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# Harnessing Data to Drive Efficiencies

How CSPs are leveraging analytics and AI to modernize and transform their business

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# The promise of analytics and AI

Communications service providers (CSPs) have long known there was value in their data, but it was just too hard and too expensive to extract. Enter cloud computing—now, relatively cheap and widely available computing resources make processing data more feasible, and digital native companies like Google, Amazon, and Meta have demonstrated the power of leveraging data.

This is not to say CSPs have not done their own analytics. The issue is that with every new service came new infrastructure, new operations support systems or business support systems (OSS/BSS), and new operations teams. As a result, the information generated by different groups remained siloed within that group; although the information that could help Group A existed, it was unavailable because it resides with Group B. Furthermore, the same information could exist within both groups but be formatted differently. For example, Group A could store a customer name as "Roz Roseboro," while Group B could store it as "Roseboro, Roz." This slight difference in format could complicate data-sharing since each group's systems are designed for their own naming conventions. Indeed, a recent Omdia survey of global CSPs revealed legacy systems are the biggest barrier to deploying data analytics and AI, with scattered and siloed data coming in as the second-biggest barrier.

> "…legacy systems are the biggest barrier to deploying data analytics and AI…scattered and siloed data the second-biggest barrier."

Another important consideration is that some information is sensitive—especially information that can identify an individual. Concerns about this type of data (and who has access to it) has led to ever more stringent data sovereignty regulations like the General Data Protection Regulation (GPDR), which requires data to be stored in the same country as the individual generating that data. Omdia's survey showed that regulatory constraints and requirements are the most challenging aspect of data management.

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Unless different data types can be viewed in tandem, users cannot draw correlations or other relationships that could help drive better business outcomes. The connection between network outages and churn is straightforward enough, but could looking at the number of downloads or increase in broadband connection speed predict the timing of future handset upgrades? If information from multiple places was brought together, perhaps CSPs would uncover these sorts of relationships. This paper addresses why they have not done so yet and why they could (and should).

# What CSPs are doing with analytics and AI today

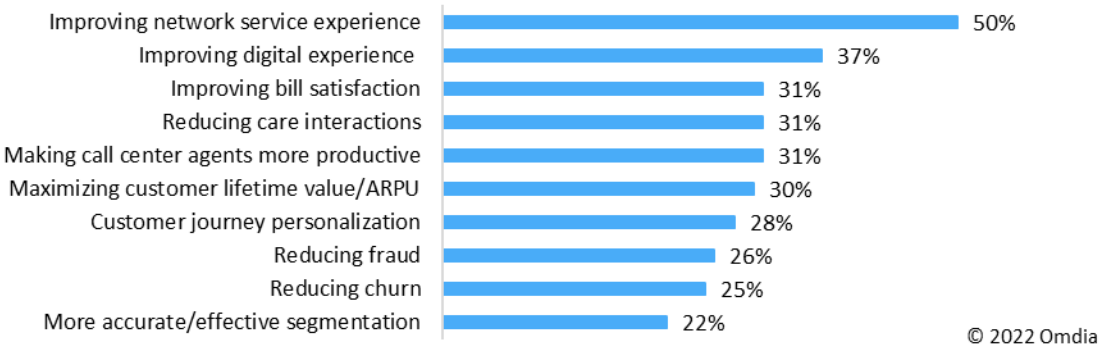
## Why and where are CSPs deploying analytics and AI?

Omdia's survey found that CSPs deploy analytics and AI as part of efforts to modernize their data stack, as part of a digital transformation or cloud migration programs, or to address specific use cases in equal measures. More broadly, like with any new technology, CSPs invest in analytics and AI to lower costs and increase revenue. Therefore, these systems can be deployed across multiple functional areas, including network operations, customer care, and marketing, and pull information from OSS, BSS, and other systems.

For years, CSPs have used network planning and optimization tools to enhance network performance; therefore, adding new analytics and AI tools is a natural progression. It is also easy to demonstrate the value of analytics and AI in the network domain because CSPs can measure and quantify increases in throughput or decreases in downtime. Half the CSPs Omdia surveyed felt analytics and AI would have the biggest effect on "improving network service experience," which ranked notably higher than any other process area, as shown in **Figure 1**.

> "Half the CSPs Omdia surveyed felt analytics and AI would have the biggest effect on "improving network service experience""

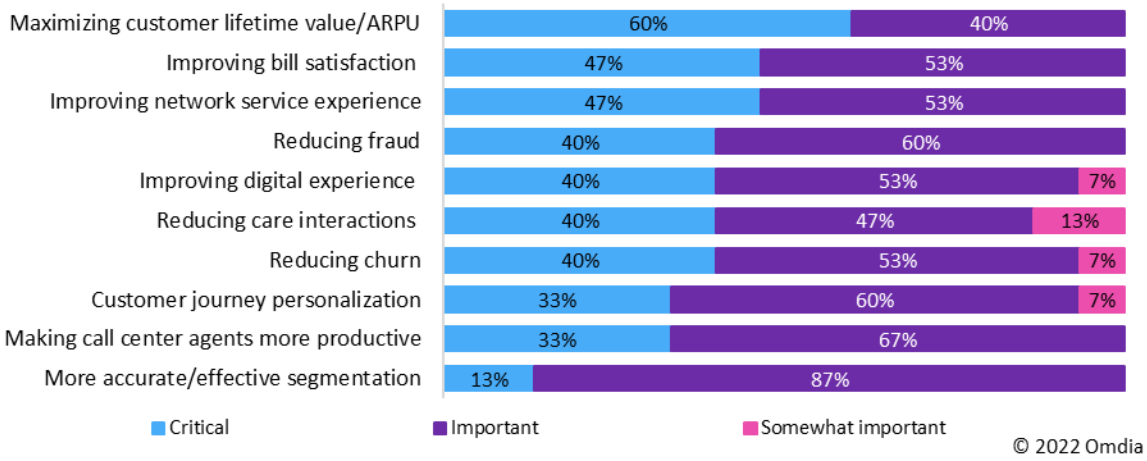
## Figure 1: Processes that will benefit the most from data analytics and AI




Source: Omdia

However, focusing analytics and AI solely on the network domain severely constrains these tools' potential. Rather than using them only to improve efficiency or to solve a specific issue, CSPs should consider them key enablers of strategic initiatives to improve outcomes across multiple functional areas. Omdia's survey showed that although improving network performance is seen to benefit the most from analytics and AI applications, non-network-related items (like improving bill satisfaction and maximizing customer lifetime value or ARPU) are seen as most critical in achieving a company's strategic goals, as shown in **Figure 2**.

## Figure 2: Importance of processes in achieving strategic goals




Source: Omdia

# Why are there not more analytics and AI projects outside the network domain?

CSPs understand non-network-related issues are critical to achieving their strategic goals, but they have not widely deployed analytics and AI in these domains. Therefore, it is important to consider the challenges they face in doing so.

It may be difficulties with data quality—that is, outdated, incorrect, or inconsistent data. Without formal governance processes in place, data integrity will remain a challenge. Critically, CSPs may not understand what factors are most relevant when predicting customer behavior. Unlike in the network domain, most CSPs do not have decades of experience correlating billing data with retail store visits, for example, and connecting the dots to build robust predictive models. Very few CSPs (if any) have done the analysis required to confidently predict how social media mentions after an outage will affect churn rates. There could also be issues connecting to external systems. Omdia's survey found that 37% of respondents said easier access to external data sources would have the greatest impact on making AI and ML tools more meaningful and effective for their most pressing use cases.

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Privacy concerns could also play a role.

However, what is clear is that bringing together disparate data points and evaluating them concurrently leads to the most impactful insights; this has been missing from previous efforts to generate business value from data. Omdia's survey revealed that the most strategic CSPs use more types of data in their analysis.

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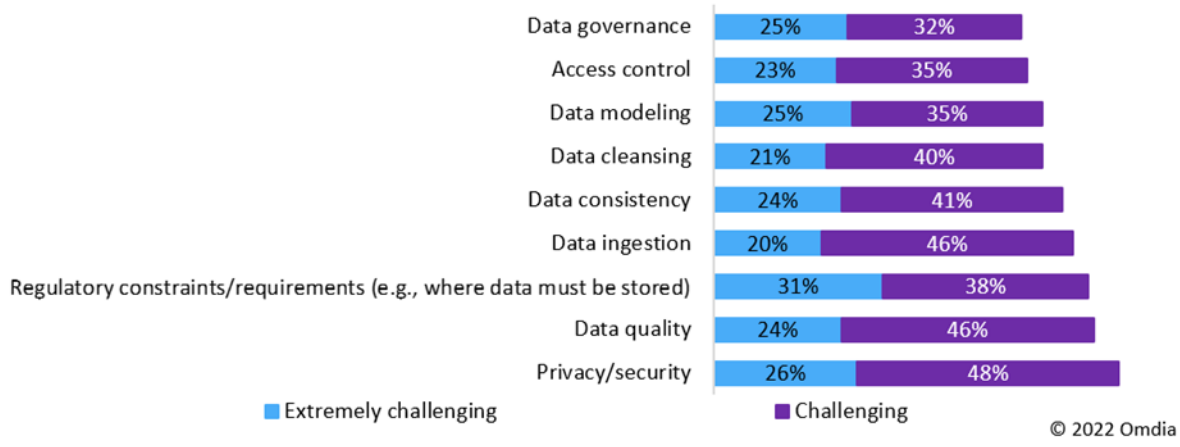
## CSPs' experiences with analytics and AI

Like other types of enterprises, CSPs aspire to have a single repository for all data, regardless of source or structure, in what is sometimes referred to as a data lake or hub. Previously, only rigidly structured data could be analyzed and stored in a data warehouse repository; this was feasible when dealing with data such as network performance metrics and end-user data consumption. However, information such as what someone looked at while in a retail store or customer sentiment expressed in a tweet does not easily lend itself to a typical database format.

The introduction of 5G will lead to exponentially more data that will be difficult (if not impossible) to manage with a traditional data warehouse model. To prepare for a common data lake, CSPs must engage in numerous data management activities, including standardizing data models, eliminating duplicate and out-of-date records, establishing common taxonomies, and codifying workflows for data governance. All this must happen while CSPs remain compliant with privacy and data sovereignty regulations.

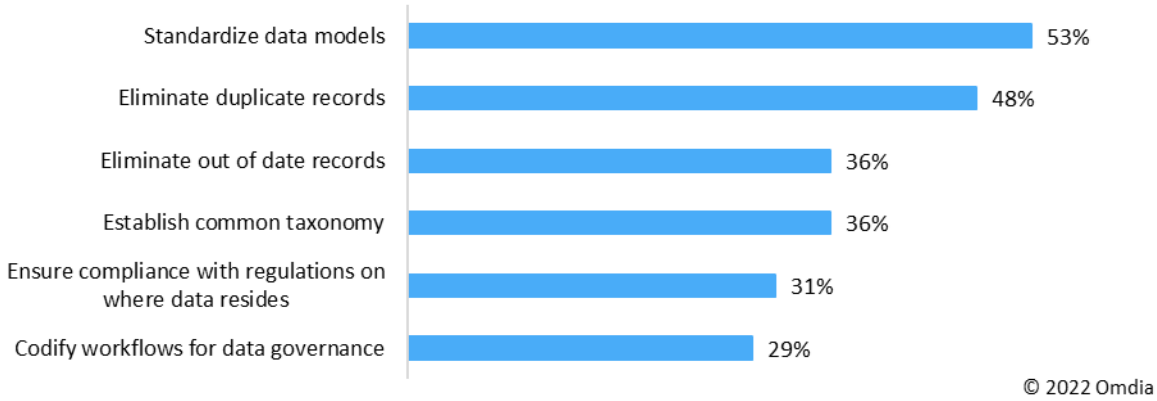
Omdia's survey results provide further insight into the complexity of data management (shown in **Figure 3**) and what CSPs are doing to prepare their data lakes for the future needs of the organization (shown in **Figure 4**).

**Figure 3: Data management challenges**



Source: Omdia

## Figure 4: Tasks to prepare data lake for the future




Source: Omdia

# How best to move forward?

## Who offers relevant solutions and services?

CSPs wishing to embark on analytics and AI-led transformation projects have numerous factors to consider—especially for projects that aim to serve the needs of multiple functional groups within an organization. CSPs may have more experience leveraging analytics and AI in the network domain. Still, they recognize that using analytics and AI for other processes (like maximizing ARPU and reducing fraud) could more significantly improve business outcomes. While potentially more difficult to execute, use cases dependent on unstructured data (such as customer behavior) could have an even more compelling ROI than their CSPs' existing network-centric use cases.

CSPs are awash in data. The challenge is understanding how to combine all the pieces to build a model that can extract insights and help them improve business outcomes. Knowing what is (and is not) important and the relationships and dependencies between different variables is crucial to effectively and efficiently maximizing the value of data and ensuring projects are directly linked to business goals. Companies with telecoms domain expertise can help their CSP customers extract relevant data, define more impactful use cases, and establish best practices. These companies should also be well-positioned to define relevant KPIs and profile feature libraries to enable effective ML models. CSPs understand how vital this is; among respondents, 45% said telecoms domain expertise was critical when finding a data modernization advisor (as shown in **Figure 5**). This figure exceeds the 37% of respondents that cited data science expertise.

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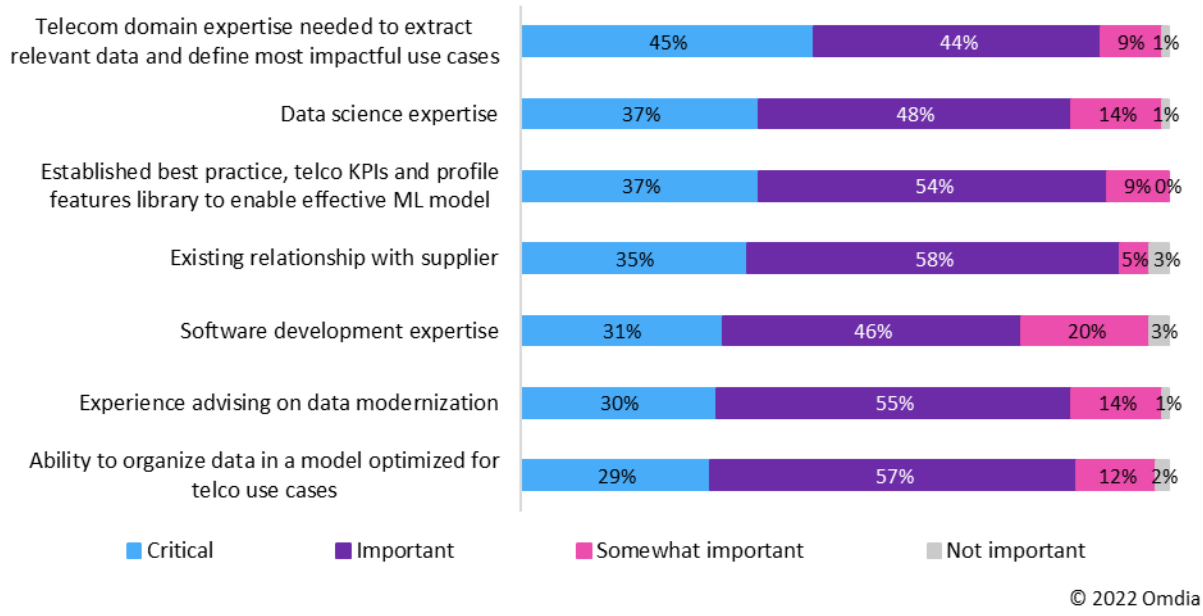
**Figure 5: Decision criteria for data modernization advisor**




Source: Omdia

# What is the impact?

Historically, network data has been easy to access, and CSPs have become adept at using it to drive predictive models. However, information residing in billing and care systems has been used less often, despite its acknowledged strategic value. Today, a wide range of data—internal and external—can be modeled and analyzed to better understand and predict customer behavior. Bringing together these data sources, harmonizing data formats and models, and establishing ongoing governance is challenging but achievable.

Because of guidance from suppliers with telecoms domain expertise on best practices for data modernization and management, information modeling, and—crucially—linking these actions to measurable business outcomes, CSPs can finally extract meaningful value from their data and do so in a timely matter. Applying analytics and AI to network, billing, customer behavior, and other data types can transform how CSPs run their businesses by generating new and actionable insights that help them achieve their strategic goals.

# Appendix

## Methodology

The information in this report is based primarily on a survey Omdia conducted with global service providers of all types and sizes. The survey findings were supplemented by information gathered over qualitative interviews with CSPs engaged in analytics and AI projects.

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