

**STRATEGY: HOW BOEHRINGER INGELHEIM
IS SAVING 100 MILLION EUROS
WITH A NEW SUPPLY CHAIN.**

LESS IS MORE

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Employees of Boehringer Ingelheim
microParts GmbH produce
the innovative Respimat® pocket inhaler
in clinical clean rooms.





Pull, open, release: This device makes it especially easy to inhale the finely vaporized active ingredients.

The sterile labs are lit with yellow light in order to keep out UV rays. Entry chambers and ventilation systems ensure that no stray particle of dust floats into the clean rooms. The employees wear white protective suits, hair nets, masks, and gloves. In the glassed-in production halls on the floor above, machines are producing new inhaler components at a 45-second takt. At first glance, production of these super-fine vaporizers for asthma medications at Boehringer Ingelheim microParts in Dortmund has little in common with the production of sports cars. But the pharmaceutical specialists asked Porsche Consulting for advice on expanding production with the smallest possible investment yet without impacting production costs, quality, or delivery service.

An estimated 44 million people in the world suffer from shortness of breath due to permanently constricted bronchial tubes. What specialists call chronic obstructive pulmonary disease (COPD) is known popularly as “smoker’s lung.” Nearly 15 percent of Germans over 40 years old suffer from it, and almost 30 percent of those over 70. In more than ten years of R&D work, Boehringer Ingelheim developed a pocket device called the Respimat® Soft Inhaler, which generates a slow mist of fine spray without using propellants. Vaporized into tiny droplets with a diameter of about five micrometers, the active agent is of a size easily absorbable by the lungs. The inhaler is available in around 50 countries, with authorization pending in the USA. In view of the strong increase in demand, production will soon be bursting at the seams. By 2015, →

BITTER PILLS

The pharmaceutical industry has long been considered a hotbed of profit, and Germany a paradise of pharmaceutical activity. Spoiled by success, the industry is now feeling pressure from several sides, however.

Drug prices have been the subject of debate for decades now, with health insurance companies objecting to rising costs. Producers counter that medical progress cannot be made for free. For a long time the producers could determine the prices for their new drugs themselves, but that golden age is past—and not just for the German pharmaceutical industry, otherwise known as “the world’s pharmacy.”

“Financial concerns plus the pressures on social welfare budgets in many countries mean that the pharmaceutical sector is facing an increasingly difficult business environment,” says Dr. Engelbert Günster, the CEO of Boehringer Ingelheim Deutschland GmbH. Yet despite all the economic crises the pharmaceutical market is growing worldwide, and should continue doing so by as much as four percent annually through 2015 according to estimates by the credit insurer Euler Hermes. As CEO of the second-largest German pharmaceutical corporation, Günster also sees favorable prospects on account of the rising average age of the population.

But cracks are appearing in the foundation of the sector’s revenues. Many patents on high-profit blockbuster products, which analysts estimate will account for sales of 150 billion dollars until 2015 for major companies in the industry, are close to expiry. The end of these generally 20-year patents clears the way for cheaper imitation products, i.e. generics. And in part because development costs for new medications have increased fourfold over the past 15 years, the industry does not have enough new products in the pipeline to compensate for the decline in income. It takes eight to twelve years to



Boehringer Ingelheim has a strong product pipeline. This pharmaceutical company has been increasing the level of investment in its own research and development for many years.

develop a new drug. And of 5,000 to 10,000 substances studied, only one or two will ultimately go onto the market as new products.

Founded in 1885, the family-owned Boehringer Ingelheim business invested around one fifth of its sales in 2011 in R&D of drugs and treatments

for diseases of the respiratory, cardiovascular, and central nervous systems as well as for metabolic disorders and infectious diseases. Just about two thirds of its prescription drugs are under patent protection. One high-selling drug for chronic obstructive pulmonary disease (COPD), or “smoker’s lung,” is SPIRIVA®, with nearly 3.2 billion euros in sales last year—or around a quarter of the company’s total. Eighty-four new products are under development. “The fact that we continue to invest in research and development means we have a strong product pipeline,” says Günster. He considers it fortunate that Boehringer is not under pressure from the stock market in this regard. “Instead of having to bring in short-term results, as a family-owned business we can concentrate on long-term growth—even in multi-generational terms.”

Patent expiry is not the only concern in the industry, however. Pressure is also coming from politicians seeking to check the explosion in healthcare costs by cutting drug and treatment prices and by evaluating benefits more critically. “Instead of having treatment focus on the needs of patients, we’re seeing cost or reimbursement factors become the all-important standard in many countries,” says Günster. This trend has a disproportionate effect on research-based companies like Boehringer Ingelheim. “Researching and producing at German prices but selling at Greek prices—that can’t work over the long term,” he adds. It’s all the more important therefore to continually examine processes and structures and to have the company run efficiently.

The springs in the Respimat® pocket inhaler generate a nozzle pressure of 200 bar. This produces a slow, prolonged, gentle mist, which is especially easy for patients to inhale.

capacity is expected to more than double, to 44 million units a year. “We want to expand production without just adding more surface space,” says Dr. Heiko Rengel, the managing director of Boehringer Ingelheim microParts. Because the product may not yet have final authorization in the target markets at the point when investments are made in the buildings and special machinery, every month that can be waited is equivalent to cash in the hand. However, investment decisions cannot be put off until past the point that delivery can be ensured when the authorization does come. This is a fine line to walk. From experience at their own company, the consultants from Porsche know only too well that it pays to take a very close look at the supply chain strategy and to make structured plans.

“The pharmaceutical sector can learn a fair amount from the automobile industry,” says Rengel. For example, that companies don’t have to do everything on their own. Boehringer has already outsourced nearly 60 percent of added value to suppliers. “That’s a lot,” is what the people in Dortmund thought. “That’s a little,” said the consultants from Porsche. The fact that the sports car maker delegates about 80 percent of its production to suppliers—including for ceramic brakes, one of the core components of its cars—was met with surprised looks. Close cooperation with partners is the only way to ensure high quality and an utterly reliable supply chain. “It’s important that the core areas of expertise stay at the company,” says Dirk Pfitzer, a partner at Porsche Consulting. At Porsche this means creating the vehicle concept and developing and running the supply network. At Boehringer Ingelheim microParts, →







The final production stage combines the different modules and assemblies into the finished RespiMat® inhaler.

managers first devoted intensive thought to precisely identifying their core areas of expertise. One of these of course is the uniblock, consisting of filter structures and a nozzle built on an etched silicon wafer the size of a pinhead. “It’s the pride of our engineers,” says Thomas Mehlhorn from the Boehringer project team. Another is the precision injection mold. By contrast, areas that did not qualify included parts of the cartridge packaging, the plastic closure, and certain cleaning processes.

Based on this assessment, the project team first drew up the ideal added-value chain—without restrictions. “It expands our horizons to think that we can start at square one,” explains Pfizer. Many questions then paved the road to possible scenarios: Can the existing buildings be used for other purposes? Can machinery be outsourced? In which parts of the world should segments of the supply chain be located? The three most promising scenarios were then scrutinized on the basis of criteria such as flexibility, production costs, one-time

investments, and quality. The best concept was then subjected to detailed fine tuning. These thought exercises paid off. With the procedure that it ultimately adopted, the Dortmund-based company invested only half as much as it had originally planned. And it lowered production costs per unit in the process. In concrete terms this means that thanks to a later investment date, gradual outsourcing to suppliers, and new synergies among the existing production processes, Boehringer Ingelheim will save more than 100 million euros over five years. “Results like these can only be achieved by thoroughly examining the existing supply chain and making structured plans,” says Pfizer. And as Rengel concedes, “We didn’t think we could expand our capacity this much without erecting a new building.” ←



“WE DIDN’T THINK WE COULD EXPAND OUR CAPACITY THIS MUCH WITHOUT ERECTING A NEW BUILDING.”

Dr. Heiko Rengel, managing director of Boehringer Ingelheim microParts

FIVE STEPS TO THE IDEAL SUPPLY-CHAIN STRATEGY

1. DEFINE CORE AREAS OF EXPERTISE



- Determine core areas of expertise (special skills, uniqueness from the perspective of customers, etc.)
- Evaluate components and/or assemblies based on the special know-how contained therein
- Find potential suppliers

2. DESIGN THE IDEAL SUPPLY CHAIN (VISION)



- Determine and agree on expected sales for the coming years
- Set up ideal supply chain for each assembly (free of restrictions such as existing buildings, machinery, suppliers)
- Combine individual supply chains into an overall ideal supply chain, and then optimize it as a whole (from individual to overall optimum)

3. DERIVE POTENTIAL SCENARIOS



- Specify framework conditions
- Derive potential scenarios (ranging from status quo to supply-chain vision)
- Narrow down to realistic scenarios (match with framework conditions)
- Evaluate scenarios in qualitative terms and select the best three scenarios

4. SELECT THE SCENARIO



- Specify evaluation criteria (e.g. investments in buildings and machinery, flexibility in product variants and amounts)
- Weight individual criteria
- Calculate investments and effects of these supply-chain options on production costs
- Evaluate the three scenarios in quantitative terms and decision
- Make a plan for implementation and define milestones

5. IMPLEMENTATION



- Ask future suppliers and verify price assumptions
 - Apply for investments
 - Match units on expected sales and readjust terms of investments where appropriate
 - Check progress of implementation continuously (milestones) and readjust where appropriate
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