

AI in Telecommunication Industry

A bitgrit industry case study

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INTRODUCTION

We have reached an age of cognitive computing, and corporations across each sector are eager to reap the benefits this technology provides. In recent years, we have seen a great rise in AI & ML implementation, and the potential of this technology telecommunication sector continues to expand. As service providers in the industry shift towards digitalization, these technologies play a huge role – a movement accelerated not only by the huge number of use cases available, but also the vast amount of data that can be applied for this purpose.

GENERAL CORPORATE USE CASES

Below, we touch on how AI and RPA can contribute to corporate processes in a more general sense – but AI and RPA are not limited to the creation of robots and high-end technical devices. Business automation use cases with particular resonance with the telecommunication industry are listed below.

- Financial Planning
- Data Visualization using Dashboards
- Invoice Automation
- Data Digitization
- Generating Automated Reports
- Employment History Verification
- Bank Statement Reconciliation
- Daily P&L Preparation

Financial Planning & Budgeting

AI analytics tools can uncover new insights into costing, pricing, sales, revenue and cash-flow by analyzing historical relationships between internal and external drivers like product portfolio, competitor

behavior, natural events, macroeconomics, and historical performance. Data visualization also enables self-service querying and reporting.

Data Visualization

Data visualization dashboards, which provide functionalities like dynamic data pipeline creation, polarity scoring, anomaly detection and alerts, can be used to perform the following:

1. Real-time sentiment analysis, which uses voice data to assess a customer's reaction or emotion towards a certain situation
2. Polarity scoring of user satisfaction levels
3. Impact analysis and forecasting for future demand of certain products
4. Relationship Nexus

Specific Use Cases of AI in the Telecommunication Industry

The key areas where telecom industries can leverage AI technologies are:

1. Monitoring and management of network operations
2. Predictive maintenance
3. Fraud mitigation
4. Cybersecurity
5. Customer service and marketing virtual digital assistants
6. Intelligent CRM - Customer relationship management systems
7. CEM - Customer Experience Management
8. Base station profitability
9. Battery Capex optimization

A detailed overview and broader understanding

of the various application of AI and ML in telecom industry can be found below:

Self-Optimizing Networks

- Empowering operators to detect unusual traffic, noises and anomalies within their network jurisdiction and proactively take actions to fix the problem and reduce impact on consumers.
- Use cases like traffic classification, anomaly detection and prediction – which can automate optimization processes.

Predictive Analytics for Data-Driven Business Decisions

- One can use AI for faster decision-making by utilizing large volumes of data from both the network and its devices for improving network capabilities.
- AI also improves the quality of the services and the overall customer experience, together with network efficiency.

Customer Relationship Management

- CRM & AI enable intelligent decision making and provide more insight into conversations with the customer with sentiment analysis.
- This technology can provide lead scoring, forecasting, recommendations & even natural language search for users
- AI realizes advanced voice-based chatbot systems which can provide multilingual support to customers from all demographics. The crucial customer data from the voice bot system can help in predicting customer buying decisions using sentiment analysis, which will result in more sophisticated analytics of a user's perception towards the company products and services.

Optimize User Experience through Data on PCRF

Here, AI models can suggest service plans that

guarantee bandwidth for certain high-value customers on the basis of different parameters like corporate accounts. Models can also create flexible pricing plans based upon preferences, location, access network, device type, and network conditions, etc. The model can make matches to a product based on a subscriber's preferences and budget or allow subscribers to share one quota across multiple devices.

Predictive Maintenance

- Predicting & detecting issues in the network and fixing them before they impact customers.
- AI helps as it is critical in helping operators to achieve better utilization of network resources, allowing the network to adjust services based on customers' needs, environmental conditions and business goals which will result in better network optimization.

Fraud Detection

- Detecting fraudulent calls using machine learning algorithms to analyze data and to select the high-quality descriptions from the data collected previously to construct datasets & NLP to extract features from the textual data.

Financial assistance and logistics

Complete utilization of AI can help in:

- Reduction of network opex on the ground level, such as site maintenance and rental, energy consumption of mast sites and base stations.
- Reduction of opex for a better customer experience. For example, data science can be used to find correlations between network maintenance incidents with location, time and kinds of congestion traffic, quality of calls and applications or devices exhibiting abnormal behaviors/ anomalies.

Sales and Marketing Optimization

- Data driven recommendations and personalized marketing can be conducted based on the consumers' usage, preferences, interest areas, and purchase history.
- Recommendation can be pushed at users by operators at the right time using AI-powered insights.

Predictive Maintenance

Crunching the data can help with customer segmentation, customer churn prevention and lifetime value prediction, which drives AI-driven predictive analytics, telco data analytics, interactive voice response systems, data center management, and predictive equipment analytics.

Customer Segmentation

Categorization of market and targeting can be done using ML and data science. This can help in sharing content through categories like customer value segmentation, customer behavior segmentation, customer lifecycle segmentation, and customer migration segmentation.

Network Self-Optimization

AI enables an increased number of OTT, automatic network planning, configuring and controlling, lower latency, end-to-end intelligence and complex network deployments.

Optimal Network Quality

This optimizes network planning and design, network tuning, network auditing and benchmarking, improves customer loyalty, and enables end-user performance optimization.

Service Operations

- AI is helpful in automating issue resolution,

predicting future outages and capacity constraints, and managing 5G network slices and its hundreds of configuration parameters.

- This also can be applied in service assurance and end to end security management.

SPECIFIC USE CASES OF RPA IN THE TELECOMMUNICATION INDUSTRY

RPA generally helps in automating more traditional corporate processes to improve efficiency, as well as the reliability of involved human resources.

Periodic Report Preparation and Dissemination

This entails bots analyzing content from auto-generated reports. Based on the provided criteria, reports are automatically emailed to the relevant stakeholder.

Responding to Partner Queries

Telecom companies can use RPA to interpret mail, convert it into data, and use API for automated responses to simple questions. Complex questions are handled by human respondents.

Reducing Manual Sales Order Processing Effort

- RPA technology allows for more structured workflows and automated processes by capturing tasks and steps performed by employees and generating them based on said data.
- Steps with highest ROI can be automated by mapping.

Competitor Price Tracking

- RPA is highly error-proof and works 24/7 – traits that make it useful in conducting comparative price analysis.

- Software robots can do the tracking at individual, category and brand level, which in turn provides deeper understanding on competitive prospects.

Backing Up Information

Software robots can chain up numerous technical tasks, creating coherent backup systems. Their scope of usage is as broad as the scope of telephone systems, since backups can be done irrespective of the client's specific system.

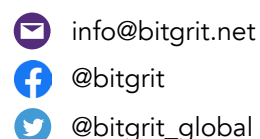
First Call Resolution (FCR)

AI can be used to increase customer satisfaction

- Bots can assist employees by offering real-time guidance by monitoring their desktop activities, helping agents resolve a client's concerns over the first call. Desired tasks, e.g. retrieve specific customer information, rekey data, update fields, can also be completely automated.
- Implementing the above helps employees focus on attending to other customers, increasing customer satisfaction.

Average Revenue per User (ARPU)

AI can help in driving conversions and customer retention by providing eligible promotion offers by way of real-time information during customer calls, while also ensuring more focused to-the-point pitches.



bitgrit: AI for All

The AI industry is projected to grow to **\$116 billion** by 2025.

bitgrit is a company providing a platform that levels the playing field for AI by bringing together a community of data scientists and connecting them to companies needing AI solutions.



AI COMPETITION

Affordable and novel AI solutions to complex business challenges



JOB BOARD

Access to top data scientists and AI engineers around the world



DATA VISUALIZATION

Big Data and Analytics utilization that identifies market trends and increases the productivity



AI CONSULTING

AI technology adoption with conducting research and analysis, development and implementation

COMPETITION STEPS

STEP 1

Determine what problem you want solved and provide the relevant datasets

STEP 2

bitgrit uploads the problem statement and datasets to the competition platform

STEP 3

Data Scientists in the community submit quality solutions from which top results are selected

STEP 4

Utilize the best model to fulfill your business needs

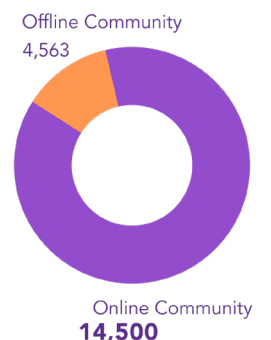
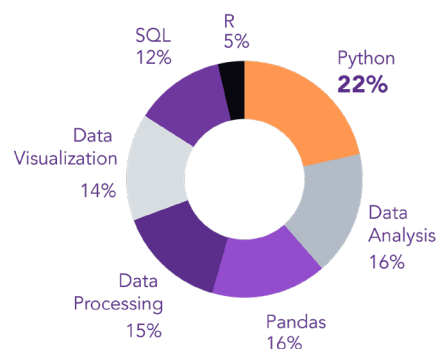
STEP 5

Top ranking competition member or team wins prize money

UNREALISED POWER OF AI

- 1 Determining possible use cases and value that can be extracted from existing data.
- 2 Difficulties in translating business challenges into data science problems.
- 3 Inability to develop, experiment and rank a variety of models rapidly.
- 4 Risks of providing people the access to confidential data.
- 5 Hassles of identifying the right talent to produce customized, extraordinary models.
- 6 Structuring of data and identification of relevant parameters.

20,000+ DATA SCIENTISTS - BITGRIT COMMUNITY OVERVIEW



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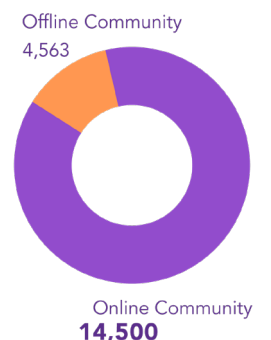
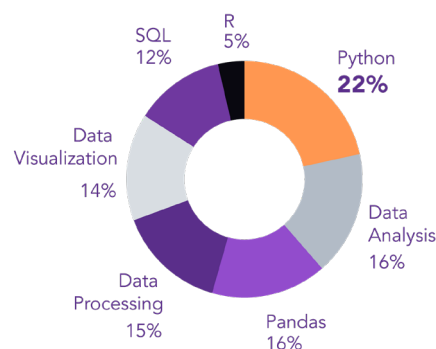
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HOW WE HELP YOU TAP INTO AI

- 1 Determine possible use cases and value that can be extracted from existing data.
- 2 Pinpoint difficulties in translating business challenges into data science problems.
- 3 Overcome obstacles to develop, experiment and rank a variety of models rapidly.
- 4 Identify risks of providing people the access to confidential data.
- 5 Find the right talent to produce customized, extraordinary models.
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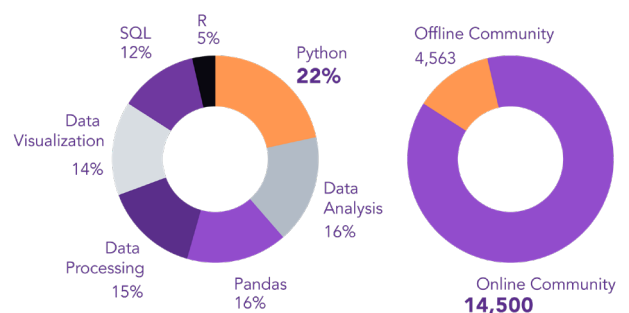
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