



INTEGRATED ADVANCED ANALYTICS  
FOR PROCESS OPTIMIZATION

## OPTIMIZE YOUR PROCUREMENT AND OPERATIONAL STRATEGY REDUCE PRODUCTION COST OF STEEL

SCOOP is a **unique intelligent decision support system** dedicated to **steel process optimization**. It covers the entire value chain of steel production, from raw materials procurement to end product produced at downstream facilities, and recommends the best strategy to **maximize the overall profit** of a steel company.

SCOOP is based on a sophisticated mathematical programming model that considers many aspects of a steel plant simultaneously. Not only does it include raw material properties, process chemical and thermal balance, intermediate and finished product quality, but it also considers raw material prices, operating costs and revenue generated from product and/or by-product sales. The unify of both technical and economic aspects of steel production within one system ensures SCOOP solution is economically optimal and technically feasible.

### SAVE MILLIONS ON YOUR STEEL PRODUCTION COST

With gain of 2-6 USD per ton of carbon steel and up to 30 USD per ton of stainless steel, recurrent saving of millions of dollars per year can easily be achieved using SCOOP solution.



#### PROCUREMENT STRATEGY

SCOOP optimizes the **selection of raw materials** by considering their costs, but also all possible impacts on the overall process, like the product quality target, the slag generation and composition and/or the potential effect on the process productivity. SCOOP also tells you what is the **optimal sourcing** as your complex supply constraints and logistics flow are faithfully reproduced in the model.



#### PROCESS OPERATIONS

SCOOP finds the **most profitable operating point** (production levels, chemical composition, temperature, product quality, process times...) for your steelworks thanks to its comprehensive modeling which includes detailed chemistry, thermodynamics, metallurgical and flow equations



#### INVESTMENT IDENTIFICATION

SCOOP helps you identify bottlenecks and select key investments. Thanks to its productivity model and within one single optimization, the profitability of eliminating the bottlenecks by investing in new equipment and/or technology can be easily assessed.



#### PRODUCT PORTFOLIO DEFINITION

SCOOP helps you find the product mix that maximizes your plant profits. It dynamically ranks your products by their true profitability and selects the most profitable ones by comparing their actual marginal production cost to their selling price considering the market demand, the raw material availabilities and the current configuration of the plant.

### OPTIMIZATION

## KEY FEATURES



**Live simulations:** SCOOP takes a few seconds to minutes to find the optimal solution, depending on the complexity of plant operation. Such a fast response time allows to conduct a large number of live simulations and quickly evaluate the impacts of a given change.



**Scenario comparison:** multiple scenarios can be opened at once within the SCOOP user interface, which enables to quickly spot the differences and the advantages of one scenario over the others.



**Sensitivity analysis:** on top of the optimal solution, SCOOP is able to compute the impact of one or multiple input parameters on some key performance indices when these input parameters are progressively evolving. This enables to quickly analyze the effect of variability in the inputs, such as a raw material price increase or a chemistry deviation.



**Negotiation tool:** SCOOP presents an innovative concept, "Limit Marginal Price", to compute the true value of each raw materials for the process. By comparing it with raw material purchasing price, negotiation for price and/or quantities can be easily led.

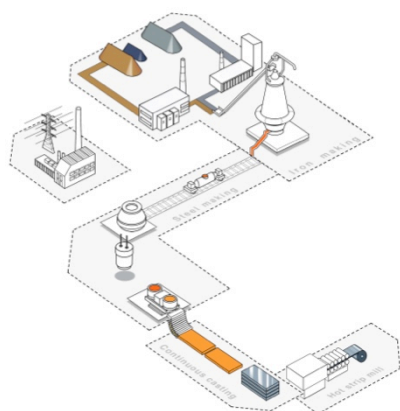


**Order book optimization:** SCOOP computes the marginal cost of each product, for a given production level. By comparing it with product selling price, sales priorities can be defined for most profitable products, and non-profitable ones can be identified and produced at minimum quantities.

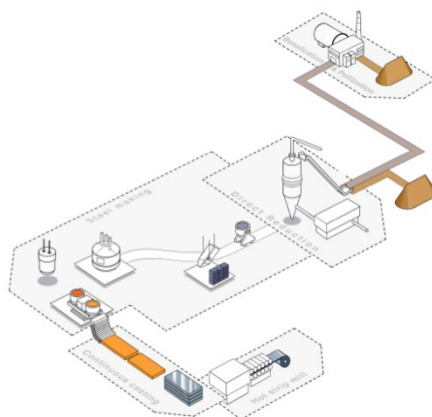
## FLEXIBLE CONFIGURATION

Scoop is developed in multiple modules that represent each a specific operation unit of the steel process. Depending on the plant configuration, the corresponding modules are assembled into a single application. This allows to perfectly fit your specific process and to perform integrated simulations. This integration enables a global optimization of the complete process, rather than separated computations without interactions between the plants and the products.

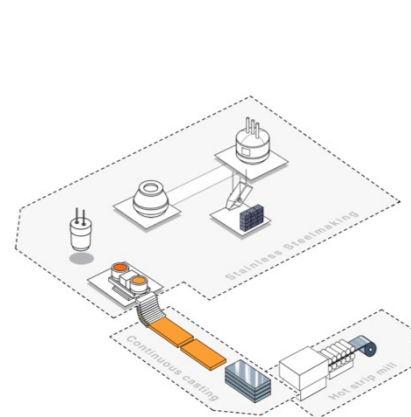
Integrated site



Pellet plant - Direct reduction - EAF



Stainless site



## CLIENTS & TESTIMONIALS



"We did already have some tools allowing us to calculate the raw material mix required. However, our tools only allowed us to optimize one department at a time. (...) We quickly realized that SCOOP was much more advanced because it was modeling as well thermodynamics, yields, product quality models, etc." **ArcelorMittal Dunkerque**

"SCOOP is a miracle tool. There are multiple advantages from the integrated model of SCOOP and they can be illustrated by many examples. SCOOP is used daily within CSN. (...) 6 months after implementation, the results are already far beyond expectations!" **CSN, Brazil**

For further information, please contact us [info@n-side.com](mailto:info@n-side.com)

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