austria wirtschaftsservice aws

aws Life Science Austria

Life Science Report Austria 2013

Introduction

Biotechnology is considered an important strategic field for future developments and investments in most industrialized countries. Austria is certainly no exception to this. The Austrian Council for Research and Technology Development defines biotechnology as one of ten priority areas of research to benefit from special support. Despite the worldwide economic crisis, Austria has even been able to increase its gross domestic spending on research and development from 1.93% in 2000 to 2.81% in 2013. However, it has been and still remains a challenge to focus Austria's activities, particularly on the advancement of knowledge and technologies.

Health care is considered as one of the top priorities amongst the big challenges of our times. Within the framework of the national R&D-strategy from 2011 to 2020, the Austrian Federal Ministry of Economy, Family and Youth presented an ambitious 'Action Plan Biotechnology' in June 2013. This plan aims to increase the size of this research intensive sector significantly within the next five years, in particular through new financial support programmes. With targeted funding of strategically important research and development projects, we have set the course for building on our strengths as well as occupying new fields and niches in the future.

This report presents the key figures for biotechnology and pharma, as well as for medical technology in Austria. The health sector provides to society the most visible benefits of life sciences. This is especially true for Austria: more than 220 red biotechnology, pharma and medical technology companies aim at developing new products to ameliorate the burden of diseases or to ease as yet unmet medical needs.

Besides the key findings for the sector as a whole, this report analyzes for the first time the whole value chain of the life sciences sector, including suppliers, service providers and sales and distribution companies.

The figures in this report show that the Austrian life science industry has seen tremendous development in the last two years: in 2012, the number of Austrian life science companies has risen to 723, employing more than 50,000 people and generating revenues of 17.7 billion euros. In particular, the number of dedicated life science companies increased significantly by 25% within the last two years. If this past progress is being maintained, then the best is yet to come.

Dr. Reinhold Mitterlehner
Federal Minister for Economy, Family and Youth

Preface

Over the past decade, Austria has established itself as a well-respected hub of the life science industry. Region by region, the life science industry has spread across Austria from the capital Vienna to the powerhouses of Styria, Tyrol and Upper and Lower Austria. Each region has its own special culture and particular strengths that are reflected in the local companies who are organized through regional life science clusters.

The growing life science sector is reflected in the increasing interest shown by international businesses in doing deals with companies in Austria. And it is not just the rise in corporate deals that shows Austria in a good light: the country is also proving to be an attractive location for operations and significant inward investment for a number of multinational companies. These investments come on top of a whole series of international venture capital investments in Austrian life science.

What makes Austria an interesting place for the life sciences are the close links between solid academic research and outstanding medical practice, access to highly-skilled and dedicated scientists and managers, paired with an active start-up community, and last, but certainly not least, an extremely effective government support system for innovative companies.

The Austrian government is committed to this burgeoning sector and is helping to foster a business environment that allows such young spin-off companies to thrive. With R&D investment in 2013 at an all-time high of 2.81% of GDP, the government aims even higher: to make Austria an innovation leader within the European Union and to raise the share of R&D investment to 3.76% of GDP by 2020. There is also a very supportive and attractive tax regime, a R&D cash premium of 10% and a maximum corporate income tax of 25%.

Furthermore, the wide array of funding schemes available to life science start-ups contributes to this thriving environment. Austria Wirtschaftsservice, the Austrian national promotional bank, provides financial support for start-up ideas for life sciences through its funding programmes ‘LISA PreSeed’ and ‘LISA Seedfinancing’. Other Austria Wirtschaftsservice initiatives to support life sciences include guarantees and loans.

Furthermore Austria Wirtschaftsservice recently launched two new funds to close the financing gap for young companies. The aws Business Angel fund provides equity to Business Angels and other non-institutional investors for the financing of innovative companies in the form of co-investments. aws ‘Gründerfonds’ provides risk capital to companies with high growth potential in the early stage as well as in the growth phase.

All these measures are now bearing fruit, creating new and exciting jobs while securing Austria’s future as a hot spot for innovation.

We hope to have captured your attention for the Austrian Life Science Report 2013, where you can read many facts and figures demonstrating the success of the Austrian life science industry!

Mag.ª Edeltraud Stiftinger
Managing Director Austria Wirtschaftsservice GesmbH

Content

1. Life Science Report Austria 2013
Life Science Industry in Austria

Innovation and tradition forms the basis for Austria's success in life sciences. Young, well-trained entrepreneurs with fresh ideas benefit from a close network of excellent academic institutions and some of the world's leading companies in their line of business. This might explain why the corporate landscape is ever-changing: a typical biotechnology company is only eight years old and the average medical technology company has been in business for just about 17 years. A surprisingly short time in a country that takes pride in its long tradition of revolutionary discoveries in the life sciences, with such famous names as Ignaz Semmelweis or Karl Landsteiner.

The ageing of society, increasing cost pressures in health care systems, climate change – challenges to society are legion nowadays. Life sciences are considered to be among the key technologies for providing solutions to these challenges. Austria's life science industry has already achieved an excellent worldwide reputation as a source of high-quality drugs, smart devices and creative new therapeutic concepts. First-class clinics, excellent research facilities along with cutting-edge technologies and well-trained staff have laid the foundation for this development. It goes without saying that Austria's life science industry is in a unique position to deliver on its promise due to its scientific excellence, its commitment to the life science industry and continuous political support.

Austria's life science industry in figures

With 723 companies active in the biotechnology, pharma or medical technology business, life sciences are an important part of Austria's economy. Together, these companies were responsible for a turnover exceeding 17.7 billion euros in 2012 – about 5.4 percent of the gross domestic product. More than 50,000 people earn a living working for an Austrian life science company.

The life science industry in Austria is fully diversified with companies large and small. A number of multinational companies are headquartered in or have facilities in the country, taking advantage of Austria's ideal geographical location at the heart of Europe. Another truly remarkable factor is the high degree of cooperation between producers, networks of suppliers and service providers all within a short distance of each other. This is why many results are genuinely 'Made in Austria'.

Powerhouse for the job market

Austria's life science industry basically consists of two equally important subsegments: biotechnology and pharma on one hand, medical technology on the other. In terms of size, both sectors are comparable with each other – despite the fact that the number of companies in the medical technology sector (435 companies) is somewhat higher than the figure for the biotechnology and pharmaceutical market (288 companies).

With regard to the numbers of employees, the life sciences clearly display their capacity as an engine for job creation: 25,000 people make a living in each sector. And these are important business factors: the biotechnology and pharma companies achieved a turnover of 10.3 billion euros in 2012, the revenue in the medical technology business was at 7.4 billion euros.

Cross sector industries like the life sciences are based on the division of labor. Thus, it comes as no surprise that the success of Austria's life science industry is attributable at least in part to the dense network of specialized suppliers, service providers, as well as sales and distribution offices. There are 430 of these companies spread right across Austria. Together they generated a turnover of about 10 billion euros in 2012.

These figures show that the Austrian life science industry has seen tremendous development in the last two years. If it succeeds in maintaining the progress it has made in the past, then the best is yet to come.

The information in this brochure is the result of a survey conducted by BIOCOM AG between February and May 2013 on behalf of the Austrian Federal Ministry of Economy, Family and Youth (BMWFJ) and Austria Wirtschaftsservice GesmbH (aws). The collection of data followed internationally accepted guidelines and definitions set out by the Organisation for Economic Cooperation and Development (OECD; biotechnology section) and the Global Medical Device Nomenclature (GMDN; medical technology section).

Number of companies in the life science sector	723
Number of employees in the life science sector	50,180
Turnover in the life science sector	EUR 17.73 bn

Table 1: Key figures of the life science sector in Austria

Map of the Life Science Sector
Distributed According to Federal States

Number of life science companies

0–49
50–99
100–149
>150

Number of employees in life science companies

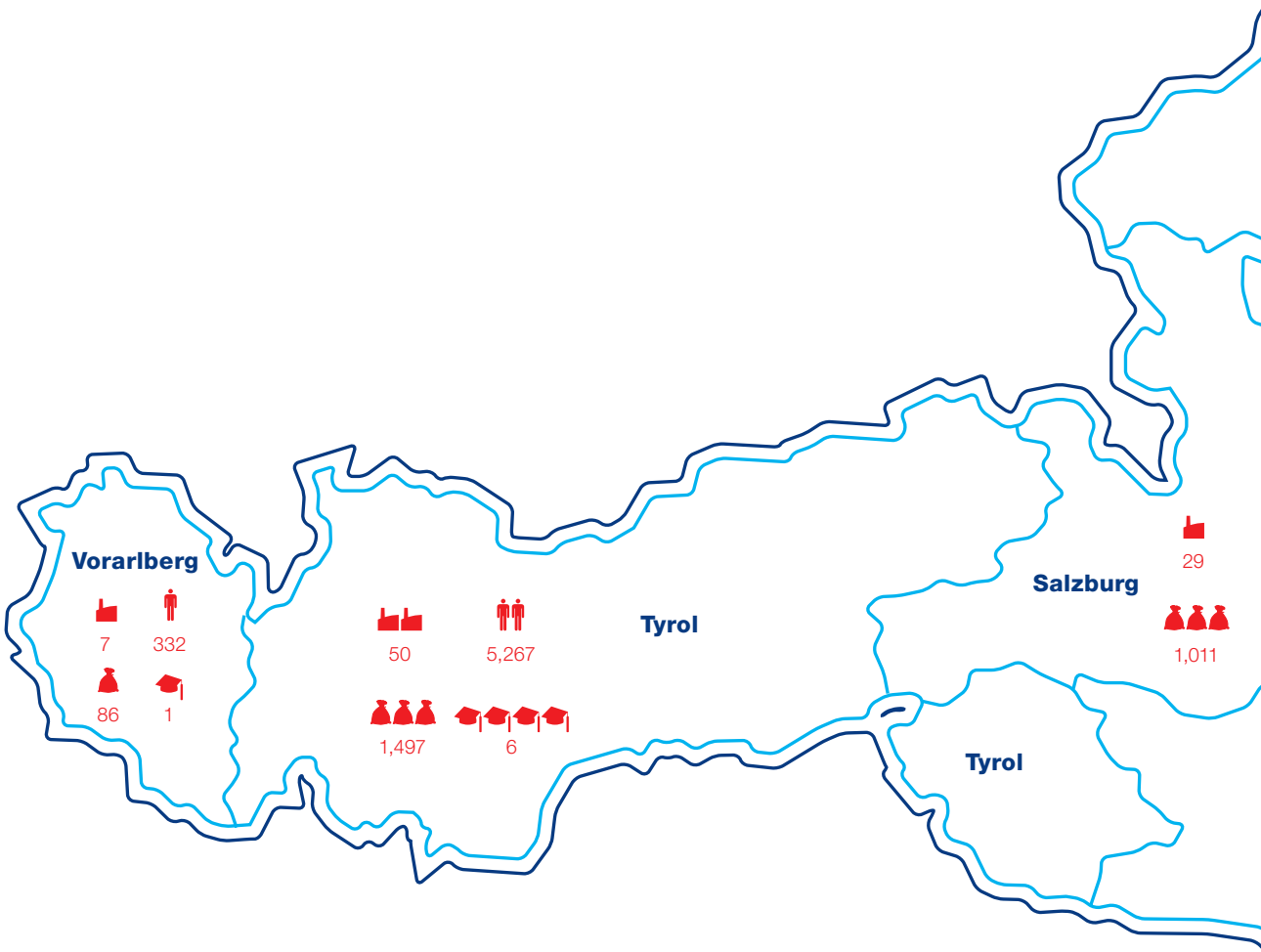
0–4,999
5,000–9,999
10,000–14,990
15,000–19,990
>20,000

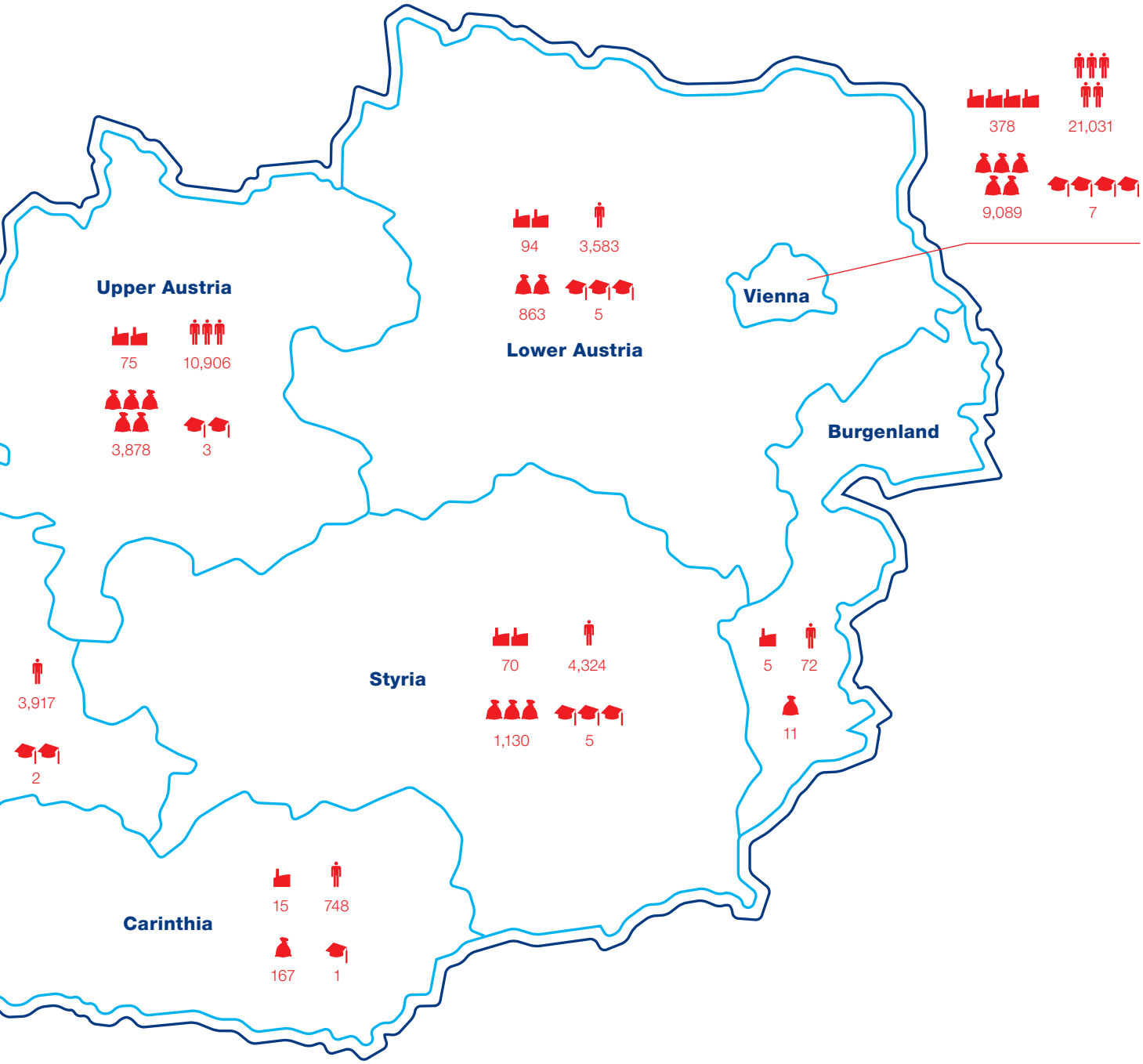
Turnover of life science companies (in m €)

0–499
500–999
1,000–1,499
1,500–1,999
>2,000

Number of universities and universities of applied sciences in the life sciences

0–1
2–3
4–5
6–7




Upper Austria
75
10,906
3,878
3
Lower Austria
94
3,583
863
5
Vienna
378
21,031
9,089
7
Burgenland
5
72
11
Styria
70
4,324
1,130
5
3,917
2
Carinthia
15
748
167
1

2. Biotechnology and Pharma in Austria
Overview of Primary, Supply, Service and Sales Companies

Demographic change and newly emerging infections issue a challenge to society. Biotechnology and pharma are considered to be the most influential key technologies for overcoming these challenges in the future. New innovative vaccines and drugs will cure diseases that are not currently treatable and protect against fatal infections. Sensitive diagnostic tools will help to differentiate patient subgroups and to individualize health care. With these innovations, it is hoped to raise efficiency in health systems all over the world.

In recent decades, a lively scene of innovative biotechnology and pharma companies has put Austria on the European life science map. With their excellent skilled staff and their broad technical and scientific expertise, these companies can play a pivotal role in developing the medicine of the future. Located at the heart of Europe, they form a hub for the whole continent and act as an interface between east and west.

Biotechnology and pharma display dynamic rate of growth

The Austrian biotechnology and pharma industry is growing at a tremendous pace. New businesses are being set up on almost a monthly basis. In the last two years, 17 new biotechnology and 3 new pharma companies became operative. The significance of biotechnology and pharma in Austria is expected to increase even further in years to come as a result of this stable growth. It goes without saying that the sector reached a critical mass within a very short period and has become a major economic factor as an innovation engine for the health care sector. According to the survey, a total of 288 companies are active in the fields of biotechnology and pharma. This figure includes the so-called 157 'primary biotechnology and pharma companies' that consist of the 'dedicated biotechnology companies' and the 'other biotechnology active and pharma companies' (for more information see further chapters) and the 131 specialized service providers, suppliers, and sales and distribution offices (for methodology see page 40).

All in all, the 288 biotechnology and pharma companies generated approximately 10 billion euros of turnover in 2012. The portion of the primary companies was equally high as the portion of the supply, service and sales companies, namely in each case 5 billion euros.

In 2012, the staff employed by the biotechnology and pharma companies worked mainly in the primary companies: 18,057 of the 25,000 people earning their living in this field can be allocated to this category. This means, on the other hand, that supply, service and sales companies by comparison have 7,133 employees on their payroll.

These figures illustrate the high degree of innovation that exists in the Austrian biotechnology and pharma sector. The following chapters will shed a more specific light on the developments in the different parts of this sector.

Number of companies in the biotechnology and pharma sector	288
Number of primary companies (dedicated biotechnology companies and other biotechnology active and pharma companies)	157
Number of other companies (service providers, suppliers, sales companies)	131
Number of employees in the biotechnology and pharma sector	25,190
Number of employees in primary companies	18,057
Number of employees in other companies (service providers, suppliers, sales companies)	7,133
Turnover in the biotechnology and pharma sector	EUR 10.33 bn
Turnover of primary companies	EUR 5.11 bn
Turnover of other companies (service providers, suppliers, sales companies)	EUR 5.22 bn

Table 2: Key figures of the biotechnology and pharma sector

Map of the Biotechnology and Pharma Sector
Distributed According to Federal States

Number of companies in the biotechnology and pharma sector

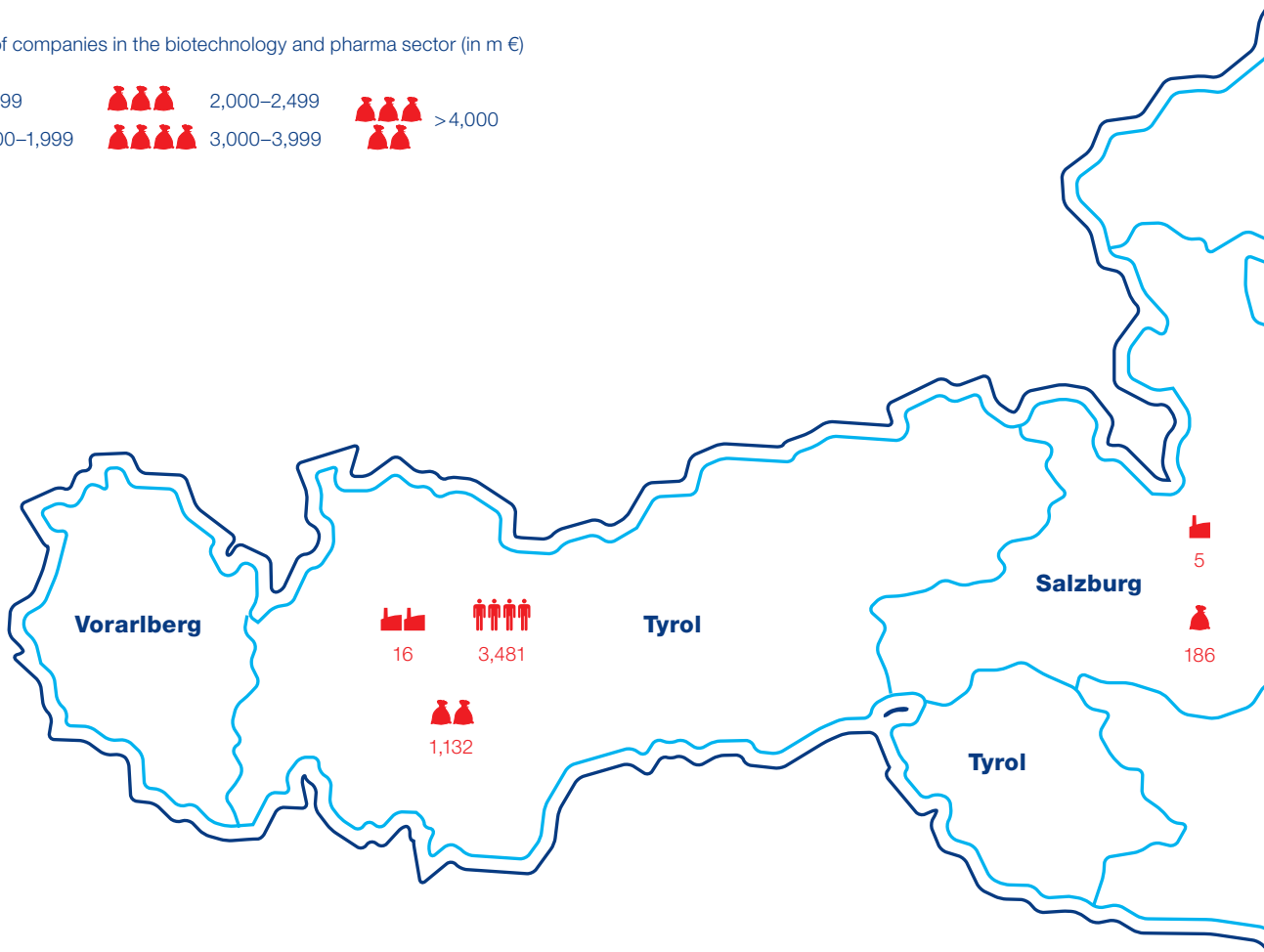
0–9
10–19
20–29
30–39
>40

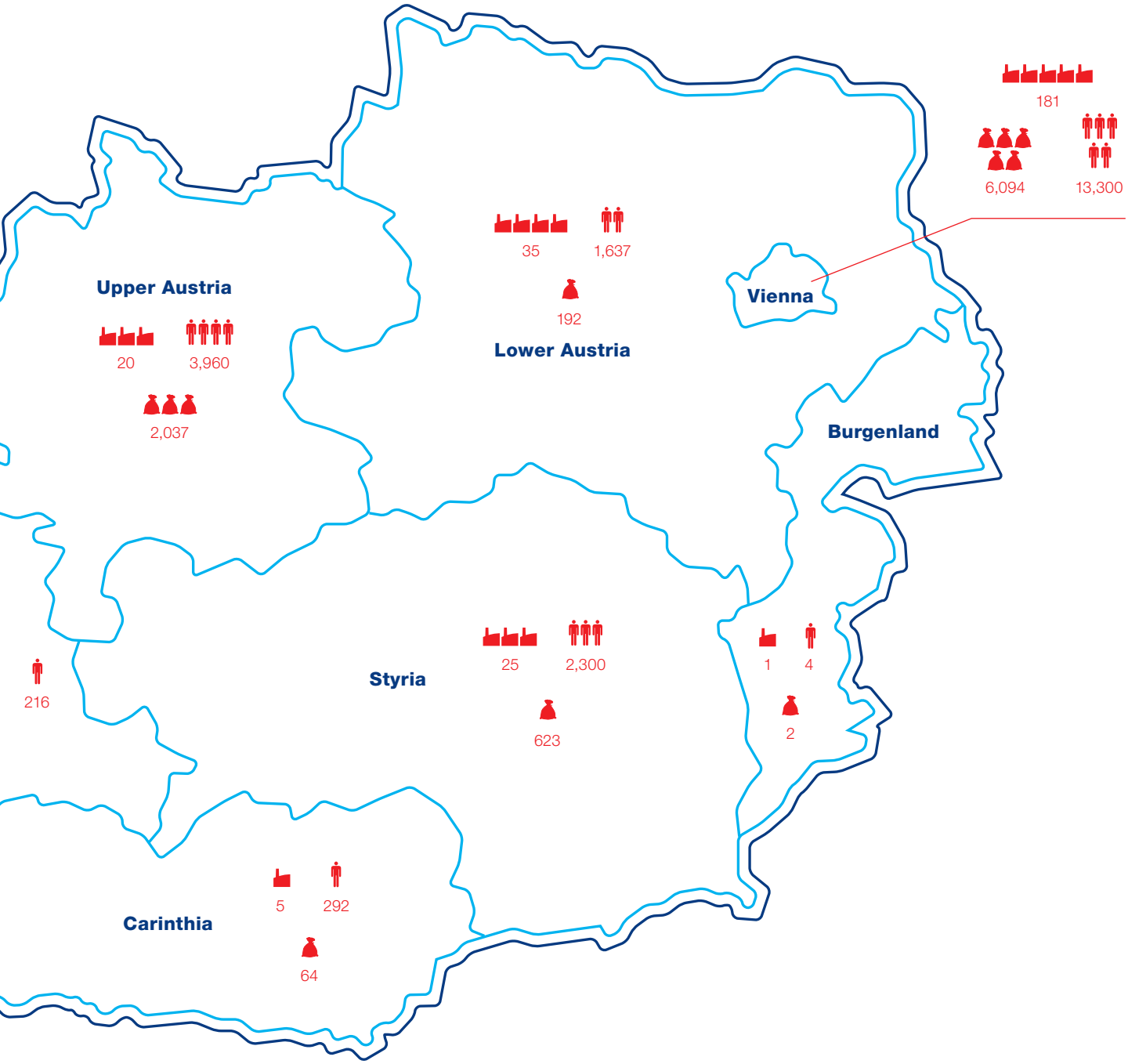
Number of employees in the biotechnology and pharma sector

0–999
1,000–1,999
2,000–2,990
3,000–3,990
>4,000

Turnover of companies in the biotechnology and pharma sector (in m €)

0–999
1,000–1,999
2,000–2,499
3,000–3,999
>4,000




181
6,094
13,300
35
1,637
192
Lower Austria
Vienna
Upper Austria
20
3,960
2,037
Burgenland
25
2,300
623
Styria
216
1
4
2
5
292
64
Carinthia

2.1 Dedicated Biotechnology Companies
Structure and Employees

The biotechnology sector in Austria has been thriving in recent years. In 2012, there were 95 companies occupied wholly or for the most part with biotechnology. This is a marked increase (+23%) compared to 2010, when only 77 companies in Austria were counted as 'dedicated' biotechnology companies according to the definition of the Organisation for Economic Cooperation and Development (OECD).

Of 18 dedicated biotechnology companies included for the first time in this survey, ten were set up in 2011 and seven in 2012. This is an acceleration compared to 2010. Only five new companies were set up in that year. Four companies were not operational anymore (2010: 2).

The Austrian biotechnology sector remains suprisingly young due to stable growth – the average dedicated biotech company is just eight years old. 17 companies were set up before 2000.

The number of employees grew along with the number of companies. In 2012, a total of 1,565 employees worked for dedicated biotechnology companies (2010: 1,470). 928 of these employees were female, a 56% share (2010: 56%).

Small and medium-sized enterprises dominate the field

Most of the Austrian biotech companies are small in size. In fact, 94 of the 95 dedicated biotech companies included in this survey fall into the EU-defined category of small and medium-sized enterprises (SMEs), i.e. having less than 250 employees.

As is characteristic for young and growing industries, very small companies dominate the field. About half of the Austrian dedicated biotechnology companies (53.7%) have fewer than ten employees on their books. The second major group of companies employ between ten and fifty (37.9%). There are more small firms compared to the situation back in 2010, when both groups were of equal size (1–9: 46.8%, 10–49: 44.2%).

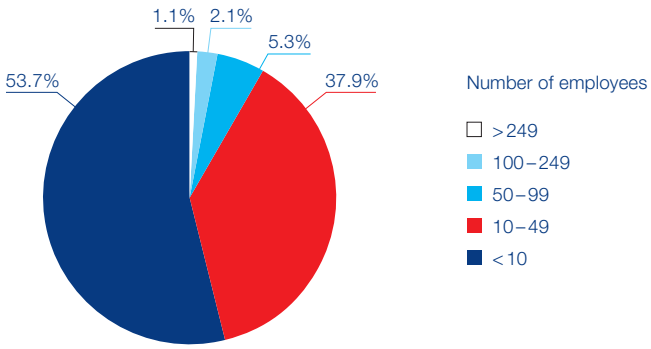


Figure 1: Size structure of dedicated biotechnology companies

Larger dedicated biotechnology companies are the exception in the Austrian biotechnology sector. Eight firms reach this size. Five companies employ a staff of 50 to 99, two companies have 100 to 249 employees on their payroll. Only one company employs more than 250 staff. Exceeding this threshold, it is considered a large-scale enterprise according to EU definitions.

	2010	2012
Number of dedicated biotechnology companies	77	95
Number of employees in dedicated biotechnology companies	1,470	1,565
Turnover of dedicated biotechnology companies	EUR 161 m	EUR 187.2 m
R&D expenditure of dedicated biotechnology companies	EUR 173 m	EUR 131.8 m
Total financing of dedicated biotechnology companies	EUR 79 m	EUR 98.1 m

Table 3: Key figures of the dedicated biotechnology companies

2.1 Dedicated Biotechnology Companies
Fields of Activity

Biotechnology is a typical cross-sectional technology. It is used in a wide range of applications and many different kinds of industry. Aimed at bringing some order into the field, four major branches are differentiated in this survey.

Medical biotechnology most important

Companies in the area of medical or 'red' biotechnology search for new therapies, vaccines, biomarkers or develop new diagnostic techniques. Globally, medical biotechnology represents the most important area of application for biotechnology, and this holds true for Austria as well. 68 of 95 dedicated biotech companies (71.6%) in the country operate in this field, developing new treatments in a wide range of different indications (see page 18). Compared to 2010, the sector has gained even greater importance: back then, only 52 Austrian dedicated biotechnology companies (67.5%) were focused on the health care business.

Some companies provide services mainly for other biotechnology firms or work for them as suppliers. These businesses are counted as 'non-specific applications'. Pure contract research or manufacturing without own in-house development activities is also attributed to this category. With 17 firms (17.9%), it is the second largest segment of the Austrian biotechnology sector.

Industrial or 'white' biotechnology is dedicated to the development of new technical enzymes, new biomaterials and new biotechnological production processes. With only eight Austrian companies (8.4%) active in this field, the figure does not reflect the sector's true significance (2010: six companies, 7.8%). Since white biotechnology is primarily relevant for industry, a large number of activities do not take place in the dedicated biotechnology companies themselves, but rather in biotechnologically active large-scale enterprises (see page 22).

Plant or 'green' biotechnology aims at developing new biotechnological procedures to improve the plant health and crop yield of ornamental and useful plants in addition to algae. Only two Austrian companies (2.1%) have been active in this field as already in 2010.

Mirroring the sector as a whole, most of the start-up companies, which became active in the last two years, have focused their business models on medical biotechnology (12). Non-specific applications (4) and industrial biotechnology (1) have played only a minor role.

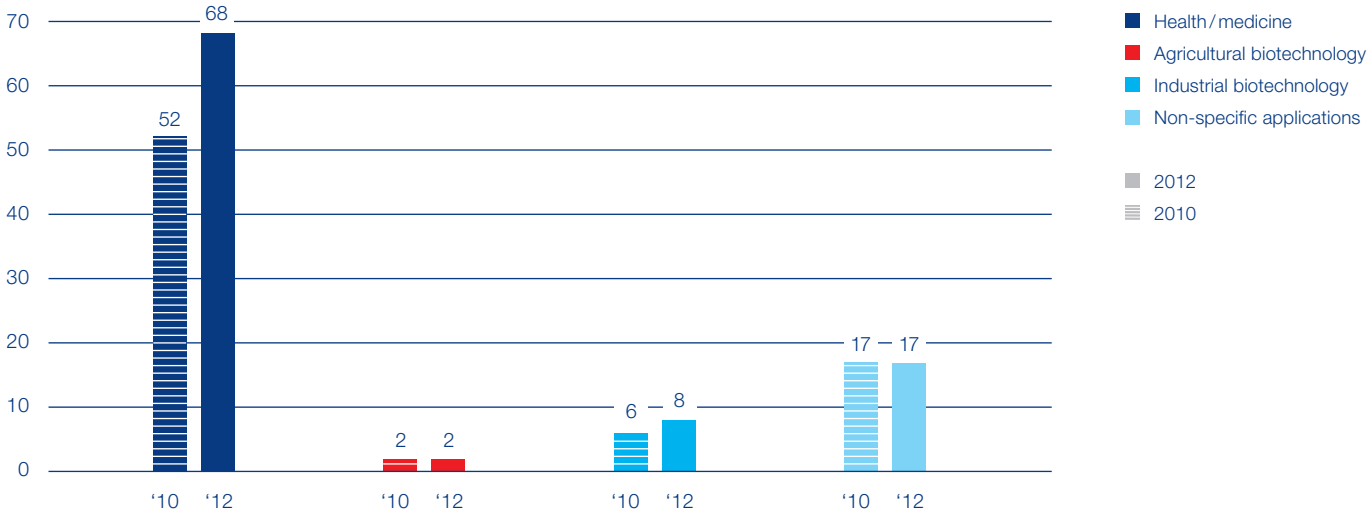


Figure 2: Main areas of activity in dedicated biotechnology companies

2.1 Dedicated Biotechnology Companies
Clinical Pipeline and Indications

The future success of most – if not every – biopharmaceutical company is greatly determined by its clinical pipeline. The number and quality of the drug candidates found there is of the utmost importance: If the pipeline is good, the prospects of the company are likely to be brighter. It is easier to attract additional funding and new investors if the development products are likely to reach market and to ameliorate as yet unmet medical needs.

Clinical pipeline has grown

In 2012, the 68 Austrian dedicated biotechnology companies focused on health/medicine had a total of 92 compounds in preclinical development or in one of the three phases of clinical development (2010: 52 companies, 80 compounds). These product candidates were only counted a single time even if approvals had been sought in more than one market or if studies were being carried out in a number of indications. Compared to 2010, the pipeline has grown by 12 compounds (+15%). About two thirds (63) of the substances were biopharmaceutical drug candidates, the remainder (29) small molecules. There has been a shift from biopharmaceutical to chemical compounds in the last two years. Back in 2010, there were 66 new biopharmaceutical drugs and only 14 small molecules under development.

The majority of drug candidates are in the preclinical phase: A total of 41 biopharmaceutical candidates and 25 small molecules are in this early development stage. 22 biotherapeutic agents and four small molecules have reached the more advanced stages of drug development and are being tested in humans.

Biopharmaceutical development projects matured

A total of 12 compounds (10 biotherapeutic agents, 2 small molecules) are being tested in clinical phase I trials; 11 other compounds (9 biotherapeutic agents, 2 small molecules) have made it into phase II. A set of three biopharmaceutical drug candidates has reached the final phase III.

The biopharmaceutical pipeline has matured when compared to 2010. At that time, 11 active ingredients were in phase I, 9 in phase II. Two years ago, no substance was in late stage clinical testing.

Cancer and infections are research priorities

Austrian dedicated biotechnology companies focus their drug development on several indications with high unmet medical needs. The International Statistical Classification of Diseases and Related Health Problems (ICD-10) is used to group the development programs. Several main categories can be distinguished depending on which organ is affected by a disease and on the drug candidate's site of action.

In this survey, a total of 20 companies, almost a third of all Austrian dedicated medical biotechnology companies (29.4%), reported working on a compound dedicated to the treatment of neoplasia, such as solid tumors.

Drugs for the treatment of infectious diseases play an equal big role. 20 companies (29.4%) had ongoing research programs in this indication in 2012. Eight companies (11.8%) developed compounds for the treatment of respiratory system diseases, making it the third largest area of research. According to the ICD-10 classification scheme, many anti-

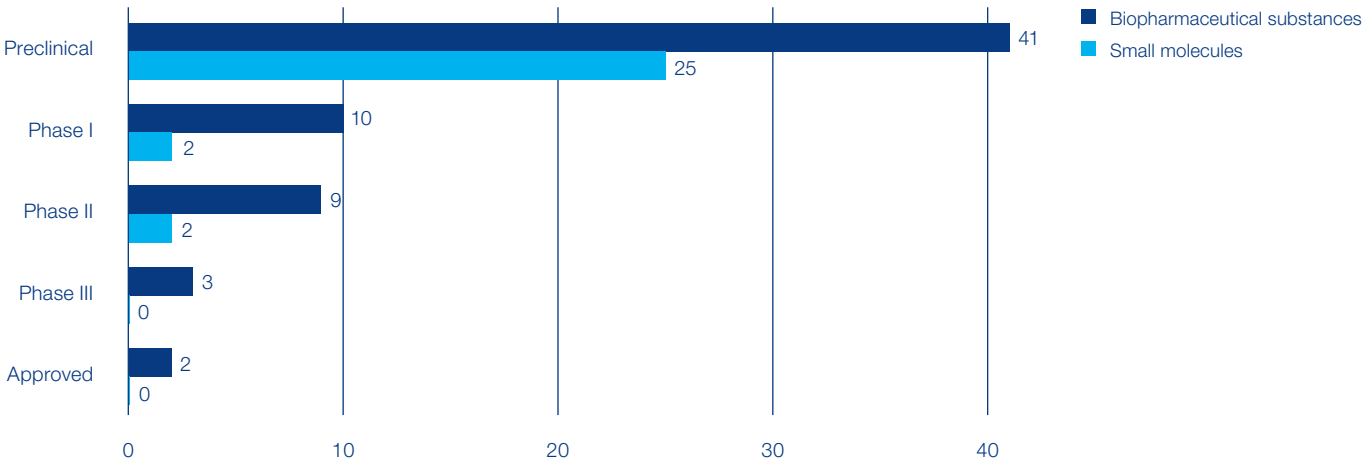


Figure 3: Drug candidates of dedicated biotechnology companies

Company	Drug candidate	Indication
Phase I		
AFFiRiS AG	AD01 AD03 PD01 ATH03	Alzheimer's disease Alzheimer's disease Parkinson's disease Atherosclerosis
BIRD-C GmbH	1 candidate	Cancer (not further specified)
LIFE RESEARCH Technologies	PROCURE	Ovarian epithelial cancer
Nabriva Therapeutics AG	BC-7013	Uncomplicated skin and skin structure infections (uSSSI)
PDC Biotech GmbH	PDC31	Primary dysmenorrhea
ProtAffin Biotechnologie AG	PA401	Anti-inflammatory product (COPD, CF, ALI/ARDS, GDF)
Valneva SE (former Intercell AG)	IC47 IC84	Pneumococcal infections Clostridium difficile infections
Zytoprotec GmbH	PD-protec™	Peritoneal dialysis
Phase II		
Activartis Biotech GmbH	AV0113	Glioblastoma multiforme
AFFiRiS AG	AD02	Alzheimer's disease
APEIRON Biologics AG	APN301 APN201 APN01	Neuroblastoma and other cancers Inflammatory skin conditions Acute lung injury (ALI)
APEPTICO Forschungs- und Entwicklungs GmbH	AP301	Acute lung injury (ALI)
Biomay AG	BM32	Grass pollen allergy
Innovacell Biotechnologie AG	ICEF15	Fecal incontinence
Nabriva Therapeutics AG	BC-3781	Skin and skin structure infections
Valneva SE (former Intercell AG)	IC43 IC41	Pseudomonas aeruginosa infections Hepatitis C
Phase III		
APEIRON Biologics AG	APN311	High-risk neuroblastoma
Innovacell Biotechnologie AG	ICES13	Stress urinary incontinence
Valneva SE (former Intercell AG)	IC51	Japanese encephalitis vaccine

Table 4: Drug candidates of dedicated biotechnology companies in clinical phase I – III in 2012

allergy drugs are grouped in this category. Austrian dedicated biotechnology companies have two drug candidates of this kind under development in clinical phase II.

Almost as much attention is given to diseases of the blood and immune system where 7 companies (10.3%) have initiated clinical development programs.

Endocrine and metabolic diseases (5 active companies, 7.4%), diseases of the musculoskeletal system (4 active companies, 5.9%) and diseases of the circulatory system (5 active companies, 7.4%) form other areas of research.

In 2012, four Austrian dedicated biotechnology companies (5.9%) had active ingredients under development for the treatment of diseases of the nervous system. The same number of firms worked on cures for diseases of the genitourinary system (4 companies, 5.9%).

Some Austrian dedicated companies are working on therapies for diseases of the skin and subcutaneous tissue (4 companies, 5.9%) or are focusing on diseases of the eye and ear (1 company, 1.5%). One company is active in the field of pregnancy and childbirth (1.5%).

Indications	Number of companies	Percentage
Infectious diseases	20	29.4%
Neoplasms	20	29.4%
Diseases of the respiratory system	8	11.8%
Diseases of the blood and the immune system	7	10.3%
Diseases of the circulatory system	5	7.4%
Endocrine and metabolic diseases	5	7.4%
Diseases of the genitourinary system	4	5.9%
Diseases of the musculoskeletal system	4	5.9%
Diseases of the nervous system	4	5.9%
Diseases of the skin and subcutaneous tissue	4	5.9%
Diseases of the digestive system	2	2.9%
Diseases of the eye and the ear	1	1.5%
Pregnancy and childbirth	1	1.5%

Table 5: Overview of indications in the focus of medical biotechnology companies

2.1 Dedicated Biotechnology Companies
Turnover and R&D Expenditure

Mirroring the increasing numbers of dedicated biotechnology companies in Austria, the sector has shown significant growth in the last two years. Turnover in the 95 Austrian dedicated biotechnology companies rose to 187.2 million euros in 2012 (+16%). Back in 2010, it was only about 161 million euros.

Turnover in red biotechnology passed 100 million euros

Not unexpectedly, the most important growth has taken place in 'red' biotechnology. With 113.7 million euros, turnover has passed the 100 million euros mark for the first time in this survey (2010: 97 million euros). Turnover in the medical sector has grown a little more than in the overall dedicated biotechnology market (+17%).

Sales in 'white' or industrial biotechnology stood at around 21 million euros in 2012. The strong growth in this field (+24%) in the last two years (2010: 17 million euros) reflects the increasing importance of biotechnological solutions for industrial processes. Only a small proportion of turnover in Austria is in 'green' biotechnology.

Aside from the three fields of medicine, industry and agriculture, there is also a range of companies offering unspecific services that do not belong to any of these fields. These services, processes, and laboratory reagents generated around 52 million euros in 2012. The turnover of

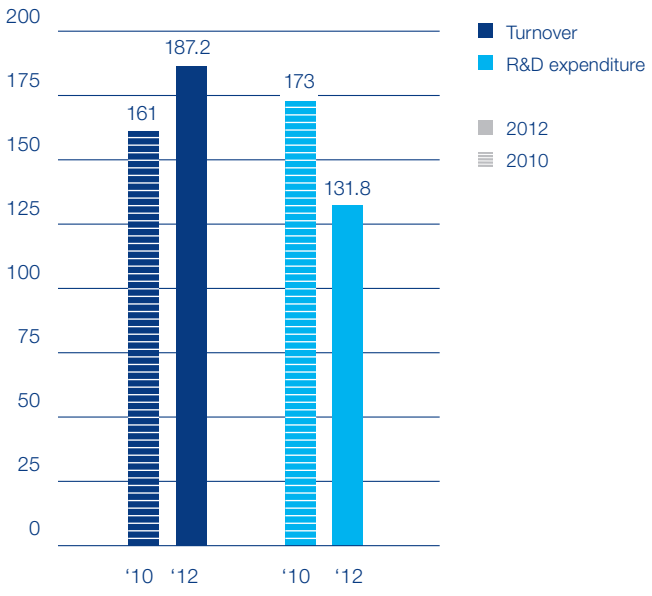
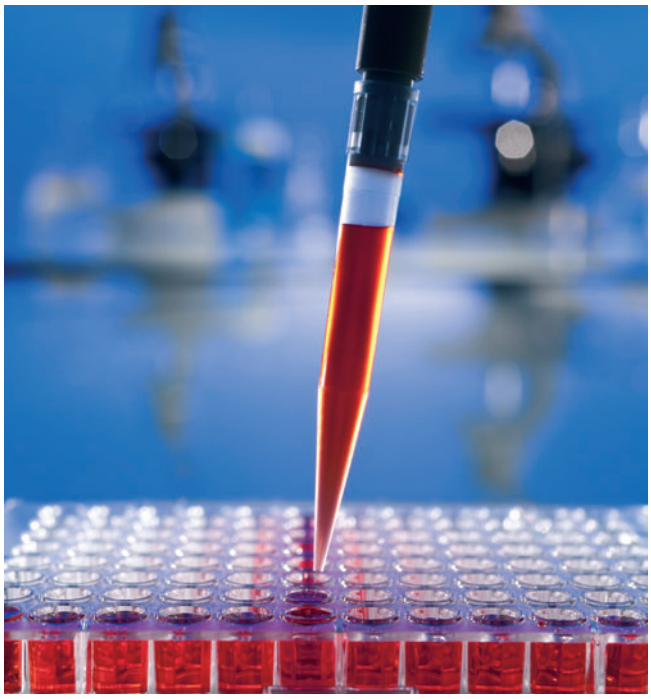


Figure 4: Turnover and R&D expenditure of dedicated biotech companies



the companies offering non-specific applications followed a similar trend to the market as a whole over last two years (+15.8%). As in 2010, service providers accounted for 27.9% of total turnover among the dedicated biotechnology companies.

70% of turnover invested in research and development

Biotechnology is an exceptionally research-intensive industry. Companies often have to spend millions of euros in research and development (R&D) before they can bring a product to the market. This is highlighted by the 131.8 million euros – 70% of turnover – invested in R&D by dedicated companies in 2012 (2010: 173 million euros). Research expenditures are not incurred on a linear basis. Rather, they rise – especially in medical biotechnology – proportional to the project's maturity. This is why wide variations in the R&D expenditure for the entire sector may arise within a few years.

Given the high costs associated with the development of new drugs, the largest sums are invested in medical biotechnology. This sector alone accounts for 121.6 million euros of R&D spending (2010: 161 million euros). The area of non-specific applications lags much further behind with about 5.8 million euros of R&D spending (2010: 9 million euros). Industrial biotechnology invested 4.3 million euros in R&D projects (2010: 3 million euros).

2.1 Dedicated Biotechnology Companies
Financing

The euro crisis placed a stranglehold on many European economies. Nevertheless, the Austrian dedicated biotechnology companies showed a strong performance in financing their businesses. Funding totaling around 98.1 million euros flowed into the sector last year, including funds from venture capitalists, institutional and private investors, grants, loans and other contributions. Financing through the stock exchange in particular has caused the total to rise in the last two years (2010: 79 million euros). Added to this, some biotechnology companies succeeded in closing impressive deals with major corporations – another step towards securing their long-term business development.

Significant increase in loans

In 2012, loans were an important financing option. This is demonstrated by the 22.9 million euros loaned by the banks to mainly small firms (2010: 9 million euros). The increase (+154%) in the amount loaned is due primarily to a capital measure introduced by one company. In recent years, small and medium-sized enterprises in particular have used this instrument.

Private investors and business angels were responsible for investments of 19.8 million euros, thereby reinforcing their ongoing significance for the sector. Compared to 2010, however, the sum decreased sharply by 40% from 35 million euros.

Venture capital continues to be an important source of funding

It has become increasingly difficult in the last two years for biotechnology companies to attract venture capital investments. In 2012, a total of 17.1 million euros flowed into the sector this way (-10%), whereas in 2010, venture capitalists invested 19 million euros.

Capital increase at the stock market are a further source of money. One Austrian dedicated biotech company raised 15.2 million euros from new and existing shareholders. A marked change compared to the situation back in 2010, when capital increases played no role at all in business financing.

In addition, many Austrian biotech companies rely on funding from federal and state resources to finance their businesses. The 95 companies attracted 21.3 million euros of funding in 2012. This source has become even more important in the last two years (+42%). Back in 2010, grants and subsidies from the public sector amounted to 15 million euros.

Other unspecified forms of financing brought in a further 1.8 million euros for the biotech companies (2010: 1 million euros).

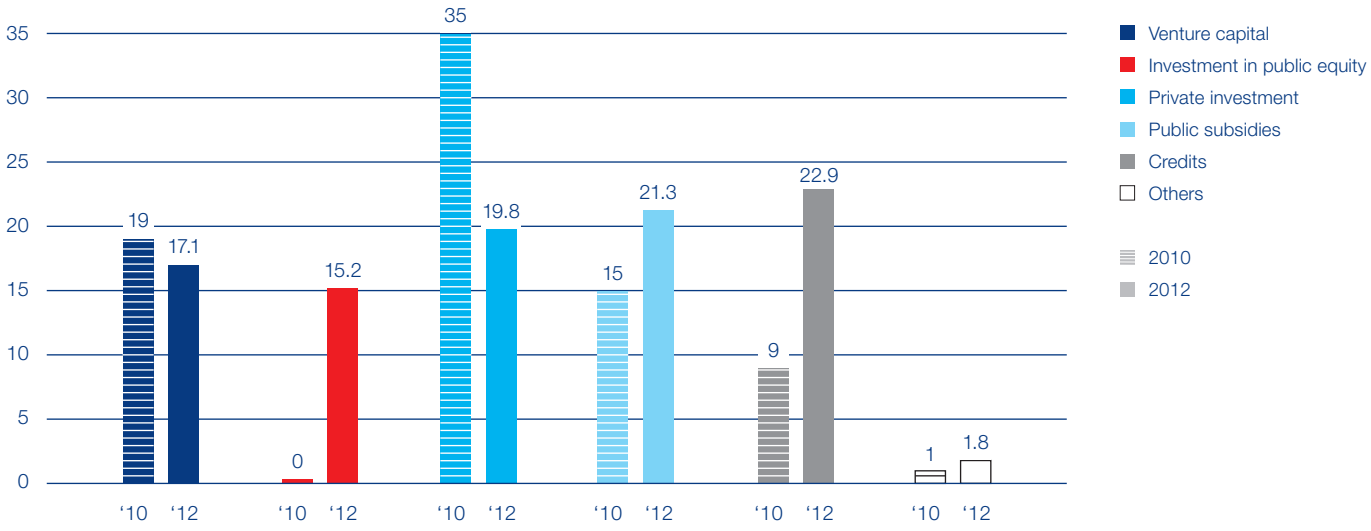


Figure 5: Sources of financing for dedicated biotechnology companies

2.1 Dedicated Biotechnology Companies
International Overview

Biotechnology is considered an important strategic field for future development and investment in most industrialized countries. Austria is certainly no exception to this. The Austrian Council for Research and Technology Development (RFTE), which has supported government efforts since 2000, has presented a national research strategy that defines biotechnology as one of ten priority areas of research to enjoy special support.

Thousands of companies have emerged worldwide as a result not only of scientific excellence and the huge commercial opportunities presented by the many biotechnological discoveries made in recent decades but also because of political support. This holds especially true for Europe and Austria. In 2005, the European Commission formulated its vision of a knowledge-based bioeconomy (KBBE). Since then, measures have been taken at various levels to transform life sciences knowledge into new, sustainable, ecoefficient and competitive products.

Austria has been at the forefront of this process in recent years. The commitment of Austria's administration to fostering biotechnology research and development and to supporting companies active in this field has already been fruitful. With 95 dedicated biotechnology companies, the sector has shown an impressive growth rate of more than twenty percent in the last two years (+23%).

Highly committed to R&D

From an international perspective, the US remains the leading country for biotech. Some 2,300 companies are based in the US; many of these are of global significance. European biotechnology counts among the heavyweights. Despite being one of the smaller European countries, Austria's biotechnology sector is perfectly able to compete with larger economies like Germany.

This becomes clear if the key performance indicators are converted into a per capita basis. This starts with the size of the industry. At first glance, Germany, with 565 dedicated biotechnology firms, appears to lead, but this is deceptive. In Austria, there is one company per only 90,000 inhabitants, in Germany this figure rises to just more than one per 142,000. This indicates that the Austrian biotech sector is indeed a major economic factor.

The research intensity (gross domestic expenditure for research and development in relation to gross domestic product) is an accepted figure for indicating the innovative strength of a country. With a research intensity of 2.81%, Austria ranks fifth in the European Union and outperforms the average research intensity by far (2012: 2.03%). This holds true for the biotechnology sector as well. Austrian dedicated biotechnology companies spent 15.61 euros per capita (131.8 million euros in total) in 2012; in Germany, this figure fell to 11.63 euros (934 million euros). On average, Austrian dedicated biotechnology companies invest 70% of their turnover in R&D, German companies by comparison invest only 36% of their turnover. This once again highlights the strong commitment of the Austrian companies to R&D.

All in all, Austria is one of the stronger biotech nations, maintaining an international position with its numerous business start-ups and successful business stories in addition to globally renowned research facilities. This is demonstrated, among other things, by the strong presence in Austria of pharmaceutical companies that operate globally.

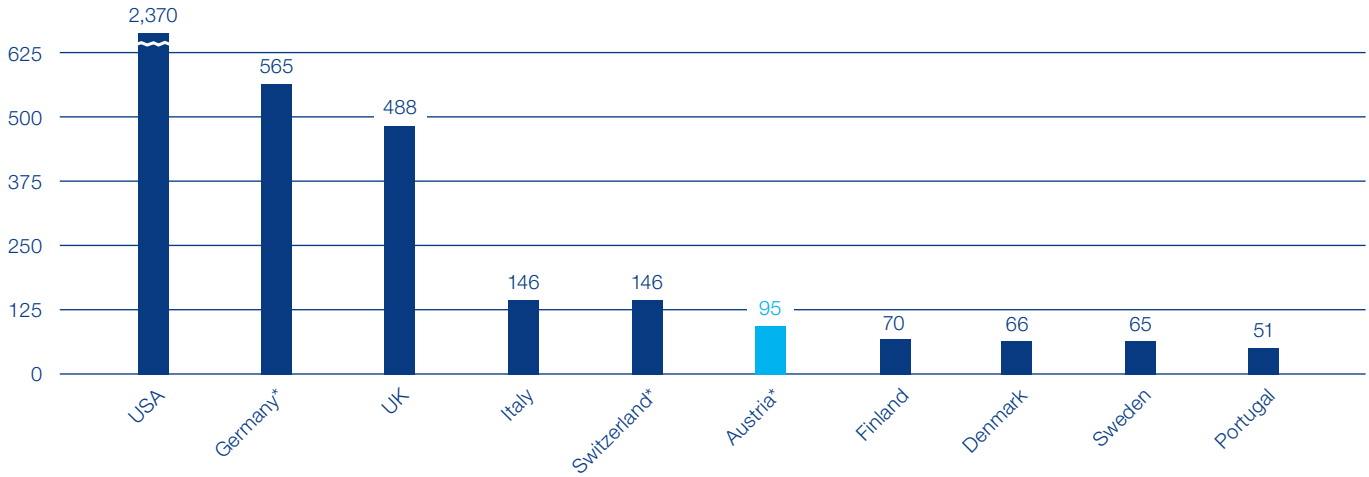


Figure 6: Number of dedicated biotechnology companies by country within the OECD Source: OECD Biotechnology Statistics 2012 | *updated from new survey 2013

2.2 Other Biotechnology Active and Pharma Companies
Structure, Employees, Fields of Activity and Turnover

Austria is home of a wide range of companies with activities that are not dedicated exclusively to biotechnology. On the one hand, these are chemical companies, foodstuff manufacturers or energy companies that may employ biotechnological techniques to improve their industrial processes but that also have non-biotechnological business areas. On the other hand, there are pharma firms which focus their business model exclusively on chemically synthesized drugs for human or veterinary use or on both biopharmaceutical and traditional pharmaceutical drugs.

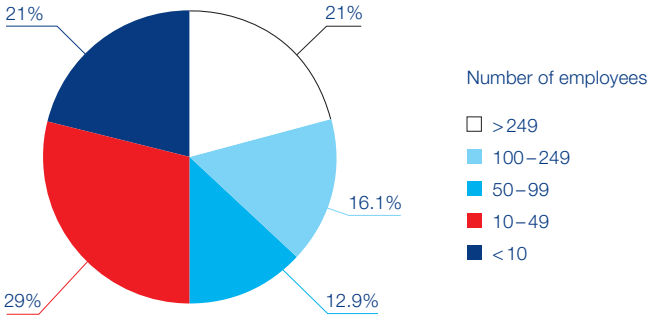


Figure 7: Size structure of other biotechnology active and pharma companies

From tradition to innovation

Against this background, Austria's pharma scene is composed of traditional firms historically rooted in the country – mostly small and medium-sized – and globally active companies using the country as a research and development or production location (for methodology, see page 42).

In 2012, a total of 62 firms could be bracketed together under the field of 'other biotechnology active and pharma companies'. More than half (34) of them have been in business for decades as they were founded before 1990. Only three companies started their business in the last two years. All the others (23) began their operational activities between 1990 and 2010.

Together, they achieved a turnover of 4.9 billion euros in 2012. With a product range that extends from base chemicals, natural antibacterials and feed additives to pharmaceutical ingredients they play an important economic role within Austrian life sciences.

With regard to the employee structure in 2012, half of the firms are rather small, with up to 50 people on their payroll. There were also eight (12.9%) medium-sized companies with between 50 and 99 employees. 23 companies (37.1%) have more than 100 people on their payroll. Among them are four globally active companies with more than 10,000 employees, for which their Austrian research and development sites are of international importance.

All 62 companies together employed 16,492 people. More than 25% of the staff – 5,893 people – were active in biotechnology-relevant business areas of these companies. This shows the relevance attributed to biotechnological techniques in a wide variety of industrial production processes in the chemical, food and pharma sectors.

Number of other biotechnology active and pharma companies	62
Number of employees in other biotechnology active and pharma companies	16,492
Number of employees in the biotech-related areas of other biotechnology active and pharma companies	5,893
Turnover of other biotechnology active and pharma companies	EUR 4,920 m

Table 6: Key figures of the other biotechnology active and pharma companies

2.3 Suppliers in the Biotechnology and Pharma Sector
Structure, Employees, Fields of Activity and Turnover

Due to the complex process of developing and producing drugs and diagnostics, the biotechnology and pharma industry tends to divide the wide range of labor which is needed during the long route from bench to bedside. Therefore, the majority of the sector is dependent on efficient suppliers. This is true not only of the group of companies that already manufactures goods and has products on the market. Even research-based biotechnology or pharmaceutical businesses would not be able to operate without continuous support from suppliers.

A broadly diversified product portfolio

The field of activities within the suppliers sector is as diversified as the biotechnology and pharma sector itself. The product portfolio includes a huge variety of products, such as:

- bio-based pesticides and biocides used for plant protection
- bulk chemicals, specialties and reagents used for basic research
- complete laboratory kits used for diagnostic testing
- consumables and disposables
- enzymes and ready-to-use solutions, used for cell culture
- laboratory equipment
- large devices
- technical enzymes and microbes used for biotechnology-based industrial processes

In total, there are 14 companies in Austria dedicated to one of these business activitities. Together they achieved a turnover of 481 million euros in 2012.

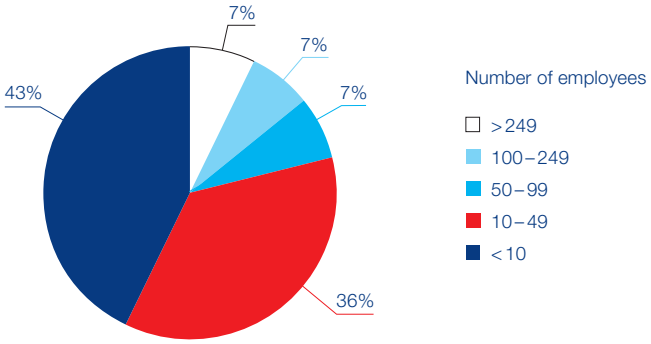


Figure 8: Size structure of suppliers in the biotechnology and pharma sector

Suppliers tend to specialize

A significant part of the biotechnology and pharma job market is related to the supplier companies. Taken together, these firms employed a total of 1,370 staff in 2012. There are lots of opportunities for companies to specialize not least due to the large variety of products. This is why quite a number of small enterprises operate in Austria.

Six of the 14 companies (43%) have no more than 9 employees, making it the most common business size for a supplier dedicated to serving the biotechnology and pharma sector. The 5 companies (36%) next in size have between 10 and 49 staff on their books. Larger suppliers are rare in Austria: there is only one company (7%) that employs 50 to 99, 100 to 249 or more than 249 staff respectively.

Number of suppliers in the biotechnology and pharma sector	14
Number of employees of suppliers in the biotechnology and pharma sector	1,370
Turnover of the suppliers in the biotechnology and pharma sector	EUR 481 m

Table 7: Key figures of the suppliers in the biotechnology and pharma sector

2.4 Service Providers in the Biotechnology and Pharma Sector

Structure, Employees, Fields of Activity and Turnover

Service providers are commissioned by biotechnology or pharma companies to do work which is not part of their core business.

The tasks for service providers vary widely and depend on the diverse customer needs. One of the biggest markets in this sector is served by clinical research organizations (CROs) which help biotechnology and pharma companies to closely follow guidelines as defined in Good Clinical Practice (GCP). Service providers active in this field support the firms during clinical research from phase I to III.

Another important activity is related to technical requirements in the production of drugs where there is the need to adhere strictly to particular aspects of the regulations regarding Good Manufacturing Practices (GMP). This requires not only extensive technical knowledge but also comprehensive documentation, qualification and validation of all processes according to current GMP regulations. A significant proportion of Austrian service providers plan the process management for complex chemical or biotechnological production chains. Further services relate to the management and statistical analysis of data which is generated by extensive clinical trials or affects special analytical competences needed in the biotechnology and pharma sector.

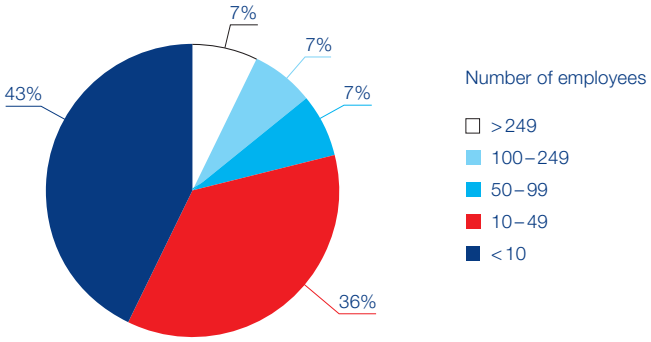


Figure 9: Size structure of service providers in the biotechnology and pharma sector

Small companies rule the field

In 2012, there were 14 Austrian companies specialized in providing services to biotechnology or pharma firms. Their turnover amounted to 95 million euros in total.

The business of providing services for the biotech and pharmaceutical industry is relatively small. It employs 783 people, mostly in small businesses. Six companies (43%) only employ up to nine staff. The five next largest companies (36%) operate with a staff of more than 10 but less than 50. There are three larger companies (21%) in the service sector: one of them has between 50 and 99 employees, the other more than 100 but less than 250 staff. One large-scale enterprise in this field has more than 250 employees.

Number of service providers in the biotechnology and pharma sector	14
Number of employees of service providers in the biotechnology and pharma sector	783
Turnover of the service providers in the biotechnology and pharma sector	EUR 95 m

Table 8: Key figures of the service providers in the biotechnology and pharma sector

2.5 Sales and Distribution Companies in the Biotechnology and Pharma Sector
Structure, Employees and Turnover

Sales and distribution are important functions within companies which have succeeded in developing a product for the market – this is especially true for the pharma business. If a company is focused exclusively on distributing goods and it has no other division – such as research and development or production for instance – it is considered to be a sales and distribution company within the scope of this study.

Unique geographical location makes Austria the gateway to Europe

Several globally active pharma or biotechnology companies have established sales and distribution offices in Austria because of its central geographical location at the heart of Europe. Often enough, the Austrian-based subsidiaries are used to penetrate not only the Austrian market itself but also other European countries or even Europe as a whole. Austria's unique history and well-established infrastructure makes it a particularly suitable gateway to countries in Eastern and Central Europe.

In 2012, there were a total of 103 sales and distribution offices specialized in biotechnology and pharma operating right across Austria. 64 of them were affiliated to pharmaceutical products, 39 companies focused on biotechnological products. However, the division between the segments is fluent rather than fixed. In many cases, the sales and distribution companies offer both types of products. From an economic point of view the companies constitute a significant economic factor. Turnover of all Austrian sales and distribution offices specialized in biotechnology and pharma aggregated to 4,647 million euros in 2012.

With regard to the job market, the sales and distribution sectors also play an important role in the biotech and pharma business. Together, the 103 companies had a workforce of 4,980 employees in 2012. Although many of these people may work as sales representatives in the field, the figure includes all other functions too.

Most sales and distribution offices focus on human and animal health care

As usual in the sales and distribution sector in general, the specific fields of activity are highly diversified. The range extends from fairly simple products – such as a cough syrup which has been produced according to the same recipe for decades – to quite complex high-tech products, such as state-of-the-art anti-cancer therapies composed of fully humanized multifunctional antibodies.

In addition to biopharmaceutical or chemically synthesized drugs, Austrian sales and distribution offices supply plant-based phytopharmaceuticals or homeopathic drugs as well as dietary products. In addition to selling drugs intended for human use, some companies extend their focus to veterinary medicines. A reasonable number of companies focus on selling diagnostic products certified either as an in-vitro diagnostic for human use (CE-IVD) or as a research-only tool.

The vast majority of companies that have subsidiaries for sales and distribution in Austria are active in the field of medical biotechnology and pharma. There are some companies, however, that are active in entirely different business sectors. Some focus on the distribution of pesticides and biocides. The substances are used in agriculture to protect crops and ornamental plants from vermin, harmful fungi and other pests or to increase crop yield. Other compounds might increase the growth of livestock or protect the animals from disease.

Number of sales and distribution companies in the biotechnology and pharma sector	103
Number of employees in sales and distribution companies in the biotechnology and pharma sector	4,980
Turnover of sales and distribution companies in the biotechnology and pharma sector	EUR 4,647 m

Table 9: Key figures of the sales and distribution companies in the biotechnology and pharma sector

3. Medical Technology in Austria
Overview of Primary, Supply, Service and Sales Companies

As Austria is consistently in the OECD's top ten for health expenditure as a share of the gross domestic product (GDP), health-related businesses form a cornerstone of the country's economy. In 2011, about 11% of the GDP was spent in this sector – adding up to 3,354 euros per capita.

The bottom line is that this small mountainous country has one of the world's best health care systems. Along with high-class clinics, excellent research facilities and well-trained doctors, it is also based on state-of-the-art equipment incorporating cutting-edge technology. Not only does this turn Austria into an attractive market for medical technology products, it also makes it an important location for development and production which benefits from a long tradition in the field of engineering and precision mechanics.

Fit for future – the Austrian health care system

Health care expenses are expected to rise steadily due to demographic developments with an aging population that demands more and better medical support. As Austria's health care system is financed by a mix of income-dependent social security fees, tax-financed public funds and private payments, this probably ensures that, in the future, innovations made in the fields of medical technology will also find their way to the patient in one of the 273 public and private hospitals in Austria. A CE marking (Communauté Européenne) and compliance with the Medical Devices Act ('Medizinproduktegesetz') are required for the distribution of medical technology products in Austria.

With a constant stream of new developments, medical technology in Austria is a sector which focuses not only on the present but also on the future of health care. In spite of this long history and a remarkable number of long-established companies, the sector has seen tremendous growth in recent years. There has been a whole string of new start-ups particularly in the last two decades. The average company is 17 years old – and the rejuvenation continues.

In for innovation: 435 companies, 25,000 employees

Taking a broad perspective, a total of 435 companies are active in the field of medical technology. This number includes the so-called 136 'primary medical technology companies' which are divided into the 'dedicated medical technology companies' and the 'other medical technology companies' (for methodology, see page 43). As it was also the case two years ago, the information collected about these primary companies was based on GMDN guidelines. Another major part of the medical technology business in Austria is related to suppliers, service providers and sales companies. The total number of these firms adds up to 299.

With a total of 25,000 employees, all the medical technology companies taken together are also a key economic factor. In 2012, the combined turnover of the sector was at 7.4 billion euros. 2.3 billion euros of this was generated by the primary companies, 5.1 billion euros by the suppliers, service providers and sales companies.

Number of companies in the medical technology sector	435
Number of primary companies (dedicated medical technology and other medical technology companies)	136
Number of other companies (suppliers, service providers, sales companies)	299
Number of employees in companies related to medical technology	24,990
Number of employees in primary companies	7,156
Number of employees in other companies (suppliers, service providers, sales companies)	17,834
Turnover of all companies related to medical technology	EUR 7.40 bn
Turnover of primary companies	EUR 2.26 bn
Turnover of other companies (suppliers, service providers, sales companies)	EUR 5.14 bn

Table 10: Key figures of the medical technology sector

Map of the Medical Technology Sector
Distributed According to Federal States

Number of companies in the medical technology sector

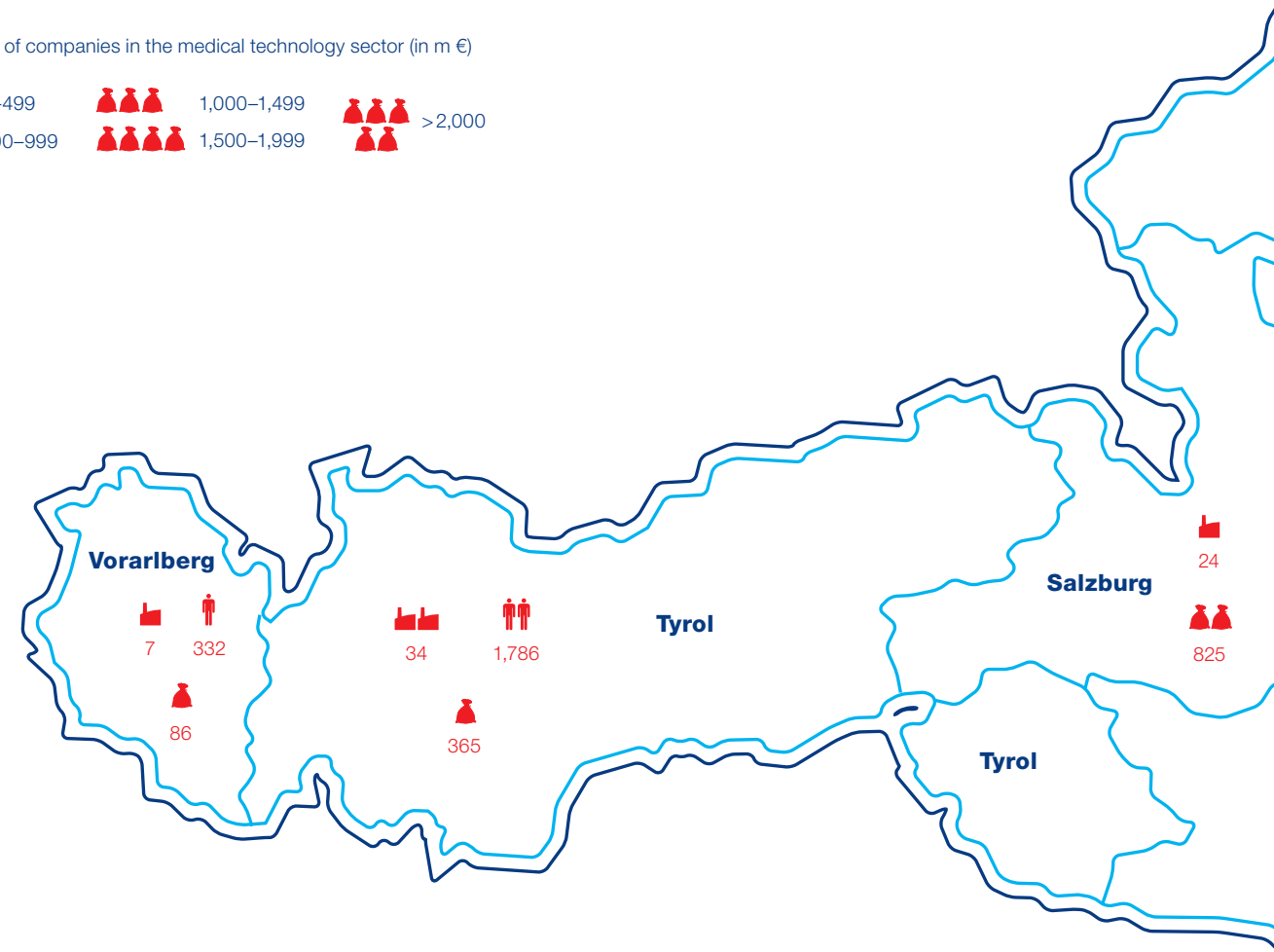
0–24
25–49
50–74
75–100
>100

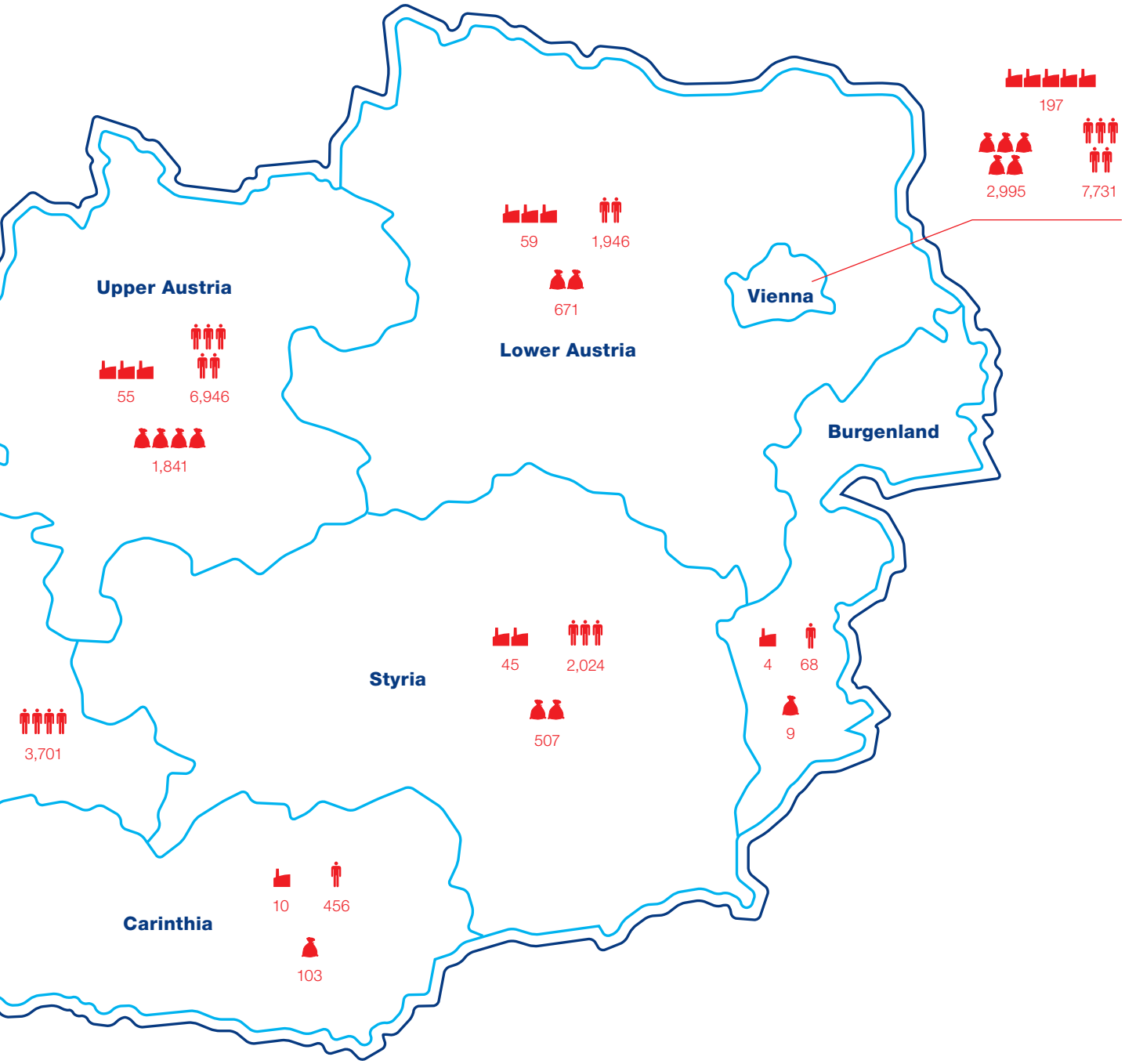
Number of employees in the medical technology sector

0–999
1,000–1,999
2,000–2,990
3,000–3,990
>4,000

Turnover of companies in the medical technology sector (in m €)

0–499
500–999
1,000–1,499
1,500–1,999
>2,000




197
2,995
7,731
59
1,946
671
Vienna
Upper Austria
Lower Austria
55
6,946
1,841
Burgenland
45
2,024
507
Styria
4
68
9
3,701
10
456
103
Carinthia

3.1 Dedicated Medical Technology Companies
Structure, Employees and Fields of Activity

Austria is home to 124 dedicated medical technology companies. Compared to the survey conducted in 2010, this figure is up by 26 enterprises. This change can be partly explained by a widened pool of data. In addition, a couple of new start-ups also joined the ranks of the Austrian medical technology landscape.

Austrian dedicated medical technology companies typically belong to the sector of small and medium-sized enterprises. All together, they employed 5,876 highly skilled and educated earners in 2012 (2010: 4,213) a figure that has grown by 39.5% during the last two years. About one sixth of the companies employ more than 50 workers. However, this situation has developed during the last two years. Compared to 2010, the number of these companies grew by one third from 15 to a total of 19. The vast majority of enterprises in the sector have a workforce of no more than 9 people (50%, 62 firms). By comparison with the data recorded two years ago, it is also possible to observe a significant increase by 17 companies. Conversely, this leads to the conclusion that there are less companies in the mid-size range. Indeed, the percentage of companies with 10 to 49 employees dropped over the last two years by one tenth (from 38.8% to 34.7%). In absolute figures, the number of companies changed from 38 (2010) to 43 (2012). Applying the EU categorization of small and medium-sized enterprises (SME), which draws the line between SMEs and large companies at a workforce of 250, only 8 Austrian medical technology firms are above this figure.

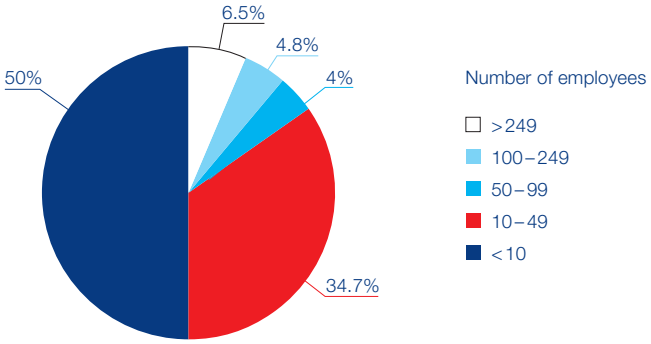


Figure 10: Size structure of dedicated medical technology companies

One step ahead: electromechanical medical technology and software development

From blood sugar tests to wheelchairs, CT scanners to syringes – medical technology companies in Austria can be found in each and every specialized field of the sector. As part of the survey, the 124 medical technology companies categorized themselves according to the classification of medical devices based on the Global Medical Device Nomenclature (GMDN). There are currently 14 product classes (see below). As was the case two years ago, the Austrian medical technology sector as a whole appears to be extremely multi-faceted. This is also true for single enterprises. Hence, instead of working in just one field, most companies place themselves in various categories.

Two areas stand out nevertheless. According to the information provided, the majority of Austrian medtech companies are active in the fields of electromechanical medical technology and software development for different medtech areas.

The area of electromechanical medical technology plays by far the most important role in the business acitivities of the dedicated medical technology companies. Almost one third (29.0%) is related to this field, among them firms focusing on ECG or EEG measurements devices.

A large number of medical technology companies have specialized in developing and offering software for medicine, telemedicine and the e-health field. A quarter of the companies (27.4%) identified themselves in the survey as having skills and products in this category. The companies'

	2010	2012
Number of dedicated medical technology companies	98	124
Number of employees in dedicated medical technology companies	4,213	5,876
Turnover of dedicated medical technology companies	EUR 729 m	EUR 1,270 m
R&D expenditure of dedicated medical technology companies	EUR 93 m	EUR 104.2 m
Total financing of dedicated medical technology companies	EUR 37 m	EUR 26.8 m

Table 11: Key figures of the dedicated medical technology companies in Austria

products include, for example, software solutions that enable clinical personnel to monitor real-time localizations of patients, establish an emergency call system and work as a protection system for disoriented patients.

Almost one sixth of the companies (15.3%) assigned themselves to the category of consumables. They manufacture products that are used for sampling and storing body fluids such as blood and urine including, for example, cannulas and small plastic tubes. Instead of focusing on the lab market, other companies aim at providing hospitals with bandaging material and wound treatments.

Austria also has a good standing when it comes to assistive products for people with disabilities. 14 companies (11.3%) fall into this specification. Computer-aided therapies 'Made In Austria', for example, help stroke patients with their efforts to improve their motor functions.

The Austrian medical technology sector is also well-positioned in the field of laboratory diagnostics. This is especially true for the field of in vitro diagnostic (IVD) solutions. Besides some big companies, there are also a dozen smaller ones that have specialized in IVD. Taken together, 11.3 percent of all medical technology companies work on IVD products.

As with single-use equipment, the reusable instruments category also traditionally forms a key area of medical technology. Eleven companies – or 8.9 percent of all companies – assigned their products to this category according to GMDN criteria. Among them were companies that produce instruments for ventilation technology and cannulas for tissue biopsies. Non-active implants are developed or marketed by seven companies from Austria (5.6% of all mentions). These implants are another important element in the range of products offered by the local medical technology companies. The companies have portfolios ranging from gastric bands for the treatment of morbid obesity to orthopedic implants for trauma surgery and osteosynthesis implants such as plates, nails and screws. According to the survey, three companies (2.4% of all mentions) are working in the highly innovative field of active implantable devices – two of them are part of the largest medical technology groups in Austria. One supplies the whole world with electronic hearing aids, the other has active neuroimplants in its product portfolio – as well as neurostimulators and myoelectric arm and hand prostheses.

As can be seen in Figure 11, Austrian companies are also active in the remaining GMDN classes, such as dental devices (8.1%), hospital hardware (7.3%), diagnostic and therapeutic radiation devices (5.6%), ophthalmic and optical devices (4.8%), anesthetic and respiratory devices (3.2%) and biologically-derived devices (2.4%). On balance, the survey draws a picture of a vital and dynamic medical technology sector which has established an extremely varied range of products and harbors very promising potential for growth.

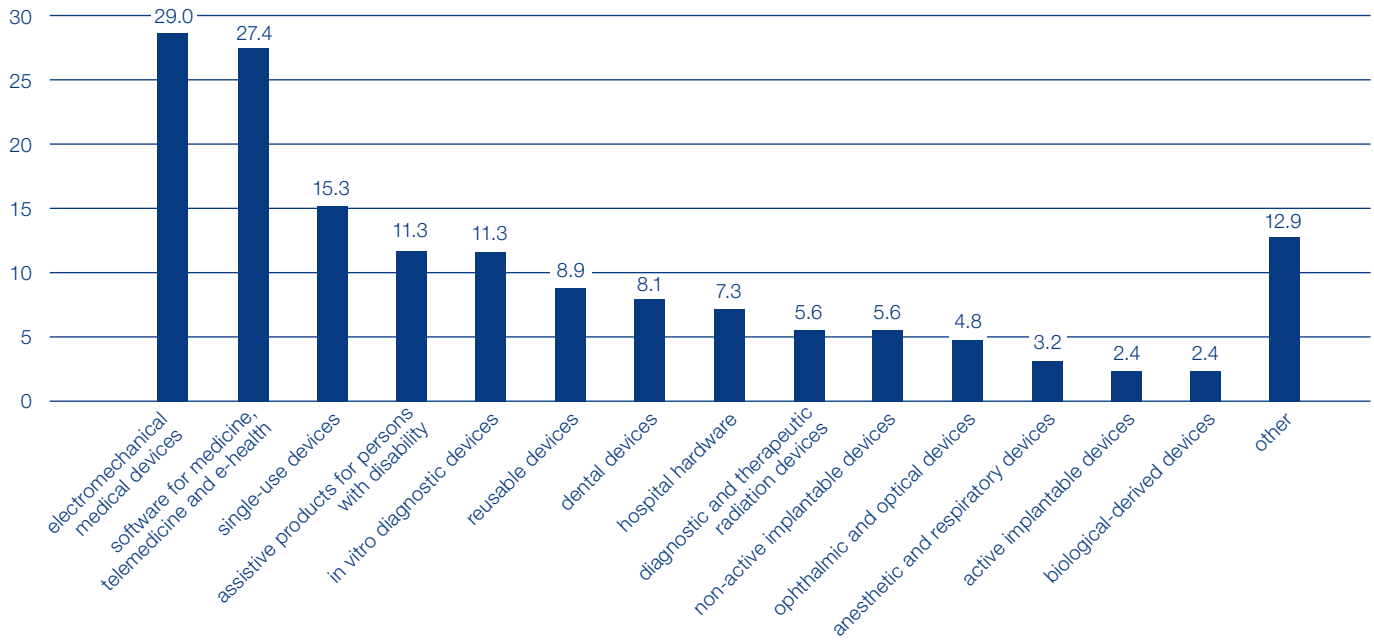


Figure 11: Main areas of activity in dedicated medical technology companies (multiple answers possible, figures in percent)

3.1 Dedicated Medical Technology Companies
Turnover and R&D Expenditure

Given the high innovation rate in the medical technology sector, the supply side has to cope with a lot of competition – and it has to convince a demand side that is always reluctant to spend. Hence, every increase in turnover is a success that underlines the importance of innovation advanced by research and development. Having invested in R&D in previous years, it is about time to reap the reward.

Turnover: adjusted data also confirms growth track

Over the last two years, the Austrian medical technology sector has seen dramatic growth in terms of turnover. Whereas medtech companies generated 729 million euros in 2010, this figure had nearly doubled in 2012. The turnover of this sector added up to 1,270 million euros. However, when considering these figures, one should bear in mind that the data of 98 companies was recorded in 2010, while in 2012 the number of companies had risen to 124. Nevertheless, the turnover per company still reveals an unmistakably positive trend: in 2010, the mean turnover per company was about 7.4 million euros, while in 2012 this value had increased by 72 percent to 12.7 million euros.

A handful of powerhouses

Among all the enterprises recorded, five have cracked the 100 million euro turnover threshold. Taken together, these well-established firms account for more than half the country's turnover in medical technology business.

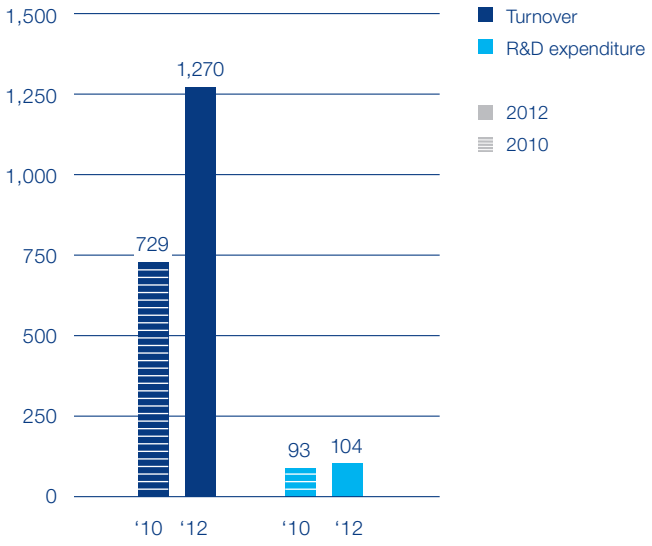
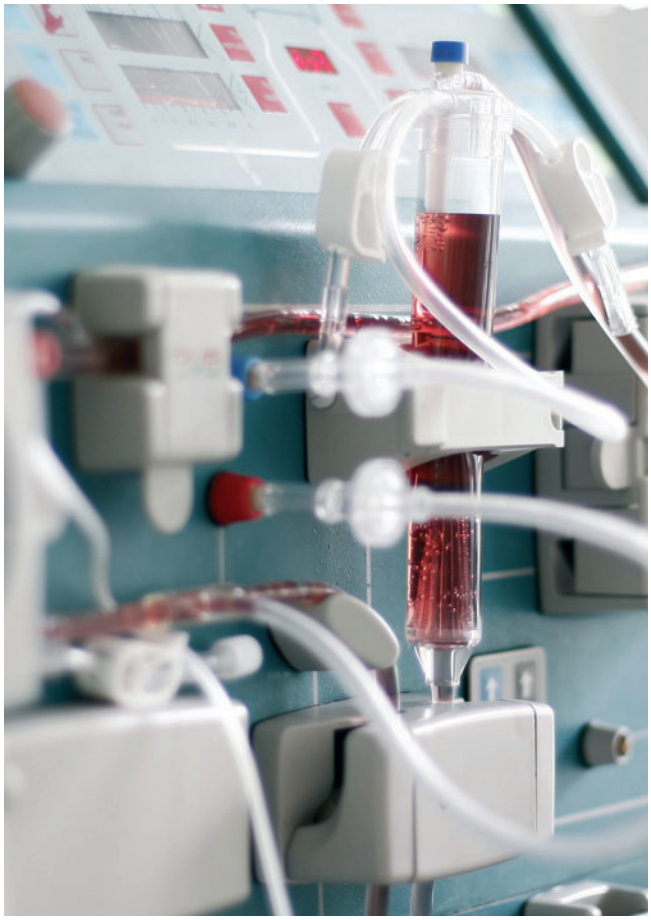


Figure 12: Turnover and R&D expenditure of dedicated medical technology companies



Spending: research and development not the flavor of the month

Interestingly, despite the strong increase in turnover, the expenses recorded for research and development did not increase accordingly. In a difficult economic environment, Austrian medical technology seems to have concentrated more on penetration of the market by channeling money into marketing and sales forces than on investing in new products or significant improvements to existing products. Compared with a 74 percent increase in overall turnover, R&D expenses only climbed by 12 percent. In plain figures, this means 93 million euros R&D spending in 2010 and 104.2 million euros in 2012.

This development becomes particularly obvious when the figures for research and development spending are compared on a company by company basis. In 2010, every medtech enterprise put on average 950,000 euros into R&D, two years later this figure fell to 830,000 euros. This equates to a cutback of 12.6 percent.

3.1 Dedicated Medical Technology Companies
Financing

Sources of fresh money changed quite distinctly over the last two years. Whereas in 2010 credit and bank loans were the main routes for financing a medical technology company, there were virtually no loans to be seen anywhere on the medtech scene two years later.

With 36.5 million euros in total, the financing situation for Austrian dedicated medtech companies in 2010 was far better than in 2012. Last year, companies were only able to convince investors to spend a bleak 26.8 million euros on the sector, a sharp decline of 26.6 percent.

Exit bankers: private loans virtually disappeared

The principal reason for the lack of money is the unwillingness and inability of the banking sector to finance loans. This cornerstone of down-to-earth financing has crumbled completely. In 2010, medical technology enterprises could lean on 25.2 million euros, last year this figure had collapsed to a mere 200,000 euros.

Enter venture capitalists: medical technology companies on offer

Venture capitalists were partly able to make up this lack of money. They more than tripled their expenses by supporting the medical technology companies with 13.2 million euros. In 2010, they only invested 4 million euros in the development of prostheses, neurostimulators, CT equipment and the like. While risk capital was at least able to make up just under 10 million euros of the 25 million euro credit hiatus, there was no substantial injection of private investment or money from business angels. Quite the reverse in fact, this sum was significantly smaller in 2012: two years ago private investors cashed in 2.3 million euros, last year they only wired 1.4 million euros – a windfall loss of 39.1 percent.

Enter public money: public subsidies provided a marked relief

On the other hand, public subsidies for the dedicated medical technology companies more than doubled over the course of the last two years. While the government spent 4.7 million euros in 2010, last year's sum soared to 11 million euros. The huge majority of the money came directly from governmental sources, just about 360,000 euros was spent by EU sources.

Although increasing significantly from 300,000 to 500,000 euros, other funding instruments were unable to make a significant contribution to improving the financial situation of Austrian dedicated medical technology companies.

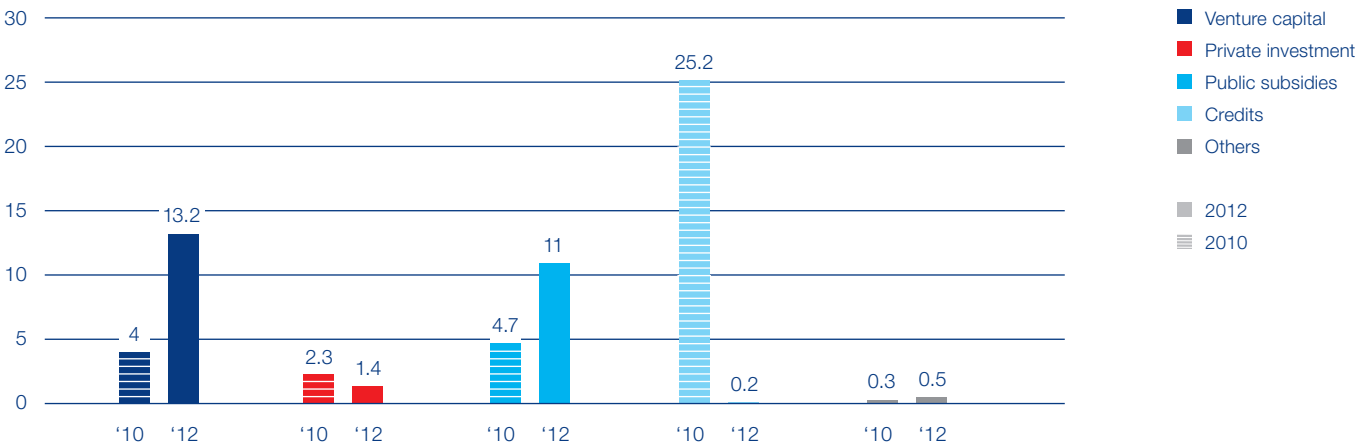


Figure 13: Sources of financing for dedicated medical technology companies

3.2 Other Medical Technology Companies
Structure, Employees, Fields of Activity and Turnover

Some companies active in the field of medical technology do not focus exclusively on devices. Instead, the medical technology business is only one of several activities. These companies are referred to as 'other medical technology companies'.

A total of 12 Austrian companies have non-core business units operative in medical technology (2010: 14 companies). Two companies gave up their medical technology businesses. A set of six companies were reclassified as dedicated medical technology service providers or suppliers. Six other companies have established medical technology-related business units for the first time in the last two years.

Many of the companies considered to be other medical technology companies have placed their business focus on informatics and telecommunication. It is a small step for them to adapt their software suites and devices to the special needs of medical customers. Some companies specialized in optics and electronics have also decided to build up non-core business units in medical technology. This indicates that, despite the difficult economic environment, medical technology remains an attractive business segment and shows a constant dynamic.

More employees work in medical technology-related projects

In 2012, the dozen other medical technology companies had a total of 1,280 employees on their payroll. Compared with the situation back in 2010, this is a reduction by about 350 (-22%). Two years ago, 1,633 staff worked for companies active in medical technology.

A different picture emerges regarding to the number of people working in the medical technology-related arms of these firms. Here, the number of staff has actually increased (+48%). In 2010, only 500 people – approximately a third of all employees – worked on projects related to medical technology. Two years later, their number has grown to 740.

In 2012, almost six out of ten employees in the other medical technology companies worked on projects related to this field (57.8%). This indicates that the importance of the medical technology arms in these companies has increased over the last two years.

Most firms are medium in size

Most Austrian other medical technology companies are of medium size. Companies employing less than ten staff are uncommon. This is not surprising as very small companies usually find it difficult to fund operations outside their core business.

In spite of the small total number of companies, they have a huge economic impact. In 2012, the 12 firms achieved a total turnover of nearly 1 billion euros. In the last two years, total turnover increased from 864 million euros to 990.7 million euros (+14.7%).

The proportion attributable to activities in the medical technology sector increased still further. In 2010, only 73 million euros – 8.4 percent of total turnover – was generated in the medtech field. Two years later, the companies earned 422.1 million euros with their medical technology business units – almost half of their overall earnings (42.6%). This huge increase is at least partly attributable to the reclassification of some companies during the past two years.

Number of other medical technology companies	12
Number of employees in other medical technology companies	1,280
Number of employees in medical technology-related areas of other medical technology companies	740
Total turnover of other medical technology companies	EUR 990.7 m
Turnover in medical technology-related areas of other medical technology companies	EUR 422.1 m

Table 12: Key figures of other medical technology companies

3.3 Suppliers in the Medical Technology Sector
Structure, Employees, Fields of Activity and Turnover

Medical gases, automation, electrical machine building or injection molded devices – medical technology companies rely on a vast array of high-tech suppliers to design and manufacture sophisticated products. According to the survey, medtech suppliers turned over 2,531 million euros in 2012 – thus exceeding even the impressive turnover of the medtech field itself (1,270 million euros). Compared to suppliers in the biotech and pharma field, they also excel in terms of turnover per company: whereas medical technology suppliers have on average a turnover of 50.6 million euros per company, pharma and biotech suppliers achieve 12.7 million euros per company.

Altogether about 50 supplier companies provide the Austrian medtech industry with chemicals, commodities and manufacturing equipment. These include both medium-sized and small firms.

In total they helped earn a living for 10,170 people. More than one fifth of them (22%) are employed by companies with a workforce of at least 250, less than one fifth (18%) with a workforce of 100 to 249 and about one fifth (20%) with 50 to 99 employees. Most suppliers (26%), however, have about 10 to 49 employees on their payroll. Small suppliers with less than ten people are found only rarely. About seven companies (14%) fall into this category.

A prosperous medtech business relies heavily on engineering

About one third of all suppliers and contractors file a major part of their activities under mechatronics and mechanical engineering (32%). Firms carrying out plastics machining and processing (28%) as well as producers of electronic equipment (30%) are also in great demand and are therefore present in significant numbers.

Beyond that, medical technology enterprises also take advantage of the highly sought-after expertise provided by measurement and sensor technology specialists (18%), nanotechnologists (13%) and metal machining and processing experts (12%). The fields of laser technology, glass preparation and ceramic processing are represented by 8 percent of suppliers. Companies not falling into any of these categories add up to 6 percent. Within the scope of this study, several companies stated to have activities in multiple areas of medical technology.

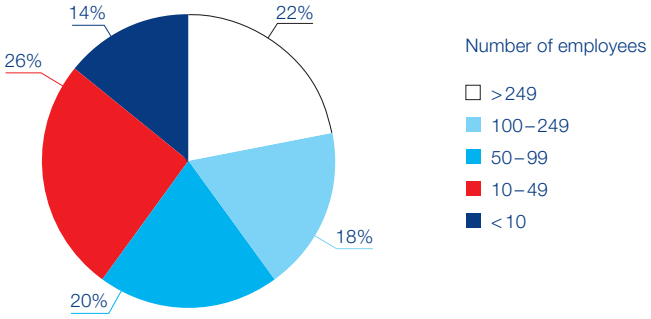


Figure 14: Size structure of suppliers in the medical technology sector

Number of suppliers in the medical technology sector	50
Number of employees of suppliers in the medical technology sector	10,170
Turnover of the suppliers in the medical technology sector	EUR 2,531m

Table 13: Key figures of the suppliers in the medical technology sector

3.4 Service Providers in the Medical Technology Sector
Structure, Employees, Fields of Activity and Turnover

A thriving medtech sector needs a professional service environment. Luckily, Austria can be proud of its highly specialized service providers that provide the country's medtech companies with the support they need. Conversely, the growing medical technology sector also provides additional jobs in the service segment. Our survey lists 15 service providers that are of special interest to medical technology. These companies differ dramatically from one another in both size and what they offer. On the one hand, some are huge enterprises employing more than 1,000 workers. On the other, some small start-ups employ just a handful of people. In total, 2,038 people earned a living by working at Austrian service providers in the medical technology sector in 2012.

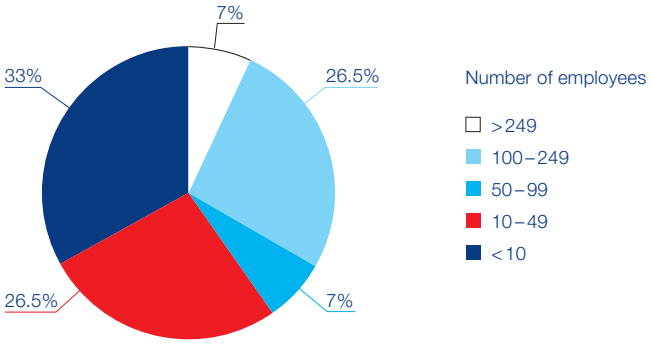


Figure 15: Size structure of service providers in the medical technology sector

Hospital garments for hire

The areas of expertise are so varied that it is difficult to make coherent analyses between these companies. The segment of washing and processing of hospital textiles and clothing constitutes one major field of activity as it is an immensely important task for an efficient and quality-driven health care system. Here, two heavyweights in the sector are settled in Austria.

In addition, a potpourri of outstanding specialists help medtech companies to achieve their goals. Four of them employ between 100 and 249 people (26.5%), one company between 50 and 99 people, another four between 10 and 49 people and, last but not least, five enterprises are run by no more than ten people (33%).

Some companies with focus at exciting market niches

These smaller companies in particular occupy some very exciting niches. One, for example, has devised an efficient scoring system for polysomnography data to improve the diagnoses of sleep disorders. In general, electronic data processing and software analyses are important business areas for service providers.

Other companies have addressed information management in hospitals or provide medtech-specific consulting focusing on technology evaluation and development as well as business development. Representing a direct link between service provision and medtech business, one specialist offers producer-independent maintenance services for medical technology devices large and small.

In 2012, service providers in the sector did business worth 281 million euros. Given the small total number of companies, this underlines the economic importance for the medtech sector and Austria's industry as a whole.

Number of service providers in the medical technology sector	15
Number of employees of service providers in the medical technology sector	2,038
Turnover of service providers in the medical technology sector	EUR 281.5 m

Table 14: Key figures of the service providers in the medical technology sector

3.5 Sales and Distribution Companies in the Medical Technology Sector
Structure, Employees and Turnover

Many medical devices are sold to professionals. Hospitals, medical stores, practitioners and pharmacies are among the usual customers. In some cases, manufacturers of these goods do not trade directly with the retail business but sell their goods wholesale.

All over Austria, there are companies specialized in distributing these products to business customers. If they have no other business activities, such as research and development or production of medical devices, they are considered to be sales and distribution companies within the scope of this survey.

All leading medical technology companies are active in Austria

It is a common strategy for large international medical technology companies to use autonomous national subsidiaries to penetrate a market. It is therefore not surprising that all of the ten world-leading medical technology companies in terms of revenue also have sales and distribution offices in Austria. In some cases, these subsidiaries are used not only to address the national market but also neighboring countries or even larger parts of Europe.

Austria's unique geographical position in the midst of Europe makes the country a perfect starting point for establishing a presence on this continent for non-European enterprises. In 2012, there were 234 sales and distribution firms operative in Austria. The high number of companies active in selling and distributing medical technology products is not surprising given the huge variety of customers.

More than 2 billion euros in turnover generated

Together, the firms constitute a relevant economic factor in the medtech industry. The 234 Austrian sales and distribution companies generated a turnover of well above 2 billion euros in 2012.

A total of 5,626 people earned a living by working in Austrian sales and distribution offices. On average, these companies had about 24 employees on their payroll. This indicates that the sector consists mainly of small companies. As a matter of fact, about 90 percent of all companies have less than 50 employees.

There are several factors responsible for the relatively small number of employees in the Austrian sales and distribution companies. Many firms closely affiliated with international parent companies may be able to sustain lean organizational structures. They can obtain such services as legal counseling or accounting from their parent company and have no need to build up extensive back office structures.

Many companies focus on clearly defined market segments. Especially in the case of highly specific products with a small customer base, only a small number of field service employees may be enough to cover all Austrian customers.

Johnson & Johnson	27.4
Siemens	17.7
Medtronic	16.5
Roche	10.2
Covidien	9.9
GE Healthcare	9.8
Abbott Laboratories	9.8
Philips	9.3
Stryker	8.7
Boston Scientific	7.2

Table 16: World-leading medical technology companies in terms of their global revenue 2012 (in billion USD) with sales activities in Austria

Number of sales and distribution companies in the medical technology sector	234
Number of employees of sales and distribution ocmpanies in the medical technology sector	5,626
Turnover of sales and distribution companies in the medical technology sector	EUR 2,328 m

Table 15: Key figures of the sales and distribution companies in the medical technology sector

4. Outlook Life Sciences in Austria

The life sciences add value to a plethora of products and services. From medicine, industry and food to energy and agriculture – demand for bio-based innovations is growing throughout the world and above all in the industrialized nations. European countries are en route to a knowledge-based bioeconomy and Austria is doing well to be one of the forerunners of this development.

To date, biotechnology's most visible impact on society can be seen in the health sector. This is also true in Austria where most local biotechnology companies are active in this field. There are more than 100 biotechnologically produced drugs currently on the worldwide market. Many global pharmaceutical companies, however, faced with expiring patents for their blockbuster drugs, require urgent replenishment of robust drug candidates. Increasingly, these originate from the laboratories of biotechnology companies. Due to their strong commitment to research and development (R&D), Austrian biotechnology companies will be an important source of promising new drug candidates for pharma companies. Together with the dynamic traditional pharma sector in the country, the companies pave the way for further innovations in the health sector.

Austrian life science industry as a trailblazer for innovation

Without doubt, personalized medicine is one of the most important trends to become established. Drugs will be tailor-made for specific patient populations. Sensitive companion diagnostics will be used to determine the best therapeutic strategy for each patient. These approaches may offer solutions to increasing cost pressures in the health system. With their strong commitment to research and development, Austrian life science companies are in an ideal position to become trailblazers for this development.

The country's excellent position in the heart of Europe and the strong network existing between biotech and pharma on the one hand and medical technology expertise on the other define the basis for further growth. This is especially true because some of Austria's medical technology companies are among the world market leaders in their line of business. Thanks to comprehensive business and R&D networks, Austria's medical technology companies have built a worldwide reputation in a couple of sectors: diagnostic equipment and dental instruments plus the construction and management of large-scale hospitals.

However, the impact of the life science industry is not limited to medicine. Due to the broad range of supply and service companies, the life science industry has a

significant impact on other industries in Austria, such as engineering. In addition to this, most major industries are becoming increasingly reliant on environmentally friendly production processes. Faced with the challenges posed by global climate change, these industries are being forced to reduce their carbon footprint. Here, Austria's biotechnology companies can help to pave the way for Europe's reorientation towards a biobased economy.

Austria as an innovation leader

Austria has spent more than 2.8 percent of its gross domestic product on research and development in recent years. It will soon advance to become one of the most innovative countries within the EU. Despite the worldwide economic crisis, Austria has even been able to increase its gross domestic spending on research and development. Nevertheless, it was and still is challenged to focus its activities – particularly regarding the advancement of knowledge and technologies.

The Austrian Ministry of Economy, Family and Youth presented its 'Action Plan Biotechnology' in June 2013. The plan is aimed at significantly increasing the size of the biotech sector within the next five years through new financial support programs. The plan is part of a national strategy for research, technology and innovation. It was adopted by the Federal Government in March 2011 under the slogan 'The Path to Innovation Leader'. With targeted funding of strategically important research and development projects, Austria has set the course for building on its strengths and occupying new fields and niches in the future.

5. Methodology
Overview

The life science industry in Austria is fully diversified with companies active in the field of biotechnology and pharma on the one hand, and in medical technology on the other. For the purposes of this survey, BIOCOM AG compiled different questionnaires addressing the specifications for each part of the sector.

For biotechnology and pharma, the survey was based on definitions outlined by the Organisation for Economic Cooperation and Development (OECD) in 2004. Here, the OECD standardized the huge range of existing definitions for the term biotechnology. Since then, all OECD countries have been called upon to carry out surveys on biotechnology following the so-called Framework for Biotechnology Statistics (www.oecd.org). Two different categories of companies have been established based on these definitions: 'dedicated biotechnology companies' and 'other biotechnologically active and pharma companies' (for definitions, see page 42).

There are two challenges when implementing a survey in the medical technology sector: Firstly, the field is extremely diverse in terms of content with the range of products covering everything from latex gloves to CAT scanners. Secondly, due to the high innovation rate, new and above all innovative products are continually being added. At licensing level, the term 'medical device' applies as specified in EU directive 93/42/EEC. The directive differentiates between medical devices, accessories, in vitro diagnostic medical devices and custom-made devices. The Global Medical Device Nomenclature (GMDN) was introduced in November 2001 to better illustrate the different facets of medical technology in international comparison. GMDN is adjusted on an ongoing basis and currently contains 14 main categories with almost 9,000 terms and over 10,000 synonyms for medical devices (see page 43). The nomenclature was adjusted for the survey. One category (supplementary equipment) was deleted and two new ones were added: 'software for medicine, telemedicine and e-health' and 'others'.

In addition, the sector covering suppliers, service providers, sales and distribution companies was also addressed within the scope of the study. The following definitions have been used for the questionnaire in both the biotechnology and pharma sector and the medical technology sector:

Supplier: manufacturer of products which are directly used for the manufacture of biotech/pharma/medtech products.

Service provider: company with specific services which are necessary for the manufacture or direct use of biotech/pharma/medtech products.

Sales and distribution company: company that sells or distributes approved biotech/pharma/medtech products.

Between February and May 2013, a total of 735 companies were contacted and requested to complete the survey. 300 of the companies answered either by questionnaire or by telephone, corresponding to a response rate of 40.8% (for more details, see table 17). Based on common statistical practice, the data from the survey was extrapolated up to 100% on the basis of subgroups with structurally comparable companies. As needed, further information such as from annual reports or other publicly available sources has been added.

While selecting companies to participate, extreme care was taken to include all enterprises which are resident in Austria and which are active in life sciences. Therefore, companies that are majority-owned from outside Austria but have a company office in Austria were also considered. In surveying the employee figures, number of companies and fields of activity, the survey included only the Austrian locations of a company. If an enterprise had more than one location in Austria, only cumulated figures and data for the company as a whole were considered. The reference date of the survey was 31.12.2012.

	requested/answered	response quote
Life science companies	735/300	40.8%
Biotechnology and pharma companies	288/143	49.7%
Primary biotechnology and pharma companies	157/106	67.5%
Dedicated biotechnology companies	95/81	85.3%
Other biotechnology active and pharma companies	62/25	40%
Suppliers, service providers, sales and distribution companies	131/37	28.2%
Suppliers	14/8	57.1%
Service providers	14/10	71.4%
Sales and distribution companies	103/19	18.4%
Medical technology companies	435/157	36.1%
Primary medical technology companies	136/61	44.8%
Dedicated medical technology companies	124/56	45.2%
Other medical technology companies	12/5	41.7%
Suppliers, service providers, sales and distribution companies	299/96	32.1%
Suppliers	50/30	60%
Service providers	15/9	60%
Sales and distribution companies	234/57	24.4%

Table 17: Overview of response quotes of different types of life science companies

5.1 Methodology Biotechnology and Pharma
Definitions

Biotechnology
… is defined as the application of science and technology to living organisms, as well as parts, products and models thereof, to alter living or non-living materials for the production of knowledge, goods, and services.

A dedicated biotechnology company
… is defined as a biotechnology active firm whose predominant activity involves the application of biotechnology techniques to produce goods or services and/or the perfomance of biotechnology R&D.

An other biotechnology active and pharma company
… includes all types of companies that may employ biotechnological techniques to produce goods or services, but that also have non-biotechnological business areas. In addition, the category includes all types of pharma firms whatever their business model is (chemically synthesized or biopharmaceutical drugs for human or veterinary use).

A primary biotechnology and pharma company
… is either a dedicated or an other biotechnology active or pharma company.

Definition of biotechnology and the type of firms categorized for the use of this study

Health/Medicine
Development of therapeutics and/or diagnostics for the field of human medicine, drug delivery, human tissue replacement

Animal health
As above, for veterinary application

Agrobiotechnology
Genetically modified plants, animals or microorganisms, as well as non-genetically modified plants grown using biotechnological procedures, for use in agriculture or forestry

Industrial biotechnology
Biotechnological products and processes for the handling of waste or sewage, for chemical synthesis, for the extraction of raw materials and energy etc.

Non-specific services
Equipment or reagents based on biotechnological principles, for research or provision of services in this field (‘ancillary industry’)

Definition of the fields of activity of dedicated biotechnology companies

5.2 Methodology Medical Technology
Definitions

Medical technology
… is defined as the sum of activities related to the development, manufacturing, sale and distribution of medical products or the offer of services as defined through the Global Medical Device Nomenclature (GMDN).

A dedicated medical technology company
… is defined as a medical technology company whose predominant activity relates to the development and/or manufacturing of medical products as defined through the Global Medical Device Nomenclature (GMDN).

An other medical technology company
... includes all types of companies that may develop and/or manufacture medical products as defined through the Global Medical Device Nomenclature (GMDN), but that also have non-medical technology business areas.

A primary medical technology company
... is is either a dedicated or an other medical technology company.

Definition of medical technology and the type of firms categorized for the use of this study

Code	Explanation	Examples
01	Active implantatable devices	Cardiac pacemakers, neurostimulators
02	Anesthetic and respiratory devices	Oxygen masks, ventilators for anesthesia, gas supply units
03	Dental devices	Dental equipment, fillings
04	Electromechanical medical devices	ECG, EEG, sonography machines, lasers
05	Hospital hardware	Hospital beds
06	In-vitro diagnostic devices	Pregnancy test, blood sugar tests, genetic tests
07	Non-active implantable devices	Hip and knee joints, arterial stents
08	Ophthalmic and optical devices	Spectacles, contact lenses, ophthalmoscopes
09	Reusable devices	Surgical instruments, endoscopes, blood pressure cuffs, stethoscopes, skin electrodes
10	Single-use devices	Syringes, needles, latex gloves, balloon catheters
11	Assistive products for persons with disability	Wheelchairs, walking aids, hearing aids
12	Diagnostic and therapeutic radiation devices	X-ray equipment, CT, radiotherapy equipment
13	Biological-derived devices	Substitute tissue, products of regenerative medicine
14	Software for medicine, telemedicine and e-health	
15	Others	

Table 18: Overview of the fields of activity based on the Global Medical Device Nomenclature (GMDN)

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Dr. Boris Mannhardt
Simone Ding
Dr. Bernd Kaltwaßer
Dr. Martin Laqua
Sandra Wirsching
Benjamin Röbig
Jacqui Birnie

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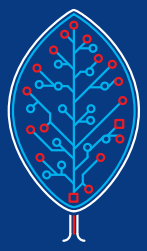

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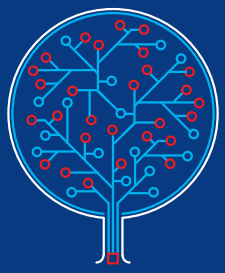

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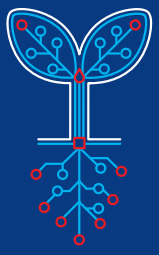

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