CASE STUDY PHARMACEUTICAL DIAGNOSTIC
DIASORIN

DiaSorin S.p.A. works in the field of biotechnology, within which it develops, produces and sells tests (reagents and analyzers for blood analysis) for the diagnosis of alterations in the patient's health status of infectious, hormonal or tumor origin. DiaSorin's commitment is aimed at improving people's quality of life through the preventive identification of potential clinical pathologies through a wide range of very high quality products. The offer includes highly routine tests and specialty tests that share a high technological content. The marketed tests are aimed at laboratories all over the world, private and hospital. DiaSorin is one of the main biotechnology players in the in vitro diagnostics market and, in particular, in the immunodiagnostics and molecular diagnostics segment. The Italian multinational group, listed on the stock exchange since 2007 and now present in the FTSE MIB index, is made up of 24 companies, 5 foreign branches and 6 production sites located all over the world. At the beginning of 2020, with the spread of the new Coronavirus outbreak, DiaSorin promptly developed a molecular diagnostic test to detect all known variants of COVID-19 as well as having developed serological tests to detect the presence of specific antibodies.

CONTEXT

The market in which DiaSorin operates is characterized by extreme heterogeneity and is undergoing an important phase of change driven by the need for national health systems to contain costs.
In this market context, DiaSorin has been able to develop and grow its business thanks to some strategic directives such as: constant development of new tests; development and launch of new analyzers; acquisitions to support the offer; high level commercial partnerships; growing market penetration.
Elements that have increased the complexity of the supply chain both from the point of view of the distribution network (increasing number of customers and countries to be served in addition to the growing number of production sites that have gone from 2 to 6) and from the point of

view of the managed product portfolio (growing number of tests and analyzers on different business segments such as immunodiagnostic and molecular).
The company organization had to quickly pursue the needs of the business, however, encountering some critical issues in supply chain management: the planning system was not fully aligned between its various components (commercial branches and production sites), causing on the one hand disruptions to final customers and on the other side causing obsolescence both at branch level and at production site level. The planning process was also cumbersome because it was not supported by a structured system and where each branch had its own Excel file to plan the replenishment on the local inventory.
The company therefore wanted to invest in an S&OP (Sales & Operation Planning) system that would allow greater monitoring of the demand signal and greater coordination between the commercial branches and production sites.

PROJECT

The project involved a review of the production planning processes thanks to the implementation of the following sedApta application modules:
» Demand Management
» Inventory Management
» OSA - Analytics.

The project perimeter, for this first phase, concerned the families of products manufactured in the European production sites (around 600 article codes).
The new production planning process had to flexibly manage DiaSorin's articulated supply chain in all its components. The planning frequency was defined as monthly in order to guarantee a constant review and alignment between demand and production. The goal was to strive for a demand-driven supply chain that can quickly adapt to market changes.
The new process was divided into three consecutive phases which were scheduled over the course of the month *(Fig.1)*:

COMPANY	SECTOR	SIZE	TURNOVER	SEDAPTA MODULES
DIASORIN	PHARMACEUTICAL DIAGNOSTIC	2000 EMPLOYEES 6 PRODUCTION SITES 26 BRANCHES DISTRIBUTORS IN 120 COUNTRIES	706 MLN EUR (2019)	DEMAND MANAGEMENT INVENTORY MANAGEMENT OSA – ANALYTICS

» **Demand planning (sell-out):** demand planners define the demand profile for each item code. DiaSorin was able to model three distinct flows / methods of defining demand according to the reference market and logistical organization: branches that manage a local warehouse; distributors (export); drop shipment (European branches)

» **Definition of the replenishment plan (sell-in):** for the branches that manage the local warehouse, between 20th and 30th of each month the warehouse replenishment plan is defined. In particular, the planner sets the planning policies for the different item codes in a simple way (e.g. minimum replenishment quantity, lead time, frozen period, safety stock, residual shelf-life that must be guaranteed to the end customer, shipping calendar) and the system automatically calculates the best replenishment plan also considering potential future scraps deriving from over-stocks or declines in demand in addition to the quantities in transit and any open orders to the European distribution hub

» **Production planning for the production sites:** the sell-out and sell-in data are therefore consolidated by the end of the month and the total signal of the production requirement is supplied to the production sites which, by the 20th of each month, calculate the new Master Production Schedule at infinity capacity. Here too, similarly to what happens for the branch replenishment plan, the system automatically calculates the best reintegration plan. A peculiarity that distinguishes the planning of the production sites from the branches' ones is the presence of a constraint that takes into account the maximum production per product family.
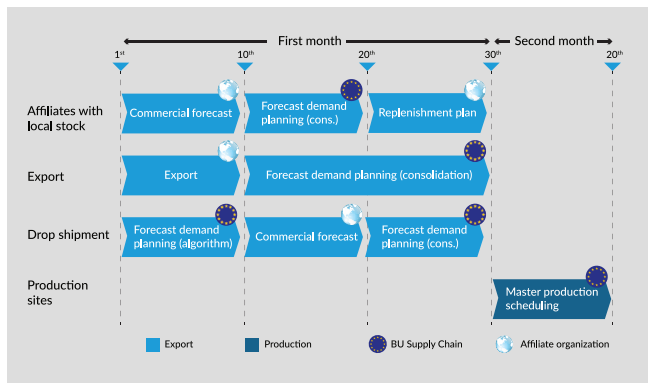

Figure 1

A dedicated web reporting (sedApta Analytics) has also been created which allows to monitor the various performance indicators (KPI) simply and immediately on the quality of planning and management of the entire supply chain.

BENEFITS

The main results obtained from the project can be summarized as follows:

» Greater frequency of revision of the pipe-line along the entire supply chain

» Automatic updating of the various system inputs such as sales and orders

» Consensus process along the entire supply chain

» Ability to make predictions on aggregate views and subsequently propagate the data on the underlying levels proportionally

» Accuracy of the forecast calculated on the ordered quantities and not on the shipped quantities

» Possibility for demand planners to start reviewing the forecast by starting from the data saved in the previous month

» Greater central visibility on the management / planning policies of the individual branches

» Better visibility for branches of transit shipments

» Automatic calculation of potential scrap.