

ANALYTICS, ARTIFICIAL INTELLIGENCE AND AUTOMATION FOR TELECOM OPERATORS

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Abstract. Artificial intelligence and automation are becoming increasingly important for telecommunications strategies as they seek to cope with new complexities in the network and solve the problem of declining revenues. This chapter examines how telecommunications industry professionals think about automation and why they should think about moving from in-process automation in the short term to inter-process automation in the long term.

Keywords: artificial intelligence, telecommunications, automation, machine learning, network.

INTRODUCTION

An important consideration for telecom operators is the financial dollar value of each line of business for the average telecommunications company. Based on our assessment of the financial performance and operational key performance indicators of the operators, the figure below shows the assumptions about the characteristics of the “average” telecommunications company used as the basis for financial modeling. The characteristics of this telecommunications company are shown below, with a slight bias towards the characteristics of developed market operators, since this is where most of the industry evidence used in our modeling is currently implemented.

Business KPI	Value / size
Top-level financials	<ul style="list-style-type: none">• \$15,000 million in yearly revenue• \$8,000 million in yearly EBITDA
Mobile customers	<ul style="list-style-type: none">• 31 million customers• 90% post-paid customers• 15% yearly post-paid churn
Fixed-line customers	<ul style="list-style-type: none">• 12 million consumer fixed/convergent lines• 3.1 million IPTV/video on demand customers
Enterprise customers	<ul style="list-style-type: none">• 900 large enterprise customers• 1 million small and medium businesses (excluding small office/home office)

Figure. Characteristics of an average telecommunications company

MATERIALS AND METHODS

As the analysis shows, each technology can be equally applied in various functional departments of a telecom operator. For example, machine learning or automation has similar processes in network management, channel management, sales and marketing.

To evaluate the financial impact, it is necessary to return to the traditional cost breakdown by functional divisions within a telecommunications company, breaking it down into four key areas:

Network Operations: Network deployment, management and maintenance, and revenue management.

Fraud: including service, online and internal fraud risks.

Customer Service: Including all assisted and unassisted channels.

Marketing and Sales customer understanding, product management, marketing programs, lead management and sales processes.

By assessing nearly 150 individual process areas across a carrier's core operations, we estimate that data analytics can generate more than \$1 billion per year for the average telecommunications company through a combination of increased revenue and operational and capital cost savings, equivalent to 7% of total annual revenue.

As shown below, managing core network operations represents the largest portion of the cost.

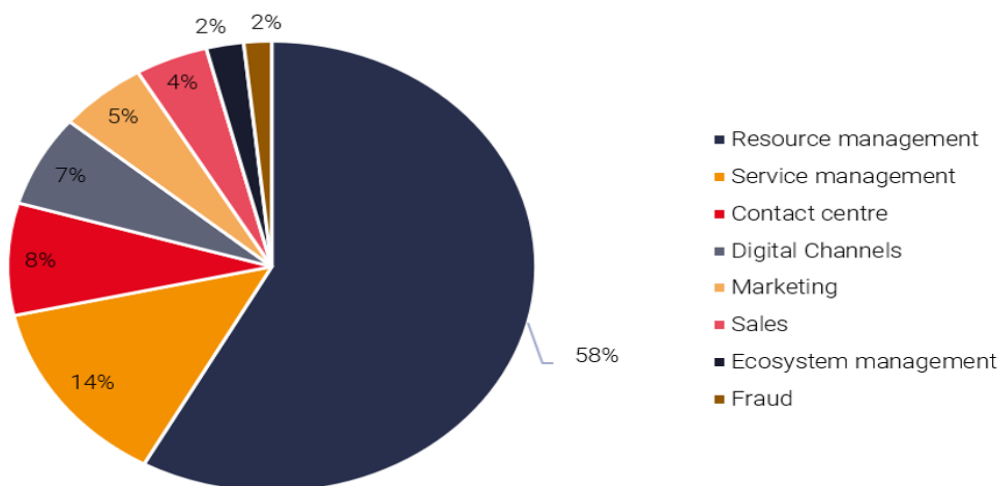


Figure. Relative value of automation, artificial intelligence and analytics in telecommunications operations

RESULTS

This likely still underestimates the overall long-term potential value of data analytics and artificial intelligence for telecoms, as this first iteration does not model the value of data analytics processes in areas less unique to telecoms, including supply chain, finance, IT, and HR. There is no doubt that even within a core area of activity, there are potential process areas that have yet to be discovered or proven. Meanwhile, this focuses solely on the telco's internal operations, so it also excludes any potential increase in revenue from new services supported by process automation, such as data monetization or the development of AI-as-a-service solutions.

However, operators cannot implement all these processes at the same time. The enormous challenge of restructuring processes to become more automated and data-driven, introducing data management and analytics capabilities, training employees and acquiring new skills, among other things, means that while many leading telecoms companies are on track to achieve this goal, the value in some areas, very few (if any) have implemented automation across all process areas. As a benchmark, Telefonica is an industry leader in using automation and artificial intelligence to improve operational efficiency. In 2019, total operating savings across the group amounted to €429

million. While this is primarily focused on customer channels and therefore likely excludes value in many network operations processes, such as energy efficiency, which provides significant value to Telefonica and others, it suggests that there is still a lot of value that remains to be available.

Financial modeling of the cost of automation was performed by individually assessing each of more than 150 process areas to understand the core activities in that area of operations and how automation, analytics and/or machine learning and other artificial intelligence technologies could be used. as part of this activity. Based on this, we evaluate the value of integrating these technologies into existing operational functions to make them more efficient and effective. This means that we do not attribute any additional benefit to telecommunications companies from adopting new technologies that include automation as a core element of their functionality, such as a multi-domain services orchestrator implemented as part of a software-defined network.

Our bottom-up assessment of each process is also supported by real-world evidence from operators or suppliers. This means that more speculative applications for operator automation are of relatively limited value. As new evidence emerges, we will incorporate it into future iterations. Almost every telecommunications company at some stage is looking to apply analytics, artificial intelligence (AI) and automation across its organization and extended value network to improve business results, efficiency and organizational agility.

However, most telecommunications companies take a rather piecemeal approach to deploying these three interconnected technologies, with limited alignment or collaboration between different parts of the business. To become more adept at implementing process automation, telcos need to develop a C-level plan to manage deployment, enable business units supporting process automation to effectively deploy resources, and create cross-functional implementations of these technologies.

The first two-part report supports telecommunications companies in achieving this goal by providing a high-level view of the application areas that can be developed by a telecommunications company. It illustrates the possibilities and forms the basis for our ongoing research into process automation.

DISCUSSION

This research builds on previous STL reports, which highlight telecommunications companies' early efforts to implement analytics, artificial intelligence and automation in specific parts of their operations, and assess their progress globally:

Our analysis, in turn, focuses on the six types of problems that are being solved and how automation, analytics and/or artificial intelligence can provide solutions, as well as for which types of problems and in which parts of the telecommunications company's business each of these three technologies may have an advantage. greatest impact.

Summarizing six types of problems may help:

Making sense of complex data: Using analytics and machine learning to identify patterns, diagnose problems, and predict/prescribe solutions.

Process Automation: Intelligent automation and RPA help make decisions, coordinate and execute tasks within telecommunications processes.

Personalize the customer experience: Analytics and machine learning can be used to understand customer data, create segmentations, identify triggers, and prescribe actions.

Support business planning: Analytics and machine learning can be used to forecast demand and optimize the use of existing assets and future investments.

Expanding human capabilities. It uses artificial intelligence solutions such as natural language processing and text analytics to “understand” and act on human intentions and feelings, and provide information to customers and employees faster.

Frontier AI solutions are advanced AI solutions that have specialized applications in telecommunications companies, but are not yet widely adopted.

CONCLUSION

The analysis shows that, after analyzing the key application areas, it is used not only for the individual parts of the business shown on the map, but also how more complex implementations require significant integration and interdependencies between solutions in several areas of the business. activities of a telecommunications company.

It should be noted that this two-part series only looks at the application of process automation to the internal operations of telecommunications companies, and in subsequent reports we will look at both the external monetization of such services and their use in telecommunications company products.

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