



Executive briefing

TELCOS AND AI: WHAT IT WILL TAKE TO CREATE AN AI-DRIVEN TELECOMS INDUSTRY

An overview of the current state of AI in telecoms, where the industry is looking to progress and how it is planning to do so



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Executive summary

While artificial intelligence (AI) has unquestionable power to transform the telecoms industry, it is still very much a nascent field. To cut through the AI hype and provide an accurate picture of the current state of this technology in the industry, STL Partners has spent the last few months collecting qualitative and quantitative data from a variety of telcos worldwide.

Our data shows that many telcos — nearly half of those we surveyed — have not gone live with even a single AI initiative. Yet we believe telcos are uniquely well positioned to take advantage of AI technology, largely because they are already used to dealing with the huge volumes of data on which AI and machine learning (ML) rely.

Implementing AI: Key areas for telcos

Telcos currently implementing AI tend to focus on:

- Optimizing existing networks, improving operations and building future networks
- Improving sales and marketing
- Enhancing the customer experience

All of these are concerned with improving current business processes — an understandably attractive area of opportunity for telcos under increasing pressure to reduce operating costs (e.g., cost per transferred bit) and enhance performance (e.g., response times) across their businesses. Vendor solutions in the business process domains are also more mature than in other areas of AI, giving telcos the confidence that they can unlock benefits in the short term.

However, we argue telcos must also play the long game with AI and consider less-explored domains that could unlock new revenue streams, such as:

- Using AI to drive (and monetize) customer data
- Using AI to enable or support new services

How telcos are approaching AI

Telcos have technical questions about AI — and organizational ones, too. They need to figure out how to build skills and structure their initiatives to extract the most business value from AI. Through our research, we have identified three distinct strategic approaches to implementing AI:

- Through a centralized AI initiative. For telcos who see AI as potential strategic differentiator, having a senior executive leading the initiative ensures it stays at the top of the agenda. Centrally coordinated initiatives are also much more successful at moving from pilots to live/scaled AI projects when compared to “siloesd” initiatives.

- Through a cross-functional research and development unit that serves as an “internal vendor” to “clients” from different business units. This ensures the focus is on using AI to fix specific business problems rather than as a technological gimmick.
- Through independent AI initiatives. While siloed initiatives risk wasted or duplicated efforts — and poor sharing of resources and insights — individual business units are often able to move more quickly in isolation.

We believe the best approach is a hybrid one, in which a centralized figure or team promotes AI as a strategic priority across the organization while coordinating the resources to support individual AI initiatives within business units. This allows separate areas of the business to move at their own pace and facilitates the sharing of resources, platforms and best practices where initiatives overlap.

Making the leap from concept to live project

Progress with AI is not uniform across telco type or region. Key challenges to implementing AI initiatives include inconsistent or fragmented data and a lack of internal skills with data analytics and other software. More than three-quarters (77%) of the telcos we surveyed also said their data storage systems require work.

As well, key performance indicators (KPIs) are not easy to identify because different telcos implement AI projects to achieve different business outcomes. Telcos must therefore be clear on their own KPIs and the business value AI can deliver.

Making the move from piloting AI proof-of-concept projects to deploying live or scaled AI initiatives is a further challenge. To avoid getting stuck in what one respondent called “proof-of-concept purgatory”, telcos need to:

- Accept failure and embrace innovation right from the very beginning, with forethought about how to mitigate risks without abandoning the project (or keeping it the proof-of-concept stage forever).
- Revamp their partnership strategies, including working more collaboratively with partners to meet common goals and considering opportunities to work with companies outside the usual telecoms vendors.

Our recommendations

Going forward, we have four overarching recommendations for telcos looking to capitalize on AI:

1. Act in the short term, but plan for the long term. Look at both immediate opportunities to improve the efficiency of current business processes as well as more future-focused applications of AI that could unlock new revenue areas over time.
2. Don't wait until the perfect environment is in place. There is a balance to be struck between creating perfectly clean data lakes with well-organized initiatives and taking an agile approach that will allow real progress to be made now.

- 3.** Focus on scale. Telcos must focus not just on financing proofs of concept but also on understanding and planning how to scale up these initiatives. Challenges such as heterogenous equipment and slow innovation cycles must be overcome for projects to begin delivering real business impacts.
- 4.** Make the most of partners. Telcos must establish skills, trust and an understanding of AI and its potential across their organizations. At the same time, it's important to know when to outsource and work with partners. Telcos should exploit their strengths (e.g., the range and granularity of the datasets they store) and look to partners where they have gaps (e.g., in building data-related skillsets). The key to a successful partnership is being prepared to learn alongside each other.

Not a passing fad: AI is becoming a core capability for telcos

Artificial intelligence (AI) has become a key enabler of the digital transformation journey for service providers in the telecoms industry, providing them with the insights and capabilities they need to be more agile and take a more software-centric approach to their role.

STL Partners has been writing about telcos' AI opportunities since 2016, looking first at how AI might improve the customer experience¹ and then at the critical role AI might play in the future of network operations.²

In this report, we provide a comprehensive overview of the state of AI in the telecoms industry. Supported by nearly a dozen in-depth interviews plus an online survey of more than 50 leading telcos around the world, we explore where the industry is looking to progress and how it is planning to do so — and identify the strategic and business opportunities that are being enabled by AI.

This report will be followed shortly by a sequel that quantifies some of the business outcomes telcos can expect from specific AI application areas. In the coming months, we will also publish a report discussing how AI technology is evolving and presenting our vision of the telco AI roadmap.

What is artificial intelligence?

Before going any further, it is important to clarify what we mean by “artificial intelligence”. To us, AI is about using computing capabilities to perform tasks traditionally associated with humans (such as inference, planning, anticipation, prediction and learning) in human-like ways (e.g., autonomous, adaptive). Our definition incorporates machine learning (ML), which we define as a subset of AI that focuses on the ability of machines to receive datasets and adapt responses in pursuit of a goal.

These definitions attempt to encapsulate the distinction between AI and other forms of rules-based automation — although we acknowledge that in practice these lines are easily blurred.

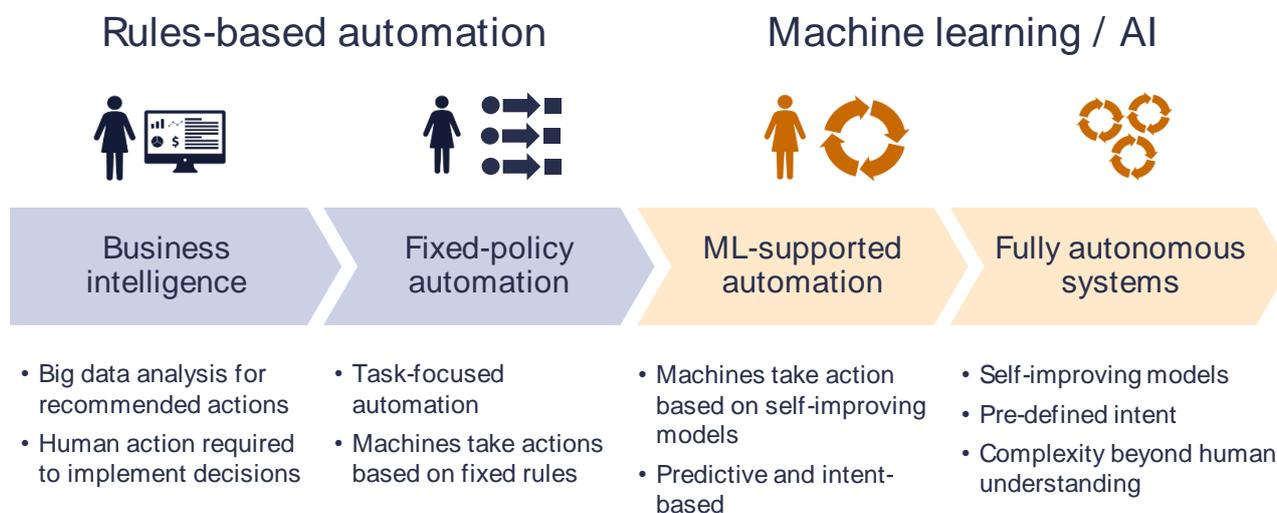
Practically speaking, AI sits on a continuum of other related technologies and concepts, which we have covered at length in our previous reports.³ Figure 1 illustrates this continuum and depicts the stages we expect telcos will have to go through as they to move from manual to automated and then to AI-augmented processes.

¹ STL Partners, *AI in customer services: It's not all about chatbots*

² STL Partners, *Network AI: The state of the art*

³ See pages 10–11 of *Network AI: The state of the art* in particular.

Figure 1. Moving toward AI



Source: STL Partners

A long-term ambition for many telcos is to reach the orange zone in Figure 1: a state in which their systems and processes run and learn from themselves with human input limited to the setting of desired business goals. Beyond the targeted use of ML in certain applications, however, the industry and society as a whole are far from realizing that ambition. It is still unclear what fully autonomous systems in a telco might look like in practice, let alone whether they will ever be achievable.

Today, most telcos are still figuring out how to play in the blue zone. They're using targeted data analysis to inform largely human-led decision-making processes, or they've implemented some fixed-policy automation where machines follow a script written and inputted by a human. This is valuable work, but it is not the focus of this report. Instead, we focus on the middle section of Figure 1: on those fledging opportunities that move beyond rules-based automation and into the realm of ML-supported automation.

Cutting through the hype

AI has generated considerable industry noise and media attention — so much so, in fact, that a recent survey of leading telcos⁴ awarded AI the title of “most overhyped emerging technology”. We believe this hype originates in a general lack of understanding of what AI is (and is not), as well as unrealistic expectations about what it can do for a business, how quickly it can be deployed, and how much ongoing work will be needed to manage it. While there is consensus that the technology has great potential, many telcos doubt it will deliver everything that has been promised up to now.

For those disillusioned by the hype, it is worth noting the impact of AI is much likelier to be evolutionary than revolutionary. The line between automation and AI is blurred; so, too, is the

⁴ Telecoms.com, *Annual Industry Survey 2018*

progression between the two. While AI has the potential to unlock new business opportunities, realizing that potential will require patience and long-term investment.

And yet, the truth is that telcos are uniquely positioned to take full advantage of AI technology — largely because they're already used to dealing with the huge volumes of data AI relies on. When telcos automate systems, networks and processes — particularly with the injection of AI — they benefit from feedback loops that further improve those automated processes. This drives simplicity in an industry rife with complexity.

The digital transformation we all talk about depends on driving out complexity and becoming more agile, and the only way to do that is by automating intelligently. Looking ahead to the launch of 5G, it will become impossible for telcos to manage billions of connected devices without AI assistance.

Telcos' current AI focus: Speed and efficiency

Key learnings	STL Partners' recommendations
AI is still a nascent area for telcos.	Telcos must think about their overall AI strategy early on, including which projects to prioritize first and which to make part of their long-term AI roadmap.
At the moment, telcos are focused on using AI to improve their current business processes.	While process improvement is the obvious first step, telcos should keep in mind future-focused use cases such as using AI to enable or support new services. This will be crucial as they seek to unlock new revenue streams and move away from being solely providers of connectivity.

Through our research, we have identified five primary domains of activity for telcos looking to make use of AI. The first three broadly relate to business process improvement, with the end goal of reducing costs and improving efficiency.

1. Optimizing existing networks and operations. Telcos are using AI not only for network planning and optimization, but also to improve their human resources, accounting and fraud-management functions. For example, Telefónica has built an ML model capable of monitoring the status of the network, predicting possible failures and an optimizing maintenance routes.⁵ This has been particularly important in its rollout and maintenance of networks across rural Latin America, where it can take an engineer up to a day to travel to the site of a network fault.
2. Improving sales and marketing activity. This includes upselling, cross-selling and agent augmentation. Globe Telecom, for example, has created a data-management platform that collates network signal information alongside information from billing and payment systems to provide personalized offers to its mobile customers.⁶
3. Improving the customer experience. This includes use cases such as fault resolution, churn management, chatbots and virtual assistants. Vodafone has developed the chatbot TOBi, for example, which can handle 70 percent of customer requests and employs ML technology to further improve the support it offers to customers.⁷

⁵ Source: [Telefónica](#)

⁶ Source: [Cloudera](#)

⁷ Source: [Vodafone](#)

The remaining two domains focus on using AI to enable new ways of working that go beyond a telco’s core connectivity offering, with a focus on growing revenues.

4. Driving (and monetizing) customer data. AI can help telcos aggregate massive volumes of anonymized customer data that can then be sold to third parties. Singtel’s DataSpark has taken a step down this data-as-a-service route, providing access to GPS and mobile network data that other organizations can incorporate into their applications and services.⁸
5. Enabling or supporting new services. This includes cybersecurity and predictive analytics. As an example, AT&T is using ML to quickly identify normal and abnormal activity in its networks.⁹ This sort of solution could be sold as a managed service to other enterprises in the future, unlocking a new revenue stream.

How are telcos using AI today?

Between November 2018 and January 2019, we asked AI leads at 51 telcos worldwide to tell us how they are making use of AI across these five domains. The people we surveyed represented a fairly even mix of mobile-only, fixed-only and converged service providers, both consumer- and enterprise-focused. Their roles varied from C-suite and strategy (44%) to more specific functions in networks, IT and customer experience. We also conducted nine in-depth interviews, including with senior network architects and heads of predictive analytics, to learn about organizations’ unique approaches to AI, as well as their opportunities and challenges.

On the whole, the responses we received made it clear AI is still a relatively nascent area for most telcos, with only 12 of those we spoke to having a scaled initiative in *any* of these domains.

Figure 2. Telco AI initiatives by domain

Where do you see AI, machine learning and automation having the most impact on your organization? Rank these five areas in order of importance.



⁸ Source: DataSpark

⁹ Source: AT&T

Source: STL Partners, January 2019, 80 respondents

We also found that those who *do* have initiatives in place tend to be focused on using AI to improve their existing business processes (i.e., domains 1, 2 and 3). In the short term at least, telcos see AI in these domains as having a bigger potential impact on their organization than others.

There are several reasons why using AI to improve existing business processes might be most attractive. First, telcos are under increasing pressure to reduce operating costs and improve performance (e.g., response times) in all areas of their business, particularly in developed markets. With revenues down and not likely to rebound any time soon, they must improve the bottom line to remain profitable. Focusing on existing business processes and exploring how AI could make these more efficient just makes sense.

Vendor solutions in these first three domains also tend to be more *mature* — that is, readily available with some positive indicators that results can be replicated in new organizations or slightly different operating environments. This gives telcos the confidence that they can unlock benefits in the short term without having to spend time exploring, experimenting and developing solutions in entirely new areas of business.

It is also worth noting that these three domains are often highly *automated*, at least in the case of Tier 1 operators in mature markets. Where automation is in place, adding an AI “brain” to tell it what to do is a logical extension.

The obvious first step in AI implementation is to focus on improvements to existing business processes, keeping costs down and efficiency up. That said, we would also want to encourage telcos to think in terms of both long- and short-term objectives. If telcos really want to unlock the maximum potential of AI, they need to keep front and center how it might unlock new *revenue* opportunities. Exploring options in these domains early will ensure telcos position themselves as leaders when it comes to future AI applications.

Sharing is caring: How telco AI initiatives are organized

Key learnings	STL Partners' recommendations
<p>Telcos are approaching AI in different ways. For some, it's a top priority and they're relying upon it to be a strategic differentiator in the future. Others are still in the early stages of figuring out what AI will mean for their business.</p>	<p>We recommend telcos embrace a hybrid approach to organizing their AI initiatives. This means enabling individual business units to move with greater agility and explore where AI can help make them more efficient while also ensuring there is a centralized repository of learnings, best practices and insights. This approach is likely to help telcos move from AI proofs of concept to full-scale, live AI projects that are used widely within their organizations.</p>

As with most new technological innovations, it is not so much the technology but more the way it is *used* that will decide whether it is capable of transforming a business or little more than a gimmick. If telcos are to unlock the full potential of AI, they will have to figure out how to organize and deploy initiatives in ways that work best for their specific needs.

From our discussions with telcos all over the world, it is clear that there is no consensus on how AI initiatives should be organized. However, three distinct strategies emerged: centralizing AI initiatives, establishing cross-functional research and development (R&D) units, and carrying out individual AI initiatives.

We believe the best strategy is a hybrid approach in which a centralized figure or team promotes AI as a strategic priority and coordinates the resources needed to support individual AI initiatives within business units. This allows separate areas of the business to move at their own pace, while still allowing resources, platforms and best practices to be shared where initiatives overlap.

The following pages provide a brief overview of the three main strategies that were described by the telcos we surveyed — and can be combined to create our recommended hybrid approach to organizing AI initiatives.

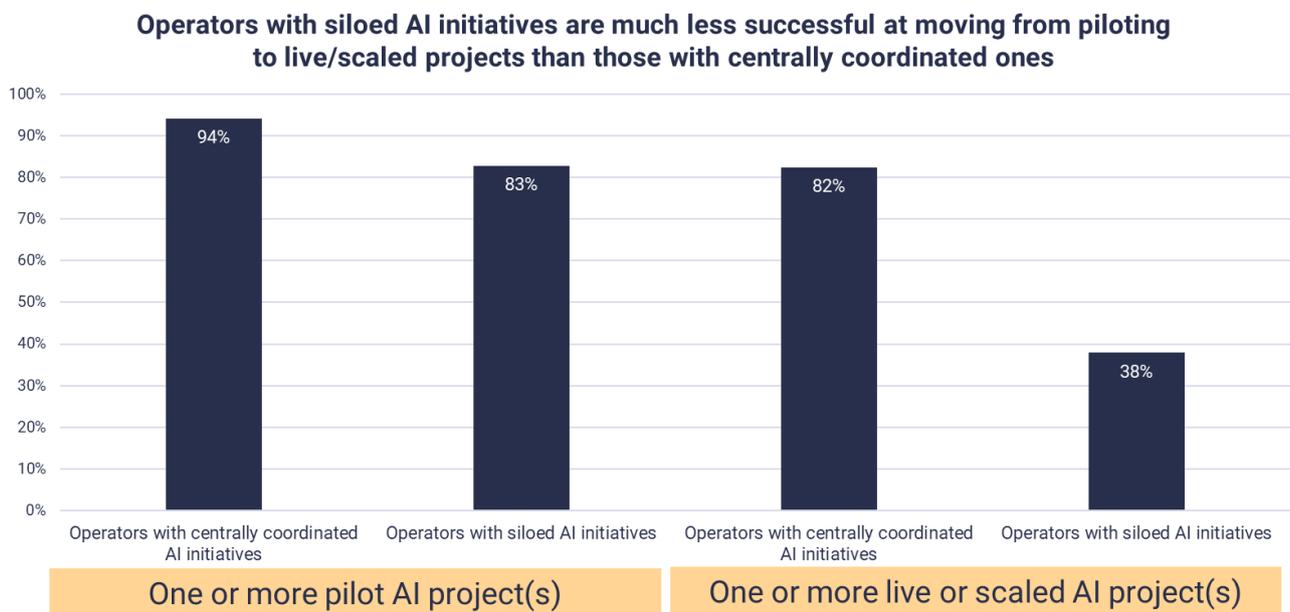
Centralized AI initiatives

Some telcos have created a centralized AI initiative headed by a specific individual (or team of individuals). While the exact job titles and line of reporting for these individuals vary, they are ultimately responsible for promoting — and perhaps even enforcing — AI as a strategic priority for the entire organization. The idea here is to embed AI at the top of the company and then ensure it trickles down throughout the organization. Almost one-quarter (22%) of those who took our survey had been assigned a specific AI responsibility along these lines.

For telcos that see AI as a potential strategic differentiator, ensuring C-level management is well-versed in it and the business opportunities it can unlock will be important. Having somebody in place who can put AI front and center on the corporate agenda could be a good way to do this. However, placing that responsibility on one person’s shoulders may prove too much. Will they really be able to oversee all AI projects across the whole organization, get buy-in from C-level management, and spread understanding and belief about AI among all employees? This is still to be seen.

Another possible advantage of centralization is that AI and ML models are most accurate and effective when they can pull from multiple different data sources. Our research shows that telcos who take seriously the need to adopt some level of centralized coordination are much more likely to be able to convert pilot AI projects into live or scaled projects. “Siloed” efforts, in comparison, often hit a wall when trying to push from a small-scale proof-of-concept project into something that people will support being implemented across the organization.

Figure 3. Centrally coordinated AI initiatives are more likely to scale



Source: STL Partners, January 2019, 80 respondents

Cross-functional R&D units

In North America, several telcos have given AI responsibility to a cross-functional R&D unit, which serves as an “internal vendor” to “clients” within the organization’s different business units. The business units can approach the R&D unit to see if any new capabilities being developed (some of which might involve AI) can meet their specific needs.

This approach ensures AI is used to address specific business problems rather than as a technological gimmick. It also ensures use cases with the largest business potential are prioritized correctly. If it is managed well, expertise and resources can be shared effectively — but if it is managed poorly, there is a risk ideas will not flow in both directions and opportunities will be missed.

This strategy does not require as much commitment from C-level management, making it well suited for telcos for whom AI is of high importance but not a top-three strategic priority.

Individual AI initiatives

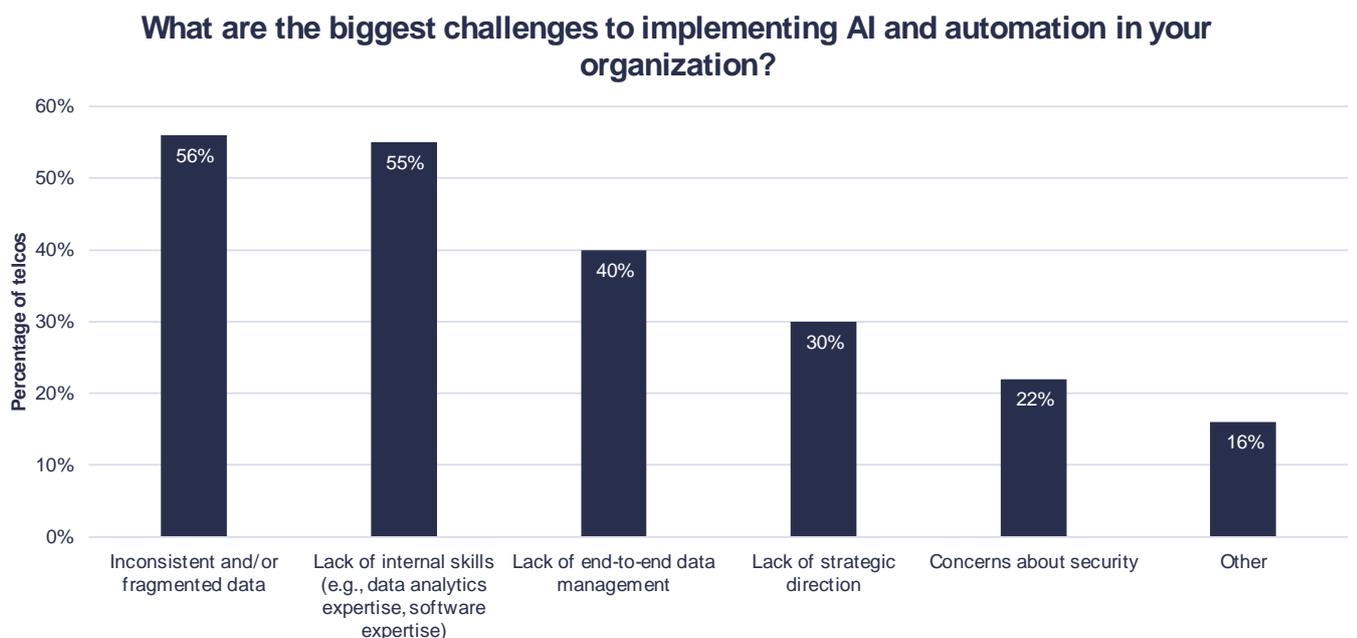
In many telcos, the reality is that separate business units within the organization are running individual, isolated AI initiatives to their own ends. While these kinds of siloed initiatives risk wasted or duplicated efforts — along with poor sharing of resources and insights — many telcos have found individual business units are able to move more quickly in isolation. Where agility is key, this is important. However, this kind of isolated organizational structure can become problematic when there is need to share data between multiple units and systems (such as IT, networks and billing).

The stumbling blocks for AI implementation — and how to get around them

Key learnings	STL recommendations
Poor data and a lack of internal skills are key challenges for telcos when it comes to AI implementation.	Telcos have access to massive amounts of rich, unique data — but they must learn how to handle that data properly to build powerful ML models. To combat the lack of internal skills needed for AI development, telcos should look to form partnerships where appropriate.
It will take telcos a long time and significant investment to create the perfect environment for AI implementation.	Telcos must invest in initiatives such as the creation of “data lakes”. However, they must also get going with AI projects now to prove the need for such investments. Waiting for the perfect environment might mean waiting forever and missing the opportunities associated with AI entirely.

As with any new technology, AI is complex and not straightforward to implement. Telcos told us about the many barriers that are preventing them from making progress with AI. While each telco is held back by its own unique combination of challenges and obstacles that must be overcome, there are also many challenges common across the telecoms industry.

Figure 4. Poor data and a lack of internal skills are key challenges



Source: STL Partners, January 2019, 80 respondents

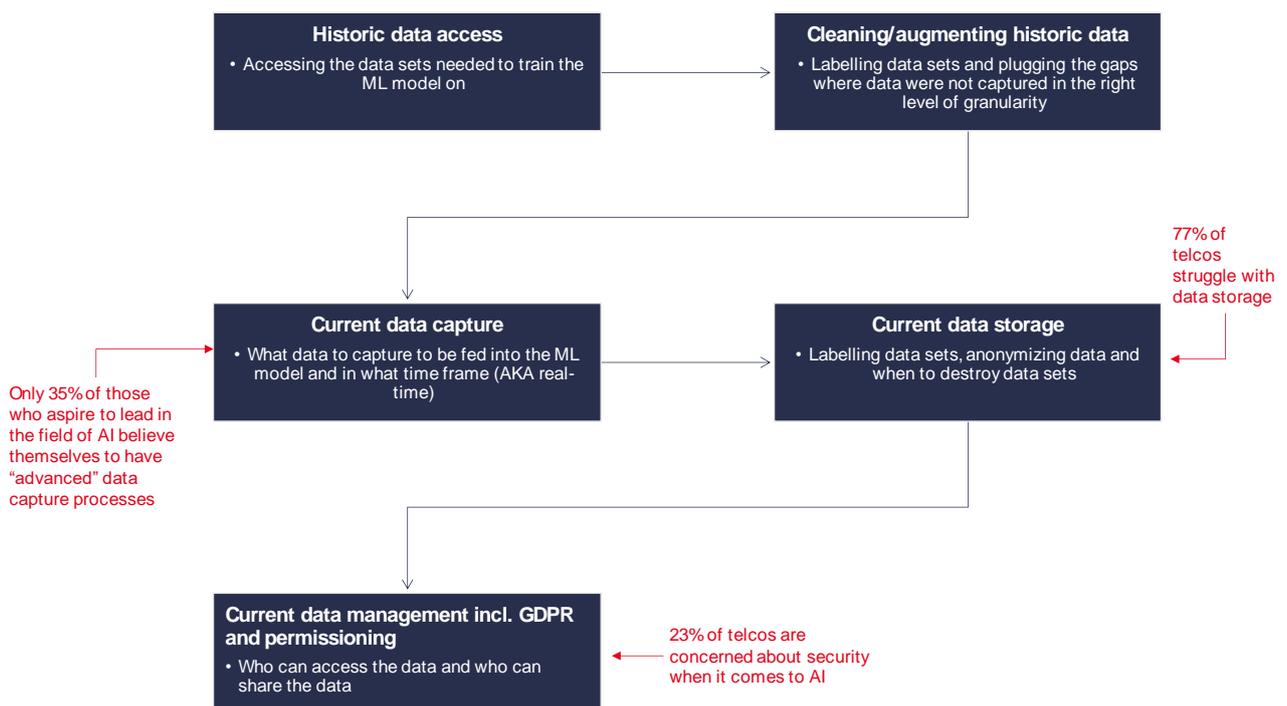
As shown in Figure 4, one of the two most commonly cited challenges to AI implementation pertains to telcos’ in-house skillsets and expertise — specifically, a lack of internal data science skills. We have addressed this problem (and how it can be overcome) in more detail in a previous report about data analytics.¹⁰

AI initiatives need to be powered by high-quality data

The other most commonly cited challenge relates to data itself — in particular, the way data is captured, stored and managed. AI and ML require vast *quantities* of data to function correctly, but the data must be of sufficient *quality*, too. If the right amount of good-quality data is not available, decisions recommended by an AI or ML model are unlikely to be accurate or successful.

The good news is that telcos *do* have access to large quantities of data, perhaps more than companies in most other industries. Yet despite being relatively sophisticated in terms of handling data, our research shows there is still a way to go before telcos have data of sufficient quality for AI use.

Figure 5. Telcos struggle with data management at every step of the AI journey



The root cause of telcos’ struggles with inconsistent or fragmented data often lies in historic data capture. At the most basic level, telcos have not always been capturing the data they now realize they need to properly train their ML models — and these gaps are causing problems. Even when

¹⁰ Telecoms data analytics: Where’s the real value?

they have been capturing the right datasets, those datasets may not have been stored with the degree of granularity needed for ML.

As one of our interviewees from a Northern European telco put it:

“We still have a long way to go in terms of making data ready for AI. It is one thing to have high-quality data collected in the traditional way, but it’s another to get this data into a specific way which you might need to solve a use case. There are so many examples where we have data in that domain, but the granularity is not useful for solving a specific use case with AI. We need to collect data in the right way so that it is correctly labelled, and that’s a long journey”.

These issues with historic data capture can stall an AI project before it even begins. And the problem is not limited to those just dipping their toes into the world of AI. Among the telcos we surveyed who aspire to lead in the field of AI, only 35 percent believe they have “advanced” data-capture processes.

Data governance is an essential requirement

Even after telcos have sorted out the issues with their current and historical data capture, their ML models will need to be continually fed new datasets to become more accurate. All this data must be stored and managed, too, which can bring up issues of privacy and security. This data will often need to be pulled from different areas of the business, requiring access to often different data storage systems. This can be particularly challenging if data need to cross geographic boundaries between countries that may have significantly different regulations. New data must also be labelled and organized in a manner consistent with the old to ensure the AI can recognize and pull the right information. If not, it must be modified to match.

Again, telcos are struggling in all these areas. When we asked specifically about data storage, 77 percent of survey respondents said their storage system requires work or consolidation of data is problematic.

Incidentally, we often heard the end goal for telcos is to create a centralized “data lake” — that is, a single repository for all kinds of data. But data lakes present their own unique challenges, especially because the datasets they contain are not necessarily well-structured. On top of that, because all the organization’s data are accessible from one location, security becomes highly critical. Without proper governance, a data lake is liable to become unwieldy.

Exploring the link between data maturity and AI success

Figure 6 explores the relationship between data-related capabilities and success in AI, ranking survey respondents on two axes:

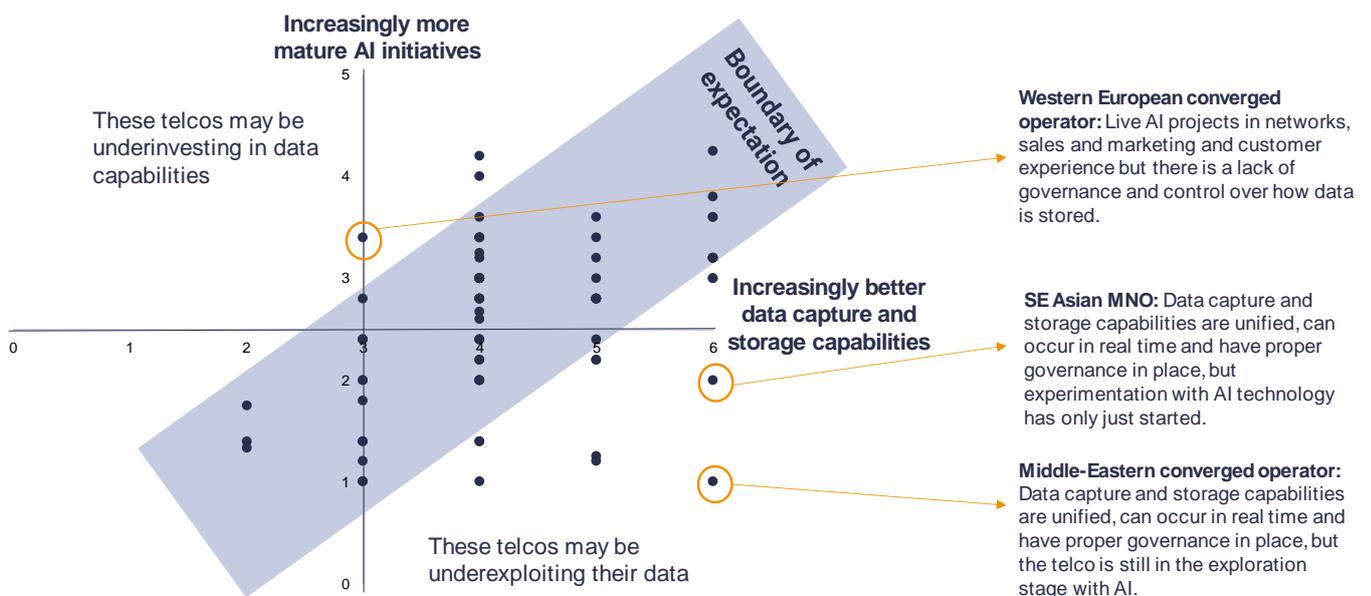
- Maturity of AI initiatives (where 1 is “exploratory” and 5 is “scaled deployment”)
- Maturity of data capture and storage capabilities (where 1 is “fragmented or requiring work” and 5 is “advanced or organized”)

Each dark blue dot represents a telco that took part in our research. Our expectation (represented by the blue band) was that there would be some correlation between these axes: that is, the better a telco's data capture and storage capabilities, the further it is likely to be with implementing AI.

To a large extent this is true, with the majority of telcos falling in this band. However, there are some significant outliers, primarily those who have invested in data capture and storage but made less progress implementing AI.

This finding suggests some telcos are “underexploiting” their data, meaning they have not yet figured out how to capitalize on the data they hold. If they do, however, they have the potential to make progress with AI projects quickly. Figure 6 highlights two of these kinds of telcos, as well as a third that has managed to progress AI initiatives even without a suitable approach to data governance. (That said, we expect this telco will hit a ceiling very regarding the AI projects it can implement and how sophisticated those projects can be.)

Figure 6. Issues with data governance do not preclude AI implementation



Source: STL Partners, January 2019, 80 respondents

The message for telcos? Broadly speaking, it is unwise to run before you can walk. Few have implemented AI successfully without first investing in data capture and storage. However, waiting for data storage and capture to be perfect runs the risk of missing the opportunities afforded by AI and ML. While a large number of telcos have work to do regarding their data, they should still be able to run and even go live with successful AI pilots.

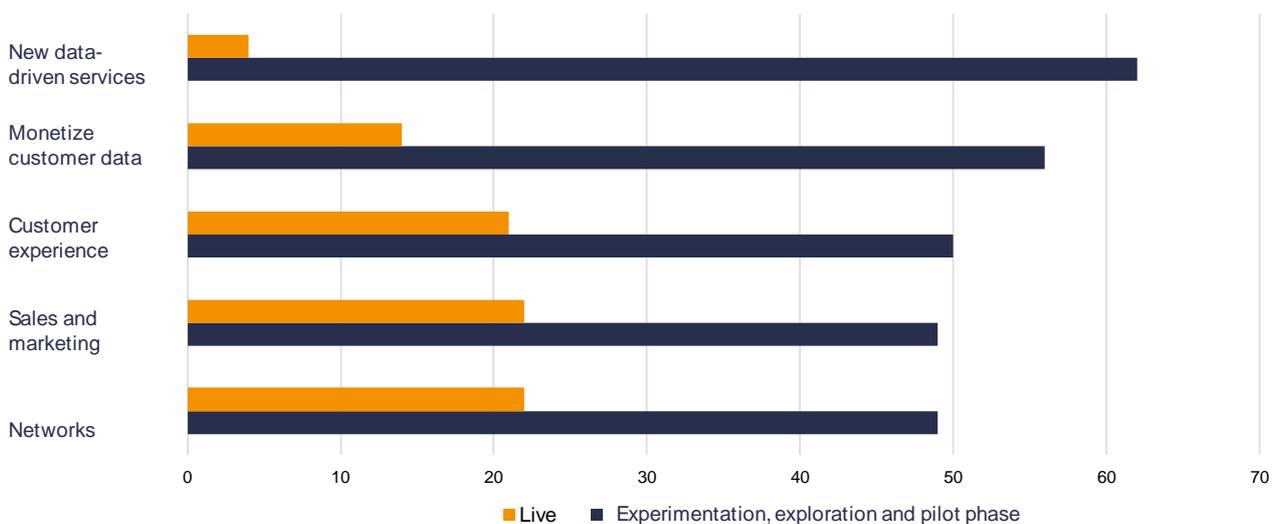
The tricky transition from the lab to in-field deployment

Key learnings	STL Partners' recommendations
Telcos find it very difficult to take AI projects forward from the pilot or proof-of-concept stage to live or scaled deployments.	Telcos must become comfortable with the idea of putting AI technology live in their organization. All ML models need access to large volumes of data from which to learn and become more sophisticated; keeping them in a proof-of-concept environment indefinitely will prevent progress. Having clear escalation plans for how humans will be able to intervene if the technology does not work effectively will make telcos feel more comfortable taking this leap.
Telcos are beginning to think differently about partnering and partnering strategies when it comes to AI.	The traditional procurement model won't work with AI. Telcos should be open to working collaboratively with partners to build AI solutions that will work for them.

When speaking to telcos, we heard that ideas for making use of AI are plentiful. Many are being explored as proof-of-concept projects — and some have even been taken forward to the piloting stage. The challenge, however, has been making the jump to live deployments.

Our survey found that for every five AI projects in the experimentation, exploration and piloting phases, there is only one in live deployment. In some domains, particularly those that are not well developed, like new data-driven services, this ratio is even bigger. The telecoms industry is at risk of getting stuck in what one telco referred to as “proof-of-concept purgatory” — a limbo state in which AI stalls and is never able to reach its full potential.

Figure 7. Only 1 in 5 AI projects has advanced to live deployment



In our opinion, telcos can take two approaches to overcome this problem:

- Accept failure and embrace innovation
- Revamp their partnership strategies

A combination of the two will likely be required for telcos to make the most of the AI opportunity.

Accept failure and embrace innovation

With any new technology, there is the potential for failure. We have written at length about the role of failure in innovation.¹¹ In essence, we believe the risk of failure should be accepted and planned for, with steps taken to mitigate that risk in the earliest stages of exploring a project. When failure occurs, it must be seen as a learning opportunity so that any lessons and capabilities can be recycled into future initiatives.

We have seen this scenario play out in the use of chatbots for customer care. Fear of negative impact on the customer experience means telcos can be reluctant to make use of chatbots until the technology is more mature. However, an ML algorithm will not reach its full potential unless it is allowed to adapt and learn from live customer data. A simple response is to put the chatbot in place but mitigate damage to the customer experience with an escalation process by which customers are efficiently allocated to live agents if the chatbot cannot resolve their issue, as has been done in call centers with interactive voice response (IVR) systems.

Revamp partnership strategies

Because most telcos do not have the resources or skills to fully develop or implement AI on their own, some level of partnering (paid or otherwise) will be necessary, be it with vendors or other telcos. In fact, only 15 percent of the telcos we surveyed are looking to build in-house AI capabilities rather than work with others. Figuring out how to make the most of partnerships will be crucial to going live with AI.¹²

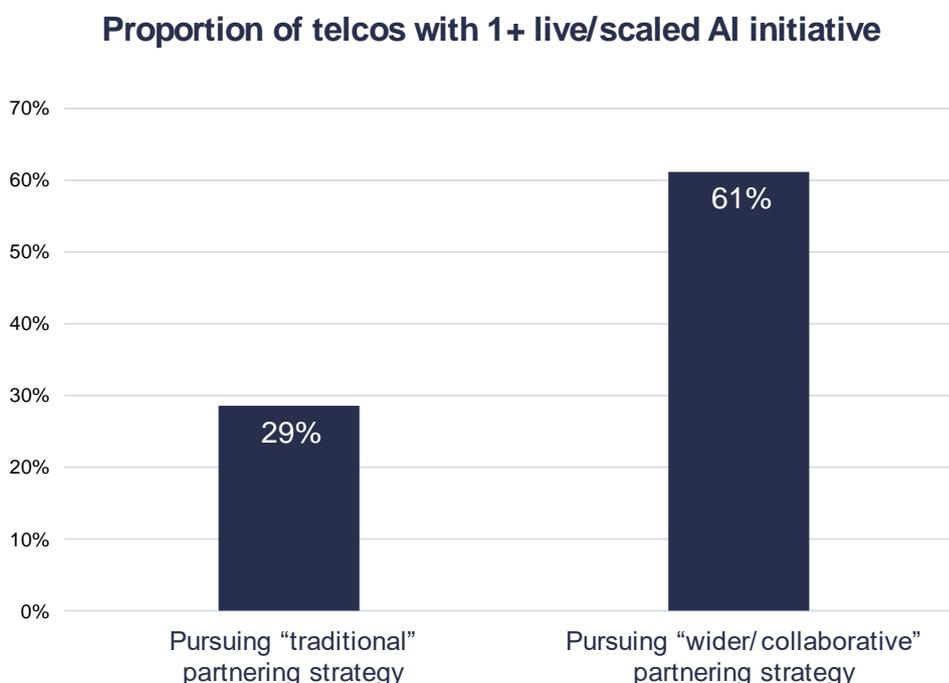
We believe AI requires a new approach to partnership. The “traditional” way of doing things — rigid procurement, design and implementation processes; and buying ready-made solutions from large vendors — is unlikely to pay off anymore, largely because AI is too new. Telcos must look at ways of working more collaboratively with vendors to meet common goals. They should also consider opportunities to work with companies outside the usual group of telecoms vendors.

¹¹ STL Partners, *The ‘agile’ operator: 5 key ways to meet the agility challenge*

¹² There are, of course, a number of considerations when it comes to partnering. These include the importance of vendor-agnostic solutions that can adapt to telcos’ mix of legacy equipment and technology, and the difficulties with sharing sensitive customer data between telcos and their partners. Any partner must be able to overcome these challenges to stage a successful proof of concept.

Our data confirms this: as shown in Figure 8, only 29 percent of operators who have stuck to the traditional partnering approach have managed to go live with AI versus 61 percent of those who have explored new ways of partnering.

Figure 8. Collaborative partnering is key to AI success



Source: STL Partners, January 2019, 80 respondents

Telcos may also wish to move away from the traditional partnering approach of reselling their partners' capabilities, primarily due to the slim margins this provides. By working more collaboratively with vendors, telcos can become more valuable partners, claim a larger slice of the pie and reduce the likelihood of vendors selling directly to enterprises themselves.

Fortunately, the industry seems to have come to the same conclusion. Only eight percent of our survey respondents said they have taken a traditional approach to partnering for AI — and none of those expressed an ambition to lead the industry in this field.

New challenges, new expectations

An interview we conducted with a North American operator looking to develop a chatbot solution for customer care highlighted the kinds of new challenges and expectations telcos are facing when it comes to working with vendors on AI projects:

"The proof of concept helps to validate some of the business cases we've come up with. It helps to socialize the idea within the organization because AI is such a pie-in-the-sky thing that you need to give someone something tangible. We want to put people in the shoes of the customer and show that from a customer experience perspective this really works. This will get us further buy-in to get to the more complicated stages."

The next step to make this proof of concept a reality was to talk many different vendors. The operator spoke not just to well-known vendors but also to smaller companies and start-ups. It then organized a mini proof of concept with promising vendors — and what it saw was surprising:

“The vendors were saying you have to purchase and install these licenses and have integration just for a proof of concept, and we were saying we’re not sure we want to do this. They were thinking too big and too broadly for us. We weren’t looking to invest \$500,000 to a million dollars for a proof of concept”.

In this case, the operator started working with Google, citing the tech giant’s ability to offer a zero-dollar contract, a ready-made test environment, no impact from a security perspective, and comprehensive training and support as key reasons.

While each telco will have different requirements when it comes to security and scale, looking for partners that are willing to start small and that understand the requirements of the telecoms industry as well as the telco’s own organization are key to a successful partnership.

Finding the impact: How telcos assess the benefits of AI

Key learnings	STL Partners’ recommendations
Telcos want to see proof that AI can have a material impact on their business before they make long-term investments, but it’s too early for the industry as a whole to see the full effects of AI.	Telcos must develop business cases for AI implementation by focusing on the specific key performance indicators they wish to improve. Often, AI is worth more than the sum of its parts and a holistic view must be taken, rather than investing sporadically in AI proofs of concept with little possible value.
Fixed-line operators are not investing in AI technologies as much as their mobile and converged counterparts.	Fixed-line operators should invest more heavily in AI, particularly in areas such as network optimization and planning.

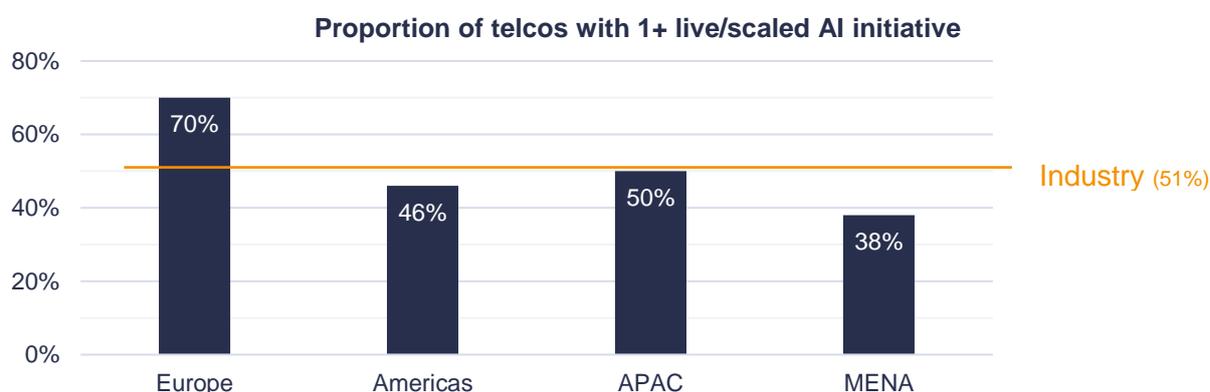
Much of the impact of AI initiatives is yet to be quantified. Telcos tell us that they have clear expectations and can point to specific indicators of improvement, but it is difficult to know how much of this can be directly attributed to AI. Where the benefits *can* be quantified for a given AI initiative, it would be oversimplification to assume the same benefits would apply across the industry as a whole, given the impact of individual circumstances and market conditions.

For example, several AI solutions exist that aim to increase customer retention rates. In many markets, these can potentially contribute to a reduction in churn. But in more mature markets (such as those in Western Europe), churn rates are already very low and unlikely to fall much further. As

such, telcos in these markets are more interested in using AI to reduce the cost of their existing churn-management activities. The key performance indicators (KPIs) confirming a successful pilot for these two circumstances would be significantly different.

A further complicating factor when it comes to evaluating how much success telcos have had with AI is that it is simply too early in the technology's development to paint an accurate picture. Our research found nearly half of all telcos have not gone live with a single AI initiative. Even in Europe, which is comparatively ahead of the rest of the world, 30 percent of operators have not progressed beyond the exploratory stages of an AI initiative.

Figure 9. Nearly half of telcos have not gone live with AI¹³



Source: STL Partners, January 2019, 80 respondents

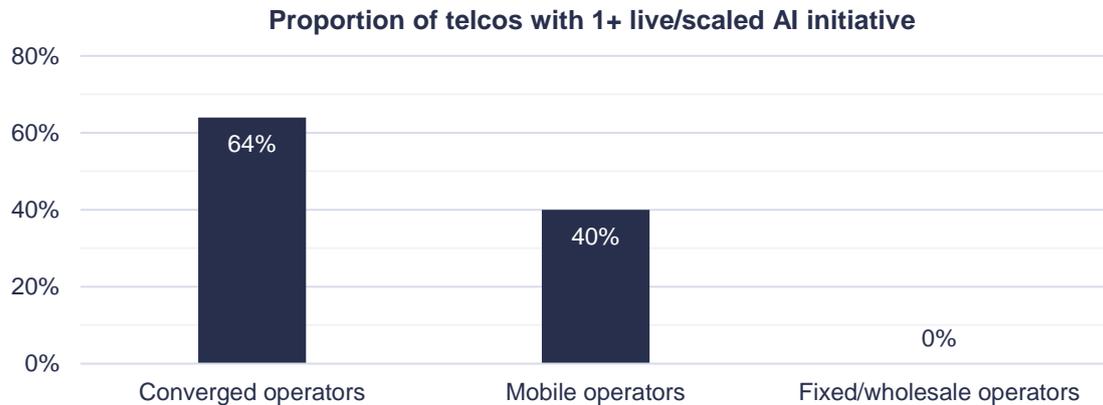
Given that half of the telcos surveyed are not yet using AI in live deployments, it is too early to evaluate the impact of AI on the telecoms industry as a whole. That said, it seems clear AI will deliver significant efficiency and cost-cutting benefits — and indeed already does for Internet and high-tech giants. Perhaps this is why typically cost-conscious European telcos have been among the first to embrace this technology. However, we also believe AI has the potential to transform the telecoms industry and telcos prepared to take the first few steps first will no doubt benefit most.

Different types of telcos, different levels of AI maturity

The relative AI maturity of the telecoms industry differs not only by region but also among different types of telcos. None of the purely fixed-line operators that took part in our survey have gone live with a single AI initiative. This can be explained partly by the nature of their business: many have a large base of enterprise customers and implement and deliver solutions via dedicated account teams with a significant degree of high-touch human interaction. Compared to consumer-focused mobile services, there is less immediately obvious potential for automation of these sales and delivery processes.

¹³ Live deployment is defined as “several commercial and internal AI deployments”. Scaled deployment is defined as “widescale commercial and internal deployments”.

Figure 10. Fixed-line and wholesale operators lag behind



STL Partners, January 2019, 80 respondents

That being so, we believe there is a big opportunity in AI for fixed-line operators, especially related to improving internal efficiency. Operators could use AI to improve network planning and optimization, for example, or for agent augmentation in the call center. Solutions already exist in these areas — and we are surprised fixed-line operators have not yet taken them up.

Ultimately, telcos must be clear on their own specific KPIs and what they wish to achieve through AI implementation. An eye must always be kept on the business value AI can deliver, both in the short and long terms. Laying the groundwork for AI, including getting the right data-collection and storage tools and processes in place, will require a considerable investment. It is an expensive but necessary step, however, if telcos are to unlock the full value of the data they collect. Having a clear understanding of what would constitute success from this investment will be critically important.

Conclusion

At STL Partners, we believe AI is more than just another “thing” that has potential in the telecoms industry: we believe it will be *transformative*. For that to happen, telcos must focus on the business value AI can unlock rather than investing sporadically in proof-of-concept projects with little long-term potential.

Going forward, we have four main recommendations for telcos looking to capitalize on AI:

1. Act in the short term, but plan for the long term. Look at both the immediate opportunities to improve the efficiency of current business processes and the more future-focused applications of AI that could unlock new revenue areas in the future.
2. Don't wait until the perfect environment is in place. There is a balance to be struck between creating perfectly clean data lakes with well-organized initiatives and taking an agile approach that will allow real progress to be made now.
3. Focus on scale. Telcos must focus their efforts on not just financing proofs of concept, but on understanding and planning how to scale up these initiatives. Challenges such as heterogenous equipment and slow innovation cycles must be overcome for projects to start to have real business impacts.
4. Make the most of partners. Telcos must bring skills, trust and an understanding of AI and its potential across their organizations — but also know when to outsource and work with partners. Where telcos have strength, such as in the range and granularity of the datasets they store, they should exploit this. Where they are less strong, such as in building data-related skillset, they should look to partners. The key to a successful partnership is being prepared to learn alongside each other.



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