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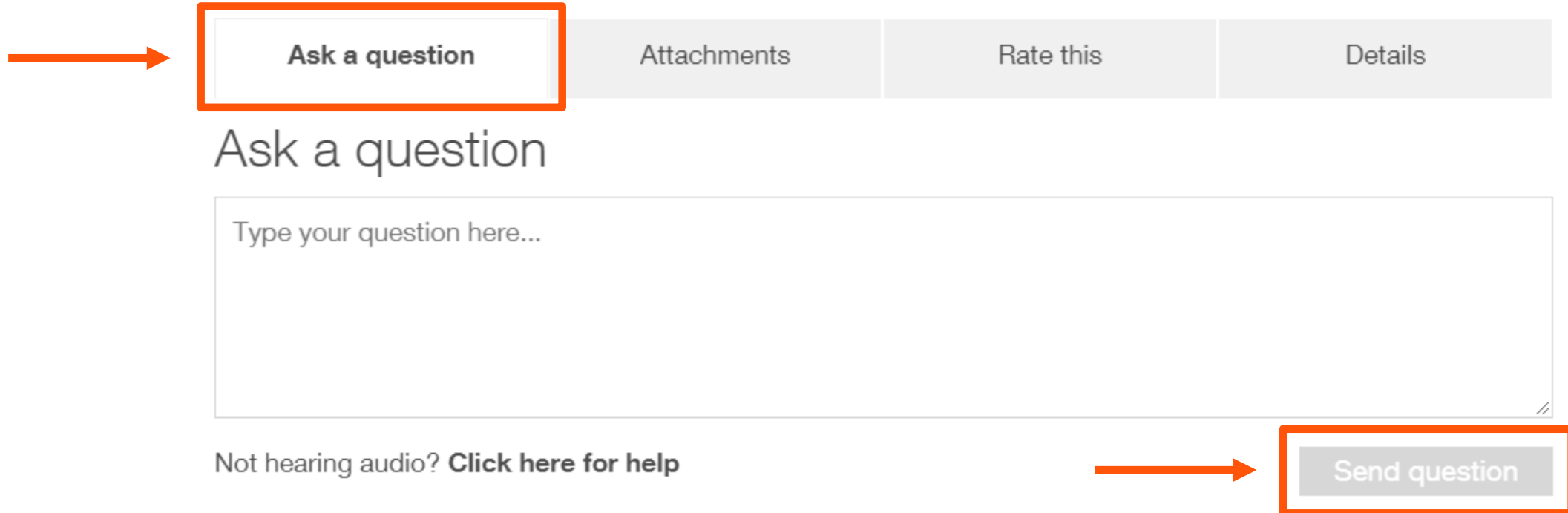


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Ask your questions



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The Future of Data Science, Machine Learning and AI

Connect with Gartner



Peter Krensky
Director Analyst

Peter Krensky is a Director, Analyst on the Business Analytics and Data Science team, specializing in data science and machine learning, including predictive and prescriptive analytics, citizen data science, augmented analytics, automated machine learning, DS/ML team structure and talent management.

Connect with Peter







**Data
Science**



**Machine
Learning**



**Artificial
Intelligence**

Key Issues

1. What drives the future of AI, ML and DS?
2. What will the future look like?
3. How to plan for the future?

Key Issues

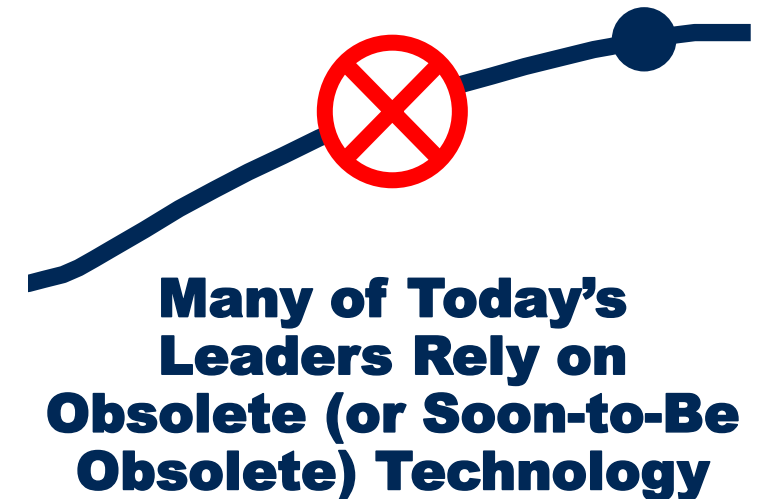
1. What drives the future of AI, ML and DS?
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AI and ML Are Viewed as Game Changers

	Top performers (n = 230)	Typical performers (n = 2,329)	Trailing Performers (n = 276)
Artificial Intelligence/ Machine Learning	40%	25%	24%
Data Analytics (Including Predictive Analytics)	23%	25%	21%
Cloud (Including XaaS)	12%	10%	14%

2019 CIO Agenda

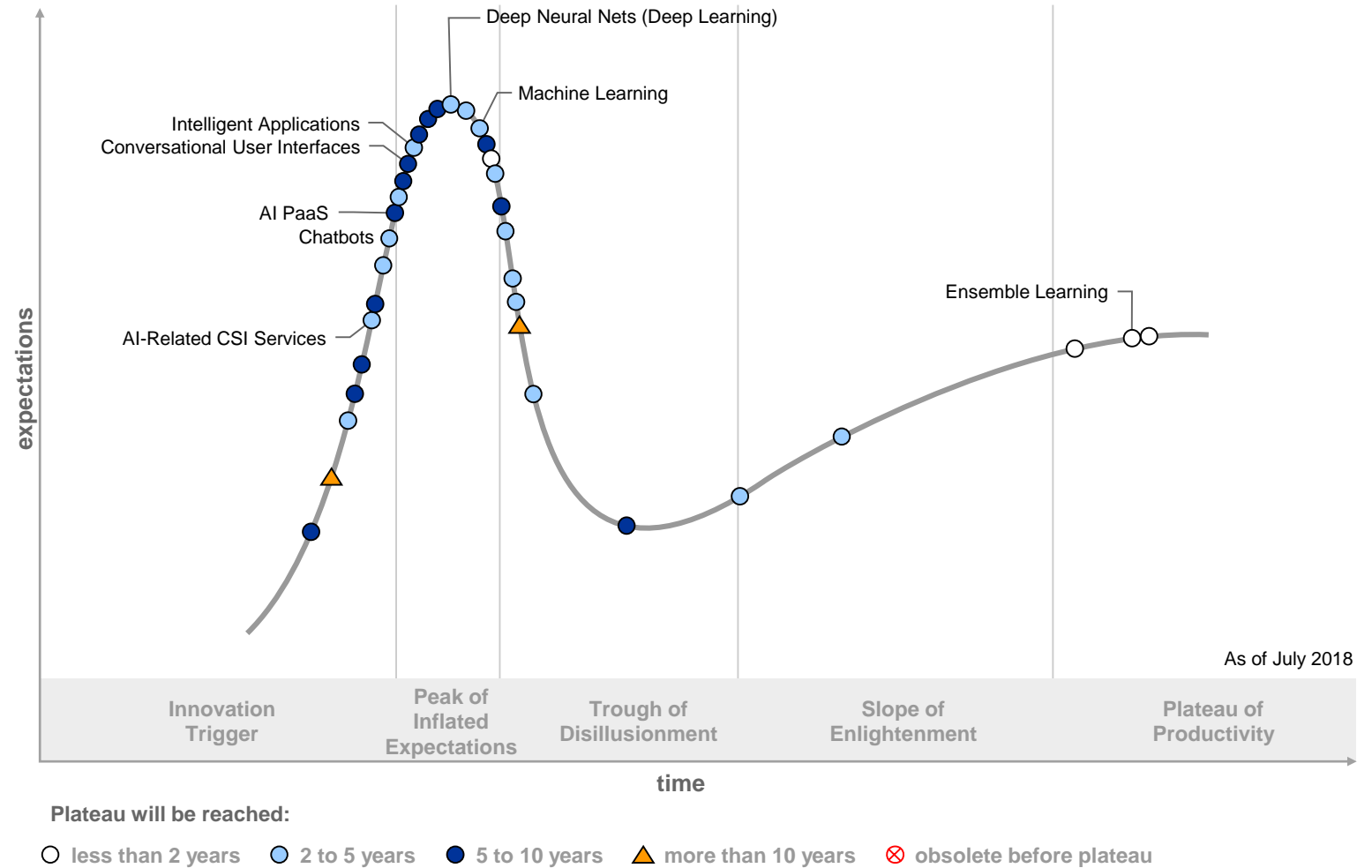
Which technology area do you expect will be a game changer for your organization?



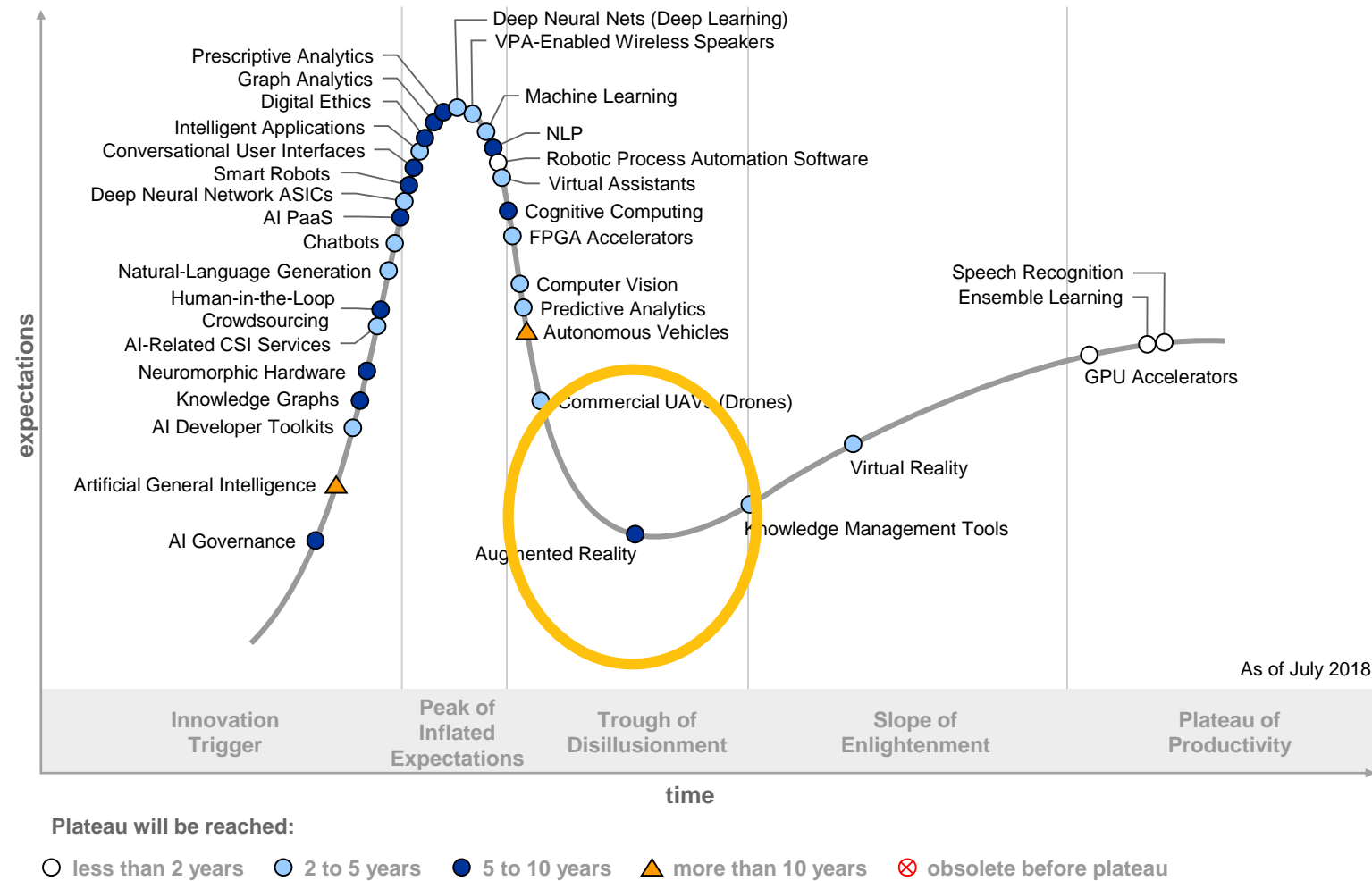
AI Comes in All Shapes and Sizes

- ✓ Niche Solutions (Many Narrow Segments)
- ✓ AI Platforms as a Service
- ✓ Custom Projects
- ✓ AI-Improved Applications and Suites
- ✓ AI-Enhanced Customer-Facing Channels
- ✓ Employee Consumerization

AI Will Enter Your Enterprise in Many Ways

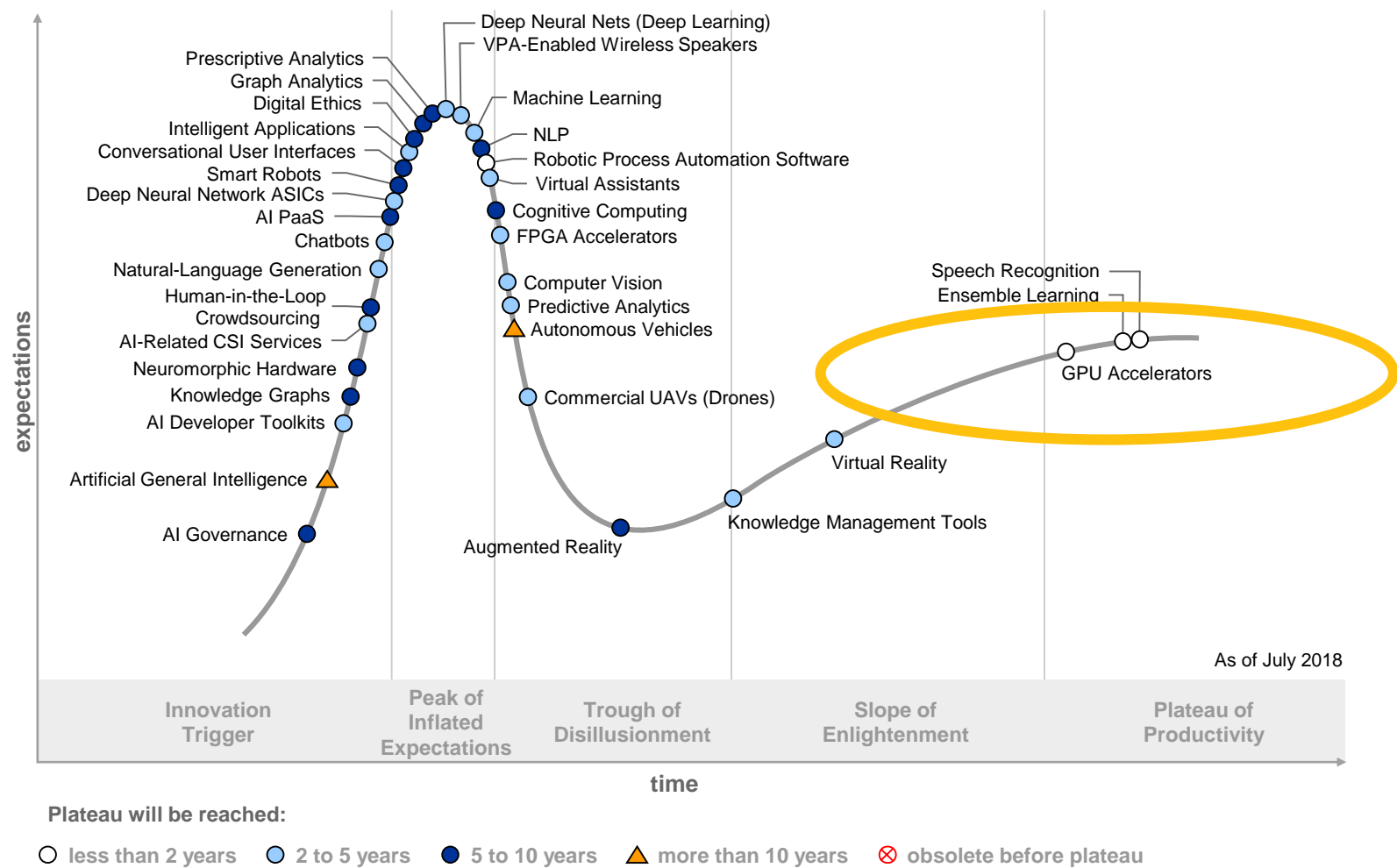


Still, the Trough of Disillusionment Is Imminent



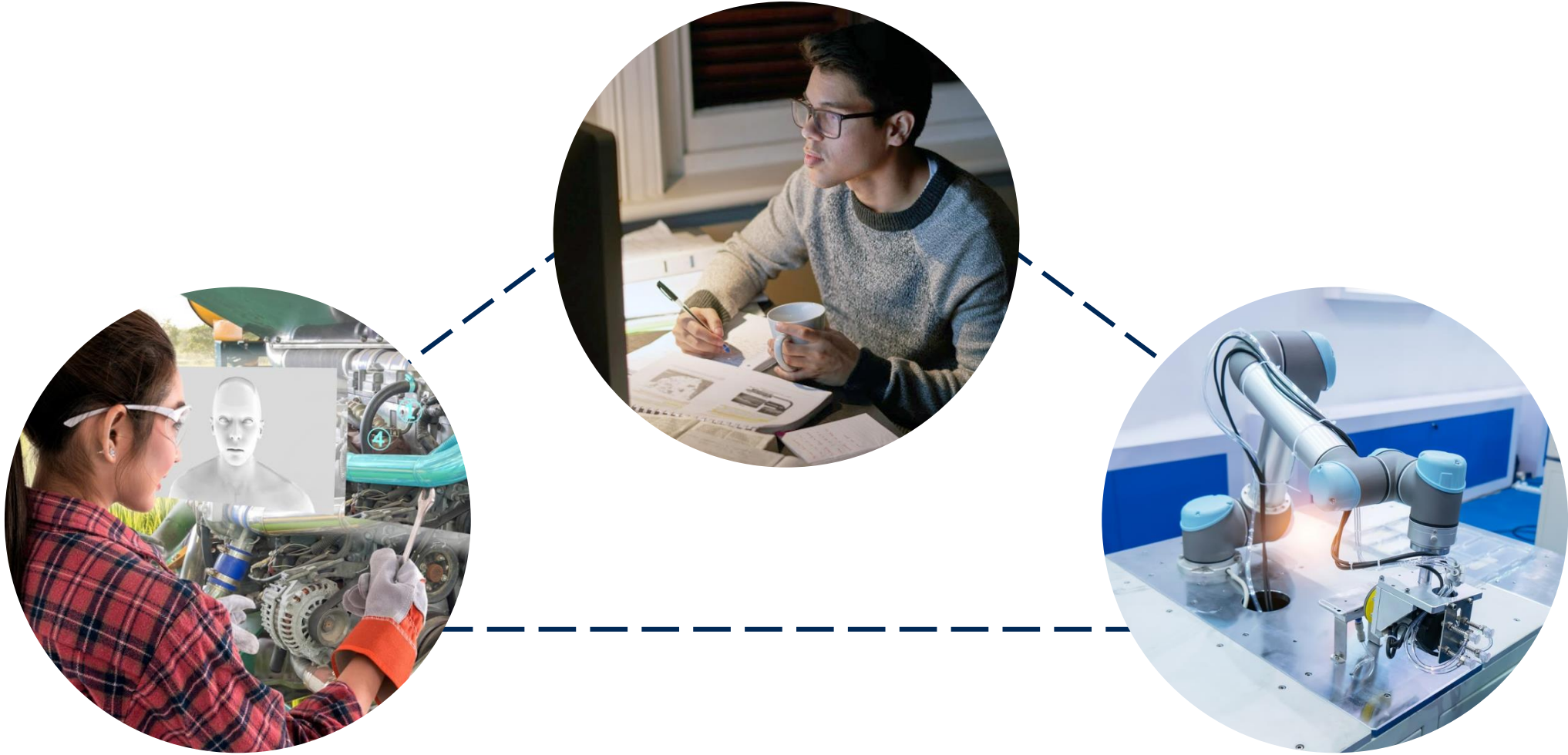
From [“Hype Cycle for Artificial Intelligence, 2018.”](#) 24 July 2018 (G00357478)

But After the Trough, Comes the Plateau

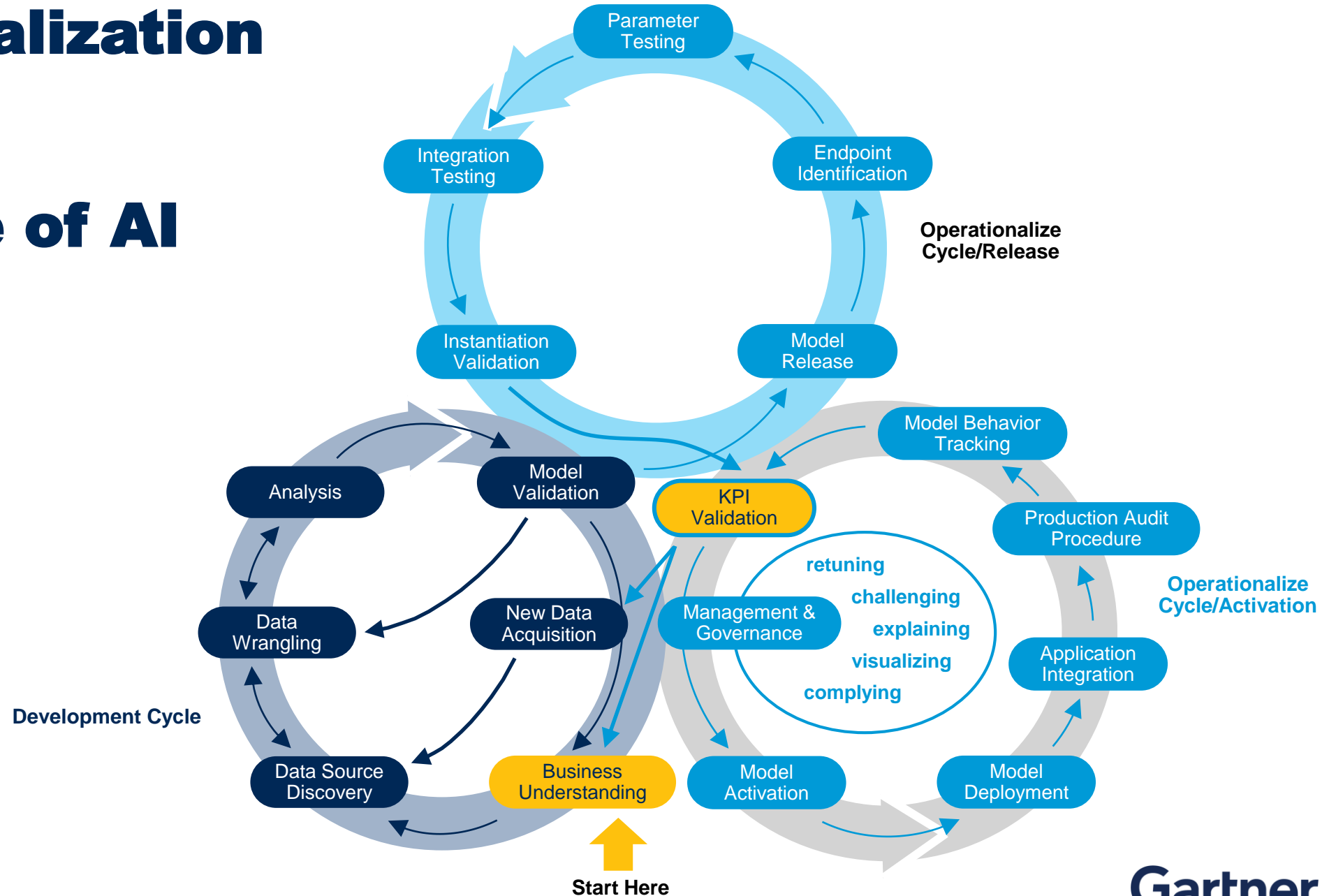


From [“Hype Cycle for Artificial Intelligence, 2018.”](#) 24 July 2018 (G00357478)

Never Before Have Academic Research, Corporate Research and Business Practitioners Been So Aligned



Operationalization Will Make or Break the Future of AI

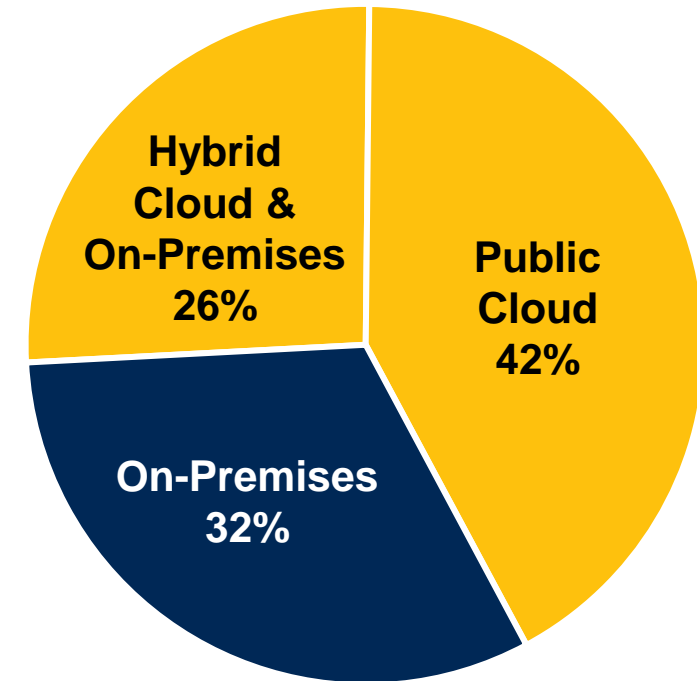
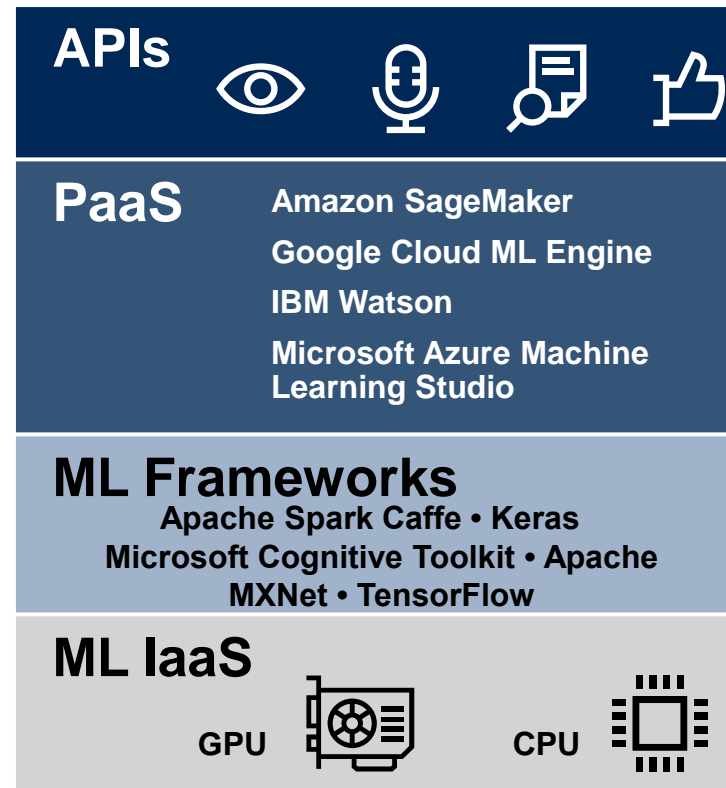


Key Issues

1. What drives the future of AI, ML and DS?
- 2. What does the future look like?**
3. How to plan for the future?

Cloud and Open Source Create New ML Ecosystems

Cloud-Based AI



Data Science Initiatives

D&A Adoption Trends 2019; n = 244

Join ecosystems because of your affinity with their style and design,
not because of the fashion.

The Commodification of Algorithms and Frameworks



Compute Infrastructure Changes Are Here to Stay



Training

Specialized or General-Purpose Hardware?

Distributed or Supercomputing?

Serverless

Memory

Quantum Computing

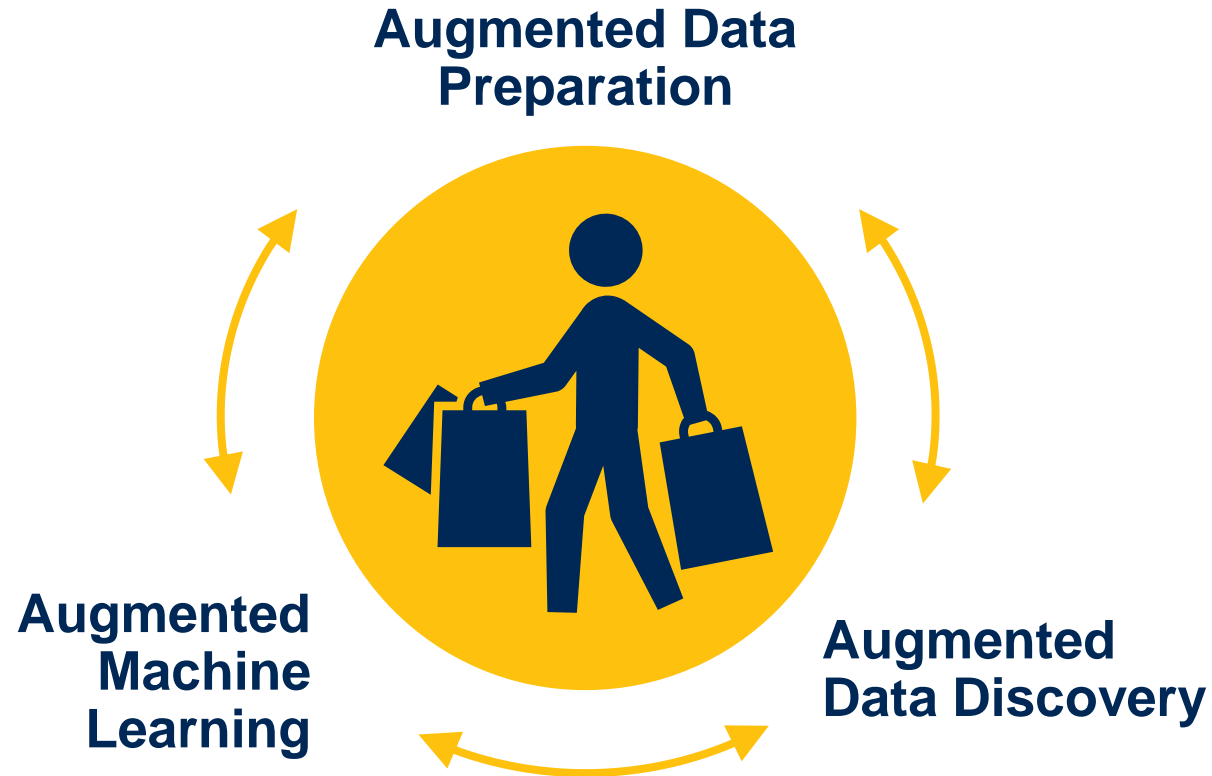
Inferencing

Balance cost and performance for use-case-driven capabilities in ML compute infrastructure strategy.

The Millennials Are Here



Embrace the Evolving Workflow of the Modern Analytics Professional



Perform a competence gap/fit analysis, mapping existing roles to new roles and filling new competences.

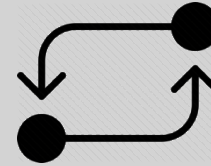
AI Should Augment Human Capabilities

Pass the Baton



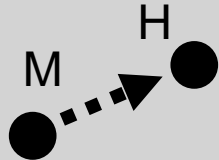
It's your turn now.

Symbiosis



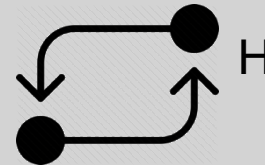
Greater than the sum of their parts.

Augmented Analytics



Train me. Guide me.
Show me possibilities.

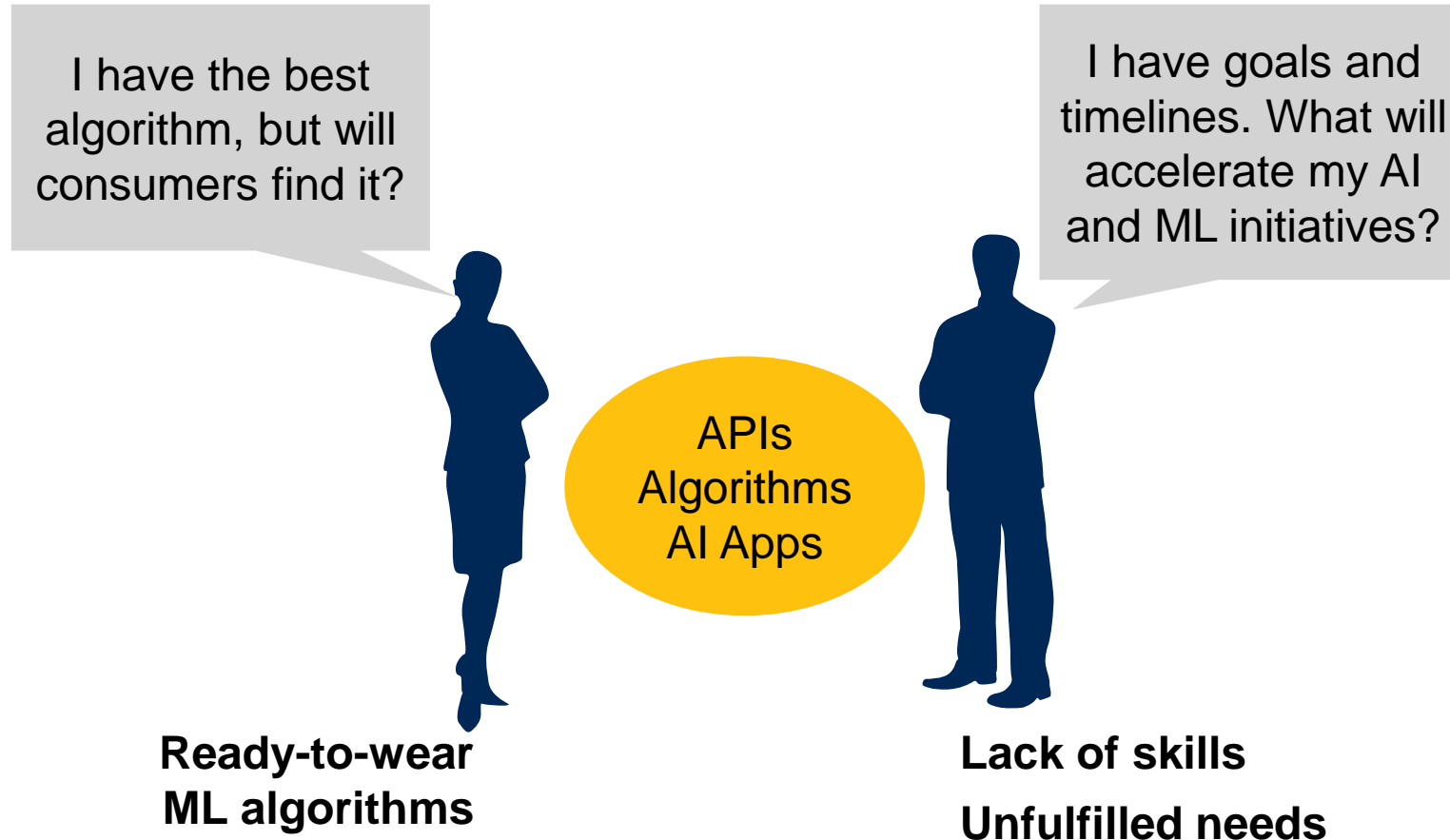
Sanity Check



Human in the loop.

Automate the tedious. Accelerate the creative.

AI & ML Marketplaces Will Connect Consumers and Designers to Accelerate AI and ML Initiatives

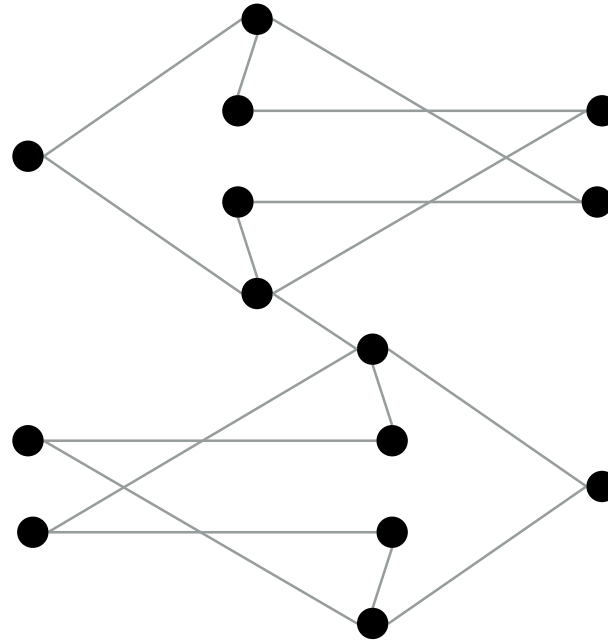


Be Reached, Be Interested, Get Paid. But First: **Be Ready!**

ML and Data Quality Form a Symbiotic Relationship

By 2020, the focus within machine learning will shift from algorithms to high-value data.

Use ML to Improve
Data Quality



Ensure Data
Quality for ML

Study your data! It is your long-term investment in ML, AI and data science.

Key Issues

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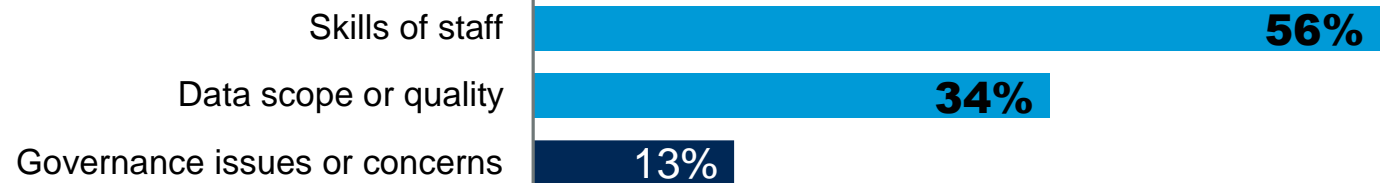
Top Hurdles: Skills of staff, followed by understanding the benefits/uses when it comes to the adoption of AI and ML

Percentage of Respondents
Base: n=106 Gartner Research Circle Members; Excluding 'Not sure'
Q05. What are the top 3 challenges or barriers to the adoption of AI and ML
within your organization? Please rank up to 3.

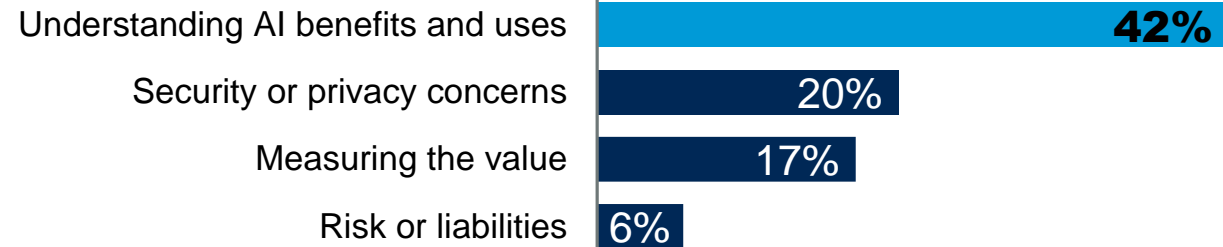
Top 3 Challenges to AI/ML Adoption

Sum of 1-3 rank

Enterprise maturity



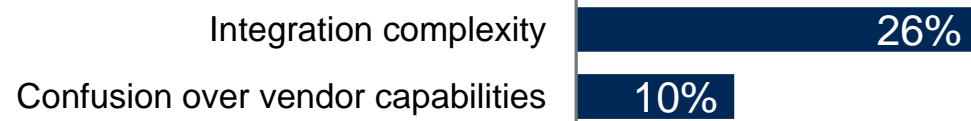
Fear of unknown



Finding a starting point



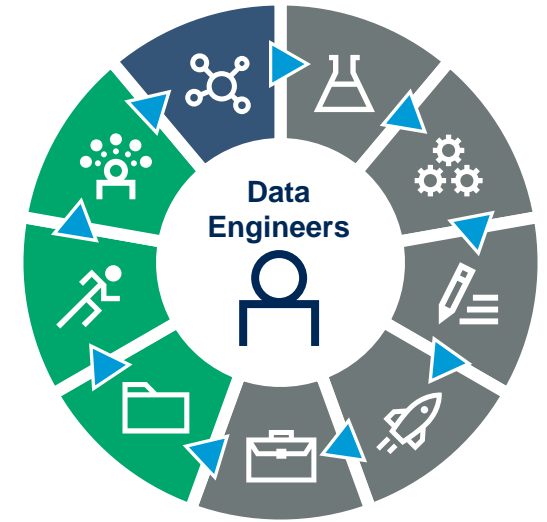
Vendor strategy



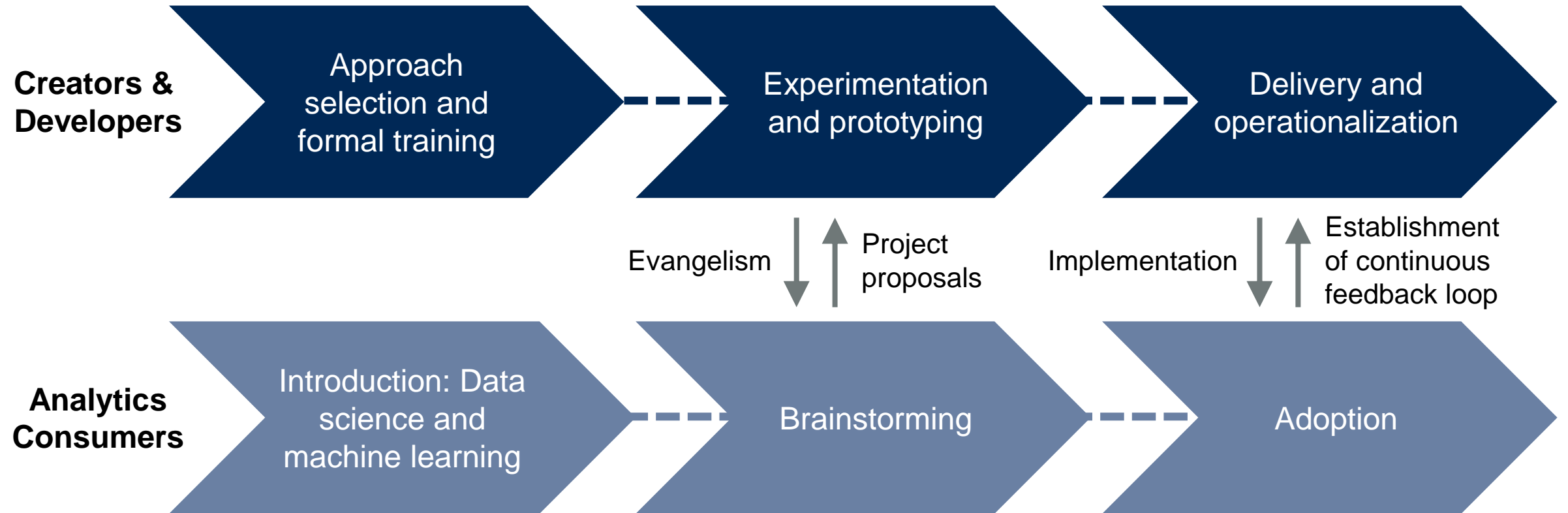
Skill Map



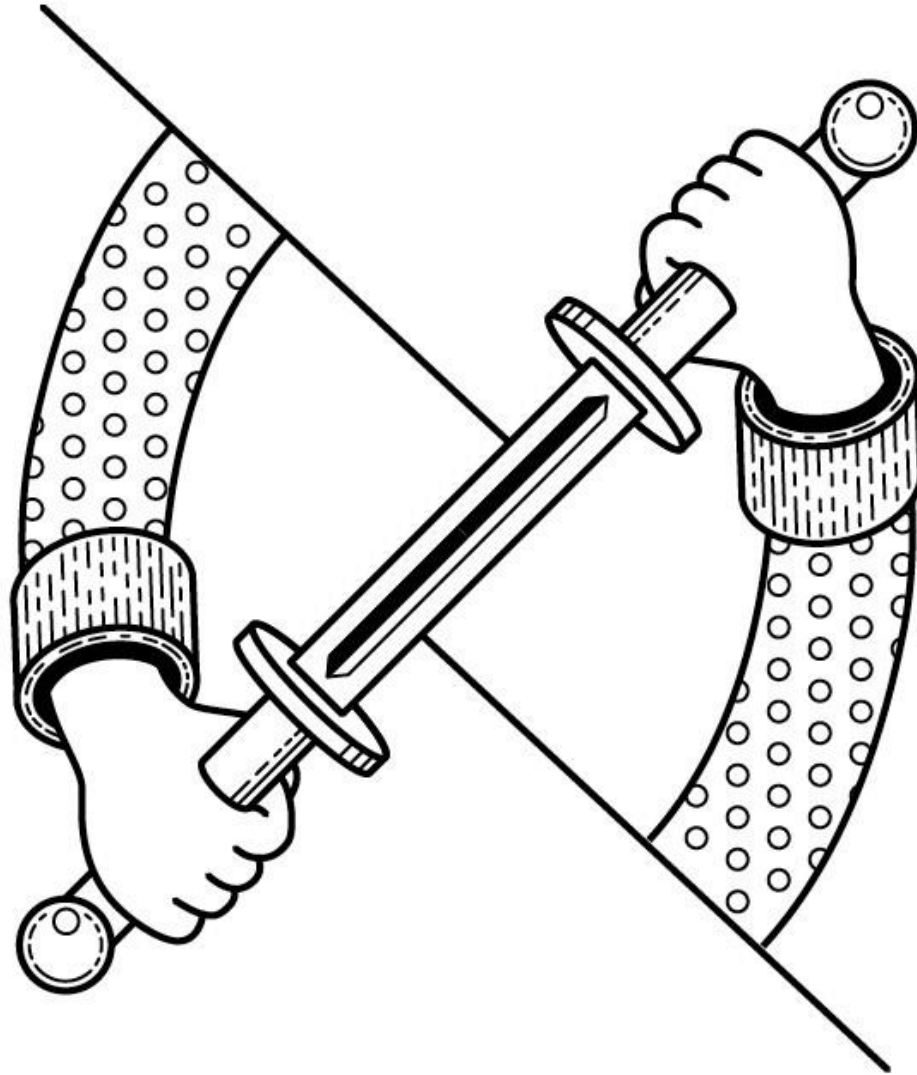
Knowledge Spectrum



Simultaneous Upskilling Roadmaps



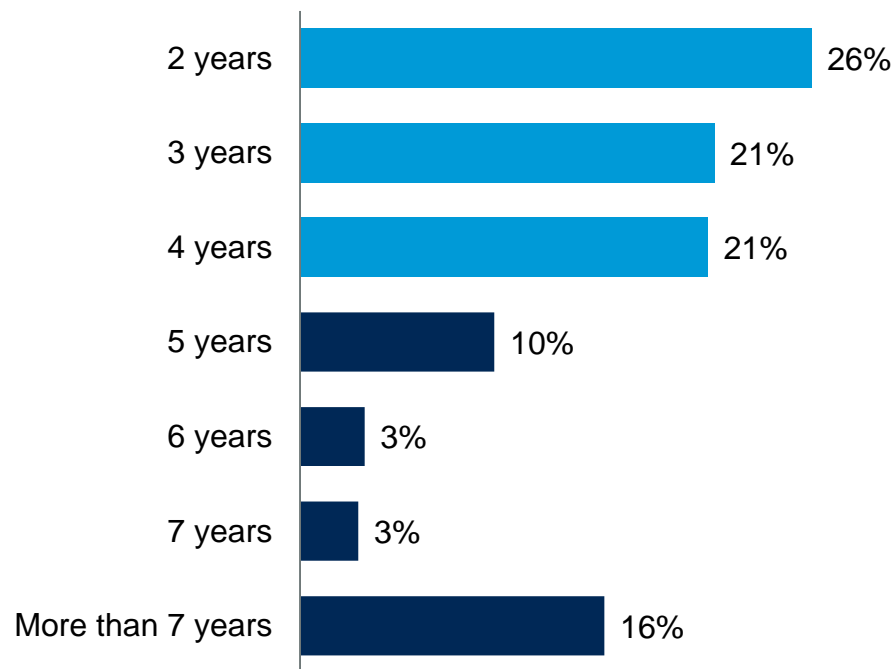
Amateur AI is a Double Edge Sword



Be Patient, Most DS Professionals Lack Experience

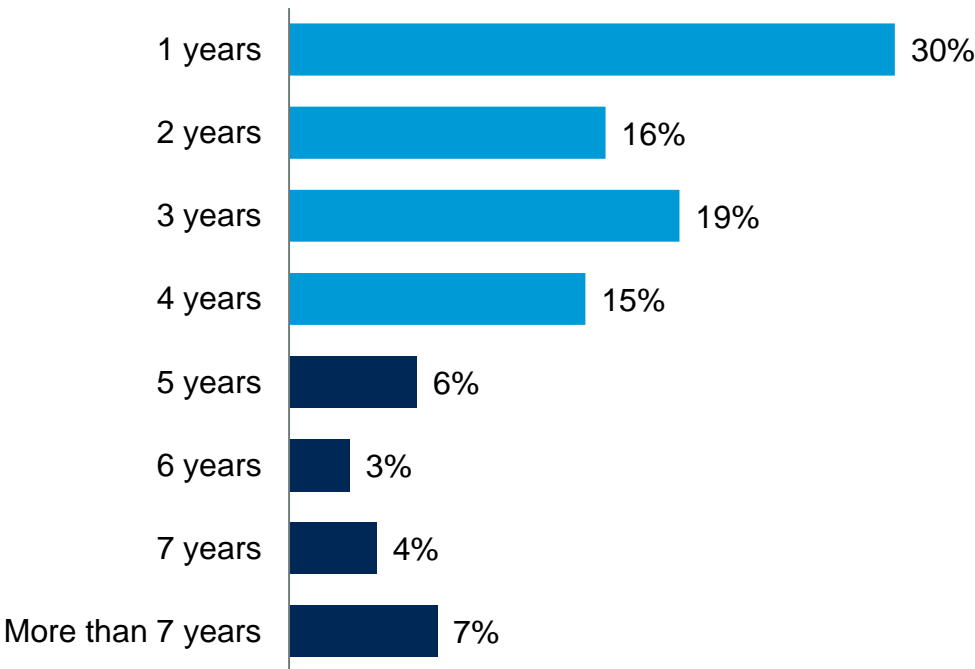
Total Data Science Experience

Screening for minimum two years of total DS experience



Mean = 4.2 years

Data Science Experience in Current Organization



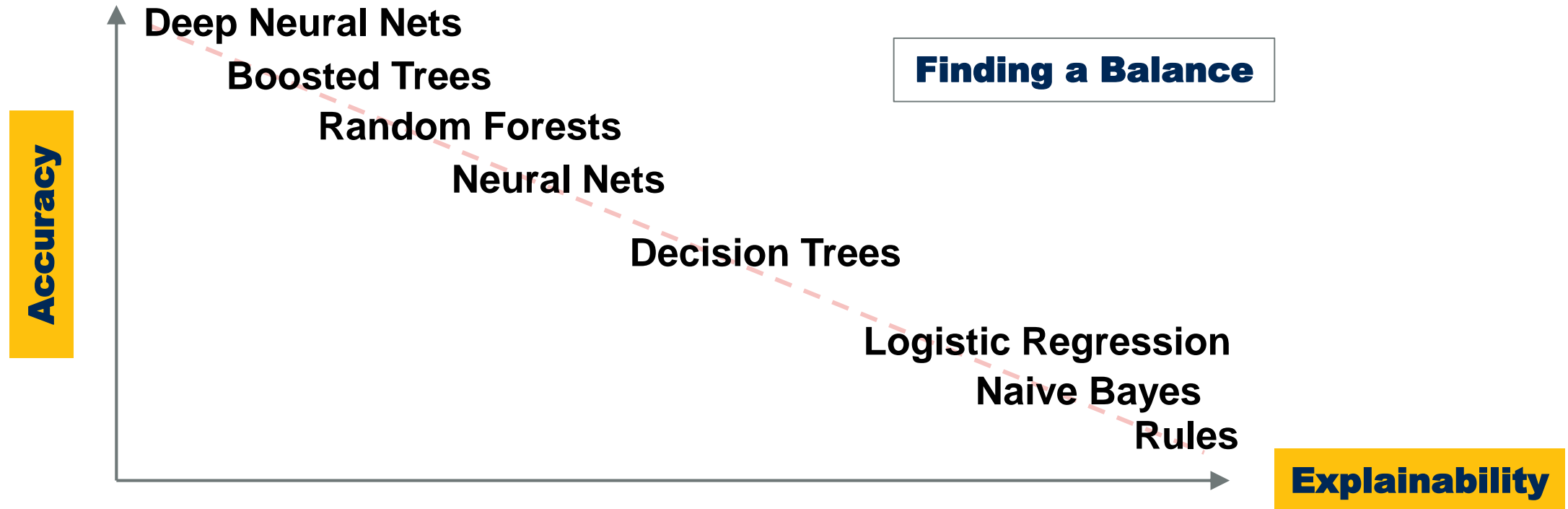
Mean = 3.2 years

Base: All respondents, n = 302
Q. How many years of total data science experience do you have?
Q. How many years of data science experience do you have in the current organization that you are working for?
Note: Statistics are approximations calculated from range mid points

The Rise of AI Governance

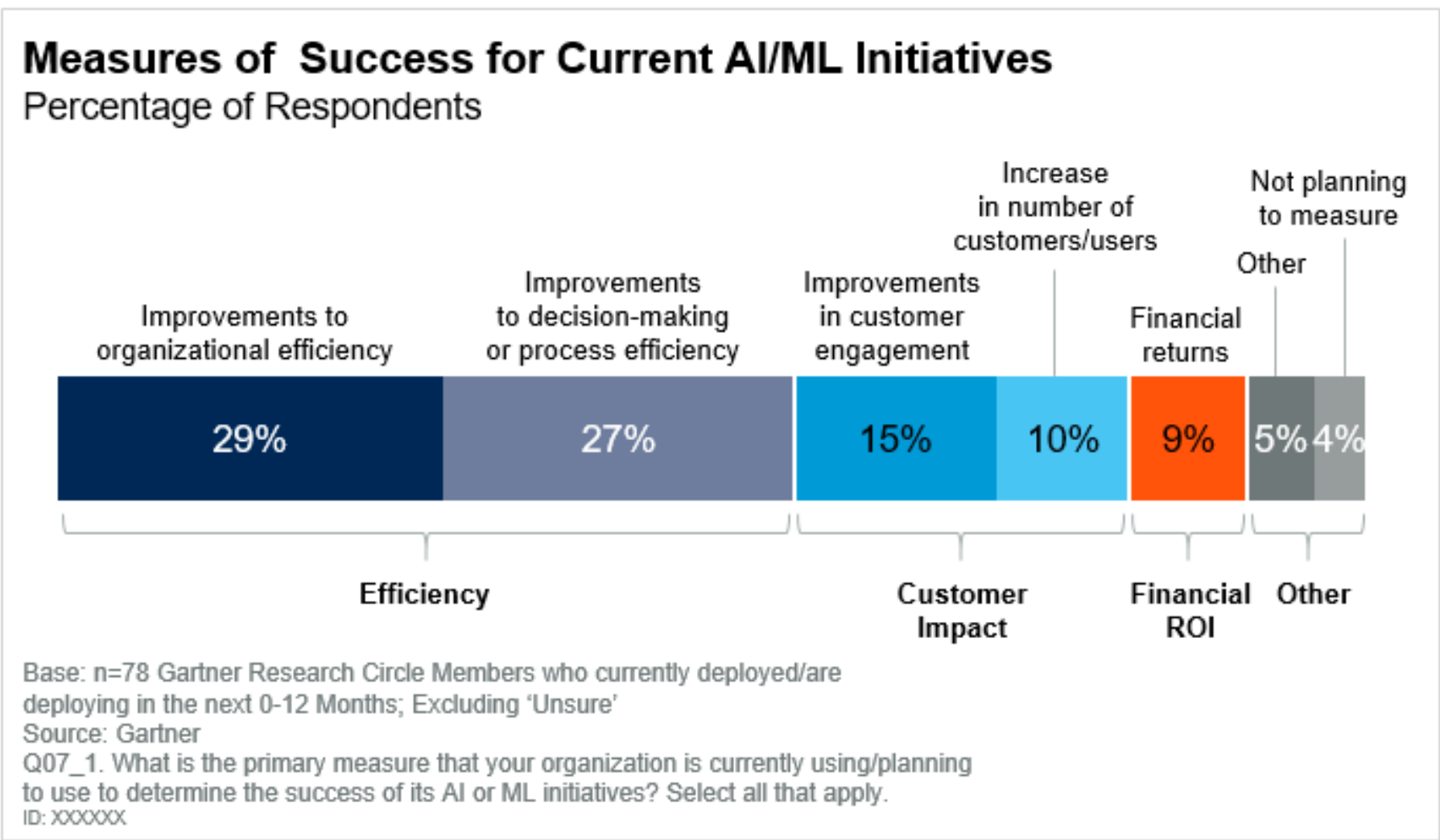
- Data AND model governance
- Rising demand for transparency and auditability
- Digital ethics
- Wave of new privacy laws
- Diversity of people, data and algorithms counteracts bias

Accuracy vs. Explainability



- Technically — Two of the **main differences between machine learning algorithms and traditional linear models** are that machine learning algorithms incorporate many implicit, high-degree variable interactions into their predictions.

Measuring Success



Recommendations

- ✓ Don't bet on everything — carefully design a portfolio that matches your needs and ambitions
- ✓ Make sure you are ready to manage AI after you build it
- ✓ Talent management and development are already vital
- ✓ In every future imaginable, data quality is paramount



Recommended Gartner Research

- ▶ [The Future of Data and Analytics: Tales and Trends From the Center to the Edge](#)
Frank Buytendijk, Svetlana Sicular, Gareth Herschel and Others (G00351779)
- ▶ [Staffing Data Science Teams: Map Capabilities to Key Roles](#)
Alexander Linden, Carlie Idoine and Others (G00355635)
- ▶ [How to Operationalize Machine Learning and Data Science Projects](#)
Erick Brethenoux, Shubhangi Vashisth and Jim Hare (G00333499)
- ▶ [Hype Cycle for Data Science and Machine Learning, 2019](#)
Shubhangi Vashisth, Alexander Linden and Others (G00369766)
- ▶ [An Artificial Intelligence Reality Check for CIOs](#)
Jamie Popkin and Leigh McMullen (G00361599)
- ▶ [Top 10 Strategic Technology Trends for 2019](#)
David Cearley and Brian Burke (G00374252)
- ▶ [Choose the Right Center of Excellence for Your Artificial Intelligence Strategy](#)
Whit Andrews, Bern Elliot and Jim Hare (G00353124)

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Gartner Data & Analytics Summits

▶ 2019

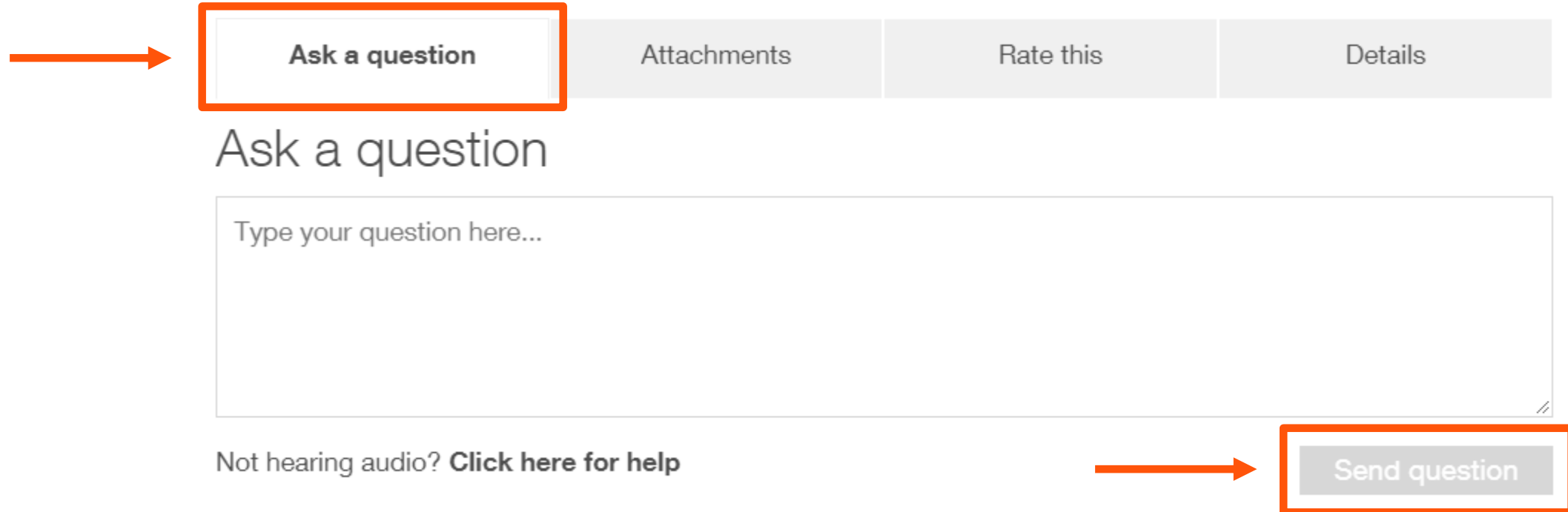
- [Frankfurt](#) 19-20 November

▶ 2020

- [Sydney](#) 17-18 February
- [London](#) 9-11 March
- [Dallas](#) 23-26 March
- [São Paulo](#) 19-20 May
- [Tokyo](#) 20-22 May
- [Mumbai](#) 8-9 June
- [Geneva](#) 15-16 June
- [Mexico City](#) 9-10 September
- [Frankfurt](#) 27-28 October

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Ask your questions!



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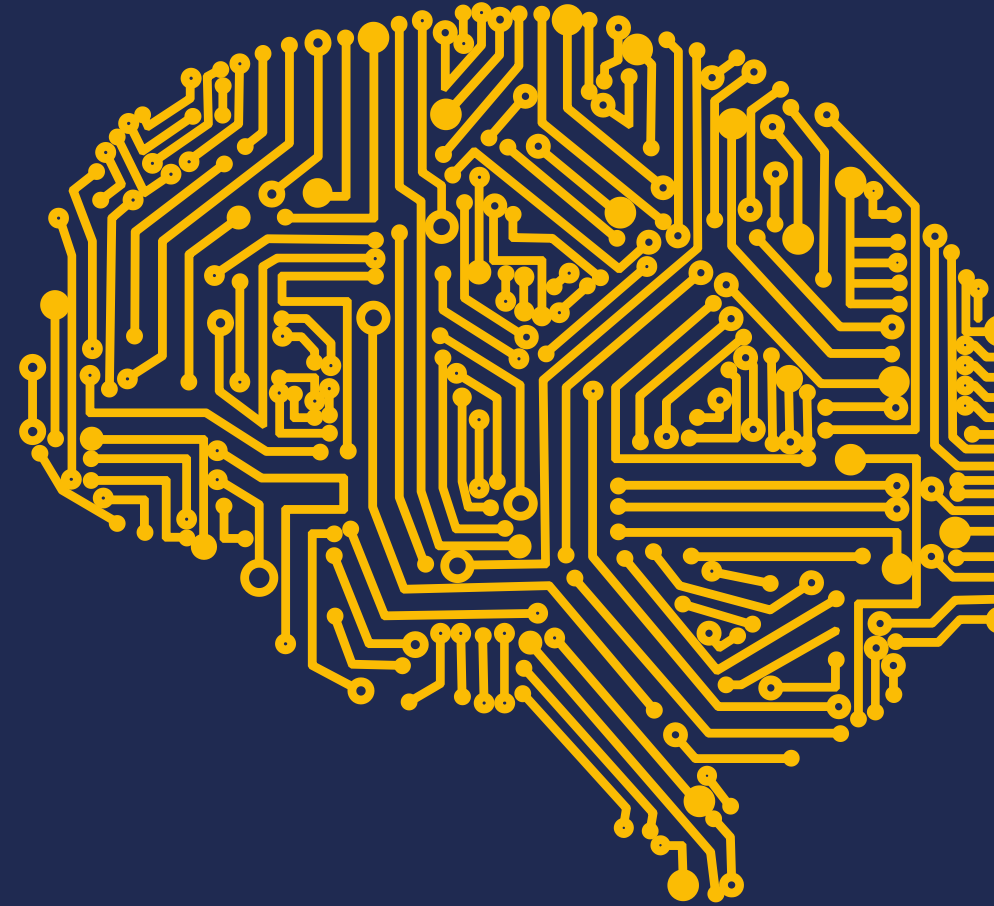
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Really insightful presentation! Thank you!

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