

## CASE STUDY

### PETROCHEMICALS

Optimization of a leading petrochemical company's MRO supply chain



## CONTEXT AND CHALLENGES

Our customer is one of the world's leading petrochemical companies, with almost 40,000 employees and more than 60 production plants (24 in the Middle East, 11 in Asia, 12 in Europe and 17 on the American continent). The Group is made up of six business units, supported by shared service centers.

In an effort to optimize the availability of its equipment, Group management decided to launch an initiative to rationalize the management of parts for maintenance (MRO) in order to deliver a better service to the teams, while reducing the parts stocks, estimated to be worth \$600M.

A number of factors contributed to the complexity of the task:

- Massive volumes: the totally decentralized mro stock represents 640,000 managed part numbers
- A hybrid management mode: the central shared services place orders to meet the requirements defined for each factory by the maintenance teams, as part of an informal service policy
- The lack of information (criticality, typology of the parts)

## APPROACH AND METHODOLOGY

A 3-month audit covering the processes, the organization and the information systems revealed that:

- There is no stock management policy based on the criticality of the parts and their predictability, there are no formal service specifications (lead times, availability) by type of part, resulting in high stock levels and seriously insufficient availability. Other factors were also identified, including the insufficient or incorrect data on the reliability of suppliers (availability and LT), and the poor command of the methods to manage slow movers
- Significant scope for improvement in spare parts logistics, due mainly to the high degree of decentralization, resulting in the multiplication (+120) and sub-critical dimensions of the logistics sites

Following the diagnostic, the second phase was launched, which aimed to:

- analyze the spare parts management processes, in terms of both consumables and repairables: definition of the initial procurement need, forecasts of needs and reorder options, management of repairables, deployment of stocks in the organization (stock in a single location that is distributed between the sites vs. stock in several locations), definition of the service policy on the basis of the criticality and predictability of failures, optimization of stock management modes, planning of repair needs, assessment of consumption forecasts, etc

- The identification of the key factors of progress and improvement of performance: Actions to be taken as a priority, with rapid results or results in the medium term (e.G., Redefinition of contractual terms with strategic suppliers of parts or repair services)
- The setting of an ambitious target that can be achieved by the existing organization

Further to validation, the implementation phase was launched:

- Stocks:
  - o Validation of the service policy, based on the criticality and predictability of the Parts,
  - o Definition and measurement of the supplier parameters (lead times, availability – average, standard deviations) and application of these parameters to the 640,000 part numbers,
  - o Development of a tool to re-define the stock levels,
  - o Implementation of processes to make sure that the targets are tracked (availability of parts, stock levels),
  - o Upgrade of the systems to guarantee the long-term future of the processes,
  - o Drawing up of supplier action plans to improve the stocks (strategic suppliers / revision of specifications / tracking of kpis / reduction of lead times, etc.),
  - o Drawing up of internal plans for progress for the maintenance teams,
  - o Consumption of excess stocks over a 5-year period, writing off of other parts as a loss and creation of auctioning procedures.
- Logistics:
  - o Assessment of the target storage network (local, regional and central stocks – number and location of the sites)
  - o Definition of the target processes (mechanization of the regional sites)
  - o Implementation support

## RESULTS

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The project was spread over 3 years. The results achieved the expected objectives:

- Reduction of stocks by 33%
- Highly significant improvement in the availability of critical parts to 99%+

In addition to rising to these challenges, the project was also an opportunity to transfer knowledge to the existing organization and to adopt new processes, for both the teams and the systems, that will make the most of the initiative in the long term.