How telcos can create value

with multi-faceted automation

by Telecoms.com

Telecom operators are striving for growth, which could materialise in growing top line as well as improving efficiency. Automation is at the centre of these efforts if they are to succeed. With the right data and the right tools, automation can go far beyond network operation to help shore up telco performance in multiple dimensions, including error prevention, data-based decision making, improved customer service, customer experience and uncovering new business opportunities.

So Much Data, Not Enough Value

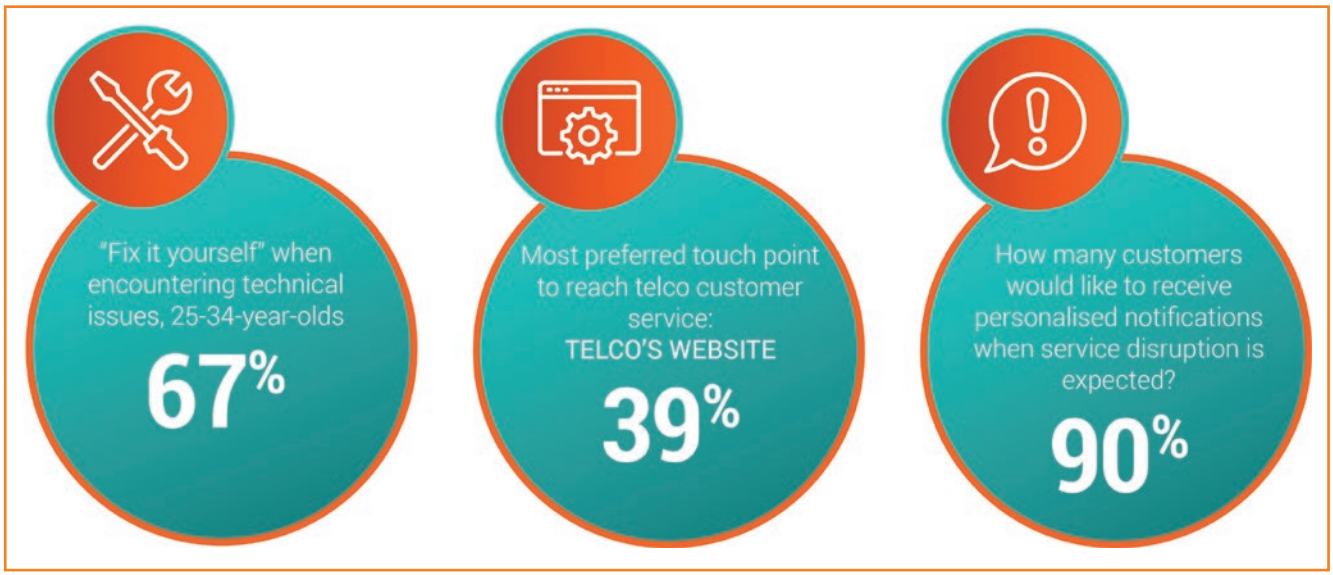
One of the leading challenges faced by telcos is the divergence between the cost to handle and process the fast-growing amount of data going through the networks and the benefits they can get out of it.

There are two types of data that should not be conflated. The first type refers to the volume of data traffic, which has been growing fast, enabled by new network technologies, especially the latest mobile and fixed broadband technologies. It is true that on per GB basis, the cost to transfer data is lower with new technologies than older generations. However, data consumption is growing faster than the rate of savings made possible by the more advanced technologies.

The latest statistics published by Ofcom, the UK's telecoms and media regulator, show that mobile data traffic in the first three quarters of 2020 went up by 30% over the same period a year before (2019), which, in turn, saw the total mobile data traffic going through the UK's mobile networks grow by 34% over the previous year (2018)[1].

With 5G designed from the outset to support massive machine-type-communications (mMTC), the pressure on telcos to process even more traffic is building, especially with the large volumes of IoT devices expected to be connected to the networks in the coming years. Combined with data traffic generated by consumers, telcos are facing the challenge to not only build the capacity to handle increasing amounts of data but to handle them in a cost-effective way.

1 Telecommunications Market Data Update Q3 2020", Ofcom, 22 October 2020, https://www.ofcom.org.uk/research-and-data/telecoms-research/data-updates/telecommunications-market-data-update-q3-2020



What Customers Are Saying

Another trend that works against telecom operators' business performance is the growing consensus that large data packages alone are fast becoming a commodity, including the fast Internet service on 5G. According to the latest Telecoms.com Annual Industry Survey, conducted in late 2020, half of the respondents (51%) believed that data has already commoditised, and over a third (37%) thought it would eventually become so[2]. This means telcos are finding it hard to charge a premium on the fast-growing data traffic going through the networks despite the heavy investments, and increasingly mobile operators are offering unlimited data packages.

The second type of data carries critical information about the customers, the networks, the devices, and the applications – the type of data that The Economist famously called the world's new "most valuable resource[3]." While the focus of the following sections of this whitepaper will primarily focus on improving telcos' efforts to get value from the second type of data, the benefits can also help address the issues they encounter when handling the first.

Telcos should do better to generate much more value from the second type of data. Unfortunately for them, despite investing heavily to provide the so-called "last mile" connection to the Internet, they have been beaten to extracting the best value from the "new oil" by the Internet companies. The victors include both the Silicon Valley giants like Facebook, Google, and their peers, and many up-and-coming providers of Internet-based services. These companies have forged strong customer relationships and reaped high business returns while using the telecom operators' networks.

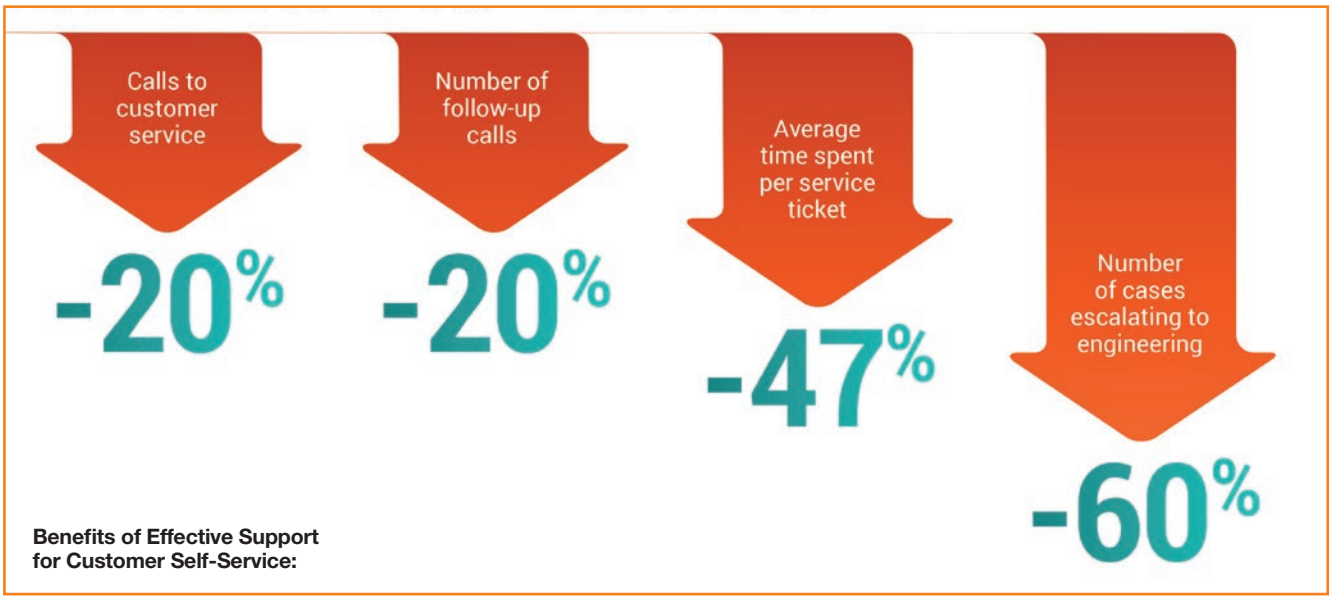
The challenge may come in different shapes. In some cases, telcos lack thorough visibility into all the important data. They may not be equipped with powerful enough tools to extract all the data, or the integration capabilities are not strong enough to aggregate data from multiple sources.

On many occasions, however, the problem is not so much that data is not enough but that the available data is not being used well. This can be because the data exists in organisational silos that do not or cannot talk to each other. It may also come down to weak analytical capabilities to produce actionable intelligence.

Sometimes the challenge may come from outside of telcos' control, but it is up to those running the business to make the best of it. A recent example came in the regime of data protection regulations issued by authorities in different parts of the world, the most stringent is the European Union's "General Data Protection Regulation" (GDPR).

2 Telecoms.com Annual Industry Survey 2020", Telecoms.com Intelligence, 05 November 2020, https://telecoms.com/intelligence/telecoms-comannual-industry-survey-2020/

3 "The world's most valuable resource is no longer oil, but data", The Economist, 6 May 2017, https://www.economist.com/leaders/2017/05/06/theworlds-most-valuable-resource-is-no-longer-oil-but-data



Benefits of Effective Support for Customer Self-Service:

While GDPR was developed and implemented to protect data and privacy, it has also proven to be a test of characters. There are worrying signs that in some telcos, instead of using GDPR to strengthen their business positions (consumers consistently put more trust in telcos than they do Internet companies when it comes to data security and privacy protection), the regulation has become a straightjacket put on their innovation and entrepreneurial spirit.

It Starts With Probing, But Shouldn't Stop There

To overcome the challenges, telcos need to first ensure that all the necessary data is in their possession. Passive probing is an established, mature technology, and there are plenty of tools in the market that can extract data from the network systems.

There are two shortfalls in many of the solutions when it comes to delivering values to telcos: data from passive probing is typically only used for network operation purposes by the network teams and stays there, and data extracted by passive probing is not integrated and reconciled with data from other internal and external sources to generate actionable and value-adding intelligence.

It is true that the primary objective of probing is to provide operators with reliable data of the status of the networks, but it can serve more purposes than that. In particular, the data extracted from the networks should be made accessible to business operations, to be used as part of the input data to improve services and to deliver tangible business benefits, both in customer satisfaction and in financial returns.

Data extracted by the probe engine is as important as any other data source but is not the only source. To deliver a comprehensive and holistic picture of the system, both business, and customers network operators need to integrate probing data with other types of data. The most important inputs on top of probing data include other network data like cell data and operational support systems (OSS) data.

There should also include customer data extracted from the customer relationship management (CRM) system, business support system (BSS), call detail record (CDR) database, as well as devices data. The input should also integrate critical third-party data to supplement and corroborate with the operator's own data, location data of customers and devices is an obvious example.

The big variety of inputs does not only highlight the types of data a network operator can gather to generate business intelligence, it also makes it clear that the abundance and complexity of data gathered goes beyond the scope of manual crunching. It needs automated analytics to be both accurate and timely. Moreover, to make the automation smart, the algorithms need to be continuously "trained" with historical data, which demands the automated data processing platform to have strong machine learning capability.

The demand for automation becomes more acute with the fast rollout of 5G networks, especially the advanced phase of 5G, with 5G radio networks on 5G core, or the so-called "standalone" (SA) mode. In the advanced mode, 5G operators are able to offer end-to-end network slicing, making a dedicated network slice available exclusively for a particular customer,

such as an enterprise, or a specific location at a specific time, such as during an event. In such scenarios, network operators will not only plan data digitalisation and analytics of end users on the mobile network, but also the cloud properties, in particular those functions running on public clouds that will be included in the network slices. The automated data analytics solutions must be able to support such use cases.

The fast rollout of 5G also calls for telcos to deploy advanced automated data analytics solutions early, to be both prepared to take on the challenge of data avalanche, and in a strong position to benefit from the analytics and intelligence these solutions can deliver.

Benefits Abound

The intelligence derived from automated analytics, the output of the automated data processing process, can take different shapes and can benefit many parties. One of the most obvious areas is customer service.

The importance of assuring high-quality customer service cannot be overstated. Research has shown that dissatisfaction with customer service, including long wait time, repeat calls and weak competence of staff, is one of the top reasons for customer churn[4]. More worrying for operators is that what can be measured is only the tip of the iceberg.

According to the latest research by Subtonomy, sponsor of this report, only 3.5% of the most badly affected customers would contact telcos' customer service, accounting for 0.3% of all the customers that have experienced technical issues[5]. This means there could potentially be more dissatisfied customers than the operators realise, and dissatisfied customers are more likely to spread the word than their more satisfied peers.

The two most effective ways to improve customer service are better enabling self-service and improving customer service staff's competence, both of which rely on automated, timely, and relevant intelligence.

The Subtonomy survey shows that the younger generations and the more tech-savvy customers are more likely to take problems into their own hands: two-thirds of the 25-34 year-olds responding to the survey said they would attempt to first

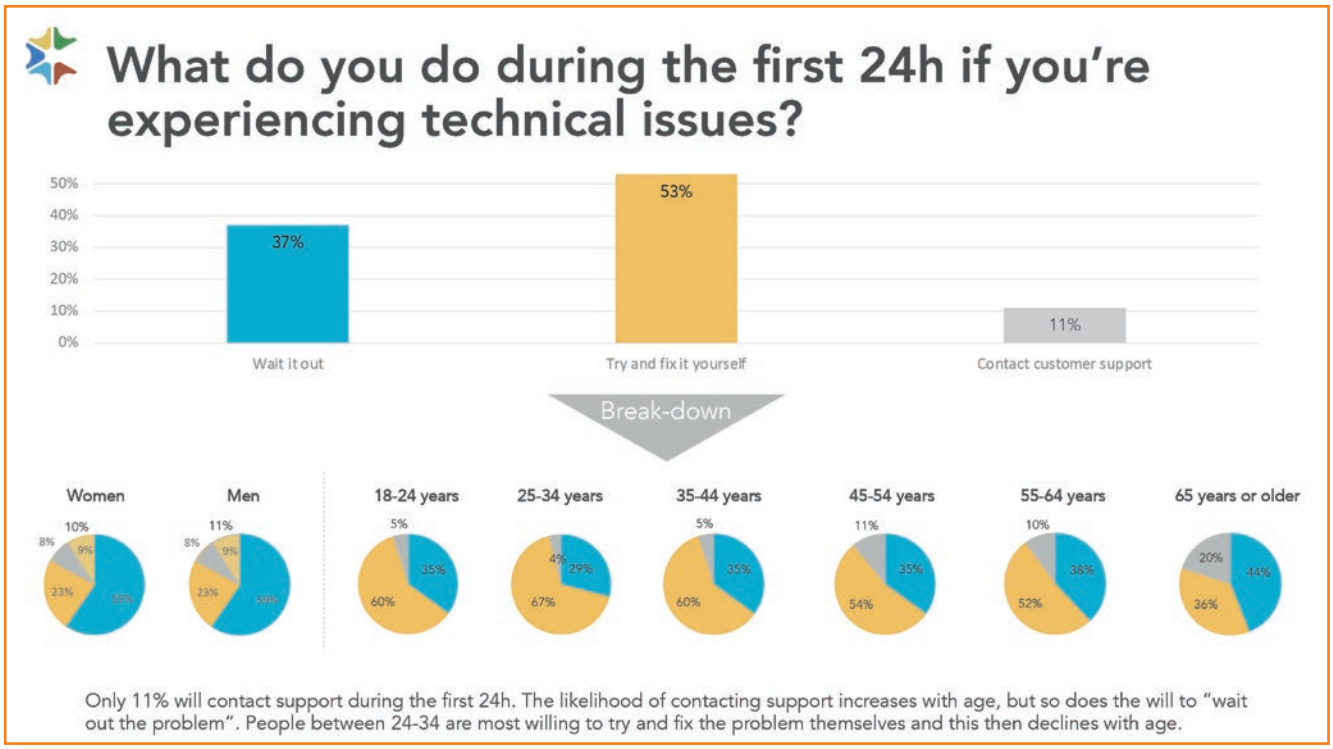


Figure 1: Customers reacting to technical issues in the first 24 hours, by age and gender | Source: Subtonomy, April 2020

4 For example this recent "Customer Churn Survey", 09 March 2020, https://techsee.me/resources/surveys/2019-customer-churn-survey-results/

5 "The State of Telcos' Technical Customer Support, 2021" Subtonomy

fix the issues by themselves in the first 24 hours. This is a good opportunity that operators can proactively push accessible intelligence to the subscribers to help them understand the cause of the problems they are experiencing, for example, the cell the customer is located in is down which causes communication disruptions.

For those subscribers who choose to contact customer support, automated timely intelligence is equally helpful, if not more so. When the subscribers make contact, through whatever means, the intelligence generated automatically should be made available instantly at all the touch points. These may include operators' own branded apps, operators' websites, chatbots, and Interactive Voice Response (IVR) systems. Those responding to the recent Subtonomy survey indicated the telcos' websites are the most preferred contact points.

Another side of the same benefit is to equip the customer service staff with real-time intelligence, presented in the most intuitive way. In this case, the customer service staff will already understand what the customers' issues are when the direct communication is established. Even for those customers that have tried self-service but failed to solve the problem, the status of their "service ticket" is visible to the technical support staff.

When communicating with the customers, service staff can also benefit directly from solution recommendations automatically generated by data analytics.

Some of Europe's leading operators have seen vast improvement in operational efficiency when they adopt the automated data analytics technologies. For example, Subtonomy's customers notice that, as more subscribers are able to self-service, calls to customer service drop 20% on average. Meanwhile, since the customer support staff have better visibility, the average time spent per service ticket has come down by 47%. The factors combined have helped lower the number of follow-up calls by 20% and the number of cases escalating to engineering by 60%.

Meanwhile, 90% of customers would like to receive personalised notifications through an operator's own mobile app, text message, or email that inform them about planned network maintenance or other disruptions that might affect their services. But they want the notifications to be highly relevant to the specific individual. If a subscriber finds out that his or her mobile services currently is working poorly due to a malfunction (regardless of service channel), 91% would prefer to get an automatic update via email, text message, or app notification.

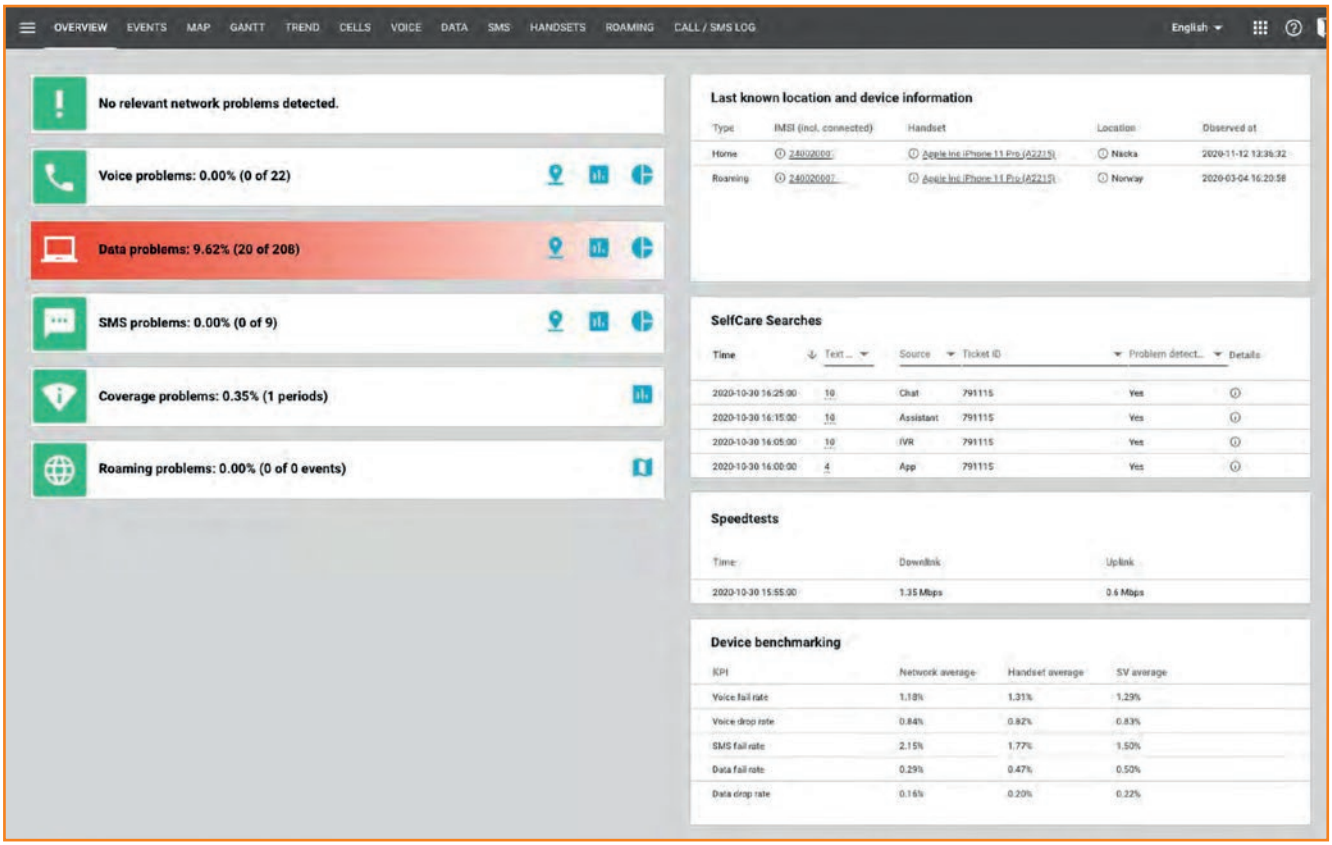


Figure 2: Sample dashboard for customer service staff | Source: Subtonomy

Gaining efficiency from smarter subscriber service is only one part of the rewards operators can reap from automated real-time analytics. An obvious extension is to take the use case to the telecom operators' enterprise customers. These may include their industry partners as well as virtual network operators. In such scenarios, data extracted can be used for real-time analyses of the performance of business applications running on the network, including measuring the fulfilment level of service level agreements (SLAs).

Also, being able to benefit from automated analytics and intelligence are marketeers, in both B2B and B2C contexts. With increased accessibility to customer data, marketeers at the operators can detect issues, make more targeted marketing investment, therefore reducing churn, and uncover new opportunities for upselling, therefore increasing return. This can be by mining the data as well as gathering active NPS feedback directly from the subscribers.

Last but not least, the additional data integrated with passive probing will benefit the operators' network operation. Using real-time data from customer feedback, including self-service and customer support data, operators can optimise their networks from access to transport to carry the fast-growing data traffic, the commoditised mobile data, more cost-effectively. To complete the loop, even issues yet unknown to operators can be flagged by cluster analysing customer requests through different touch points, and the intelligence gained can also be used to improve the data solution's machine learning capability.

Subtonomy's One-Stop Solution

Subtonomy's customer service assurance suite has been adopted by many leading telecom operators in both B2C and B2B contexts and has delivered tangible benefits.

Analytics generated from near real-time data processing can be automatically fed into customer service tools as well as operator's customer touch points through APIs. These include operators' web page, own branded mobile app, customer service chatbots, IVR, and even other third-party channels like voice assistants (e.g., Siri, Alexa, Google Assistant, Cortana). Both the B2C product (SubSearch) and B2B products (CorpDash and BrandDash) come with APIs.

The solution's strong machine learning and analytics capability enables it to automatically generate alarms to customers through their preferred communication channels, for example, text messages and emails when technical issues occur or when disruptions to normal service are expected.

The most significant differentiator and future-proof feature of Subtonomy's solution is its flexibility of deployment. The solution, or the modules of the suite selected by the operators, can be deployed as a managed service, both on-premises and in the cloud, including both in operators' private clouds as well as public clouds, depending on the operator's own cloud strategies.

To look at it from the overall telecoms industry perspective, data solutions like that of Subtonomy can automate a substantial portion of operators' technical support by reducing calls to customer service and reducing escalation cases, thanks to the solutions' stronger support for customer self-service and better visibility into issues by customer service staff. Such increased automation and reduced customer time engaged with customer service can both deliver better customer experience and improve operational efficiency. More gains can also be made by other functions of the operators, including marketeers and network operation to increase efficiency, reduce churn, and open new business opportunities.

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