# AI in the Enterprise

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07 May 2018

# Topics

Context

AI as a technology and ecosystem

AI as a driver of enterprise value

Summary

# Outline

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In academia

- Professor at Columbia, Fellow at Cambridge, in statistics/machine learning
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Orientation

- AI as a shovel-ready, targeted technology vs. AI futurism
- Particularly interested in AI impact on enterprise value and cost structures
- Disclaimer: financial interest in some companies mentioned herein

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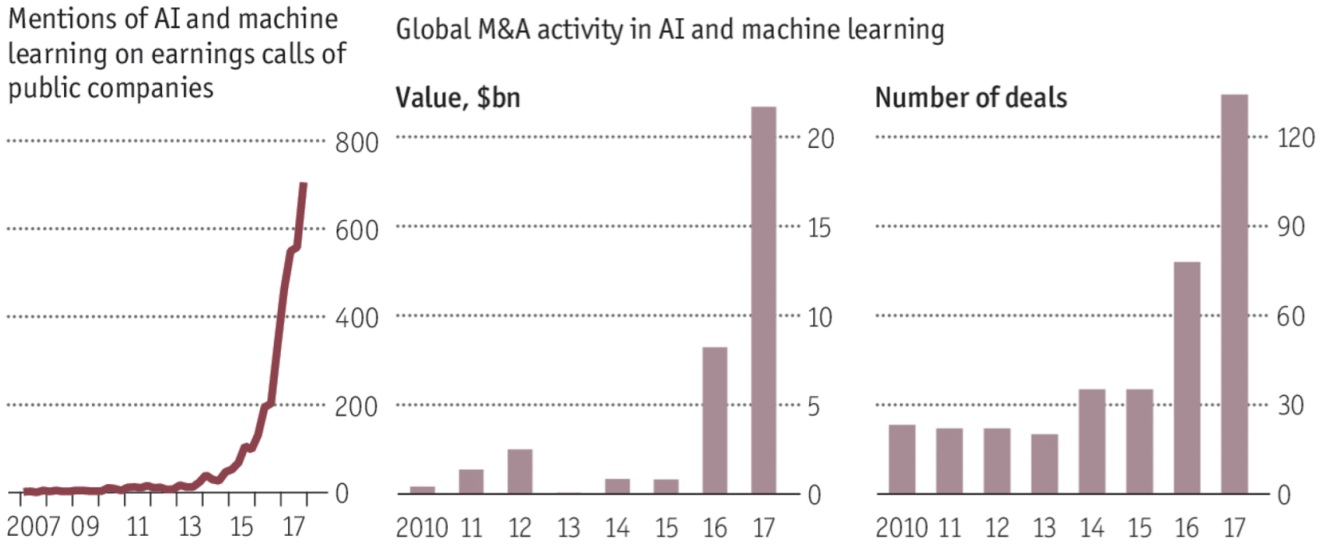

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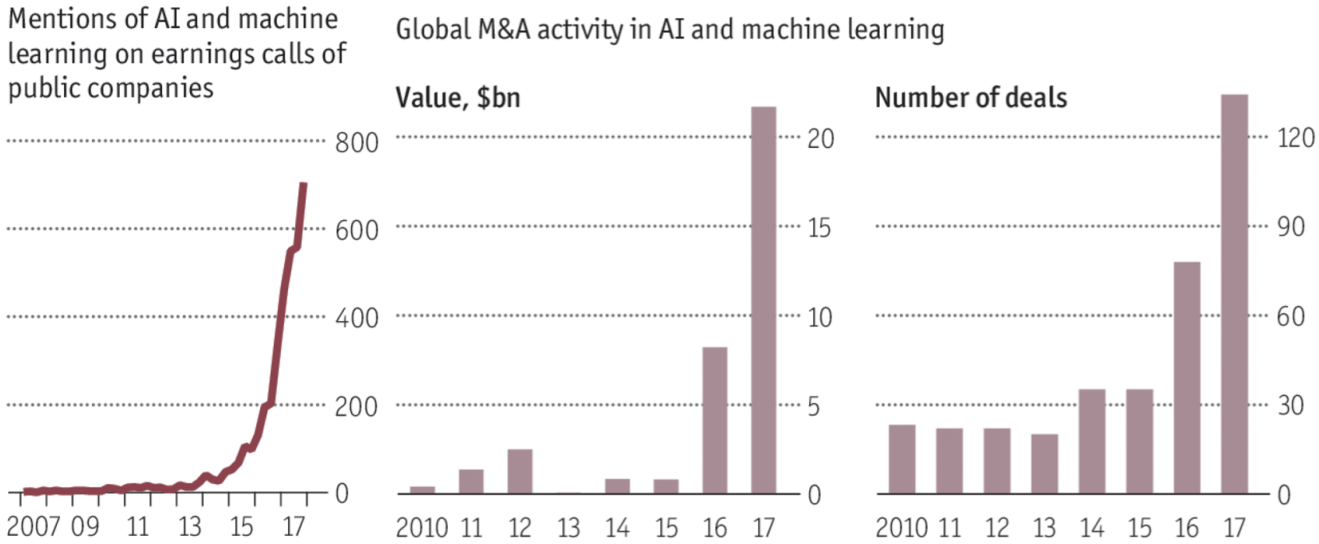


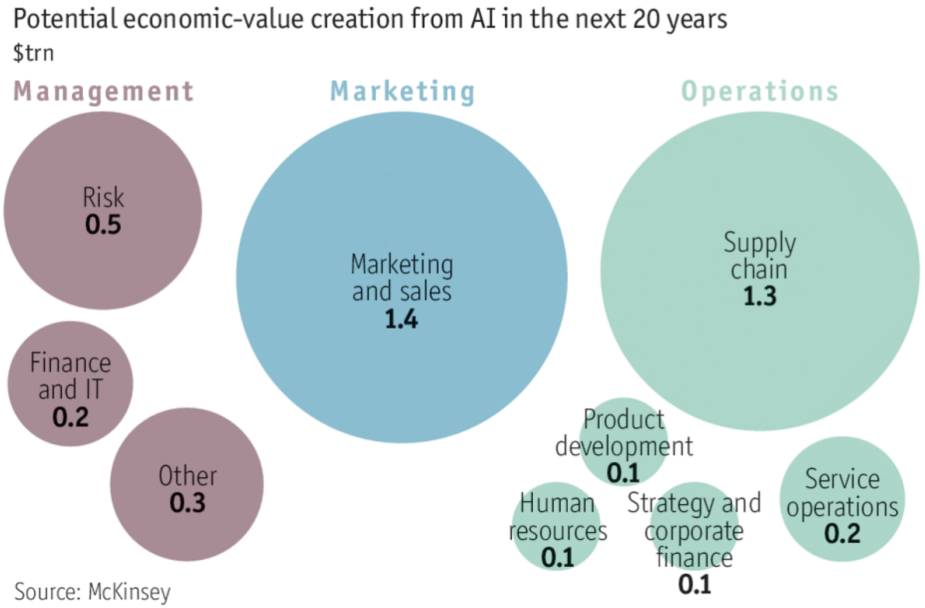


- Even the most conservative views claim \$100bn's-trn's impact in the coming decade.

[The Economist]

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- labor productivity $\uparrow 1\%$
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- $+$\$1-3Trn enterprise value
- $+$\$10's Bn rev per sector
- $-$\$10's Bn costs per sector
- retail, finance, healthcare, energy, agriculture, resources,...

| ML/AI impact | Low | Base | High |
|---|---|---|---|
| Labor hours reduction (mn) | (1,571) | (2,969) | (4,714) |
| Reduction | -0.5% | -1% | -1.5% |
| 2025 Labor hours (mn) | 312,693 | 311,295 | 309,550 |
| 2025 GDP ($bn) | 25,034 | 25,034 | 25,034 |
| Labor productivity | 80.1 | 80.4 | 80.9 |
| yoy growth (%) | *1.8%* | *2.2%* | *2.8%* |
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[Gartner, McKinsey, Goldman Sachs]

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- monopolization
- workforce displacement
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Goal: understand AI ecosystem and how enterprises can capture this upcycle

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# Early consolidation and commoditization

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**IBM pitched its Watson supercomputer as a revolution in cancer care. It's nowhere close**

By CASEY ROSS @caseymross and IKE SWETLITZ @ikeswetlitz / SEPTEMBER 5, 2017

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- Result: a very different technology ecosystem vs 20 years ago

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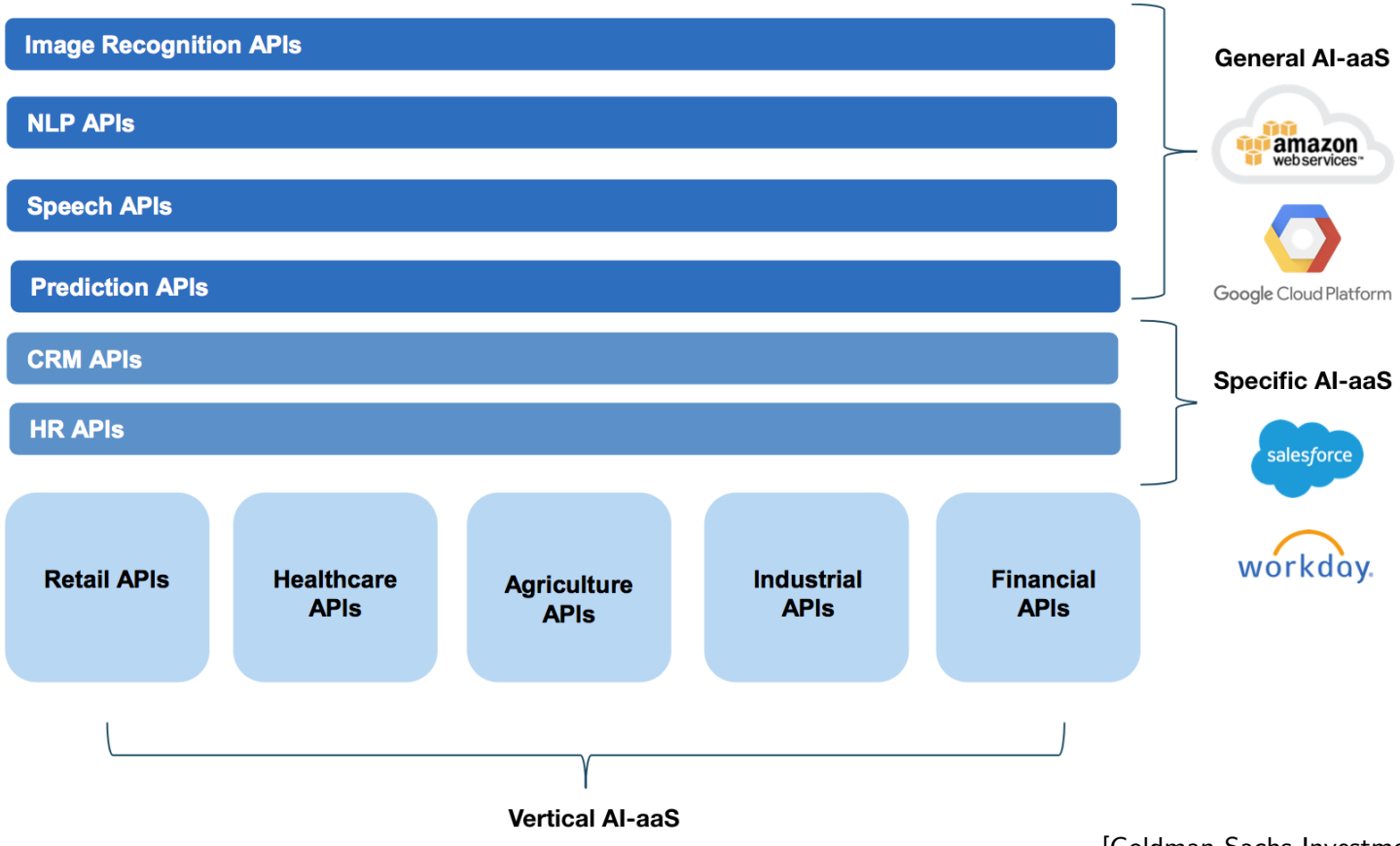


[Goldman Sachs Investment Research]

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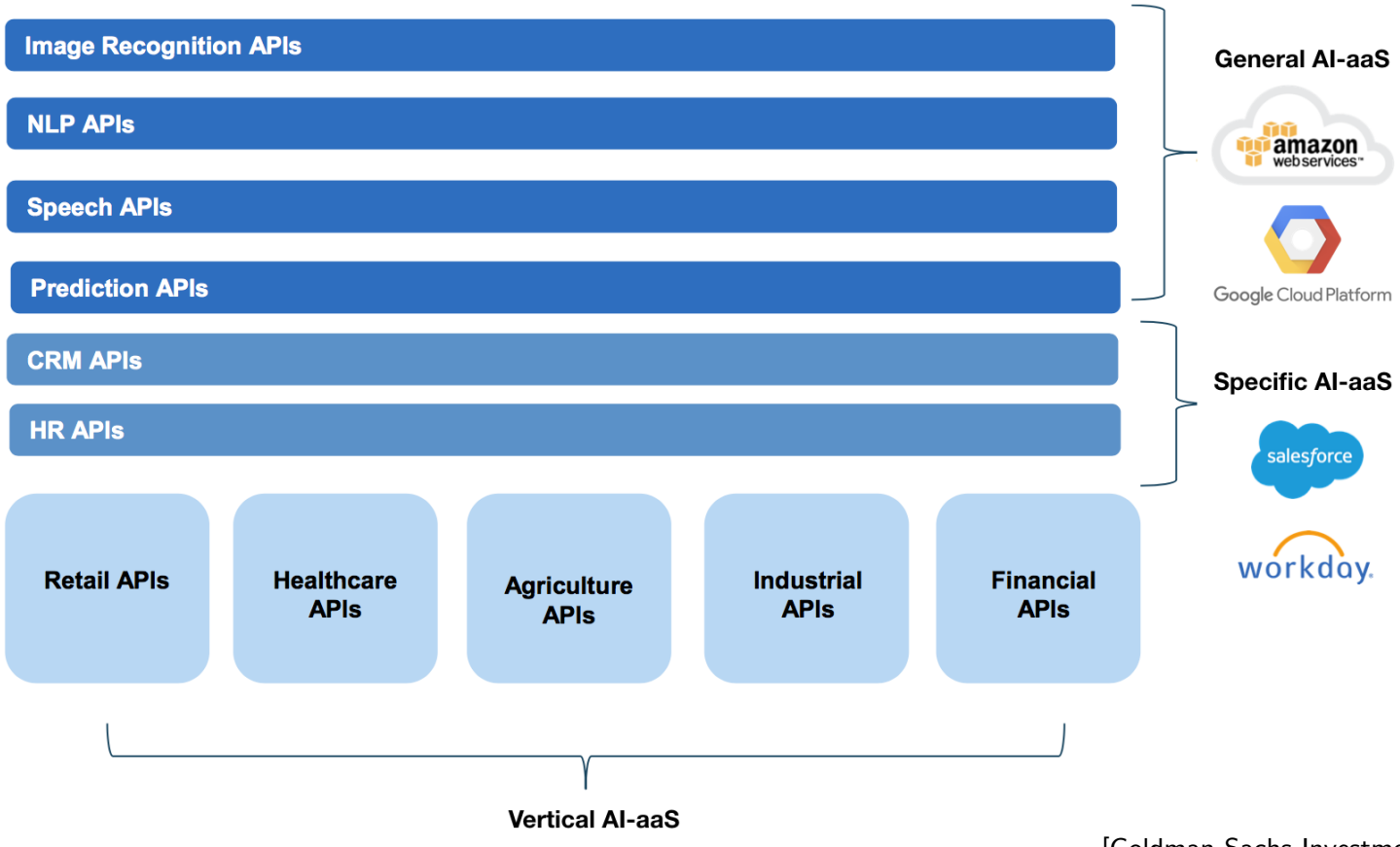



[Goldman Sachs Investment Research]

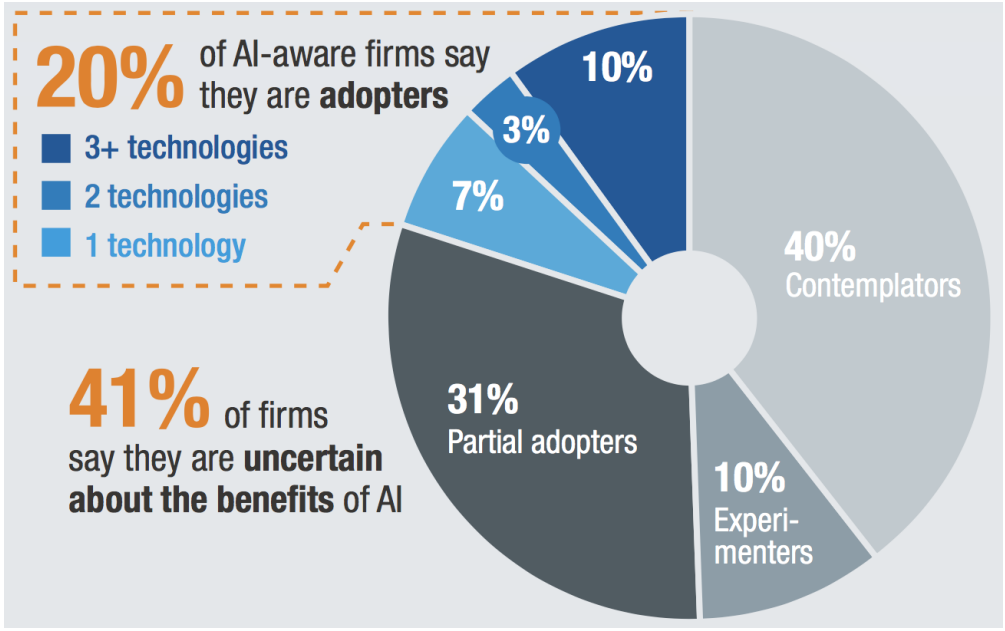
- Vertical AIaaS:
  - Unclear if/when API value will outgrow strategic **value of proprietary data**
  - Possible exception: data platforms in finance, energy, etc.

Bloomberg IHS Markit

# Result: lumpy AI ecosystem

Ecosystem (and hype) $\rightarrow$

- AI adoption is low
- path to AI is confused
- opportunity still huge

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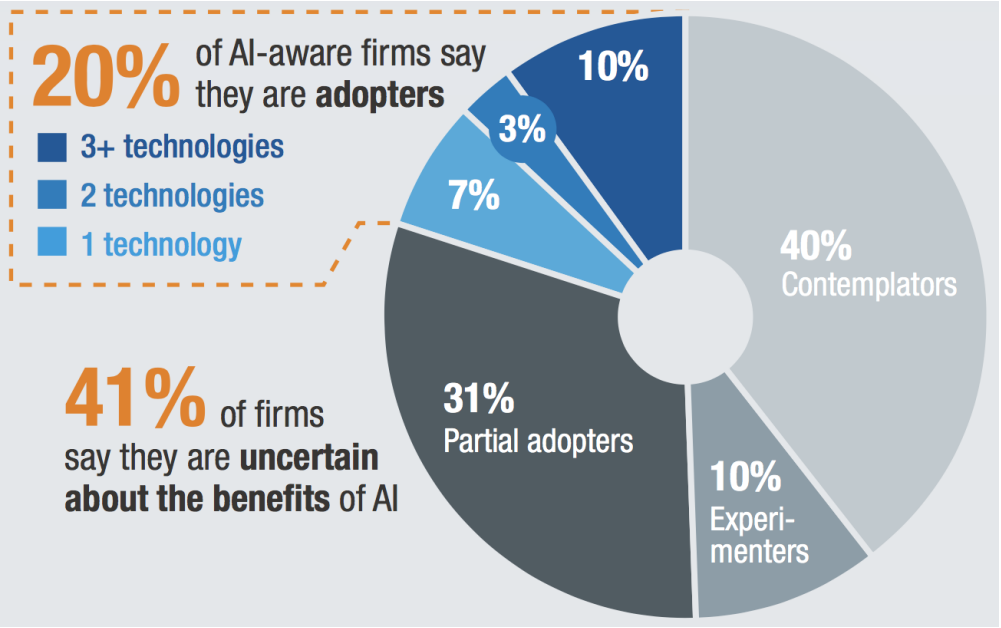


[McKinsey]

Path forward solvable for teams willing to consider new models:

- Scope value-centric opportunity
  - leverage proprietary data $\rightarrow$ primary defensible advantage
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  - senior ownership/evangelism

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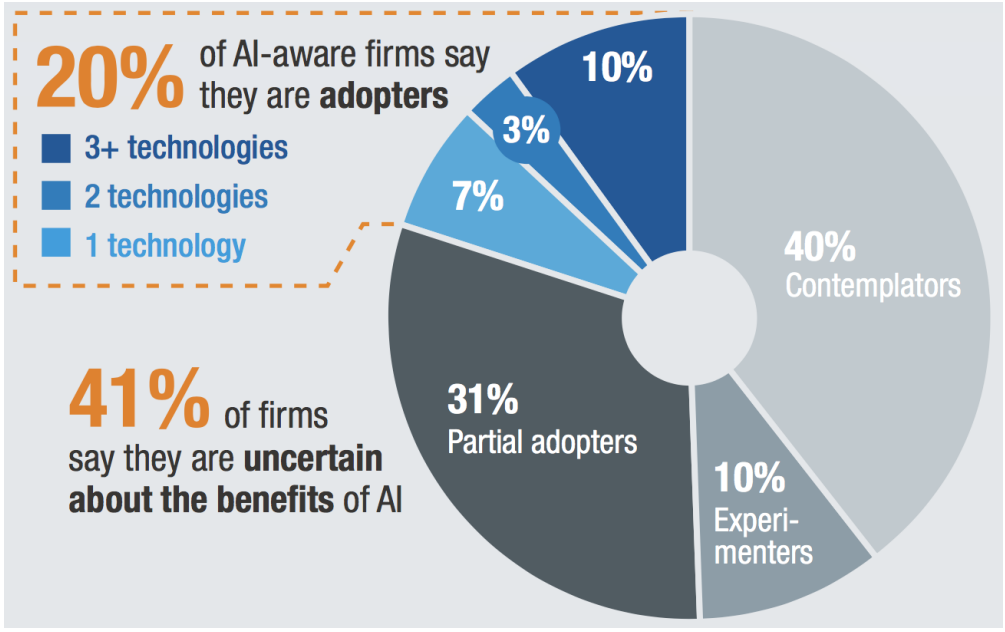


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Path forward solvable for teams willing to consider new models:

- Scope value-centric opportunity
  - leverage proprietary data $\rightarrow$ primary defensible advantage
  - targeted scientific and technical advisory/implementation
  - senior ownership/evangelism
- Upskill and bootstrap software engineering resources
  - commoditized technical stack lowers point of entry for capable dev teams
  - buy/build once problem is well scoped and economics are understood

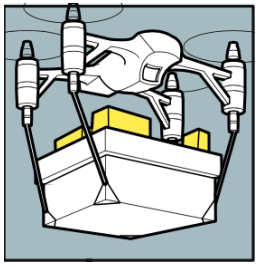
# Outline

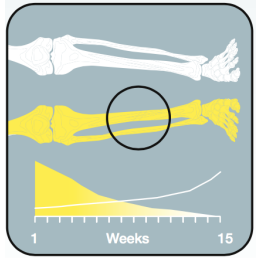
# How AI adds value to busineses

## Strategic intelligence

adtech/personalization, trading/decision making,...

## Capital efficiencies



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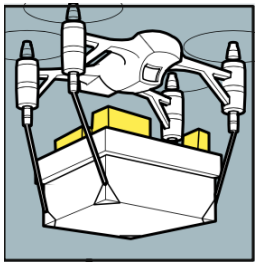
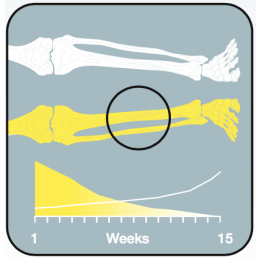


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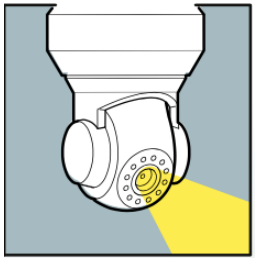
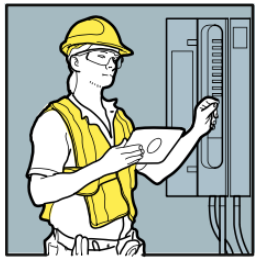
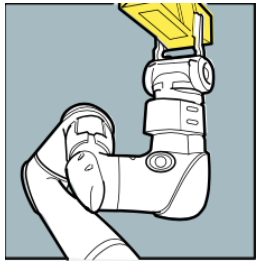


insurance, credit, fraud, cyberthreat,...

## Optimization of value-centric processes

core machinery, skill enhancement, precision control,...

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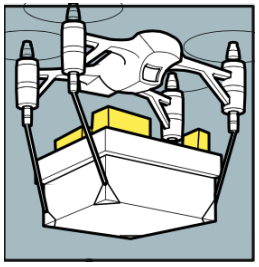
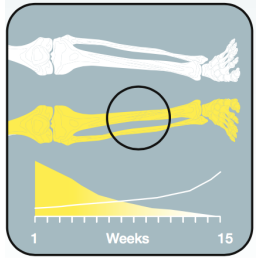


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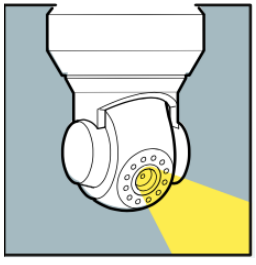

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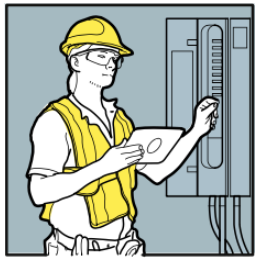
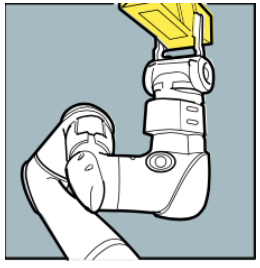

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Key themes:

- Core opportunity is in **proprietary data that is core to enterprise value**
- AI requires rationalizing a business problem as a quantitative objective

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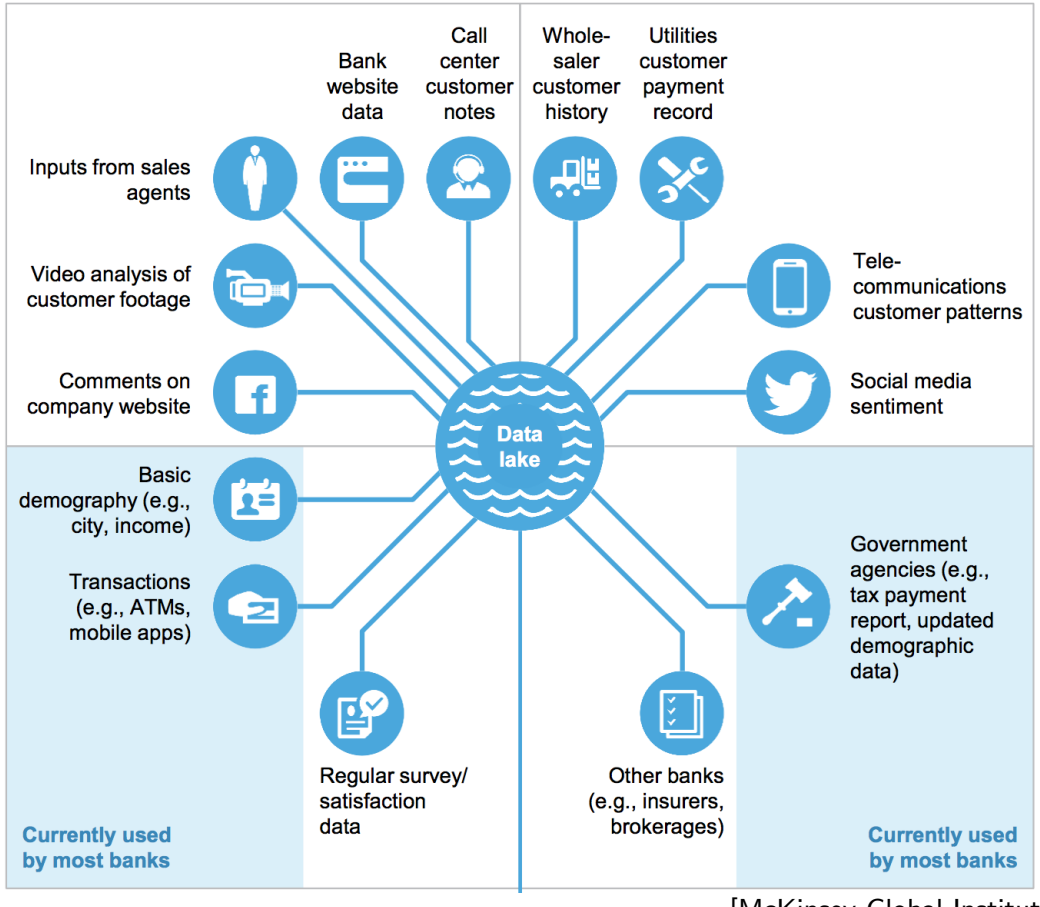
- (fundamental to quant finance for decades)
- Retail/commercial fintech coming...




[McKinsey Global Institute]

# Capital efficiencies

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| US Median annual pay | $51,636 |
| Number of jobs in US | 218,776 |
| **US Annual cost ($mn)** | **$11,297** |
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| US healthcare spend ($mn) | $2,998,469 |
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History $\rightarrow$ new functions will replace, others will remain protected

- Those interested might read Frey and Osborne (2017), *The future of employment: how susceptible are jobs to computerisation?*

# Risk mitigation

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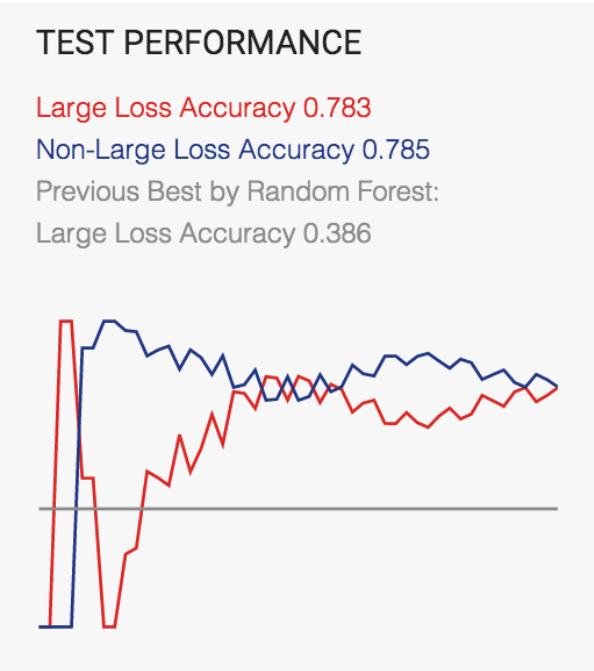
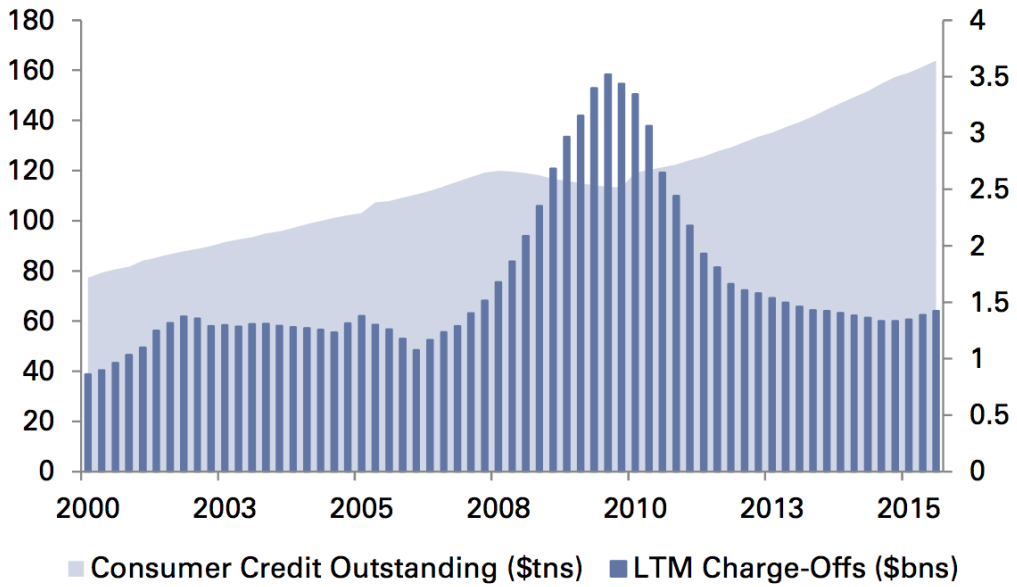
- Example: consumer credit charge-offs around $60Bn annually; estimates for reductions up to 10-25% in coming 5-10 years.




[Google, Goldman Sachs]

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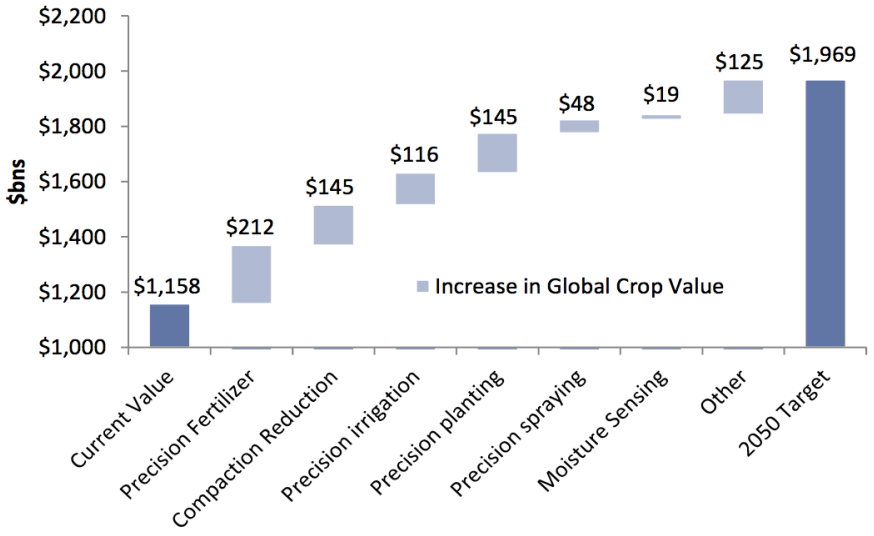
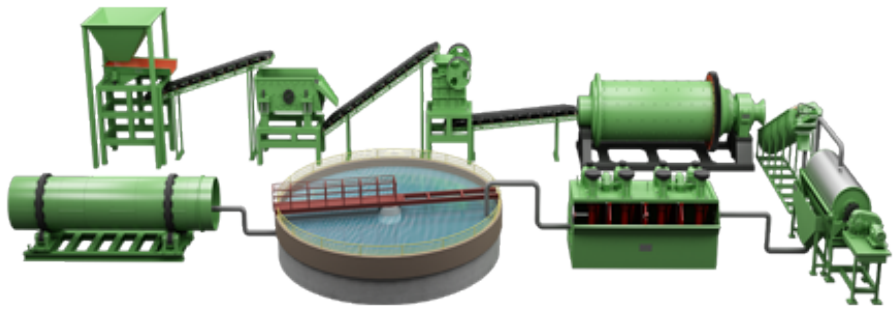
- Editorial comment: least discussed but most impactful opportunity for AI

## Agriculture




## Mining and Resources



[Goldman Sachs]

# Outline

# Conclusion

- AI will continue to drive major change across the economy
- Enterprises access this value via:
  - capital efficiency
  - strategic intelligence
  - optimization of value-centric processes
  - risk mitigation
- Building capabilities requires nimble teams, and offers outsized ROI

Thank you

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