

AIM with AI

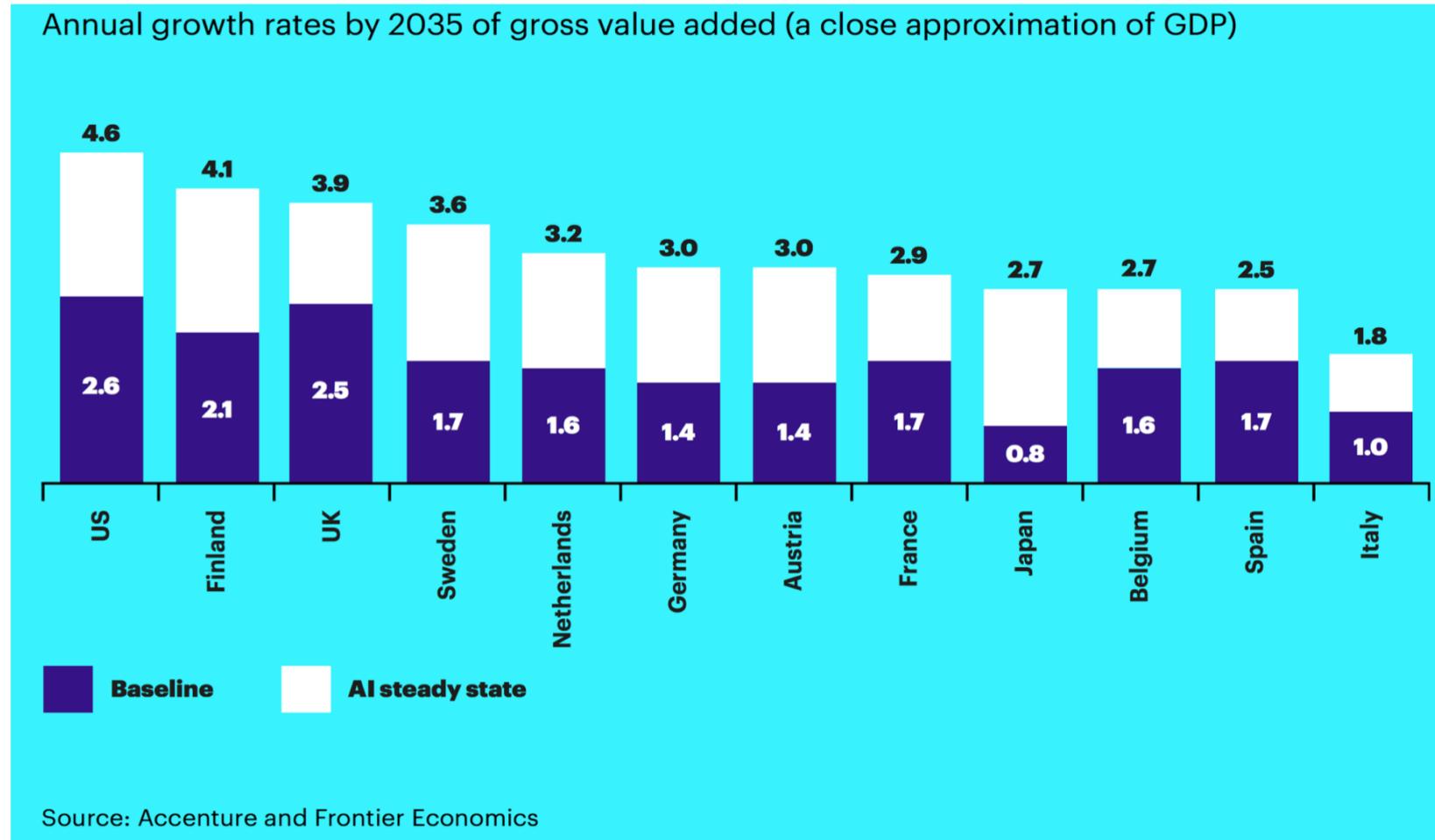
- A treatise to adopt AI in organizations

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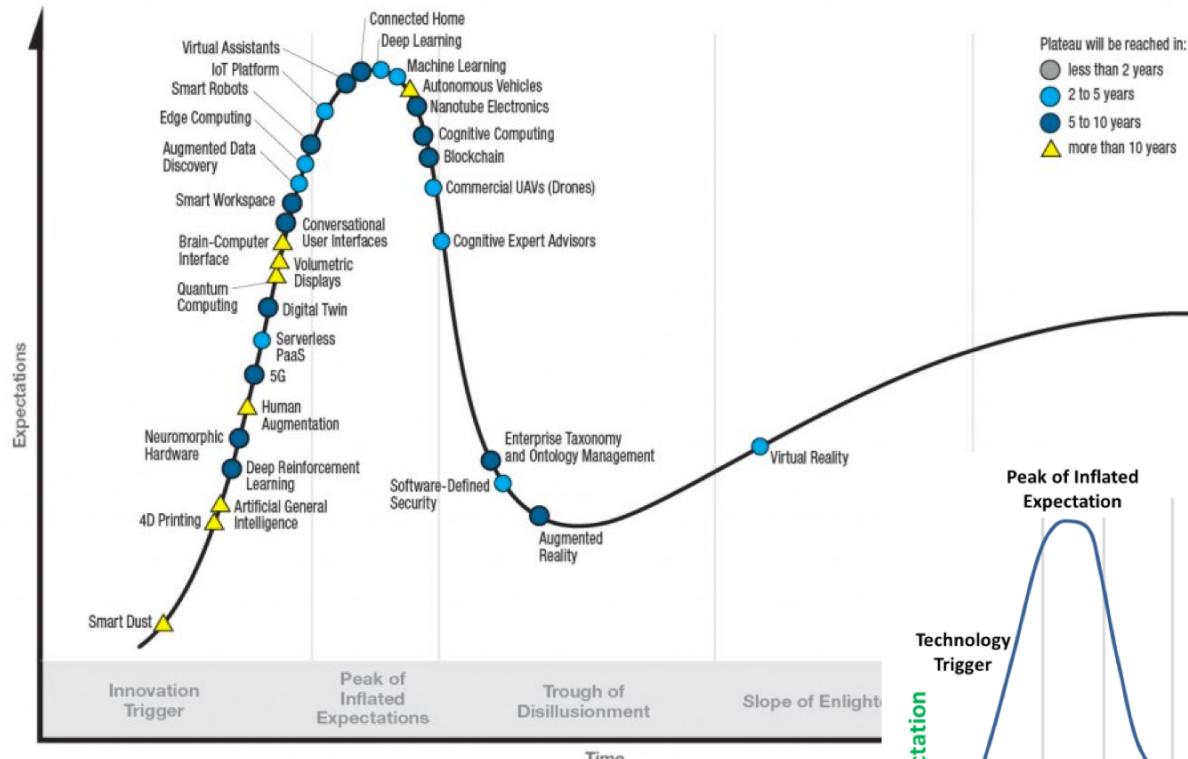
Digitalist (www.digitalist.global)



The economic impact of AI on countries

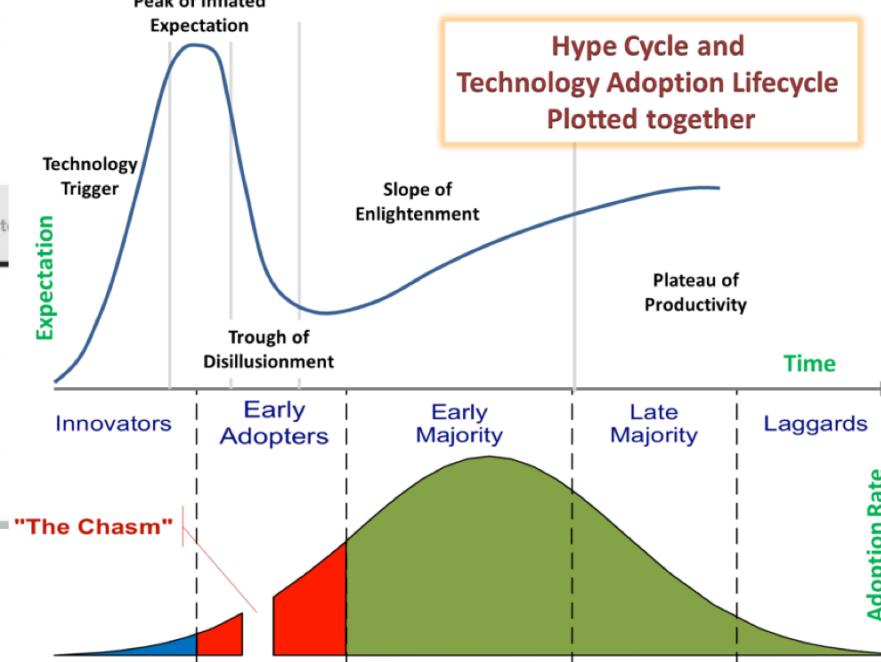


Gartner Hype Cycle for Emerging Technologies, 2017



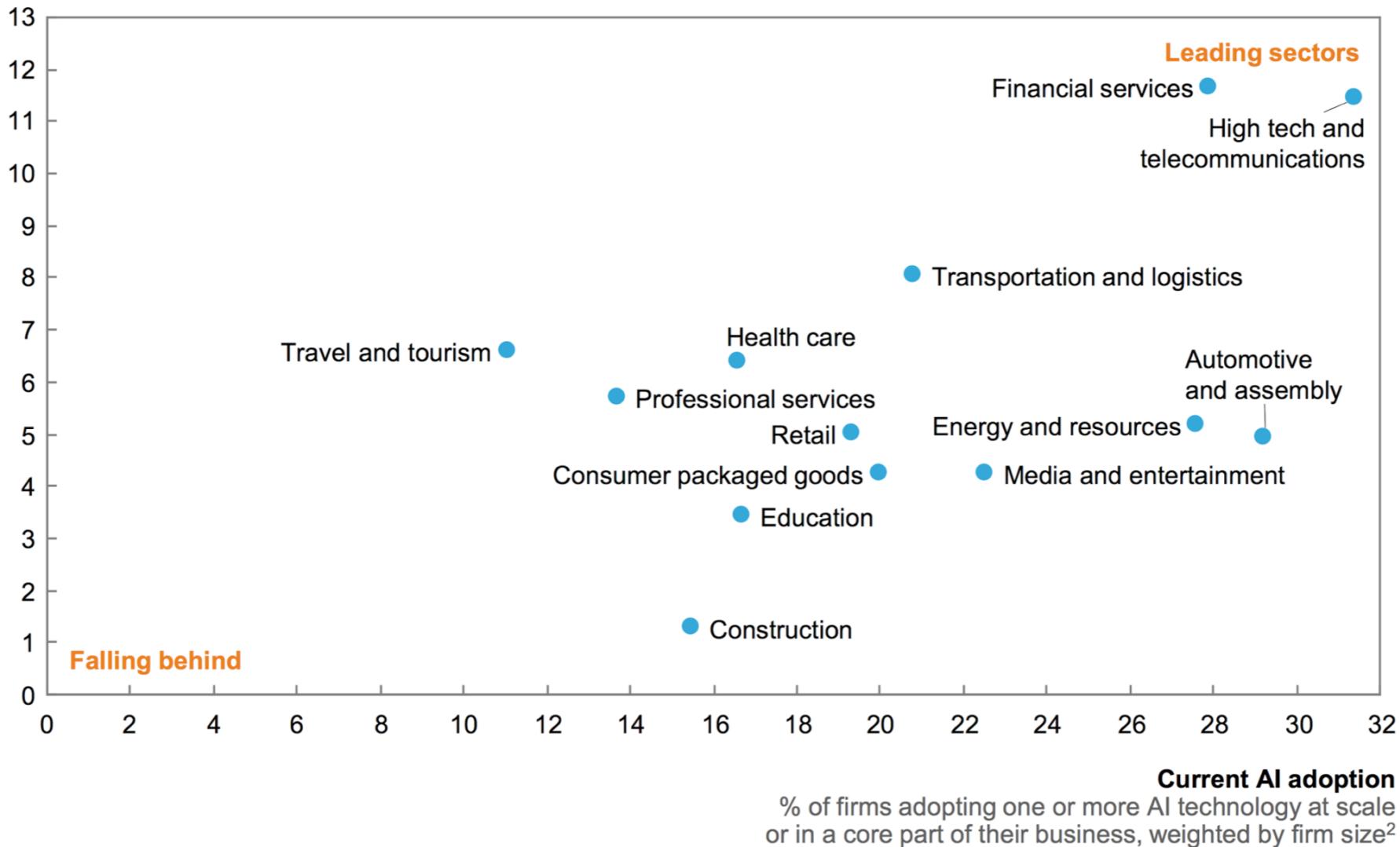
gartner.com/SmarterWithGartner

Source: Gartner (July 2017)
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Future AI demand trajectory¹

Average estimated % change in AI spending, next 3 years, weighted by firm size²

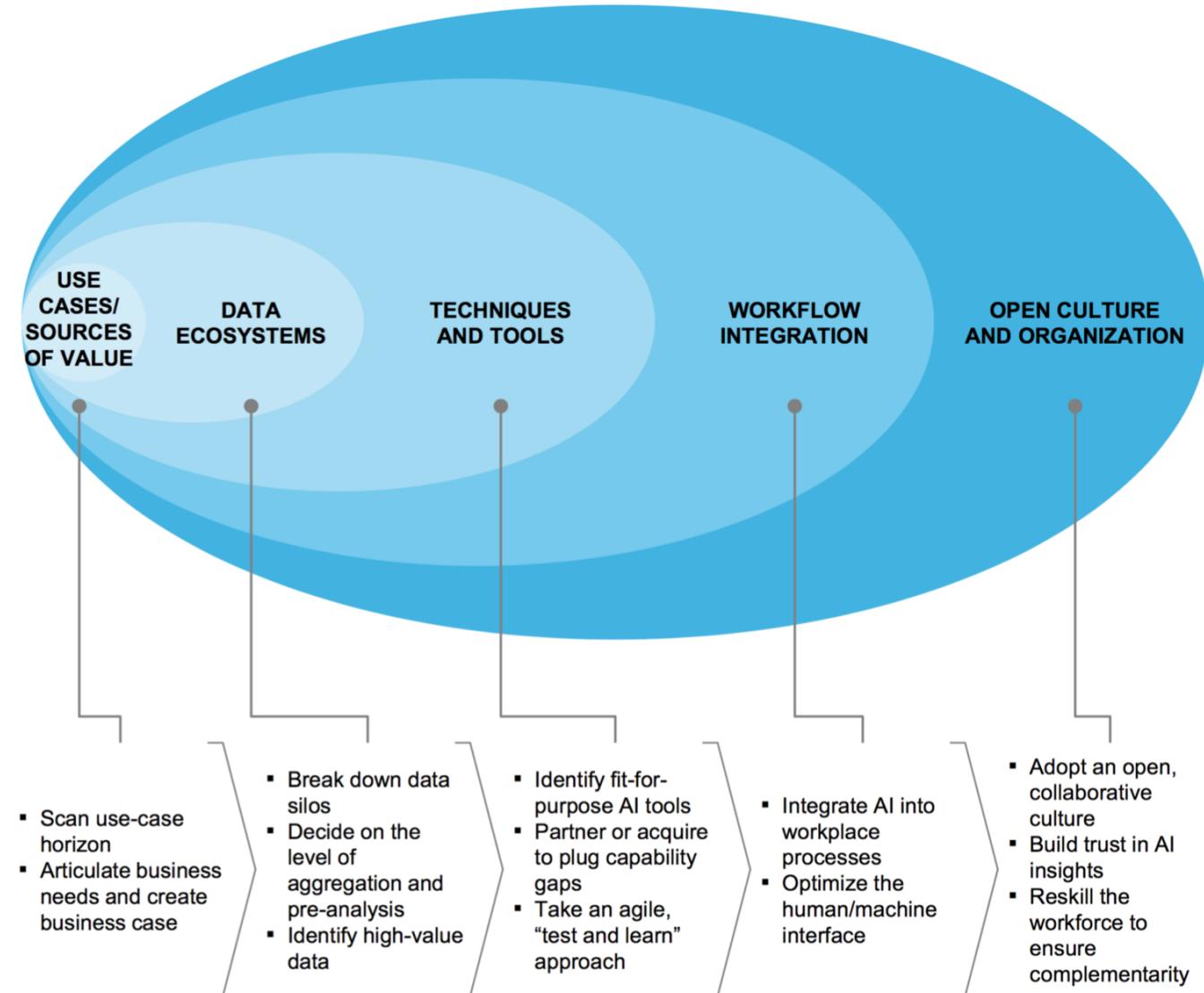


1 Based on the midpoint of the range selected by the survey respondent.

2 Results are weighted by firm size. See Appendix B for an explanation of the weighting methodology.

AI transformation is similar to Digital Transformation

Successful AI transformations require elements similar to those found in successful digital and analytics transformations

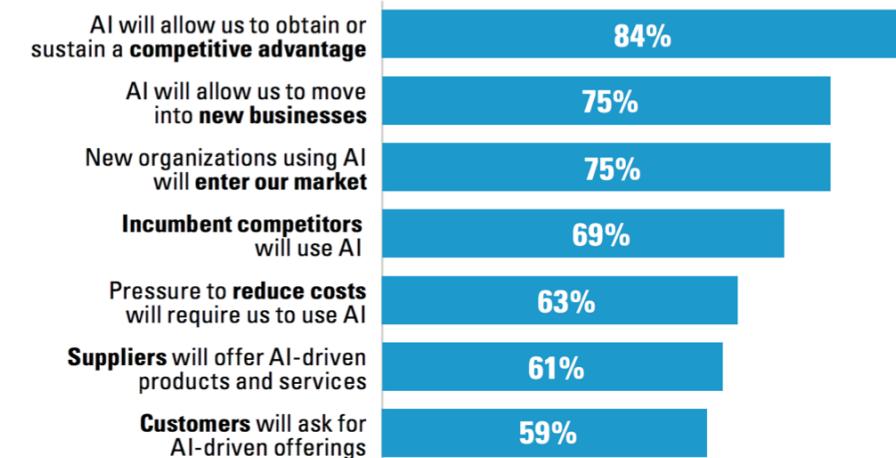


SOURCE: *The age of analytics: Competing in a data-driven world*, McKinsey Global Institute, December 2016; McKinsey Global Institute analysis

Why is your organization interested in AI?

Why?

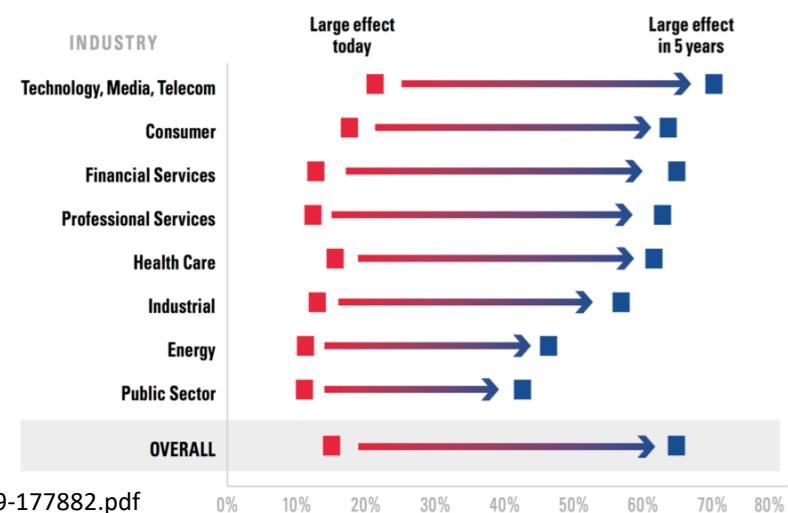
- Know your challenges?
- Why are they challenges?
- Geographically distributed?
- Grew by acquisition?
- Growth targets?
- Diverse product portfolio?
- Regulatory industry?
- Entry barriers for competition?
- Productivity vs. Quantity vs. Quality?
- Large project syndrome?
- Revenue vs. Margins?
- Unpredictable growth rates?
- Have a priority list of challenges to address?



Percentage of respondents who somewhat or strongly agree with each statement

Expectations for AI adoption across industries: impact on offerings

To what extent will the adoption of AI affect your organization's offerings today and five years from today?



AI Adoption Challenges

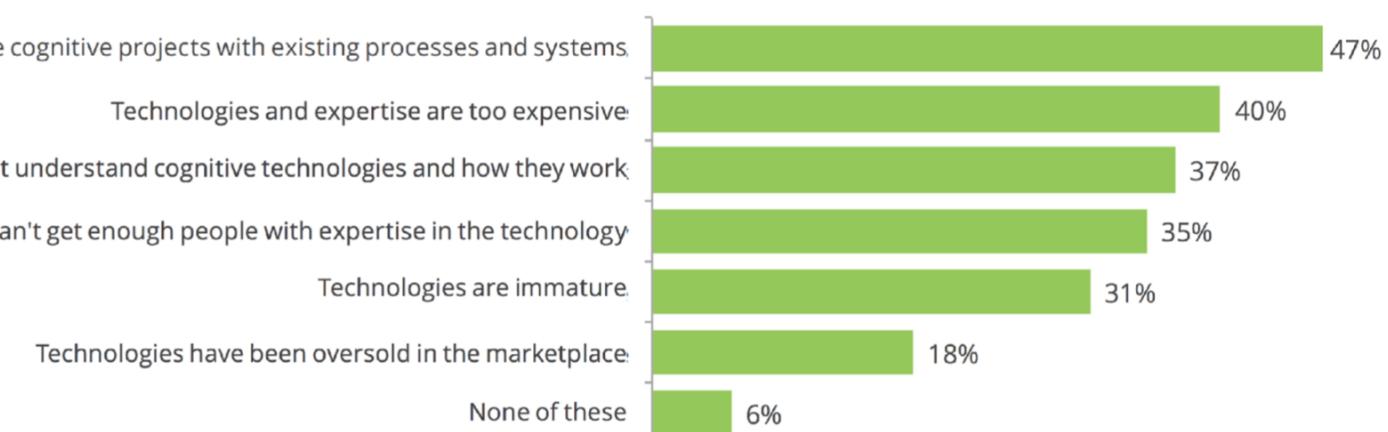
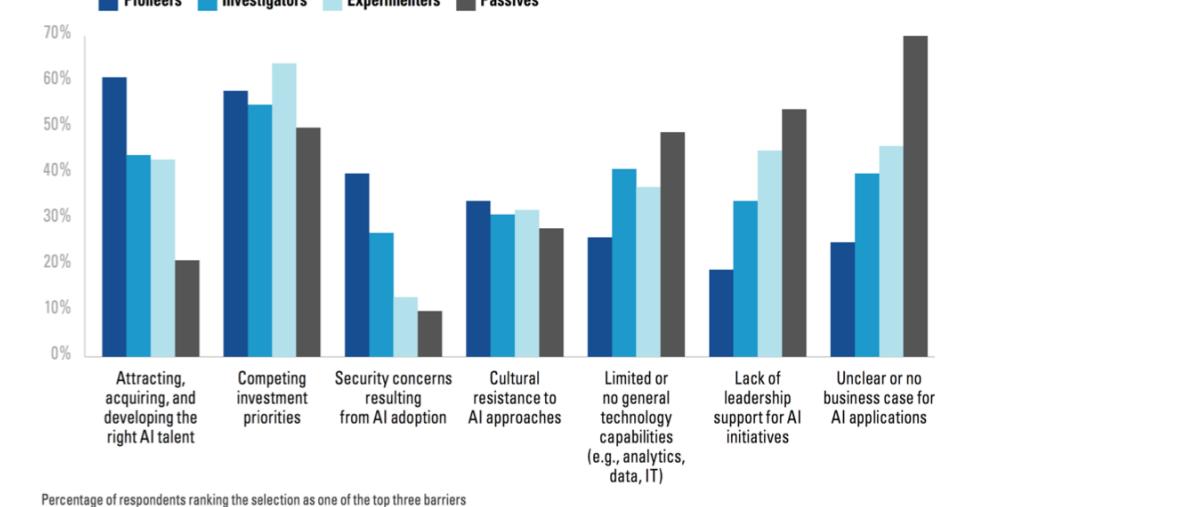
- **80-20 Rule of adoption¹:** Chasm between ambition and adoption
- Low visibility of where to apply AI
- High expectations
- Shortage of talent
- Fear of AI (job loss, new learning, etc.)
- Tech challenges
- Costs

"Don't invest in AI. We don't invest in natural language processing. Don't invest in image analytics. Invest in a business problem."

Barriers to AI adoption

What are the top three barriers to AI adoption in your organization?

Pioneers (Understood and Adopted), Investigators (Understood but in Pilot stage), Experimenters (Piloting without deep understanding), Passives (No adoption)



Source: Deloitte State of Cognitive Survey, August 2017

¹MIT Sloan Management Review; https://www.bcg.com/Images/Reshaping%20Business%20with%20Artificial%20Intelligence_tcm9-177882.pdf

8 Critical questions for CXOs

1. AI ready
2. Opportunities / Challenges
3. Obstacles
4. Awareness
5. Capability
6. Data
7. Plan
8. Help

AI ready

- Are you?
- Committed?
- Do you know how to do it?
- What are you missing without AI?
- Have listed the reasons why you want to do?
- Regulations?
- Culture of organization is supportive of changes?
- Why do you want to get AI
 - Reasons, Challenges, Benefits
- What do you want to accomplish
 - Competition? Revenue? Customer value?
 - Efficiency?
- How do you want to go there
 - AI strategy
 - Gap analyses,
 - Priorities of focus areas
 - Barriers to change
 - Org change
 - Train people
 - Acquire tools
 - Talent hiring
 - Change management
 - Metrics

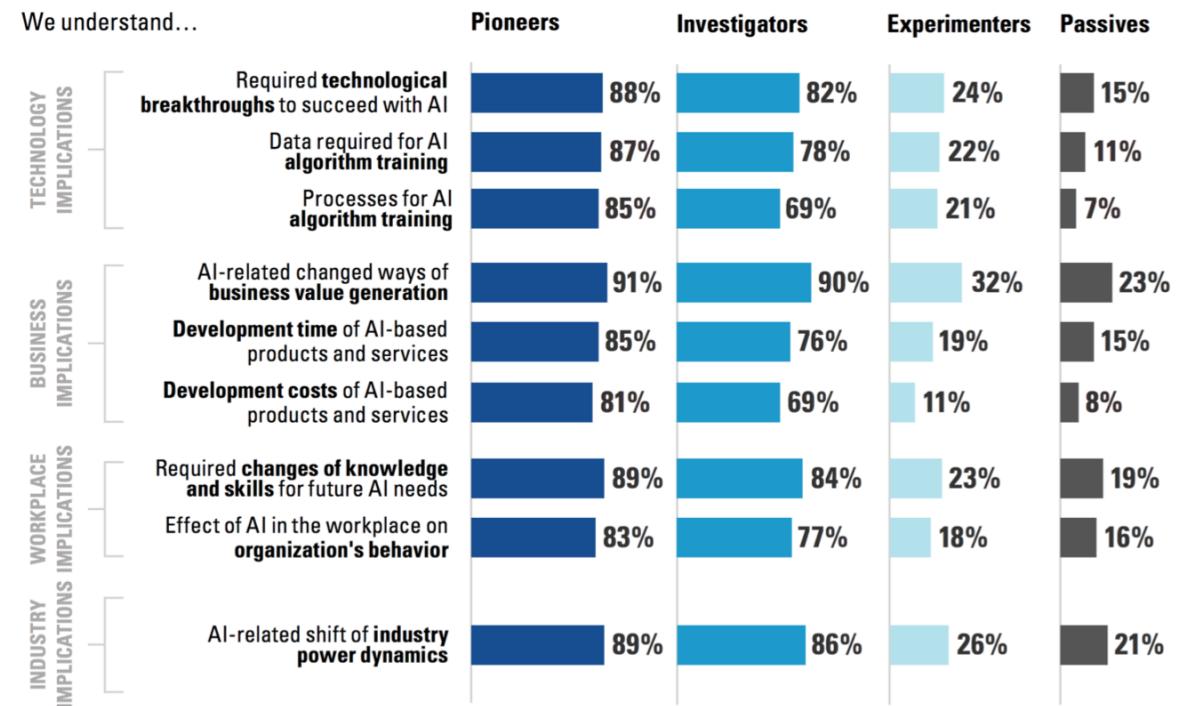
Awareness

- Is the organization aware of 'how' and 'what' of AI?



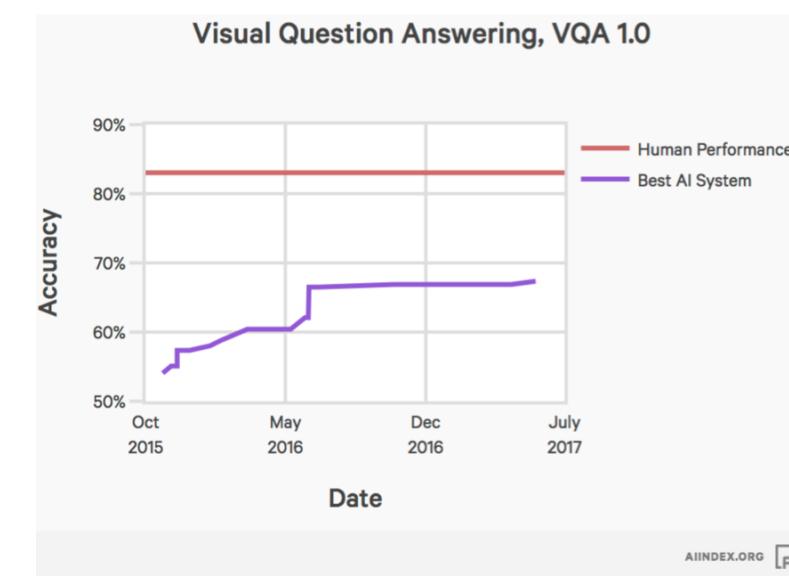
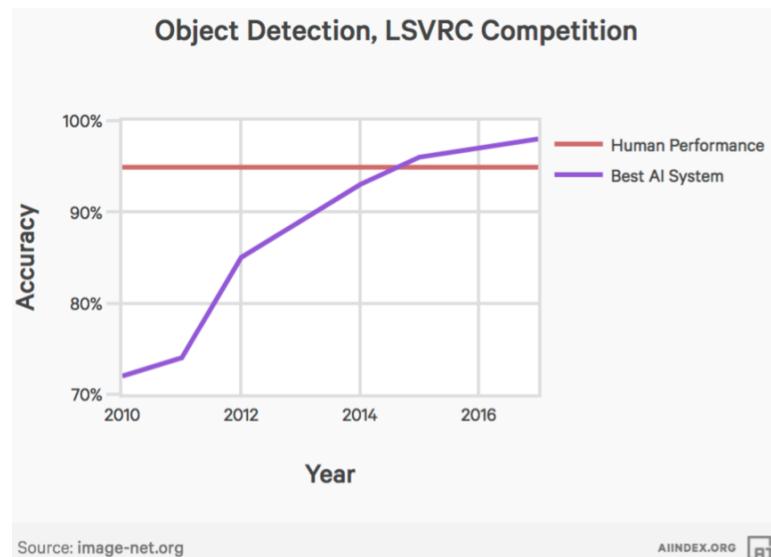
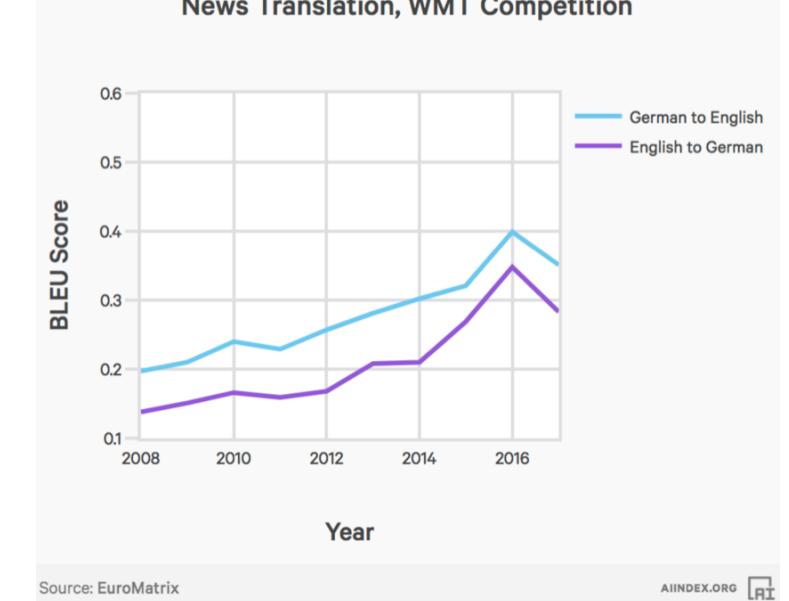
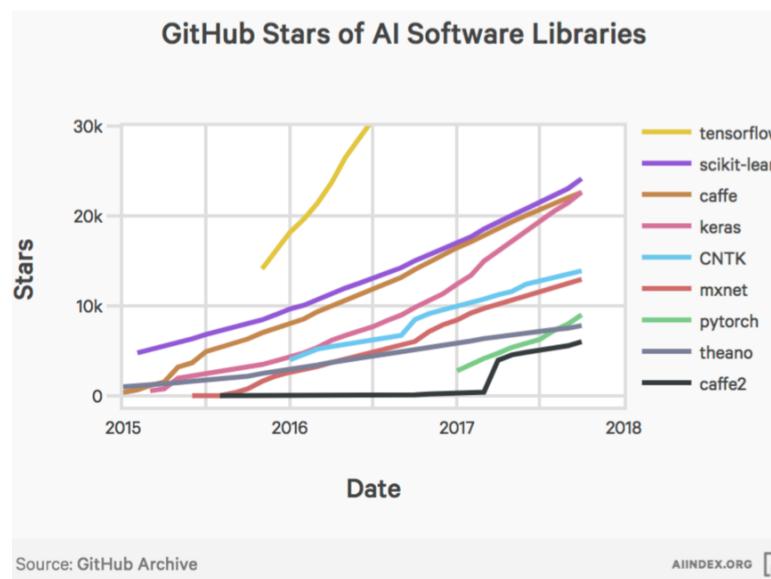
Levels of AI understanding

To what extent do you agree with the following statements about your organization?



AI Index Report 2017

(One Hundred Year Study on Artificial Intelligence (AI100) at Stanford University)



Data

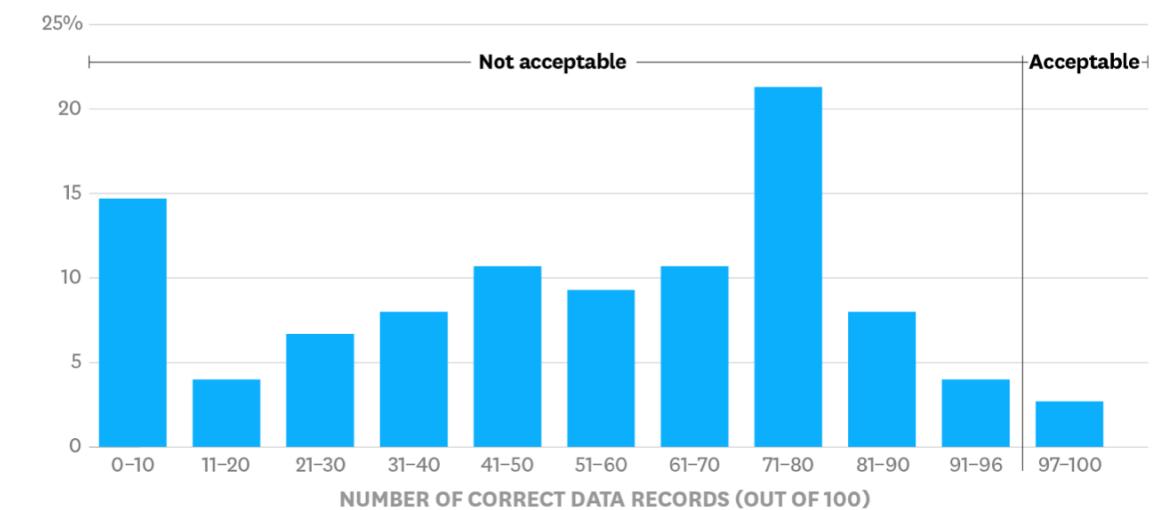
- Don't know what to collect?
- Do you have the data?
- Incomplete?
- Large?
- Diverse type?
- Diverse sources (machines, mobiles, man)?
- Sparse?
- Erroneous?
- Distributed storage?
- Data pipelines?
- Streaming data?
- Data ownership (proprietary data): Do you have it
- Where to get: Orgs that own may have little incentive to make it available
- Data is fragmented across data sources or orgs
- ownership of important data may be uncertain or contested.
- Data privacy, data access permissions and data privacy rules
- Regulatory requirements
- Negative data is almost never published

Only 3% of Companies' Data Meets Basic Quality Standards - HBR

Data Quality Is in Worse Shape Than Most Managers Realize

In a study involving 75 executives, only 3% found that their departments fell within the minimum acceptable range of 97 or more correct data records out of 100.

PERCENTAGE OF DEPARTMENTS



SOURCE TADHG NAGLE ET AL.

© HBR.ORG

<https://hbr.org/2017/09/only-3-of-companies-data-meets-basic-quality-standards>

Plan

- What is the plan?
- Risks?
- SWOT?
- Schedules, effort and budget?
- Geographically distributed groups?
- Role play as start-ups, Internet companies, and direct competitors to get ideas

Help

- External help?
- Consultants?
- Industry Partners / consortium / collaboration etc.?

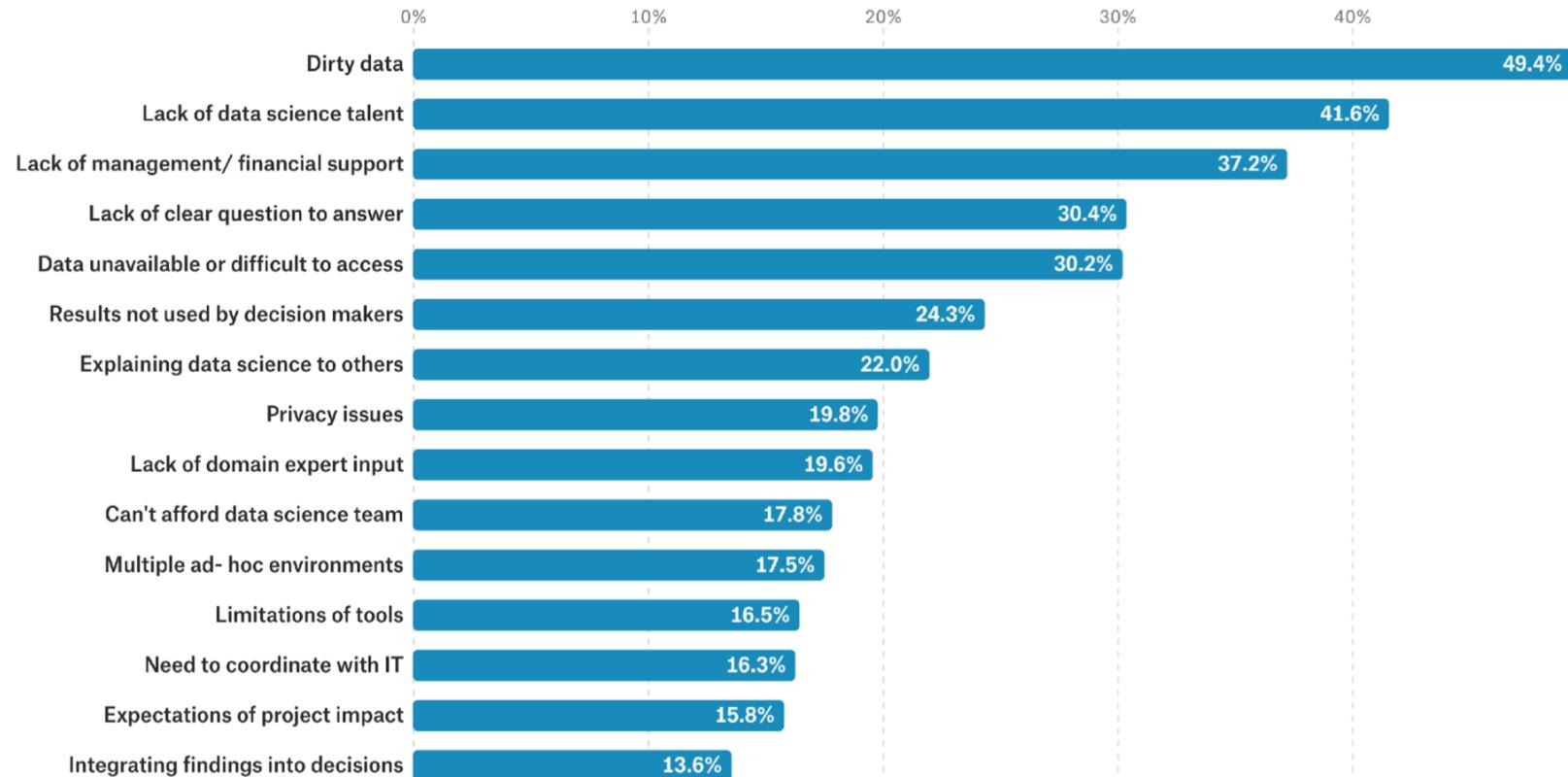
Capability

- Do you have teams that can do it?
- Tools and Frameworks identified?
- Procured?
- Current infrastructure?
- Compatible tools?
- Centralized vs distributed capability acquisition

Change Management

- Middle management black hole
- Is there a buy-in for AI? Are they scared?
- Job loss
- Budget constraints for other departments
- Scared of centralization of decision making?
- Culture

Obstacles: Kaggle survey on AI state of affairs



7,376 responses

Tipping-point assessment

a point in time when a group—or a large number of group members—rapidly and dramatically changes its behavior by widely adopting a previously rare practice - wikipedia

“How confident do you need to be before you are willing to make a significant investment?”

Are these approaching tipping point?

- customer awareness of AI
- AI tools and techniques
- Total cost of ownership (TCO)
- Regulations
- Switching barriers
- Ecosystem compatibility
- Scalability
- Influencers

What to focus

- Helping Humans (sift through vast data; speed of response)
 - Loan applications
 - Fraud detection
 - Patient diagnosis from reports
 - Predict the right stock
 - Send timely discount coupon
- Automating Ops
 - Detect malware
 - Shipping options
 - Ad placement dates
 - Energy consumption in data centers
 - Network routing
 - Placing block trades in stock purchases
 - Truck routes
 - Auto-replacement of servers in data centers
- Make products smarter
 - Suggest the right movie
 - Self driving autos
 - Detect Sentiment
- Develop new great products
 - Voice assistants
 - Auto-email reply
 - Danger-comprehending Surveillance cameras



AI: Primary benefits to companies

Source: Deloitte State of Cognitive Survey, August 2017

Checklist (in addition to commonsense change management ideas)

- AI First motto
- AI health check of infra, skills, processes
- "Brace for impact" (failures are possible)
- Chief AI / Data Science / Digital Officer / Cognitive Capability Officer⁴
- AI awareness across the org.
- Central coordination of AI movement (preferably from higher echelons)
- Multiple pilots – Jeff Bezos⁵
- No need for experimentation (of AI projects)
- Take external help
- Customer education (example, a Patient needs to be assured of AI results, a stock investor needs evidence, etc.)
- Privacy and Regulatory compliance (example, who is “reading” your emails; GDPR;)
- Keep an eye on your organization “Tay¹” projects or “Gorilla²” projects (especially for B2C companies)
- Simultaneous Multi-pronged objectives:
 - Processes (work on internal processes, customer facing and Business objectives) (Example: Pfizer³)
 - Size of projects (Low hanging fruits, business-impacting)
 - AI talent (train internal, hire talent from market, engage consultancy firms)

¹<https://www.theverge.com/2016/3/24/11297050/tay-microsoft-chatbot-racist>

²<https://www.usatoday.com/story/tech/2015/07/01/google-apologizes-after-photos-identify-black-people-as-gorillas/29567465/>

^{3,4}<https://www2.deloitte.com/us/en/pages/deloitte-analytics/articles/cognitive-technology-adoption-survey.html>

⁵<https://www.cnbc.com/2017/05/08/amazon-jeff-bezos-artificial-intelligence-ai-golden-age.html>

Who knew
lawn mower
would lead to the
global sports industry,
now worth **\$620 billion** annually?



Difficult Questions

(I will answer offline only)

1. Should I use Watson?
2. Should I go with a pricy AI vendor or a cheap local AI vendor?
3. How to evaluate an AI services vendor?
4. Which one to pick: Tensorflow, PyTorch, Caffe2, MXNet,...?
5. Should I hire PhDs or just programmers?
6. How many ML experts vs programmers in a team?
7. Does my cloud decision (GCP, AWS, etc.) impact the choice of AI tools?
8. Start with Chatbots or Predictions? (Believe me, there is a precise answer)
9. Make the existing application more autonomous or smarter?
10. Use open source tools or pay a small price for “good” tools?
11. Use (regular) frameworks or use Automated ML frameworks?
12. Will Google / AWS APIs for image processing or language translation work for me?
13. I am a mid-size/small company. How should I go for AI? (Answer: a lot different from your big brethren?)
14. Can I get good AI resources for free / very cheap? (Answer is yes; seriously;)
15. Will my AI approaches be same for all departments (sales, Marketing, IT, Data centers, Customer care, Engineering, etc.)
16. Can my models be hacked by hackers (wrong question)
17. I am a content heavy org....???????

Thank you

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