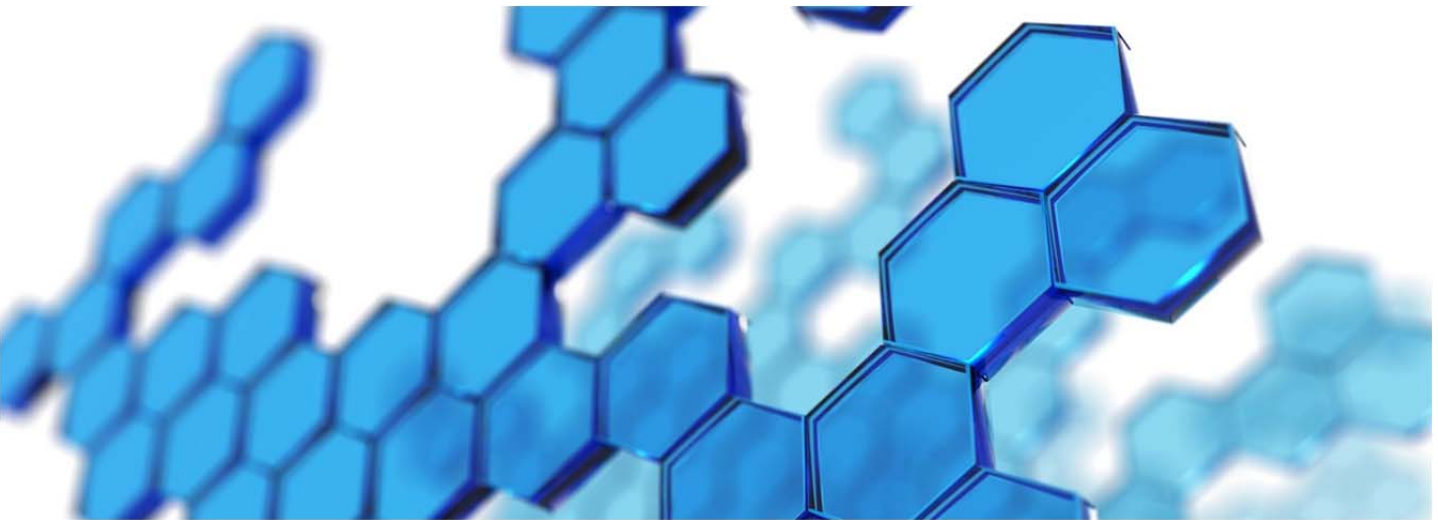




**Algoritmi** has collaborated with **ENI** in the design of a petrochemical production process definition system



### Client Profile

**ENI** is one of the largest integrated energy companies in the world and operates in the exploration and production of gas and petroleum, international transport and sale of gas, energy production, refining and sale of petrol, chemicals, engineering and construction sectors. The company is well known for both its levels of competence and excellence and strong market position worldwide. Between 2008 and 2012 ENI discovered around 7,5 billion boe (barrel of oil equivalent) of new resources. The resources discovered in the first nine months of 2013 amount to 1,6 billion boe at an estimated exploration cost of 1 \$/boe per unit.

The Refining & Marketing (R&M) division refines and sells fuels and other petroleum products mainly in Italy and central eastern European

countries. Despite being the market leader in Italy in the fields of refining and distribution with a market share of around 30%, compared to other international petroleum companies, the presence of ENI in the R&M sector is relatively low. The strategy adopted by ENI in the R&M sector is focused on the improvement of operating efficiency and the optimisation of margins in order to recover profits.

ENI, which owns five refining plants (Sannazzaro, Livorno, Venezia, Taranto and Gela), is the leading operator in both the refining and distribution of petroleum products sectors in Italy. The company is present in a number of European refining districts through direct shares participation and in the network and extra network markets in central eastern European countries.

ENI's refining system has a capacity of around 38,3 million tons (767 thousand barrels /day) and a conversion index of 61%. Each of ENI's refineries has specific operative and strategic connotation focused on the maximisation of the value associated to the plant, the geographical positioning according to the markets, and integration with ENI's activities.

In the lubricants sector ENI has 6 plants, some of which in joint participation, in Italy, Europe, North and South America and the Far East for the production of finished lubricants and greases. With an array of products that is comprised of over 650 different mixes, ENI prides itself on possessing a know-how amongst the highest worldwide in the formulation of products destined to vehicles and engines (motor oil, transmission oil, special fluids) and industry

(hydraulic systems, industrial gears, metal work).

## The Challenge

The development of processes and upstream productive activities, the upper part of petroleum processes, which range from exploration to perforation to extraction, constitute the core of ENI's mission. The downstream side, comprised of petrochemical research, refining and transforming crude gas and mineral oil into their final products are at the centre of ENI's interests as a company focused on a complete and integrated commercial offer.

The development of commercial products, mainly fuels, lubricating oils, additives and chemicals, requires an automated infrastructure for the management of the productive process formulas.

Algoritmi has supported ENEL in the design and development of an integrated platform: the GSPP system is our solution to ENI's requirement to develop, control and distribute information relative to productive processes and formulas.

GSPP is the automated platform through which the decision making centre of the Refining & Marketing division distributes and shares data relative to productive processes to the production plants. Through its plants, ENI develops and produces a great variety of products whose chemical formulas and processes are managed by the GSPP platform which guarantees, amongst other things, the secrecy of the information.

Through GSPP, ENI assures the production of lubricants, additives, benzenes, industrial lubricants, base chemicals, polyethylene, styrenic, elastomers and more.

## The Project

Launched in the second half of 2012, the GSPP project has seen the involvement of the major experts from the R & M Division and our best process and systems developers. The complexity and articulation of the modelling of industrial processes suggested to us the idea of separating the productive process model from its specific implementation.

The rule that guided the design phase of the data model was the segregation of information according to its level of confidentiality. The process definition model and data allow us to adapt GSPP according to the characteristics of the client's industrial process.

## GSPP use in ENI

GSPP is a web-based application platform that operates in an integrates fashion within the Green Data Center, ENI's information centre. GSPP, since its introduction in June 2012, already has a huge information archive dedicated to formulas and ENI's petrochemical production processes. GSPP governs the treatment of over 18.000 products, base materials and formulas as well as over 1.100 product characteristics.

	Total	Fuel	Oil
Products	10.381	140	10.241
Commodities	2.117		
Formulas	5.939		
Technical Specifications	469		
Performance Characteristics	672		
Mixing Methods	76		
Mixing Types	14		