The AI Impact Survey

Insights from More than 400 Data Professionals

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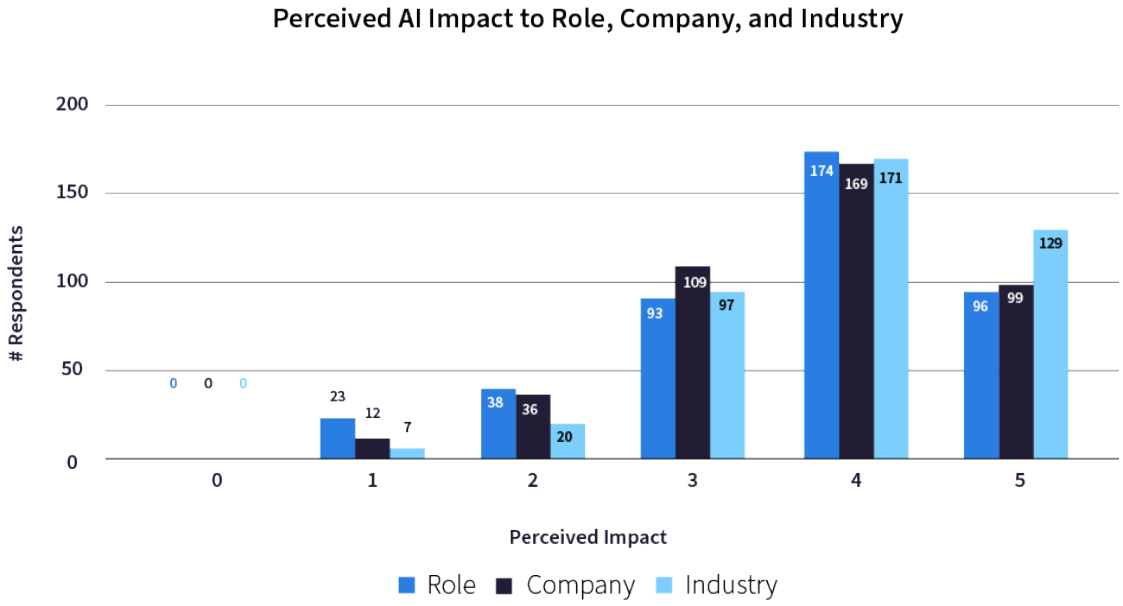
Section I: AI Impact to Role, Company, and Industry

In the second half of 2019, Dataiku put on EGG, the Human-Centered AI Conference, in four cities across North America and Europe. More than 400 data professionals in San Francisco, Amsterdam, Paris, and Stuttgart responded to the AI Impact Survey - this white paper details the results as well as some overarching recommendations and best practices for organizations to take on the path to Enterprise AI.

Respondents were asked, on a scale of 0-5 (where 0 is not at all and 5 is completely), how much each of the following would be impacted by advances in machine learning and AI over the next 5 years:



Interestingly, the average rating was higher for industry than for company or role - that is, people expect their industry to be impacted more by AI than their actual jobs or the places they work. Though perhaps unrealistic (how can entire industries be upended by AI if the people and companies themselves remain unchanged?), it's not ultimately surprising given today's media landscape. Headlines often focus on the ways AI will transform entire industries, but not details on how - down to the human level - this will take place.

Drilling down a bit further, the perceived impact of AI also varied by industry - for example, a much larger percentage of respondents from Finance and the Retail / CPG industries rated the impact of AI on their role as a 4 or 5.

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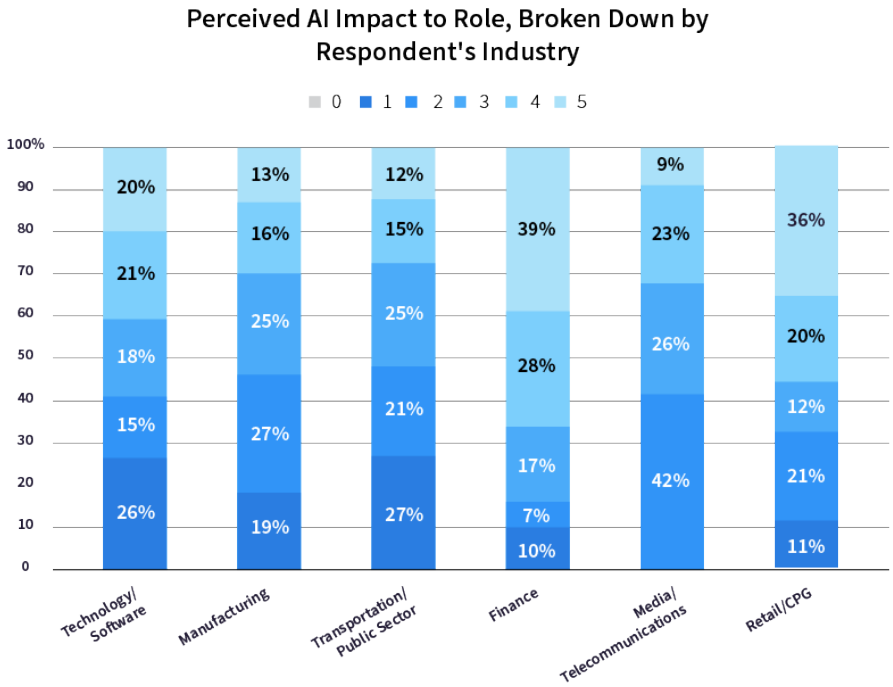


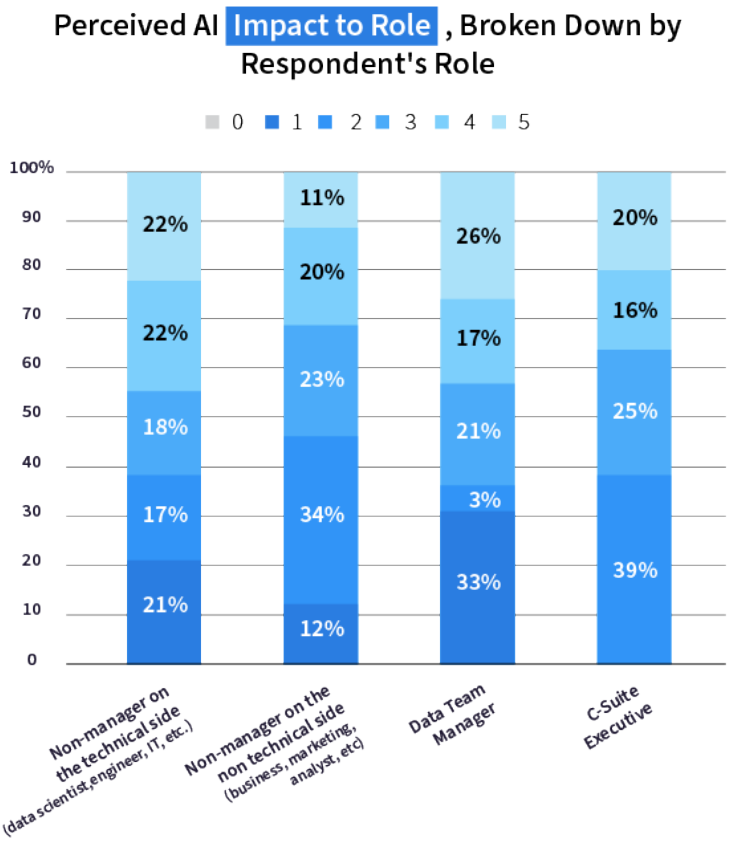
Again, this is perhaps not surprising given recent reports on the potential impact of AI. For example, by 2018, McKinsey was already reporting the Retail and CPG industry at the top of their list (and the Finance industry near the top) in terms of potential monetary return from AI projects:

Retail	Consumer Packaged Goods	Banking	Insurance
Aggregate potential dollar impact	Aggregate potential dollar impact	Aggregate potential dollar impact	Aggregate potential dollar impact
$441,748M - $777,115M	$245,295M - $486,316M	$167,257M - $344,868M	$142,161M - $312,204M

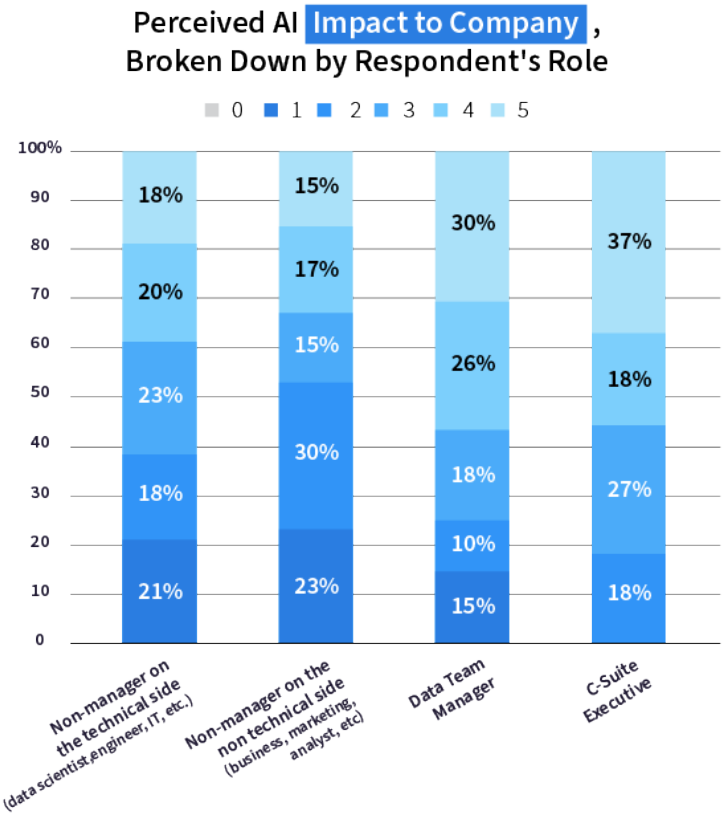
It's also interesting to look at impact ratings by role - presumably certain job functions see the potential for change with the rise of AI more clearly than others. One of today's hottest debates surrounding the future of data teams, data roles, and even for AI as a whole is the question of whether AI should be inclusive (that is, encompassing all different types of people across roles working together toward a common goal) or exclusive (siloed to specific and specialized teams to get the job done more precisely and efficiently).

Overall, inclusive AI encompasses the idea is that the more people are involved in AI processes, the better the outcome (both internally and externally) because of a diversification of skills, points of view, or use cases. Practically within a business, it means not restricting the use of data or AI systems to specific teams or roles, but rather equipping and empowering everyone at the company to make day-to-day decisions, as well as larger process changes, with data at the core. The model today for traditional businesses leveraging AI seems to lean more toward data democratization, or inclusive AI, for its larger potential to scale.

In theory, given this trend, non-managers in non-technical roles (business professionals in marketing, risk, operations, etc.) should see - or at least see the potential for - AI impact in their jobs. In practice, only about 11 percent of non-managers in a non-technical role (like business, marketing, analysts, etc.) responded that they thought AI would "completely" change their role (i.e., a 5 on the scale) - a much lower percentage than the other roles.



On the other hand, managers and c-suite executives were significantly more likely to respond that AI would "completely" (i.e., a 5 on the scale) change their company than non-managers. Perhaps not surprising, as they likely have a larger view on the direction of the company than individual contributors.



Curiously, the same trend does not hold true for the perceived impact to industry, where the c-suite largely does not think AI will have impact (44 percent put the impact as a 1 on a scale from 0-5, more than any other role). It's a bit opposite of the very first trend

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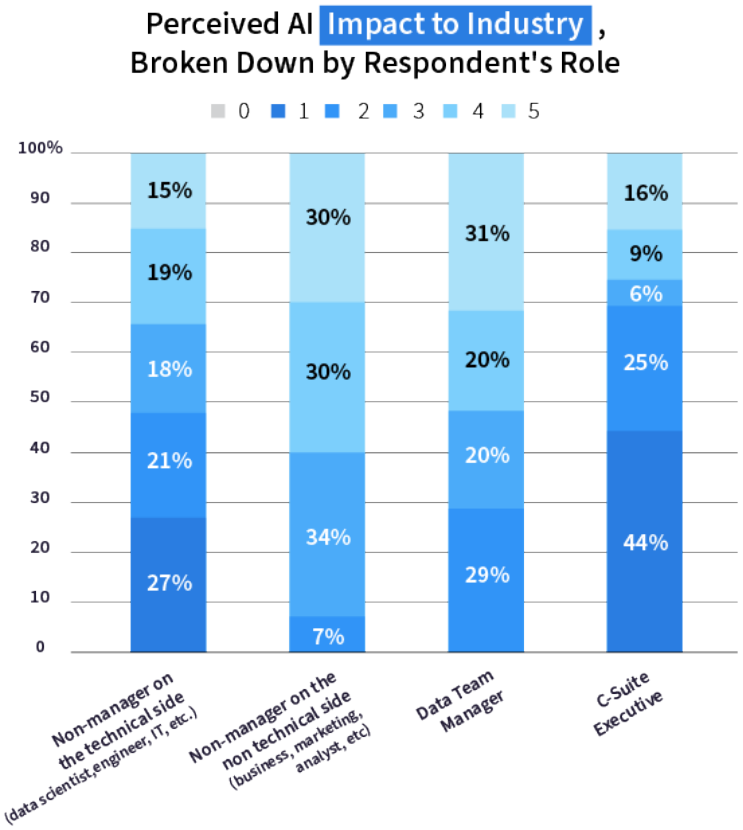
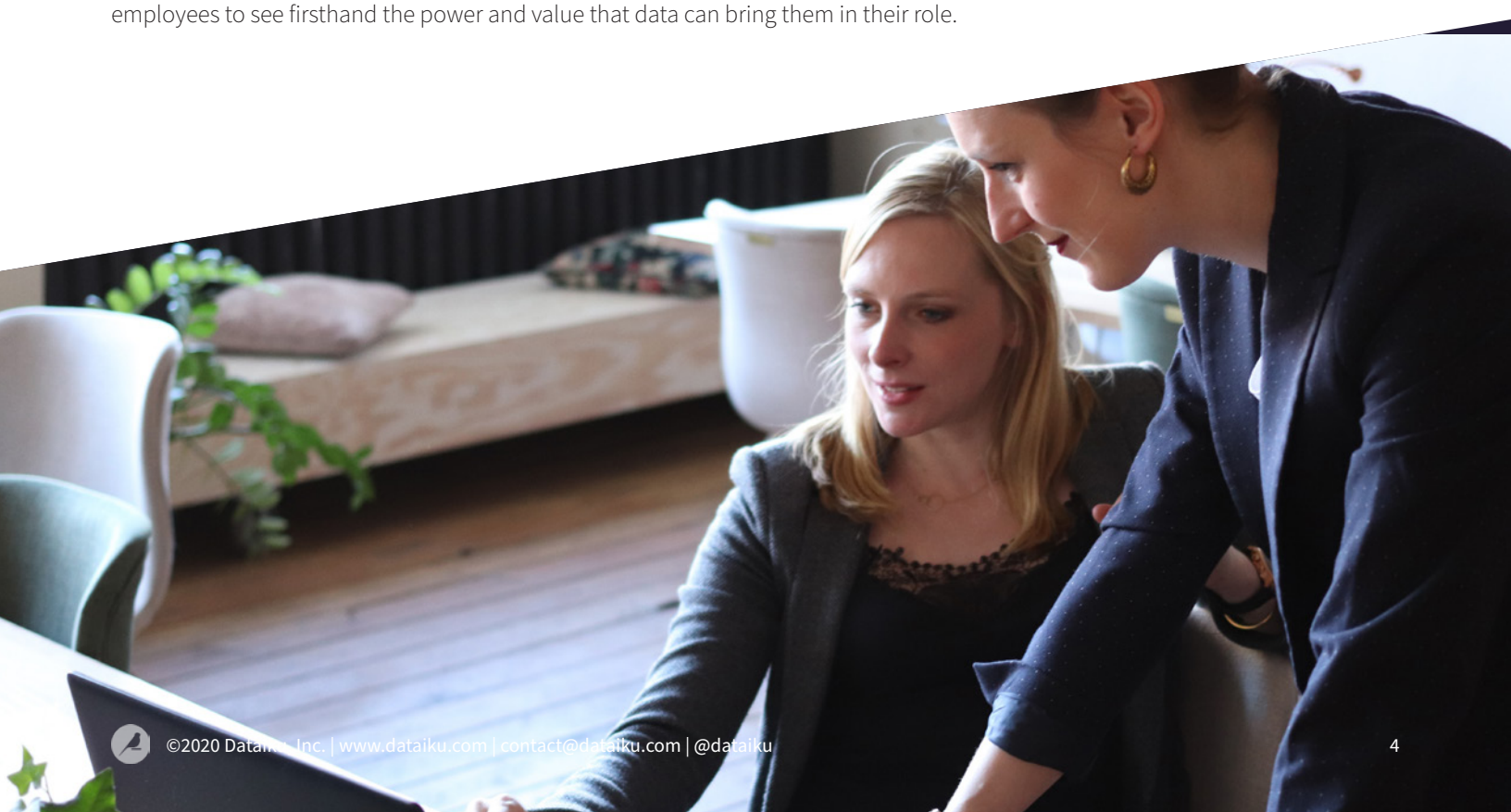
identified in this section, where overall (i.e., not broken down by the role of the respondent in the organization), people feel AI will have more impact on industry than their job or their company. With the c-suite, the story is that they think AI will have the most impact on their company, then their job as CXO, and very least of all on the industry at large.



Globall, these trends are perhaps signs that the vision of complete organizational change, inclusive AI, and data democratization are still very much in-progress initiatives that are being driven from the top down. And while top-down change is certainly not a bad thing, it's worth noting that organizations might have more success if they approach AI transformation and democratization efforts both from the top down and from the bottom up. Practically, that means more education around AI initiatives as well as upskilling employees to see firsthand the power and value that data can bring them in their role.

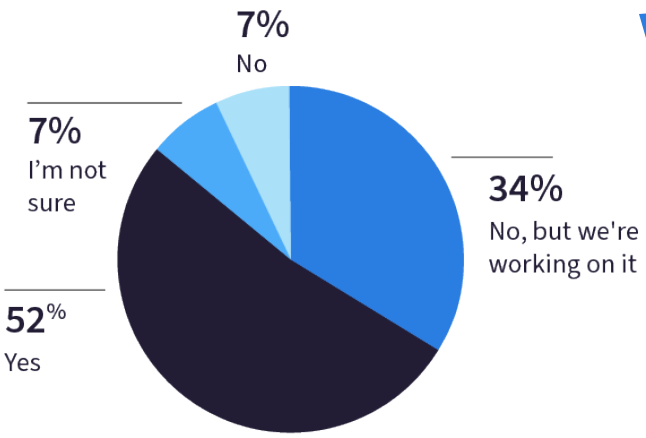


Section II: AI and Trust

With topics like trust, explainability, responsibility, and ethics at the forefront of discussions in AI for the decade to come, we asked respondents about how their organizations manage these challenges.

Overall, only 52 percent of respondents said that yes, their organizations have processes to ensure data projects are built using quality, trusted data (about 7 percent said "no," and 34 percent "no, but we're working on it." The remainder said they were "not sure.") This is a key question as more businesses get started with AI, and indeed, data quality is often cited as one of the biggest challenges and barriers to AI adoption. The old adage of garbage in, garbage out (GIGO) certainly holds true for machine learning projects.

Does Your Organization Have Processes in Place to Ensure Data Projects Are Built Using Quality and Trusted Data?



"Garbage in, garbage out. Or rather more felicitously: the tree of nonsense is watered with error... "

- Nick Harkaway, The Gone-Away World

Curiously, when broken down by respondent persona, 72 percent of c-suite executives responded "yes" to this question. Perhaps this connects back to the top-down vs. bottom-up approach to AI efforts. Do the processes exist in theory, but not in practice? Is it a question of communication on both ends of the spectrum? How can organizations better alight on these processes from top to bottom and ensure that executives as well as practitioners are aligned? These are all important questions that enterprises should work to address in order to succeed.

33% of US CEOs and business leaders cite employee trust as one of the greatest barriers to AI adoption, even though CEOs and business leaders completely or somewhat trust AI.

Source: **The AI Race, EY**

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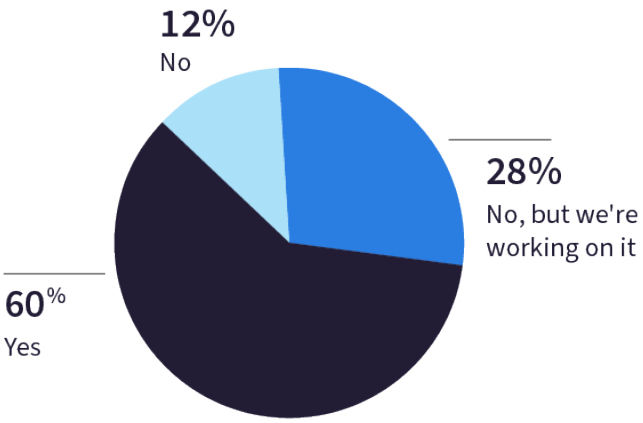
There was some notable variation by industry for this question as well. For example, globally, 7 percent responded with "I'm not sure." In finance, 0 people responded that they weren't sure, and the percentage of "yes" responses was higher than the global (60 vs. 52 percent, respectively). A stricter regulatory environment is likely to thank, but this is still a model for those in less closely regulated industries: everyone in the organization, no matter what his or her role, should be aware of processes around data quality and trust.

Finance Industry Respondents:
Does Your Organization Have Processes in Place to Ensure Data Projects Are Built Using Quality and Trusted Data?

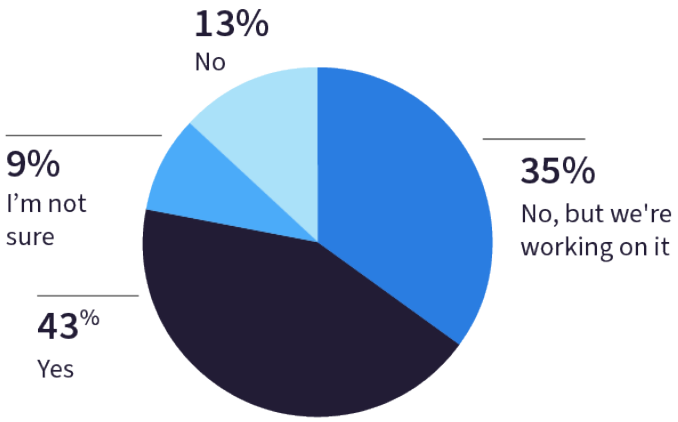


"A myth plaguing early AI exploration is that you need massive amounts of data to build successful AI models. In fact, many successful use cases can be achieved using a reasonable amount of data, as long as that dataset is of quality (i.e., normalized, complete, diversified). The lack of volume can always be compensated for through a reduction in project scope, but a lack of data quality invariably leads to POC failure. Probabilistic reasoning techniques such as ML rely heavily on data to deliver insights; therefore, this is where data quality problems are most acute — throughout the ML life cycle."

- Gartner, 5 Steps to Practically Implement AI Techniques, Erick Brethenoux and Frances Karamouzis, 25 April 2019

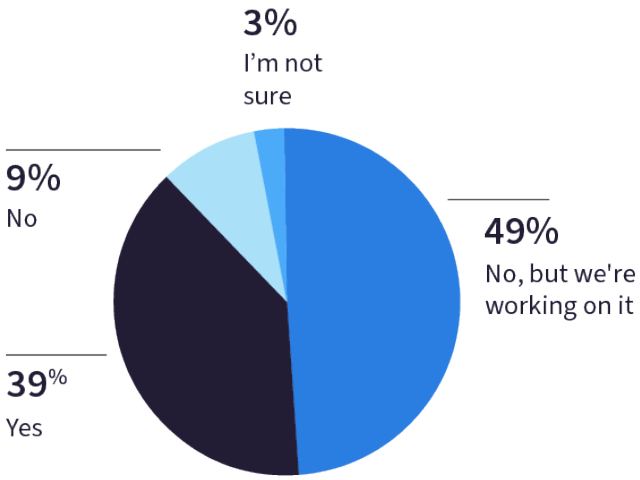
Globally, compared with processes to ensure data projects are built using quality, trusted data, even fewer people said their organizations have processes in place to ensure data science, machine learning, and AI are leveraged responsibly and ethically:

Does Your Organization Have Processes in Place to Ensure Data Science, ML, and AI are Leveraged Responsibly and Ethically?



Again, there were some notable variations by industry. In particular, respondents in the retail & CPG industries, who seem to be more aware of the importance of this work and moving toward making progress in this area (though globally, they are less advanced than the whole in already having these processes established):

Retail / CPG Industry Respondents:
Does Your Organization Have Processes in Place to Ensure Data Science, ML, and AI are Leveraged Responsibly and Ethically?



Ultimately, one of the overarching themes of 2020 and the decade to come is that there is pressure to make AI explainable and trusted both:

- Internally, for those designing AI systems as well as other employees who depend on them for their jobs.
- Externally, from customers and end-users of products and services that are affected by AI systems.

The responses to these simple survey questions show where we are and where companies may go over the next three to five years.

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Section III: Conclusion - Dataiku + AI Impact

AI will undoubtedly have some impact on individuals in their jobs, the companies for which they work, and their larger industries. To what extent remains to be seen, but one thing is for sure: there are certainly lingering questions around trust and responsibility that need to be addressed before AI can have a maximum (and positive) result.

Building internal trust will provide the foundation for external trust; this starts with trust in the data itself that is being used in AI systems. Data quality is one of the most basic but most important hurdles to overcome in the path to building sustainable AI that will bring business value, not risk.

In the face of data quality and the myriad other challenges, companies often look for technology to fill in the gaps. Data science, machine learning, and AI platforms like Dataiku are a piece of the puzzle that can help orchestrate AI efforts, but even we will tell you that while technology certainly plays a role, it's never a magic bullet. Building the foundations for impactful AI at an enterprise-wide scale involves not just technology, but alignment from people and on processes as well.

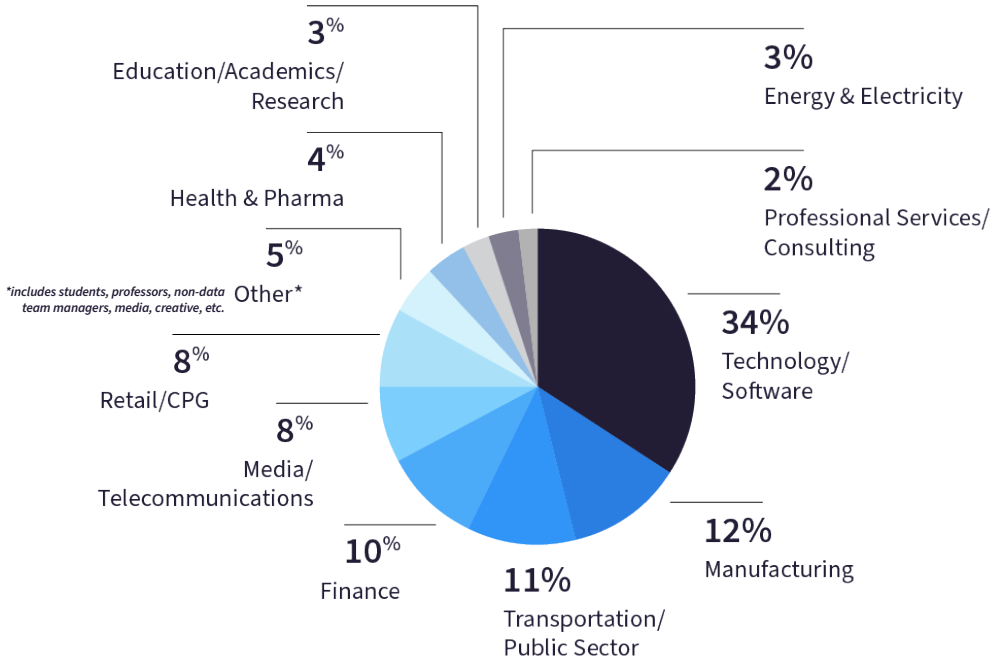
Given all this, what are some concrete next steps organizations can take to address some of the trends from this survey?

1. For managers or c-level, communicate on vision for AI in the company not just at a high level, but what that means currently - or could mean in the future - down to the individual (while remaining conscious of peoples' possible natural fear or distrust of AI).
2. For individual contributors, push for AI solutions that are inclusive instead of exclusive no matter what your specific role, and push back on solutions that don't put proper emphasis on transparency and trust in the data process.
3. Invest in technology that values data transparency and trust, offering features that make addressing these challenges easier.

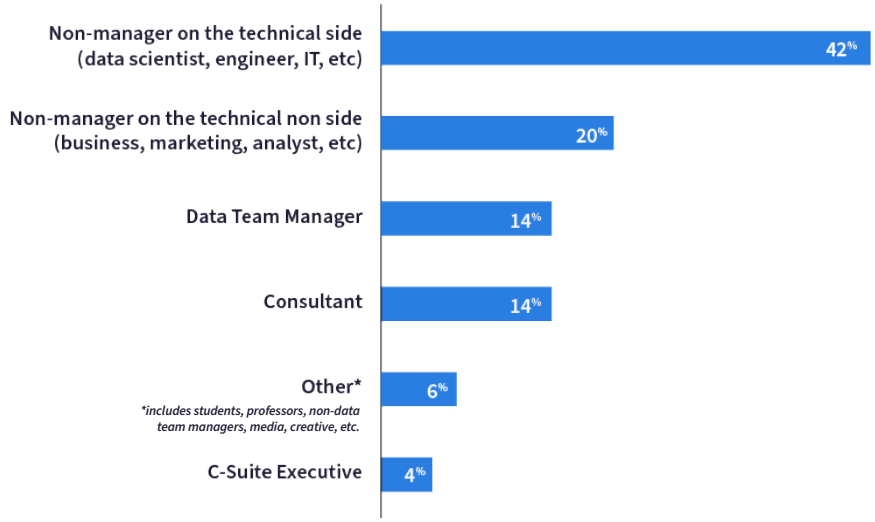
Section IV: Appendix - Methodology

Respondents come from a wide range of industries and represent various roles throughout the data-driven organization.

Survey Respondents by Industry



Survey Respondents by Role



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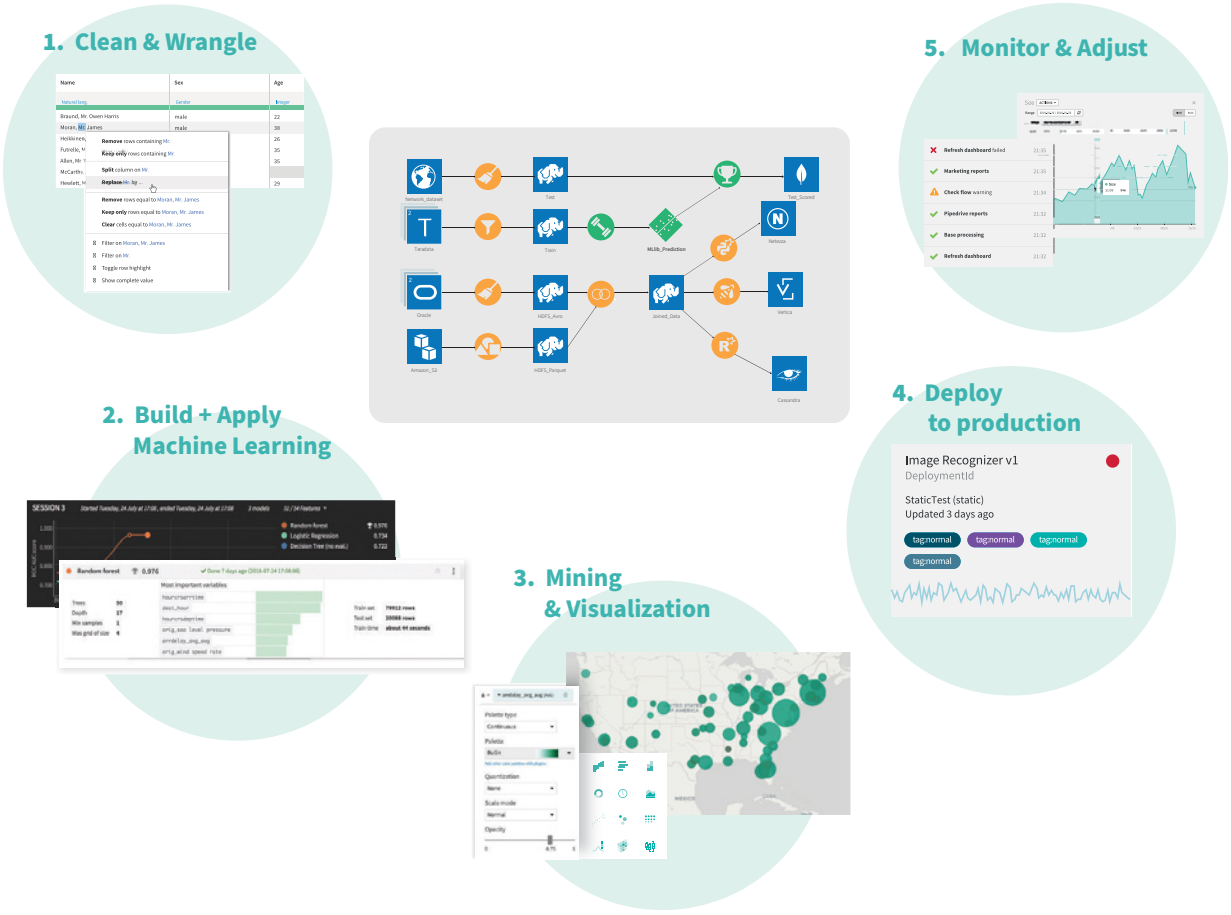

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