



Prof. Dr. Vedat Topsakal, UZA, Belgium, performing the world's first robotically assisted direct Cochlea access – without needing to use his hands on the patient

# The Swiss Medical Technology Industry 2020

## Sector Study



SWISS MEDTECH

helbling

# Introduction

The impressive key figures confirm that the Swiss medical technology sector continued to remain strong and stable in 2018 and 2019. Sales growth was slightly higher than in previous years and once again significantly exceeded the average GDP growth of Switzerland. The associated boost in job numbers is also a very positive sign. The medtech industry is hiring many industry workers and engineers from other sectors that are more exposed to the volatility of international markets.

Stable economic conditions, open markets, and government investment in research and development have contributed significantly to the advancement of a strong medtech industry in Switzerland. The sector has also been able to overcome challenges such as the overvaluation of the Swiss franc, as well as changes to the MDR and IVDR regulations.

One cause for concern is the past several years (and ongoing) legal uncertainty between Switzerland and the EU – which is by far our most important trading partner. Swiss citizens will vote on the limitation initiative this autumn and its outcome will be critical for the future relationship between Switzerland and the rest of Europe. This issue is naturally of major interest and importance to medtech companies.

## Introduction of new EU regulations

Results of the present survey highlight the additional financial burdens on the industry created by changes to MDR and IVDR. The time and effort required for product documentation and subsequent product surveillance will increase significantly compared to the previous regulatory system. Industry estimates indicate that product costs will increase by an average of 8% as a result. For certain products, the additional expenditure is not warranted: around 50% of all companies surveyed report reductions in product portfolios. An additional serious problem remains the insufficient capacity of notified bodies which will lead to delays and inconsistent supply of existing – and new – products.

## Opportunities created by new technology

The study authors have identified 18 «Top Trends» that will influence medical technology today, and in the future. These are presented in the five main processes of the value chain: healthcare, therapies, diagnostics, manufacturing processes, and product innovation. Digital is here to stay, and creates new possibilities for application and usage on all levels. At the same time, this development is challenging in terms of strategic business models and product innovation, and also requires considerable investment. As a result of digitalisation, companies from outside the industry – including globally active tech companies – are pushing into the medtech market. Traditional medical technology companies are challenged to see and utilise the top trends as opportunities.

This is the seventh edition of the Swiss Medical Technology Industry (SMTI) Sector Study. It was made possible thanks to the close collaboration between Swiss Medtech and the Helbling Group, as well as the assistance of an expert Advisory Board. The SMTI has been compiled every two years since 2008 and is based on the results of a broad-based survey of manufacturers, suppliers, specialised service providers, and trading companies throughout Switzerland.

Bernand Zurich, September 2020

Emanuel Wettstein<sup>1</sup>, Jonas Frey<sup>2</sup>, Jonas Rothen<sup>1</sup>, and Peter Biedermann<sup>2</sup>, authors and publishers of the SMTI 2020 Sector Study

1) Helbling; 2) Swiss Medtech



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## Management summary



## Management summary (I/II)

### Swiss medtech industry key figures



- The approx. 1,400 companies (manufacturers, suppliers, service providers, and trade & distribution) generated sales of CHF 17.9 billion in 2019. This represents 2.6% of Switzerland's total GDP
- The industry has increased its sales by CHF 2.1 billion over the last two years
- Annual sales growth in 2018 and 2019 was 6.5%, which is significantly higher than the overall rise in Swiss GDP
- In 2019, the Swiss medtech industry employed around 63,000 people. This corresponds to 1.2% of the total workforce in Switzerland
- In the last two years, employee numbers have increased by 4,500 and the medtech sector has once again shown above-average employment growth compared to other sectors

### Swiss medtech exports



- A total volume of CHF 12 billion was exported in 2019 – with the USA and Germany as the most important destinations. With a 5% share of total exports, the medtech industry is an important sector of the Swiss economy
- Exports have grown by an average of 3.2% per year, or a total of CHF 0.7 billion over the last two years
- The medtech trade surplus amounted to CHF 6.1 billion; representing 16.4% of the overall trade surplus for Switzerland
- The medtech trade surplus has grown by 2.3% per year since 2015, compared to 0.5% per year for the Swiss economy as a whole

### Challenges for the workplace and companies



With the aim of preserving the defining qualities of the Swiss workplace, companies are demanding

- guaranteed access to skilled workers, especially in the areas of regulations & approvals and research & development
- more reliable political framework conditions
- improved and increased targeted support for research and innovation

The greatest challenges for companies are:

- meeting the new approval requirements in the EU area caused by the introduction of MDR/IVDR
- the steadily increasing pressure on costs and margins

# Management summary (II/II)

## Investments



- The majority of companies plan to invest within Switzerland over the next two years – primarily in the areas of production, research & development, and distribution
- Reasons for investing in the Swiss marketplace: the available medtech know-how and high labour productivity
- Over 85% of manufacturers and suppliers have production facilities in Switzerland. However, the trend towards establishing additional production sites abroad continues
- Companies allocate approx. 10% of their revenue for research & development

## Innovation



- Medical technology is one of the most innovative industries in the country: boasting high rates of research & development, the largest proportion of scientific publications, and the most patent applications per capita worldwide
- The industry has recognised the importance of digitalisation, Industry 4.0, innovative materials, and wearables; and is investing in future technologies
- The main technology trends addressed are materials innovation, smart devices, manufacturing processes, and intelligent data acquisition
- At the same time, digitalisation and new substitution technologies are perceived as the greatest threats – due to the potential entry of new companies into the market

## MDR/IVDR



- The introduction of MDR and IVDR presents a major financial burden for the industry
- Technical product documentation and the subsequent product surveillance requires significant additional effort
- Product development costs will increase on average by approx. 30%
- Product costs will increase on average by 8%.
- Around half of all manufacturers are reducing their product portfolio as a result of the new regulations
- The insufficient availability of notified bodies is a major problem for manufacturers

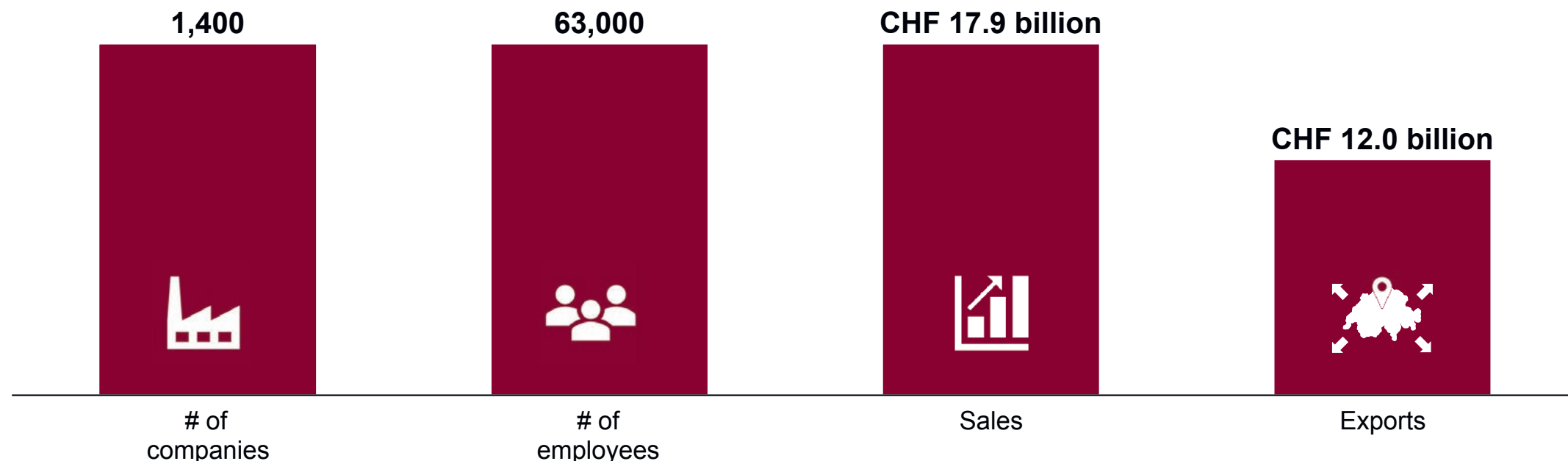




## An overview of the Swiss Medical Technology Industry (SMTI)

- Revenue, employment figures, and top 10 companies
- Location of manufacturers and suppliers
- Imports and exports

## The Swiss medtech industry: 1,400 companies with 63,000 employees achieved sales of CHF 17.9 billion in 2019



### Comments

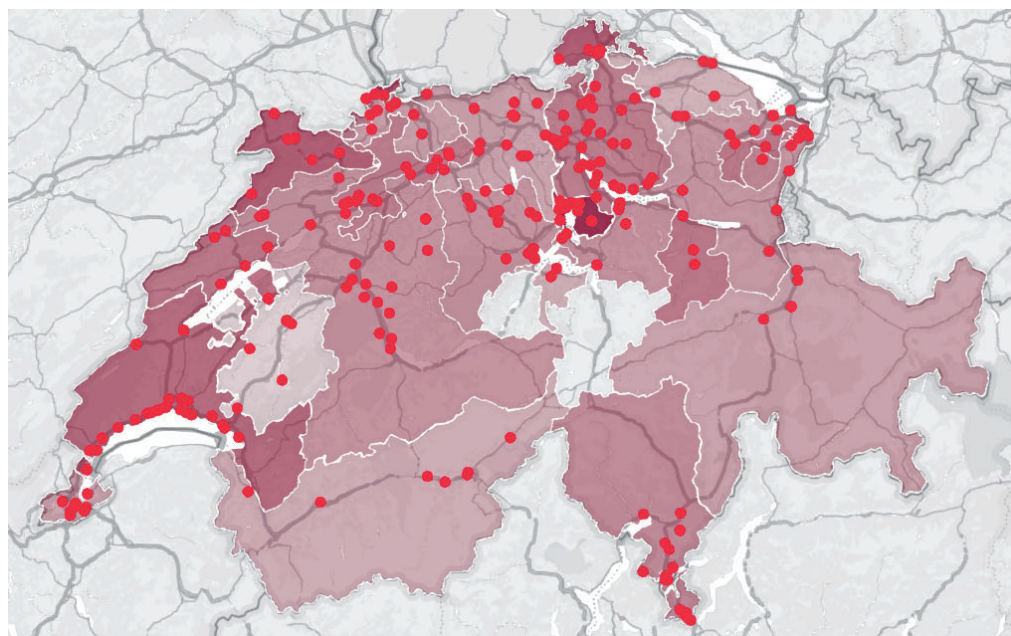
- In 2019, the approximately 1,400 companies in the medtech sector generated sales of CHF 17.9 billion. This corresponds to around 2.6% of the Swiss gross domestic product
- 63,000 employees were working for the Swiss medtech industry in 2019. In comparison: 74,400 people were employed by the pharmaceutical & chemical sectors and 58,000 in the watch industry. Medtech represents 1.2% of the total workforce in Switzerland
- The medtech industry exported goods worth CHF 12.0 billion in 2019, which corresponds to 5.0% of all Swiss exports. Switzerland exports three times more medical devices per capita than Germany, the largest medtech producer in Europe

Sources: Swiss Medtech database; SMTI 2020; Federal Statistical Office (FSO); Federal Customs Administration (FCA); State Secretariat for Economic Affairs (SECO), scienceindustries, Swissmem, European Medical Technology Industry (2020)



# Switzerland is home to a uniquely high concentration of medtech companies

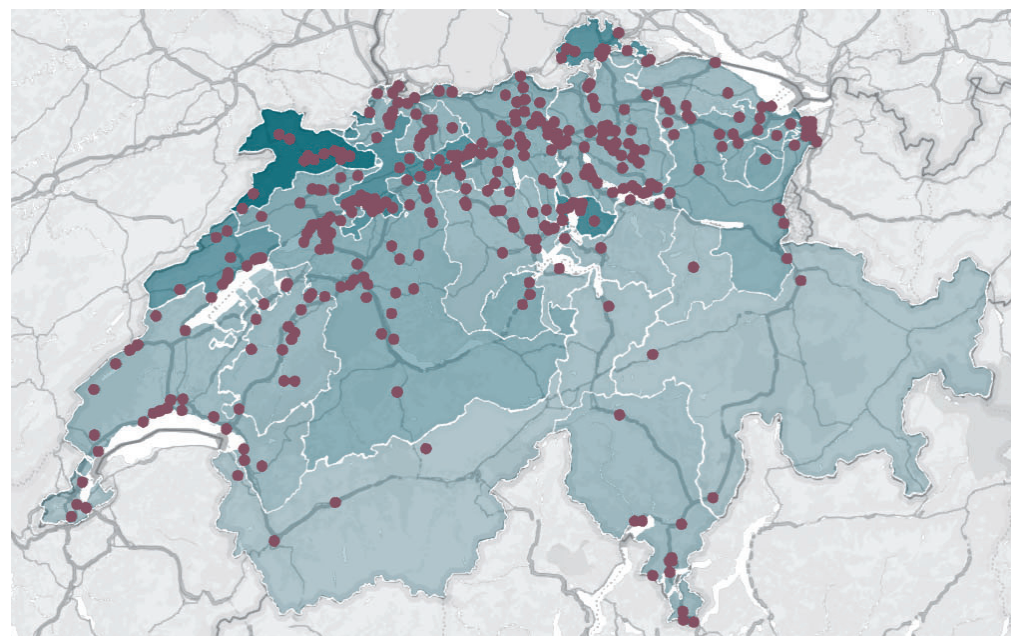
## Manufacturer locations



● Manufacturers

# of manufacturers per 1,000 inhabitants:  
high numbers low numbers

## Supplier locations



● Suppliers

# of suppliers per 1,000 inhabitants:  
high numbers low numbers

## Comments

- Manufacturers and suppliers account for around 60% of all companies in the Swiss medtech industry
- The Jura region is home to a cluster of tech companies that act as suppliers of specialised know-how
- The Lake Geneva and Zurich regions benefit from the proximity to the two Swiss Federal Institutes of Technology: EPF Lausanne and ETH Zurich, both of which have a strong medtech focus

Remarks: The colour intensity of the cantons is based on the number of companies per thousand inhabitants per canton  
The points on the map correspond to postal codes, i.e., one point can represent more than one company

Source: Swiss Medtech database

# Many global medtech players are active producers in Switzerland

## Top 10 medtech employers in Switzerland by # of employees (2019 data)

No.	Company	Core activities in Switzerland	Headquarters	# of employees in Switzerland	Global growth in sales (in %)	Global R&D / sales (in %)
1	Roche Diagnostics	In vitro diagnostics	CH	2,800	2.9%	11.3%
2	Jabil <sup>1)</sup>	Orthopaedics	USA	2,780	n/a	n/a
3	J&J Medical <sup>1)</sup>	Cardiology, orthopaedics, ophthalmology, wound treatment, ears/nose/throat, hospital equipment and consumables, e/m-health and software	USA	1,624	-3.8%	7.8%
4	Sonova	Hearing system technology and hearing rehabilitation	CH	1,290	5.6%	5.6%
5	Biotronik <sup>2)</sup>	Cardiology	D	1,231	n/a	n/a
6	Straumann	Dental care	CH	1,214	17.0%	6.0%
7	Medtronic	Diabetes therapy, cardiology, ears/nose/throat, hospital equipment and consumables	IRL	1,200	2.0%	7.6%
8	Ypsomed	Drug delivery systems and diabetes therapy	CH	1,195	11.6%	11.6%
9	Zimmer Biomet	Orthopaedics	USA	1,100	2.0%	5.6%
10	Dentsply Sirona	Dental care	USA	750	1.1%	3.3%
				<b>Σ 15,184</b>	<b>Ø 4.4%</b>	<b>Ø 8.1%</b>

1) In 2018, contract manufacturer Jabil took over the Swiss production sites of J&J Medical and thus became a key player in the Swiss medtech landscape

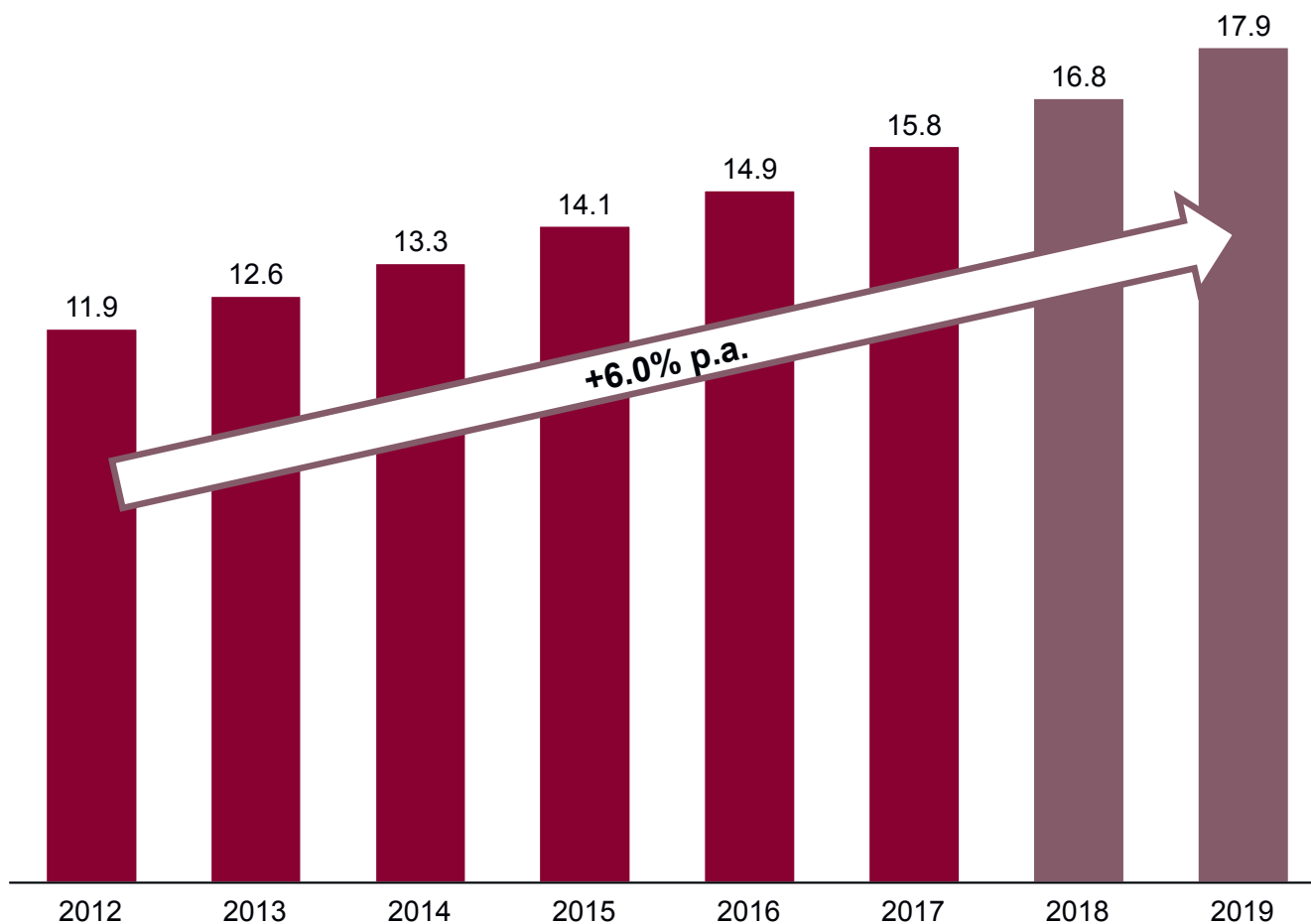
2) Not a listed company; no further data available

Source: annual reports and company data



## The Swiss medtech industry is growing by over 6% per year

Medtech sales performance (billion CHF)

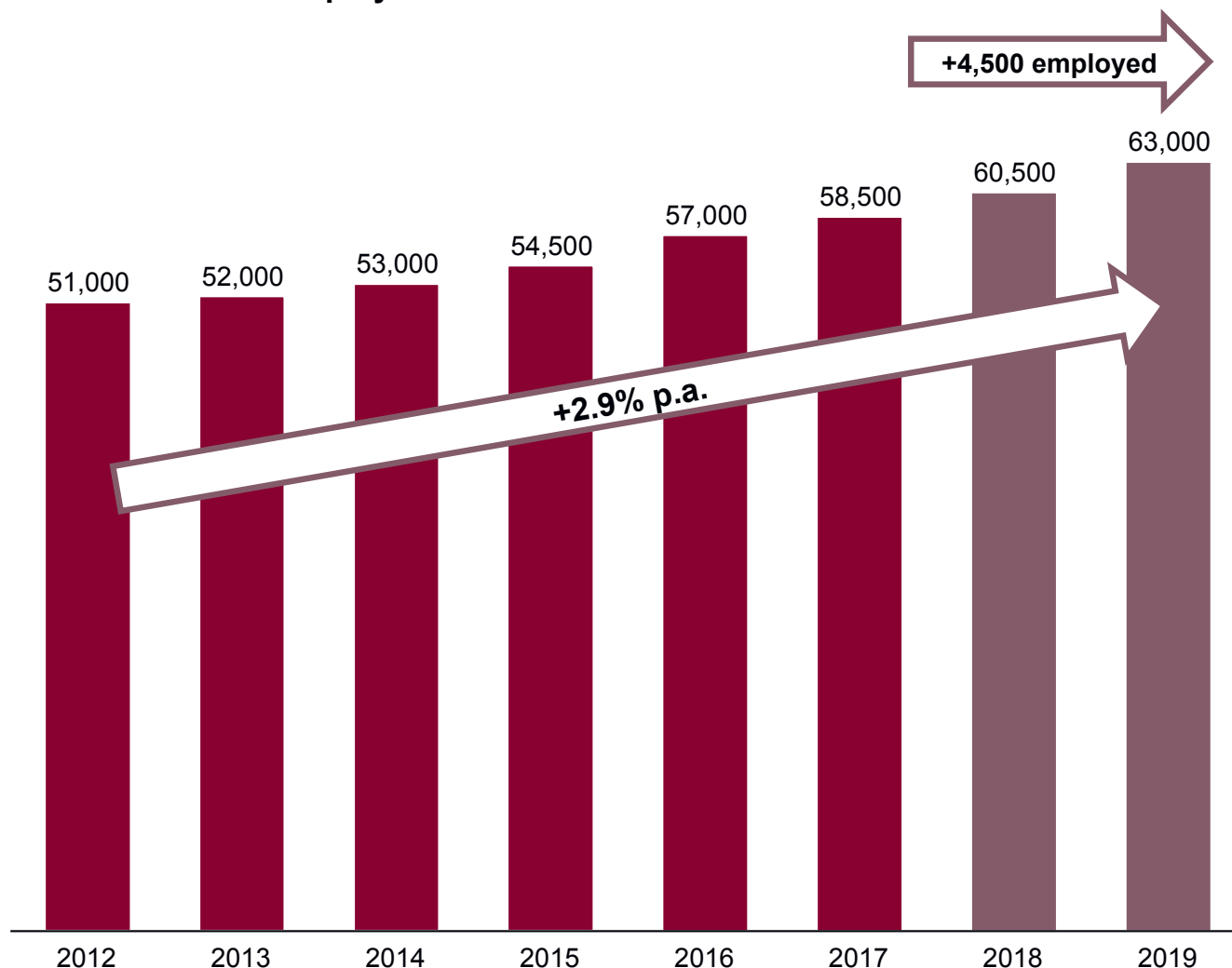


### Comments

- Total 2019 revenues of all companies active in the medtech industry (manufacturers, suppliers, trade & distribution, and service providers) is estimated at CHF 17.9 billion
- The sales growth of recent years continued. Increases in 2018 and 2019 amounted to 6.5% each year
- Other growth rates for comparison:
  - Swiss GDP: 2.7% (2018), 1.0% (2019)
  - Global growth, medtech: 5–7% (2018–2019)
  - Swiss pharmaceutical industry: 2.8% (2019)
  - Swiss watch industry: 2.4% (2019)
  - Swiss overall healthcare expenditure: 3.7% (prognosis 2019)

## The medtech industry has created approx. 4,500 new jobs since 2017

### Increase in medtech employee numbers



### Comments

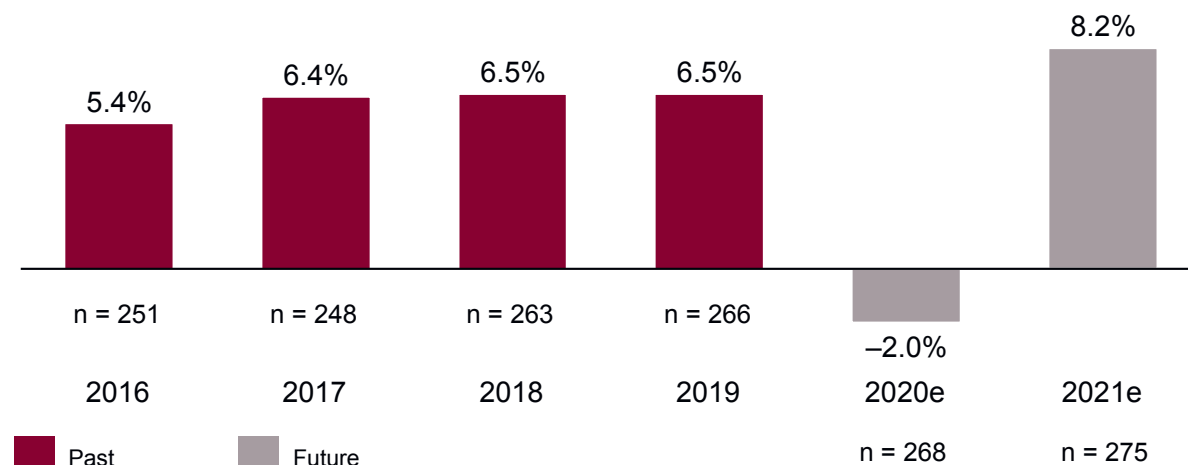
- Approx. 63,000 people were employed by the medtech industry in 2019, which corresponds to approximately 1.2% of the total Swiss workforce
- Around 4,500 new jobs have been created in Switzerland in the last two years
- Based on industry sales of CHF 17.9 billion, average labour productivity is approx. CHF 280,000 per capita
- Employment growth in 2018 and 2019 was 3–4%. Employee numbers have increased by an average of 2.9% per year since 2012. Other growth rates for comparison:
  - total # of new jobs in Switzerland: 0.8% (2019)
  - Swiss pharmaceutical industry: 3.7% (2018) 1.8% (2019)



# Covid-19 will affect sales forecasts for the next 2 years

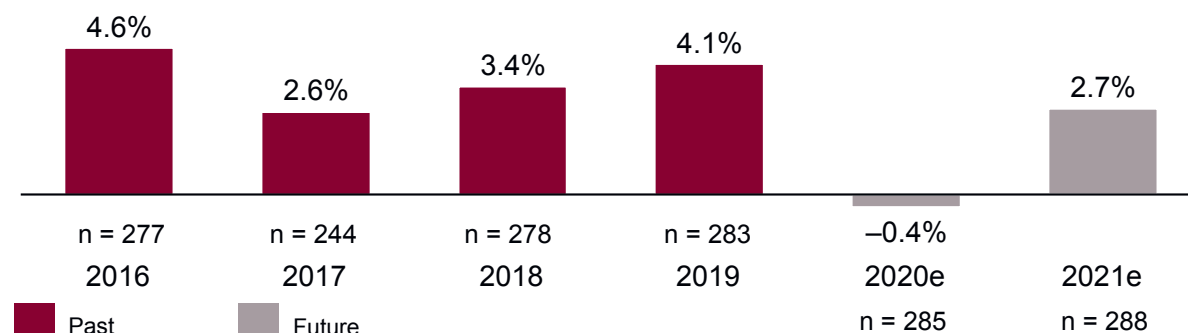
## Ø Sales performance

(in %, weighted by number of employees in Switzerland; all categories)



## Ø Employment numbers

(in %, weighted by number of employees in Switzerland; all categories)



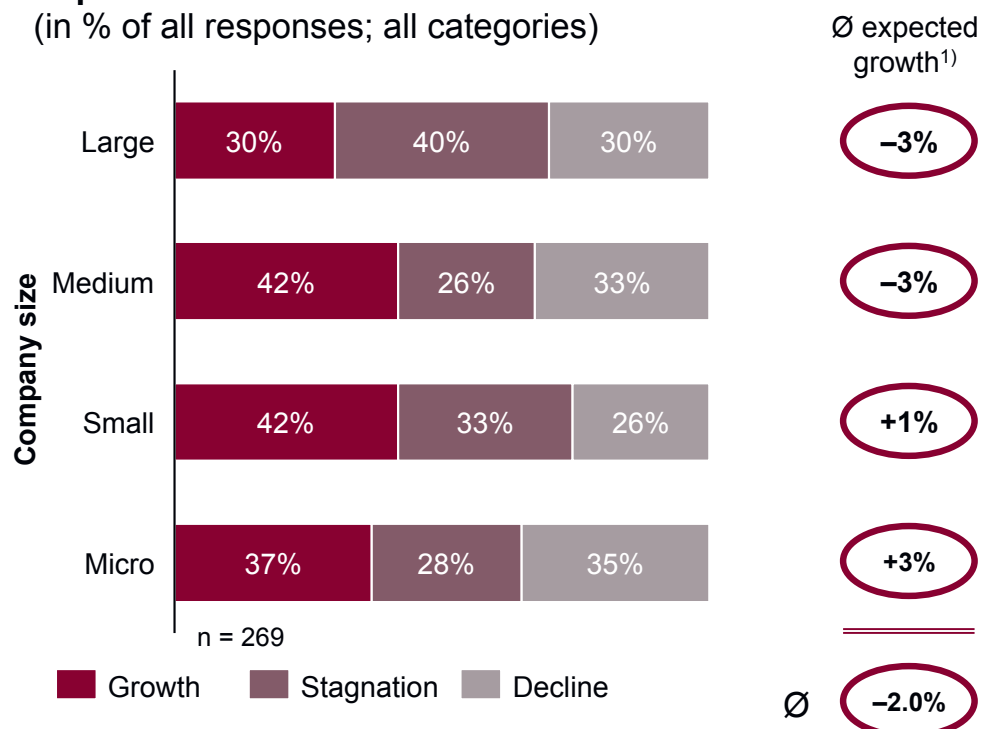
## Comments

- Sales performance
  - Swiss medtech sales increased by 6.5% p.a. in both 2018 and 2019
  - Actual growth for 2018/19 slightly exceeded expectations and revenue estimates from the SMTI 2018
  - At time of survey (March–May), companies had already taken the effects Covid-19 into account; (–2.0%, CHF –0.4 bn). Growth is expected to resume in 2021; (+8.2%, CHF +1.4 bn)
- Employment numbers
  - Employee numbers increased by 3.4% in 2018, and by 4.1% in 2019
  - A decline of 0.4% is expected in 2020; a growth of 2.7% is forecast for 2021

## Expected sales for Swiss medtech companies are slightly lower for 2020; however, the majority forecast strong sales growth for 2021

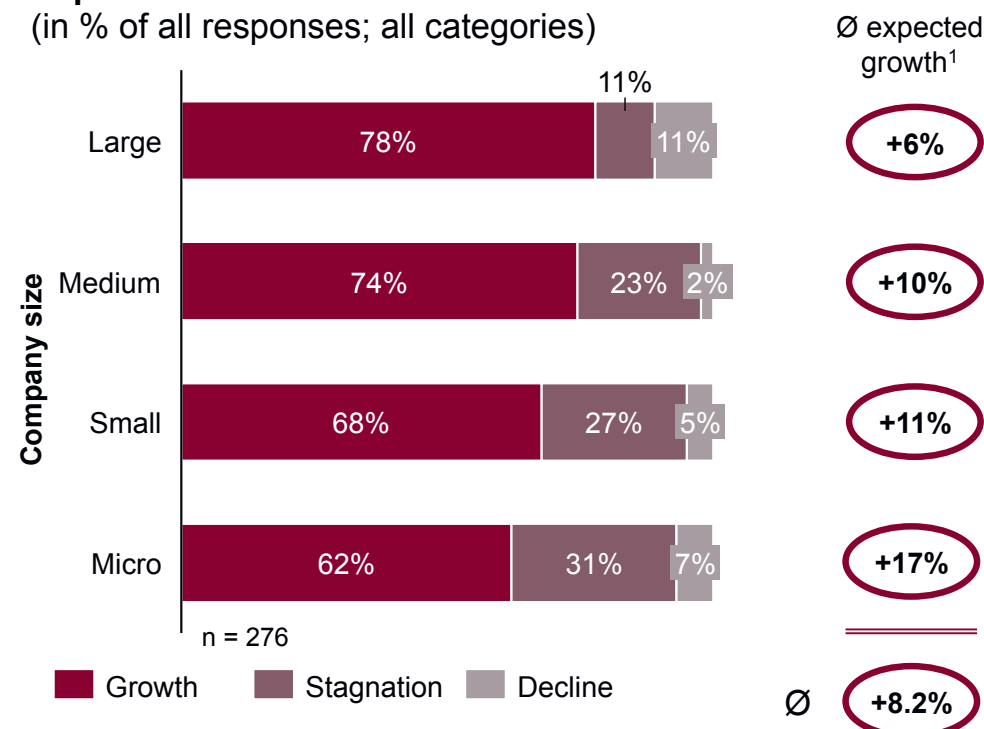
### Expected sales 2020

(in % of all responses; all categories)



### Expected sales 2021

(in % of all responses; all categories)



#### Comments

- Micro and small enterprises expect a slight increase in turnover in 2020, whereas companies with more than 50 employees predict a decline
- Average sales growth expectations for 2020 vary between -3% and +3%, depending on the size of the company

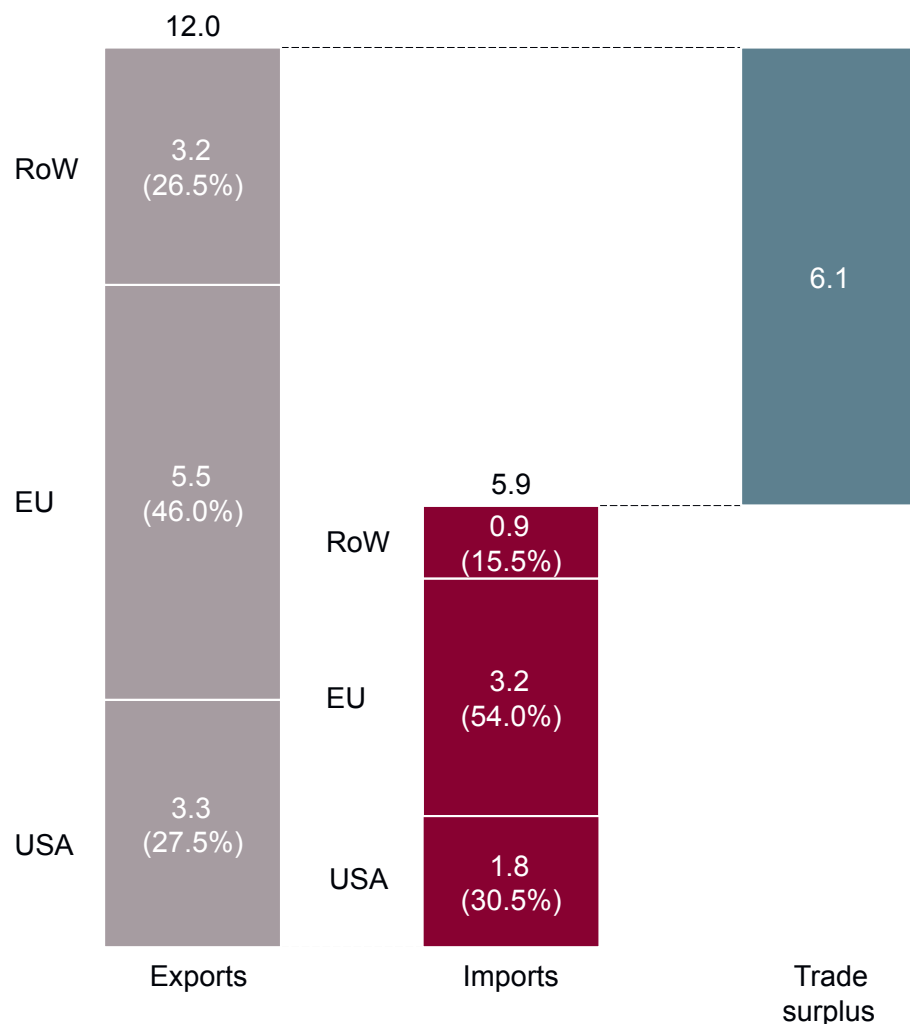
#### Comments

- The majority of companies expect sales growth in 2021. Small companies are the most optimistic
- Average sales growth expectations for 2021 vary between 8% and 17%, depending on the size of the company

1) Weighted by number of employees  
Source: SMTI survey results 2020

# The Swiss medtech industry generated a trade surplus of CHF 6.1 billion in 2019

## Key trade figures for the Swiss medtech industry in 2019 (billion CHF)



### Comments

- The trade surplus of the Swiss medtech industry amounted to CHF 6.1 billion in 2019. This corresponds to 16.4% of the Swiss total (CHF 37.2 billion, 2019)
- Medtech's contribution to the trade surplus has grown by 2.3% per year since 2015, while that of Switzerland as a whole has grown by 0.5% p.a. in the same period
- In 2019, the medtech industry's exports amounted to CHF 12.0 billion (5.0% of total Swiss exports) and imports to CHF 5.9 bn (2.9% of Switzerland's imports)
- The EU is the most important trading partner with exports of CHF 5.5 billion (46%) and imports of CHF 3.2 billion (54%)
- Germany, Europe's most prolific trading nation, exported 2.7 times and imported 4.1 times more medtech products than Switzerland

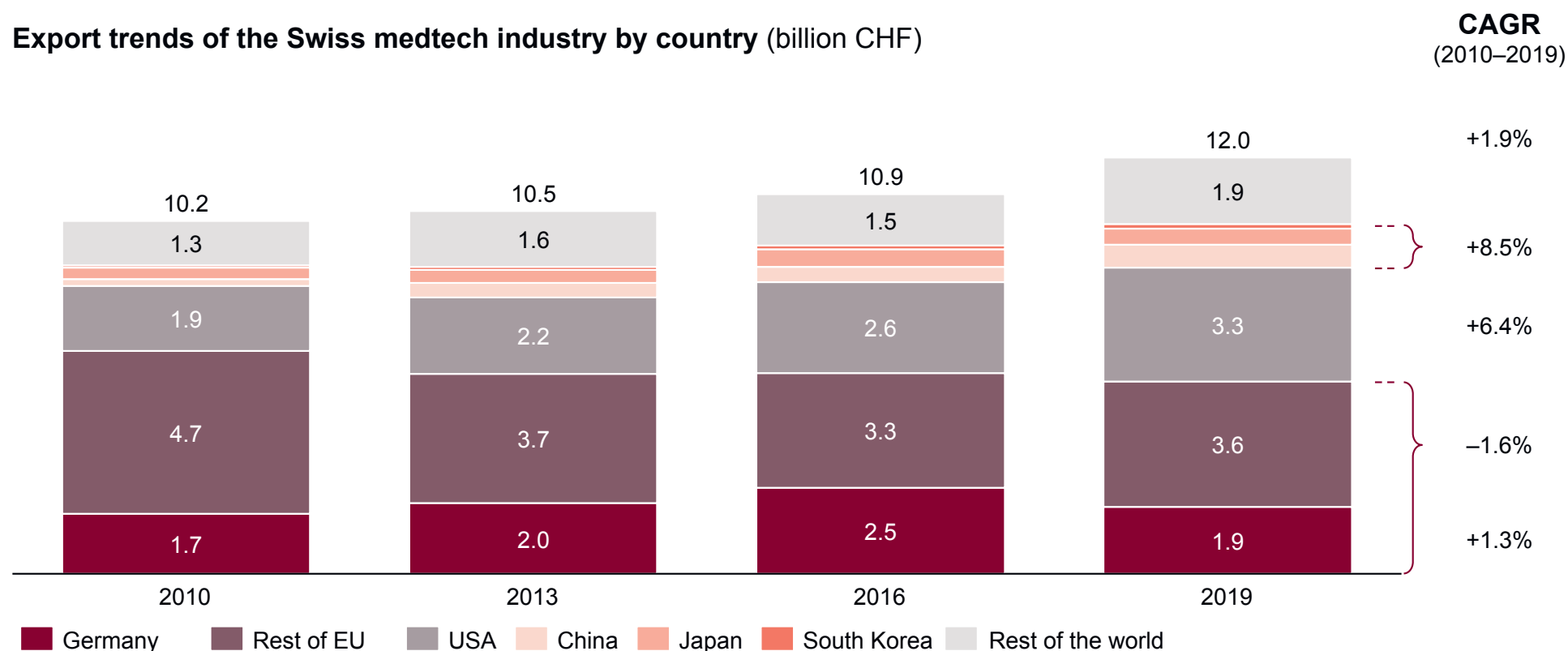
Remarks: Trade figures (exports and imports) reflect finished products only; trade/sales of semi-finished products are not included. The export volume of Swiss medtech suppliers is estimated to be CHF 3–4 billion.. Further analyses (p. 44 ff.); Customs tariff numbers used (p. 66 ff.)

Source: SMTI 2020; Federal Customs Administration (FCA), Federal Statistical Office (FSO), European Medical Technology Industry (2020)



# Export growth of 1.9% driven by sales in the USA and China

Export trends of the Swiss medtech industry by country (billion CHF)



## Comments

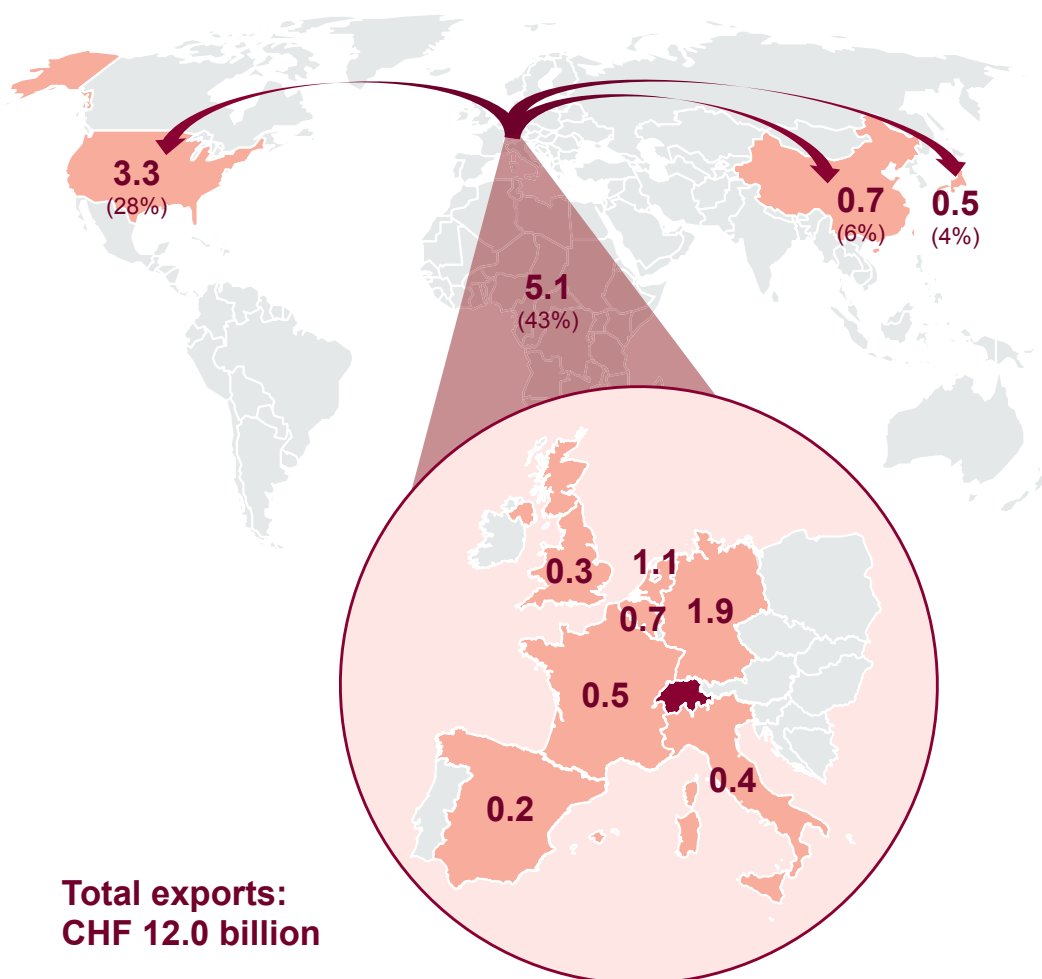
- Despite the strength of the Swiss franc, the Swiss medtech industry's exports rose annually by 1.9% between 2010 and 2019
- As the most important export partner (CHF 5.5 billion in 2019), Europe shows a slight decline of –1.6% p.a. over the last nine years; Germany shows a growth of +1.3% p.a., slightly below the performance of Swiss medtech exports
- USA +6.4% p.a. and Asia (China, Japan, South Korea) +8.5% p.a. are becoming increasingly important. China is the most important Asian export destination, with an export share of 6% and a growth rate of 14% p.a.

Remarks: Trade figures (exports and imports) reflect finished products only; trade/sales of semi-finished products are not included  
Further analyses (p. 44 ff.); Customs tariff numbers used (p. 66 ff.)

Source: Swiss Federal Customs Administration (FCA)

# The most important export destinations remain the USA and Germany

## Swiss medtech exports 2019 (in CHF billion)



## Top 10 export markets

Rank	Country	Volume CHF billion
1.	USA	3.3
2.	Germany	1.9
3.	Netherlands	1.1
4.	Belgium	0.7
5. ▲ 1	China	0.7
6. ▲ 1	Japan	0.5
7. ▼ 2	France	0.5
8. ▲ 1	Italy	0.4
9. ▼ 1	Great Britain	0.3
10. ▲ 1	Spain	0.2
Top 10 total		9.6 (80%)

## Comments

- In 2019, the Swiss medtech industry exported products worth CHF 12.0 billion. This represents an increase of CHF 1.4 billion since 2015, or a growth of 3.2% p.a.
- The most important export destinations remain the USA (28%) and Germany (16%)
- 80% of medtech exports are achieved with the top 10 exporting countries
- Apart from the USA, China, and Japan, all top 10 export destinations are in Europe
- Exports to France have fallen by 6% p.a. since 2015

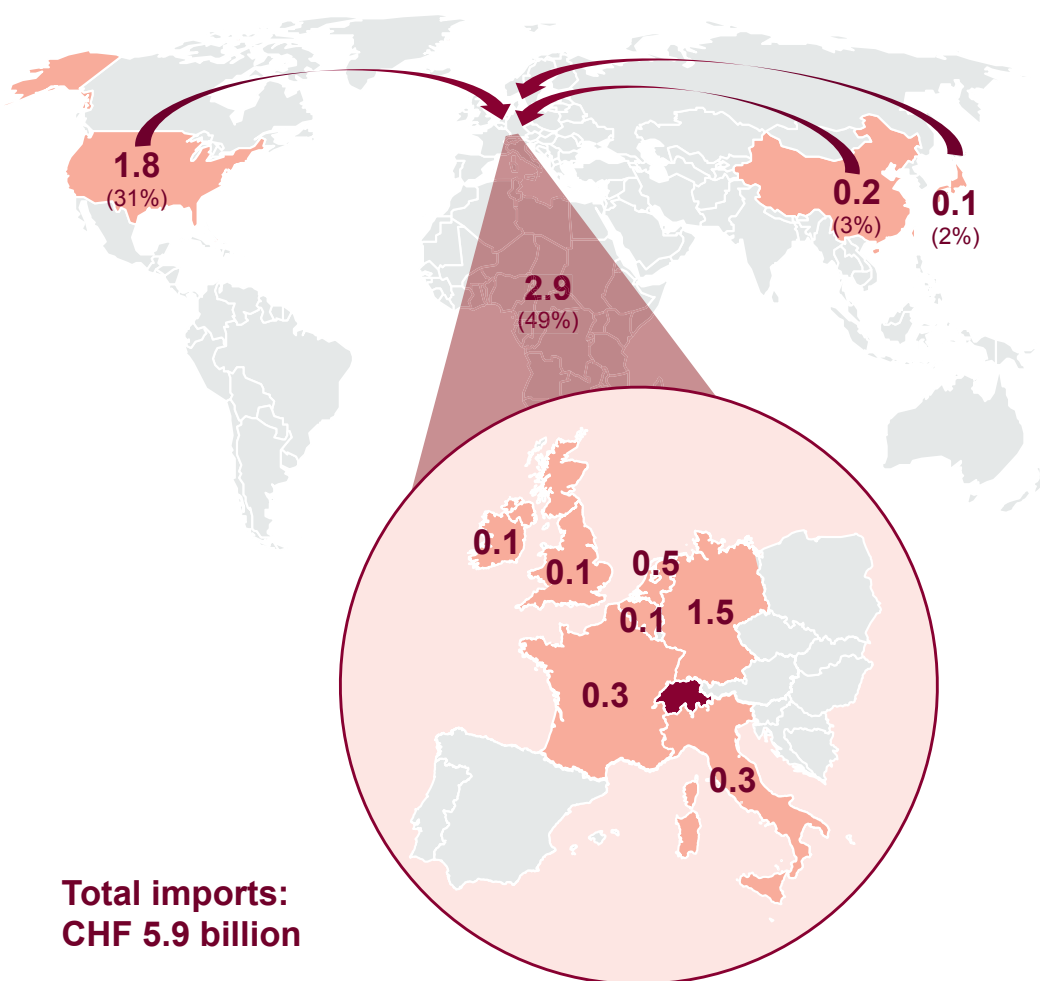
Remarks: The Netherlands and Belgium are home to the Central European warehouses of various global players  
 Trade figures (exports and imports) only reflect finished products; the trade/sales of semi-finished products are not included  
 Further analyses (p. 44 ff.); Customs tariff numbers used (p. 66 ff.)

▲ ▼ Change in ranking compared to the SMTI Study 2018

Source: Swiss Federal Customs Administration (FCA)

# Switzerland imported medtech products worth CHF 5.9 billion in 2019

## Swiss medtech imports in 2019 (billion CHF)



## Top 10 importing countries

Rank	Country	Volume CHF billion
1.	USA	1.8
2.	Germany	1.5
3.	Netherlands	0.5
4.	France	0.3
5.	Italy	0.3
6.	China	0.2
7. ▲ 1	Great Britain	0.1
8. ▼ 1	Ireland	0.1
9.	Belgium	0.1
10.	Japan	0.1
Top 10 total		5.0 (85%)

## Comments

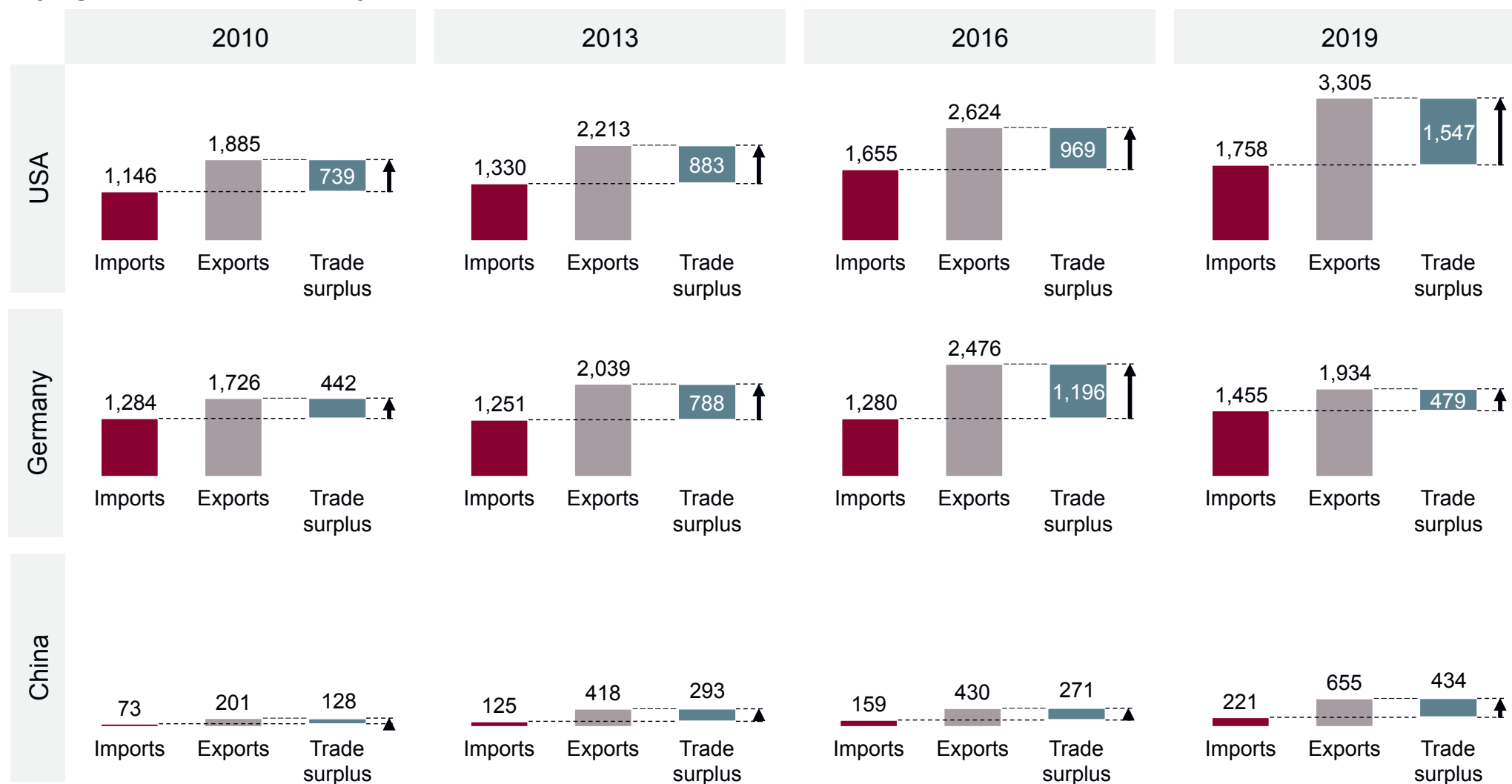
- In 2019, the Swiss medtech industry imported products worth CHF 5.9 billion. This represents an increase of CHF 0.9 billion since 2015, or a growth of 4.1% p.a.
- As with exports, the most important import destinations remain the USA (31%) and Germany (25%)
- 85% of medtech imports are achieved with the top 10 importing countries

Remarks: The Netherlands and Belgium are home to the Central European warehouses of various global players  
 Trade figures (exports and imports) only reflect finished products; the trade/sales of semi-finished products are not included  
 Further analyses (p. 44 ff.); Customs tariff numbers used (p. 66 ff.)  
 ▲ ▼ Change in ranking compared to the SMTI Study 2018  
 Source: Swiss Federal Customs Administration (FCA)



# The trade surplus with the USA and China has risen sharply in recent years

Key figures for USA, Germany, and China from Switzerland's perspective (million CHF)



Remarks: Trade figures (exports and imports) reflect finished products only; trade/sales of semi-finished products are not included  
Further analyses (p. 44 ff.); Customs tariff numbers used (p. 66 ff.)

Source: Swiss Federal Customs Administration (FCA)

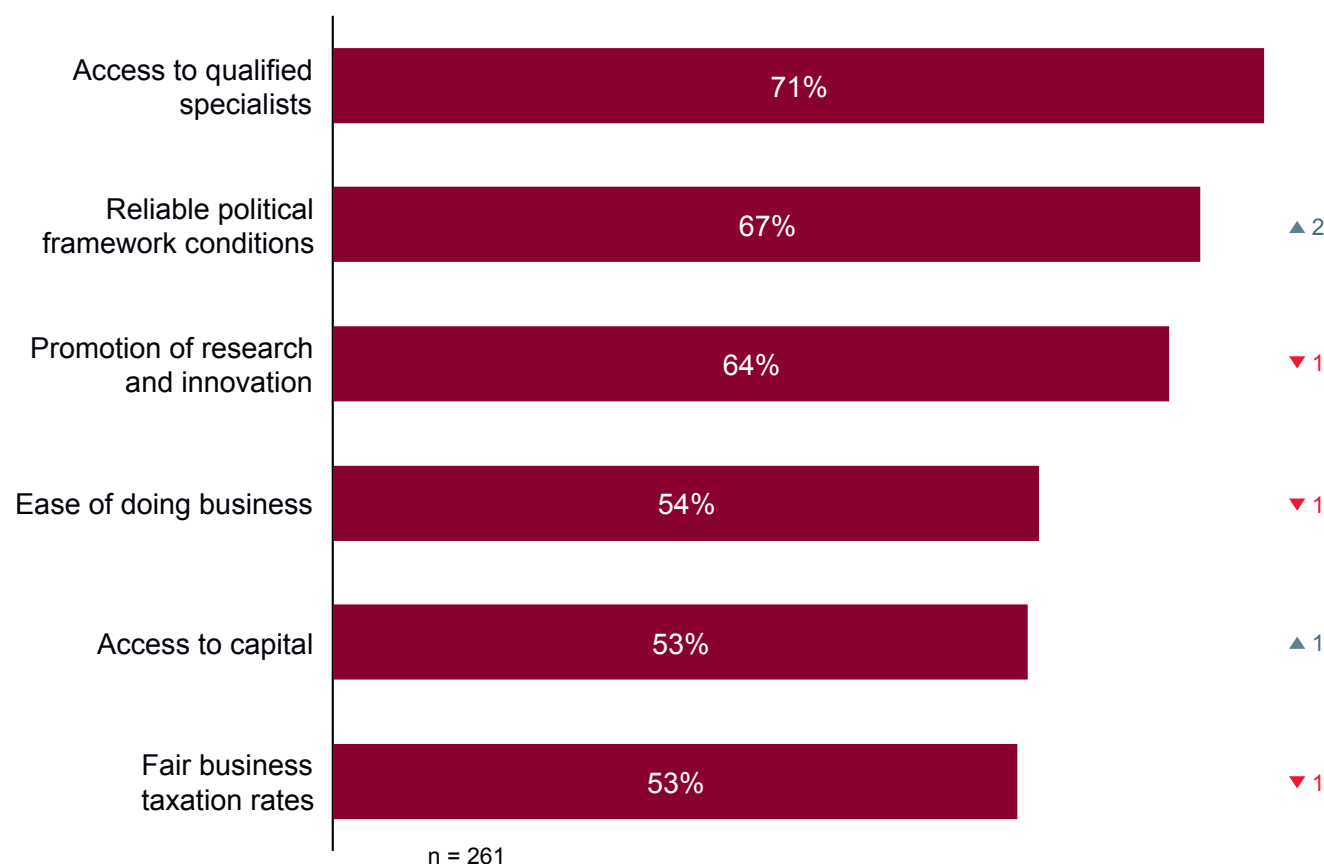


## Challenges

- Measures required for the Swiss medtech sector
- Challenges and recruitment difficulties

# Switzerland is urged to guarantee a reliable political climate and access to qualified specialists

**Companies' demands for the Swiss medtech workplace**  
(in % of all responses; all categories)



## Comments

- Swiss medtech companies see the greatest need for action regarding access to qualified specialists
- Demand for a reliable political framework conditions has increased significantly compared to 2018. This is a direct consequence of the current legal uncertainty between Switzerland and the EU
- The well-functioning promotion of research and innovation within Switzerland remains a key issue for the medtech industry
- According to the Global Innovation Index, Switzerland still ranks first place. The private sector finances two thirds of all research and development expenditure

Remarks: "Ease of doing business" includes, among other things, business start-up, building permits, power supply, infrastructure

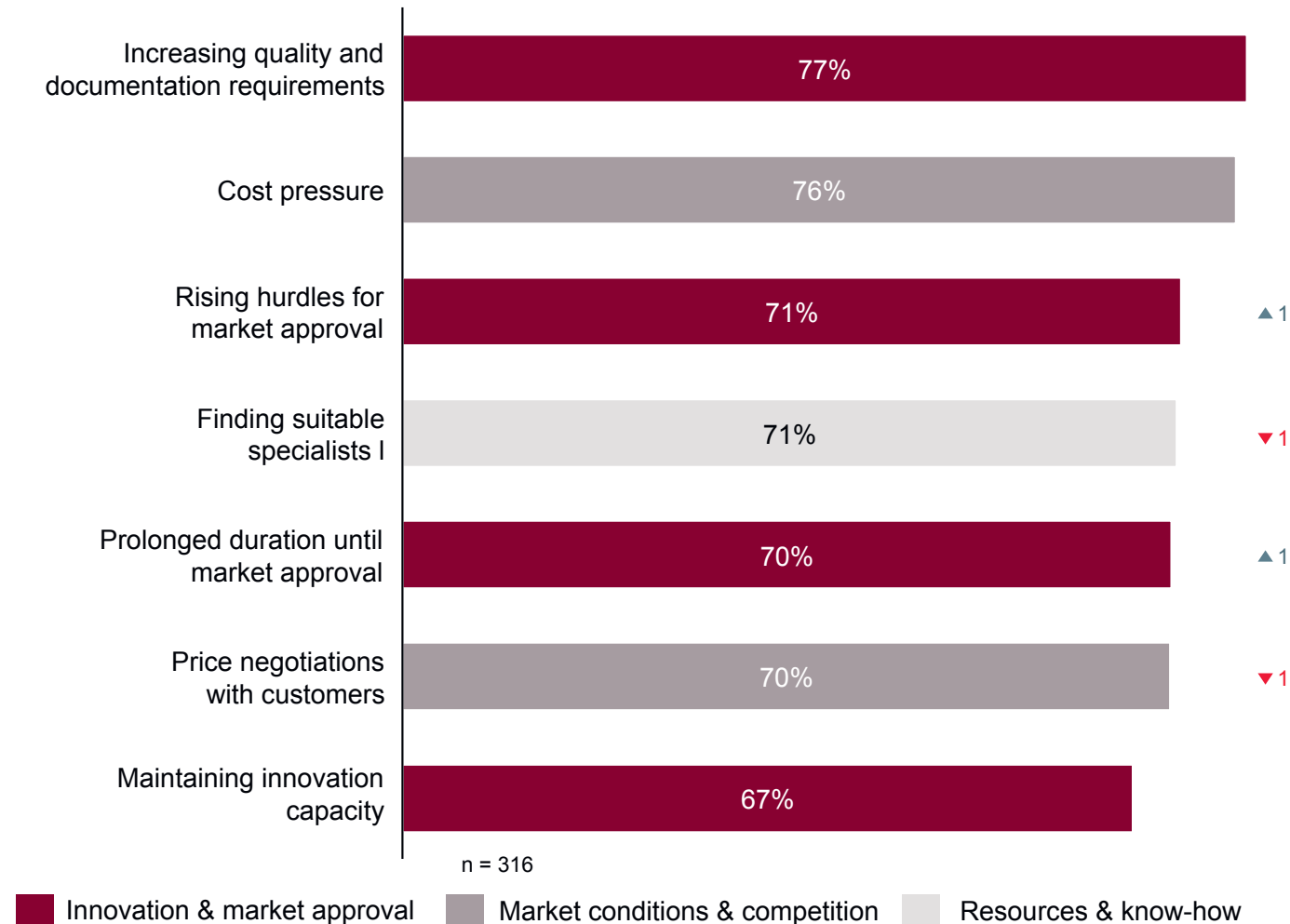
▲ ▼ Change in ranking compared to the SMTI Study 2018

Source: SMTI survey results 2020, Global Innovation Index 2019, FSO



# The conversion to MDR/IVDR presents the greatest challenge for companies

## Top 7 challenges for medtech companies (in % of all responses; all categories)



### Comments

- The figure shows the seven biggest challenges from a total of 24 possible answers
- The most frequently mentioned challenges involve innovation & market approval
- The greatest burden on companies are the demanding requirements for quality and documentation connected with implementation of MDR/IVDR
- Cost pressure remains a central issue for three quarters of all participants
- Pressure on the industry is generated by increased competition and cost-cutting measures in healthcare systems worldwide
- Rising hurdles for market approval and prolonged duration until market approval have gained in importance compared to the SMTI 2018 results

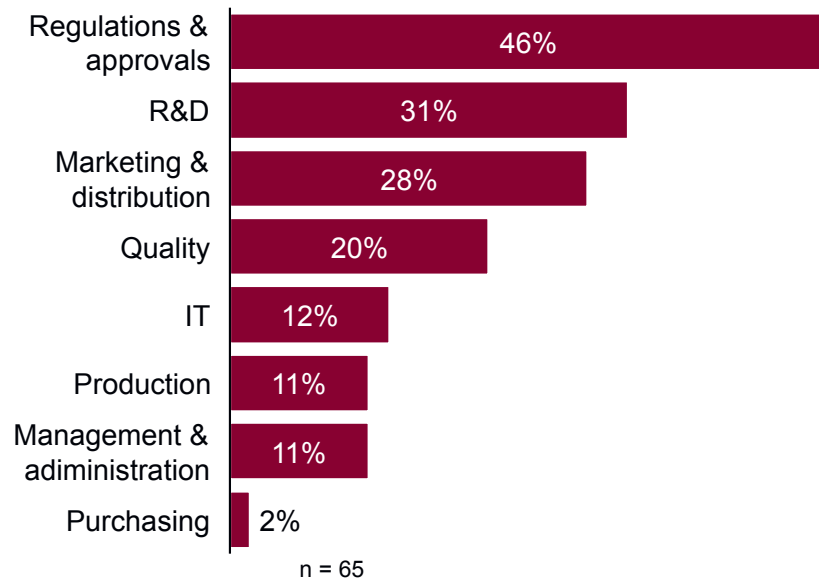
Remarks: ▲ ▼ Change in ranking compared to the SMTI Study 2018

Further analyses (p. 50 ff.)

Source: SMTI survey results 2020

# Manufacturers have the greatest difficulty recruiting for regulations & approvals; suppliers have trouble finding R&D personnel

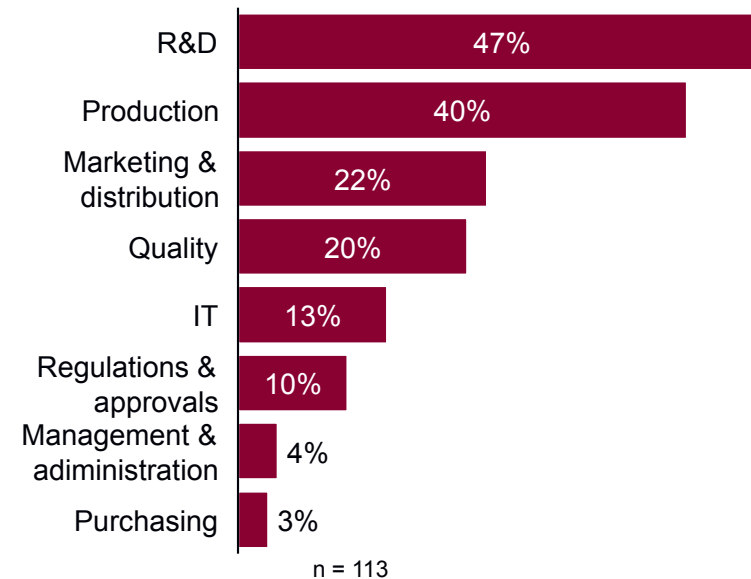
**Recruitment difficulties for manufacturers**  
(in % of all responses; manufacturers)



## Comments

- For almost every second manufacturer, recruiting suitable personnel in the area of regulations & approvals is a major challenge
- Hiring in the areas of R&D and marketing & distribution is also considered difficult

**Recruitment difficulties for suppliers**  
(in % of all responses; suppliers)



## Comments

- Suppliers have the greatest recruitment difficulties for R&D and production
- Finding qualified personnel for regulations & approvals, management & administration, and purchasing is considered less problematic



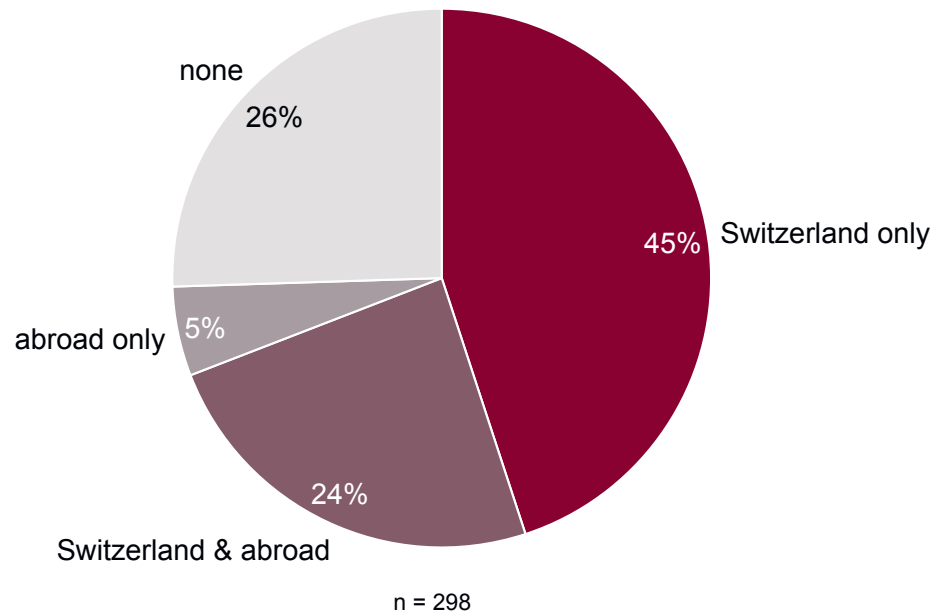
## Investments

- Planned investments in the next two years
- Top reasons for investing within Switzerland
- Investments in research & development
- Planned increases in personnel



# The majority of companies plan investments in production and research & development

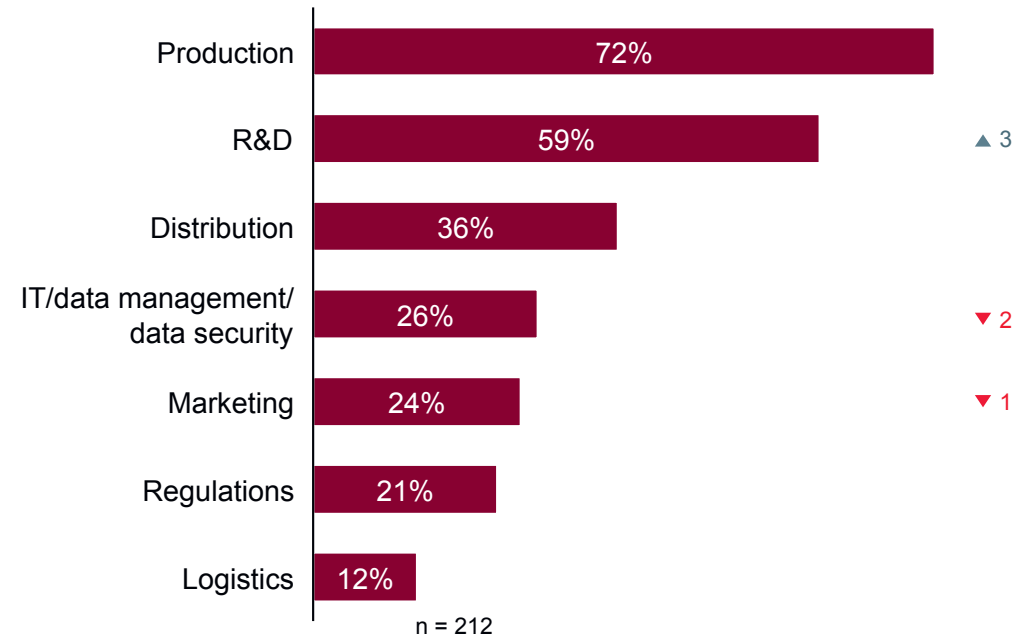
**Planned investments in the next two years**  
(in %; all categories)



## Comments

- More than two thirds of medtech companies surveyed are planning investments within Switzerland in the next two years
  - 45% only within Switzerland
  - 24% a combination of Switzerland and abroad

**Planned investments by area**  
(in % of all responses; manufacturers and suppliers)

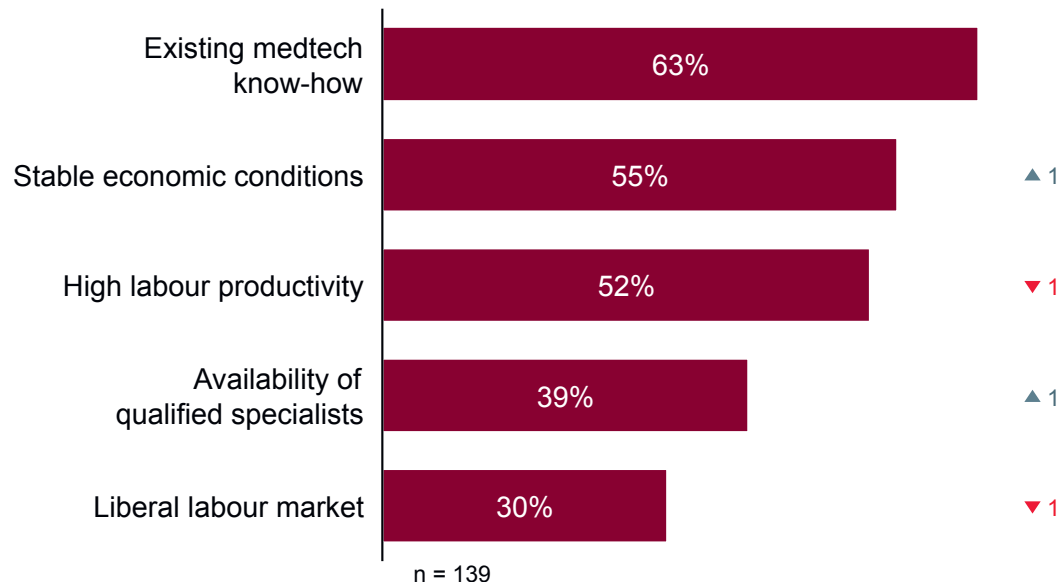


## Comments

- The industry intends to strengthen production and R&D over the next two years
- Investment in R&D is increasing most significantly compared to results of the SMTI 2018

# Medtech expertise and stable economic conditions are reasons for investing within Switzerland

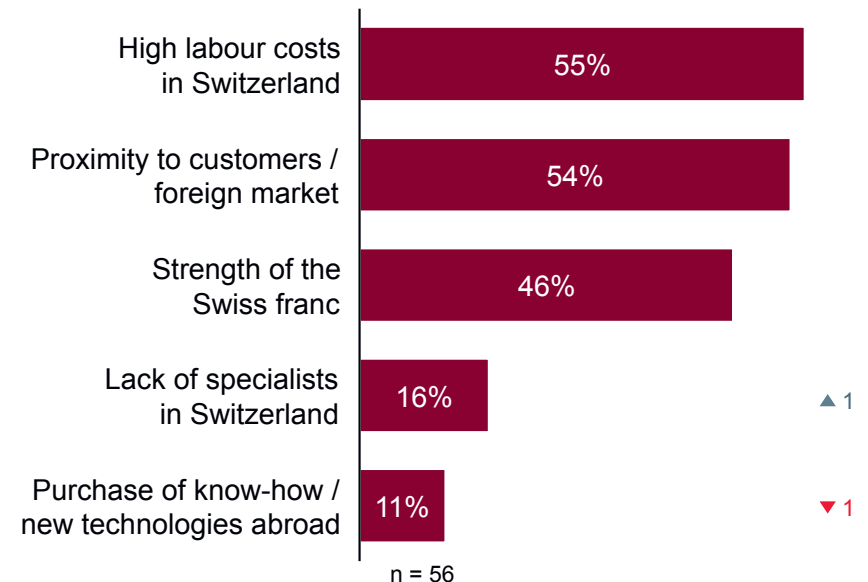
## Top 5 reasons for investments within Switzerland (in % of all responses; manufacturers and suppliers)



### Comments

- Existing medtech know-how, followed by stable economic conditions, and high labour productivity remain strong arguments for investing within Switzerland in 2020
- Reasons for investing: liberal labour market and availability of qualified specialists have switched places compared to the SMTI 2018

## Top 5 reasons for investments abroad (in % of all responses; manufacturers and suppliers)

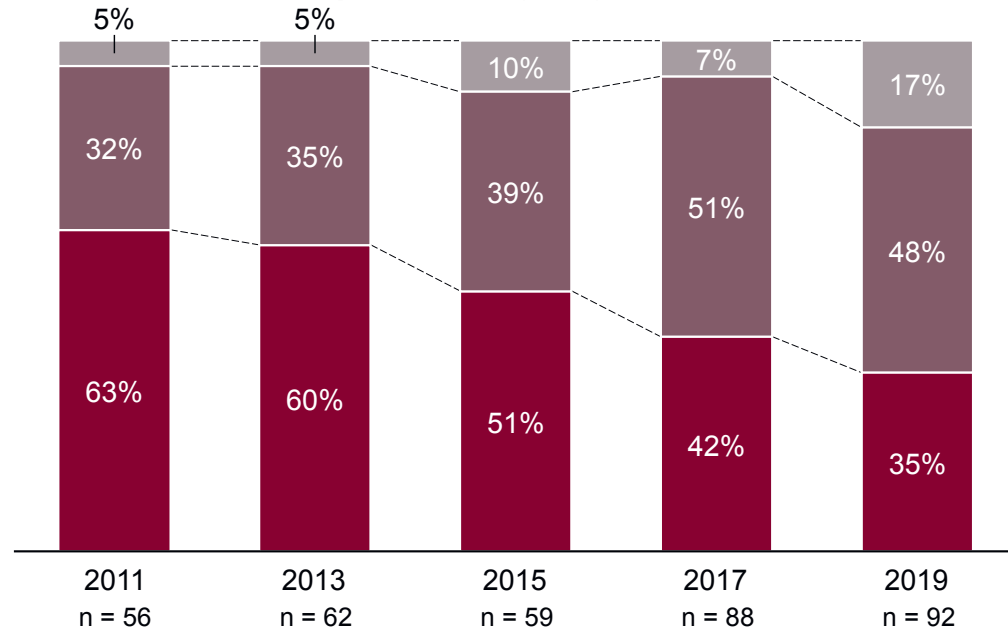


### Comments

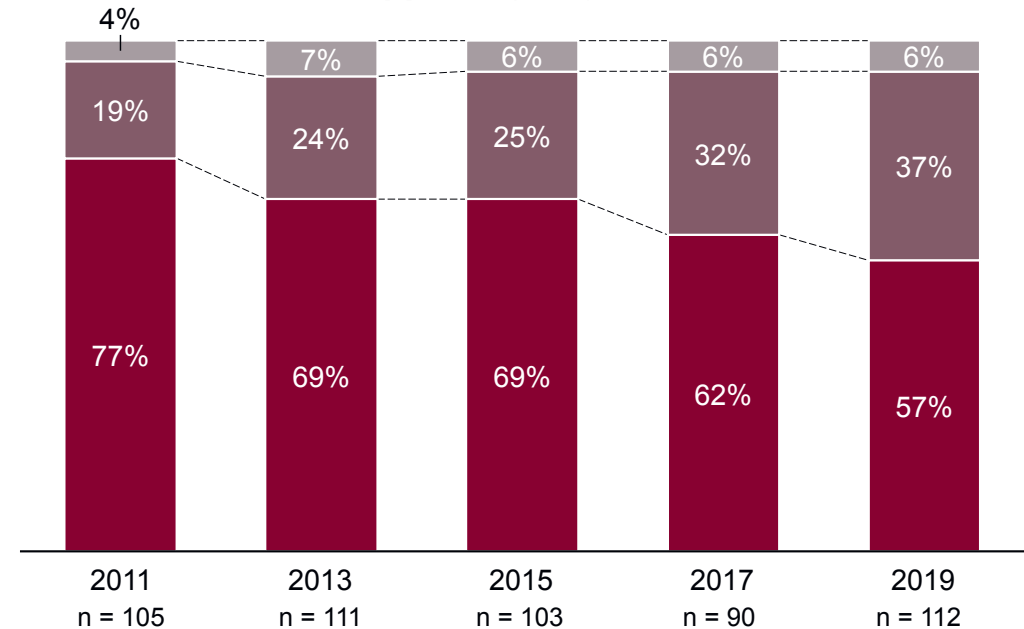
- High labour costs, proximity to customers, and the strength of the Swiss franc are reasons cited for investing abroad
- Another reason given is the limited availability of specialists in Switzerland

## Over 85% of Swiss manufacturers and suppliers have production facilities in Switzerland – the tendency to relocate production abroad is increasing

Production sites of producers (in %)



Production sites of suppliers (in %)



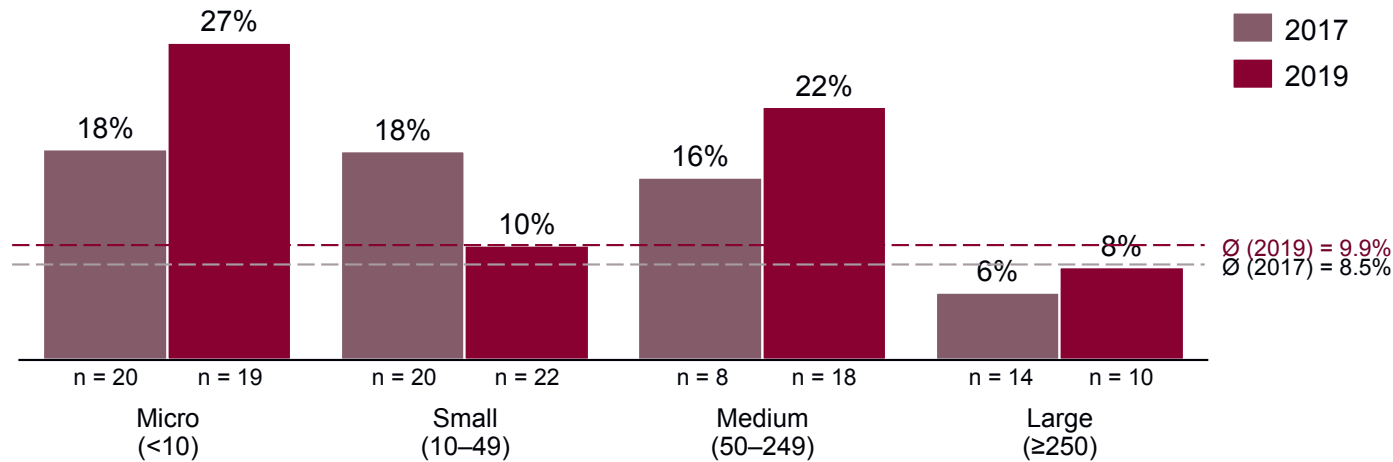
■ Production in Switzerland only ■ Production in Switzerland and abroad ■ Production abroad only

### Comments

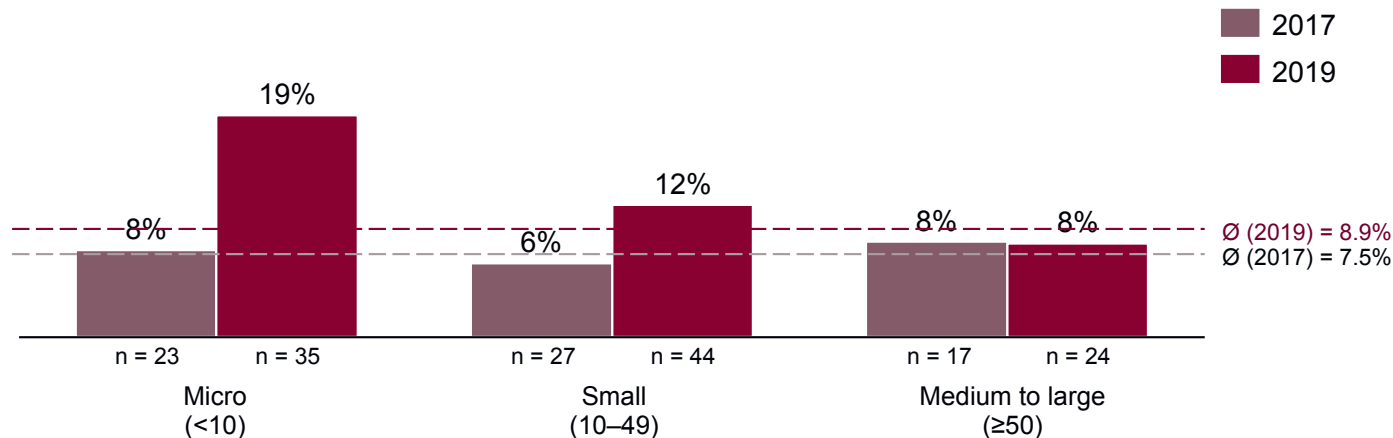
- The vast majority of Swiss manufacturers and suppliers have production sites in Switzerland. However, the proportion of manufacturers with exclusive production in Switzerland has fallen to 35%. For suppliers, this share has dropped to 57%.
- Advantages such as lower production costs, less complicated export formalities, and proximity to customers encourage many companies to establish production sites abroad
- The share of manufacturing companies with production sites exclusively abroad has risen to 17%; among suppliers it remains constant at 6%.

# Swiss medtech companies spend 9%-10% of their revenue on R&D

**Share of manufacturers' revenue expenditure on R&D**  
(in %)



**Share of suppliers' revenue expenditure on R&D**  
(in %)



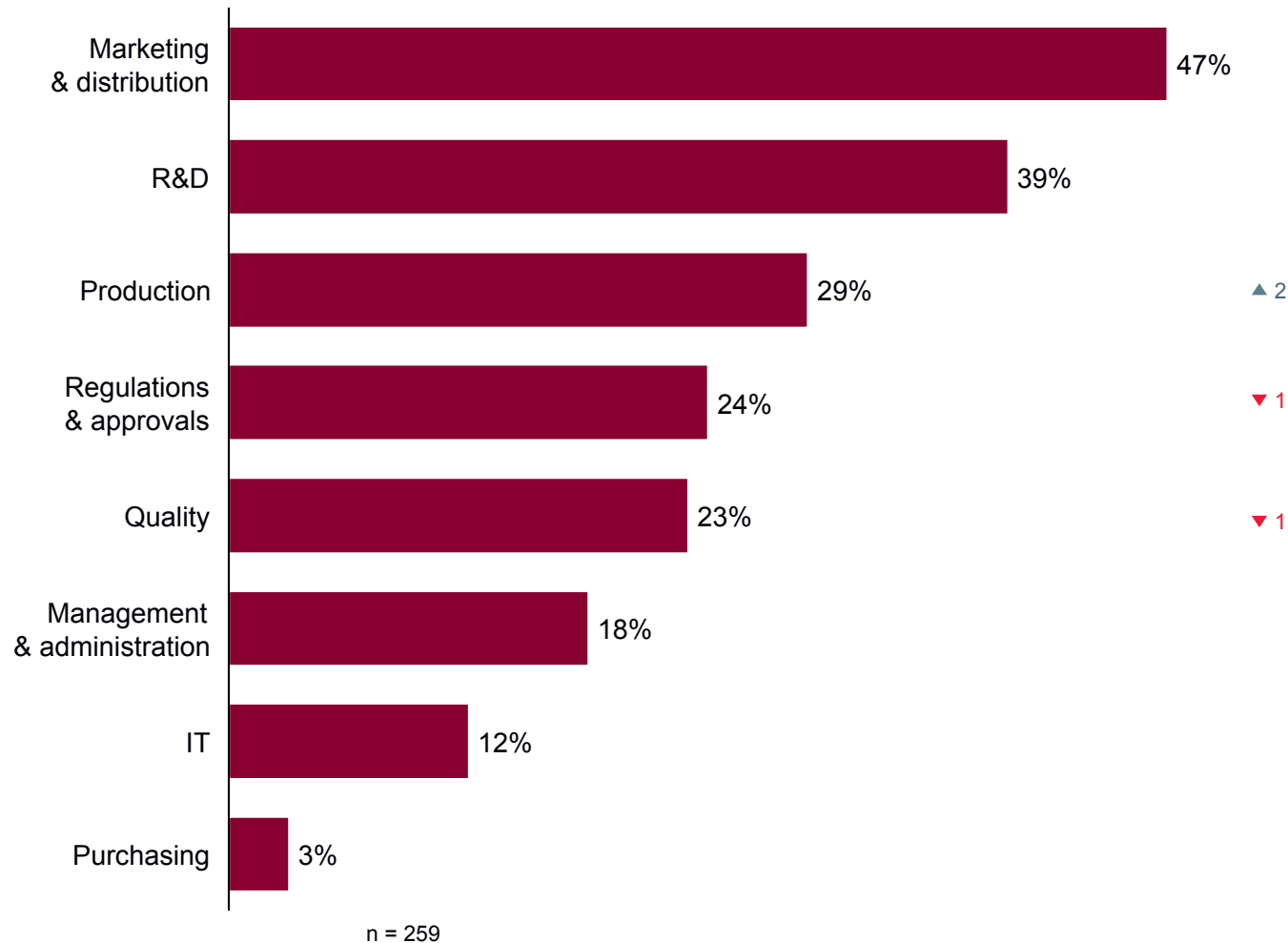
## Comments

- Manufacturers spend an average of 9.9% of their turnover on R&D
  - Broken down by company size, the R&D ratio ranges from 8% (large) to 27% (micro)
- Suppliers invest an average of 8.9% of their turnover in R&D expenditure
  - R&D spending ranges from 8% (medium to large) to 19% (micro)
- Microenterprises (<10 employees) report a larger share of R&D expenditure in relation to their sales
- On average, the survey shows an increase in the absolute R&D share of over 1% from 2017 to 2019



# Medtech companies continue to recruit additional personnel

## Planned increases in workforce over the next two years in Switzerland (in % of all responses; all categories)



Remarks: Multiple answers possible

▲ ▼ Change in ranking compared to the SMTI Study 2018

Source: SMTI survey results 2020

### Comments

- The largest increase in personnel is planned in the areas of marketing & distribution, research & development, and production
  - Marketing & distribution to achieve the expected sales growth
  - Research & development to maintain innovative power
  - Production to adequately meet market demand
- Recruitment of personnel for production has increased in importance since the last industry study



# Swiss medical technology industry demonstrates its high capacity for innovation

The medical technology sector is one of the most innovative industries in Switzerland. The following facts speak for themselves:

- 9–10% share of revenue is invested in R&D – significantly higher than the total Swiss expenditure on research & development<sup>1)</sup>
- industry with the largest share of scientific publications in Switzerland<sup>2)</sup>
- most patent applications per capita worldwide<sup>3)</sup>

Industry players continuously reassess and analyse tried and tested technologies. Their agility and the professional handling of changes are important success factors that ensure future competitiveness. Technologies, processes, products or services are fundamentally questioned – especially in the face of disruptive changes. Permanent innovations also characterize medtech industry.

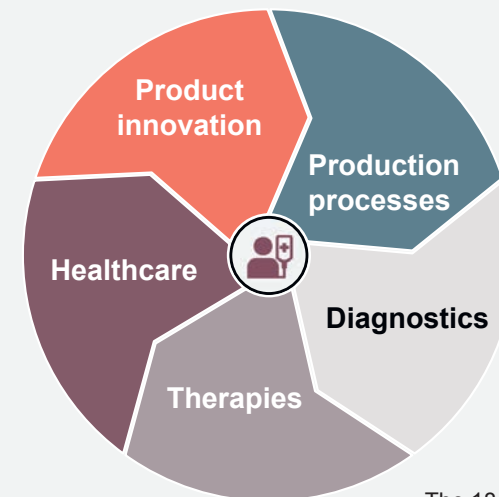
With the aim of gaining a better understanding of the industry's future viability and its ability to innovate – for the first time this year, the SMTI survey focused on how companies are viewing and dealing with top trends.

18 top trends in medical technology were identified. Digitalisation plays a central role here as it enables and facilitates new applications and usages for processes, products, or services. The top trends can be structured into three levels of digitisation and five main processes of the value chain as follows:

- The first level includes the basic digital requirements: data collection (novel sensors and methods), data recording and networking (IoT), data processing and refinement to information (big data), visualisation (AR/VR), and subsequent interpretation for decision-making

- The second level includes digital concepts and applications such as smart devices, human-machine interfaces, automation and robotisation in surgery and care, telemedicine, and the availability of information for the health-conscious patient
- The third level of digitalisation enables new methods and processes for manufacturing (Industry 4.0, 3D printing) and after-sales management. This also includes materials with novel properties and individualised products and treatments

18 «Top Trends» were identified and classified into the five main processes along the value chain (see figure). Companies participating in the survey were asked to assess their relevance – current and for the near future – as well as potential threats or difficulties posed by the trends.



The 18 Top Trends are explained in detail on the next page

1) 3.4% of gross domestic product (GDP, 2017) was invested in R&D, SBFI

2) Research field "Clinical Medicine" with approx. 1,800 publications per million inhabitants, Ø 2014–2018, SBFI

3) 69 significant patent applications (world-class patents) per million inhabitants in medtech 2018, 2nd Denmark (53), 3rd Netherlands (49), Source: EconSight GmbH

# 18 top trends in medical technology – classified into the five main processes

## Product innovation

1	<b>Smart devices</b>	Smart design and engineering, wearables, hearables, implantables, etc.
2	<b>Materials innovation</b>	Improved properties: resistance, biocompatibility, surfaces, malleability, etc.
3	<b>Substitution technology</b>	New sensors for continuous non-invasive and invasive measurement of body data, etc.
4	<b>Data recording</b>	Internet of things, sensorisation, connection with evaluation software, etc.
5	<b>Individualisation</b>	Individualised prostheses and implants, electronic tablets, etc.

## Manufacturing method

1	<b>Manufacturing processes</b>	Industry 4.0, digitalisation of industrial production, automation and robotisation, etc..
2	<b>Substitution technology</b>	3D printing, dematerialisation, digitalisation, miniaturisation, batch size 1, etc.

## Diagnostics

1	<b>Service automation</b>	Remote monitoring, automatic ordering of spare parts, etc.
2	<b>Data processing</b>	Big data analysis and processing, cybersecurity, artificial intelligence (AI), pattern recognition in unstructured data, etc.

3	<b>Personalised medicine</b>	Precision medicine adapted to genomes, patient-specific implants, etc.
4	<b>Augmented Reality / Virtual Reality</b>	Observing the inside of the body, visualisation of complex data, simulation of interventions, surgery planning including risk management and outcome probability, etc.
5	<b>Human-machine interfaces</b>	Intuitive usability, speech recognition, brain-computer interfaces, etc.

## Therapies

1	<b>Automation and robotisation</b>	Robots to support personnel during surgery, in hospitals, nursing, etc.
2	<b>Decision-making autonomy of physicians</b>	Automation of interpretation and decision making from diagnostic results, etc.

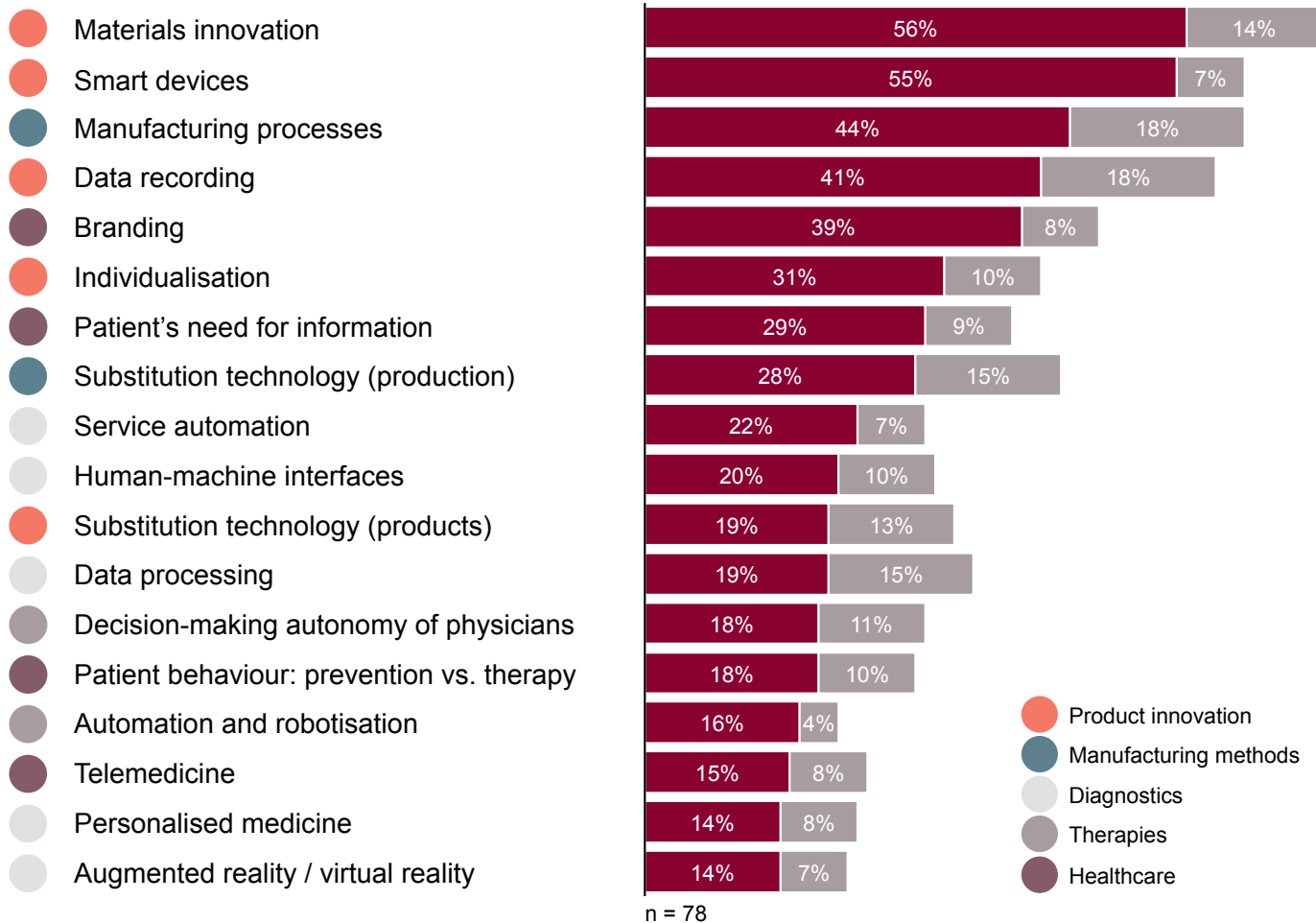
## Healthcare

1	<b>Patient behaviour: prevention vs. therapy</b>	Integration of healthcare into everyday life, etc.
2	<b>Patient's need for information</b>	Need for information about diseases, healthy living, all available therapies, etc.
3	<b>Telemedicine</b>	Bridging spatial or temporal distances for diagnostics and therapy, etc.
4	<b>Branding</b>	Brand awareness, etc.



# Materials innovation and smart devices are being increasingly integrated in manufacturers' innovation pipelines

## Top trends from the manufacturer's perspective (in % of all responses)



Remarks: Further analyses (p. 53 ff.)  
Source: SMTI survey results 2020

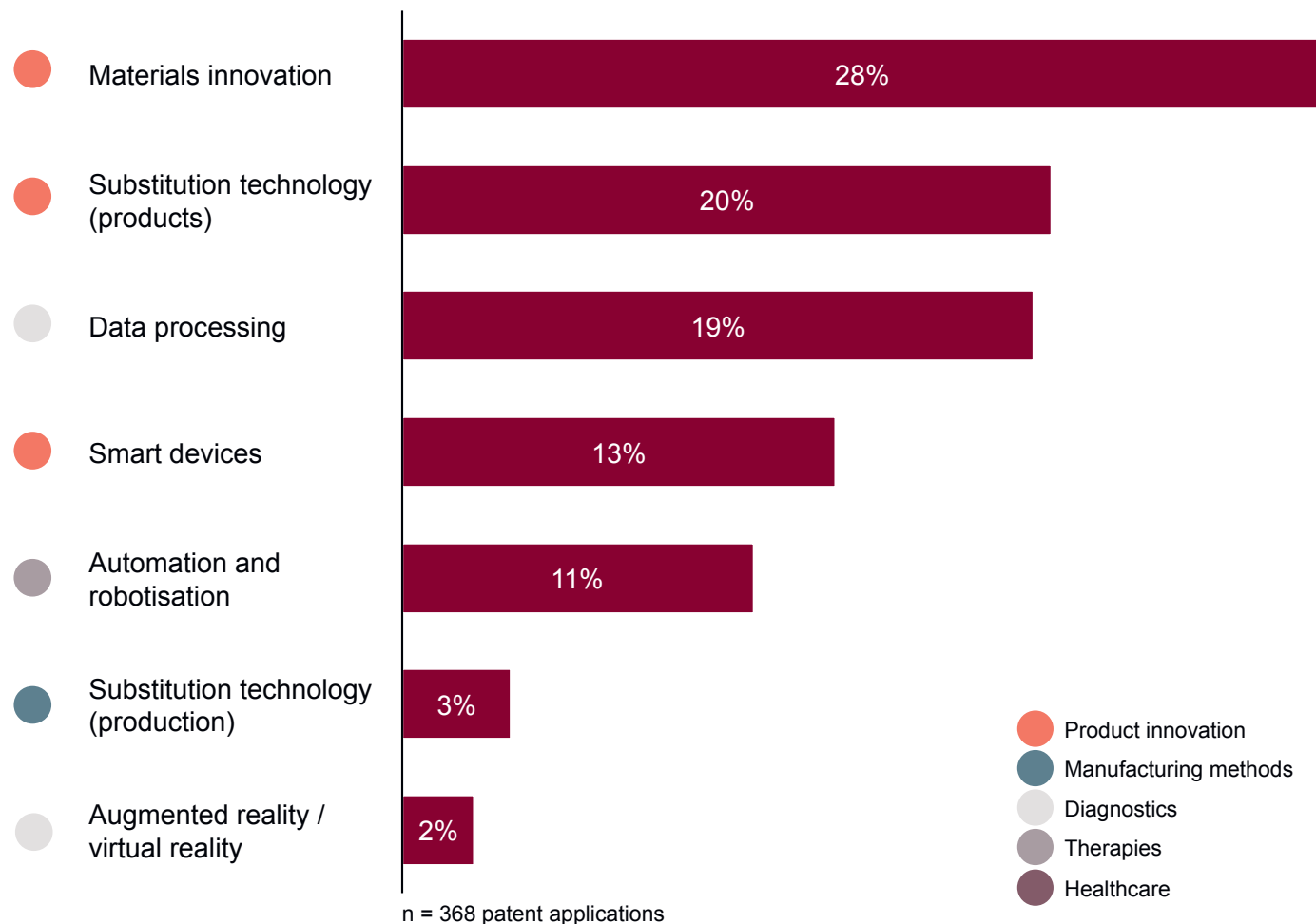
Already addressed  
In planning (medium-term)

## Comments

- More than 50% of manufacturers have already addressed the trends of materials innovation and smart devices in their operations and have included them in their implementation planning
- Over 40% handle manufacturing processes and data acquisition as trends that are already relevant today
- In the medium term, the following trends will attract more attention and be increasingly included in their strategic agenda:
  - Manufacturing processes (+18%)
  - Data recording (+18%)
  - Substitution technology (production) (+15%)
  - Data processing (+15%)

## Patent applications reflect this pattern – 80% of submissions are for materials innovation, smart devices, sensors, and data-processing technologies

**Top 7 trends derived from patent applications<sup>1)</sup> 2018, with Swiss inventor**  
(in % of all patent applications with allocation<sup>2)</sup> to the top trends)



### Comments

- Most patents have been filed for materials innovations such as nanomaterials, advanced coatings, polymers, and dental implants
- Substitution technologies (products) such as novel sensors and data processing (big data, digital diagnosis, cloud, cybersecurity, AI) occupy 2nd and 3rd place
- 13% of the 48 patent applications from 2018 analysed were for smart devices
- Patents for automation and robotisation (computer-assisted surgery, surgical and nursing robots) represent 11% of patent applications in 2018
- Patent applications for 3D printing are included in the substitution technology (manufacturing) category

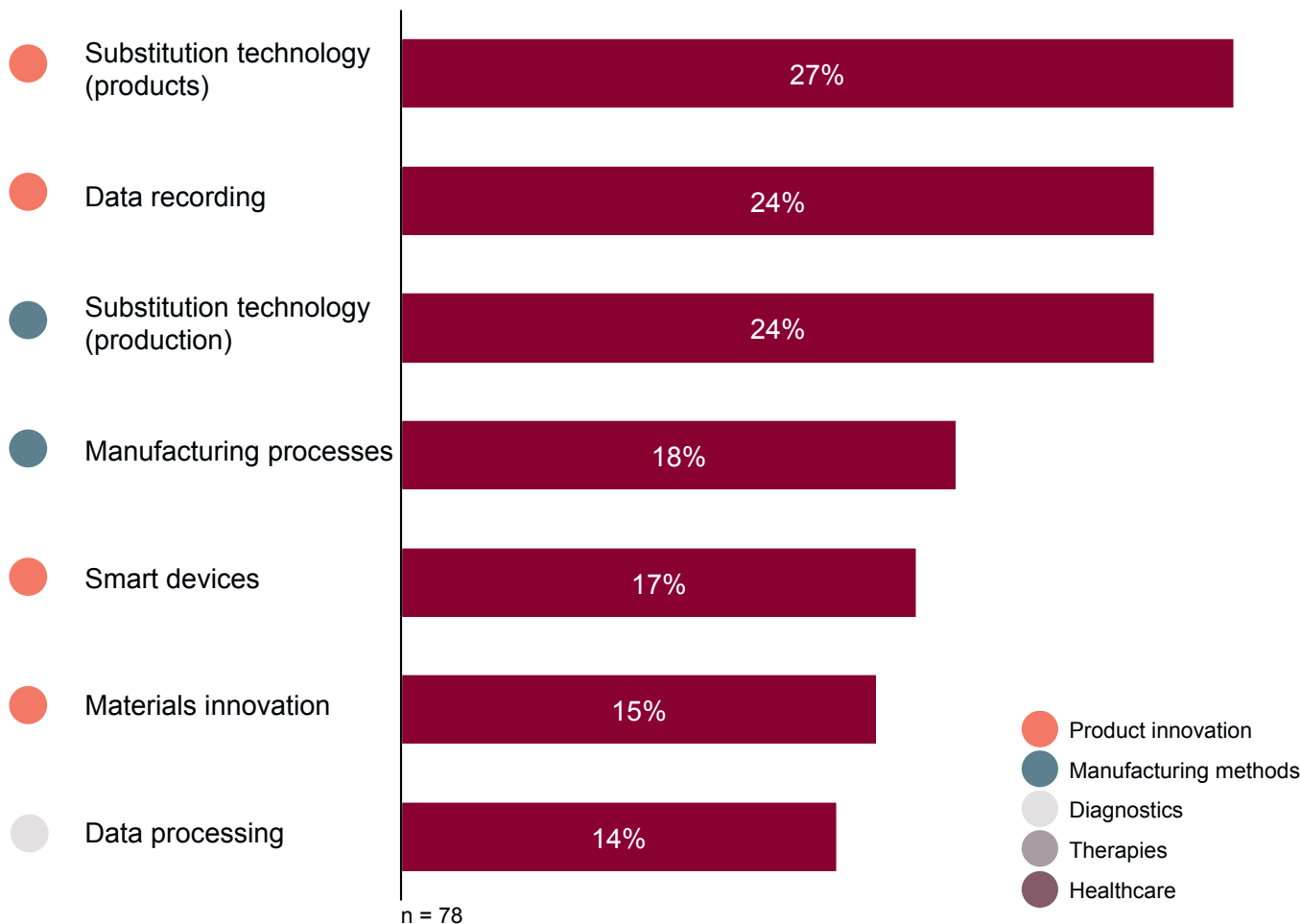
1) Application of patents with high importance (citation, technical relevance, scope of patent coverage)

2) 45% of patent applications considered in 2018, excl. large-scale appliances, hospital equipment, disposables, prostheses)

Source: EconSight GmbH

## Substitution technologies are also perceived as a potential threat

### Top 7 threats from manufacturers' perspective (in % of all responses)



### Comments

- The trend groups: product innovation and manufacturing methods are perceived as the biggest threats – as they provide possible entry points to the market for other companies
- Over 20% of manufacturers cite the following three top trends as possible entry points for new competitors:
  - Substitution technology (products)
  - Data acquisition
  - Substitution technology (manufacturing)
- 14% of manufacturers see data processing as a potential threat in their business field. Global players such as Samsung, Apple, and Google are attempting to consolidate their position in big data and AI – as well as medical technology





## MDR/IVDR

- Implementation of MDR and IVDR
- Expected impact
- Priorities for action



# The impact of MDR and IVDR on Swiss medtech companies

## MDR and IVDR, the new EU regulations for medical devices

The EU regulations on medical devices (MDR) and in vitro diagnostics (IVDR) have been in force since 26 May 2017. Their aim is to increase patient safety by improving benefit/risk assessment and market surveillance. The two new regulations come into mandatory effect for the EU member states in May 2021 and May 2022 respectively.

Requirements for the contents of technical documentation are regulated in more detail in the MDR and are significantly more extensive than in the past – involving both before and after a medical device is placed on the market. Manufacturing companies must therefore recruit and train additional specialists to cope with the additional workload. The higher regulatory burden is affecting SMEs more than large companies. A concentration of companies on the market must be expected. In addition, some medical products with lower demand and smaller production quantities will also be withdrawn from the market. The effort required is no longer worthwhile in relation to the potential returns.

## Regulatory equivalence and Swiss medical device law

Since 1996, Swiss legislation on medical devices has been aligned with EU directives. Together with the Mutual Recognition Agreement (MRA), this regulatory equivalence forms the basis for the free exchange of goods throughout Europe. The introduction of MDR and IVDR requires corresponding adjustments to the Swiss national legal bases – within the European transition time frames.

Following the partial revision of the Therapeutic Products Act (TPA) and the Human Research Act (HRA), the necessary legal foundations – namely, the totally revised Medical Devices Ordinance (MedDO) and a new Ordinance on Clinical Trials for Medical Devices (ClinO-MD) – were created to adapt the implementing legislation to the new EU regulation of medical devices. These regulations will come into force in May 2021, at the same time as the MDR. The

MRA, however, must also be updated to make certain that its introduction runs smoothly. If this is not ensured, Switzerland will drop to the status of a third country from May 2021 and will lose its barrier-free access to the European market.

## Significant consequences for economic operators

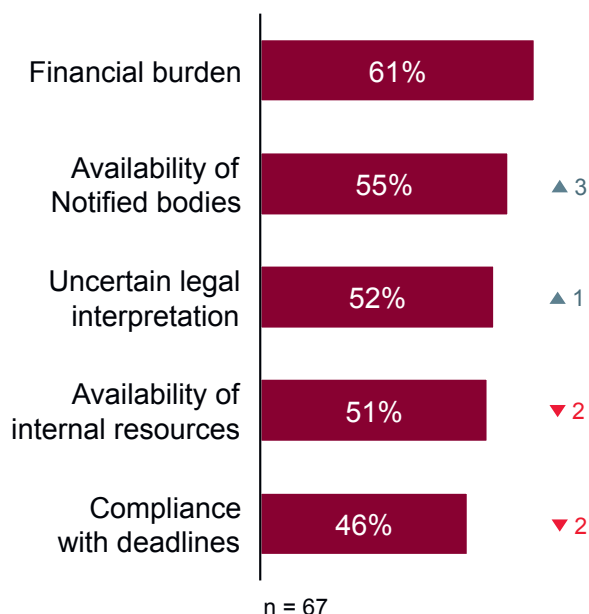
The new regulations affect all economic operators (manufacturers, authorised representatives, importers, and dealers) in different ways. Based on the results of the study, the introduction of the new regulations will lead to major changes or unresolved issues in the following four areas:

- Personnel expenses and costs
- Compensation for the additional work
- Scope of product portfolios
- Medium to long-term innovation activities

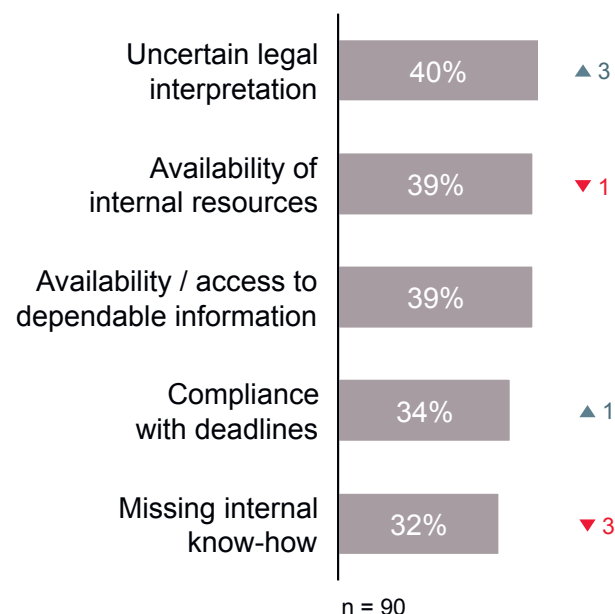
The participants of this year's SMTI survey were asked in a special MDR/IVDR section to detail their assessments of the expected consequences. Luckily, implementation of the MDR requirements is already well advanced as economic operators had prepared for the originally planned application date of May 2020 (postponed by one year in April 2020). The responses in this section are therefore highly informative.

## Additional financial burdens, limited availability of notified bodies and reliable information accompany the introduction of the new regulations

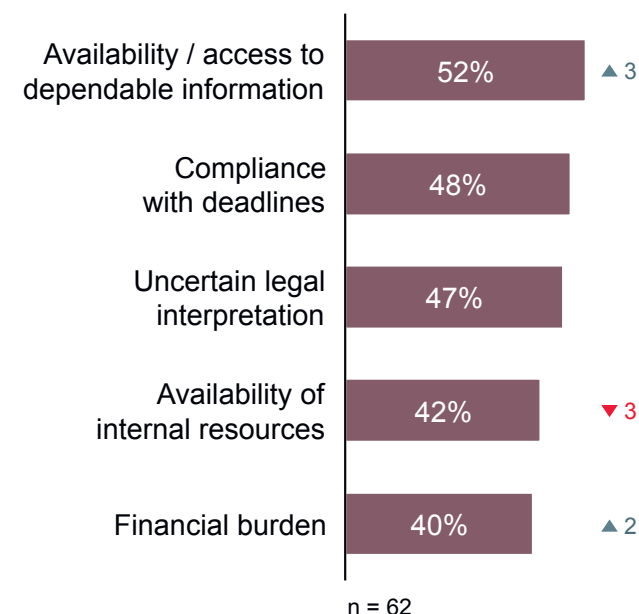
### Top 5 difficulties – manufacturers (in % of all responses)



### Top 5 difficulties – suppliers (in % of all responses)



### Top 5 Difficulties – trade & distribution (in % of all responses)



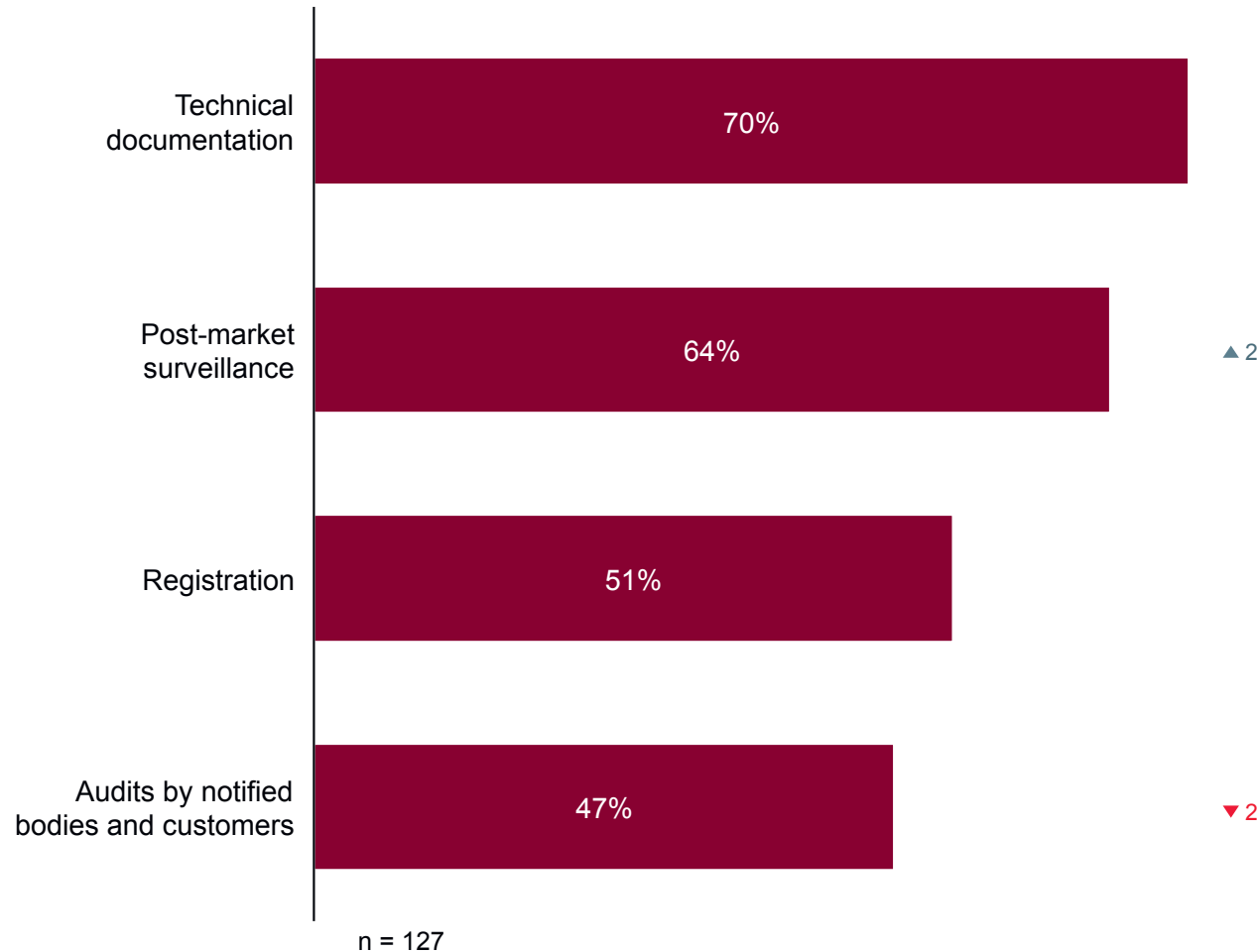
### Comments

- The lack of availability of notified bodies and the additional costs present major problems for manufacturers
- All actors find the partial absence of legal interpretation of the new laws – so shortly before they come into force – unsettling. The situation has worsened compared to SMTI 2018
- Concerns regarding compliance with the implementation deadlines have diminished

# Implementation of MDR/IVDR is expected to generate additional costs – especially for technical documentation and post-market surveillance

## Additional costs for distributors

(in % of all responses; manufacturers and trade & distribution)



## Comments

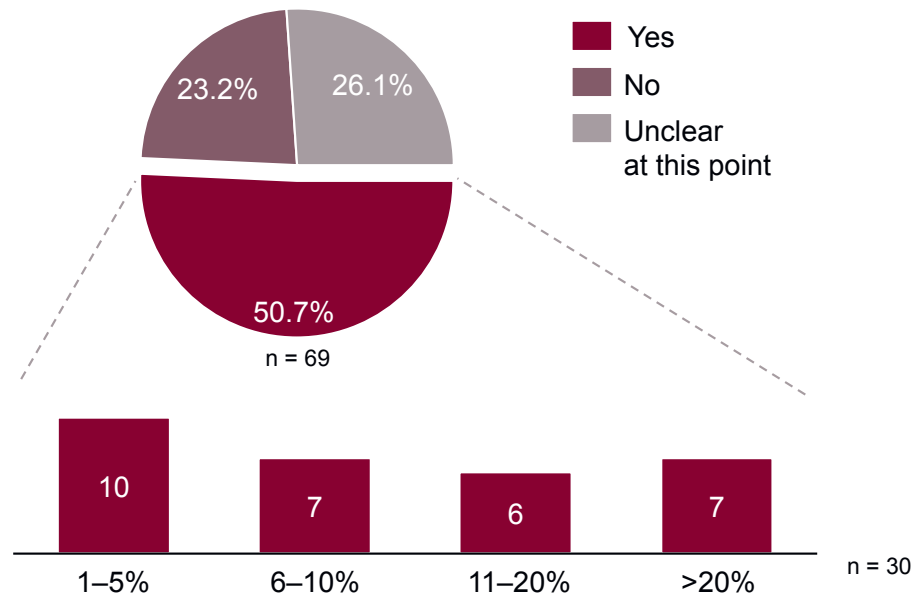
- For manufacturers and trade & distribution, expenses in connection with technical documentation are still generating the greatest additional costs
- The additional costs for post-market surveillance (PMS) are increasing as the MDR date of application approaches

Remarks: ▲ ▼ Change in ranking compared to the SMTI Study 2018

Source: SMTI survey results 2020

# Manufacturers require more personnel as a result of MDR/IVDR; and are simultaneously reducing their product portfolio

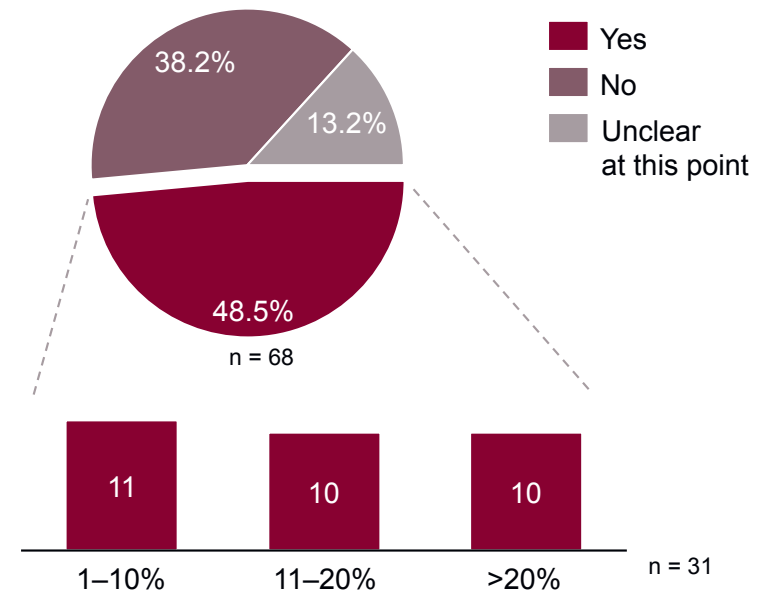
**Increase in human resources**  
(# of responses in %; manufacturers)



## Comments

- Approx. 50% of all manufacturers have been forced to hire more personnel due to the introduction of MDR/IVDR
- One fourth of the manufacturers can manage the requirements of the MDR/IVDR without additional personnel
- The impact of increasing human resources is felt most by small businesses

**Reduction of product portfolio**  
(# of responses in %; manufacturers)



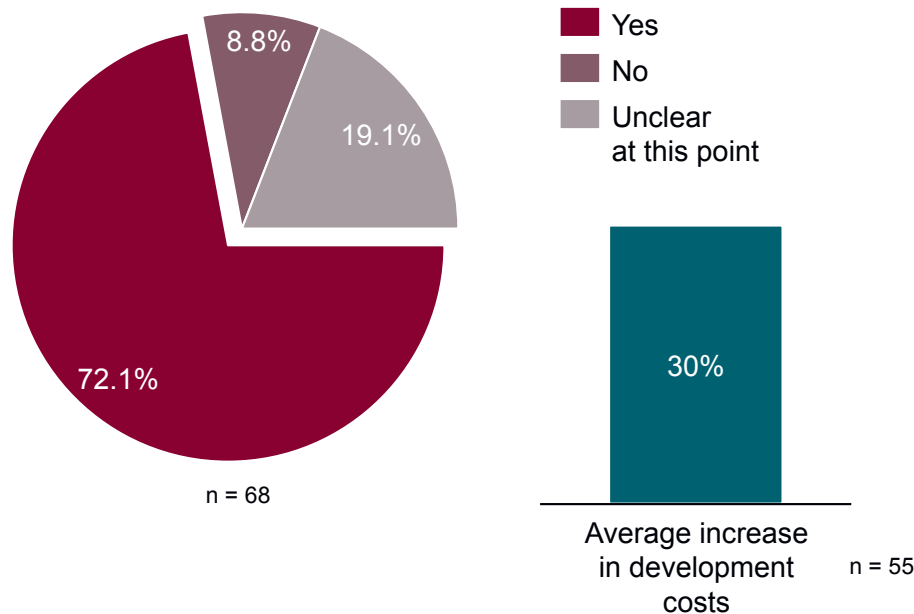
## Comments

- With the introduction of the MDR/IVDR, about half of all manufacturers are reducing their product portfolio and saving the conversion costs in favour of product diversity
- A little over one third of all manufacturers (38%) are not planning to reduce their portfolio



# Implementation of MDR/IVDR: development expenditures and product costs rise

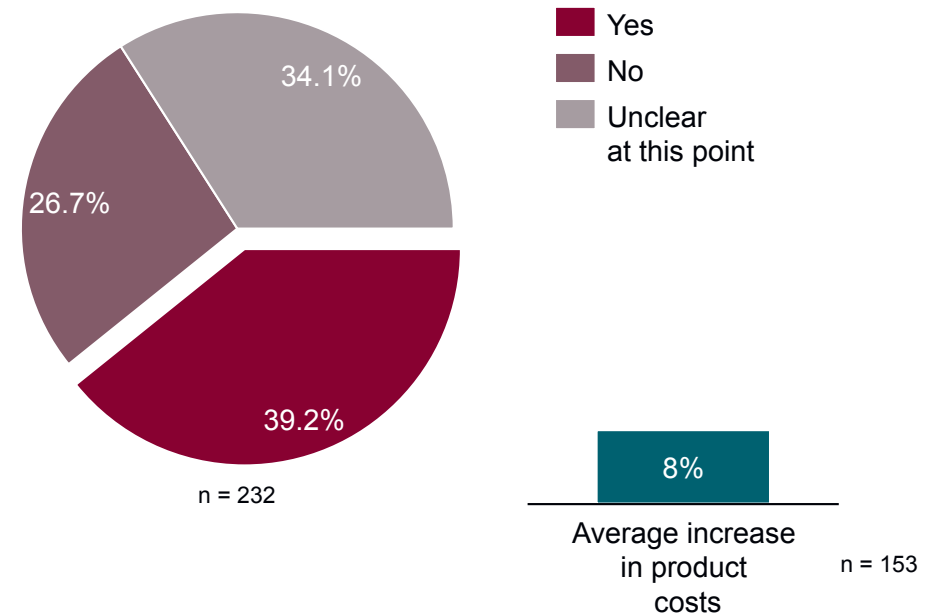
## Increase in development costs (# of responses in %; manufacturers)



### Comments

- 72% of manufacturers indicate that product development costs will rise
- Cost increases compared to the previous regulatory system are estimated at 30% on average

## Increase in product costs (# of responses in %; manufacturers, suppliers, trade & distribution)



### Comments

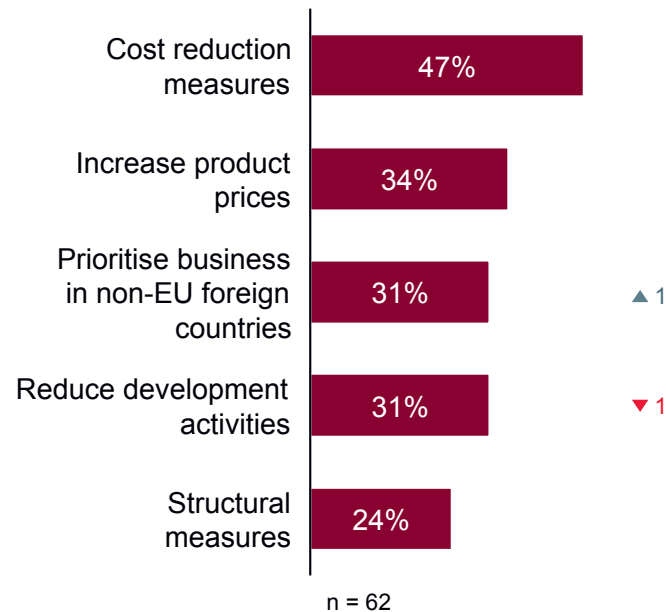
- Around 40% of all companies expect an increase in product costs
- The rise in product costs is estimated to be around 8%.

Remarks: To calculate the average increase, the mean value was determined using the yes share (in % of responses about the increase) and the no share (0%)  
Further analyses in Appendix (p. 59 f.)

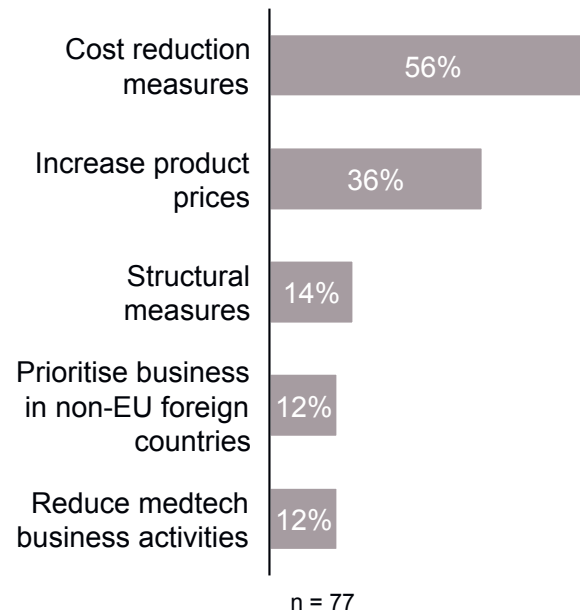
Source: SMTI survey results 2020

# Price increases combined with cost reductions are the most essential measures

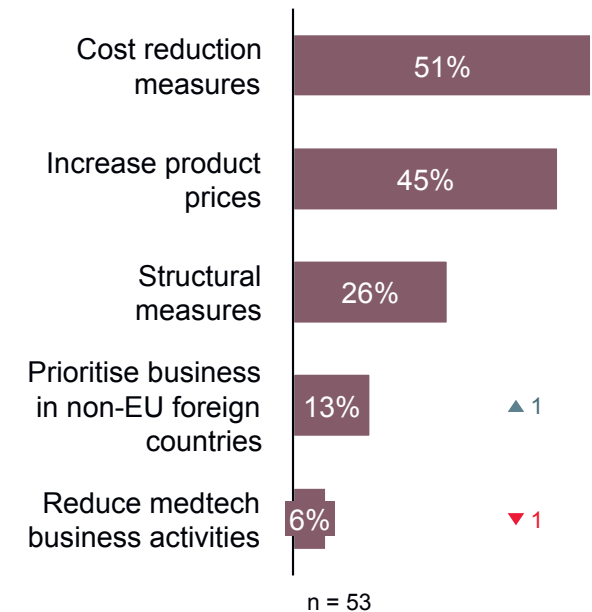
## Top 5 key areas of action manufacturers (in % of all responses)



## Top 5 key areas of action suppliers (in % of all responses)



## Top 5 key areas of action trade & distribution (in % of all responses)



## Comments

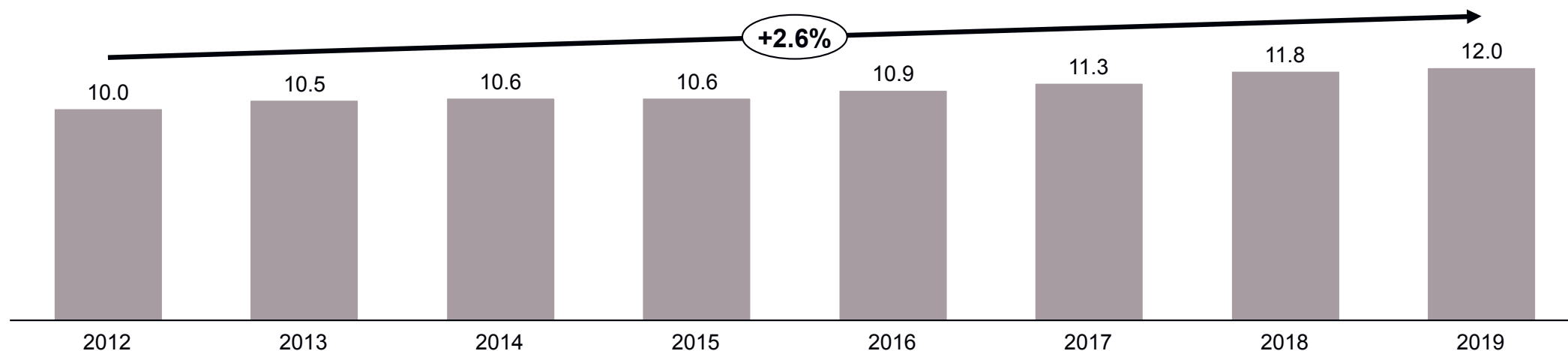
- Action is focused primarily on cost reduction measures and price increases for products. The effect of MDR/IVDR on costs is to be compensated by raising product price
- Structural measures and transferring some business activities to non-EU countries are also being considered
- Rising costs are forcing manufacturers to streamline their innovation and development activities
- Few suppliers and dealers are considering reducing their business activities in the medtech sector



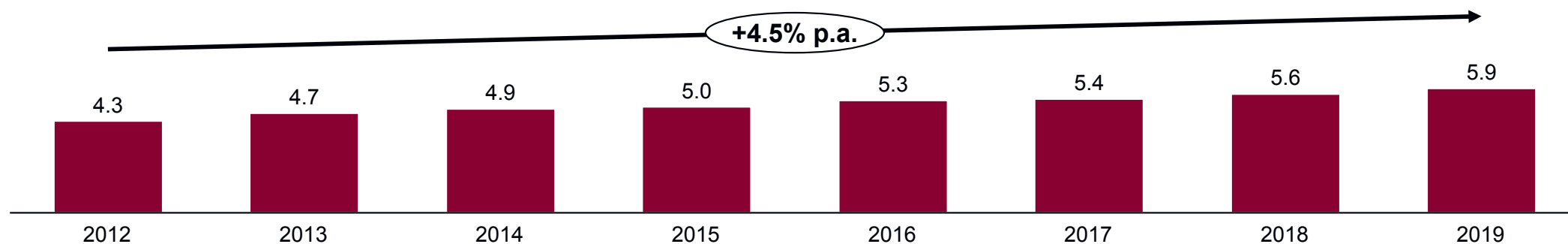
## Further analyses and appendix

## Trade figures: import and export performance of the Swiss medtech industry

Export performance of the Swiss medtech industry (in CHF billions)



Import performance of the Swiss medtech industry (in CHF billions)



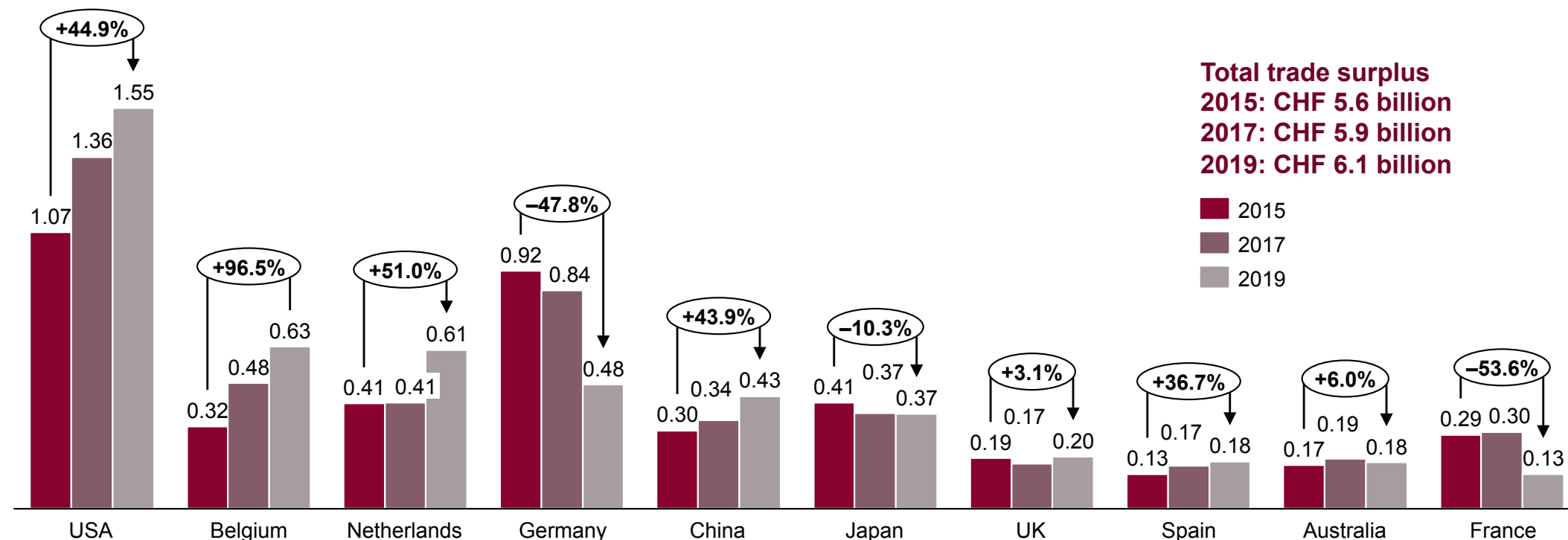
Remark: Trade figures (exports and imports) reflect finished products only; trade/sales of semi-finished products are not included  
Customs tariff numbers used (p. 66 ff.)

Source: Swiss Federal Customs Administration (FCA)



# Trade figures: Switzerland has confirmed its position as a significant medtech exporter in recent years

Top 10 Swiss medtech trade surpluses 2019 (in CHF billion)



## Comments

- Medtech trade surpluses with Belgium, the Netherlands, the USA, and China recorded the highest growth since 2015
- Regarding France and Germany, the medtech trade surplus has decreased approx. 50% each since 2015. This is due to both falling exports and rising imports from these countries

Remarks: The Netherlands and Belgium are home to the European central warehouses of various global players

Trade figures (exports and imports) only reflect finished products; the trade/sales of semi-finished products are not included

Customs tariff numbers used (p. 66 ff.)

Source: Swiss Federal Customs Administration (FCA)

## Trade figures: in terms of volume, the EU has become less important for the Swiss medtech industry in recent years

Key figures for the EU as a percentage of total trade from a Swiss perspective (in million CHF)



### Comments

- Imports from the EU have remained constant since 2010; however, exports have fallen by CHF 900 million in the same time frame
- Total Swiss medtech exports rose by CHF 2,100 million in the same period. As a result, the percentage of trade surplus with the EU has fallen by one third but still accounts for 39% of the total trade surplus in 2019

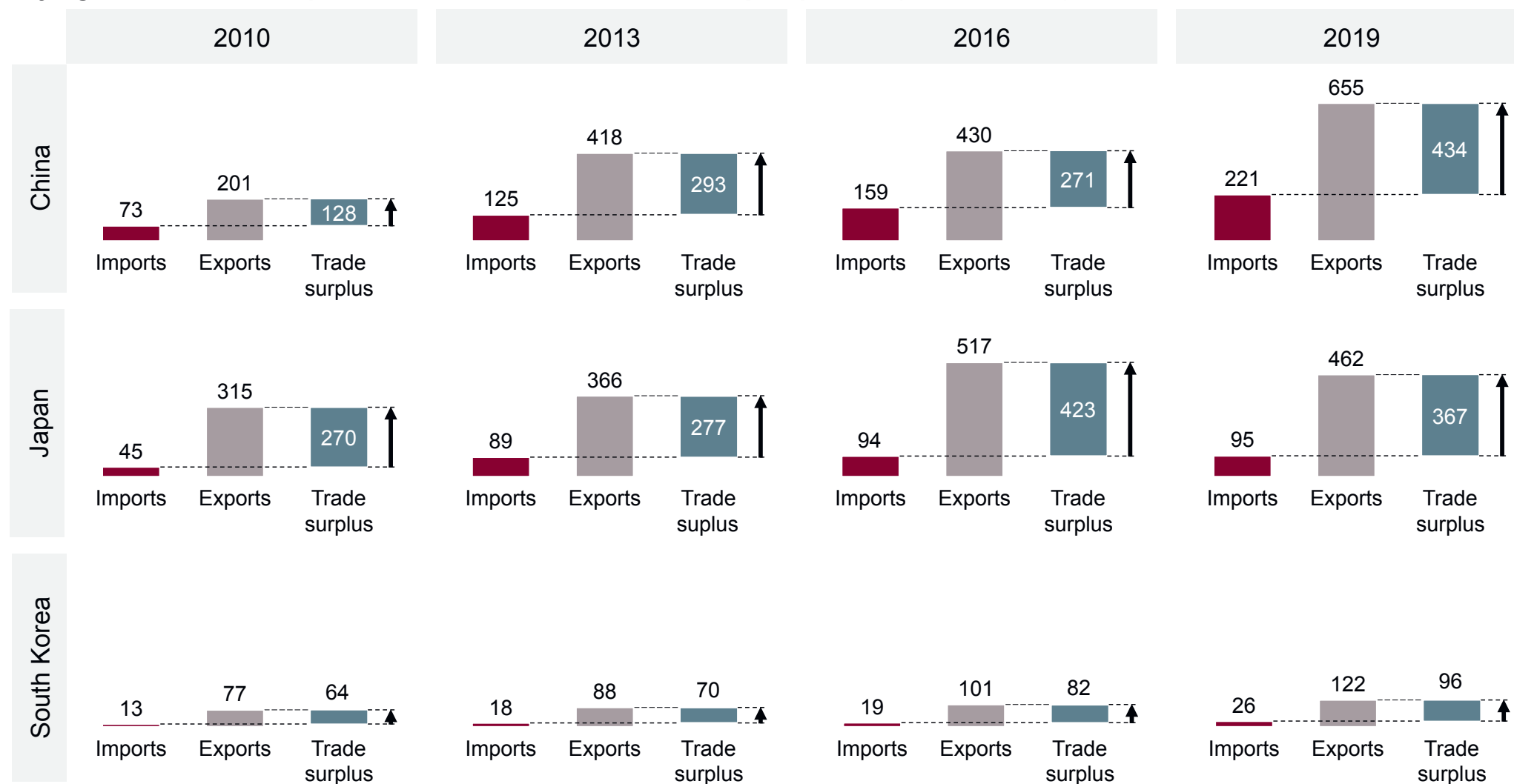
Remarks: Trade figures (exports and imports) reflect finished products only; trade/sales of semi-finished products are not included

Customs tariff numbers used (p. 66 ff.)

Source: Swiss Federal Customs Administration (FCA)

# Trade figures: Asian countries such as China and Japan have gained in importance in recent years

Key figures for China, Japan, and South Korea from a Swiss perspective (in million CHF)



Remarks: Trade figures (exports and imports) reflect finished products only; trade/sales of semi-finished products are not included  
Customs tariff numbers used (p. 66 ff.)

Source: Swiss Federal Customs Administration (FCA)

## Trade figures: exports to France have been declining since 2010, trade figures with the UK and Spain show little change

Key figures for Great Britain, Spain, and France from a Swiss perspective (in million CHF)

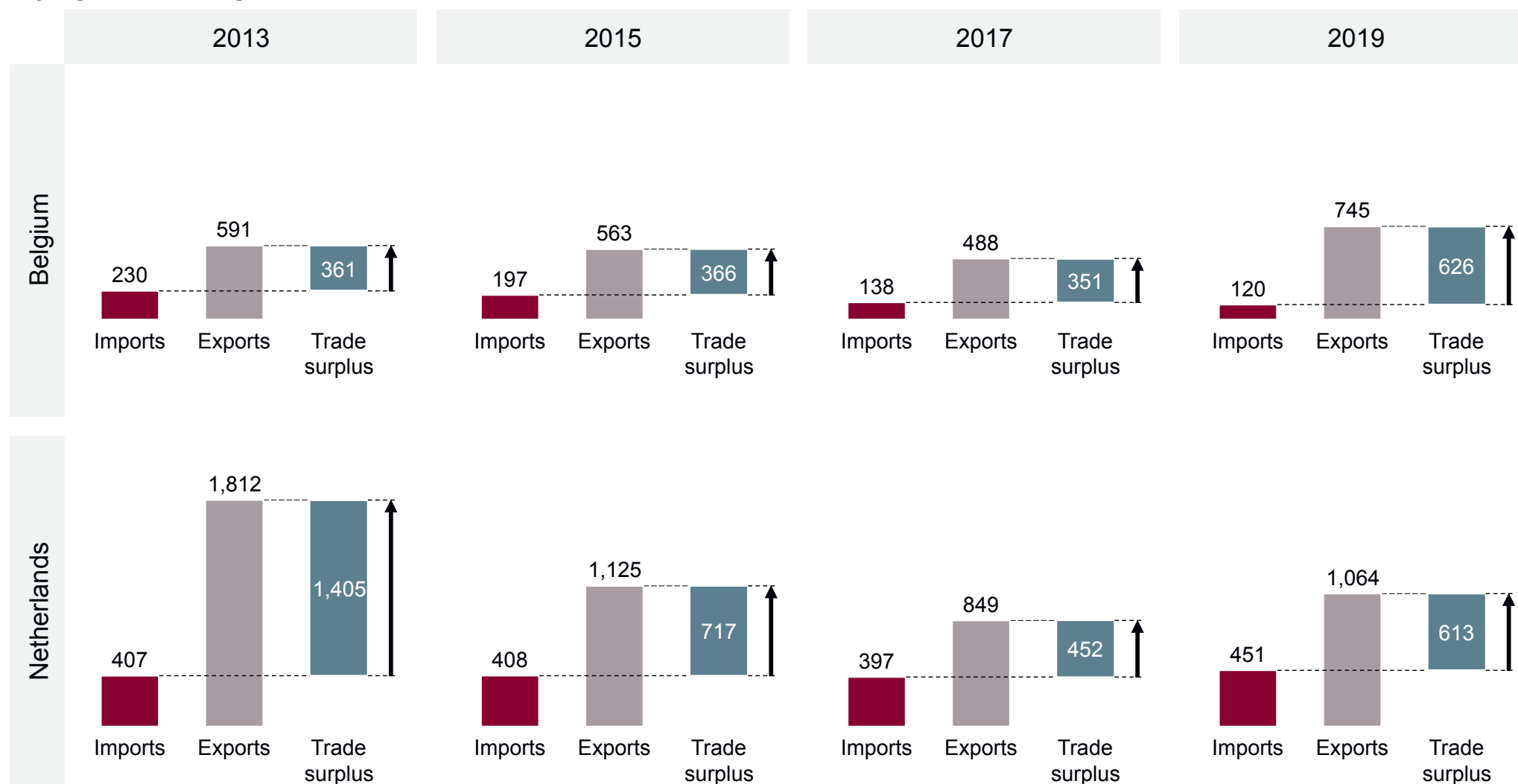


Remarks: Trade figures (exports and imports) reflect finished products only; trade/sales of semi-finished products are not included  
Customs tariff numbers used (p. 66 ff.)

Source: Swiss Federal Customs Administration (FCA)

# Trade figures: European central warehouses in Belgium and the Netherlands continue to drive high export rates to those countries

Key figures for Belgium and the Netherlands from a Swiss perspective (in million CHF)



Remarks: Trade figures (exports and imports) reflect finished products only; trade/sales of semi-finished products are not included

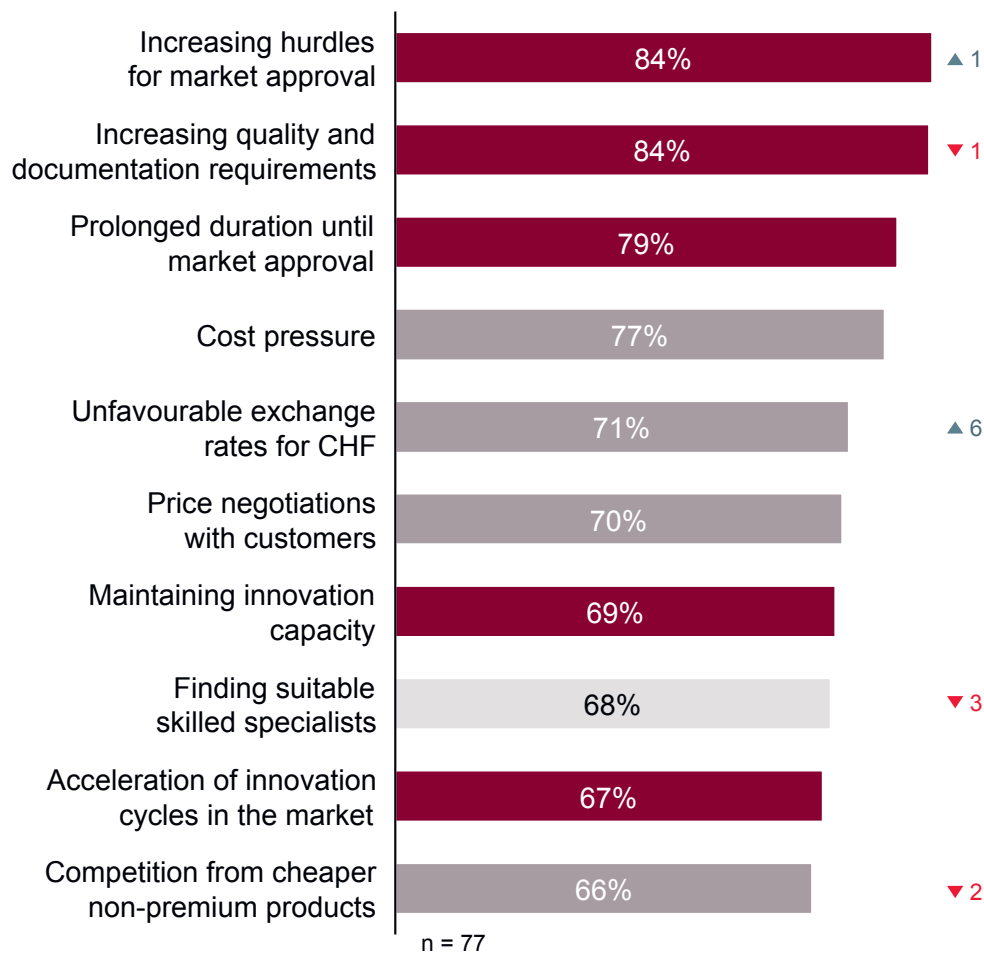
The European central warehouses in the Netherlands have diminished in importance for individual global players; customs tariff numbers used (p. 66 ff.)

Source: Swiss Federal Customs Administration (FCA)

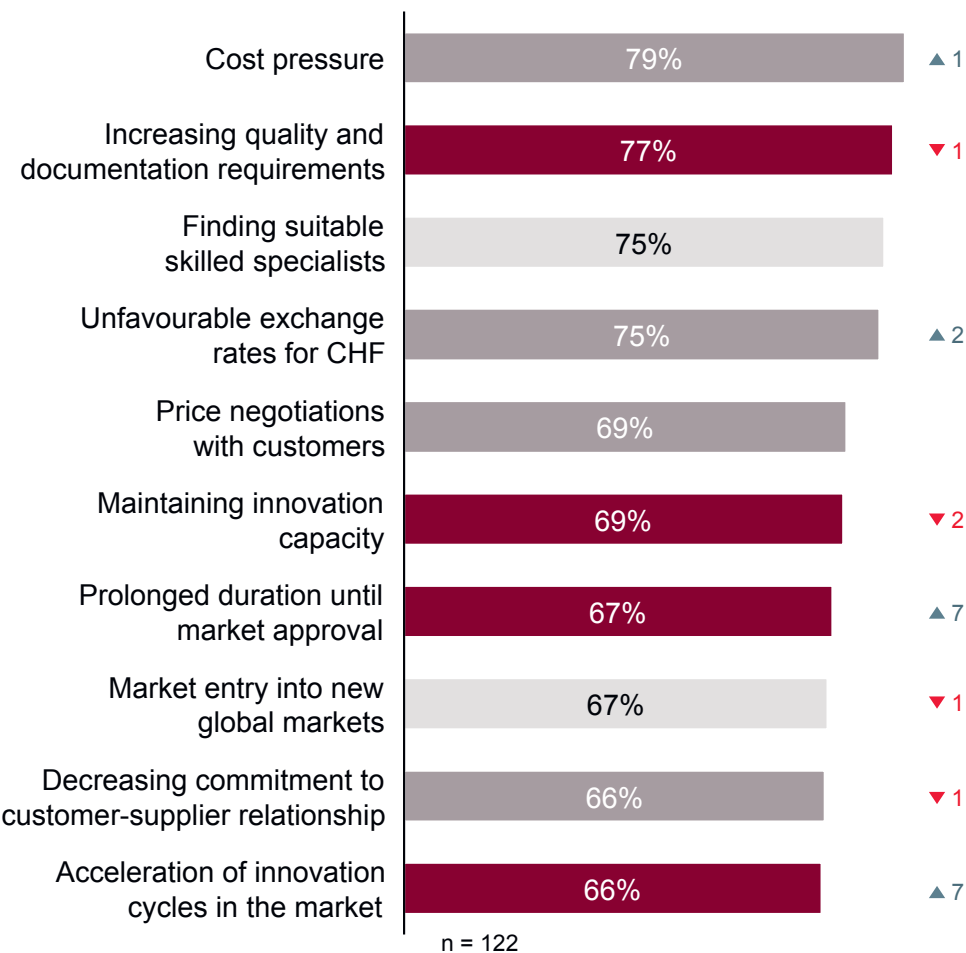


# Challenges: top 10 challenges for manufacturers and suppliers

## Top 10 challenges for manufacturers (in % of all responses; manufacturers)



## Top 10 challenges for suppliers (in % of all responses; suppliers)

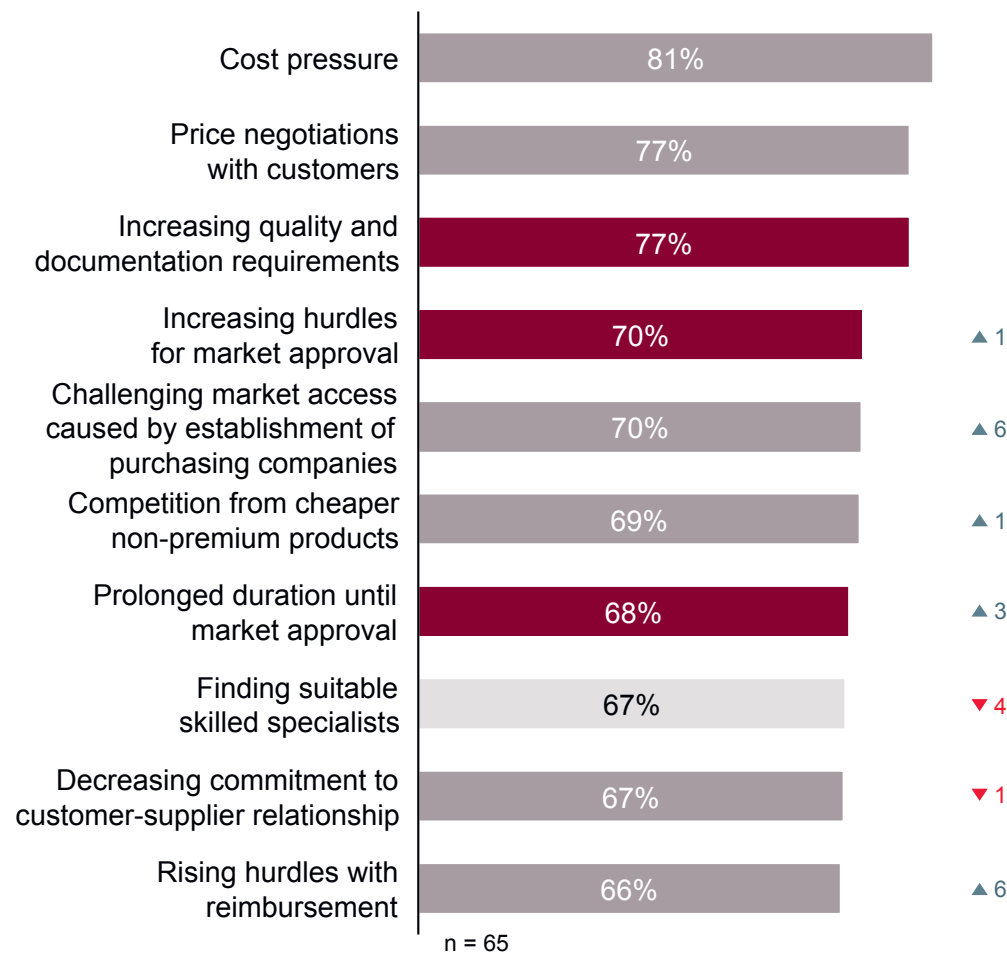


■ Innovation & market approvals ■ Market conditions & competition ■ Resources & know-how

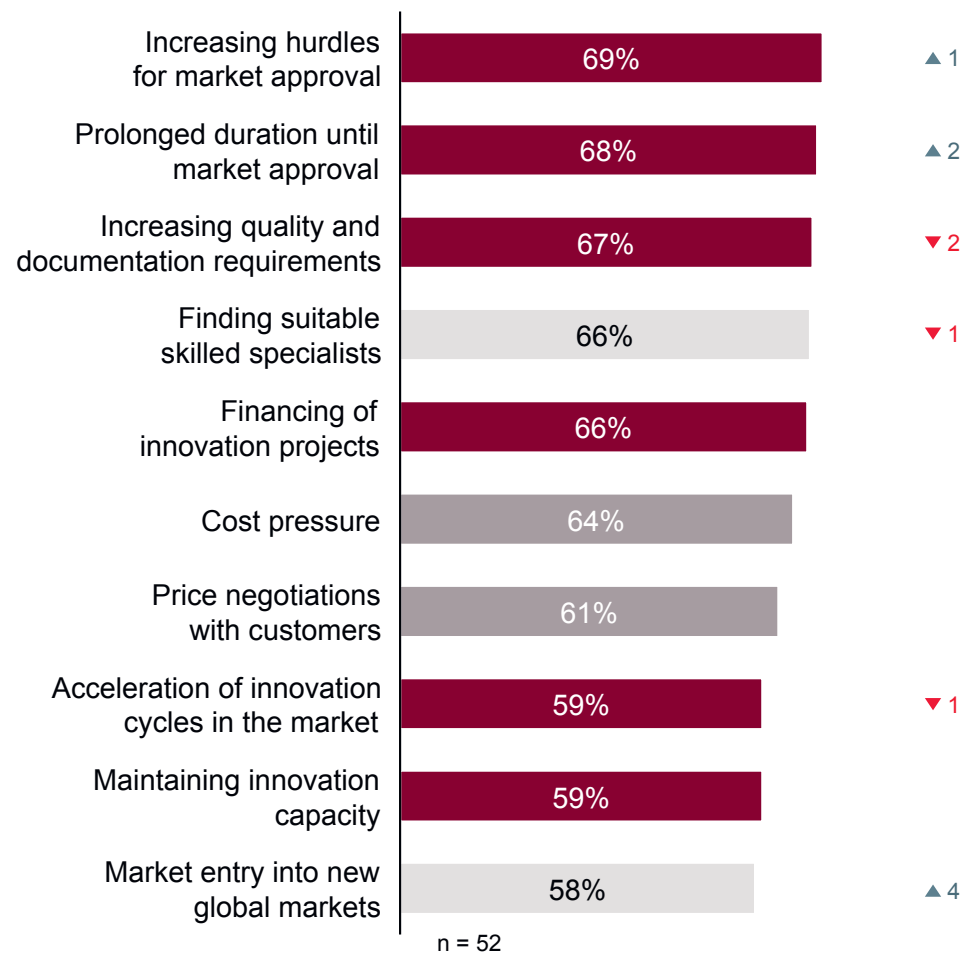
Remarks: ▲ ▼ Change in ranking compared to the SMTI Study 2018  
Source: SMTI survey results 2020

# Challenges: top 10 challenges for traders & distributors and service providers

## Top 10 challenges for traders & distributors (in % of all responses; manufacturers)



## Top 10 challenges for service providers (in % of all responses; service providers)



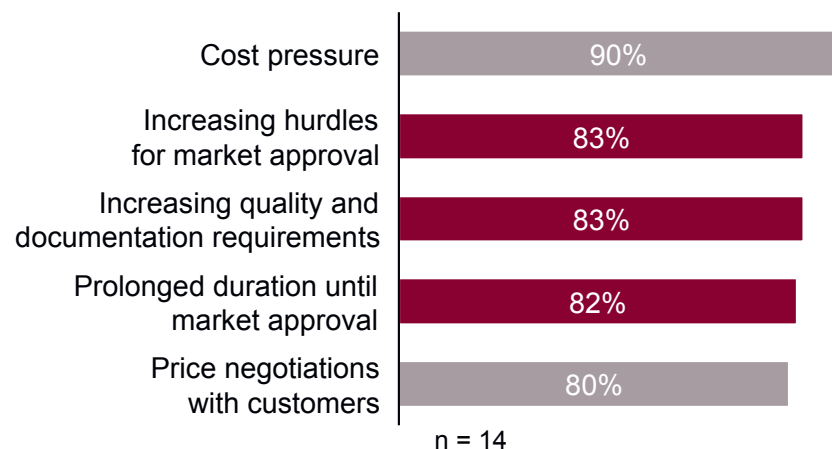
■ Innovation & market approvals ■ Market conditions & competition ■ Resources & know-how

Remarks: ▲ ▼ Change in ranking compared to the SMTI Study 2018

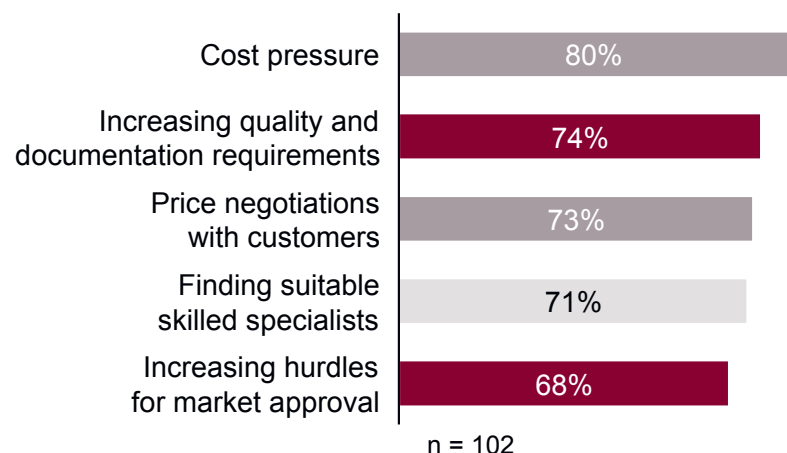
Source: SMTI survey results 2020

## Challenges: top 5 challenges by company size

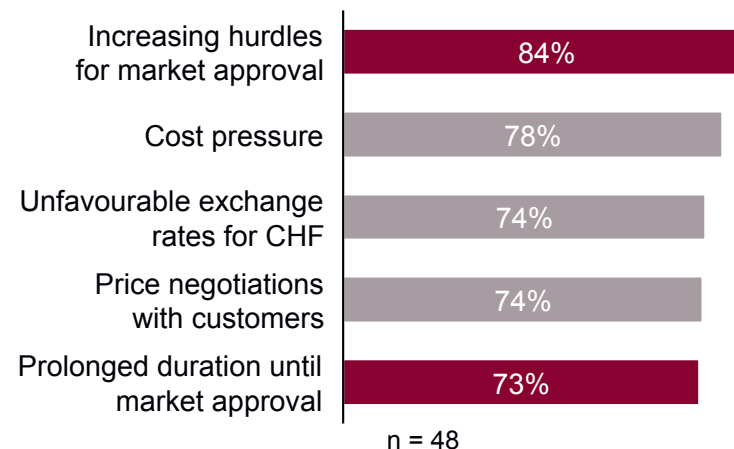
### Top 5 challenges for large companies (in % of all responses; large companies)



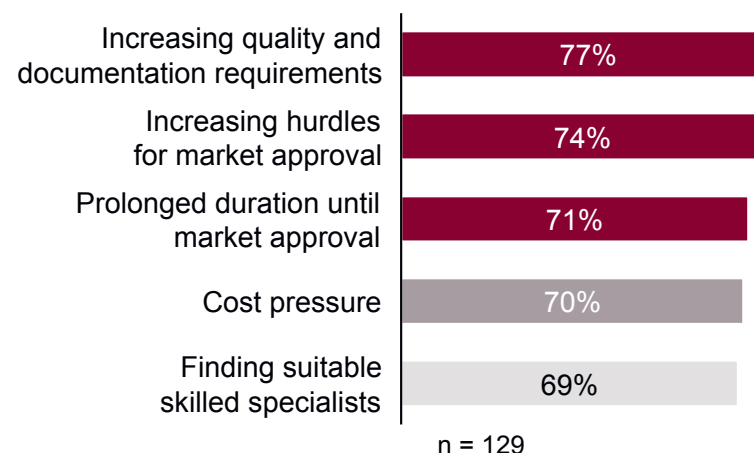
### Top 5 challenges for small companies (in % of all responses; small companies)



### Top 5 challenges for medium-sized companies (in % of all responses; medium-sized companies)



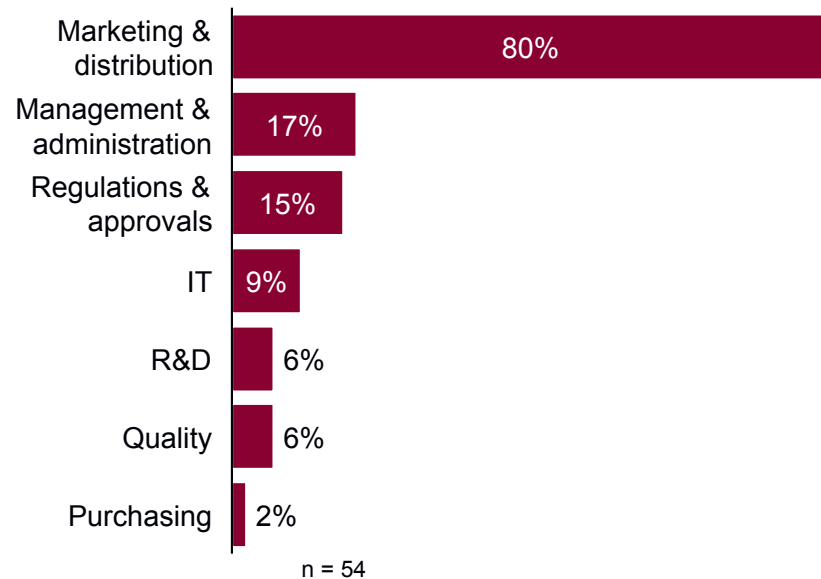
### Top 5 challenges for micro companies (in % of all responses; micro companies)



■ Innovation & market approvals ■ Market conditions & competition ■ Resources & know-how

# Challenges: recruitment difficulties for traders & distributors and service providers

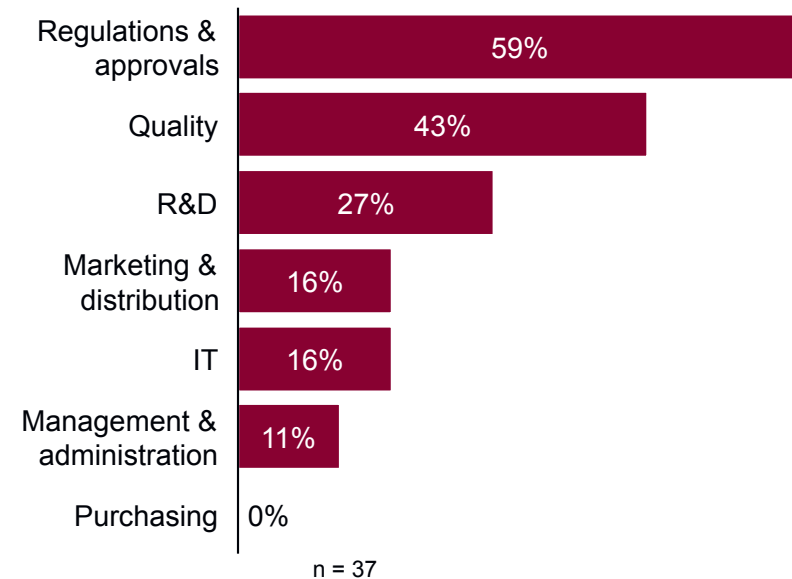
## Recruitment difficulties for trade & distribution (in % of all responses; trade & distribution)



### Comments

- Traders & distributors have by far the greatest difficulties recruitment new marketing and sales staff
- Only very few dealers have trouble finding new employees in the areas of R&D, quality, and purchasing

## Recruitment difficulties for service providers (in % of all responses; service providers)

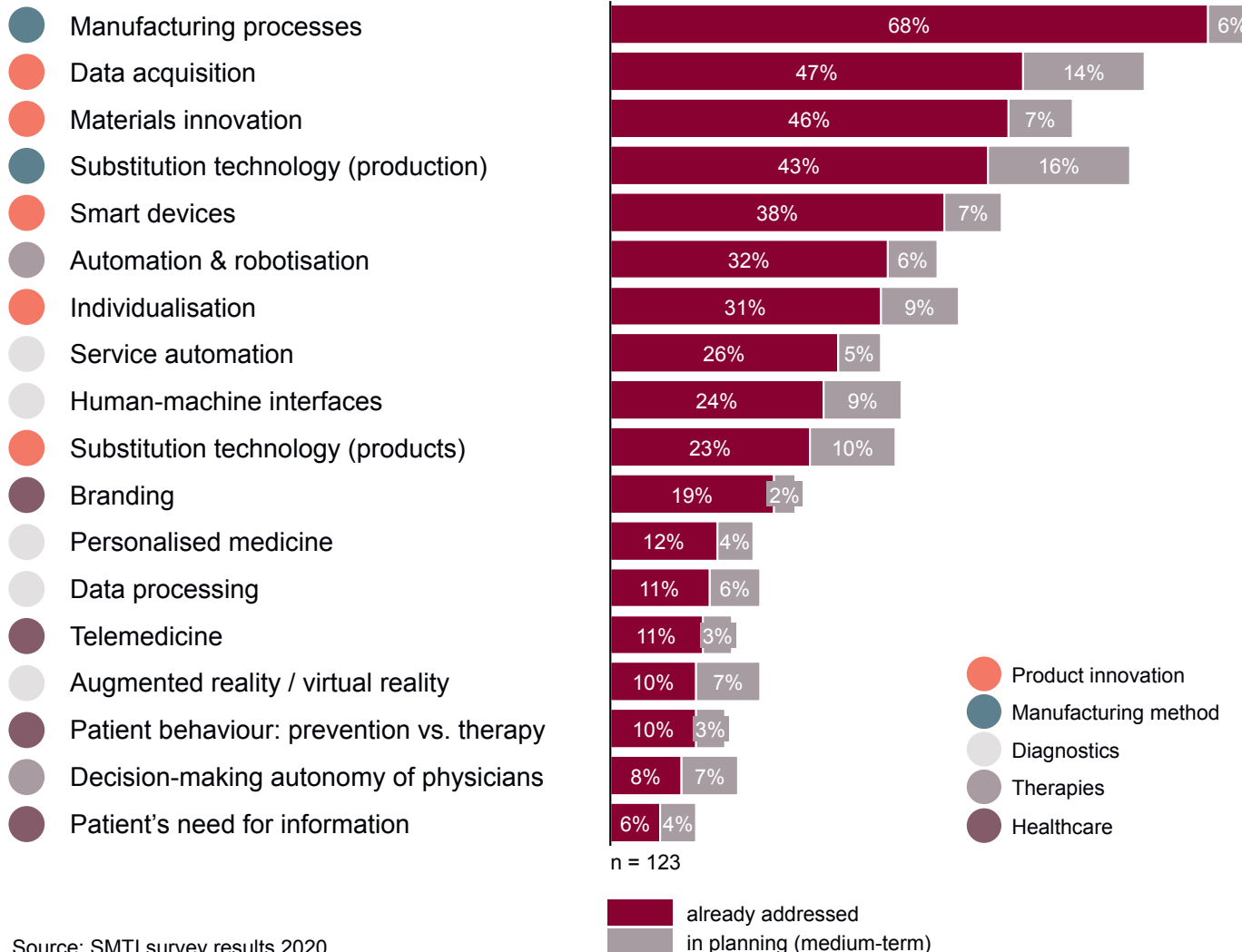


### Comments

- Over 50% of service providers report problems finding new employees with regulations & approvals experience
- Recruitment for management & administration and purchasing is unproblematic

# Top Trends: 68% of suppliers name “manufacturing processes” and “data acquisition” as the most relevant trends

## Top trends of suppliers (in % of all responses)



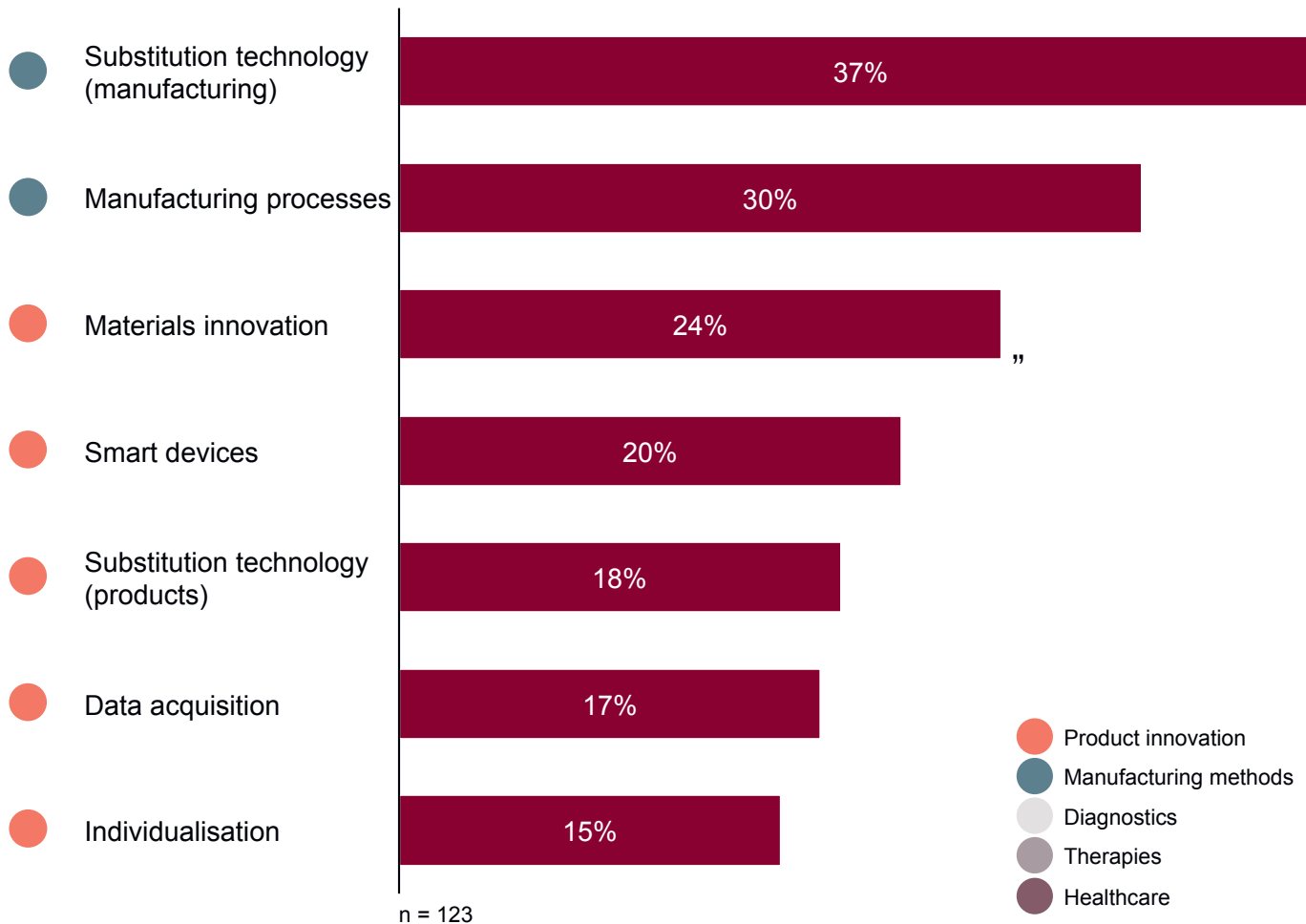
## Comments

- 68% of suppliers are already making changes to operational manufacturing processes
- Over 40% of suppliers consider the following three trends when planning the implementation:
  - Data acquisition
  - Materials innovation
  - Substitution technologies (manufacturing)
- The trends of substitution technologies (manufacturing) and data acquisition will appear more frequently on respondents' strategic to-do lists in the medium term



# Top Trends: suppliers name “changes in manufacturing” as the greatest threat

## Top 7 threats for suppliers (in % of all responses)

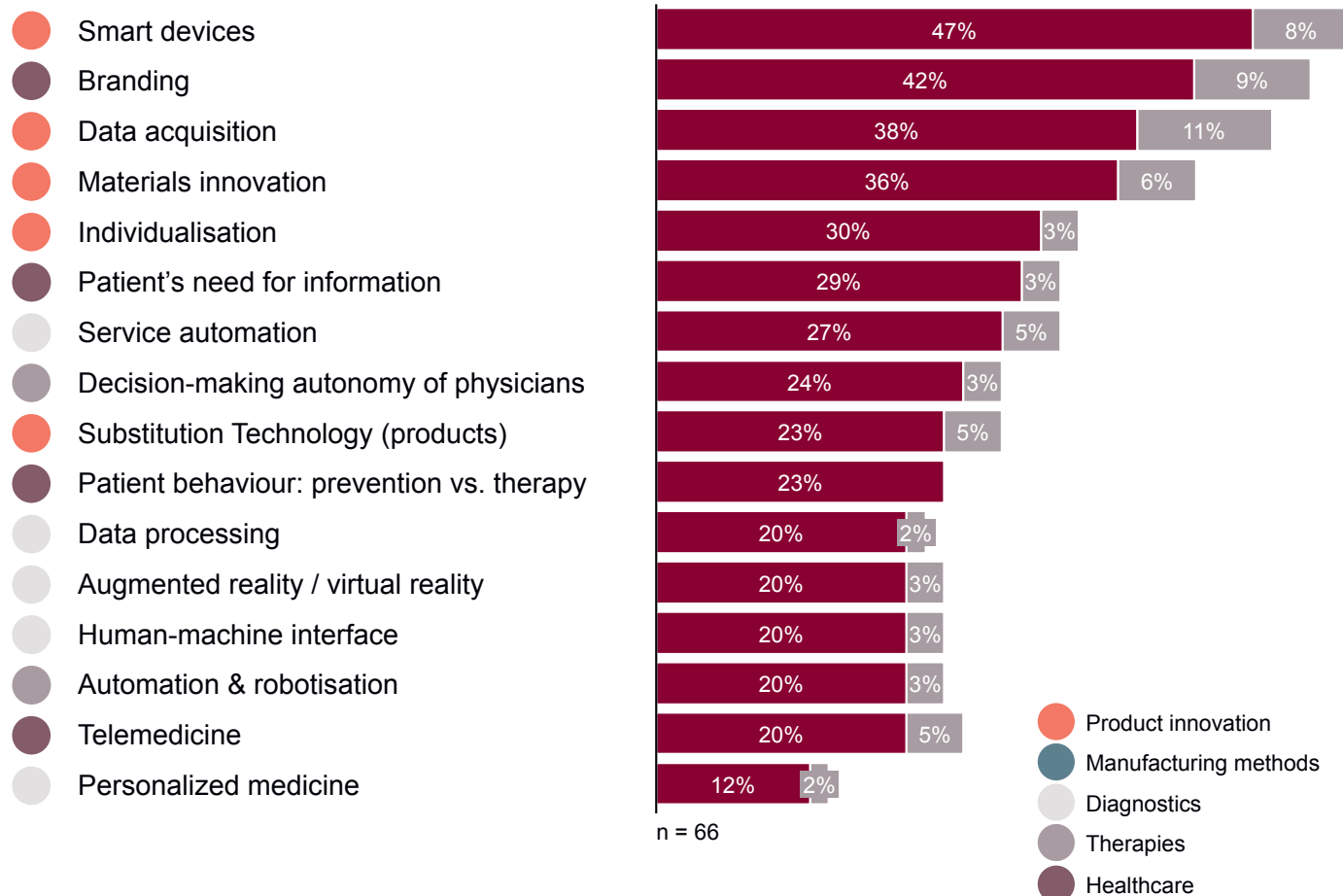


## Comments

- The two biggest perceived threats involving possible entry of new players onto the market are associated with manufacturing methods:
  - Substitution technology (manufacturing)
  - Manufacturing processes
- Further threats include the following trends in product innovation:
  - Materials innovation
  - Smart devices
  - Substitution technology (products)
  - Data acquisition
  - Individualisation

# Top trends: traders & distributors name “smart devices” and the relevance of “branding” as the most important trends

## Top trends for trade & distribution (in % of all responses)

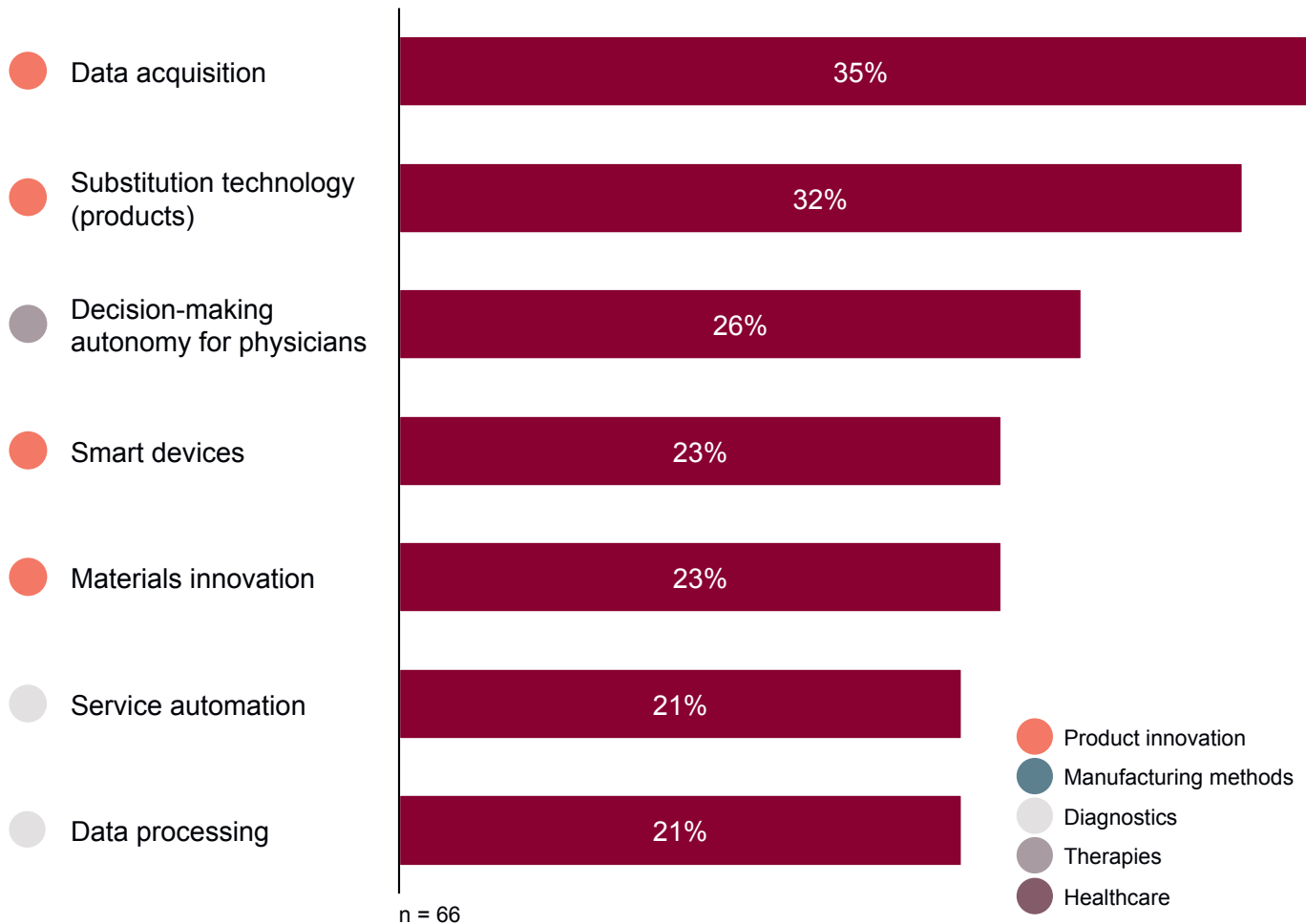


## Comments

- The trends: smart devices and branding are most relevant for traders & distributors
- Also of importance in trade & distribution are the product trends: data acquisition, materials innovation, and individualisation
- In the medium term, the same four top trends will be included by other companies in their strategic to-do lists:
  - Data acquisition
  - Branding
  - Smart devices
  - Materials innovation

# Top Trends: “product innovation” presents the greatest threat to trade

## Top 7 threats for trade & distribution (in % of all responses)

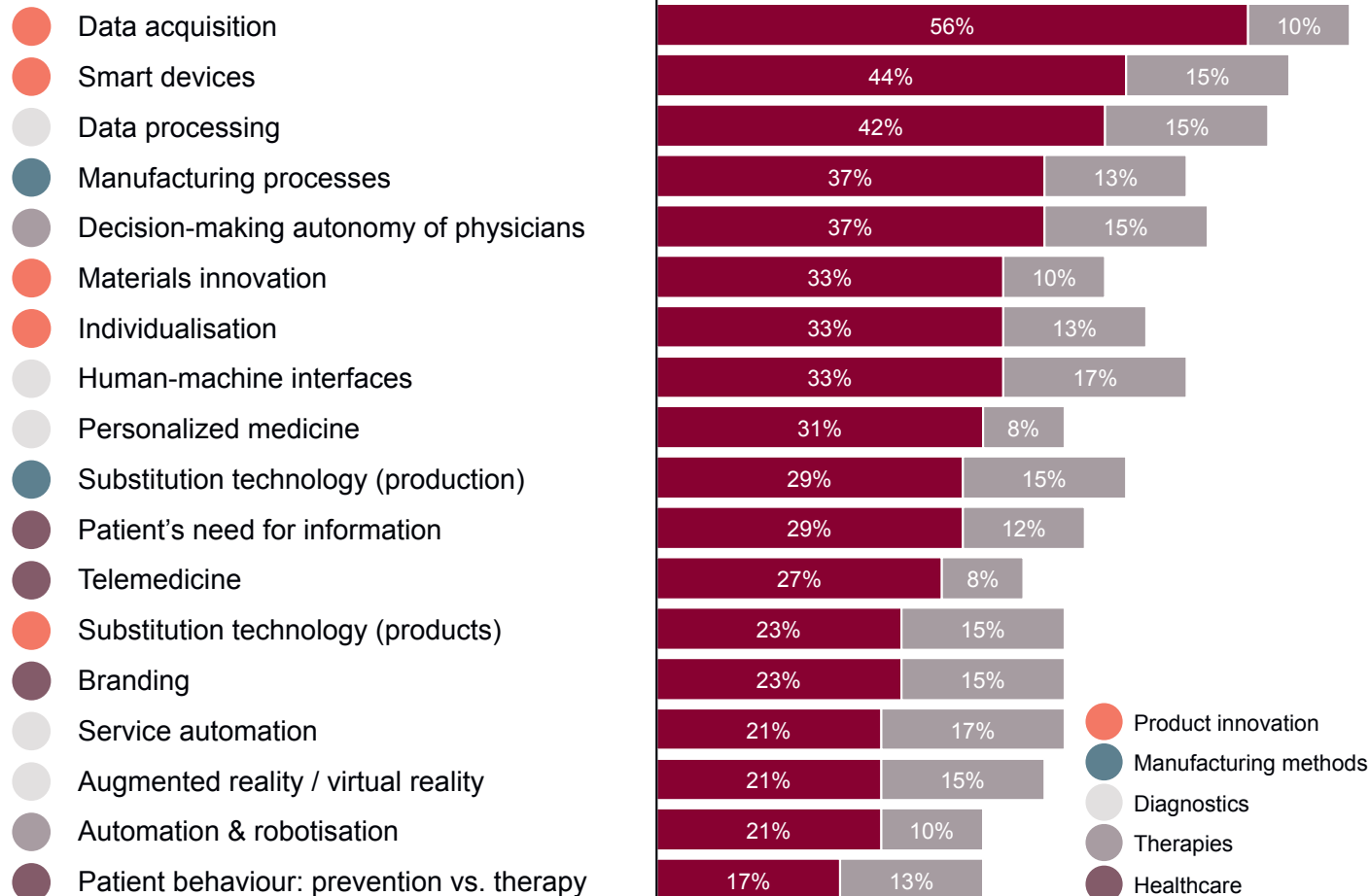


## Comments

- Two product innovations: data acquisition and substitution technology (products) are seen as the greatest threats to trade & distribution
- Traders and distributors are the only groups who listed the decision-making autonomy of doctors as one of the top three threats

# Top trends: service providers are already addressing “data acquisition”, “smart devices” and “data processing”

## Top Trends for service providers (in % of all responses)



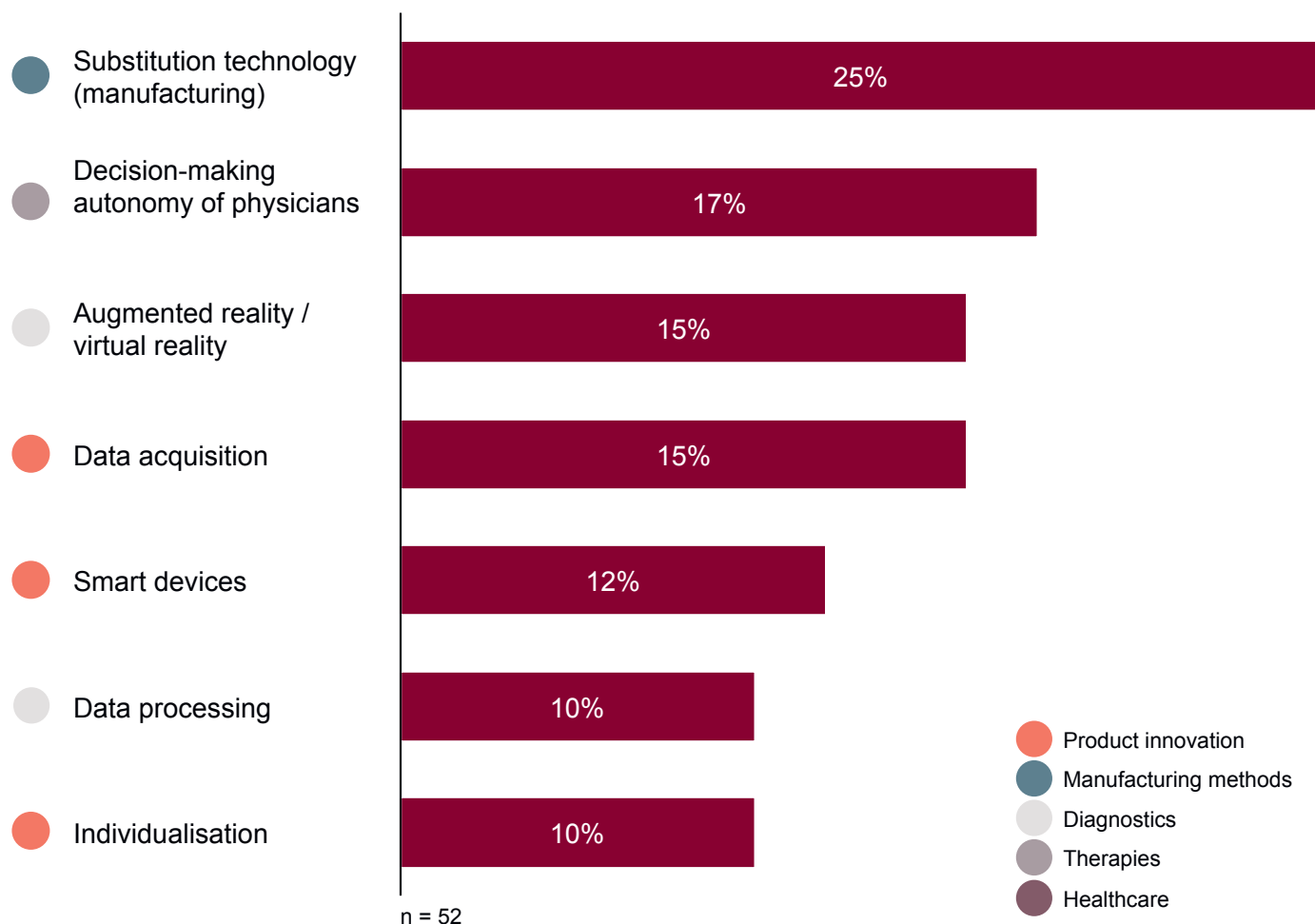
## Comments

- 56% of service providers see data acquisition as the most important trend
- Data processing ranks the highest among service providers compared to the other categories
- In the medium term, service providers will be taking the following wide range of trends (with responses of >15%) into consideration:
  - Service automation
  - Human-machine interfaces
  - Substitution technology (production/ products)
  - Decision-making autonomy of physicians
  - Augmented reality / virtual reality
  - Smart devices
  - Data processing
  - Branding



# Top trends: service providers see “substitution technology” in manufacturing and “decision-making autonomy of physicians” as the greatest threats

## Top 7 threats for service providers (in % of all responses)



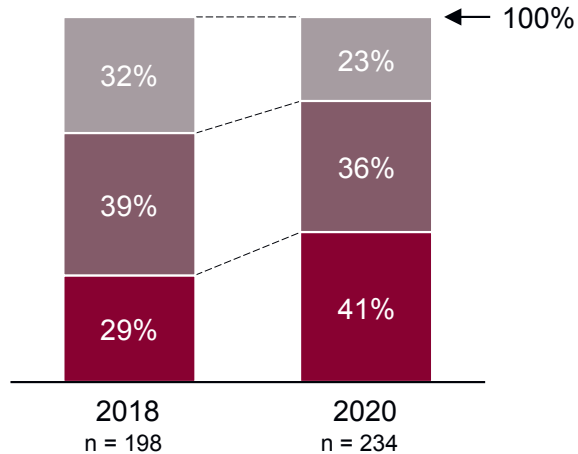
## Comments

- The following trends are cited as the four greatest threats allowing potential entry of new players onto the market:
  - Substitution technology (manufacturing)
  - Decision-making autonomy of physicians
  - Augmented reality / virtual reality
  - Data acquisition
- Service providers differ in their view from the other respondents
  - Service providers are the only respondents who classify augmented reality / virtual reality in the top three potential threats

# MDR/IVDR: consequences

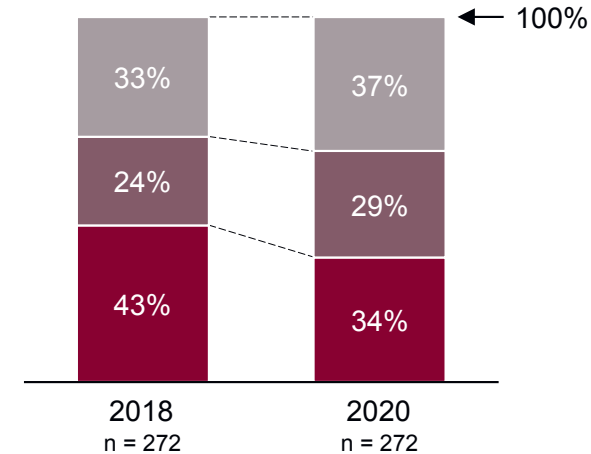
## Reduction of product portfolio

(responses in %; manufacturers, suppliers, trade & distribution)



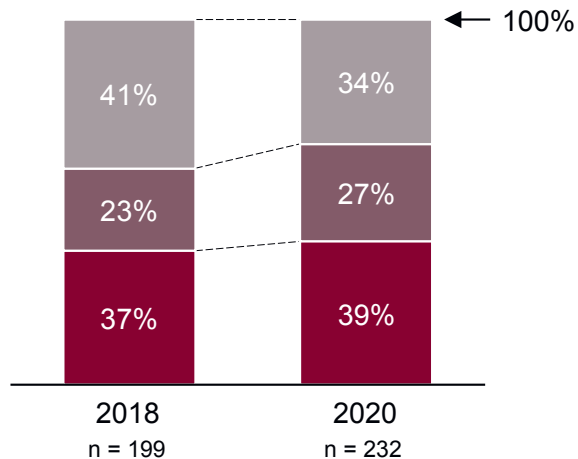
## Increase in human resources

(responses in %; all categories)



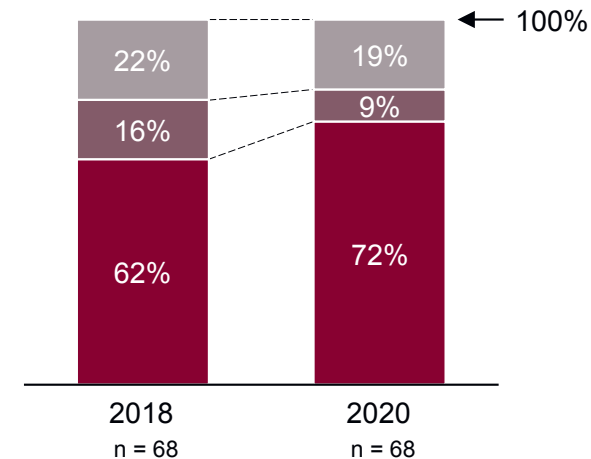
## Increase in product costs

(responses in %; manufacturers, suppliers, trade & distribution)



## Increase in development costs

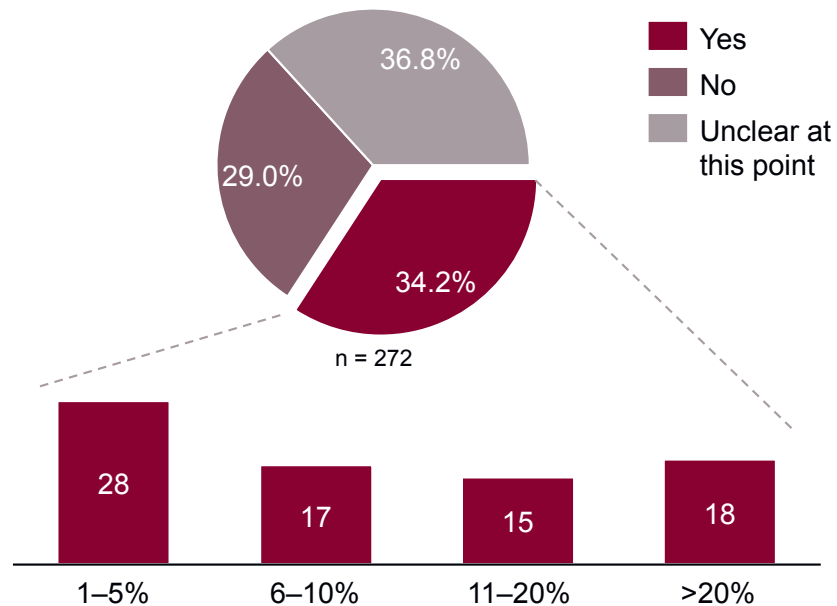
(responses in %; manufacturers)



■ Yes ■ No ■ Unclear at this point

## MDR/IVDR: increases in personnel and reductions of product portfolio

### Increase in human resources (responses in %; all categories)

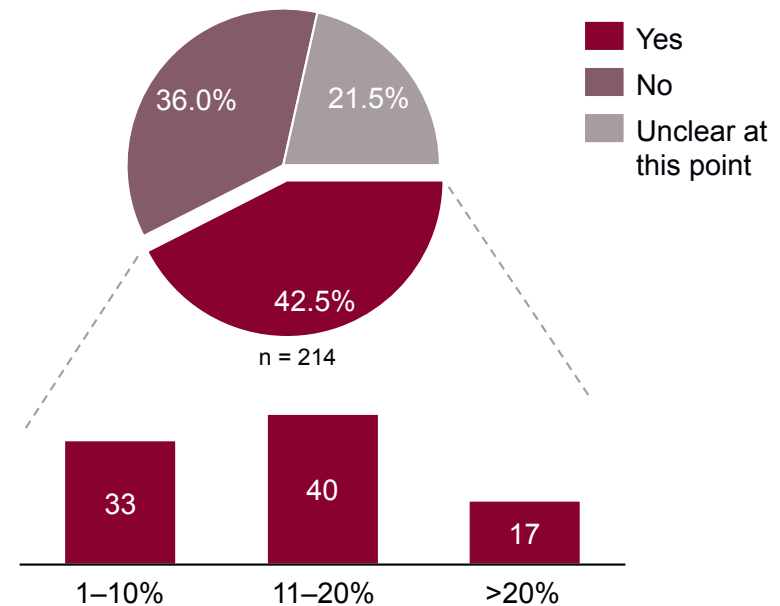


#### Comments

- Around one third of companies expect increases in human resources
- The largest share, at around 37%, were not able to estimate the increase in personnel resources at the time of the survey. (mostly suppliers)

### Reduction of product portfolio

(responses in %; manufacturers, suppliers, trade & distribution)

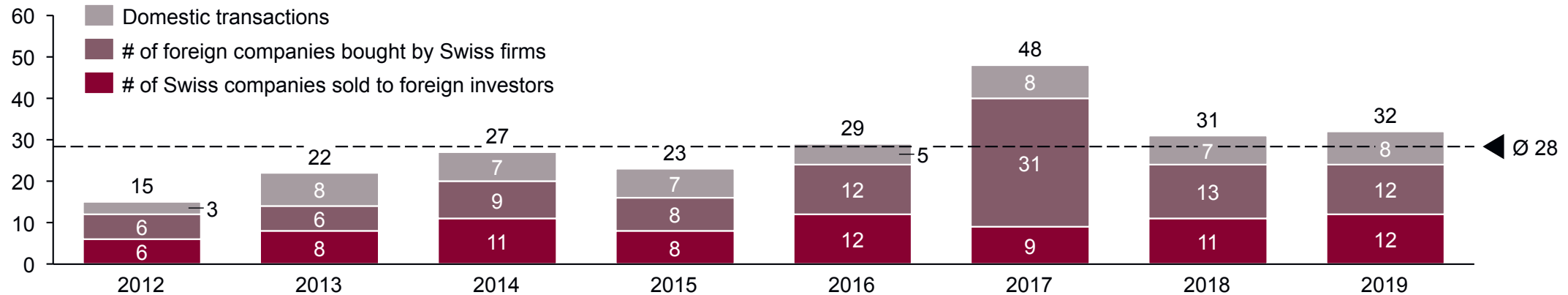


#### Comments

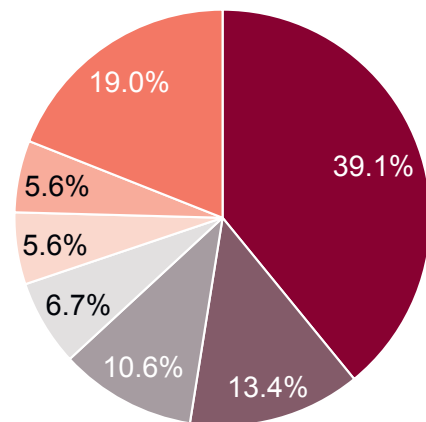
- The majority of companies expect reductions in their portfolio

# M&A transactions in the Swiss medtech industry and related fields

## # of deals involving Swiss medtech companies

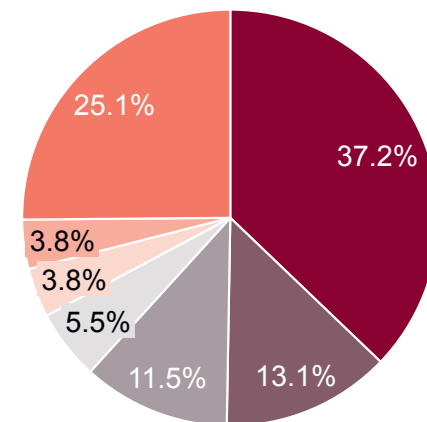


## Origin of buyers of Swiss medtech companies 2010–2019



Switzerland USA France RoW  
Germany UK Asia

## Origin of acquisition targets of Swiss medtech companies 2010–2019



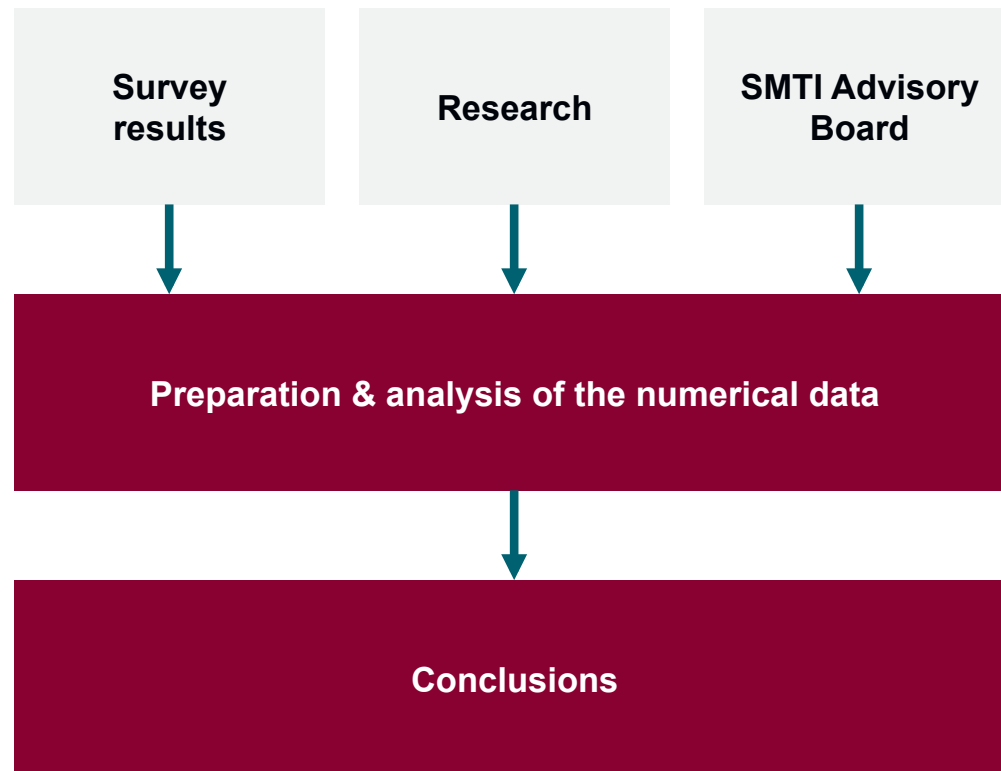
Switzerland Germany Italy RoW  
USA France Spain

Note: M&A deals in medical segments (incl. healthcare institutions such as hospitals or clinics)  
Source: Mergermarket 2020



# Three main sources were used for the present study

## Basic methodology of the SMTI 2020 Sector Study

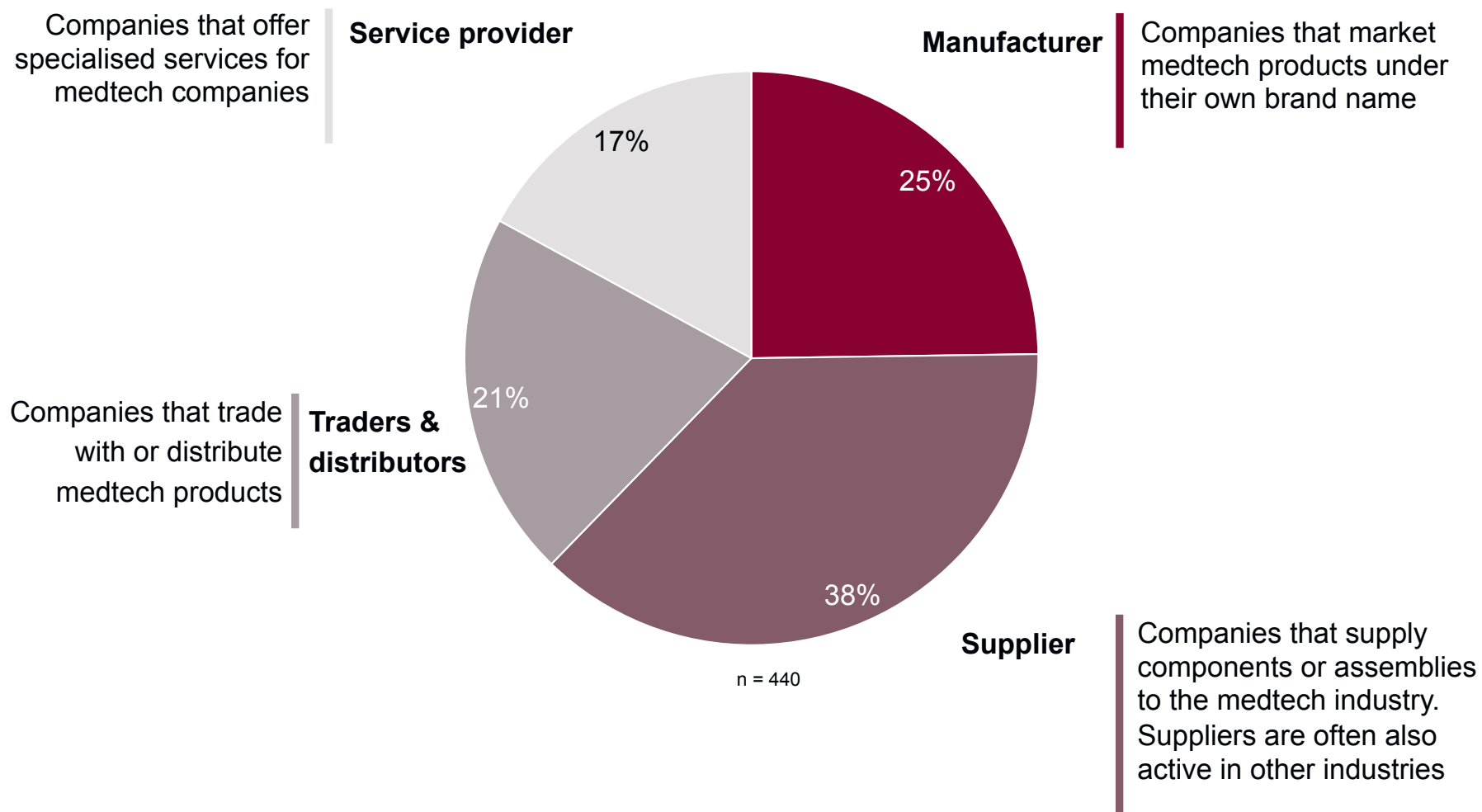


### Methods

- The survey was conducted between March and May 2020. Many effects of the Covid-19 pandemic are already reflected in the answers
- The SMTI study is based on three main sources:
  - Analysis of an electronic survey, which was completed in full or in part by 440 medtech companies operating in Switzerland
  - Research based on the Swiss Medtech database, previous SMTI studies, public databases and other sources
  - SMTI Advisory Board
- The information collected from the three sources was combined, compared, discussed, analysed, and comments were added. Key figures were derived from the SMTI
- The conclusions were then discussed and validated, together with the Advisory Board and other external experts

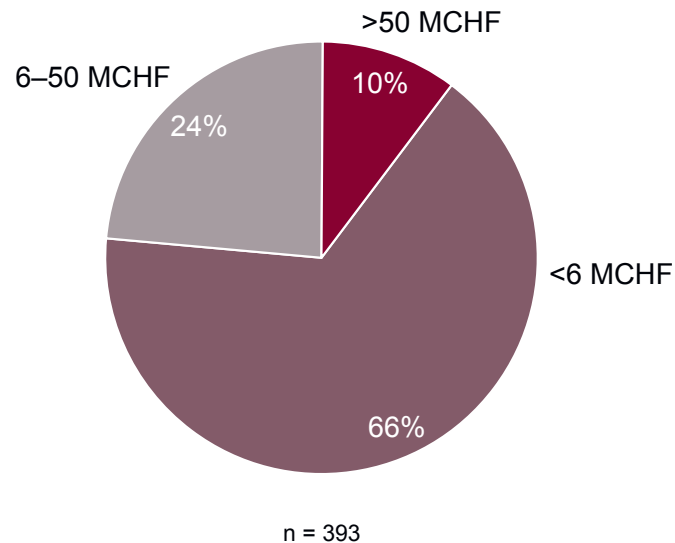
## 440 medtech companies participated in the SMTI 2020 survey

### Participating companies by category (in %)



# The participating medtech companies demonstrate diverse profiles

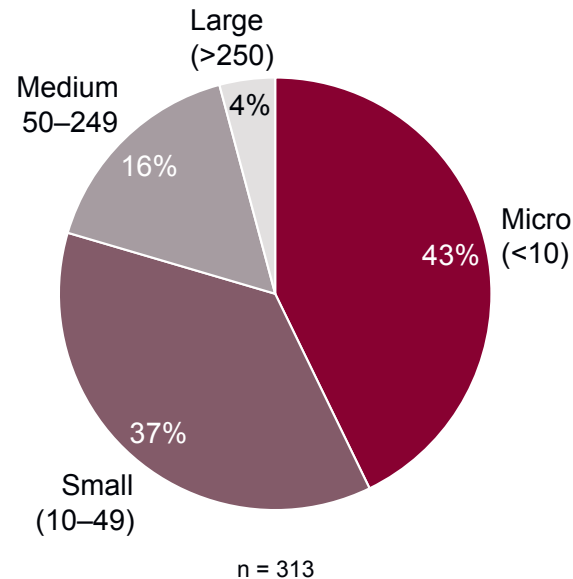
**Company size according to medtech sales<sup>1)</sup>**  
(in %)



## Comments

- In 2019, two thirds of participating companies generated sales of less than CHF 6 million with products and services manufactured in Switzerland

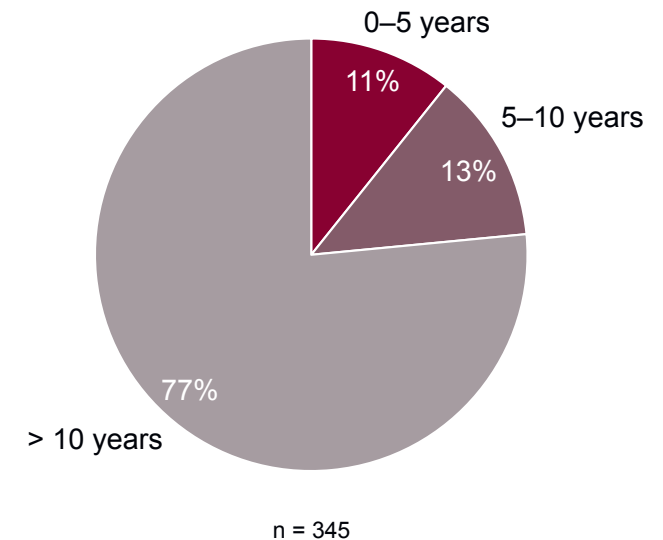
**Company size by # of employees**  
(in %)



## Comments

- Ca. 80% of survey participants employ fewer than 50 individuals
- Microenterprises form the largest segment with 43%
- 4% of survey participants are classified as large companies

**Company age by date of establishment**  
(in %)



## Comments

- Three fourths of survey participants are established companies with a company age of over 10 years
- 11% of the participating companies were founded in the last 5 years – including start-ups

1) Sales of products and services manufactured in Switzerland 2019  
Source: SMTI survey results 2020

## Customs tariff numbers (I/III)

3005	Wadding, gauze, bandages and similar articles (for example, dressings, adhesive plasters, poultices), impregnated or coated with pharmaceutical substances or put up in forms or packings for retail sales for medical, surgical, dental or veterinary purposes: other than adhesive dressings and other articles having an adhesive layer
3822	Diagnostic or laboratory reagents on a backing, prepared diagnostic or laboratory reagents whether or not on a backing, and certified reference materials (excl. compound diagnostic reagents designed to be administered to the patient, blood-grouping reagents, animal blood prepared for therapeutic, prophylactic or diagnostic uses and vaccines, toxins, cultures of micro-organisms and similar products)
4014	Hygienic or pharmaceutical articles, incl. teats, of vulcanised rubber (excl. hard rubber), with or without fittings of hard rubber, n.e.s. (excl. articles of apparel and clothing accessories, incl. gloves, for all purposes)
7018	Glass beads, imitation pearls, imitation precious or semi-precious stones and similar glass smallwares, and articles thereof (excl. imitation jewellery); glass eyes (excl. prosthetic articles); statuettes and other ornaments of lamp-worked glass (excl. imitation jewellery); glass microspheres with a diameter of $\leq 1$ mm
9001	Optical fibres and optical fibre bundles; optical fibre cables (excl. made up of individually sheathed fibres of heading); sheets and plates of polarising material; lenses, incl. contact lenses, prisms, mirrors and other optical elements of any material, unmounted (excl. such elements of glass not optically worked)
9003	Frames and mountings for spectacles, goggles or the like, and parts thereof, n.e.s.
9004	Spectacles, goggles and the like, corrective, protective or other (excl. spectacles for testing eyesight, contact lenses, spectacle lenses and frames and mountings for spectacles)
9018	Instruments and appliances used in medical, surgical, dental or veterinary sciences, incl. scintigraphic apparatus, other electro-medical apparatus and sight-testing instruments, n.e.s.
9019	Mechano-therapy appliances; massage apparatus; psychological aptitude-testing apparatus; ozone therapy, oxygen therapy, aerosol therapy, artificial respiration or other therapeutic respiration apparatus
9020	Breathing appliances and gas masks (excl. protective masks having neither mechanical parts nor replaceable filters, and artificial respiration or other therapeutic respiration apparatus)

## Customs tariff numbers (II/III)

9021	Orthopaedic appliances, incl. crutches, surgical belts and trusses; splints and other fracture appliances; artificial parts of the body; hearing aids and other appliances which are worn or carried, or implanted in the body, to compensate for a defect or disability
9022	Apparatus based on the use of X-rays or of alpha, beta or gamma radiations, whether or not for medical, surgical, dental or veterinary uses, incl. radiography or radiotherapy apparatus, X-ray tubes and other X-ray generators, high-tension generators, control panels and desks, screens, examination or treatment tables, chairs and the like
9402	Medical, surgical, dental or veterinary furniture, e.g., operating tables, examination tables, hospital beds with mechanical fittings and dentists' chairs; barbers' chairs and similar chairs having rotating as well as both reclining and elevating movement; parts thereof
3006.1	Sterile surgical catgut, similar sterile suture materials, incl. sterile absorbable surgical or dental yarns, and sterile tissue adhesives for surgical wound closure; sterile laminaria and sterile laminaria tents; sterile absorbable surgical or dental haemostatics; sterile surgical or dental adhesion barriers, whether or not absorbable
3006.2	Reagents for determining blood groups or blood factors
3006.3	Opacifying preparations for X-ray examinations; diagnostic reagents for administration to patients
3006.4	Dental cements and other dental fillings; bone reconstruction cements
3006.5	First-aid boxes and kits
3306.2	Yarn used to clean between the teeth "dental floss", in individual retail packages
3306.901	Denture fixative pastes and powders
3307.901	Solutions for contact lenses or artificial eyes



## Customs tariff numbers (III/III)

3401.11	Soap and organic surface-active products and preparations for use as soap, in the form of bars, cakes, moulded pieces or shapes, and paper, wadding, felt and nonwovens, impregnated, coated or covered with soap or detergent for personal hygiene, including those for medical purposes
4015.11	Surgical gloves, of vulcanised rubber
6212.9091	Medicinal belts (excl. those made of vegetable fibres)
7015.1	Glasses for corrective spectacles, curved, bent, hollowed or the like, but not optically worked (excl. flat glass for such purposes)
8419.2	Medical, surgical or laboratory sterilizers
9001.3	Contact lenses
9001.4	Spectacle lenses of glass
9001.5	Spectacle lenses of materials other than glass
9006.301	Cameras specially designed for underwater use, for aerial survey, for medical examination of internal organs or for forensic or criminological purposes, with a unit weight of > 200 kg
9006.302	Cameras specially designed for underwater use, for aerial survey, for medical examination of internal organs or for forensic or criminological purposes, with a unit weight of =< 200 kg

# This is the 7th report on the Swiss medtech industry



	2008	2010	2012	2014	2016	2018	2020
Title	The Swiss Medical Technology Industry 2008	The Swiss Medical Technology Industry 2010 Survey "Medtech at the Crossroads"	The Swiss Medical Technology Industry 2012 "In The Wake Of The Storm"	The Swiss Medical Technology Industry 2014 "The Dawn of a New Era"	The Swiss Medical Technology Industry 2016 – Sector Study	The Swiss Medical Technology Industry 2018 – Sector Study	The Swiss Medical Technology Industry 2020 – Sector Study
Authors	<ul style="list-style-type: none"> <li>Dr. Patrick Dümmler</li> <li>Beatus Hofrichter</li> <li>René Willhalm</li> <li>Peter Biedermann</li> </ul>	<ul style="list-style-type: none"> <li>Dr. Patrick Dümmler</li> <li>Beatus Hofrichter</li> </ul>	<ul style="list-style-type: none"> <li>Dr. Patrick Dümmler</li> <li>Beatus Hofrichter</li> </ul>	<ul style="list-style-type: none"> <li>Dr. Patrick Dümmler</li> <li>Beatus Hofrichter</li> </ul>	<ul style="list-style-type: none"> <li>Laura Murer Mecattaf</li> <li>Jonas Frey</li> <li>Annebelle Smolders</li> <li>Peter Biedermann</li> </ul>	<ul style="list-style-type: none"> <li>Laura Murer Mecattaf</li> <li>Jonas Frey</li> <li>Tobias Pieper</li> <li>Peter Biedermann</li> </ul>	<ul style="list-style-type: none"> <li>Emanuel Wettstein</li> <li>Jonas Frey</li> <li>Jonas Rothen</li> <li>Peter Biedermann</li> </ul>
Publisher	Medical Cluster	Medical Cluster	Medical Cluster	Medical Cluster	Swiss Medtech	Swiss Medtech	Swiss Medtech
Partners	<ul style="list-style-type: none"> <li>Helbling</li> <li>Roland Berger</li> </ul>	<ul style="list-style-type: none"> <li>Roland Berger</li> <li>Deloitte</li> <li>KTI</li> </ul>	<ul style="list-style-type: none"> <li>Medtech Switzerland</li> <li>IMS Consulting Group</li> <li>KTI</li> </ul>	<ul style="list-style-type: none"> <li>Medtech Switzerland</li> <li>Helbling</li> <li>KTI</li> </ul>	<ul style="list-style-type: none"> <li>Helbling</li> <li>KTI</li> </ul>	<ul style="list-style-type: none"> <li>Helbling</li> </ul>	<ul style="list-style-type: none"> <li>Helbling</li> </ul>

## Publisher and partner profiles

### Swiss Medtech

Swiss Medtech is the association of Swiss medical technology. As an industry association we represent more than 550 companies. With an export quota of over 65 per cent, a 16.4 per cent contribution to Switzerland's positive balance of trade, around 63,000 employees and the highest number of patents per capita in Europe, the Swiss medical technology industry is of great economic importance to the entire country.

Swiss Medtech represents and promotes the interests of the Swiss medical technology industry. We are dedicated to an optimum environment that promotes innovations and start-ups and reinforces the competitiveness of companies. For this purpose, we actively incorporate the common interests of our members in decision-making processes regarding economic and health policies and promote networking within the industry and with relevant actors. We work closely with our members, informing them of essential developments and supporting them in the event of challenges. As an industry association, we are the first point of contact for all matters in the Swiss medtech industry and we inform the public of their importance and activities.

**SWISS MEDTECH**

### Helbling Group

Founded in 1963, the internationally active Helbling Group is owned by 32 partners and employs over 540 professionals in four divisions at sites in Switzerland, Germany, the USA, and China.

We distinguish ourselves in the market through our unique interdisciplinary range of skills in engineering and business consulting. We offer expert services in innovation, technology & product development strategy, restructuring and mergers & acquisitions, IT, real estate, as well as energy and infrastructure.

The unique combination of expertise in technological innovation and business consulting makes us as one of the few service providers able to deal with tasks from a subject-specific and project-oriented approach – as well as from an overall corporate perspective – both for strategic as well as operational projects.

Regardless of the specific tasks our customers entrust us to do, we always keep one main objective in sight: to strengthen their capacity for innovation and their competitive advantage.

Our guiding principle is to be “Valuable through Innovation”, and our specialists only then consider their work complete when their client has achieved exactly the same results.

helbling

## Profiles of further partners and cover photograph

### Bern Economic Development Agency

The successful development of the medical technology sector in the Canton of Bern is based on the long tradition of the precision industry. Currently, around 280 medtech companies are active as manufacturers, suppliers, and service providers, contributing significantly to the positive development of the innovation ecosystem.

The promotion of innovation in the Canton of Bern strengthens the competitiveness of Bernese companies. The Bern Economic Development Agency helps to co-finance export-oriented, innovative projects, new products, and investment plans of economic importance.

The cantonal innovation promotion agency be-advanced AG acts as a central contact point available for companies. The focus is on needs-oriented coaching – with an emphasis on strategy, financing, organisation and cooperation.

The service and research centres sitem-insel, Switzerland Innovation Park Biel/Bienne and EMPA Thun (which are co-financed by the Canton of Bern), enable companies to carry out industry-oriented research and development. The offer is rounded off by various scientific and technical facilities such as laboratories, clean rooms, workshops, demonstration centres, conference rooms and further education courses such as the School for Translation and Entrepreneurship in Medicine in the sitem-insel in Berne.

[www.berninvest.be.ch](http://www.berninvest.be.ch)



### CAScination

When planning a trip to a new destination one aims to implement novel ideas and reach an ideal outcome safe and sound. Navigation tools help us along the way – but even if those work perfectly, venturing into the unknown always requires courage and patience.

Based on research started at the ARTORG Center of the University of Bern in 2009, we then set sail together with our partner Med-El GmbH (Austria) to develop microsurgical robotic technology for inner ear surgery. By developing a procedure independent from human dexterity, we knew we could enable surgical outcomes at a scale and precision not possible with the human hand. We decided to build an autonomous robot capable of microsurgery on the inner ear and expand beyond the boundaries of manual interventions.

We are therefore proud to introduce the HEARO® system - the world's first surgical robot entering the human body automatically. This robot has received the CE marking accreditation in 2020. Commercial development was financially supported by Innosuisse and the Canton of Bern Economic Development Agency. The HEARO® was also awarded the prestigious Swiss Medtech Award in 2019.

[www.cascination.com](http://www.cascination.com)



# The SMTI Advisory Board supported the SMTI Sector Study with valuable information and insights

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- His main areas of expertise are strategy, organisation, performance management, marketing & distribution, as well as carrying out market and industry studies
- He has conducted a large number of projects and market studies for Swiss companies during his consulting career
- Emanuel Wettstein studied physics at ETH Zurich with a focus on Quantum Electronics, and worked as a Development Engineer and in business development for a Swiss medical technology firm

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- He is a member of the organisational team of the Swiss Implementation Taskforce for the new MDR/IVDR regulations, and the contact point for expert inquiries
- Jonas Frey has been a member of the SMTI Sector Study core team since 2014 and co-author of the SMTI since 2016
- Jonas Frey holds a CAS in Regulatory Affairs. He studied Movement Sciences at ETH Zurich, specialising in Biomechanics

The publisher of the Swiss Medtech Industry Sector Report 2020 is the industry association Swiss Medtech  
Contact person: Peter Biedermann; email: [peter.biedermann@swiss-medtech.ch](mailto:peter.biedermann@swiss-medtech.ch); tel. +41 31 330 97 79

# Abbreviations

#	number	ex.	for example	n/a	not available
3D printing	three dimensional printing	excl.	excluding	No.	number
AI	artificial Intelligence	f. / ff.	and the following	OP	operation/surgery
approx.	approximately	FCA	Federal Customs Administration	p.	page
AR/VR	augmented reality / virtual reality	FSO	Federal Statistical Office	p.a.	per annum
BCHF	billion Swiss francs	GDP	Gross Domestic Product	PMS	post-market surveillance
bn	billion	GER	Germany	R&D	research & development
ca.	circa	incl.	including	RA	Regulatory affairs
CAGR	Compound Annual Growth Rate	IoT	Internet of things	RoW	rest of world
CAS	Certificate of Advanced Studies	IRL	Ireland	SBFI	State Secretariat for Education & Research
CEO	Chief Executive Officer	IT	information technology	SECO	State Secretariat for Economic Affairs
CH	Switzerland	IVDR	Regulation on in vitro diagnostic medical devices	SME	small and medium-sized enterprises
CHF	Swiss francs	kg	kilogram	SMTI	Swiss Medical Technology Industry
Covid-19	Coronavirus Disease 2019	KOF	Economic Research Centre	Sr.	Senior
Dipl.	graduate	MCHF	million Swiss francs	techn.	technical
Dr.	Doctor	MDR	Regulation on medical devices	Tel.	telephone #
e/m Health	electronic and mobile Health	mn	million	UK	United Kingdom
EPF	Federal Institute of Technology Lausanne	mm	millimeter	USA	United States of America
etc.	et cetera	MRA	Mutual Recognition Agreement	VP	vice president
ETH	Federal Institute of Technology Zurich	MSc	Master of Science	vs.	versus
EU	European Union	n	sample size		

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- No part of this publication may be printed, sold, distributed, stored on an electronic retrieval system or used in any form without the publisher's written consent.
- This report was created in the summer of 2020 based on a survey of 440 medtech companies in Switzerland. The Swiss Medtech database, contributions from the Advisory Board and original research was also used. The statistical data represent the opinions of the participating companies at the time of the survey (March to May 2020) and may not necessarily indicate market conditions at a later point in time.
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- All persons involved in this study confirm that the collection, analysis and interpretation of data was carried out thoroughly and anonymously. This publication contains information in summary form and is therefore to be used as a general overview. The publisher and authors assume no responsibility for any damages arising from actions taken based on this study.
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