

# CÓRIO

## Company introduction

Corio is one of the largest quoted investment companies with a focus on retail in Europe and a portfolio of €6.5 billion. Its portfolio is spread over various economic regions in five core markets with over 300 million visitors and 5,000 leases. Corio consists of and manages 83% shopping centers. It is actively involved in all parts of the investment process. This is possible through strong local presence in the Netherlands, France, Italy, Spain, and Turkey. Local knowledge, expertise and contacts are essential to successfully operate in the retail real-estate market. Corio has six local organizations, responsible for the daily management of Corio's real-estate portfolio and maintaining important contacts for acquisition and exploitation.

One of Corio's most important properties is the "Winkelhart van Nederland", or the Dutch shopping heart: Hoog Catharijne. It lies in the geographical middle between Utrecht's historical city center and central station, and with its 180 different shops, a total area of 60.000 m<sup>2</sup> and over 30 million visitors a year, Hoog Catharijne is the busiest shopping complex in the Netherlands.

## Corio requirements

In 2006, Corio started seeking an energy management system to automatically monitor and visualize all energy streams for heating and cooling, electricity and tap water. Their goal was for all Hoog Catharijne customers to obtain a reliable energy bill.

The meters to be read out are spread over a total area of 122.500 m<sup>2</sup>. Data needs to be collected from:

- + 288 energy meters for heating
- + 206 energy meters for cooling
- + 214 water meters
- + 33 electricity meters
- + 91 sub electricity meters

The scope of the "Hoog Catharijne Project" included:

- + Energy data and meter location data management
- + Billing functionality
- + Temperature monitoring between supply and feedback of heat and cold meters
- + Monitoring of the correct functioning of energy meters
- + Determining capacity for contracting
- + Peakshaving functionality
- + Reliable delivery of management information
- + Exception and alarm management

## EnergyICT® solution

EnergyICT® provides Corio with EIServer® its high-tech energy data management system. EIServer® provides a secure and modern multi-vendor platform that serves as the foundation for all energy data collection and processing.

Two hundred fifty data concentrators were delivered for all data collection. The data concentrators firstly collected the consumption data from the meters via pulses on a 15-minute basis, later M-bus communication was used for more reliable data transport.

To reduce communication costs, the local wifi-network is used for consumption data transport within the shopping complex.

After data collection, automatic consumption data validation and estimation is performed

Corio chooses  
EnergyICT®  
to provide an  
Energy  
Management  
System for  
their shopping  
complex  
"Hoog  
Catharijne"



to verify data, and manage missing or suspicious data. EIServer® possesses multiple pre-defined and custom validation and estimation rules.

Typed folders are used for energy data management (storage of meter ID, name, location, date, m<sup>2</sup> ...). All data is versioned in time. Aggregation of consumption data at site level for reporting is made possible using virtual meters.

EIServer® features extended reporting capabilities in the form of tables and graphs. These reports can be generated in any format; EDI, Excel, CSV, PDF... Standard file format importers/exporters for import and export of load profiles are readily available for Corio. Determining the delivery point capacity for supplier contracting is also a standard reporting functionality.

Group reports are used for exception management to automatically report on possible temperature differences between supply and return of heat and cold meters. These perform alarm management to alert Corio authorities whenever anomalies in the consumption profiles are detected.

Corrective actions can be taken when required.

Peakshaving will be applied at Corio as well. The data concentrators will receive the near-time consumption data from the meters and analyze it. If the analysis indicates a peak is imminent, the concentrators send signals to switch off or modify the consumption patterns of energy-consuming processes or devices. This reduces the overall consumption and shaves the anticipated peak.

EnergyICT®'s Energy Management Module was delivered to Corio. This module includes billing (with pre-billing and bill verification), benchmarking, and forecasting.

EIServer®'s Billing Module creates invoices based on consumption data and guarantees reliable energy bill calculations for Corio. Billing is executed using scripting. Corio uses the billing engine to set up the invoice using the actual consumption data, which is then compared to the invoice coming from the energy supplier. This can reveal discrepancies and can ultimately lead to more savings. The billing module furthermore supports pre-billing, using

actual energy consumption over a period of time, giving Corio insight into a major expense well before the actual invoice arrives.

EnergyICT® uses the collected energy consumption data to benchmark them with master data (square meters, energy consumption...) to produce Key Performance Indicators (KPIs). The KPIs are reported to Corio as extended benchmark reports. Corio also keeps EnergyICT® updated with any significant changes to their infrastructure; therefore KPI's can be adjusted to remain representative. If any deviation occurs, the authorities at Corio are notified.

A future possibility is neural networking to forecast future energy consumption for Corio. Historical data and external data, such as weather data, are included for forecast calculations. The module is self-training for higher accuracy.

Corio opted for the ASP solution for EnergyICT® to host the data warehouses for a period of 15 years, thereby eliminating infrastructure costs. Other advantages are high availability thanks to the Tier 1 data center, a VPN between EnergyICT® and Corio is not required and quick response in case of issues or adjustments.

Five EIClients were delivered to administer the system and five EIWebClients for consulting reports via a simple web browser.

Currently, data loggers using Ethernet and GPRS are installed on site at the shopping center in Maastricht (Romanusweg) and Tilburg (Pieter Vredeplein). These are configured in the same EIServer® ASP system.