

# Big Data Cell for a regional financial institution

Automating regulatory reporting and customer profiling through a unified data architecture.

Industry: **Banking**

\*Image for illustrative purposes only

## Summary

A regional financial institution with operations in multiple markets faced a regulatory reporting process that was slow, error-prone, and highly dependent on manual intervention.

In 2019, it formed a specialized Big Data cell together with Novacomp with the goal of transforming its data infrastructure — from consolidating multiple heterogeneous sources to automating the information and reports required by the regulator. Over three years, the project not only modernized regulatory compliance but also opened the door to advanced customer profiling and personalization capabilities.

## Key challenges

- **Critical regulatory compliance:** The institution had to report monthly to the Regulator through a web-services-based platform. Failure to comply, or submitting outdated information, carried significant fines. The most sensitive report was the one sent to the Credit Information Center (SIC), which consolidates financial transactions, debts, and credit activity for all customers.
- **Unacceptable turnaround times:** Industry cycles of 2 to 3 days were required to generate the regulatory XML files, due to fragmented data sources and the absence of automated processes.
- **Heterogeneous data sources:** Information was scattered across disparate systems — Excel spreadsheets, AS400 platforms, Oracle databases (card module), and SQL Server — with no unified integration layer.
- **Strict delivery format:** Files had to comply with precise XML specifications defined by the regulator, adding technical complexity to the process.

# Approach / Solution

Novacomp formed a dedicated working cell — the Big Data Cell — made up of specialists in data engineering, ETL, and business intelligence. The solution was structured in two phases:

**Phase 1 — Automated regulatory reporting.** A data integration architecture was designed and implemented to extract, transform, and consolidate information from all existing sources (Excel, AS400, Oracle, SQL Server). The processing pipeline automatically generated the XML files required by the Regulator in valid formats, eliminating manual intervention and drastically reducing cycle times.

**Phase 2 — Customer profiling and personalization.** Once reporting was stabilized, the cell leveraged the same data infrastructure to develop behavioral analysis capabilities. Using the transactional data already available, profiling models were built to identify consumption patterns and anticipate customer needs. An illustrative case: the system detected that a customer had purchased plane tickets to Europe, booked hotels, and planned a 22-day stay — with minor children who were not traveling. Without any prior request, she was proactively offered a financial product tailored to her situation: two additional cards for family members to use during her absence.

## Results

- Elimination of the 2-to-3-day cycles for generating regulatory reports, with automated production of valid XML files for the Regulator.
- Significant reduction in the risk of regulatory fines due to outdated information or formatting errors.
- Construction of a unified data platform built on previously siloed, heterogeneous sources.
- Enablement of profiling and personalized offer capabilities from existing transactional data, with no additional investment in data sources.

## Technologies used

(from 2019 to present)

| Component                           | Technology                                               |
|-------------------------------------|----------------------------------------------------------|
| Data integration and transformation | ETL / Microsoft SQL Server Integration Services (SSIS)   |
| Reporting and visualization         | Microsoft SQL Server Reporting Services (SSRS)           |
| Data analytics                      | Microsoft SQL Server Analysis Services (SSAS)            |
| Source systems                      | AS400, Oracle, SQL Server, Excel                         |
| Cloud evolution                     | Microsoft Azure (progressive architecture modernization) |



## Conclusion

This project shows how a strategic investment in data engineering can turn a regulatory obligation into a competitive advantage. What began as a compliance project evolved into a business intelligence platform capable of personalizing the customer experience in real time. Novacomp's ability to build specialized teams, integrate complex data sources, and deliver measurable results in highly regulated environments is clearly evidenced in this case.

The impact was such that the financial institution itself decided to internalize the working model, validating the quality and depth of the knowledge transferred.

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