

Learning the Machine: ANOVO Ibérica Introduces AI in Operations

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In the winter of 2020, José García, Chief Executive Officer (CEO) of ANOVO Ibérica, was preparing his upcoming meeting with José Miguel Martínez, the company's Chief Operations Officer (COO). He was reviewing the results of ANOVO's new automated diagnostics process, which employed machine learning (ML) to optimize the company's smartphone repair operations. The current iteration of the system had been deployed back in spring on the company's Samsung line as a pilot test, and so far, the results had been encouraging: the average process time of a phone in ANOVO's plants had been cut by 10 minutes (from an average of 34), while the automated diagnostics system had shown accuracy levels ranging from 65% to 90%, depending on the repair required.

ANOVO was one of the leading support providers for technology products in Spain. It had service contracts with the country's leading mobile network operators, providing on and off-warranty repairs for their customers' smartphones. Every year, hundreds of thousands of malfunctioning smartphones – ranging from state-of-the-art iPhone or Samsung models to the most popular budget phones – arrived at the company's facilities to be diagnosed and repaired. Aftersales service was a low-margin business, which made efficacy and efficiency key factors for achieving customer satisfaction while maintaining low costs. The new automated diagnostics system, developed by tech provider Novaquality Consulting, made repair operations simpler and faster. Furthermore, if this first project was successful, García had already discussed further possible applications of ML within ANOVO's smartphone operations. It could, for example, be used to reduce "bounce backs" (phones that returned to ANOVO because they were not repaired to the customer's satisfaction) or provide off-warranty customers with an estimated repair budget before the phone even arrived at ANOVO's premises (so the company could save on costs if the budget was declined).

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But for now, ANOVO was facing the daunting challenge of expanding the diagnostics project to the entire smartphone business. Was the project ready to be put into production? Was the improvement in ANOVO's operations tangible enough? Was the system accurate enough? Was the chosen integration the best possible one? ANOVO had to consider its next steps carefully, since a failed deployment could be costly; any disruption on ANOVO's operations – which handled tens of thousands of smartphones every day – could endanger the company's service contracts.

ANOVO Ibérica

ANOVO Ibérica (ANOVO from now on) was born in the year 1998, when A' Novo Télécom Services, a French aftersales support company, acquired plants in Madrid and Málaga, thereby entering the Spanish market. It was a time when mobile phones were becoming increasingly ubiquitous, and ANOVO found itself servicing popular Phillips and Alcatel phones. Besides repairing handsets, one of the company's first business lines was refurbishing pay-tv set top boxes for Canal+, Spain's then-only paying channel. Another early business was repairing personal computers for brands like Toshiba, Lenovo or HP.

In the 2000s, ANOVO was at the forefront of the "industrialization" of aftersales support in Spain. The sector went from a model where small, scattered workshops provided service on a piecemeal basis, to a more efficient system where large quantities of products were sent by industrial customers (i.e. retailers, manufacturers, cellphone network providers and insurance companies) to service providers with ample capabilities, both technical and in logistics.

By 2008, ANOVO's handset repair business was being fueled by the "smartphone boom" in Spain. Spanish network providers heavily subsidized smartphone sales to their customers, which put Spain in the lead of smartphone adoption in Europe. Smartphones were significantly more expensive than the old handsets, so customers were more likely to send them for repair rather than trying to replace them. Thus, by the mid-2010s ANOVO found itself repairing 1,500,000 smartphones every year.

In 2015, the French parent company was acquired by Ingram Micro, a US IT technology corporation. The Spanish branch wasn't acquired outright, but Ingram retained a purchase option and ANOVO was still managed as part of the group, even though it was owned by a private equity fund. José García, who was appointed CEO of ANOVO in 2013, had joined the company as a phone repairman in 2001, and remembered how things had changed after the Ingram acquisition:

They were steering us towards a large customer strategy, more about moving packages around, less technical. [...] If I followed their strategy, I would need to make a sizable investment and cater to a different set of customers, such as e-commerce customers. And I would be putting aside, leaving to my competitors, everything I knew how to do.

ANOVO's executives offered a leveraged management buyout with Ingram, which was accepted and carried out in 2019. They were helped by the fact that Ingram had itself been acquired by the Chinese conglomerate HNA Group, which was now looking to divest from part of Ingram's business.

By the time ANOVO became an independent company, it was Spain's largest aftersales provider in terms of items serviced every year. It was certified to repair devices from some of the world's largest consumer electronics manufacturers, including Sony, Samsung, Nintendo, Apple, Toshiba, LG, Huawei, HP, and many others. It was contracted to give aftersales support for several manufacturers like Philips and Xiaomi, and retailers like Amazon or Mediamarkt. Every year, ANOVO's technicians repaired everything from scooters to medical devices.



However, the handset repair business for industrial companies like ANOVO had declined. Since the mid-2010s network providers had substantially reduced handset subsidies, which had impacted the number of carrier-locked smartphones sold. Since unlocked phones were usually purchased without insurance, customers often preferred to repair them at cheaper third-party repair shops, even if they weren't manufacturer certified. As a result, in 2020 ANOVO's volume had dropped to 500,000-600,000 handsets every year.

Novaquality Consulting

Novaquality was founded in 2003 in Madrid, as a consulting company specialized in data applications. Pedro Herrera, CEO and co-founder, had worked in several consulting firms, focusing on business intelligence and CRM. He explained his goal when he decided to found his own company:

We wanted to not just solve our customers' problems and challenges using analytics or AI, but also to tackle an issue that wasn't being approached correctly at the time, which was the origin, quality and reliability of the data that was being used for these projects. That's where the name of the company came from.

Novaquality's initial focus on data governance expanded naturally to other related areas: business intelligence, CRM, data analytics, and ultimately, machine learning (ML). The majority of Novaquality's customers came from banking and insurance, with customers like BBVA and Banco Santander. These were large industries that generated enormous datasets, which quite often were not well structured. As the years progressed, procedures developed for these companies (like a model to forecast customer churn), could be adapted and – using new data – deployed in utilities, telecoms, and public sector activities like hospitals or mail service. By 2020, Novaquality had experience in many more sectors, including retail, hospitality, education, and health care.

Machine learning fell under the purview of Innovation, which has headed by Herrera. Novaquality's ML projects had begun in earnest in 2016, and the company had been able to leverage its extensive know-how in data analytics. By the time it began developing ANOVO's automated diagnostics, Novaquality had already completed ML projects across several industries, including banking (Banco Santander) and telecommunications (Orange). One of its latest projects was a model that attempted to predict the complications of hospitalized COVID-19 patients, developed for the hospital group HM Hospitales.

ANOVO's Smartphone Business

The Business Model

Smartphone repair was just a part of ANOVO's activities. The company serviced, repaired, or refurbished technology products from a multitude of segments, ranging from consumer products like appliances, gaming consoles, or computers, to industry-grade applications, like medical devices and electrical substations. ANOVO also offered reverse engineering services, disassembling high-cost legacy equipment and highly specialized hardware (e.g., utility infrastructure) in order to learn how to repair it for their customers, who would otherwise need to replace it at a high cost. The company also offered "reversed logistics" services, which reversed the usual flow of product (from seller to customer) to one of customer to seller. For example, the company refurbished returned products for Amazon, so they could be sold again at a discount. ANOVO's "reverse logistics" could also be applied to product upgrades, the safe disposal and recycling of waste, as well as many technology products incorporating polluting metals and/or chemicals.