WHEN ALÌ MET ANALYTICS: INNOVATE TECHNOLOGY TO INNOVATE THE BUSINESS

2017 Research Business Case
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

THE COMPANY
Founded in 1971 with the opening of the company’s first supermarket in Padova, Ali 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. Ali generates an average of 5 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 MOLAP systems, proved unable to manage the 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 ETL system, which is dedicated software to perform these processes automatically.

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.

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.
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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 Quantyca 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.
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In summary, the changes undergone by Alì 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, Alì 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.

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