Employment and Training in the Era of **AI**
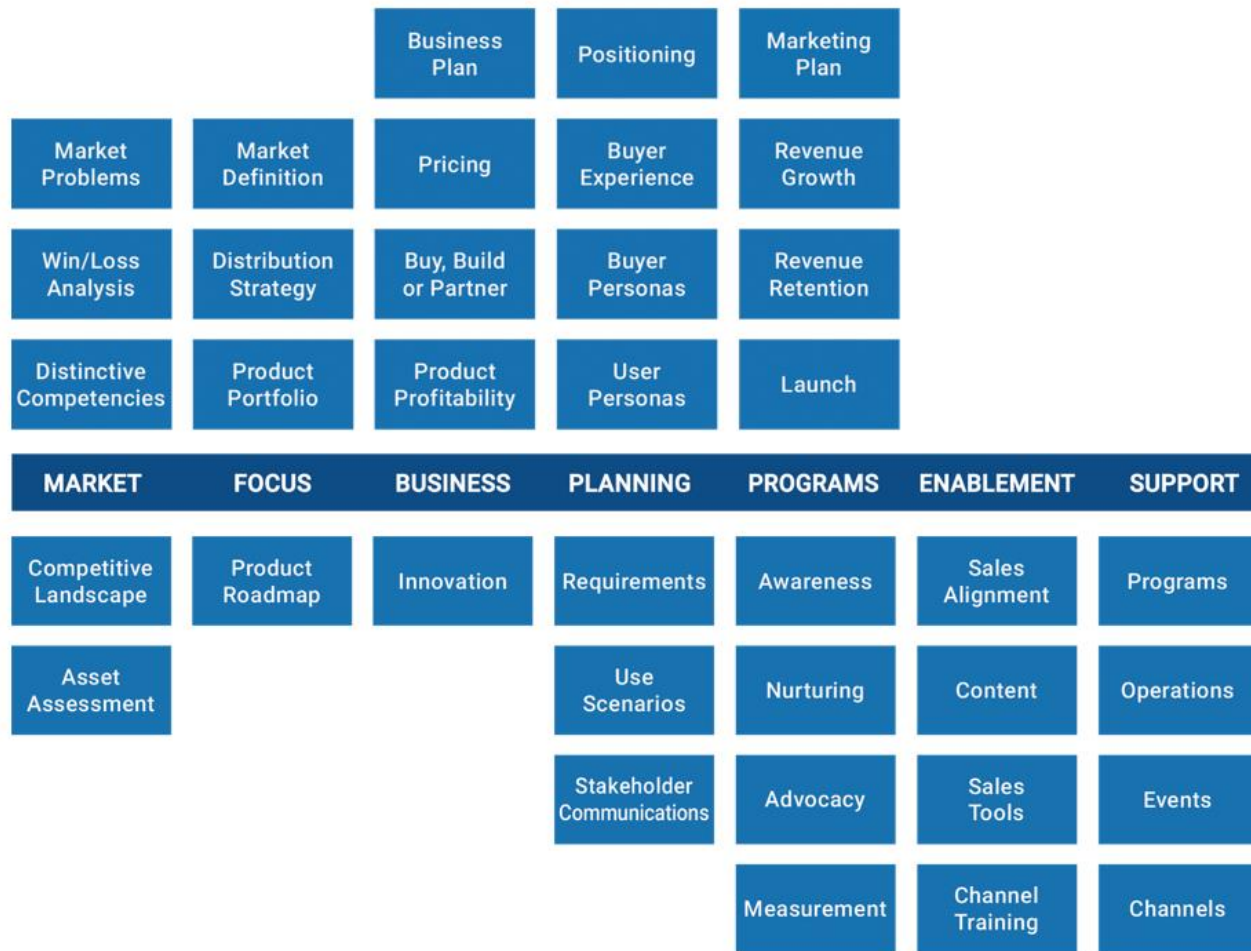
Michael Li | President, Data Sciences | Pragmatic Institute

PRAGMATIC INSTITUTE

Experts in technology product management and product.

Specialize in training.

Trained hundreds of thousands of people at companies around the world since 1993.
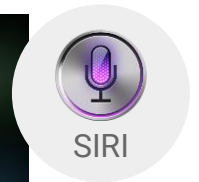
STRATEGY → **EXECUTION**

	Business Plan	Positioning	Marketing Plan

Market Problems	Market Definition	Pricing	Buyer Experience	Revenue Growth
Win/Loss Analysis	Distribution Strategy	Buy, Build or Partner	Buyer Personas	Revenue Retention
Distinctive Competencies	Product Portfolio	Product Profitability	User Personas	Launch

MARKET	FOCUS	BUSINESS	PLANNING	PROGRAMS	ENABLEMENT	SUPPORT
Competitive Landscape	Product Roadmap	Innovation	Requirements	Awareness	Sales Alignment	Programs
Asset Assessment			Use Scenarios	Nurturing	Content	Operations
			Stakeholder Communications	Advocacy	Sales Tools	Events
			Measurement	Channel Training	Channels	

2

AI and Data Are Everywhere...

… and it's here to stay

Storage/Memory
Disk Drives

Network Transmission
Internet Transit

Smartphone Service
Subscriptions

$202K /GB
$1,200 /Mbps
55.1%
$0.63 /Mbps
0.4%
$0.02 /GB

1980 1990 2000 2010 2020
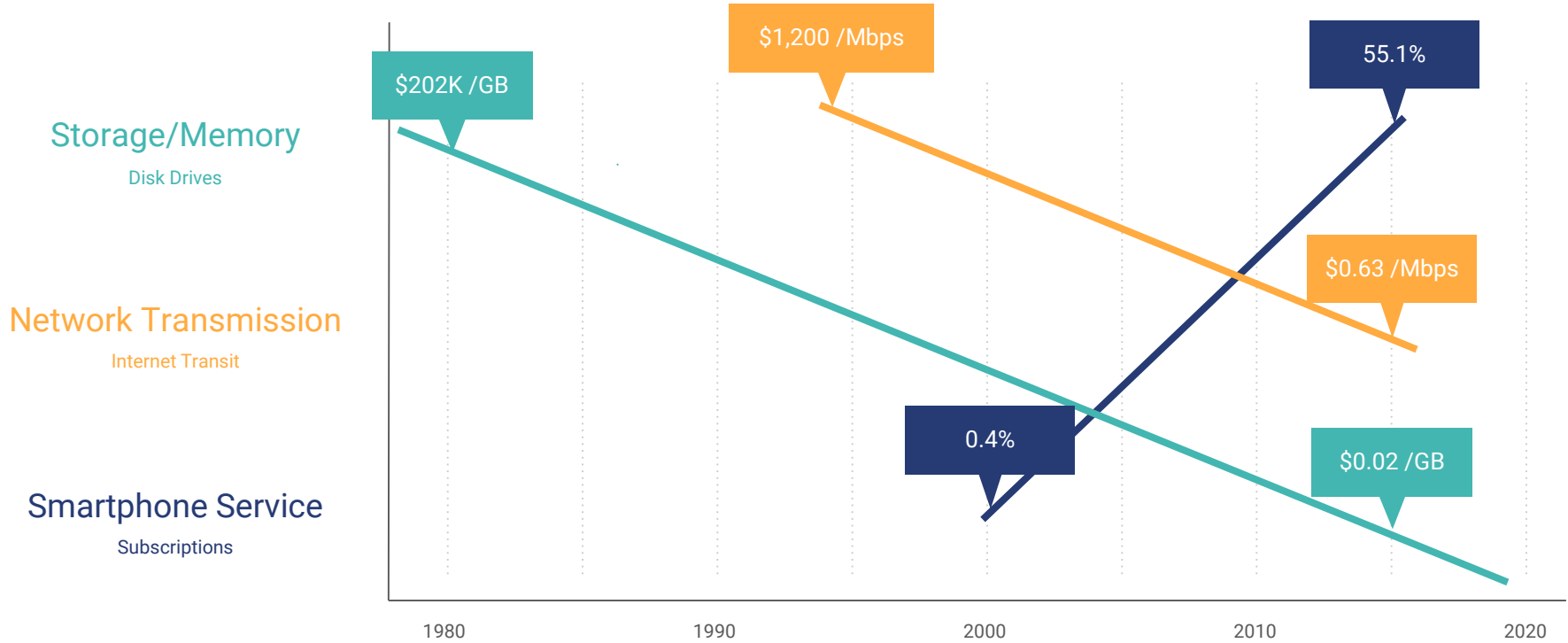
Overview of Presentation

- How AI and data are disrupting the world

- Will we still have jobs?

- The shortcomings of AI

- The role for humans in a data-driven world

- Technical and non-technical data roles

- Learning paths for different technical roles

- Data Analytics 1.0 vs. Data Analytics 2.0

- Learning paths for business leaders

AI is replacing jobs…

45% of paid activities could be automated using 'currently demonstrated technologies'

MCKINSEY & COMPANY

54% of EU jobs are at risk of computerization

BRUEGEL

47% percent of U.S. workers have a high probability of seeing their jobs disrupted

UNIVERSITY OF OXFORD

48% of experts envision a future where robots displace significant numbers of human jobs

PEW RESEARCH CENTER

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… but AI needs human supervision

Microsoft

Microsoft's Tay learned hate speech within a day from Twitter

amazon

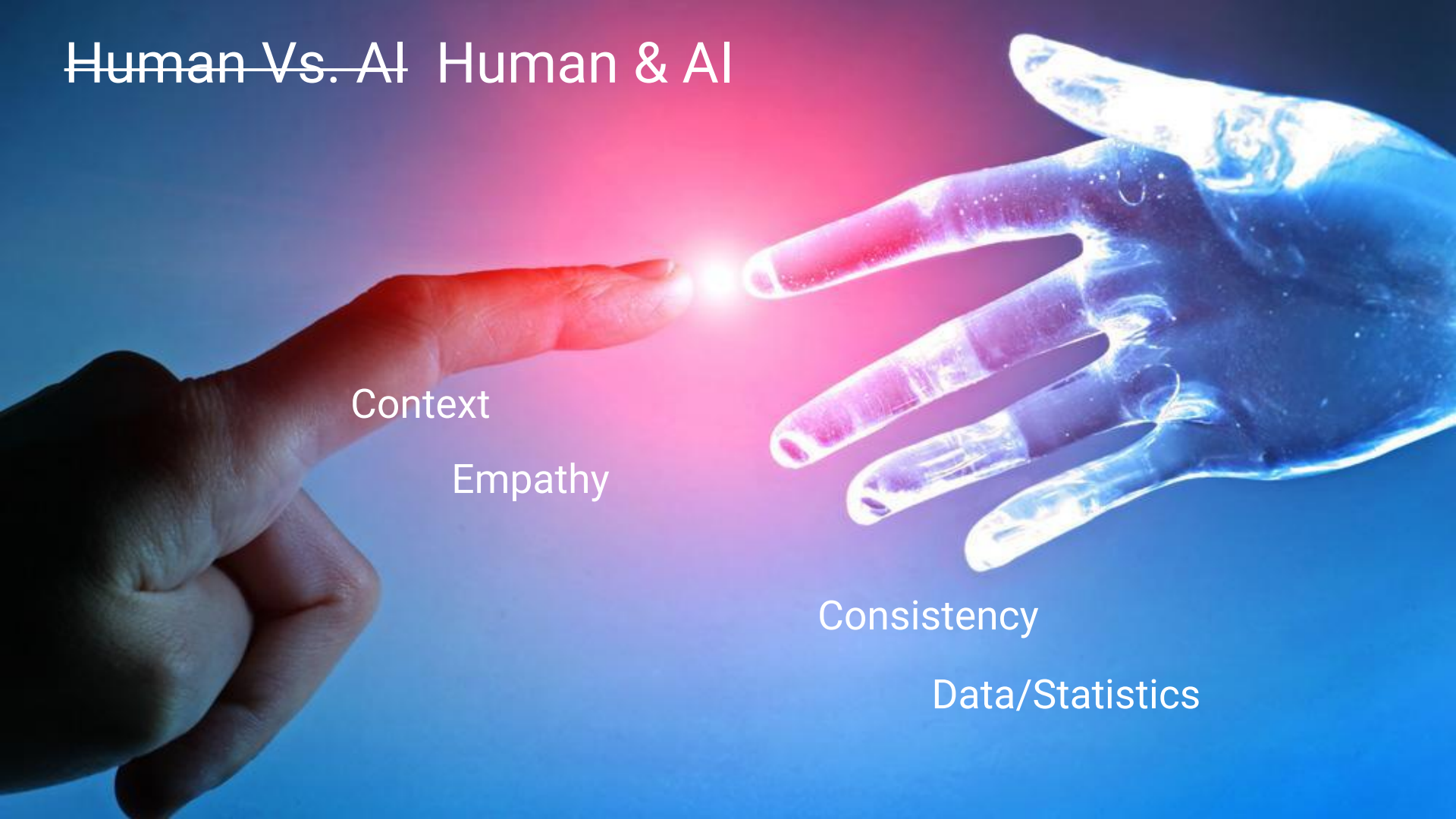Amazon AI resume screener discriminated against women

Google

Google Translate assumed doctors were "he" and nurses were "she"

facebook.

Facebook's ML algorithms accidentally allowed ad-targeting to anti-semitic groups

~~Human Vs. AI~~ Human & AI

Context

Empathy

Consistency

Data/Statistics

A Role For Humans in the AI World

npr

Episode 606: Spreadsheets!

https://www.npr.org/templates/transcript/transcript.php?storyId=528807590

Five Roles and Their Skill Sets

TECHNICAL

Data Scientist	Data Engineer	Data Analyst
R	Redis	Basic data analytics
Pandas	Hadoop	SQL
Scikit Learn	Spark	Python
Tensorflow	HBase	

BUSINESS

Data-savvy Manager	Data-driven Product Manager
Basic literacy	A/B testing
Leveraging data	Metrics
Building data culture	Statistical fallacies

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Learning Tracks for Technical Courses

**Foundations of
Data Science**
(for Analysts)

- Basic Software Engineering
- Data Wrangling
- Predictive Analytics
- Data Visualization

Advanced Machine Learning
(for Data Scientists)

- Advanced Statistical Methods
- Natural Language Processing
- Machine Learning Pipelines
- Deep Learning and AI

Distributed Computing
(for Data Engineering)

- Hadoop
- Spark
- Machine Learning on Distributed Systems
- NoSQL and SQL databases

Identifying Latent Talent and Skills Gaps

Analytics 1.0 VS. Analytics 2.0

	Analytics 1.0	Analytics 2.0
Volume	KB and MB	GB and PB
Velocity	Slow, batch queries	Real-time, streaming updates
Variety	Structured tables in database	Unstructured data, text, image, audio, web

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Business Skill Sets

1 What are bid data, machine learning and artificial intelligence and how are they affecting my business?

2 How do we analyze and select winning data science projects?

3 How do we manage successful data projects from conceptualization to completion?

4 How do we adopt a data-driven mindset within our group and the broader organization?

Greater Demand For Business Managers

Need
140-190K
Data Analysts
& Scientists

Need
1.5 Million
Data-Savvy
Managers

McKinsey & Company

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Questions!

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