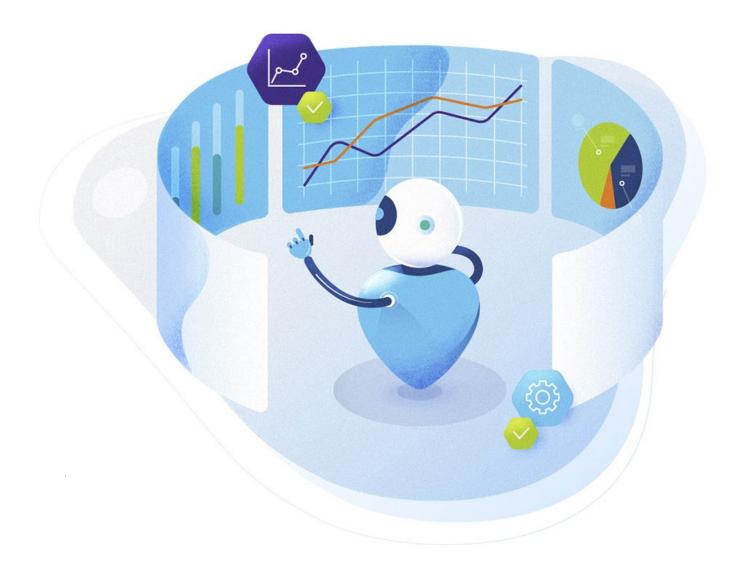
#### **COMARCH**



WHITE PAPER

# AUTOMATION OF DATA DISCOVERY WITH BUSINESS INTELLIGENCE SOLUTION



## HOW DOES BUSINESS INTELLIGENCE ADD VALUE TO TELECOM SERVICES AND OFFERS?

The telecommunications sector is not only responsible for the service of data transmission, it also processes a very large amount of data for its own needs in order to improve offers and the quality of services. To become a leader, a telecommunication operator must efficiently analyze an increasing amount of data from various systems such as BSS, OSS, FSM, IoT, CRM, ERP and more. Obtaining credible information from such complex IT environments would not be possible without data unification and centralization. This is where business intelligence and predictive analytics solutions help telcos to handle data collected from mobile phone usage, call detail records, network equipment, billing information, server logs and the increasing connectivity of subscribers and users. This information is transformed into valuable business intelligence to support decision-making, making it indispensable for operators seeking to build a competitive advantage on the telecommunication market.

On the technical side, the creation of a data warehouse, the implementation of ETL procedures and the unification of data format and structure allow operators to handle ever more data efficiently. Information in the BI system helps to solve or even prevent business issues faced by marketing, sales, technical planning and maintenance teams.

All information derived from an operator's various divisions can be unified thanks to the "single source of truth" created by an efficient BI solution. This allows the detection of significant events, letting the operator correlate repetitive incidents, discover new business scenarios, anticipate business situations and avoid receiving contradictory information from different departments or operating systems.

Information and conclusions from BI systems are presented visually via reports and dashboards. This makes it easy to collect data from several sources in one place, and to interpret that information. Editing data in reports, for example by creating new charts, changing measures and dimensions, or adding new elements such as maps, indicators, and tables, allows the user to expand the scope of information to be analyzed.

By using a business intelligence solution to analyze organizational data, communication service providers can improve operational efficiency on different levels, develop more effective marketing strategies, and reduce costs.

#### WHAT ARE THE PRACTICAL USE CASES OF BI FOR TELECOMS?

BI solutions are used in the telecommunication industry for many purposes. They give operators greater insight about network issues, facilitate predictive maintenance to avoid system errors, provide location data for geo-analysis of service continuity, enable monitoring of 5G rollouts, promote proactive customer care (via advanced customer segmentation), and deliver integrated assurance and automation of different OTT applications. Let's take a closer look at some practical BI use cases for telecommunication providers.

#### **Predictive Maintenance**

Ensuring reliability and the high quality of services is one of the most important factors in building a positive company image and improving customer experience. Each unexpected equipment or service failure generates additional costs for a company, for example through lower production rates, customer dissatisfaction, missed deadlines and lost revenue.

Preventing failures before they occur is an excellent way to ensure business continuity. Thus, telcos can benefit from implementing integrated business intelligence, predictive maintenance and field service management solutions to help them optimize service management. The ideal system will access big data sets to analyze information constantly and automatically from the network and devices, constantly and automatically. The predictive maintenance component should identify potential failures and send this data to the FSM module, which can in turn automate the allocation of a service visit to a technician. Machine learning further enhances

the benefits of predictive maintenance as part of business intelligence, enabling rapid identification of the root causes of problems by analyzing historical data. Overall, a robust BI solution with optimized predictive analytics can benefit telecom operators by:

- Raising production efficiency
- Improving maintenance efficiency and costeffective planning
- Avoiding unplanned maintenance
- Reducing maintenance costs

# ADVANCED CUSTOMER SEGMENTATION AND CUSTOMER ANALYTICS

Unpersonalized offers and inappropriate service proposals can result in the loss of some customers. To avoid this, telcos use BI to gain comprehensive customer insights. This means they can segment their market and target the content and offers appropriately for each customer group. Segmentation delivered via a BI product using machine learning and AI algorithms delivers the following benefits:

- Structured and unstructured data can be collected, combined and analyzed from multiple sources in order to find meaningful customer segments
- Products and services can be tailored for specific groups of subscribers, who can also receive information about special offers relevant to them
- Customer relations can be improved, and a more effective sales channel developed, because relevant offers -> greater customer satisfaction -> higher revenues
- Each customer's buying potential can be defined and analyzed
- Great customer satisfaction helps with churn prevention
- Marketing and sales departments have the information they need to facilitate quicker, easier and more efficient decision-making

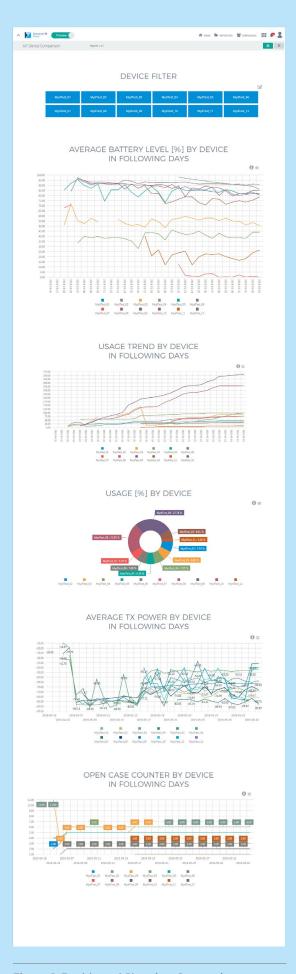


Figure 1: Dashboard Showing Comparison of IoT Devices (Product: Comarch BI Point)

In the telecommunications industry, the most relevant types of customer segmentation are customer value, RFM, NPS, customer behavior, customer lifecycle and customer migration segmentation.

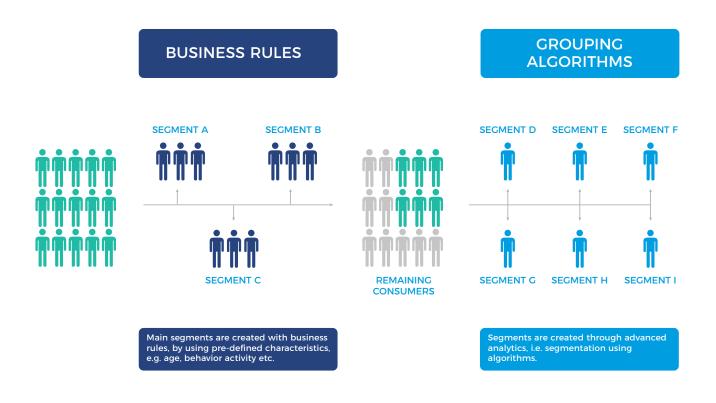


Figure 2: Customer Segmentation Built with Machine Learning and AI Techniques

Integrating all customer data in one BI solution doesn't only let telcos cluster clients into homogenous groups with similar characteristics. It can also deliver many meaningful insights reflecting the state of the operator's business. That's because the right BI product is able to make the necessary calculations based on 360-degree customer information, to drill down into the data and reveal information about daily KPIs such as revenue, churn rate, daily unique subscriptions, top international calling destinations, number of new customers, number of active customer, call center statistics, NPS, customer satisfaction score, average basket value, and many more. Having access to such concrete figures helps decision-making by providing a clear overview of the current business situation and of possible improvements in customer care and customer satisfaction.



Figure 3: Customer Satisfaction Dashboard (Product: Comarch BI Point)

# SERVICE ASSURANCE: SERVICE CONTINUITY, TROUBLE TICKETING, 5G ROLLOUT MONITORING, AND MORE

As relative newcomers, OTT providers have service assurance in their DNA. Telcos don't have this advantage, as their traditional business models focused mainly on operating and maintaining networks, often without maintenance data analysis. Today's telecommunication service providers, however, have adapted to embrace service assurance. This lets them avoid what used to be common difficulties in detecting and locating problems due to often unpredictable network changes.

The reality of maintaining and managing networks that are constantly evolving calls for efficient BI solutions that can monitor the entire system constantly and automatically, reducing the time required to recognize and respond to issues. With BI's deep drill-down capabilities, managers can reach the sources of issues and, if necessary, outsource issue resolution to specialists. Without BI, it is hard to link different kinds of information and see the logic between events. For instance, if signaling traffic is high and contextual traffic is low, this can mean that users are trying to reach services but cannot download content, which means there is a failure on the operator or transmission provider's side.

BI solutions naturally assist with trouble ticketing, delivering clear, real-time reports of ticket handling status. Thanks to automated KPI calculations, it is easy to see which requests wait the longest to be resolved, which clients place the most requests, to which product the most requests apply, which agent resolves requests the fastest, and more. The most advanced BI products will combine trouble ticket data with information from other systems, and deliver analysis in the form of multi-source reports.

Another BI use case applies to 5G rollout and adaptation, which every telecommunication provider is or will soon be facing. BI makes it easy to check rollout plans related to a 5G network, and compare these plans with real progress. The optimal BI product will let the operator apply filters for precise analysis of, for example, a specific geographical area or period of time.

Regarding service continuity, BI products will carry out geo-analysis and present the results in visual format on interactive maps or charts in a reporting tool.

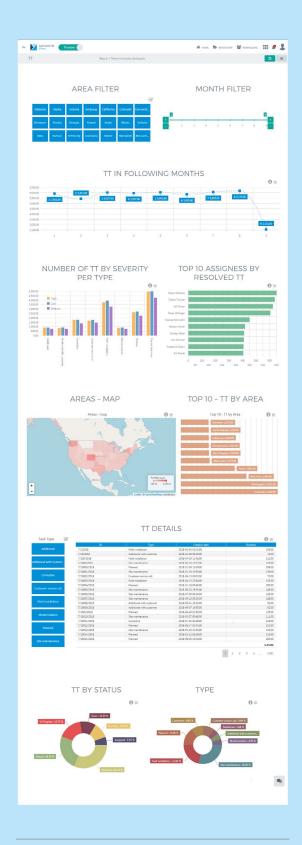


Figure 4: Trouble Ticketing Report (Product: Comarch BI Point)

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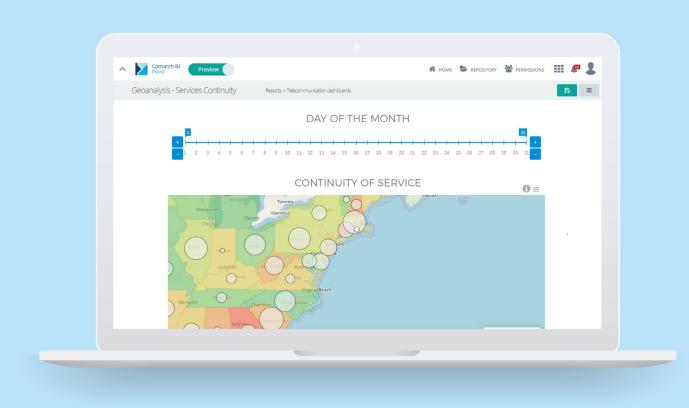


Figure 5: Geo-analysis for Service Continuity (Product: Comarch BI Point)

Looking at the tremendous amount of data that service assurance systems provide, telecommunication providers need a reliable tool to filter and structure this information, as well as to display industry-standard and operator-specific KPIs that can be presented to managers and executives. Without those KPIs, it is hard to establish the real situation and business health at any given moment.

### KEY CONSIDERATIONS WHEN SELECTING A BUSINESS INTELLIGENCE PRODUCT AND PROVIDER

As with any IT-related business decision, the track record and ability of any potential provider to adapt its product to meet the specific requirements of your organization should be taken into account. It's also important to ensure that your selected partner will deliver products and services capable of integration with current infrastructure (whether tailor-made for you, or generic third-party), and fully future-proof to facilitate cost-effective scaling as required.

At minimum, the optimal business intelligence system will simplify and automate the creation of reports, based on the most recent available data from any applicable source within your network. The right product will recognize and learn the most relevant and business critical data automatically, raising alerts when necessary and always presenting information in easily accessible and understandable graphic formats. Integration is vital, so ensure that your selected BI solution merges seamlessly with existing architecture. Finally, it's worth seeking out a BI solution that allows information and reports to be shared quickly and easily across departments and key personnel, that makes the most recent data available securely via mobile devices, and that – for international companies in particular – presents the user interface with multi-lingual options. Only in that way can data be transformed into knowledge and used in the whole organization.

Comarch Business Intelligence is an analytical tool based on a data warehouse approach using ETL processes for data integration. The data warehouse is a specialized type of database which optimizes the speed of searching for information and ensures efficient content analysis. As a result, users receive essential information instantly. Additionally, the load placed on production systems is considerably reduced due to the transfer of analysis to a separate system.

Data analysis is performed by business users through a web-based reporting and analytical tool, Comarch BI Point. The most relevant analytical information is included in interactive dashboards, reports and KPIs. In addition, BI Point provides ad hoc functionalities, so that users can edit and add new elements to existing dashboards and reports, carry out new analysis, share insights and comments with others, and export all required information to external files or back to operational systems.



Figure 6: Comarch BI Point – Responsive Dashboard Examples

#### **ABOUT COMARCH**

Since 1993, Comarch's specialist telecommunications business unit has worked with some of the biggest telecoms companies in the world to transform their business operations. Our industry-recognized teleo OSS and BSS products help telecoms companies streamline their business processes and simplify their systems to increase business efficiency and revenue, as well as to improve the customer experience and help telcos bring innovative services to market. Comarch's customers in telecommunications include Telefónica, Deutsche Telekom, Vodafone, KPN and Orange.

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