6. The Medical Device Industry - a Key Industry for Switzerland

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Pioneers and Inventors

The origins of the medical device industry go back a long way, with the Swiss assuming the role of pioneers right from the onset: in 1820 Joseph-Frédéric-Benoît Charrière of Fribourg founded a company to manufacture surgical instruments. The unit of measure for the diameter of urologic probes still bears his name today. At the beginning of the 20th century Hermann Sahli, a professor of internal medicine, developed instruments to measure blood pressure. Around the same time surgeon and Nobel Laureate Theodor Kocher invented the artery clamp, which was named after him, while Alfred Streit attracted international acclaim with a novel instrument known as an ophthalmometer for measuring the curvature of the cornea. Orthopedic surgeon Maurice E. Müller is a pioneer in the development of implants for treating bone fractures (osteosynthesis) and is renowned for combining medical expertise with skilled workmanship and a profound knowledge of materials science. In the 1960s this visionary and business man teamed up with pioneers in watchmaking, precision mechanics and other industries, such as Sulzer Winterthur. The Sulzer joint thus went down as a milestone in the history of medical devices. Swiss companies have also captured international markets with their innovations in other areas of the medical device industry: for example, Roche Diagnostics with its diagnostic equipment, Ypsomed with its injection systems, and Sonova/Phonak with its hearing aids.

What Became of a Sulzer Joint

After a turbulent past and much pioneering work, the medical technology department of Sulzer became an independent business division in 1989 in the form of Sulzer Medica. Sulzer and Sulzer Medica separated in 2001 and Sulzer Medica was renamed Centerpulse in 2002, which was taken over by US medtech company Zimmer in 2003. The merger made Zimmer the world’s leading orthopedics company. Its Winterthur site is the group’s second largest production facility and the headquarters for its European, Middle Eastern and African operations. Today, one in four artificial knee or hip joints across the globe are manufactured by Zimmer. The company’s core business is complemented by growing product lines in the areas of extremities, dental, trauma, spine and other products for orthopedic surgery.

Diversity and a Broad Spectrum

The structure of the Swiss medical device industry is as diverse as the history of the individual companies is illustrious: some 3,700 companies in Switzerland are active in this industry. Few countries in Europe have such a high density of medtech companies, with 98.5 percent of them small and medium-sized enterprises and three quarters of them with fewer than ten employees. However, around 50 of the larger companies with a staff of over 250 each, employ a sizeable percentage of the workforce. Besides domestic companies, the Swiss medtech scene also includes production plants and subsidiaries of major international corporations such as Medtronic, Johnson & Johnson, and Zimmer. The diversity of the industry is reflected in the variety of its products. Some 10,000 different product families are represented, ranging from prostheses, implants to consumer goods such as syringes and textile dressings, high-tech products such as diagnostic imaging equipment, hearing aids and pacemakers, wheelchairs and other patient aids as well as special equipment for medical practices and hospitals. The Swiss medical device industry covers the full value-added chain, from research and development to manufacturing to sales. Besides manufacturers, wholesalers and retailers of medical products form the industry’s core.

Dental laboratories alone account for around one third of businesses, which also include service companies such as product designers and software developers, e.g. to facilitate surgical navigation. Suppliers also make up a substantial portion, manufacturing complete solutions or components, such as micromotors or precision screws for medtech companies as well as supplying other sectors, such as the watchmaking industry.

Attractive Employer

The medical device industry is also trendsetter as an employer. Switzerland is a leader with over 48,000 full-time jobs in the industry, accounting for around 10 percent of all medtech jobs in Europe. What is more, alongside Ireland, the Swiss medical device industry makes the highest contribution to its own economy, with 1.4 percent of the Swiss workforce employed in this industry. Moreover, employment in the Swiss medical device industry has enjoyed disproportionate growth in comparison to the economy as a whole, with growth particularly strong between 2005 and 2008. The most important employers are manufacturers, who account for around 60 percent of jobs within the industry. Even in times of stagnation, they generated new jobs, which are distributed across Switzerland with major concentrations around Zurich, Berne, Lausanne and Basel.

Thanks to its origins and diverse structure, the medical device industry offers attractive jobs in a state-of-the-art environment. A broad range of professions have emerged for planning, developing and operating medical device products and equipment. The “classical” products range from orthopedic and dental technical to audiologists who fit hearing aids. Scientific and technological advances are continuously giving rise to new specialists and professions. Besides the actual “core areas”, there are other interesting professions in the medical device field: for example, in engineering, research and consulting.

High Value Added and Work Productivity

Corresponding to their high density in Europe, medtech companies make a major contribution to the national economy: with turnover of 22.9 billion Swiss francs the medical device industry generated gross value added of just under 11.1 billion Swiss francs in 2008. Manufacturers accounted for
around three quarters of that figure. With a share of 2 percent of Swiss gross domestic product, the medical device industry is on a par with the pharmaceutical industry and the energy and water sector and ranks ahead of the food industry.

With gross value added of 230,000 Swiss francs per full-time employee, the medical device industry far exceeds the Swiss industrial average of 143,000 Swiss francs. Manufacturers achieve the highest work productivity in the medical device industry at 280,000 Swiss francs. Just as important as direct value added are the indirect effects that medtech companies have on the rest of the economy through the purchasing of inputs and investment goods from suppliers and the income of its employees in other sections of the economy. In total, the medical device industry generates gross value added of 18.7 billion Swiss francs or around 3.5 percent of Swiss gross domestic product: 59 percent of this is attributable to direct value added, 15 percent to indirect supplier effects and 26 percent to effects on income.

Unfettered Export Growth

The medical device industry is generally extremely stable economically: thus, employment has developed disproportionately in comparison to the overall economy, especially between 2005 and 2008. And practically all medtech companies enjoyed growth in turnover of 7 to 14 percent in the critical year of 2008.

The growth in turnover in medical devices in Switzerland is mainly driven by exports, with manufacturers generating a good 90 percent of their turnover through exports. The medical device industry now contributes 5 percent to Switzerland’s exports. Since 2001 exports have surged by 109 percent to 9.6 billion Swiss francs. Growth is greatest for implants and prostheses at 180 percent, while exports of Swiss goods in general have grown by only 57 percent. In the same period imports of medical devices increased much less at 84 percent. This indicates that the medical device industry’s contribution to Switzerland’s trade surplus has increased significantly. This trend is particularly marked in the fields of cardiac pacemakers and orthopedic products.

Innovation and Competitive Strength

This large export surplus is testimony to the international performance and competitiveness of the Swiss medical device industry. According to OSEC, the Swiss foreign trade promotion agency, Swiss medtech companies are global leaders in implants, hearing aids, diagnostic instruments, laboratory instruments and systems for minimally invasive surgery. The USA and Europe (including Germany) are the biggest export markets.

Swiss medical device products are in such demand largely thanks to their innovative power. This too can be substantiated by statistics: according to the Swiss Institute for Intellectual Property, Swiss companies apply for patents for over 1,200 medical technical inventions at home and abroad each year. Whereas the worldwide share of medical devices in all patent applications has remained constant at over 5 percent, the share of patent applications from Switzerland is approaching 16 percent and is growing apace.

Research and Development

The creative dynamics of the industry is also expressed by the fact that innovations are launched on the marketplace in rapid succession. Medical device companies generate half their turnover with products that are less than three years old. With this unusual pace of innovation, the companies meet the stringent demands made of medicine and nursing to optimize their processes continuously.

The innovative power of the industry is facilitated by the high level of education and research in Switzerland. Many Swiss medtech companies have their own research and development departments. International corporations such as Medtronic and Zimmer have chosen Switzerland as their favored R&D site. Medical device companies in Switzerland invest a total of several hundred million Swiss francs in research and development annually. The share of the medical device industry in research and development therefore significantly outstrips that of the machinery and electronic industries. On average medical device manufacturers invest 12 percent of their turnover in R&D — in recent years mainly to optimize or upgrade existing products.

Advantage of Switzerland as a Business Site

Switzerland benefits from a prospering medical device industry while at the same time providing it with an ideal growth medium: key advantages of Switzerland include not only research institutions, traditional precision, materials expertise, and a highly skilled workforce but also an attractive tax climate and a flexible labor market. Then there are the typical Swiss attributes such as technical perfection and reliability. In addition, it is possible to draw on the wide-ranging expertise in allied fields such as electronics, machine engineering, biotechnology, and pharmaceuatics. Switzerland’s attraction is further enhanced by the various state and private promotional institutions, financing programs, and startup initiatives as well as the ready availability of capital. In addition, the country’s modern healthcare system, high density of hospitals and physicians, and rapid approval of new diagnostic and therapeutic methods help make Switzerland a sought-after location. In general, the following applies: any product that is successful here will also sell well in the rest of the world.

Conversely, Swiss companies are also expanding abroad. However, disparate healthcare, licensing, and reimbursement systems and ever more complex regulatory requirements between countries are making access increasingly difficult. It is here that Medtech Switzerland comes into play. The export platform was set up in 2010 by Medical Cluster and OSEC on behalf of the Swiss government. It primarily supports small and medium-sized companies to gain entry into key markets and improves information exchange between market players at home and abroad.

Challenges for the Future

However, mounting cost pressure in the healthcare system, overregulation and bureaucracy threaten to undermine Switzerland’s advantage as a business location. At the same time the performance-based flat-fee case payments planned in connection with the new hospital financing scheme (Swiss diagnosis-related groups) is currently a source of some controversy. Medical device companies, as product suppliers, are also affected. A few months before the introduction of the new remuneration system a number of issues remain unresolved. For example, the financing of innovations and investments must be clearly regulated. To this end the umbrella organization for the Swiss medical device industry, FASMED, expressly demands the safeguarding of the quality of patient care and fast access to innovations for patients.

Maintaining the competitive edge and innovative power of the Swiss medical device industry is essential. People require increasingly highly sophisticated medical device products in order to remain mobile and independent as long as possible. But quality and progress come at a price and must not fall victim to savings measures. With their technological develop-
ment, medtech companies also help to improve efficiency. For example, treatment methods are becoming less invasive and more time and cost effective. For example, employers benefit from quicker reintegration of patients into working life. In the future it will become increasingly important to enhance public awareness of the economic benefits of this industry and its contribution to first-class medical care, not to mention the pitfalls of cutting services.

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