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DATA+AI RADAR 2022: TELECOMMUNICATIONS INDUSTRY REPORT

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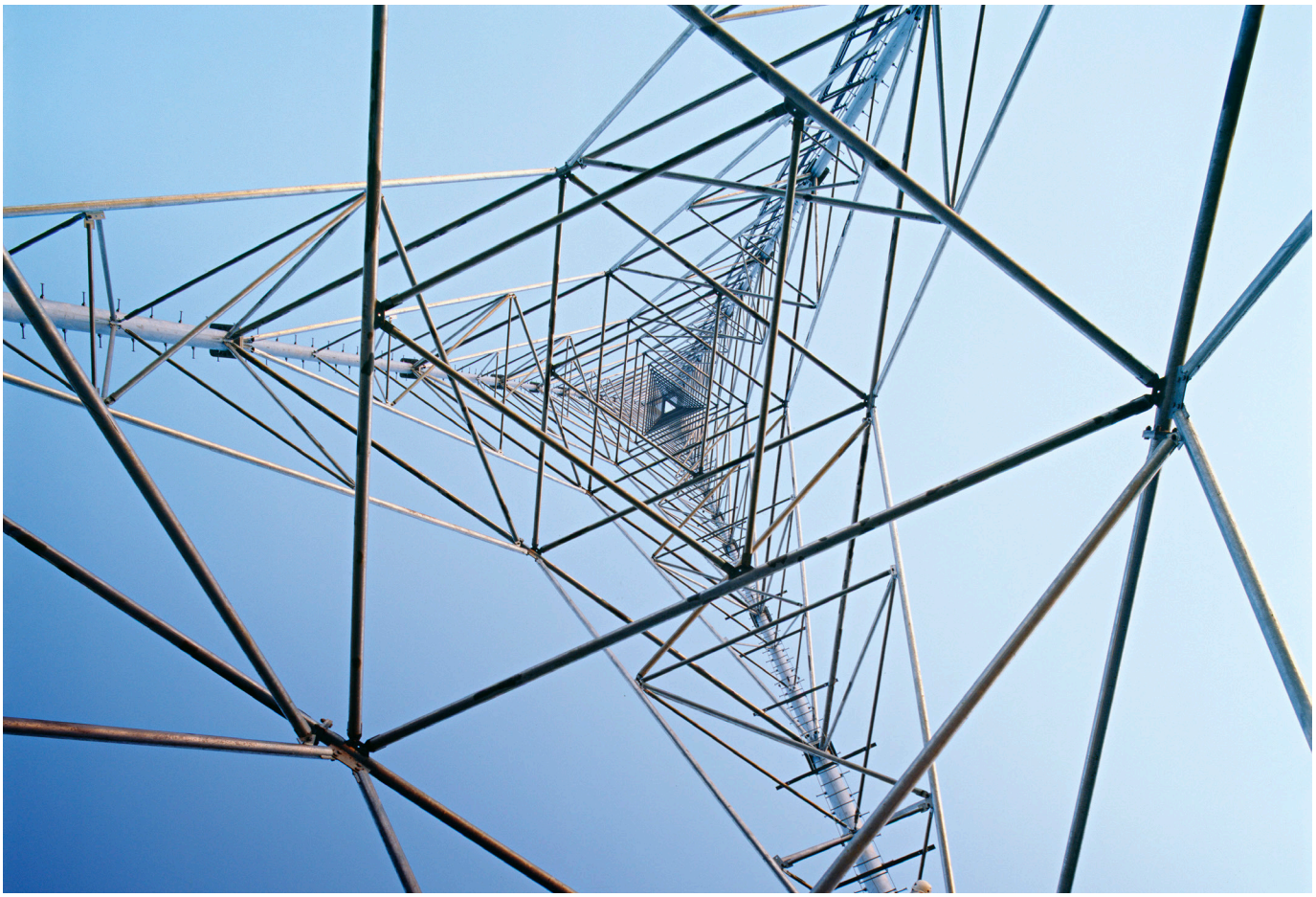
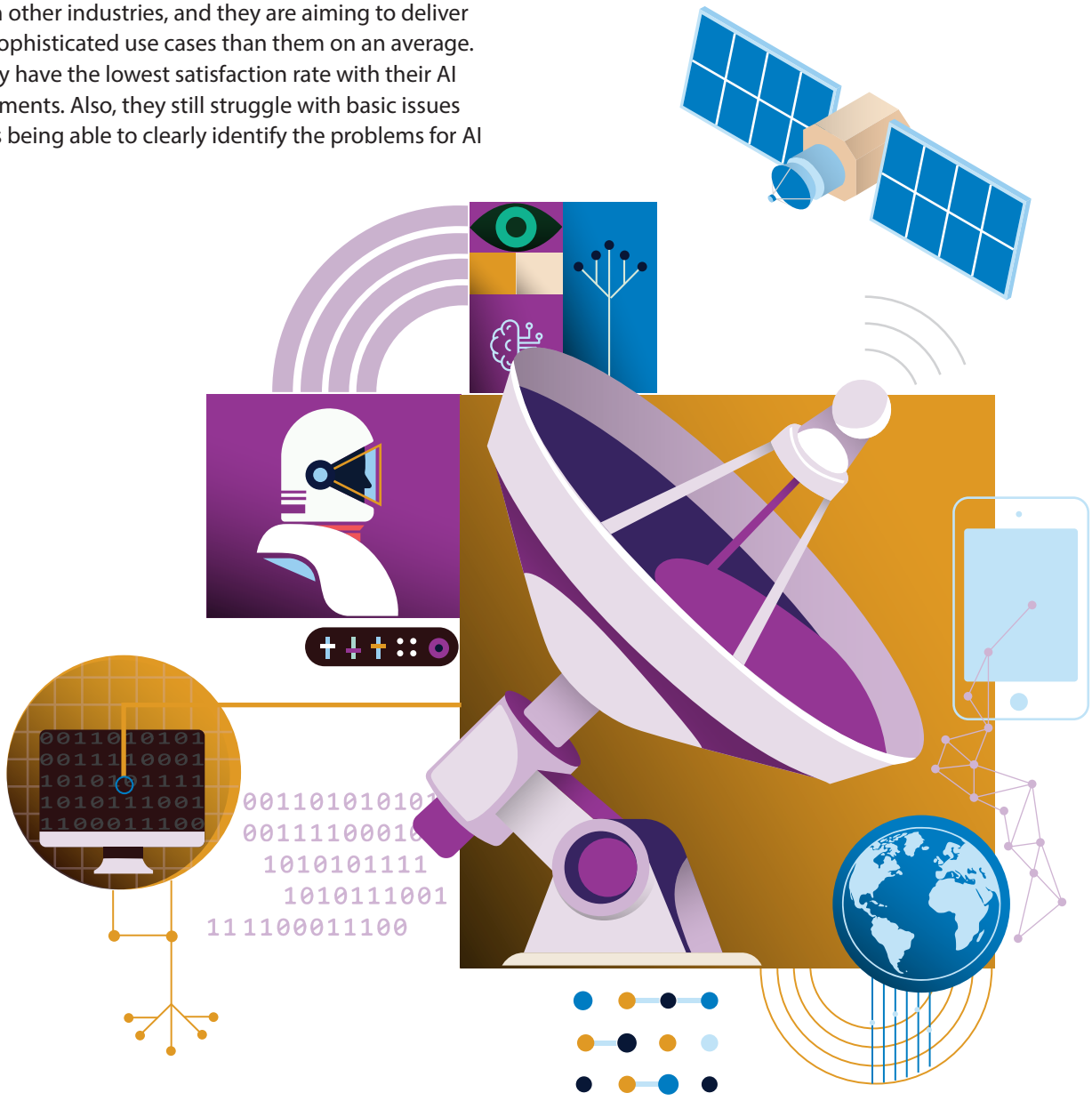


Contents

Artificial intelligence (AI) spending will more than double to $300 billion by 2026, according to IDC. Recent developments in generative AI, such as ChatGPT, are inspiring consumers and companies with new opportunities. But most businesses, particularly telecommunications, are not getting satisfactory value out of their AI deployments, according to Infosys Knowledge Institute's recent research.

The Data+AI Radar 2022 surveyed 2,500 AI practitioners from companies across 12 industries — that have annual revenue of more than $500 million — in the US, UK, Germany, France, Australia, and New Zealand. The study found that telecom firms have more AI experience than firms in other industries, and they are aiming to deliver more sophisticated use cases than them on an average. Yet they have the lowest satisfaction rate with their AI deployments. Also, they still struggle with basic issues such as being able to clearly identify the problems for AI to solve. This means they are not applying AI to the right business problems — perhaps the reason for the low satisfaction.

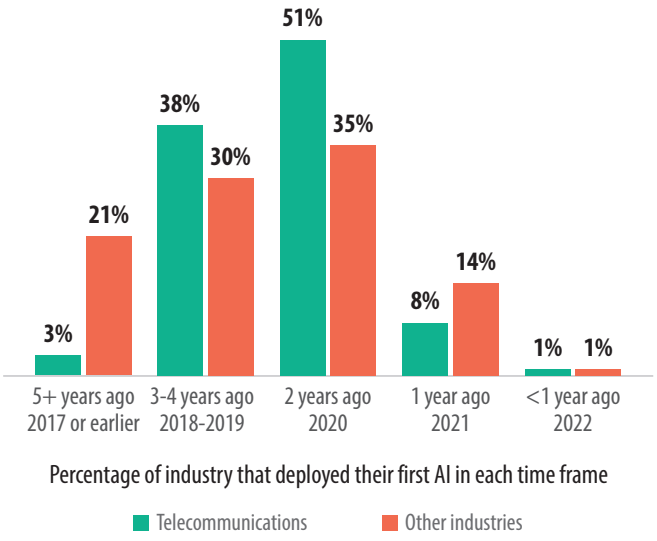
However, there is a glimmer of hope for the industry. Telcos are better than average at data verification, ethics and bias management, and using deep learning, all of which relate to positive business and AI outcomes. But to truly lead, the industry needs to get better at identifying problems that AI can address, focus on simpler AI solutions, and invest in AI infrastructure and compute resources.



Telcos lead in experience and ambition

AI is a new technology area, and the study found that most of the industries had their first AI deployment as late as three years ago. However, telcos have more experience in comparison. A significant number of telcos that were surveyed started AI deployment more than five years ago (Figure 1). Many implemented it in the last three years. Having said that, telcos may require much more AI experience than this to successfully achieve higher-order capabilities.

Figure 1: AI deployment time frame



And telcos are trying to achieve greater AI capabilities. The Infosys survey shows that 17% of the interviewed telcos (Figure 3) are at the Evolve stage, which means, they are attempting to achieve top AI capabilities where AI can respond, train itself, and improve. Close to 25% are at the Respond stage, where AI can understand and act autonomously. However, 57% are at the Sense and Understand stages, where their AI can only identify patterns, and sense and make predictions, which requires human involvement. Despite being slightly higher than the overall industry average in the first two categories — 42% combined versus 37% (Figure 2) — telcos are failing to deliver.

Figure 2. Sense, Understand, Respond, and Evolve (SURE) taxonomy: Only 15% achieve top AI capabilities

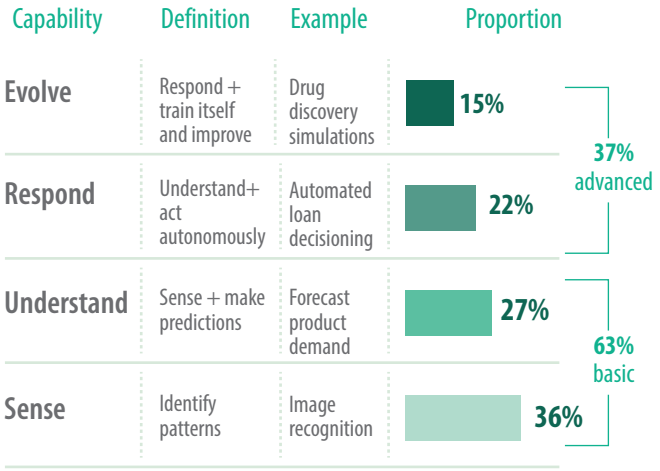
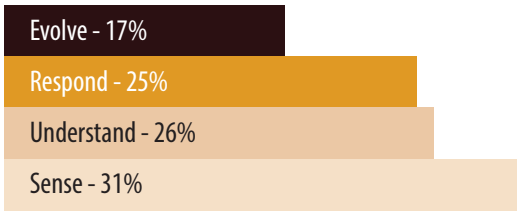


Figure 3. SURE taxonomy: Only 17% telcos achieve top AI capabilities



But telcos lowest in satisfaction

As part of the study, Infosys Knowledge Institute surveyed AI practitioners on what they used their data and models for and how effective they are. Respondents rated satisfaction with five use cases for their industry. They mentioned that data and AI left them relatively more satisfied one out of four times. The study also mapped use cases by satisfaction and usage levels, by frequency of use case, and found that only 18 of 63 (29%) scored in the higher satisfaction zone.

At the other end of the spectrum, AI tools that aim to deliver personalized recommendations or products received lower satisfaction ratings. Here, telecom reported the lowest satisfaction with its data and AI use (Figure 4).

The telecom industry (Figure 5) shows an extremely high rate of maturity in terms of use of data and AI as per business functions, such as accounting and finance, human resources, sales and marketing, and research and development, and a high rate in information technology and operations or supply chain, in the last four years. However, 80% of the respondents reported lower satisfaction rates with data and AI. Most of the use cases in telecom are associated with a lower satisfaction rate and low usage of data and AI. This could also be a result of telcos lacking enough experience or not applying AI to the right business cases — a prerequisite to make data and AI capabilities work well.

Figure 4: Industries ranked as per satisfaction rates

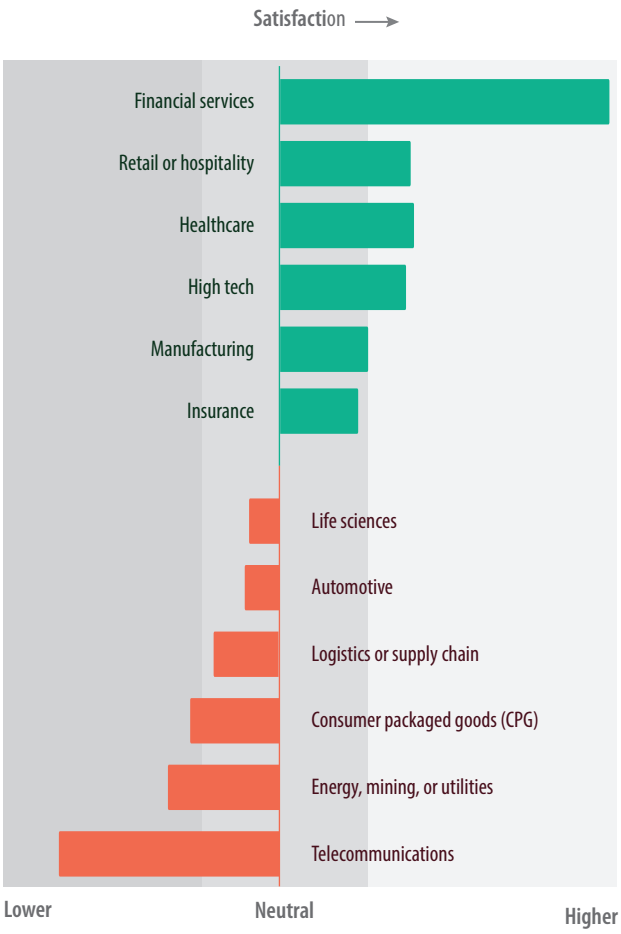
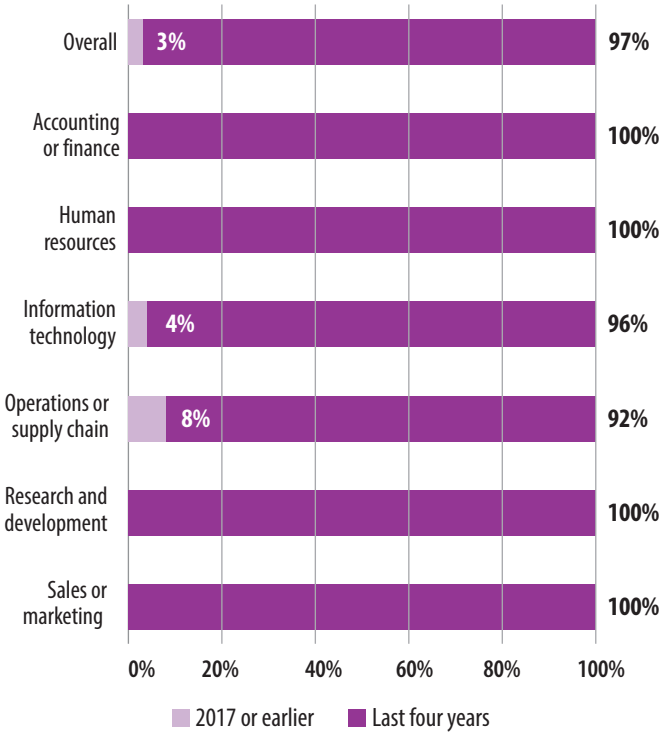
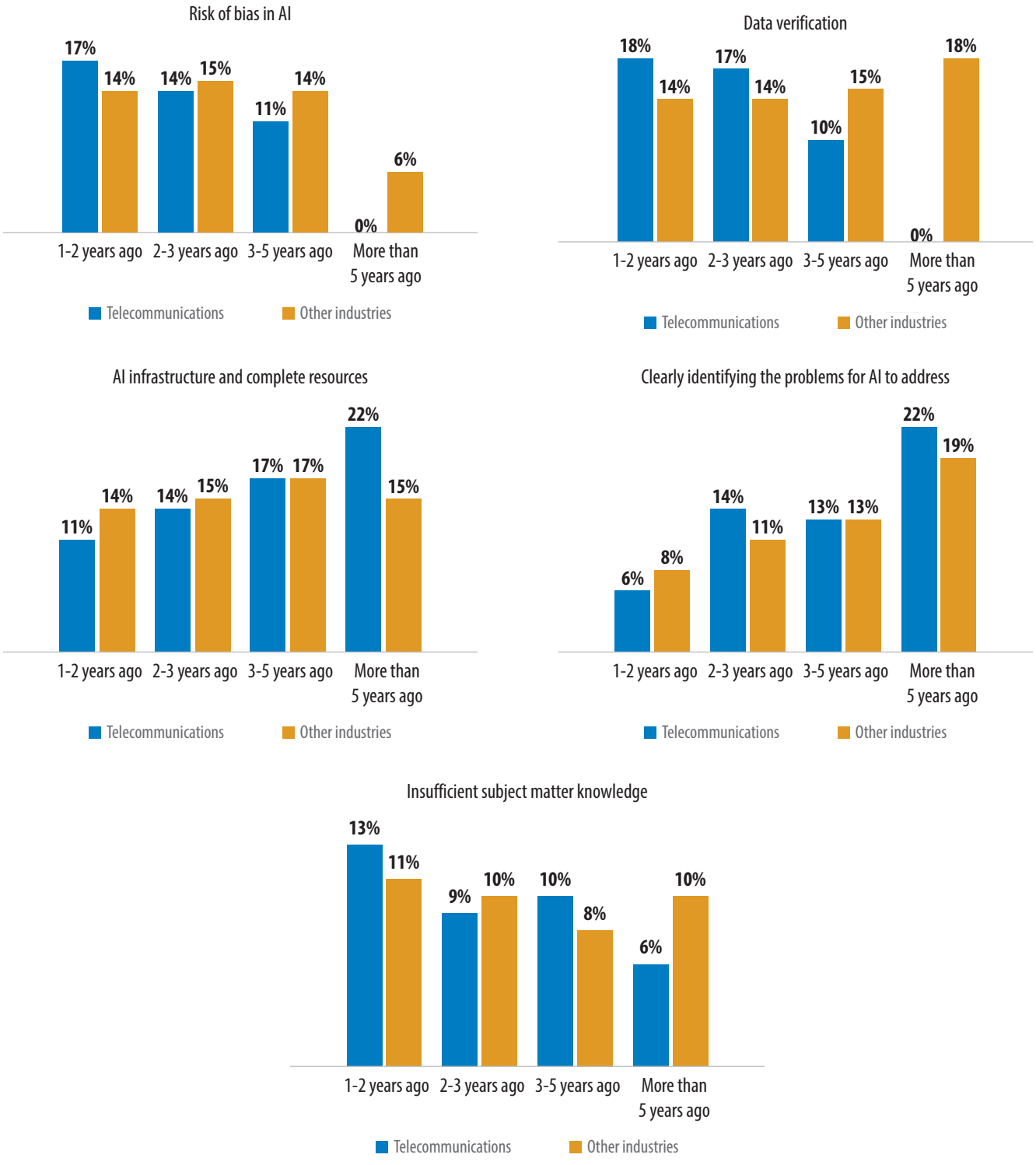


Figure 5: Maturity by business function in telcos



When asked about the top challenges, 22% of telcos that have had their first AI system into production for over five years, reported difficulty in identifying specific problems for AI to solve, apart from problems related to AI infrastructure and compute resources (Figure 6). The former issue is unusual for a company working with AI for that duration. Companies that have had their first AI system into production for three to four years also stated the same issues.

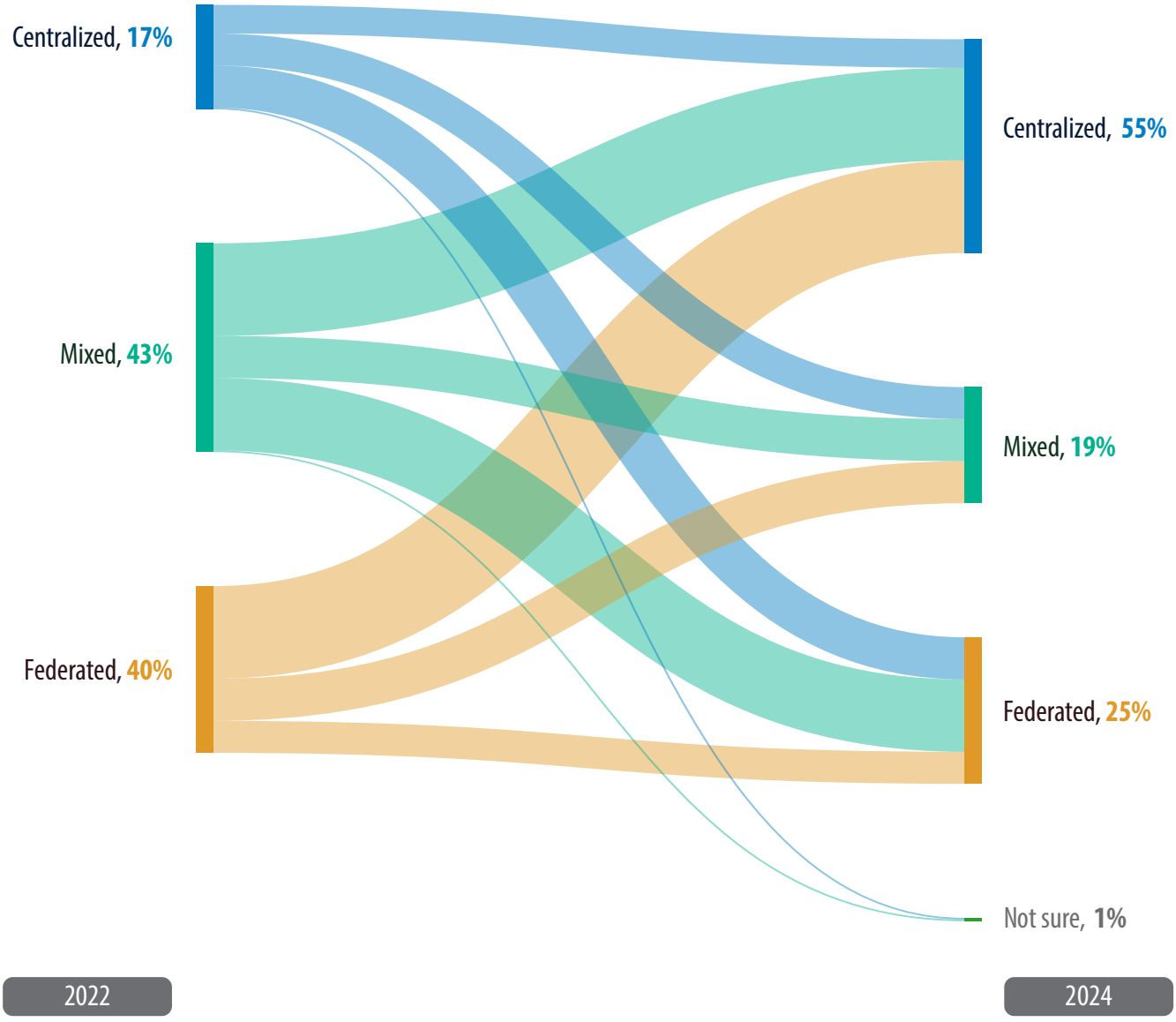
Figure 6: Top challenges faced by respondents



However, it is not all glum for telcos. The good news is telcos are much stronger at data verification than other industries. While other surveyed industries that have had an AI system in production over five years ago stated data verification as one of their top challenges, the issue is virtually nonexistent for telcos in the same category. The more experience telcos have had with data verification, the lesser of a challenge it has become for them. Similarly, while other industries mentioned risk of bias in AI among the top challenges, telcos largely are not facing this issue. And although the figures related to insufficient subject matter knowledge in telcos are concerning (6%), they are significantly lower than the overall average for industries at 10%.

When it comes to data management, most companies across industries are planning to centralize their data architecture in the next two years. But those that are centralized are moving to a federated system. For telcos, there is movement from a mixed or federated to a centralized system, much like the market trend, except in a much larger proportion (Figure 7).

Figure 7: How telcos manage data now and in the future



How telcos can succeed

The Infosys study shows that data and AI done well can help companies achieve better financial outcomes and drive growth. Organizations trying to get the most value from data effectively can be successful if they follow certain best practices. It would be well worth telcos giving them a shot.

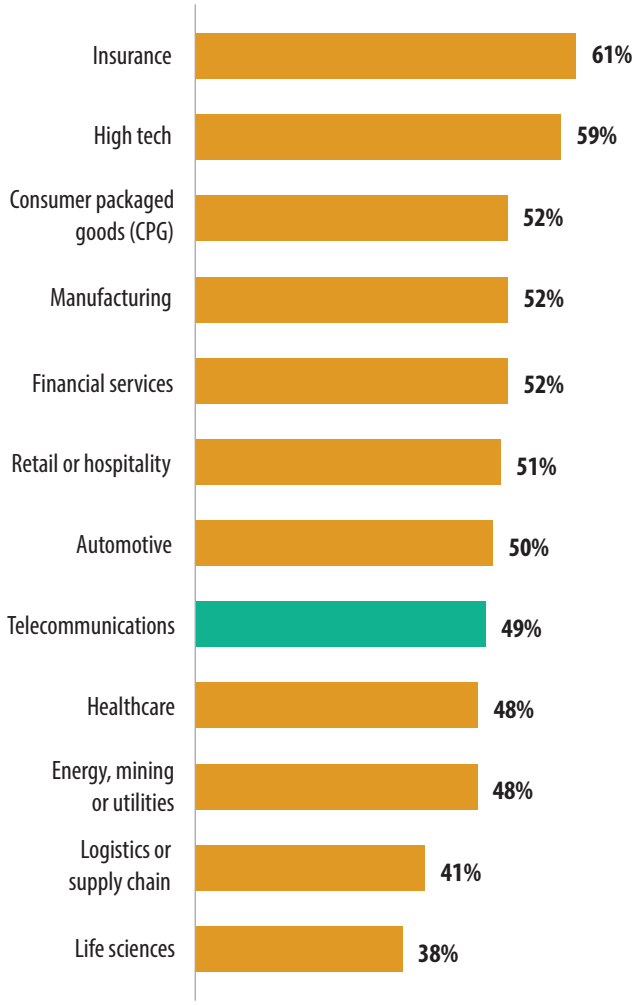
Shift attention from higher-order capabilities

Telecom needs to improve in terms of clearly identifying the problems that AI can solve. The industry could benefit by perfecting less complex deployments before opting for complex deployments. This way, it could invest in the right AI infrastructure and resources. Collectively, this could improve its satisfaction levels related to deployments.

A combined data management approach

A defined data strategy is imperative for companies to manage their data properly and ingest new data smoothly, but most lack one. The Infosys study shows that centralized data management links to better profit and revenue growth. However, a shift to fully federated data management also increases profit growth. That said, both extremes are too simple to adequately serve as a comprehensive corporate data strategy. It is important for companies to strike a delicate balance between centralization and federation and arrive at a state that fits their situation the best. For example, it could be good practice to centralize the governance of data – rules around the structure, security, access, and storage of data – but federate ownership of data across the business, pertaining to aspects such as who updates it, gets value from it, and uses it. This holds good for telcos too.

Figure 8: Telcos fall in the middle amid industries that import data from third parties

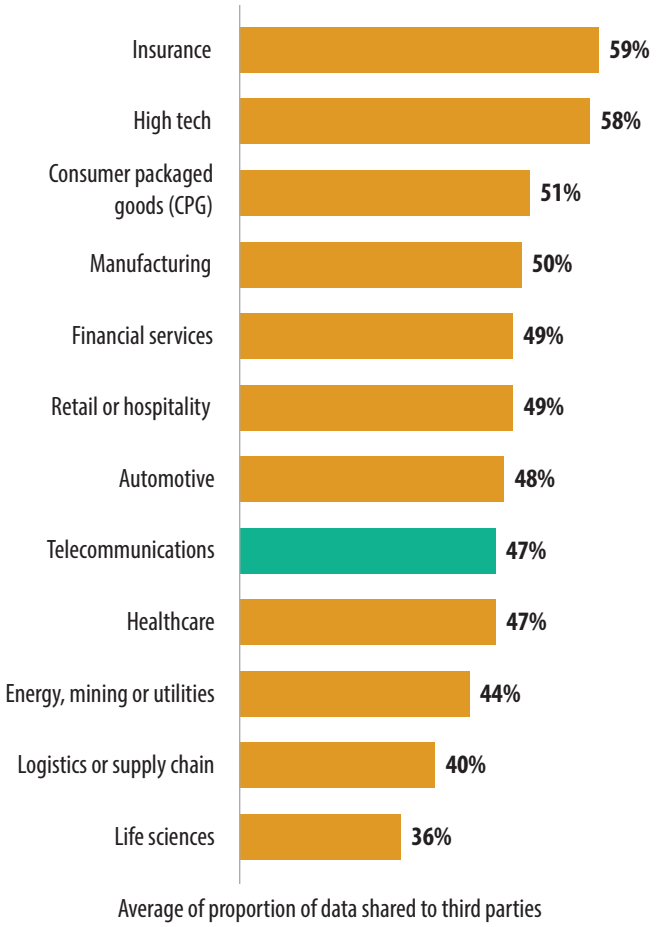


Extensive data-sharing

Having a data-sharing ecosystem with partners and peers can help companies gain greater benefits as opposed to working with a solitary data lake or warehouse. Inbound data sharing and outbound data sharing practices help companies device ways to provide relevant data to their data scientists and AI models. The Infosys report states how importing data from third parties and high levels of data sharing can help boost the corporate bottom line better than practices related to data or AI. Of the $467 billion in global profit increase available, $105 billion links to importing 75% or more of data from third parties, the analysis shows.

When it comes to data imported from third parties and data shared to third parties, telcos fall in the middle with 49% and 47%, respectively (Figures 8 and 9), compared to other industries such as insurance and high tech that tower over it. Yet these figures aren't entirely dismal. They show that telcos are in a hopeful position and have the potential to improve profits with higher goals.

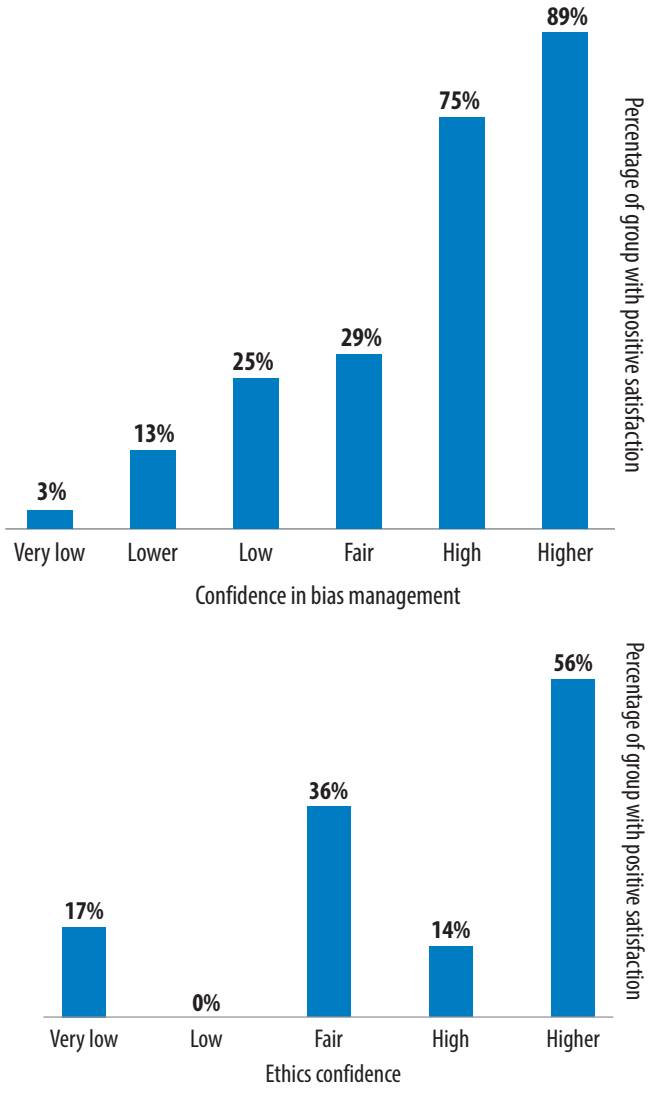
Figure 9: Telcos below average in data sharing to third parties



Strong ethics and bias management

As per experts, employees are more likely to work with AI outputs when they trust that their AI systems are operated responsibly. So, quick and easy understanding of AI is a must for it to work well and lead to satisfaction in those using it. Solid ethics and bias management practices increase trust and satisfaction in data and AI. The report shows that higher the confidence in bias management and ethics, greater the satisfaction with AI (Figure 10). Telcos trying to implement more advanced AI systems must consider this aspect. Increasing their ethics and bias management confidence could be the answer to greater trust in AI and solving the issue they have been facing with low satisfaction with data and AI.

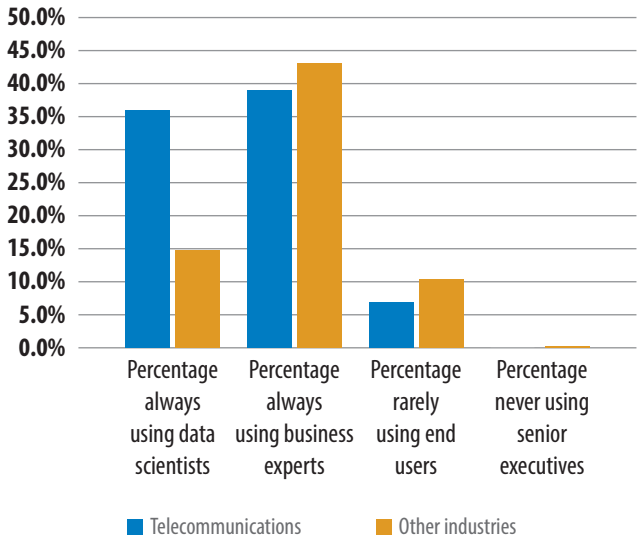
Figure 10: Strong ethics and bias management correlate with greater trust in AI confidence



Building a multidisciplinary AI team

To gain maximum benefit from the effectiveness of a technology, companies need to take added measures to alter their business processes and the structure of their teams around it. Effective AI too demands an efficient AI team with the right mix of members. Including individuals across disciplines, such as data scientists, experts in the business problem, and senior executives, ensures that each group brings a particular skill to the table. While data scientists are a must for AI, business experts armed with knowledge of how business problems must be tackled, and leaders who ensure that the actions are aligned to organizational strategies and translate into business growth have an equally critical role to play.

Figure 11: AI teams - Telecom versus other industries



While the telecom industry does involve senior executives in its AI teams, and also seeks inputs from end users on the technology they will be using, both of which are recommended, it attaches greater importance to data scientists (Figure 11), 36.2% vs 14.8% for other industries. However, telecom shows scope for improvement when it comes to always involving business experts (39.2% vs 43.3% for other industries). Getting the balance of people in AI teams right can effectively address the challenges posed by a lack of experience.

Investment in deep learning and data sharing

Data sharing — importing in and sharing out data — helps companies expand their data pool. If advanced AI capabilities and practices join hands to share data in this manner, it brings about more advanced AI and leads to deep learning. The Infosys report shows that expanding deep learning and data sharing helps increase corporate profits. More telcos (71%) are investing in deep learning and sharing data extensively (Figure 12). It is also a good sign that 72% are doing deep learning in more than 30% of their AI systems (Figure 13).

Figure 12: Deep learning correlates with extensive data sharing

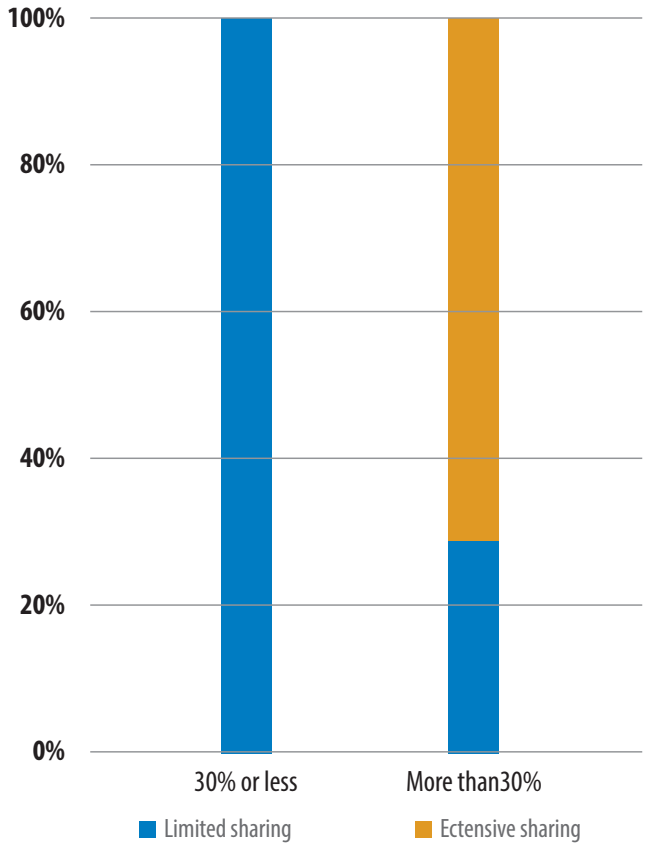
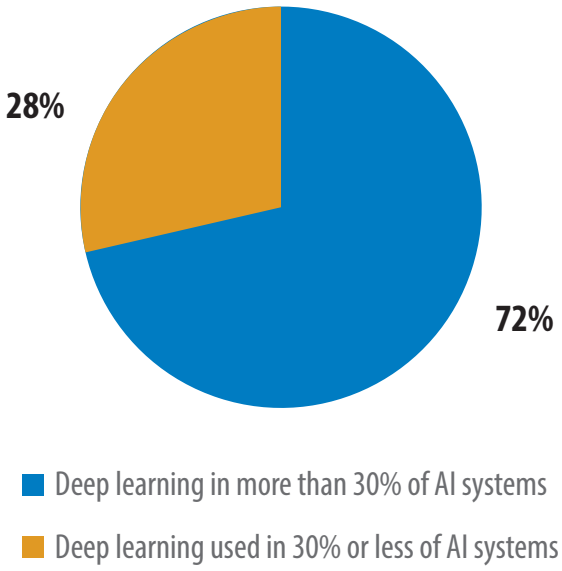


Figure 13: More telcos are doing deep learning



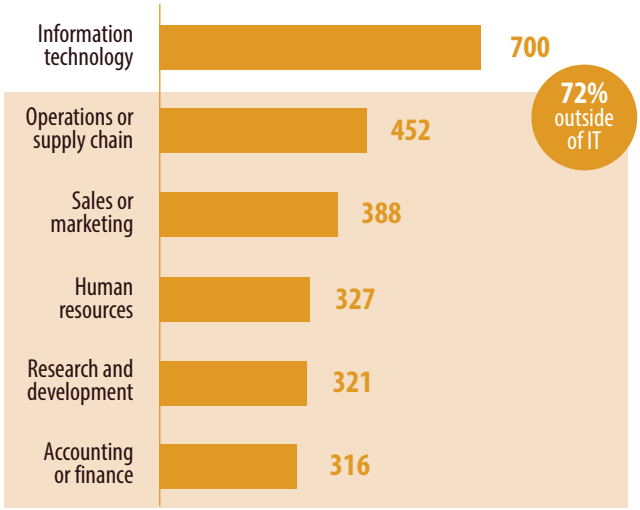
Telcos evidently have the upper hand in areas such as data verification and deep learning. They have also got it right when it comes to including senior executives in their mix of AI teams, and their data management strategies are evolving. But, to achieve their best, they need to improve in areas such as increasing more business experts and end users in their AI teams, exploring a state between centralization and federation to best suit their circumstances, and increasing their confidence in ethics and bias management. All this together can be the missing piece in telcos' satisfaction with data and AI.

Appendix: Research approach

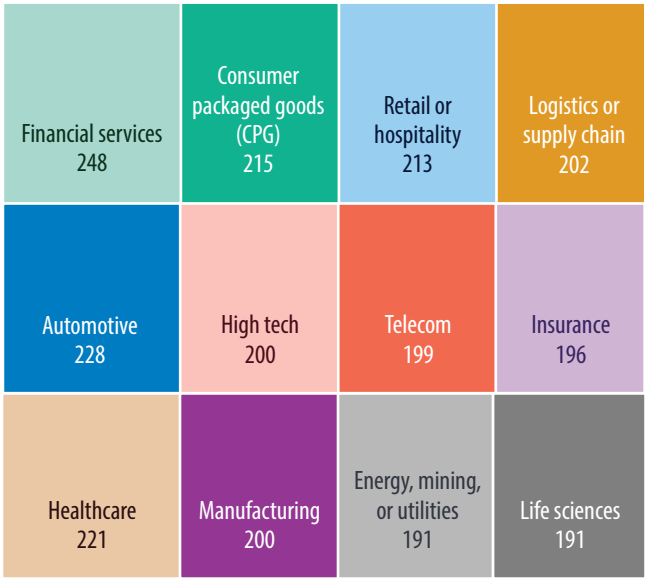
Infosys Knowledge Institute commissioned an independent third-party survey of 2,500 AI practitioners. In addition to questions about data, AI, and technology practices and capabilities, we asked survey respondents for financial details, including revenue range and yearly revenue and profit growth rates. The survey was conducted in May to July 2022. It included respondents from companies with more than $500 million in annual revenue in the United States, United Kingdom, Germany, France, Australia, and New Zealand.

We identified and analyzed a large set of actions that could affect profit and revenue change related to data and AI. We then set base cases and found via linear regression 23 actions (of 69 analyzed) that showed evidence of a statistically significant impact on profit or revenue growth. The $467 billion in potential profit growth derives from a ~10% increase in profit growth that can be achieved from 13 actions with statistically significant uplifts.

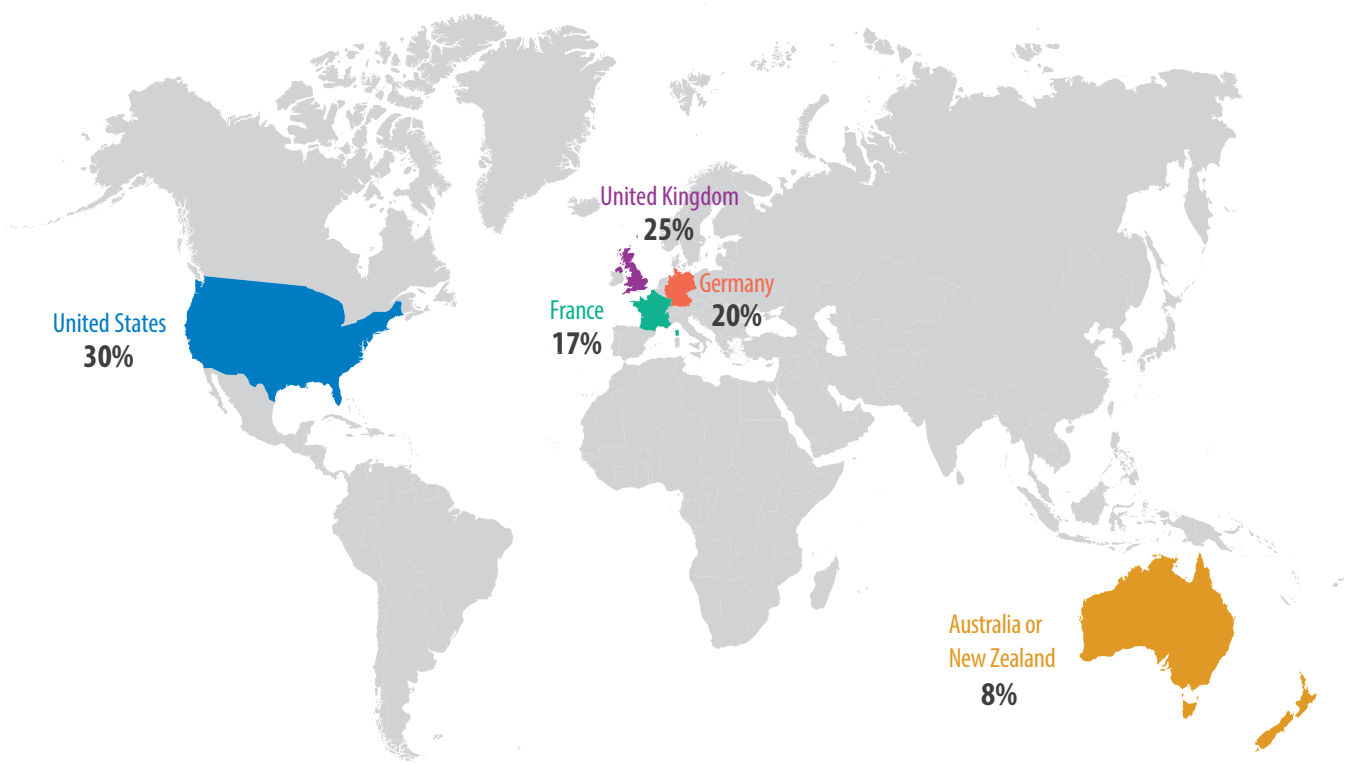
Job function



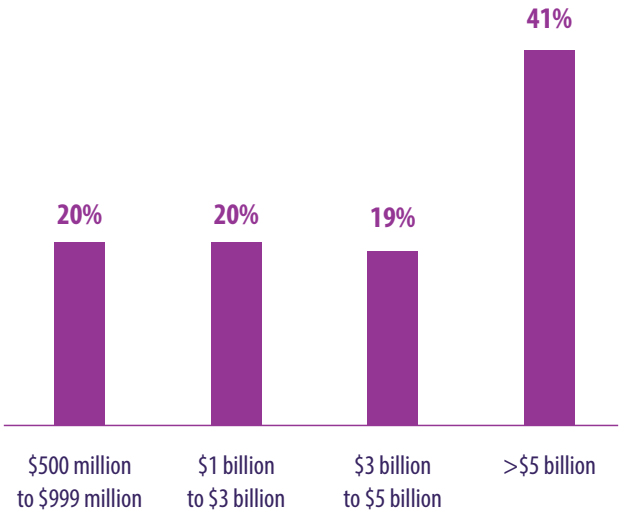
Industry



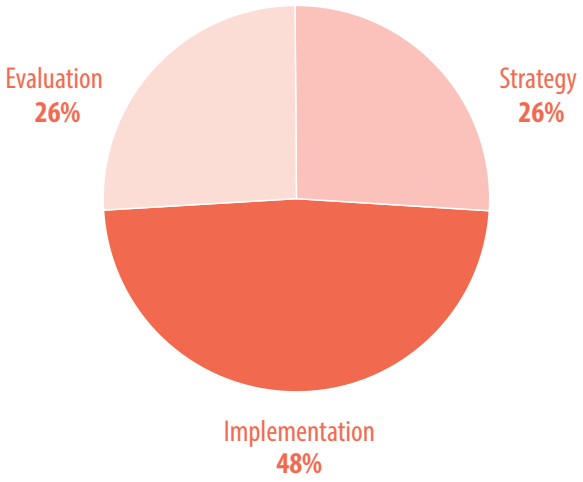
Country



Annual revenue



Role in AI



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