



POLITECNICO
MILANO 1863
SCHOOL OF MANAGEMENT

 **SSERVATORI.NET**
digital innovation

www.osservatori.net

Seguici anche su



BUSINESS CASE

Big Data Analytics & Business Intelligence Observatory

WHEN ALI MET ANALYTICS: INNOVATE TECHNOLOGY TO INNOVATE THE BUSINESS



2017 Research
Business Case

SECTOR

Large-scale retail distribution

COMPANY

Alì Supermercati was founded in 1971 with the opening of their first supermarket in Padova. Today the company has more than 100 outlets in the Italian regions of Veneto and Emilia-Romagna, and employs more than 3,000 people

REQUIREMENT

Adapt the company's technical infrastructure to supply lines of business with the product and customer information they need

THE SOLUTION IMPLEMENTED

Change the technical model by introducing a multiprocessing and multi node columnar analytical database and new data visualization tools. This technical infrastructure allows for greater heterogeneity in the data collected and has enabled an expansion in the scope and depth of analyses undertaken

THE BENEFITS

- Increased storage capacity
- Greater heterogeneity of data sources
- Focus shifts from product to client
- New analysis types available
- A new approach to data adopted in the company
- Opened up new potential

When Alì met Analytics: Innovate technology to innovate the business

THE COMPANY

Founded in 1971 with the opening of the company's first supermarket in Padova, Alì Supermercati is now an established chain of supermarkets, hypermarkets and shopping malls in Italy. With annual revenue of one billion Euros (2015) and over 3,000 employees, the company operates in the regions of Veneto and Emilia-Romagna, and has over 100 outlets in the territory. Alì generates an average of 3 million receipts per month, and the brand is characterised by a high level of customer loyalty: 87% of revenue comes from loyalty card holders.

REQUIREMENT

Business intelligence traditionally associated with large-scale retail distribution, or retail in general, is typically comprised of three dimensions of analysis: article, time and store. The objective is to respond to three questions: 1) which products were sold? 2) when were they sold? and 3) where were they sold? The company implemented its first business intelligence systems in 2004 to provide this information to company decision makers. Over the years, however, the technical infrastructure, based on MOLAP¹ systems, proved unable to manage the

1. *MOLAP: Multidimensional OLAP (On-Line Analytical Processing). The most common type of OLAP, uses an optimized database with a specific engine for multidimensional analysis, creating the dimensions with a combination of detail and aggregation. It can calculate aggregations and provide results quickly, but it creates an enormous volume of intermediary data and occupies a lot of space.*

increase in data volumes, and progressively failed to meet the analytic needs of different lines of business. More specifically, there were two gaps that the traditional BI system could not overcome. First, the lack of long historical depth: they could not store data for more than a few months, and as a result, seasonal analysis could not be extended. Second, the system was unable to deal with the increased level of detail requested: the multidimensional analysis was very efficient for a drilldown, but completely inefficient for a comparative analysis across non-aggregated metrics.

Aware of current infrastructure limitations in the face of these objectives, in 2010 the company launched a far-reaching project which resulted in changing all previously used technology, adopting instead a modern Big Data Analytics solution. With the support of Quantyca, the company successfully passed the software selection phase. After analysing a number of different solution providers active in the market at the time, in early 2011 they chose Vertica, a columnar multiprocessing and multi-node analytical database with excellent performance at a cost-effective price, allowing the company to store very granular, historical data. Furthermore, the architecture now also includes an ETL² sy-

2. *ETL (Extract, Transform, Load): Three actions grouped together to extract data from all informing systems, transform the data, and load into a summary system, such as a data warehouse. There is dedicated software to perform these processes automatically.*

SECTOR

Large-scale retail distribution

COMPANY

Alì Supermercati was founded in 1971 with the opening of their first supermarket in Padova. Today the company has more than 100 outlets in the Italian regions of Veneto and Emilia-Romagna, and employs more than 3,000 people

REQUIREMENT

Adapt the company's technical infrastructure to supply lines of business with the product and customer information they need

THE SOLUTION IMPLEMENTED

Change the technical model by introducing a multiprocessing and multi node columnar analytical database and new data visualization tools. This technical infrastructure allows for greater heterogeneity in the data collected and has enabled an expansion in the scope and depth of analyses undertaken

THE BENEFITS

- Increased storage capacity
- Greater heterogeneity of data sources
- Focus shifts from product to client
- New analysis types available
- A new approach to data adopted in the company
- Opened up new potential

When Alì met Analytics: Innovate technology to innovate the business

stem and two different tools for visualization and reporting. This allows for data queries from a variety of users within the company, from users very accustomed to analyses to those in more operative roles. This change in technology involved a transfer of the company's data marts, made up of data from sales, supply chains, warehouse movements and management accounting, into a single integrated data warehouse. The heterogeneity of sources and processing is one of the primary benefits and innovations enabled by the change of technology.

The project did not stop at the complex phase of changing infrastructure. In a second phase, encouraged by the high performance and flexibility Vertica provided, the company decided to broaden the scope of analytics and move from product-focused analyses to more sophisticated, customer-centric analytics. This included harvesting data from checkout receipts, creating additional data volumes that today stands at almost 2 TB. Analysing georeferenced and standardised customer purchasing data has allowed the company to create approximately 300 KPIs on each customer, and to develop basket analysis activities to propose one-to-one promotions. In this case the infrastructure allows the company to propose offers to customers for products that they normally buy, in a fast and efficient way. Furthermore, based on customer data, Alì has implemented a new model to forecast churn rates.

Using data mining techniques, the company then tried to construct more sophisticated client clusters that go beyond simple considerations such as average spend or frequency of purchase, that have obtained very informative insights. The know-how contributed by Quanyca provided fundamental support for the development of these analytical models. In addition, the company has developed analyses for forecasting staff requirements for stores and warehouses, based on current patterns. Finally, the use of unstructured data, such as the logs from the operations performed by every cashier during check-out, has allowed the company to develop fraud detection activities. The project deployed both *descriptive* and *predictive analytics*.

The main challenge with this transformation was getting the full commitment of *end users* within the organization. To overcome this, a specific training was launched that allowed users to explore and get familiar with the new analytics and reporting tools available, especially for the line of business users in retail operations who were not accustomed to new ways of reading data and insights. These new analytics brings a very different approach to data analysis, based on graphic visualization rather than the traditional model data tables. For the more complex self-service analyses, Alì has dedicated data analysts within the IT department who are able to carry out the most complex extraction and reports.

SECTOR

Large-scale retail distribution

COMPANY

Ali Supermercati was founded in 1971 with the opening of their first supermarket in Padova. Today the company has more than 100 outlets in the Italian regions of Veneto and Emilia-Romagna, and employs more than 3,000 people

REQUIREMENT

Adapt the company's technical infrastructure to supply lines of business with the product and customer information they need

THE SOLUTION IMPLEMENTED

Change the technical model by introducing a multiprocessing and multi node columnar analytical database and new data visualization tools. This technical infrastructure allows for greater heterogeneity in the data collected and has enabled an expansion in the scope and depth of analyses undertaken

THE BENEFITS

- Increased storage capacity
- Greater heterogeneity of data sources
- Focus shifts from product to client
- New analysis types available
- A new approach to data adopted in the company
- Opened up new potential

When Ali met Analytics: Innovate technology to innovate the business

THE BENEFITS

In summary, the changes undergone by Ali Supermercati represent a far bigger transformation than a simple data reporting project, but rather the incorporation of advanced analytics as a key enabler for business processes. A transformation of this size required the sponsorship of the managing director, to whom the IT department directly reports. During the design & testing phase of new customer analytics, the marketing department was actively involved as a leader to ensure the most useful and relevant applications would be developed. Although the true extent to which these new processes and analytics will drive quantifiable benefits, Ali stakeholders are confident the benefits will significantly outweigh any costs.

FUTURE DEVELOPMENTS

Consolidation of technical infrastructure allows the company to view next steps in Big Data innovation with confidence. In the very short term, the company plans to launch an e-commerce site, which will allow the company to collect all customer web navigation and online purchase data, and then use this data in conjunction with purchasing behaviour in their retail outlets.

RELATED READING

Report 2017 – Big Data Analytics & Business Intelligence Observatory

"Big Data is now: tomorrow is too late"

The complete results of the 2017 Research