



HOW TO BUILD AN *AI-READY* ORGANIZATION

Photo: frankieleon / CC BY 2.0

IDEO



I'm

MIKE



I'm

JOE



*We're
from*

IDEO



*We're
from*

IDEO



*We're
from*

IDEO

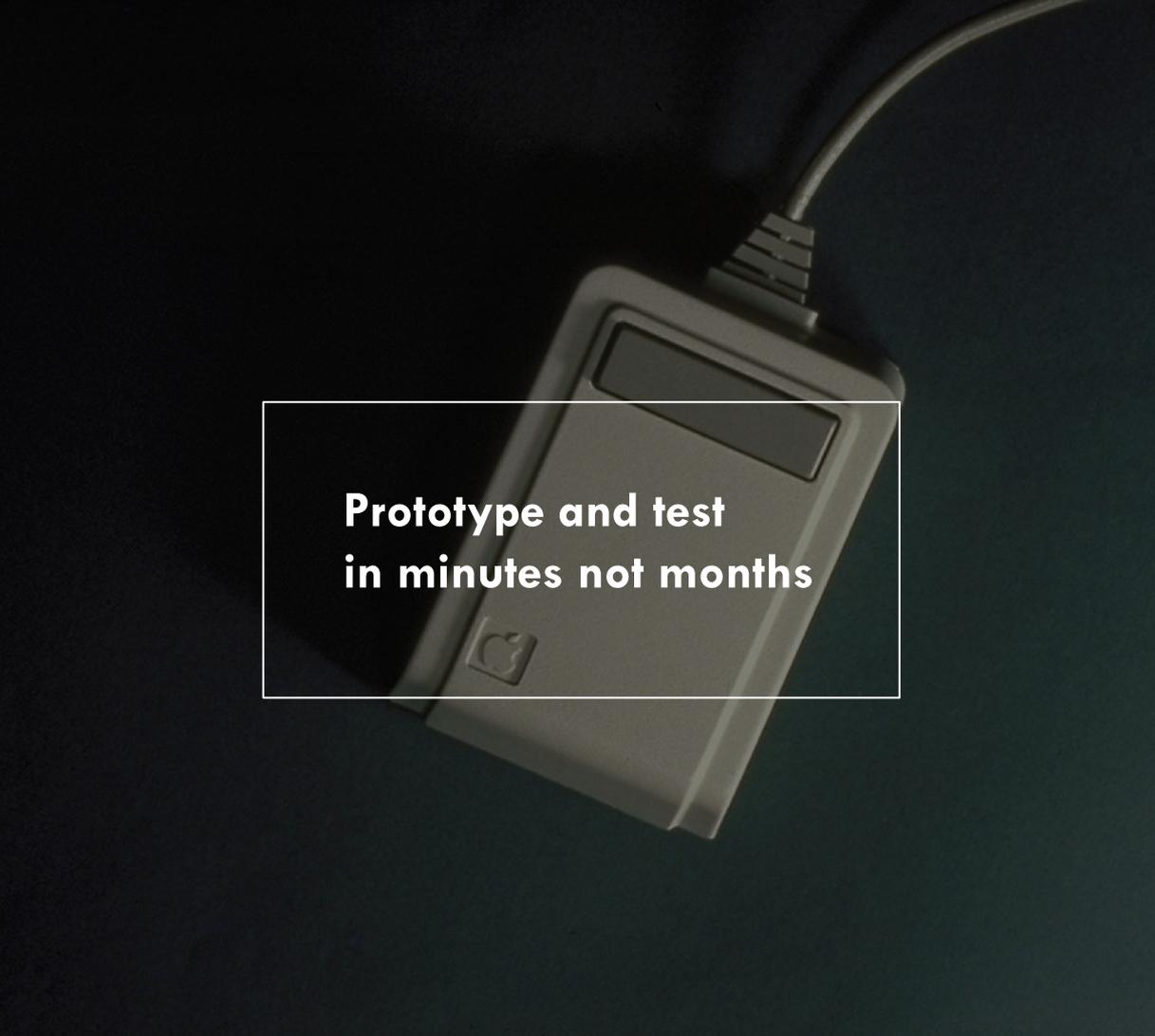
The first laptop computer designed by Bill Moggridge for GRiD computers
Photo: IDEO



*We're
from*

IDEO

Original Apple Macintosh Mouse engineered by IDEO
Photo: IDEO



**Prototype and test
in minutes not months**

*We're
from*

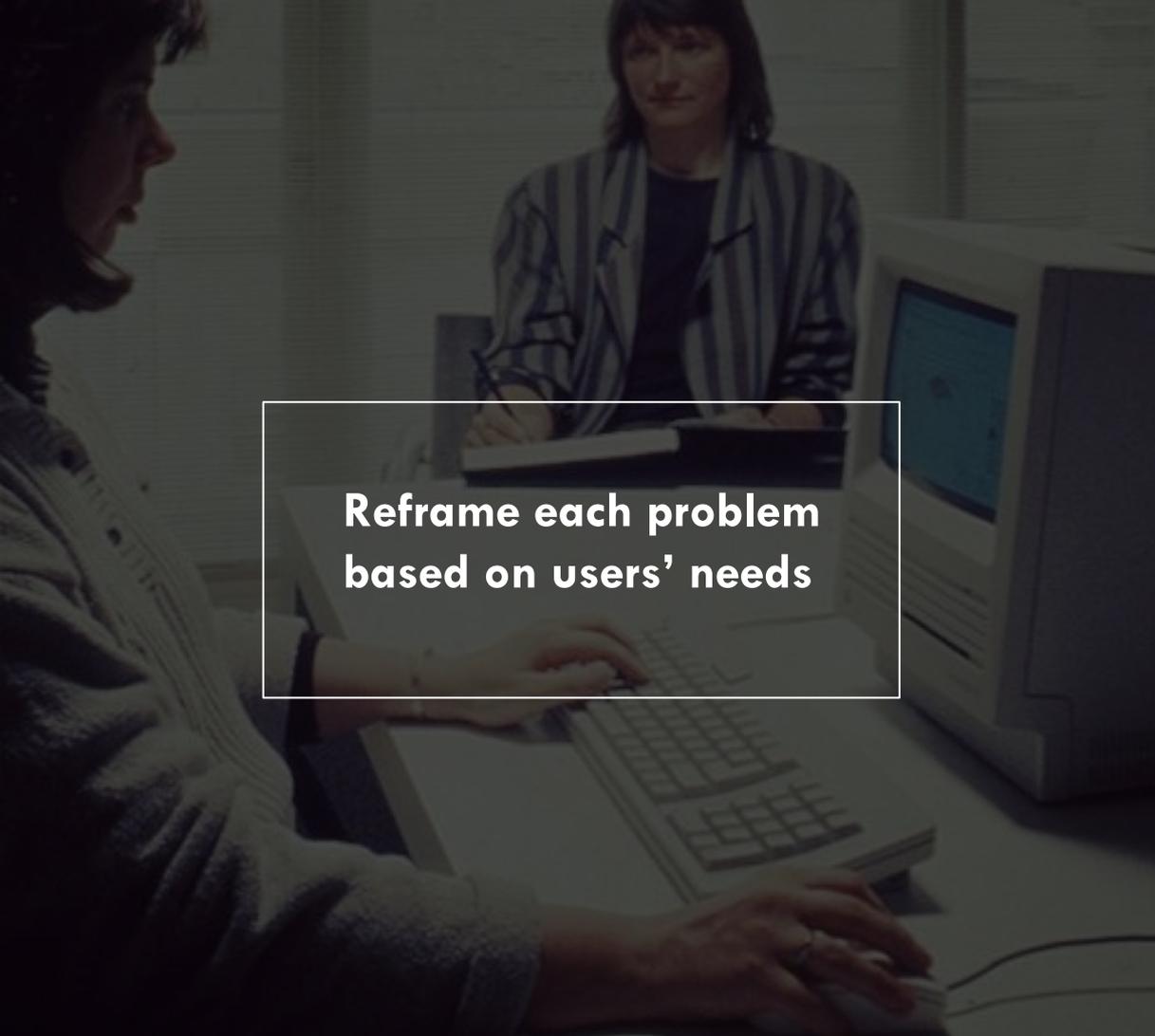
IDEO



*We're
from*

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Observing a user testing session with a prototype of an early microsoft mouse 1987 (test devised by bill verplank)
Photo: IDEO



**Reframe each problem
based on users' needs**

*We're
from*

IDEO



Photo: IDEO

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PRODUCTS



Photos: IDEO

SERVICES



ORGANIZATIONS





HOW TO BUILD AN *AI-READY* ORGANIZATION

IDEO

POLL

**When approaching the topic of AI,
I feel like my org is...**

- Completely lost**
- A little confused**
- Figuring it out**
- Living and breathing AI**

POLL

**When approaching the topic of AI,
my org has...**

- Run a few experiments**
- Built new products or services**
- Invested heavily infrastructure**

PROBLEM

We need to be data driven.

We're waaaaay behind.

We need sophisticated AI.





DO YOU NEED A TOILET IN EVERY ROOM?

Or dangling from the ceiling?

PROBLEM

50% fail rate.

A worldwide survey of
2,473 companies found
25% had invested in AI.
Of those, 50% said their
investments were a failure.

So, how can you scale
when you're likely to fail?

Photo: pexels.com | Irina Iriser

Photo: pexels.com | Pixabay

3

QUESTIONS

to answer...

1

Where do we start?

Where can you pioneer a few small successes before committing to some big bets?

2

How do we grow?

How do you build on your first successes? How do you develop a mature approaches?

3

When can we scale?

How can you make bigger bets and spread AI to every corner of your org?

O

WHAT

is AI?

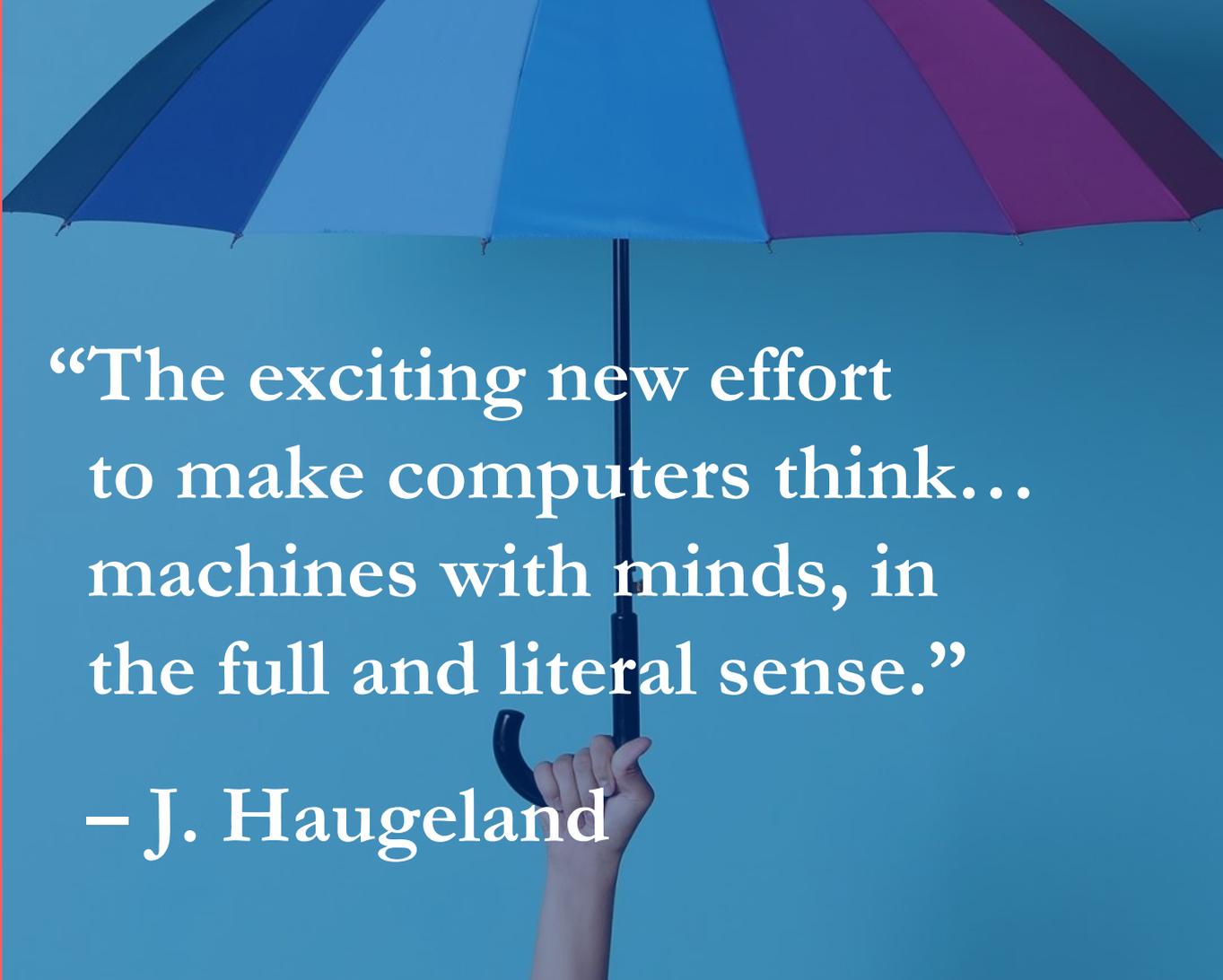
WHAT IS AI?

A hand is shown holding the black handle of an open umbrella. The umbrella's canopy is divided into several segments of different colors: dark blue, light blue, and purple. The background is a solid, light blue color.

Analytics
Artificial Intelligence
Augmented intelligence
Big data
Business intelligence
Cognitive analytics
Cognitive computing
Cognitive technologies
Data science

Data visualization
Data driven
Expert systems
Knowledge-based systems
Intelligent agents
Intelligent systems
Machine Learning
Predictive analytics
Robotic Process Automation

WHAT IS AI?

A hand holding a colorful umbrella against a blue background. The umbrella has segments in shades of blue and purple. The hand is visible at the bottom, holding the black handle.

“The exciting new effort
to make computers think...
machines with minds, in
the full and literal sense.”

– J. Haugeland

WHAT IS AI?

A hand is visible at the bottom center, holding the black handle of a large umbrella. The umbrella's canopy is divided into several segments of different colors: dark blue, light blue, and purple. The background is a solid, medium blue. The text is overlaid on this background.

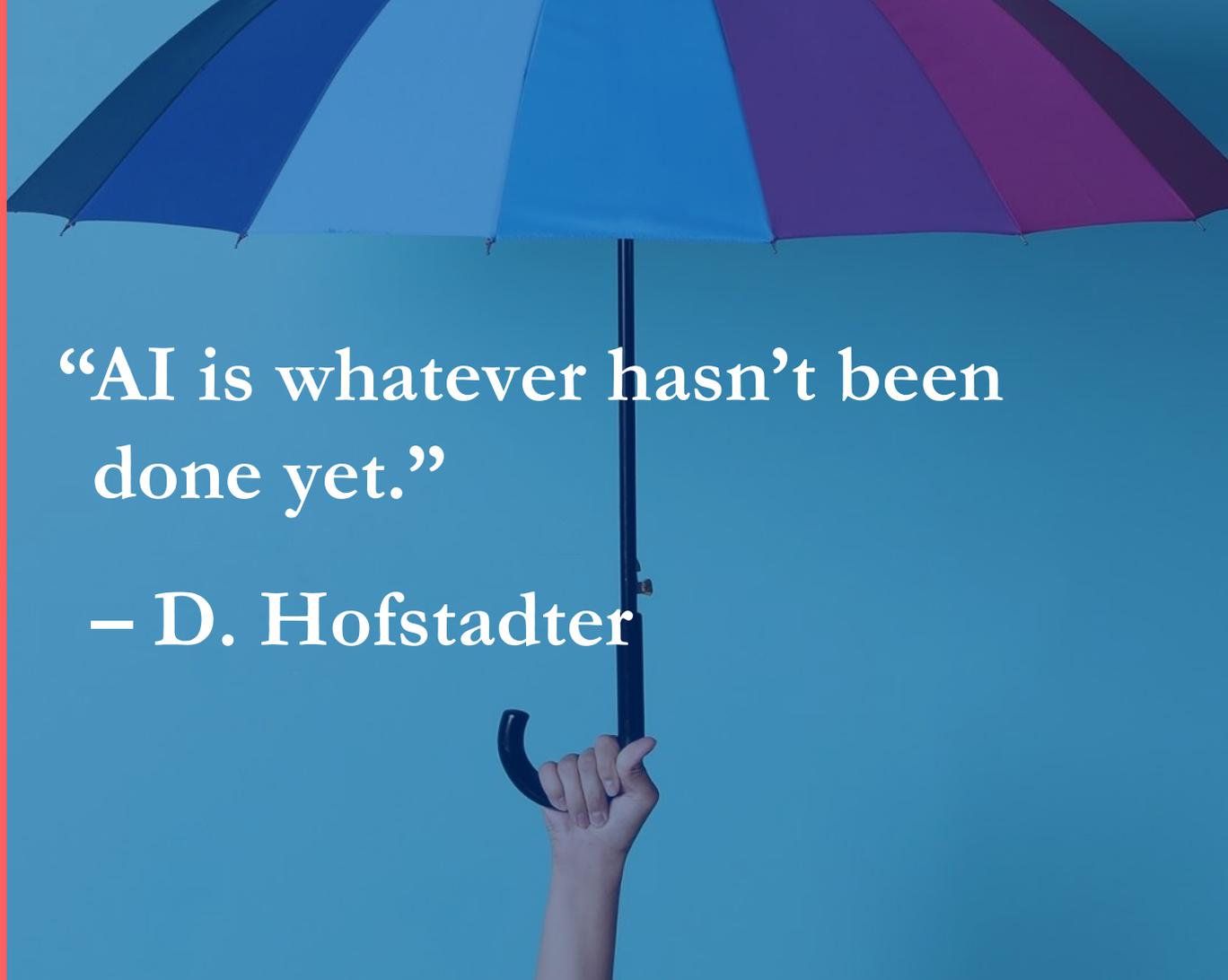
“AI is concerned with intelligent behavior in artifacts involving perception, reasoning, learning, communicating, and acting in complex environments.”

– N.J. Nilsson

WHAT IS AI?

“AI is whatever hasn’t been
done yet.”

– D. Hofstadter



FRAMEWORK

SENSE

ACT

LEARN

DUMB

Hand Fan

**You actually get sweatier
by using the fan.**



Photo: Shutterstock

SMART

Ceiling Fan

Flip a switch and you get
cool without extra effort.



Photo: pexels.com | Hampton Lamoureux

SMARTER

Thermostat + Fan

When it gets to hot, the AC
kicks on to cool you off.



Honeywell CT87K Round Heat-Only Manual Thermostat
Photo: Cooper Hewitt, Smithsonian Design Museum, October 16, 2019

SMARTER-ER

Nest + Central Air

**Senses the temp *and* learns
your behaviors to adapt
to you.**



PRODUCTS, SERVICES, AND ORGANIZATIONS CAN SENSE, ACT, AND LEARN



**INTELLIGENCE
IS THE ABILITY
TO ADAPT
TO CHANGE.**

— Stephen Hawking

Photo: Shutterstock



1

WHERE

do we

START?

**DON'T BUY
BULLDOZERS
WHEN YOU
MIGHT NEED
SPOONS**



START SMALL

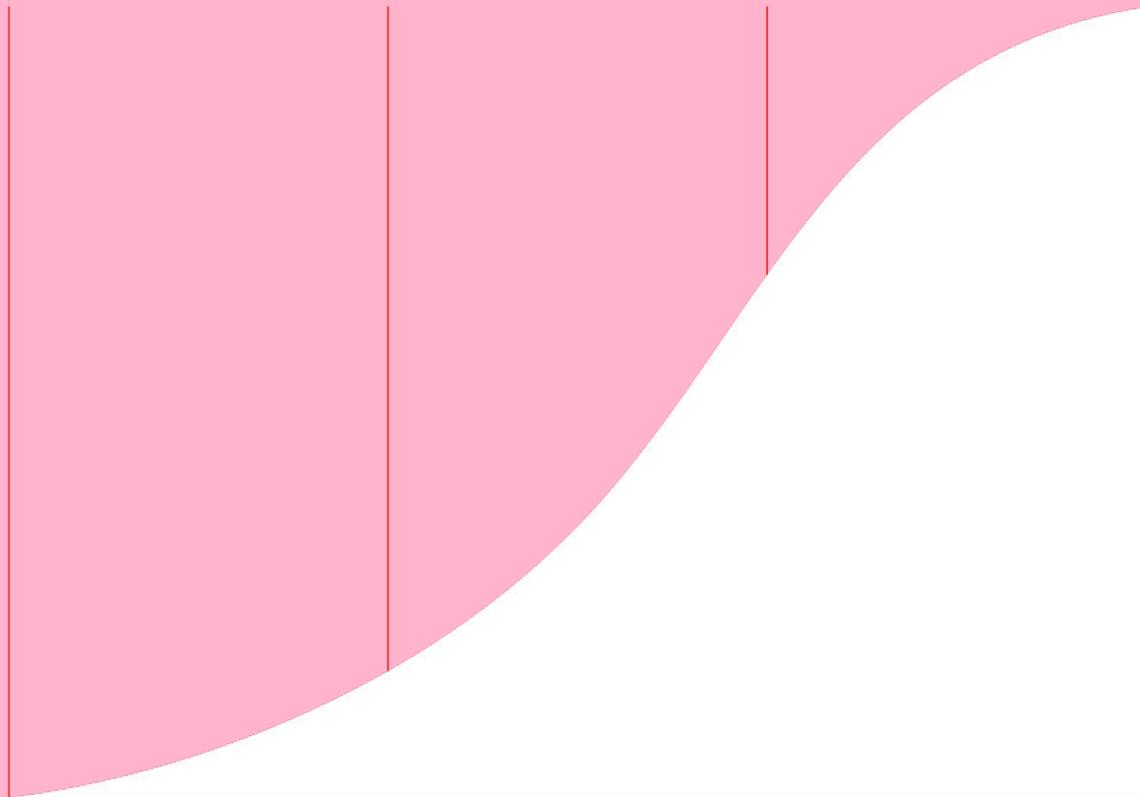
Nail it, then scale it

To build a robust data science capability, you need to pioneer a few successes to build momentum; share and test those approaches with a coalition of the willing; and then formalize the systems, processes, and structures that succeed.

PIONEER

MOBILIZE

SCALE



PIONEER

Netflix

In 2006, Netflix hosted an open challenge, inviting anyone to improve their recommendation algorithm with a 100,000,000 item data set.

10% improvement would pay out a \$1,000,000.



Photo: Shutterstock

PIONEER

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**A few weeks
of work beat
a few years**

PIONEER

Start small.

Build one generalist team, lead by a translator.

Find one specific business or customer challenge, not a “data challenge.”

Consider data as a partial resource for a solution.

(Asking “what can we do with this data?” is a recipe for useless results.)

Prototype to learn.

Build as little as possible to test how you created value.

Rinse and repeat.



HOW

do we

GROW?

POLL

**When investing in AI, we're
focused on applying it to...**

- Our strategy and operations**
- Everything we do**
- Our products or services**

**TEND YOUR
BLOOMS WHILE
SPRINKLING
MORE SEEDS**



Photo: IDEO | Nick Dupey

MOBILIZE

A Recent Job Post

It's natural to have smart hunches about what kind of data scientists you may need. But, for your first few hires, be very careful not to be too specialized.

Hands on experience in building machine learning models using algorithms such as k-NN, Naive Bayes, SVM, and Decision Forests

Hands on experience with Python, R, NLTK, Spacy, Pandas, Scikit-learn, SciPy, and NumPy

Experience in building solution for Image and Text Classification using OCR tools such as Tesseract and Google OCR

Experience with data visualisation tools, such as D3.js, GGplot, Matplotlib, and Seaborn.

Proficiency in query languages such as SQL, Hive, and Pig.

Experience with NoSQL databases such as MongoDB, Cassandra, and HBase

Understanding AI/Deep Learning algorithm such as CNN, RNN, and LSTM

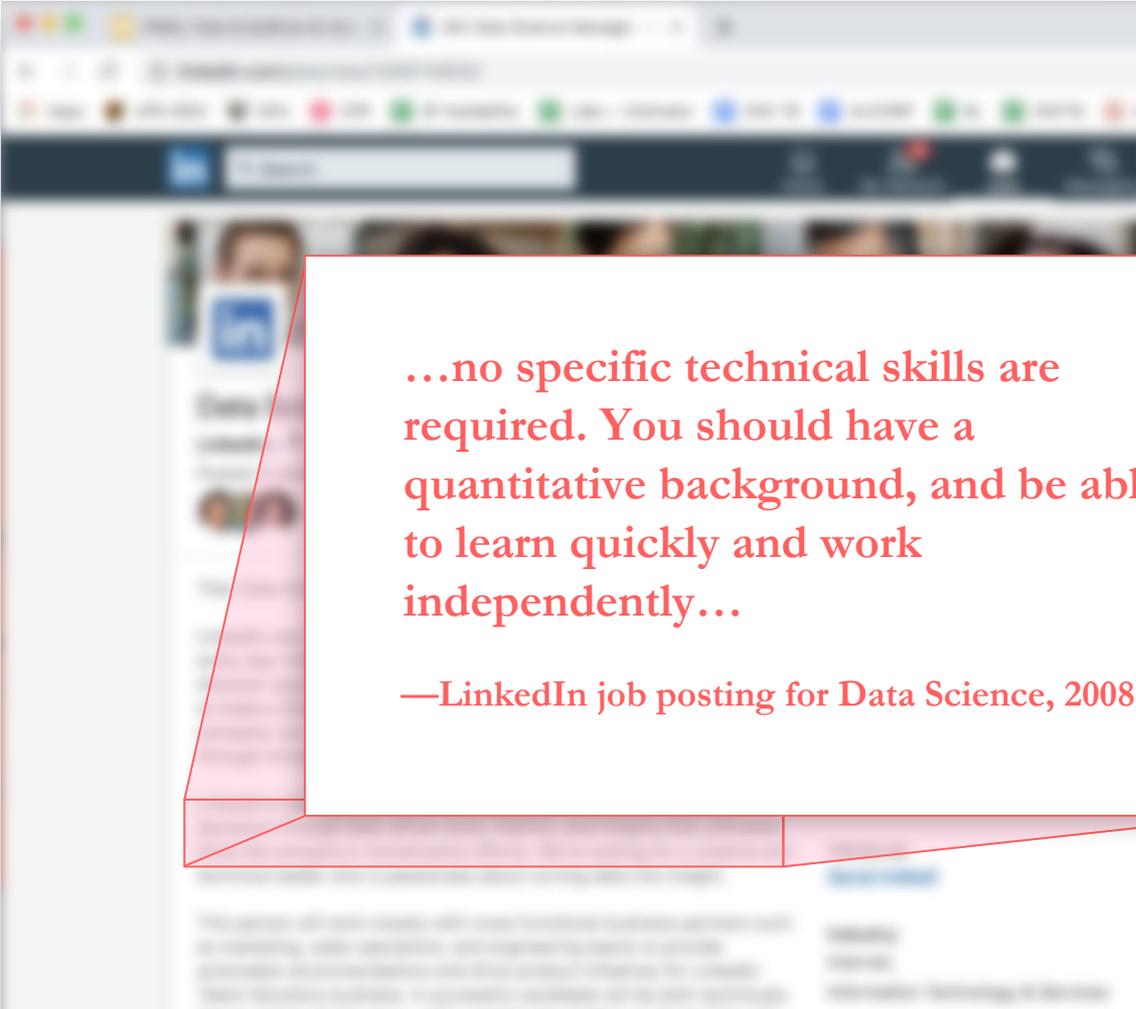
Experience in building AI based NLP and OCR solution using Keras, Google Tensorflow, Theano, and Caffe 2

—Recent posting for Lead Data Scientist, 2019

MOBILIZE

LinkedIn

Hire generalists before you hire specialists. Don't focus on specialized teams building robust solutions until you find you've chalked a few scrappy wins on the board.



...no specific technical skills are required. You should have a quantitative background, and be able to learn quickly and work independently...

—LinkedIn job posting for Data Science, 2008

MOBILIZE

Procter & Gamble

Only after early successes with AI was P&G ready to hire more specialists for the People Finder and move their generalists on to more experimental challenges, like assisting change management.



Photo: pexels.com | Matthew T Rader

DON'T SPECIALIZE TOO SOON

Wait until your org is ready to use and absorb AI specialists before you bring them in.

PIONEER

MOBILIZE

SCALE



MOBILIZE

Stay small.

Share the results of your pioneer projects to generate demand.

Bring specialists in to expand upon your pioneer projects.

Launch new pioneer projects into different corners of the business.

Gather results to build a playbook for AI in your organization.

3

WHEN

can we

SCALE?



**ONLY LAY PIPES TO
WATER WHAT YOU
KNOW WILL THRIVE**

SCALE

IBM Watson Health

After winning at Jeopardy in 2011, IBM thought Watson could do anything. So, they made a \$62M bet on healthcare that failed fantastically.

(Don't let early successes make you overconfident.)



Watson and Two Other Jeopardy Podiums
Photo: Atomic Taco / CC BY-SA 2.0

SCALE

Cargill

Cargill spent several years cultivating a culture of people that are “mathematically curious” before specializing. They now have several AI products in market.



Photo: Shutterstock

SCALE

Once you've created value and proven results...

Develop and deliver formal trainings to collaborating teams.

Formalize a set of data science processes, metrics, and tools.

Pool data science teams to determine what infrastructure changes are likely to deliver the greatest value for the greatest number of teams.

Work with each business unit to develop AI projects and plans.

POLL

When investing in AI, we're measuring our results based on...

- Financial performance**
- Increased efficiency**
- Internal adoption, penetration**
- Executive perception**
- All of the above**

WHERE ARE YOU?

What have you already completed? What big challenges have you been facing? How are you approaching scale?

PIONEER

MOBILIZE

SCALE

AI Specialists

AI-Fluents

AI Generalists





**THANKS +
QUESTIONS?**

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end