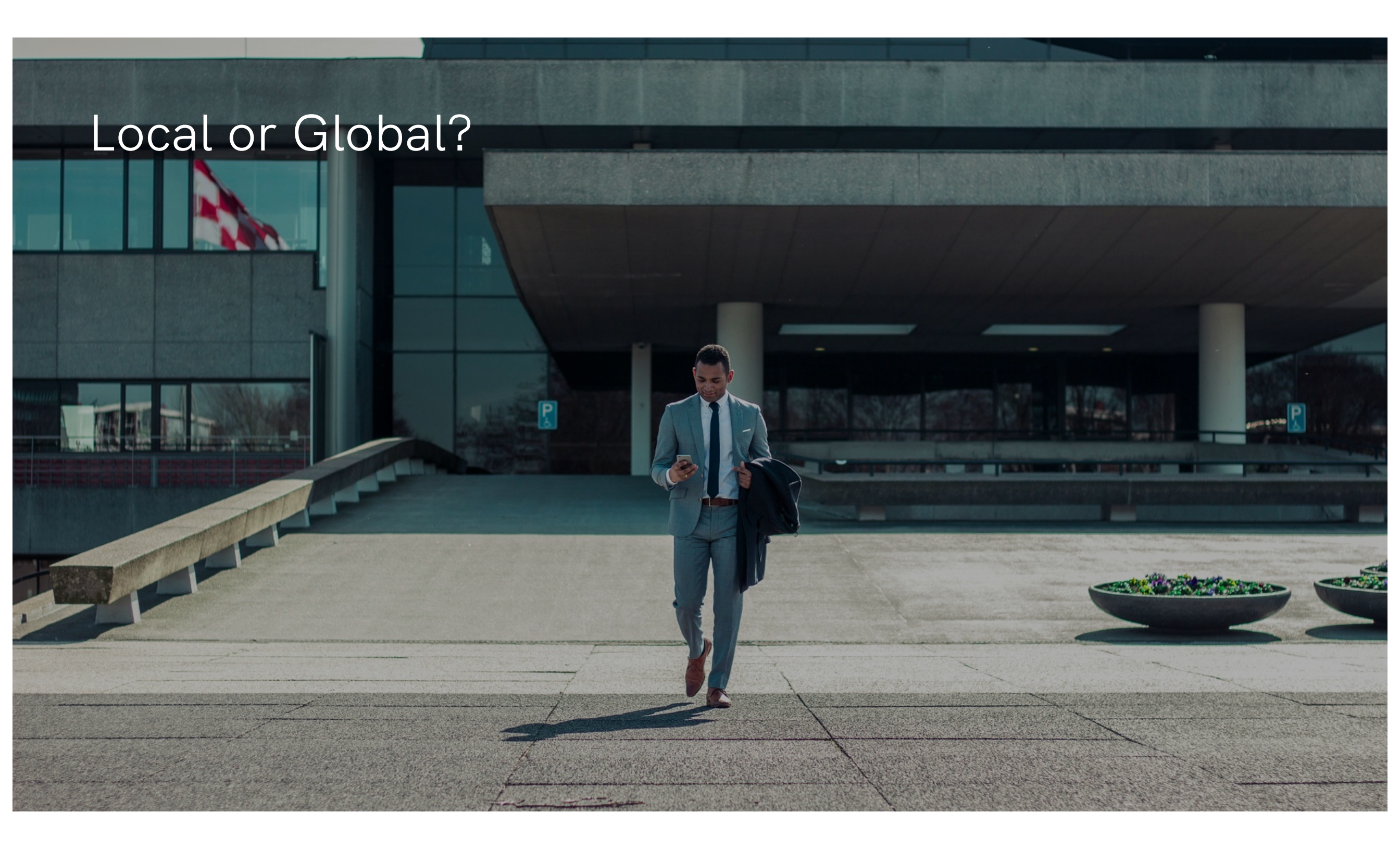
On-Site or Remote?



Small or Big Co?



Local or Global?



10 years out, let's look at 4 options



- Master's Degree, Comp Sci
- First job: analyst for a product-led division at BigCo

Staff Data Scientist, Product

- Experience with R, Python, Julia, etc.
- Ability to own end-to-end projects
- Speaking and presenting on analytics

Head of Analytics, Product

- Lead teams to ensure project delivery
- Oversee measurement and data strategy
- Requirements gathering and scoping

Director of (Product) Engineering

- Experience managing a team
- Experience shipping product and code
- Systems design, architecture

Lead Solutions Consultant

- Experience with customer problems
- Enjoy architecting solutions
- Facilitation across teams (not managing)



Shirley

VP of Data Science at
a consumer tech
company



Start

- Undergrad in Economics
- Analyst at a small consulting firm
- Analyst at a cybersecurity company
- Analyst at a large bank

A Fork in the Road (#1)

- Do I get a Master's degree? (yes, in statistics)

A Fork in the Road (#2)

- Do I focus on business ops or stats? (ops)

Today-ish

- 4 roles in ops, focusing on customer data
- VP of Data Science at Huge Consumer Products Co.

Exploring
Roles

Leadership qualities to work on in AI/ML

- (Technical) Architecture
- Facilitating technical problem solving
- Communicating (e.g., simplifying concepts)
- Strategy (e.g., R&D risk)



What to do to explore

- “Step Up Roles” in your current job
- Networking
- Keep looking for jobs (and interviewing), even if you’re employed
- Volunteering



Volunteering

- Open source projects (GitHub, LLMs, etc.)
- Non-profit technical strategy, committees, groups
- Organize meetups
- Summer projects (e.g., Aya, Bloom)



Volunteering on LLMs

- Bloom
<https://huggingface.co/bigscience/bloom>
- Aya
<https://cohere.com/research/aya>
- SEA-LION
<https://aisingapore.org/aiproducts/sea-lion/>



Volunteering on OSS

- LangChain
<https://github.com/langchain-ai/langchain>
- OpenAI Evals
<https://github.com/openai/evals>
- LMQL
<https://github.com/eth-sri/lmql>
- ... and many more
<https://github.com/topics/llm>



Volunteering locally

- Many non-profits struggle with building technology committees
- Helping with coding, website design, etc.
- Focus on collaborative problem solving and shipping real products/services



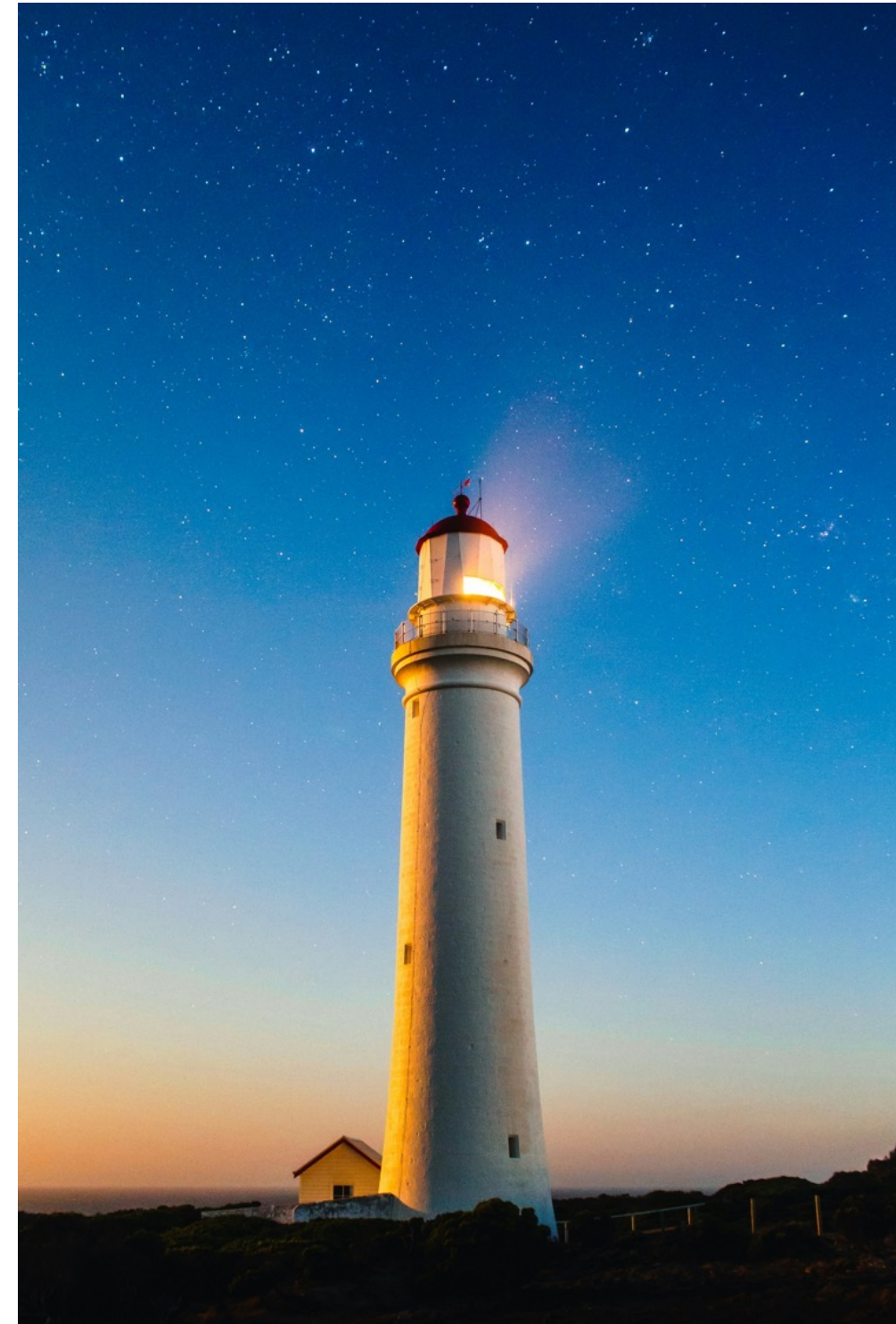
Q&A

Frameworks and Strategies

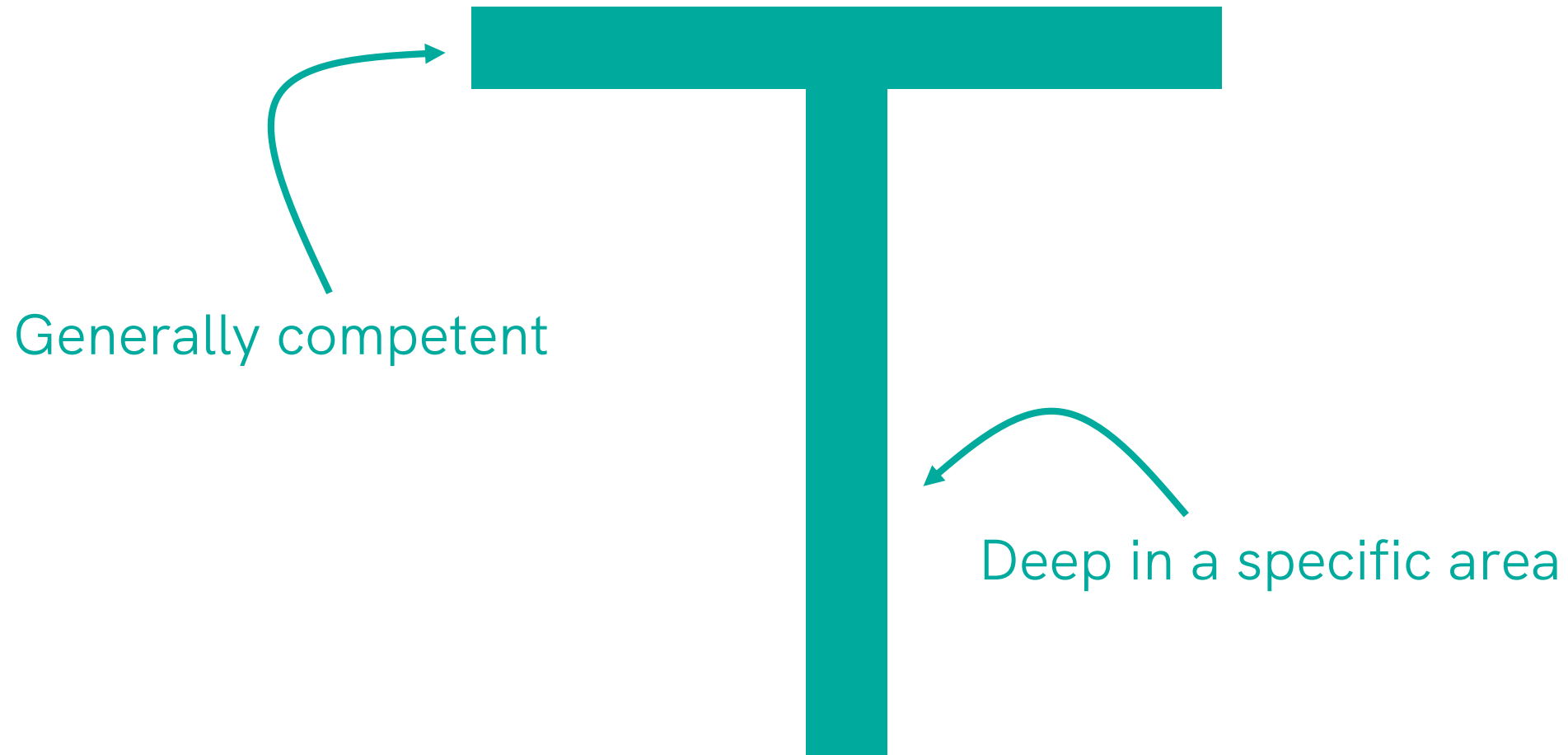
You've got a vision for yourself; let's strategize!

...and execute!

- T-Shaped People
- SWOT Analysis
- One Foot In, One Foot Out

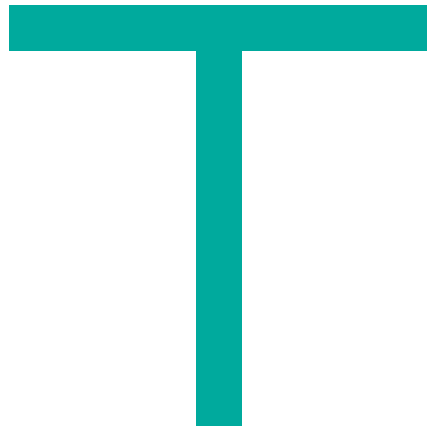


Frame yourself as a T-Shaped AI/ML expert



Frame yourself as a T-Shaped AI/ML expert

Technical Expert



Deep in a subject area: reinforcement learning, data set design for GenAI, applications of AI to genomics

Broad expertise: communication, project management, devops/MLOps, architecture, organizational competence

Manager



Deep in a subject area: managing teams of PhD-level researchers, product management for voice applications, program management

Broad expertise: communication, project management, devops/MLOps, architecture, organizational competence

Run a regular SWOT Analysis

What am I good at?
The skills you're proudest of, that set you apart, and that others acknowledge

Strengths

Weaknesses

What am I not good at?
Doesn't mean I need to improve. What do I avoid, struggle with, etc.?

What does the world need?
What are the problems I solve, the skills in demand, and general trends in the workplace?

Opportunities

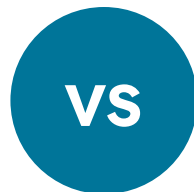
Threats

What do I need to address?
Do I need to learn new skills? Is my company changing? How do I evolve?

SWOT Analysis: revisiting our various job titles

Staff Data Scientist, Product

- Experience with R, Python, Julia, etc.
- Ability to own end-to-end projects
- Speaking and presenting on analytics



Lead Solutions Consultant

- Experience with customer problems
- Enjoy architecting solutions
- Facilitation across teams (not managing)

Strengths

Weaknesses

Opportunities

Threats

One Foot In, One Foot Out

What I'm
Good At

- AI Research

- AI Research
- Software Dev

- AI Research
- Software Dev
- Requirements

- AI Research
- Software Dev
- Requirements
- Product Dev

What I'm
Exploring

- Software Dev

- Requirements

- Product Dev

- Managing
People



Mike

Chief Analytics Officer
at a pharma company



Start

- PhD in Computer Science
- Consultant and Team Lead (at consultancy)

Exploring
New Skills

A Fork in the Road

- Stay in consulting? Move client-side?

Then...

- VP, Behavioral Analytics in Real Estate
- VP, Marketing Analytics in CPG
- VP, Customer Data in Tech
- Chief Analytics Officer in Pharma

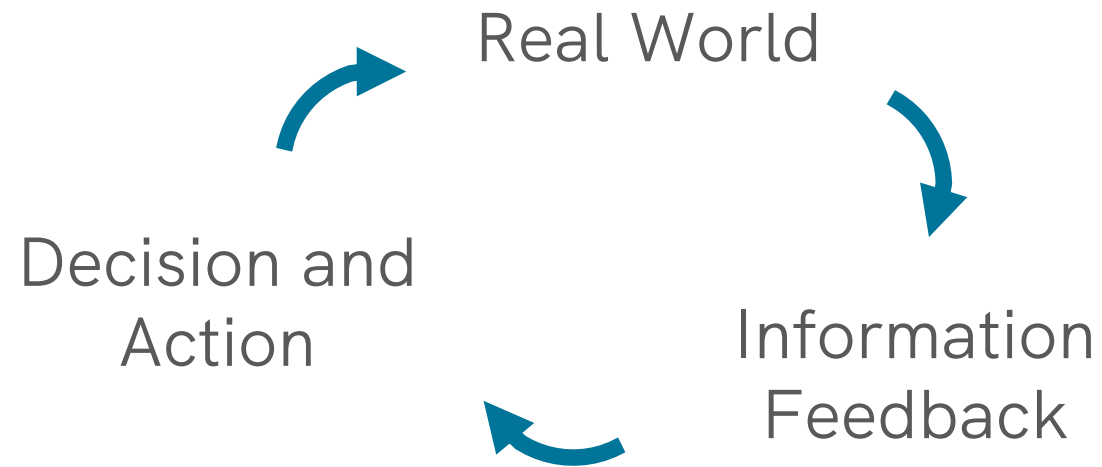
Exploring New
Industries

What to do within your job

- Double Loop Learning
- The Magic Loop
- The GROW Model
- Good Strategy, Bad Strategy



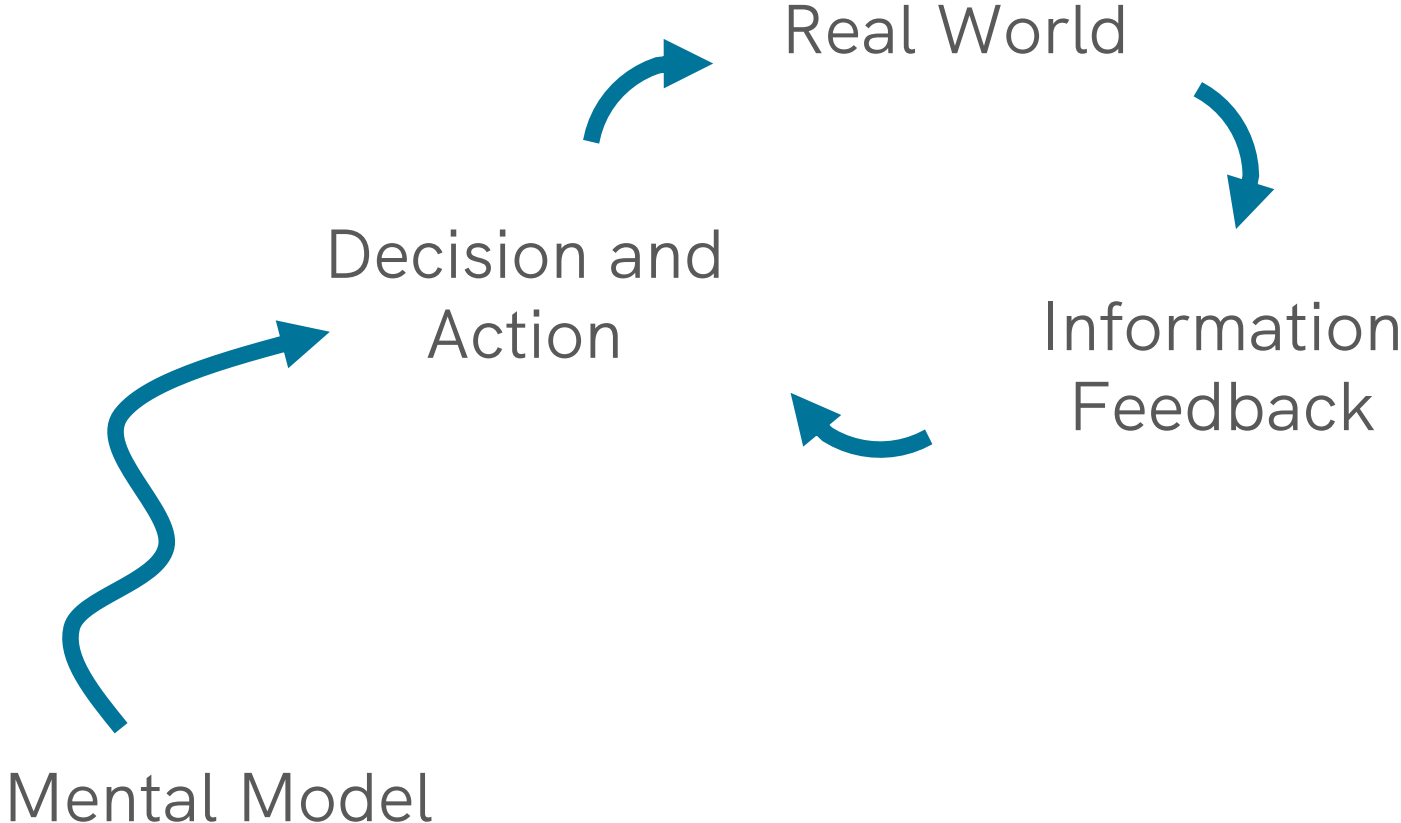
Single Loop Learning



Sources

[1] <https://hbr.org/1991/05/teaching-smart-people-how-to-learn>

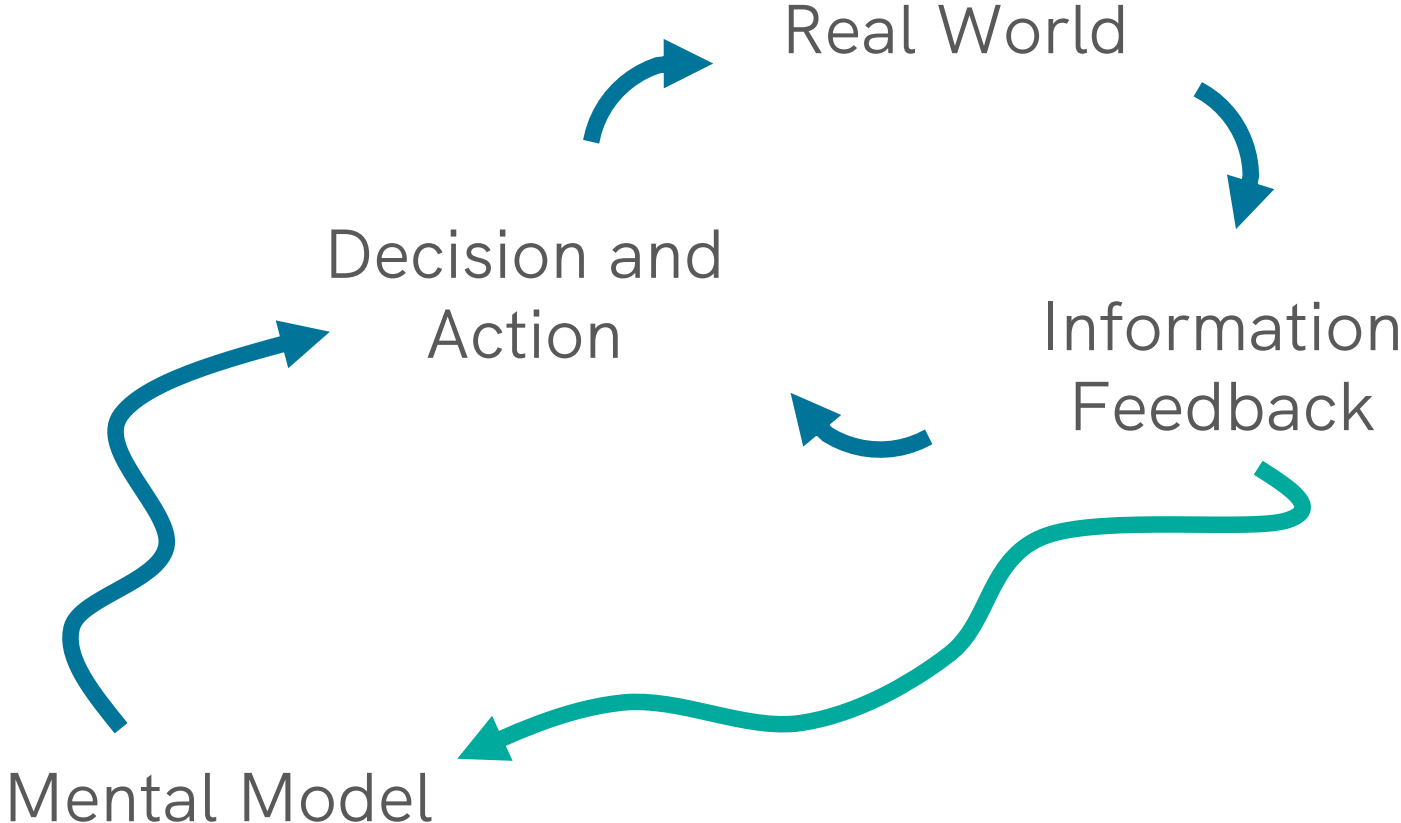
Double Loop Learning



Sources

[1] <https://hbr.org/1991/05/teaching-smart-people-how-to-learn>

Double Loop Learning

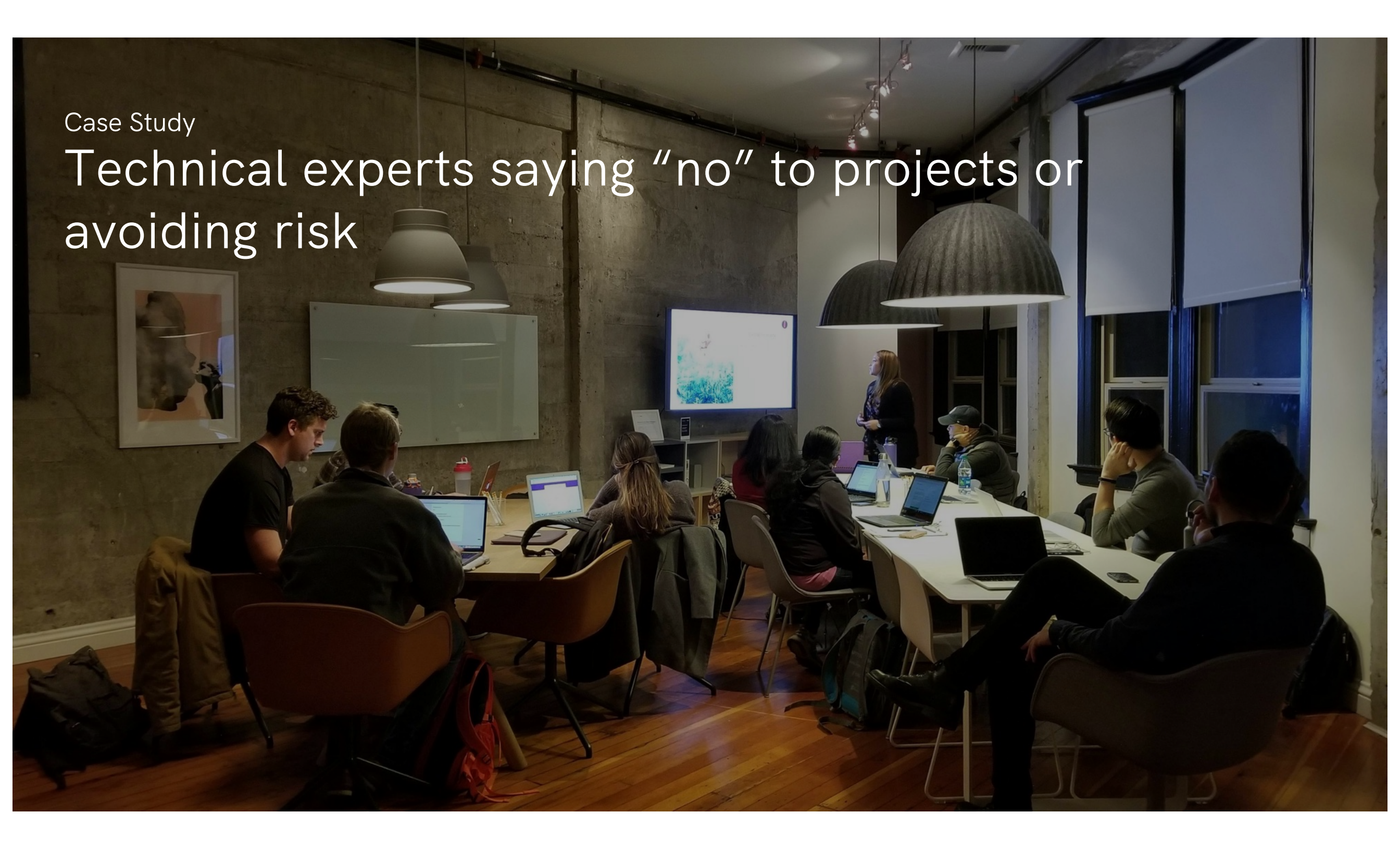


Sources

[1] <https://hbr.org/1991/05/teaching-smart-people-how-to-learn>

Case Study

Technical experts saying "no" to projects or avoiding risk



Embrace the Magic Loop



Sources

[1] <https://www.lennysnewsletter.com/p/the-magic-loop>

Small steps with the Magic Loop

- Offer to mentor new employees
- Attend customer meetings
- Support recruiting efforts
- Take on a high-risk R&D task



How to start in management?

- Many employers struggle with management training; most don't provide much support
-
- Look for opportunities around collaborative problem solving
 - Test (people) hypotheses in meetings
 - Explore how to influence



How to “try” management

- Mentor new employees
- Offer to present to executives
- Project management (where influence is crucial)
- Interim roles



Remember to keep learning

Nuances of Data Roles and “Hybrid” Career Trajectories

<https://www.youtube.com/watch?v=bThpIkt6Rq8>

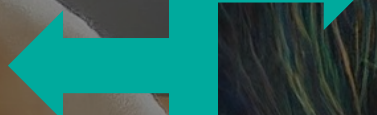
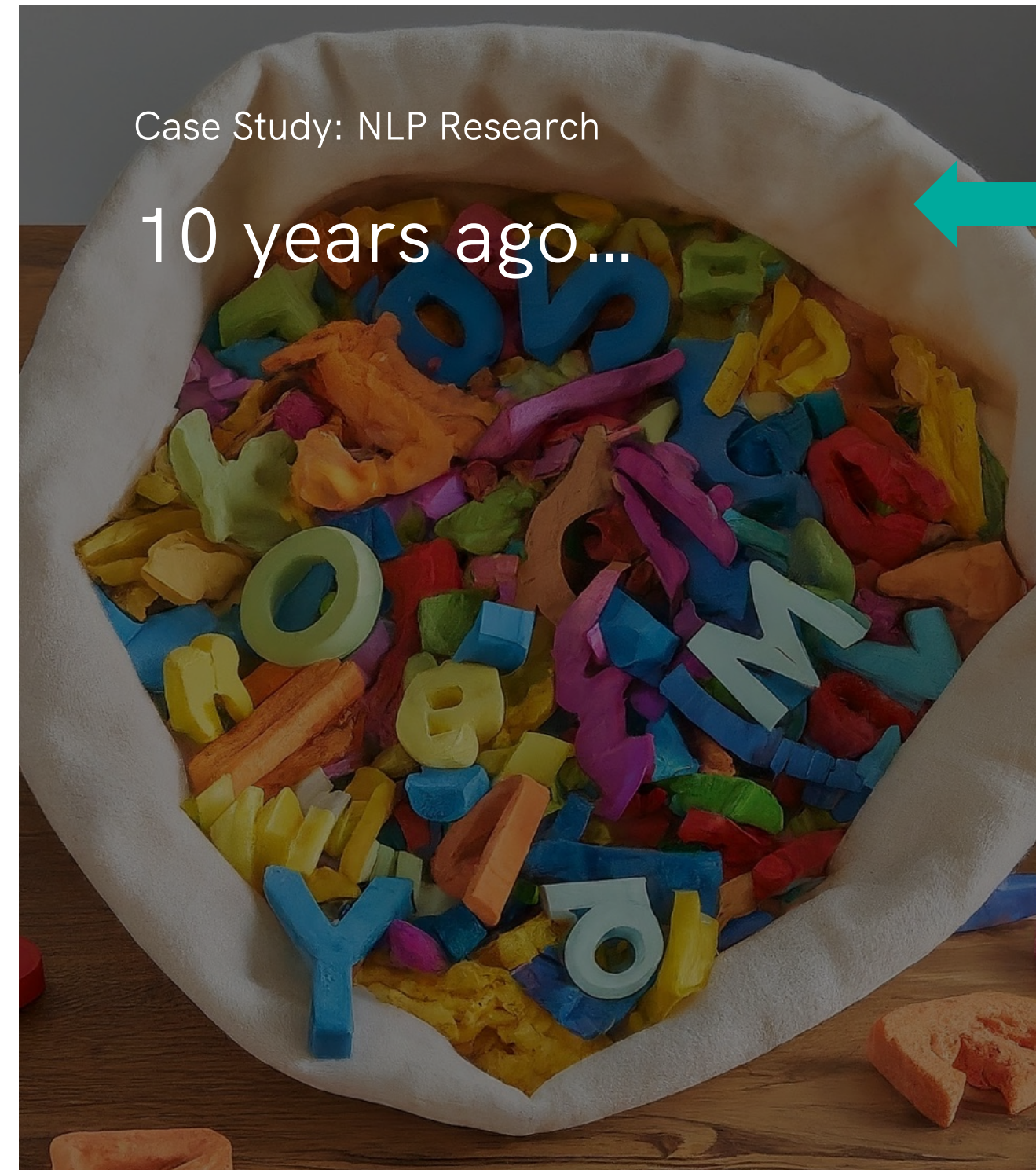
Getting Ahead and Staying Ahead

<https://www.youtube.com/watch?v=KkVB8ZjSOVI>

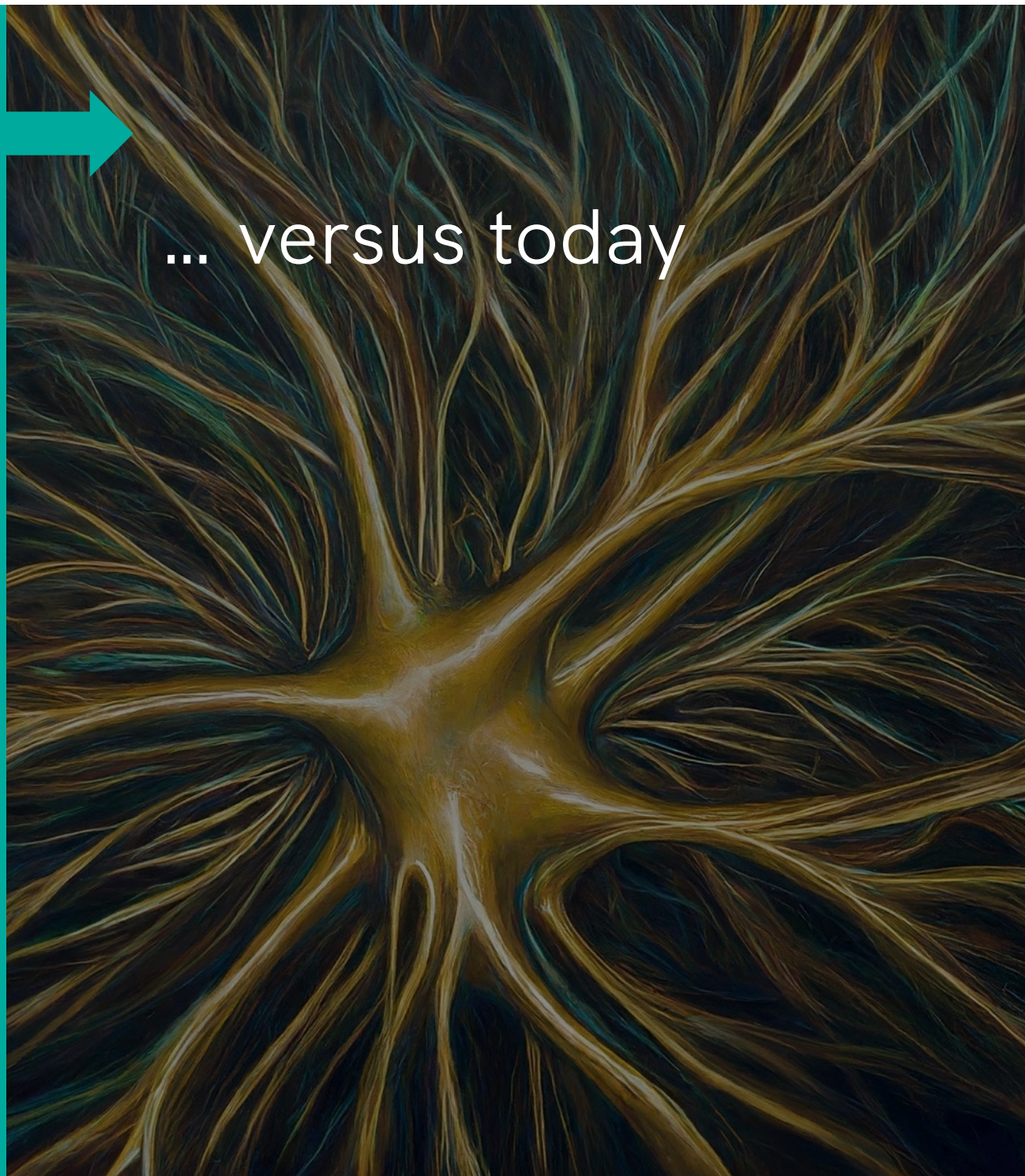


Case Study: NLP Research

10 years ago...



... versus today



Putting it all together...



The GROW Model

Goal

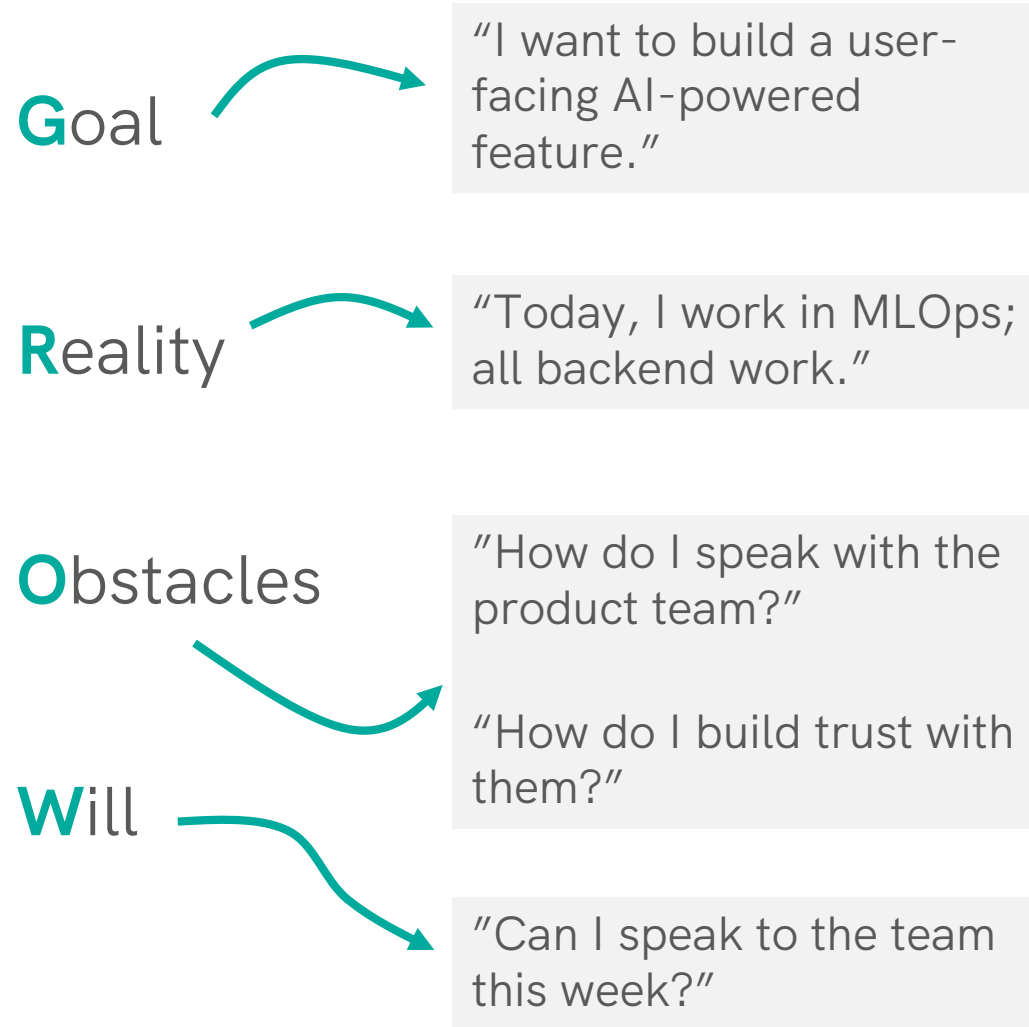
Reality

Obstacles

Will



The GROW Model



Good Strategy, Bad Strategy

1. Diagnosis
2. Guiding Policy
3. Action Plan



Good Strategy, Bad Strategy

1. Diagnosis

"I have an MSc but want to pivot into deep learning research. Getting a PhD is not an option."

2. Guiding Policy

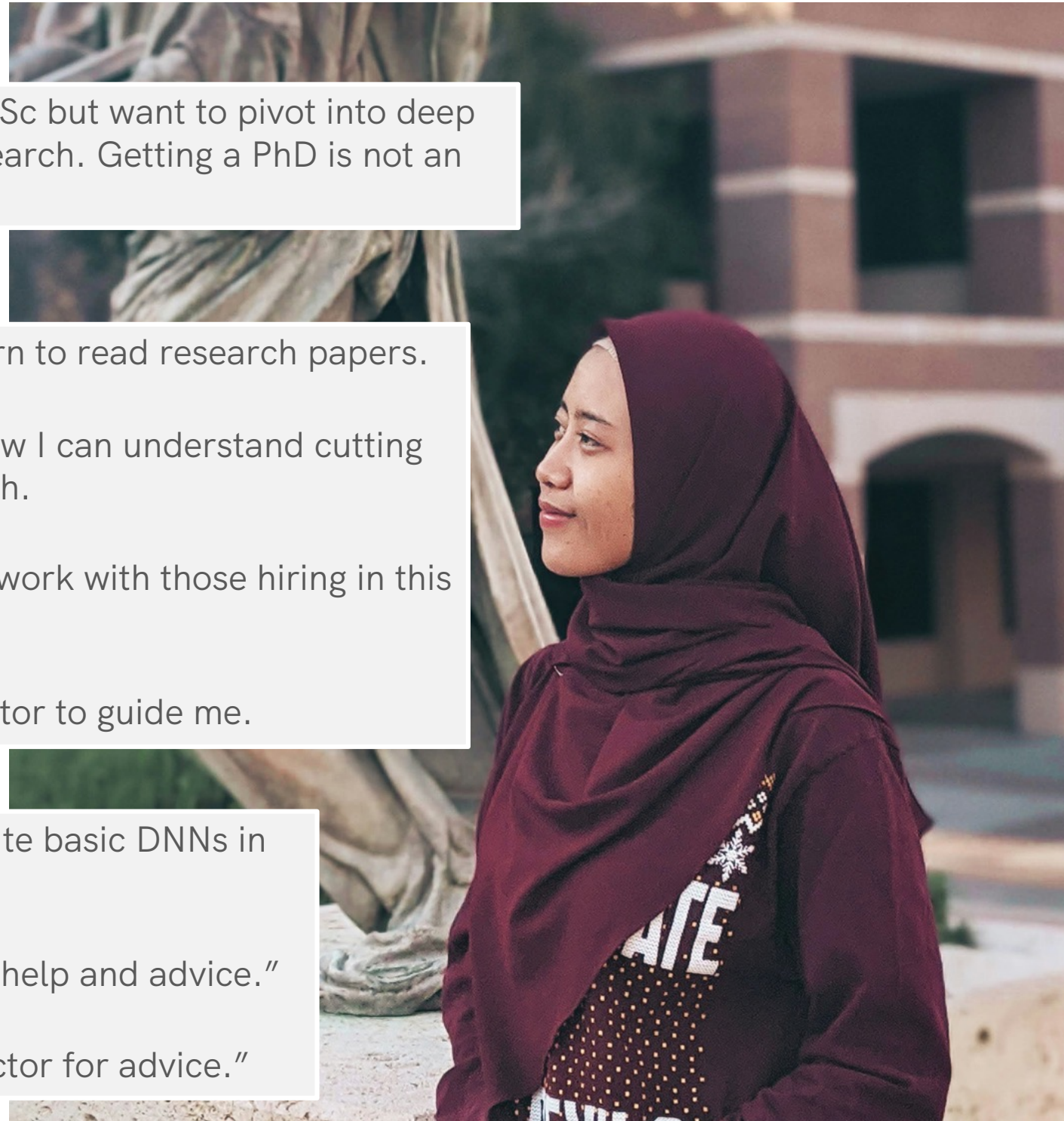
- I need to learn to read research papers.
- I need to show I can understand cutting edge research.
- I need to network with those hiring in this space.
- I need a mentor to guide me.

3. Action Plan

Step 1: "Learn how to write basic DNNs in PyTorch."

Step 2: "Ask my boss for help and advice."

Step 3: "Reach out to Vector for advice."



Pivoting



How to tell if things aren't going well



Long-Term Checklist

- Networking
- Mentors
- Peer Groups (formal and informal)
- Personal Advisory Boards
- Coaching
- Meetups and Events



Q&A

Panel Discussion

Meet the Panelists



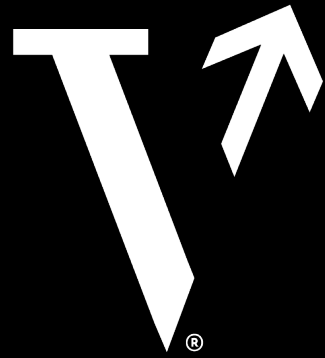
- **Shaina Raza** is an Applied ML Scientist at Vector Institute, with a focus on Responsible AI.
- Shaina has over 10 years of research experience, with dozens of journal and conference publications.
- Holds a PhD in Computer Science from TMU; also a post-doctoral fellow at Dalla Lana School of Public Health.



- **Sal Arif** is the Director, AI & Analytics Product Management at RBC Capital Markets.
- Holds an MMAI from Queen's University, and MSc in Financial Mathematics from University of Leeds.
- Built career with a focus on AI product management, zero-to-one product development, and scaling data/ML-driven products.

Thank You

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