

## White Paper on Swiss Manufacturing Industry Challenges and prospects in global competition



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# Foreword

Dear readers

Switzerland has a long tradition as a location for manufacturing and sets itself apart internationally by being a highly attractive and competitive place to do business. On the one hand, the attractiveness of the location is based on the advantageous social, political and economic framework conditions of Switzerland as a country. On the other hand, this attractiveness also stems from inherent strengths of the Swiss manufacturing industry itself that has matured over the course of decades.

The factors that make the Swiss manufacturing industry so strong are its role as an economic engine in a highly industrialised country; its strong focus on exports and global presence; and its innovation leadership and high manufacturing quality. The mechanical engineering, electrical engineering and metalworking (MEM) industry is thereby of central importance for Swiss manufacturing. The MEM industry, when measured by value creation, represents one of Switzerland's largest industrial sectors as well as one of its largest employers.

During the past few years, Switzerland as a location for manufacturing and in particular the MEM industry came under increased pressure. The global financial crisis and recession of 2008–2009 and the subsequent strength of the Swiss franc posed significant challenges to Swiss MEM companies. Large multinational groups that were operating on a global footing for many years were impacted, as were small and medium-sized MEM companies that had only begun to build up an international presence in recent decades.

The MEM industry faces the challenges of economic uncertainty as well as intensifying global competition and increasing pressure to innovate. The issue of where future growth will take place is assuming key importance (i.e. which established markets still harbour growth potential and which new emerging markets promise sustainable growth). In addition, the issues of resource shortage (talent) and rising resource prices (energy) have recently begun to play a more prominent role.

In view of these many challenges, the question arises of how long Swiss manufacturing can remain competitive, and how the massive outflows of jobs and skills can be limited. Research and development (R&D) is assuming a central position in this debate at a time when the innovation leadership of the Swiss MEM industry is coming under severe pressure worldwide.

Working with representatives from industry, government and universities, Deloitte performed an analysis of the current challenges faced by the Swiss MEM industry. The analysis is based on a survey of Swiss MEM companies and interviews with CEOs, CFOs and other experts, and has never before been conducted in such a comprehensive way for Switzerland.

The analysis identifies the strengths and success factors of Switzerland as a location for manufacturing and for the MEM industry in particular. We also provide potential courses of action that Swiss MEM companies need to pursue to prevail against the global competition in uncertain economic times, while enhancing their competitive position. The focus of this white paper is on the potential courses of action open to companies, and not on policy. Policy however, has an important supporting role to play, such as in the areas of taxation, currency, infrastructure, education and university policies.

We hope this white paper contributes to ensuring that Switzerland as a location for manufacturing can maintain and expand its role as an attractive and competitive site of production and innovation sustainably into the future. We are highly appreciative of the valuable contributions of all study participants and would like to extend a sincere thank you in this regard. We wish you a stimulating read and hope to impart interesting insights into the current challenges faced by the Swiss manufacturing industry and its prospects for the future.



**Dr. Ralf C. Schlaepfer**  
Managing Partner  
Head of Manufacturing Industry Deloitte



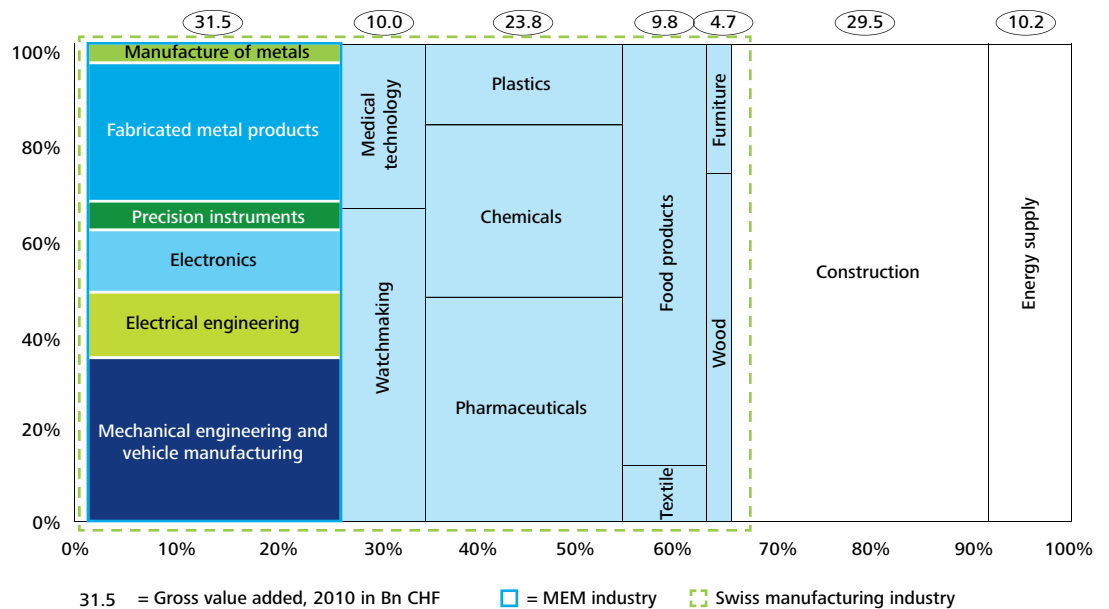
**Markus Koch**  
Partner Consulting  
Deloitte

# About the study

This study examines the most important challenges currently faced by Switzerland as a location for manufacturing, as well as the prospects and potential opportunities it has to look forward to. We identify success factors and potential courses of action that can be used to build on existing strengths and to enhance the competitive position.

The focus of this study is on the Swiss mechanical engineering, electrical engineering and metalworking (MEM) industry, which, measured by gross value added, represents the largest industrial sector in Switzerland and makes up almost half of what we understand by the "Swiss manufacturing industry" (see Chart 1). The MEM industry includes mechanical engineering and vehicle manufacturing, electrical engineering/electronics, precision instruments and the production and processing of metals.

**Chart 1. Gross value added of the Swiss secondary (industrial) sector<sup>1</sup>**

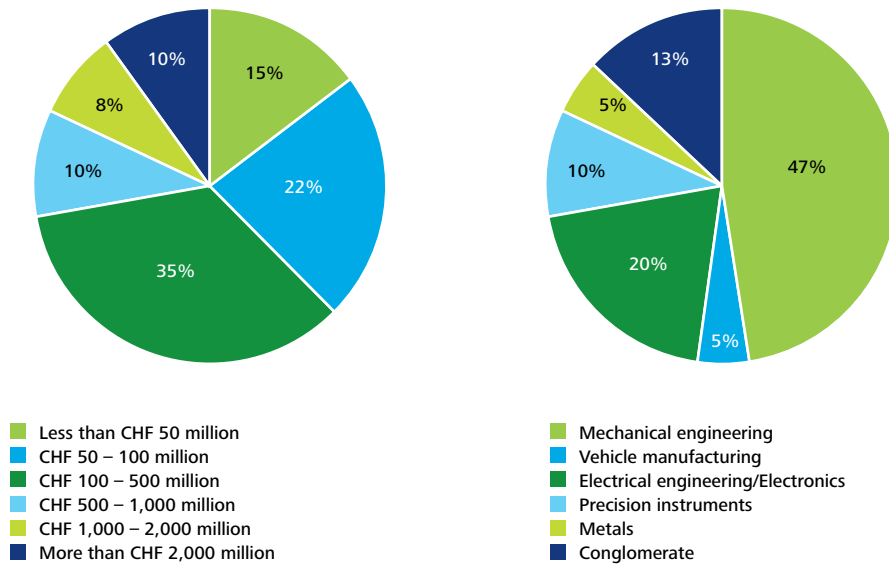


The study is based on three components:

1. An analysis of the overall competitiveness of Switzerland as a location for manufacturing and of the Swiss MEM industry.
2. A survey of Swiss MEM companies with regard to the main trends and current challenges that impair competitiveness.
3. Interviews with experts from industry, government and academia.

The survey was conducted from September to October 2012. A total of 40 executives from the Swiss MEM industry participated in the survey, representing companies large and small across all sectors (see Chart 2). Eighty-two percent of the MEM companies surveyed are headquartered in the German-speaking part of Switzerland, with the remaining 18% are headquartered in the French-speaking part of Switzerland.

Chart 2. Surveyed Swiss MEM companies by revenue and industrial sector



In addition, 12 interviews were conducted from August to November 2012 with experts from Swissmem, OSEC, SECO and the London Business School and with executives from ABB, Bobst, Bühler, Robatech, Sulzer and 3A Composites.

# 1. Starting point

## 1.1. Switzerland's competitiveness

Various renowned benchmark studies and location rankings have repeatedly highlighted Switzerland's competitiveness in recent years while illustrating the central success factors. The three most important studies are listed below:

World Economic Forum (WEF)	Lausanne Institute for Management Development (IMD)	Economist Intelligence Unit (EIU)
<b>1. Switzerland</b>	1. Hong Kong	1. Singapore
2. Singapore	2. United States	<b>2. Switzerland</b>
3. Finland	<b>3. Switzerland</b>	3. Hong Kong
4. Sweden	4. Singapore	4. Canada
5. Netherlands	5. Sweden	5. Sweden
The WEF's <i>Global Competitiveness Report 2012–2013</i> lists Switzerland as the most competitive country out of a total of 144 countries for the fourth year in a row – higher than Singapore, Finland and Sweden. <sup>2</sup>	In the IMD's <i>World Competitiveness Ranking 2012</i> Switzerland was ranked third out of 59 countries, behind only Hong Kong and the United States, having been ranked fourth and fifth for many years in succession. <sup>3</sup>	The EIU's Business Environment Ranking ranks Switzerland as number two for the period 2007–2011, behind only Singapore. Other traditional industrial nations such as the United States (ranked ninth), Germany (11), France (19) and Japan (27) lagged far behind in terms of the attractiveness of their business environment. <sup>4</sup>
The WEF highlighted the stable economic, political and social environment as positive framework conditions. Their findings also stressed Switzerland's outstanding innovative drive, technological capacity, labour market efficiency, well-developed financial market and excellent infrastructure.	The IMD highlights Switzerland's sound public finances, political stability, competitive tax system, well-educated labour force and reliable infrastructure as attractive location factors. The strong Swiss franc was weighted negatively.	The EIU emphasises that Switzerland is characterised by a strong and open economy, a high degree of political stability, low taxes and good infrastructure. Among the restricting factors, the report listed the slow liberalisation processes compared to the rest of Europe, relatively high labour costs and the country's small market size.

Experts and analysts believe that Switzerland possesses the essential elements that make a location particularly attractive and competitive for both local and foreign MEM companies. These framework conditions have proven to be highly enduring over many years and should also remain stable in the near future (see the Outlook in the EIU Business Environment Ranking in Chart 3).

Chart 3. EIU Business Environment Ranking for Switzerland

[1997-2012E; scale 1-10. 10 = positive]<sup>5</sup>

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012E
Overall position	7.99	8.04	8.01	8.31	8.47	8.44	8.33	8.41	8.42	8.59	8.70	8.52	8.54	8.44	8.45	8.48
(1) Political environment	9.4	9.4	9.4	9.6	9.6	9.6	9.6	9.6	9.7	9.7	9.7	9.7	9.7	9.5	9.5	9.3
(2) Macroeconomic environment	9.0	9.0	8.3	8.8	9.1	9.1	8.4	9.1	8.9	8.9	9.4	9.4	9.4	8.6	8.9	9.2
(3) Market opportunities	5.1	5.3	5.7	5.7	6.1	5.6	5.2	5.2	5.0	5.5	6.2	6.2	5.9	5.5	5.3	5.7
(4) Policy towards private enterprise and competition	7.5	7.8	7.8	8.6	8.6	8.6	8.6	8.6	8.5	8.8	8.8	8.8	8.5	8.5	8.5	8.5
(5) Policy towards foreign investment	7.2	7.2	7.2	8.3	8.3	8.3	8.3	8.3	8.2	8.7	8.7	8.7	8.7	8.7	8.7	8.7
(6) Foreign trade and exchange controls	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.7	8.7	8.7	8.7	8.7	8.7	8.7	8.7
(7) Taxes	8.2	8.2	8.2	7.7	8.2	8.2	8.2	8.2	8.6	8.6	8.6	8.6	8.6	9.0	9.0	9.0
(8) Financing	9.3	9.3	9.3	9.6	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	8.5	8.9	8.9	8.5
(9) The labour market	6.6	6.6	6.6	7.1	7.1	7.1	7.0	7.1	7.6	7.8	7.8	7.4	7.8	7.8	7.8	7.7
(10) Infrastructure	8.9	8.9	8.9	8.9	8.9	9.1	9.1	9.1	9.2	9.4	9.3	9.3	9.4	9.4	9.4	9.6

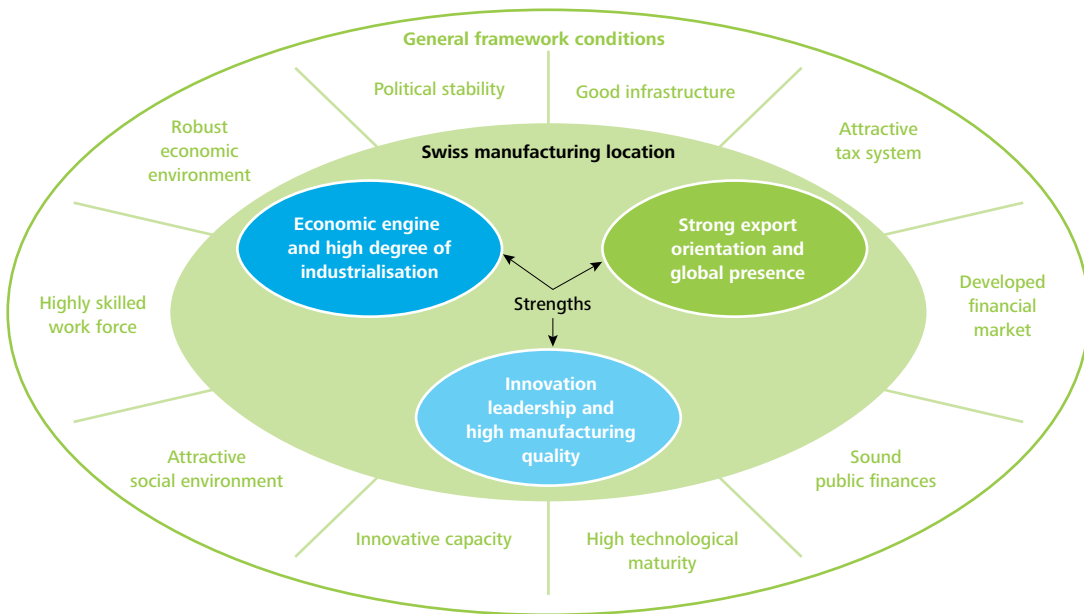
1.0-1.9 2.0-2.9 3.0-3.9 4.0-4.9 5.0-5.9 6.0-6.9 7.0-7.9 8.0-8.9 9.0-9.9 10

Note: The ranking for the respective year is always the aggregate historical ranking over the past five years, i.e. the ranking for 1997 is for the period 1993–1997 and so on. The ranking for 2012E applies to the forecast period 2012–2016.

## 1.2. Strengths of Switzerland as a location for manufacturing

In addition to these general framework conditions that characterise Switzerland as a business location, the Swiss manufacturing location also possesses inherent strengths that further increase the attractiveness and competitiveness of the Swiss MEM industry (see Chart 4).

Chart 4. Existing strengths of Switzerland as a location for manufacturing



### 1.2.1 Economic engine and high degree of industrialisation

The manufacturing industry is one of the central pillars of the Swiss economy. In 2011 industry (in general) contributed 19% to the gross domestic product (GDP). The MEM industry represents the largest industrial sector and contributed 9% of all Swiss value added in 2011.<sup>6</sup>

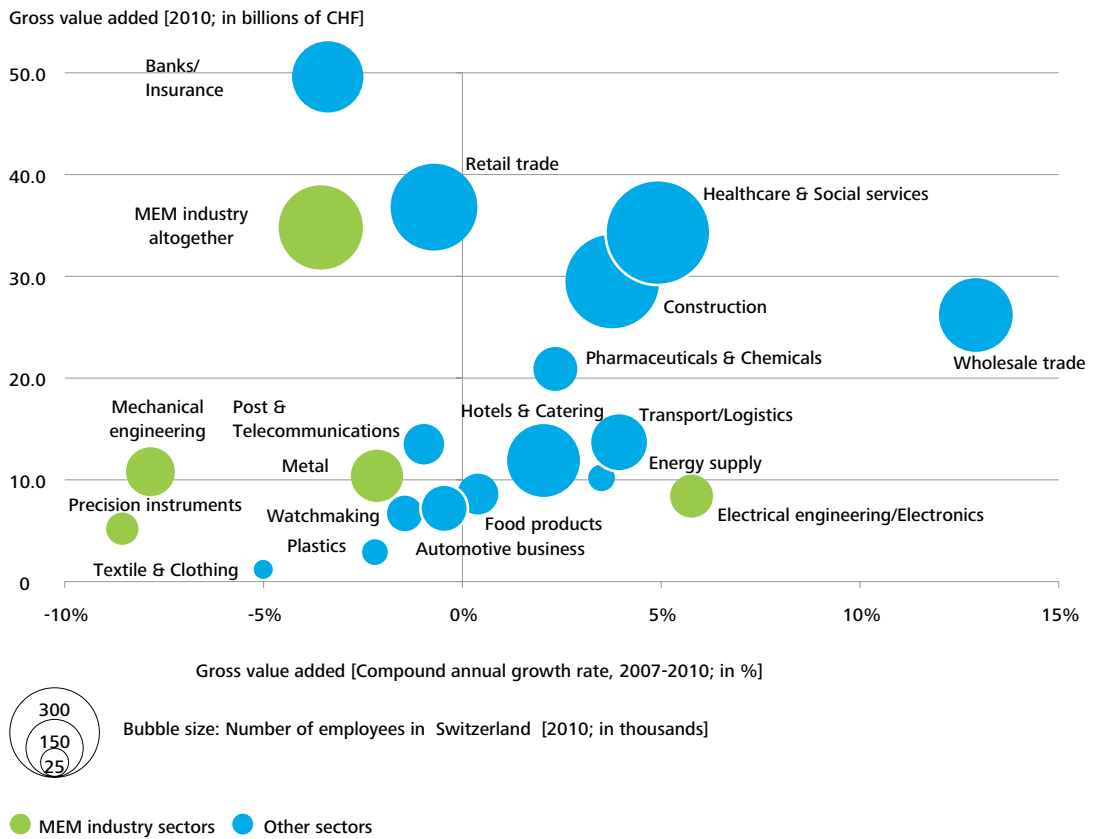
The MEM industry is also one of the largest employers in Switzerland. With 330,000 employees in 2011, it employed more than 10% of the entire Swiss workforce. Growth in employment within the MEM industry during the past 10 years was just over 2.7%.<sup>7</sup>

#### High gross value added by the MEM industry

If one compares the gross value added during the past three years and the Swiss employment figures across various sectors, the importance of the MEM industry in the Swiss economic fabric emerges quite clearly (see Chart 5). In 2010 the MEM industry generated higher gross value added in aggregate than healthcare and social services, construction or the wholesale trade, even though the MEM industry was the only sector that exhibited negative annual growth between 2007 and 2010.

**Chart 5. Gross value added and employment figures of individual sectors**

[Growth 2007–2010, 2010 in billions of CHF; 2010 in thousands]<sup>8</sup>



Within the MEM industry itself, the electrical engineering and electronics sector posted annual growth of almost 6% between 2007 and 2010. On the other hand, the mechanical engineering (-8%), metalworking (-2%) and precision instruments (-9%) sectors exhibited negative growth over the same period.

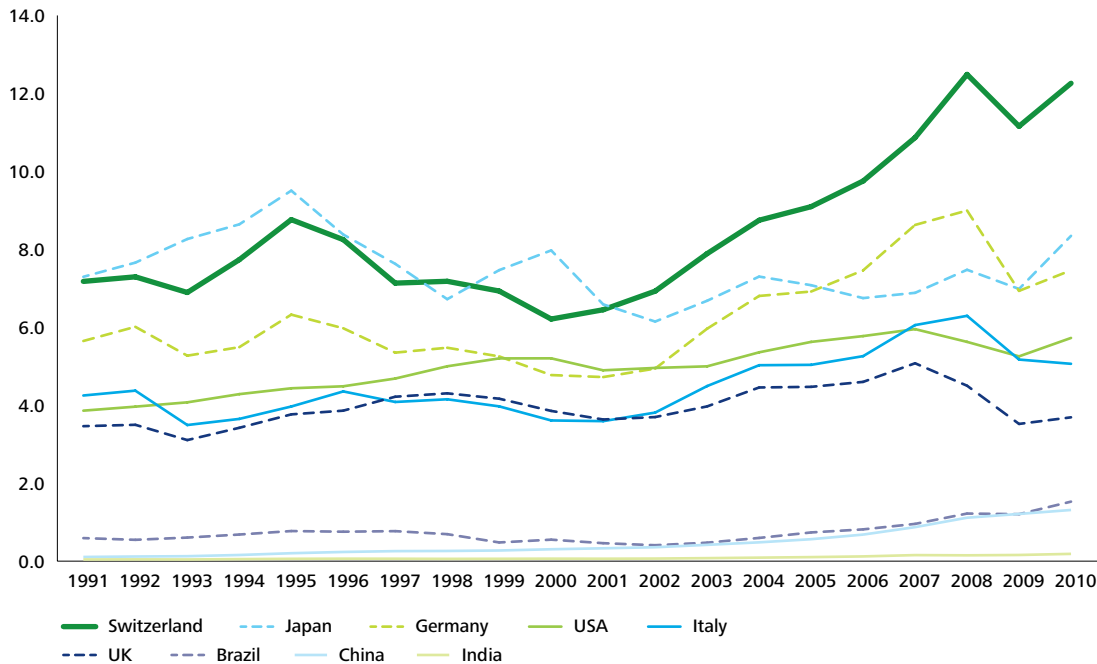
**De-industrialisation has not taken place**

Switzerland is also characterised by a persistently high degree of industrialisation. Until now, the rumoured de-industrialisation of Switzerland in connection with the global recession and the strength of the Swiss franc has not taken place. According to an analysis by Avenir Suisse, “Switzerland is still the most industrialised nation in the world.”<sup>9</sup> At just over USD 121 billion in industrial production (2011), Switzerland comes 19th in terms of industrial output on a global scale. The rankings are led by China with an output of USD 2,335 billion.<sup>10</sup> However, if industrial production is compared to population size and observed over time, Switzerland compares quite favourably to other highly industrialised countries (such as the United States, Japan and Germany) (see Chart 6).



**Chart 6. Swiss industrial production in international comparison**

[1991-2010; per capita in thousands of USD, nominal]<sup>11</sup>



Industrial production per capita has almost doubled in Switzerland in the past 20 years, rising from USD 7,177 in 1991 to USD 12,260 in 2010. In the past five years, moreover, the gap between Switzerland and other highly industrialised nations has increased even more on a nominal basis. Switzerland’s industrial production has grown sharply since 2005, while other countries have exhibited only a slight increase (e.g. Japan, Germany), or experienced a decline exacerbated by the economic downturn of 2008–2009 (e.g. Italy, United Kingdom). Adjusted for inflation, the trend is even clearer, due to continued low inflation in Switzerland.

In this context, it is difficult to take seriously the notion that Switzerland is de-industrialising.

### 1.2.2 Strong export orientation and global presence

An additional strength that highlights the importance of the MEM industry for the entire Swiss economy is its strong focus on exports. About 80% of MEM industry products are exported.<sup>12</sup> Thirty-five percent of all Swiss exports in 2011 were generated by the MEM industry, worth CHF 68.5 billion. The MEM industry represents Switzerland’s second-largest export sector after the chemical and pharmaceutical industries.<sup>13</sup> Within the MEM industry, mechanical engineering clearly dominates as the largest export sector.

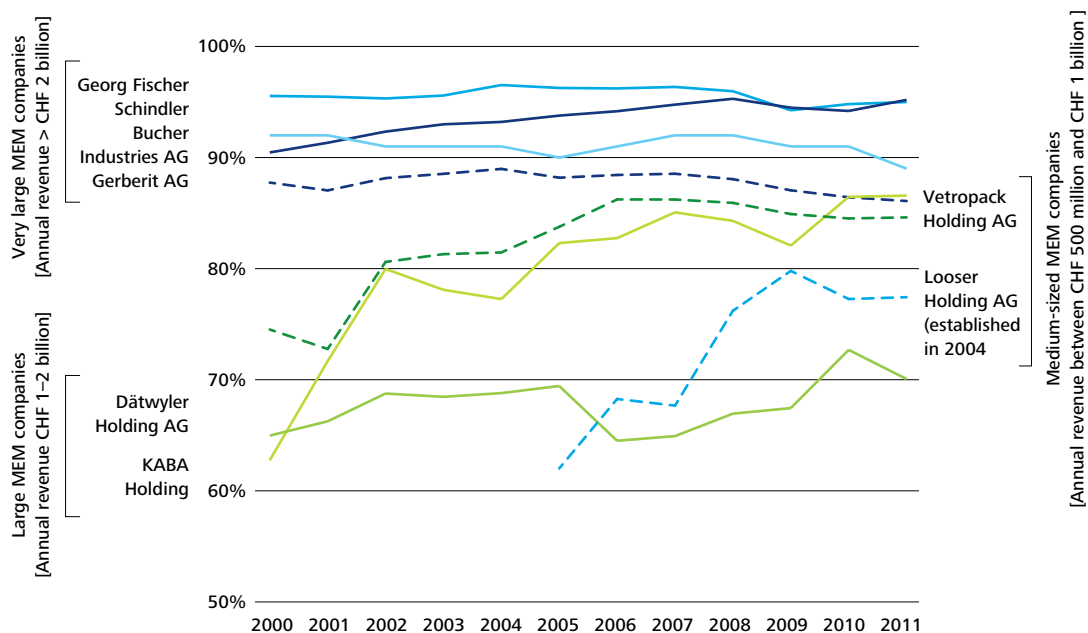
Seen globally, Switzerland is one of the largest exporters of machinery: in absolute numbers for the year 2010, Switzerland comes 10th among the largest machinery-exporting countries worldwide – yet ranks first in exports per capita.<sup>14</sup>

### Increasingly international orientation

The global focus of the MEM industry is the result not only of its strong export orientation but also of the relatively early international positioning of Swiss MEM companies. The large multinational groups are clearly in the lead here. For example, the ABB Group has been generating more than 98% of its revenue abroad for many years.<sup>15</sup> Other large MEM companies with annual sales in excess of CHF 2 billion – such as Schindler, Georg Fischer, Bucher Industries and Geberit, to name just a few – have also reported constant shares of revenue generated abroad of between 85% and 95% in recent years (see Chart 7).

**Chart 7. Foreign revenue of selected Swiss MEM companies**

[2000-2011; as a percentage of total revenue]<sup>16</sup>



Like the multinational groups, large MEM companies with annual revenue of CHF 1–2 billion and medium-sized MEM companies with annual revenue of between CHF 500 million and CHF 1 billion have been constantly increasing their international orientation and global coverage over the past decade. Although the shares of revenue generated abroad in large and medium-sized MEM companies ranged between 60% and 80% a decade ago, currently between 70% and 90% of revenue is generated abroad. Large MEM companies such as Dätwyler and KABA and medium-sized MEM companies such as Vetropack and Looser Holding are representative of this trend (see also Chart 7).<sup>17</sup>

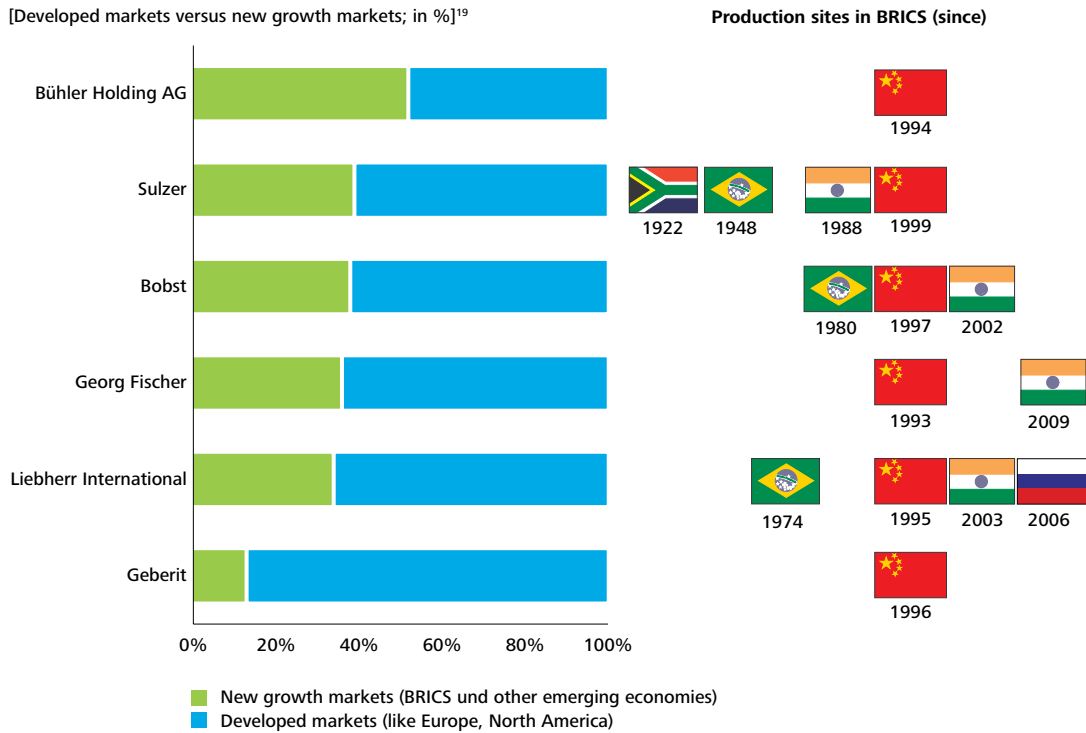
This trend towards an increasingly international orientation and global coverage of sales markets should continue to intensify for all Swiss MEM companies in the near future. In the future, growth will be stronger in new growth markets such as the BRICS<sup>18</sup> and other emerging markets.

### **Long tradition of production sites abroad**

As on the sales side, on the production side we observed extensive internationalisation and global coverage (see Chart 8). Here again, it was the large multinational groups and the very large companies with annual revenue in excess of CHF 2 billion that led the way.

**Chart 8. Number of production sites of selected Swiss MEM companies**

[Developed markets versus new growth markets; in %]<sup>19</sup>



Internationally oriented MEM companies such as Sulzer, Bobst, Georg Fischer, Liebherr International and Bühler already have 40% to 50% of their production sites in the growth markets instead of developed markets (such as Europe, North America).

If one considers the BRICS alone, Swiss MEM companies positioned themselves with production sites in these markets at a very early stage. For instance, Sulzer has been producing pumps in South Africa for the mining industry since 1922, and has had a factory in Brazil since 1948. There has been a production site in India since 1988. China was added as a production location in 1999, with three plants at present.<sup>20</sup>

The global orientation of the Swiss MEM industry is revealed by a more detailed analysis of the top 20 Swiss MEM companies (see Chart 9). Multinational groups like ABB and Liebherr lead the current rankings (2011) in terms of revenue, followed by other large traditional Swiss MEM companies with a strong foreign focus like Schindler, OC Oerlikon, Georg Fischer, Sulzer, etc. The rankings also include two Swiss subsidiaries of European industrial groups (Alstom and Siemens), showing that the global nature of the industry is increasingly gaining a foothold at the local level too.

Chart 9. Top 20 Swiss MEM companies

[2011; revenue in millions of CHF, employees domestic/abroad]<sup>21</sup>

	Sector	Revenue 2011 (CHF millions)	Revenue Switzerland 2011 (in %)	Employees 2011	Employees Switzerland 2011 (in %)	
1	ABB Ltd.	Mechanical engineering	35,711	<2%	133,600	5%
2	Liebherr International	Mechanical engineering	10,233	n/a	35,000	3%
3	Schindler Holding AG	Mechanical engineering	7,854	11%	44,387	10%
4	Alstom (Schweiz) AG	Electrical eng./Electronics	4,200	n/a	5,870	n/a
5	OC Oerlikon Corporation AG	Conglomerate	4,182	n/a	17,227	5%
6	Schmolz + Bickenbach	Metal	3,943	2%	10,332	7%
7	Georg Fischer AG	Mechanical engineering	3,638	5%	13,606	19%
8	Sulzer AG	Mechanical engineering	3,578	n/a	17,002	8%
9	Franke Artemis Holding AG	Conglomerate	2,510	4%	9,720	8%
10	Bucher Industries AG	Mechanical engineering	2,336	5%	10,136	10%
11	Siemens (Schweiz) AG	Electrical eng./Electronics	2,289	n/a	6,283	n/a
12	Bühler Holding AG	Mechanical engineering	2,131	n/a	8,828	29%
13	Geberit AG	Industrial applications	2,123	14%	6,004	17%
14	Mettler-Toledo	Precision instruments	2,048	6%	12,000	n/a
15	Endress+Hauser AG Int.	Precision instruments	1,879	4%	9,414	n/a
16	RUAG Holding AG	Mechanical engineering	1,777	47%	7,739	64%
17	Autoneum	Automotive supplier	1,722	n/a	9,435	n/a
18	Sonova Holding	Electrical eng./Electronics	1,620	3%	8,223	14%
19	Landis & Gyr	Electrical eng./Electronics	1,416	n/a	5,210	n/a
20	Stadler Rail	Vehicle manufacturing	1,370	35%	4,500	62%

Most of the large Swiss MEM companies currently generate only a small portion of their revenue in Switzerland (with the exception of the semi-public arms factory RUAG and of Stadler Rail, both of which have traditionally exhibited a strong domestic focus). For the top 10 Swiss MEM companies, the average percentage of employees in Switzerland is less than 10%.

### 1.2.3 Innovation leadership and high manufacturing quality

An additional strength of the Swiss manufacturing industry is its long tradition of innovation and leadership. Switzerland's strong position as a leading innovator is evident in various global rankings:

European Commission	World Intellectual Property Organization (WIPO)
<ol style="list-style-type: none"> <li>1. Switzerland</li> <li>2. Sweden</li> <li>3. Denmark</li> <li>4. Germany</li> <li>5. Finland</li> </ol>	<ol style="list-style-type: none"> <li>1. Switzerland</li> <li>2. Sweden</li> <li>3. Singapore</li> <li>4. Finland</li> <li>5. United Kingdom</li> </ol>
<p>In the European Commission's <i>Innovation Union Scorecard 2011</i> examining the innovative power of various European countries, Switzerland leads the rankings, followed by Sweden and Denmark.<sup>22</sup></p>	<p>In the <i>Global Innovation Index 2012</i> published by WIPO, Switzerland comes first for the second year in a row out of a 141 countries, followed by Sweden, Singapore and Finland.<sup>23</sup></p>
	<p>The WIPO emphasises good workforce education, the quality of research institutes, the close networking of universities and business, and high spending on research and development (R&amp;D) by private industry in Switzerland.</p>

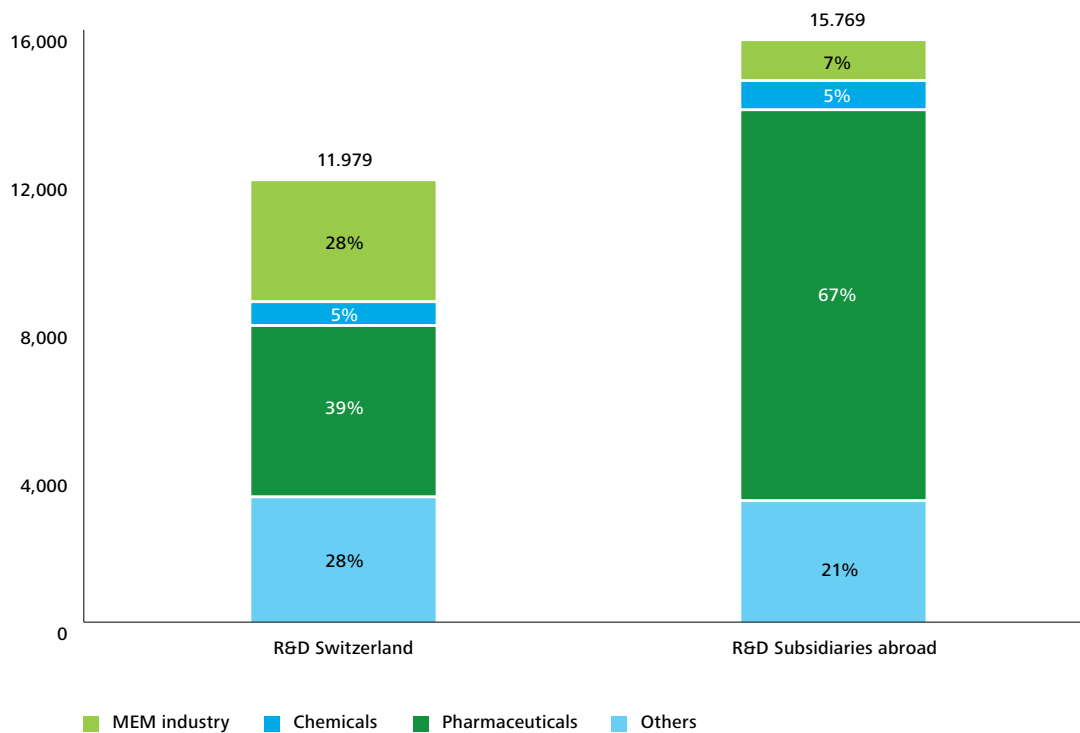
Given this long tradition of innovation, it is hardly surprising that various Swiss MEM companies are also represented in global innovation rankings: these include ABB (in second place) in the *Top 100 Global Innovator 2011 Rankings* by Thomson Reuters, along with Schindler (81) and again ABB (93) in the list of the *World's Most Innovative Companies* most recently published by Forbes.<sup>24</sup>

### High R&D spending by the MEM industry

Swiss MEM companies also rate highly favourable in terms of R&D expenditure when compared to other economic sectors in Switzerland. According to the data collected every four years by the Federal Statistical Office (FSO), the Swiss MEM industry contributed just more than 20% of all R&D expenditure by private industry in Switzerland in 2008 (see Chart 10). This puts it in second place in terms of R&D spending, just behind the pharmaceutical industry.

**Chart 10. Research and development (R&D) expenditure in Switzerland and abroad**

[Private sector only; 2008; in millions of CHF and %]<sup>25</sup>



It is also striking that most Swiss MEM companies continue to do research in Switzerland, and that the share of R&D conducted abroad by subsidiaries is relatively small (see also Chart 10). It is not possible to detect increased internationalisation of the research done by the Swiss MEM industry, as has for example been the trend in the pharmaceutical industry in recent years.

### Swiss quality as a competitive advantage

An additional strength of the Swiss manufacturing location is the high production quality achieved by MEM companies, which is also perceived as an important component of their brands. High quality is a clear competitive advantage, despite growing economic pressure.

The “Made in Switzerland” label or “Swissness” may not ostensibly be as important as is the case for example in the watch or food industry. The company name itself stands for quality for MEM companies. The association of a brand or a MEM company with high “Swiss quality” can however play a key role in global competition, especially in the new growth markets in Asia, South America and Africa.

Because quality is increasingly equated with brands, it is hardly surprising that in the Top 50 Ranking of Switzerland's most valuable brands in 2012, the upper echelons of which are dominated by brands from the food industry, the watch industry and banking, we now increasingly find MEM companies as new "ambassadors of Switzerland": specifically Schindler (ranked 17), Geberit (22), Phonak (34), Franke (48), KABA (49) and Jura (50).<sup>26</sup>

On the whole then, the Swiss manufacturing industry exhibits various strengths that make it particularly attractive and competitive. In recent years, however, these strengths came under increasing pressure from economic challenges and global industrial trends that are impacting Switzerland as a location for manufacturing.

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"Switzerland will continue to remain an important industrial location in the future and will not be de-industrialised. For this reason it is important to build on existing strengths, specifically the good infrastructure, employee skills, good educational levels, capacity for innovation, political stability and security."<sup>27</sup>

**Guido Meier**

Bühler AG, Head of Production for Switzerland and the Czech Republic

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"Switzerland is very attractive as a location for manufacturing, since capital is cheap for capital-intensive industries. The money is there, and in addition the people are well educated."<sup>28</sup>

**Peter K. Widmer**

CFO Power Systems CH and CEU, ABB Switzerland, Power Systems

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"Production is increasingly taking place in local markets close to the customer under the motto 'local for local'. Switzerland is at an advantage here, because it is seen as a quality brand around the world and it can successfully combine this with local production sites."<sup>29</sup>

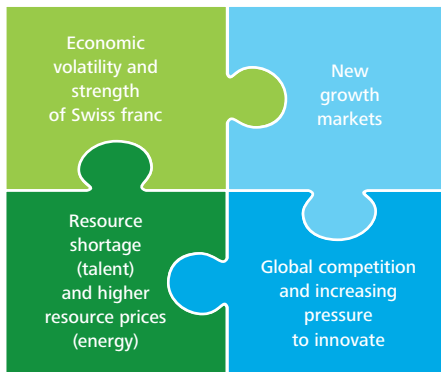
**Klaus Stahlmann**

CEO, Sulzer

# 2. Challenges

The challenges faced by Switzerland as a location for manufacturing and the Swiss MEM industry can be summarised into four groups of issues that exert reciprocal influence on each other (see Chart 11).

**Chart 11. Challenges faced by the Swiss manufacturing location and the Swiss MEM industry**



- 1. Economic volatility and strength of Swiss franc:** Increased volatility and growing uncertainty have strongly characterised the economy since the global financial crisis and recession of 2008–2009. The strength of the Swiss franc subsequently aggravated the situation for the Swiss MEM industry and increased the pressure on margins. The implementation of the EUR/CHF exchange rate floor by the Swiss National Bank in September 2011 has stabilised the situation. Current events continue to be affected by the European sovereign debt crisis and global uncertainties. The challenge for Swiss MEM companies will be to successfully navigate these uncertainties and additional volatilities. Because of increased cost pressure, many MEM companies have been forced to make additional operational adjustments. Companies that export primarily to Europe will increasingly redirect their export focus towards growth regions outside these traditional markets.
- 2. New growth markets:** According to the most recent outlook published by the International Monetary Fund (IMF), the global growth forecast for 2013 is 3.9%.<sup>30</sup> For the United States, the anticipated growth rate is only 2.3%, with the Euro-zone forecast to achieve growth of only 0.7%. Strong economic growth has not occurred in established and developed markets in recent years, but rather in emerging markets in Asia, South America and Africa. For emerging markets in aggregate, a growth rate of 5.9% is anticipated in 2013. The following growth picture for 2013 emerges when considering the BRICS<sup>31</sup> individually: Brazil (4.6%), Russia (3.9%), India (6.5%), China (8.5%) and South Africa (3.3%). The challenge for many Swiss MEM companies will be to further expand operations in these new growth markets (including outside the BRICS) and to become competitive in these local markets.
- 3. Global competition and increasing pressure to innovate:** Amid increasingly global competition, innovation and new products are increasingly coming into focus for internationally active MEM companies, as a distinguishing characteristic and competitive advantage. The pressure to innovate will therefore only continue to increase. New growth markets at the very least require adaptations of products to local needs, and to some extent also completely new development of products for local needs. This creates opportunities for market innovations in order to prevail over other multinational groups and local competitors. In established markets, product and process innovations are required for companies to differentiate themselves from existing competitors. The challenge for many Swiss MEM companies will be to reinvent themselves amid these tensions – particularly since innovations and new products from emerging countries are increasingly coming to market in developed countries and become a source of competition for domestic producers.

4. *Resource shortage (talent) and higher resource prices (energy)*: An additional challenge for the competitiveness of the Swiss manufacturing location is the issue of resources, which is currently most prominent in the areas of talent and energy. Firstly, the Swiss MEM industry has long experienced a talent shortage that needs to be addressed in order to remain globally competitive and innovative out of Switzerland. Secondly, Switzerland's new energy policies, which provide for the phase-out of nuclear power and the promotion of renewable energy sources, entail both opportunities and risks for the MEM industry. The challenge for MEM companies will be to perceive the restructuring of the energy industry as an opportunity on the one hand, and to guard against contingencies such as higher electricity prices or uncertainties in terms of supply security on the other hand. The need to sustainably secure access to important raw materials, as is currently being demonstrated by various countries (e.g. China) on a global scale, should also not be underestimated.

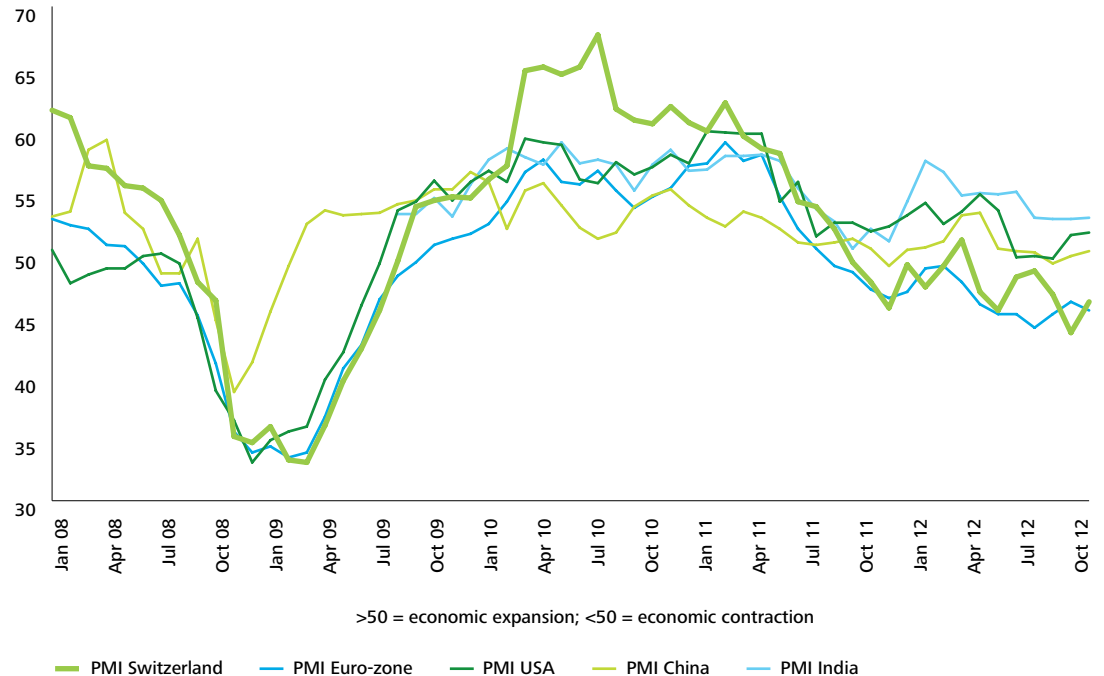


### 2.1. Economic volatility and strength of Swiss franc

The global financial crisis and recession of 2008–2009 and the difficult economic climate following in its wake have had a strong impact on manufacturing industries in most countries and regions, resulting in a drop in orders. Accordingly, the Purchasing Managers Index (PMI), a leading indicator measuring industrial companies' perceptions of the economic climate, has exhibited significant volatility during this period: the past five years have been marked by a brief and strong phase of sharp economic contraction followed by several years of weak economic expansion (see Chart 12).

**Chart 12. Swiss Purchasing Managers Index (PMI) in international comparison**

[January 2008 – October 2012]<sup>32</sup>



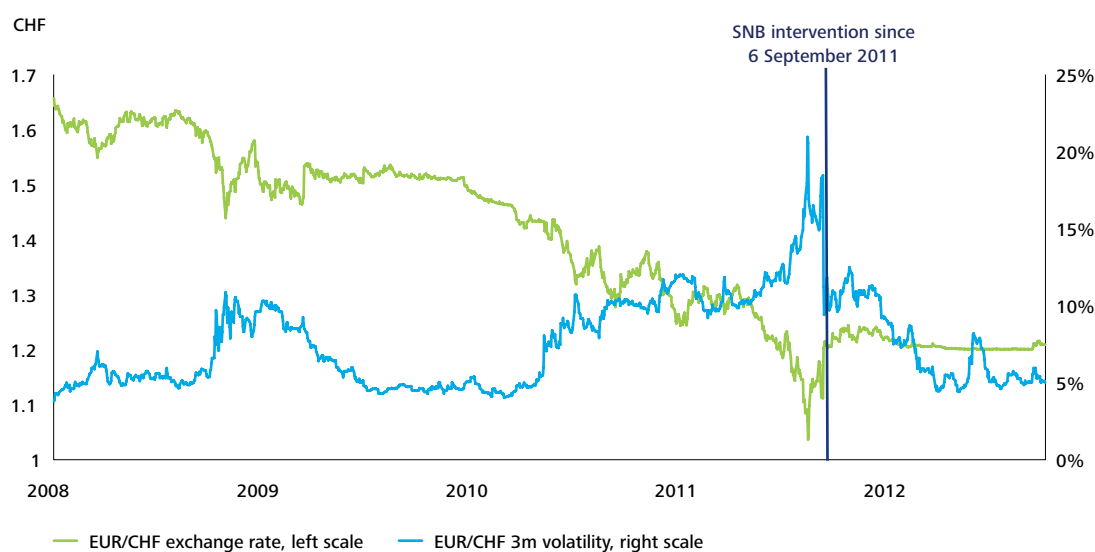
Since 2008–2009, the Swiss PMI has recovered strongly by international standards (compared to the Euro-zone and the United States), experiencing a temporary expansion of over 65 points in 2010, even overtaking the PMIs of some emerging countries (China, India). After that, however, the rate of expansion abated sharply. After the EUR/CHF exchange rate nearly reached parity in August 2011, the Swiss PMI has been contracting and rates unfavourably compared, for example, to that of the United States.



The strong Swiss franc as a consequence of European sovereign indebtedness is still putting pressure on many Swiss MEM companies and has forced them to make operational adjustments while cutting into margins. However, the implementation of the EUR/CHF exchange rate floor on 6 September 2011, by the Swiss National Bank, has stabilised the situation for the time being (see Chart 13).

**Chart 13. EUR/CHF exchange rate and exchange rate volatility**

[2008–2012; in CHF and %]<sup>33</sup>



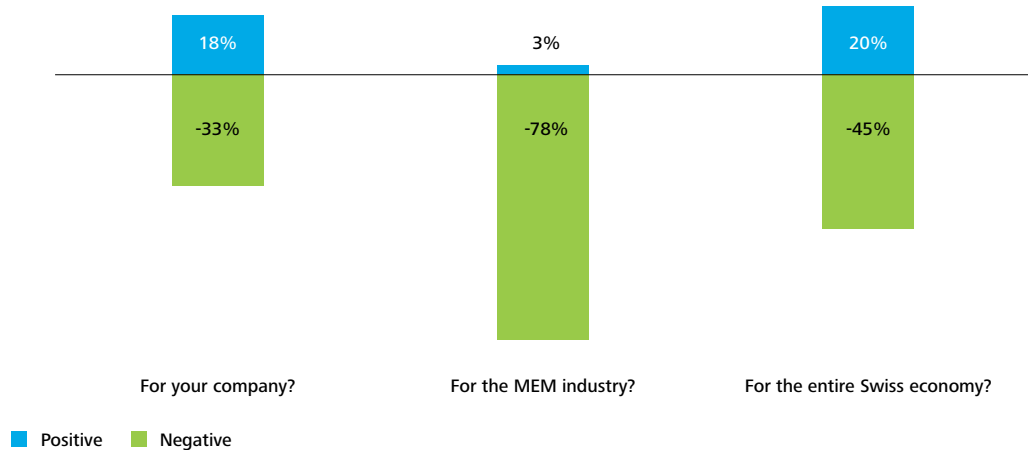
MEM companies with a strong European export focus have now gained additional planning security, and it has also been possible to protect jobs in the Swiss manufacturing industry for the time being. If the EUR/CHF exchange rate continues to trade in a range from 1.20 to 1.25, many Swiss MEM companies will be unable to avoid having to make more adjustments to avert long-term declines in margins. Things would become even more difficult if it proves impossible to defend the exchange rate floor.

### **Resistant MEM companies**

Accordingly, in conducting the survey and interviewing the experts, it clearly emerged that the strength of the Swiss franc is one of the key issues faced by Swiss MEM companies in the 12 months before September/October 2012. Forty-eight percent of respondents assessed the effects of the strong Swiss franc on their profitability over the past 12 months as “very negative”. An additional 43% assessed it as “rather negative”, with the remaining 10% responding “neither positive nor negative”.<sup>34</sup>

It is very surprising that in their outlook for the next 12 months, many of the surveyed Swiss MEM companies (18%) assessed the prospects for their own companies just about as positively as for the overall economy (20%), but judged the outlook for MEM industry as being significantly more negative (-78%) than for the overall economy (-45%) (see Chart 14). In view of the above, a surprisingly big discrepancy emerges between the assessment of the individual outlook for MEM companies and the outlook for the MEM industry as a whole.

Chart 14. How do you judge the outlook for the next 12 months<sup>235</sup>



The positive assessments of the companies' own prospects can be interpreted as an indication that the respondents have great confidence in their own efforts to tackle the challenges they face, while the outlook for the industry as a whole is assessed on the basis of the challenges only, and does not take into account the likelihood of success of initiatives taken by other MEM companies. It would not be surprising if the prospects for success of the respondents' own efforts were overestimated (optimism due to steps taken), with the efforts taken by other MEM companies (due to lack of information) being underestimated accordingly.

However, the positive assessment of their own efforts indicates that many MEM companies have been able to successfully navigate the difficult economic climate of the past few years, and to overcome the negative effects of the strength of the Swiss franc. Many MEM companies appear to have had financial cushions. The global financial crisis and recession of 2008–2009 was of indirect benefit in this regard: "fitness programs" were carried out and then extended due to the strength of the Swiss franc.

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“Many of the ‘fitness programs’ that had to be initiated by companies as a result of the economic downturn of 2008–2009 did have a positive effect and help to manage the strength of the Swiss franc.”<sup>36</sup>

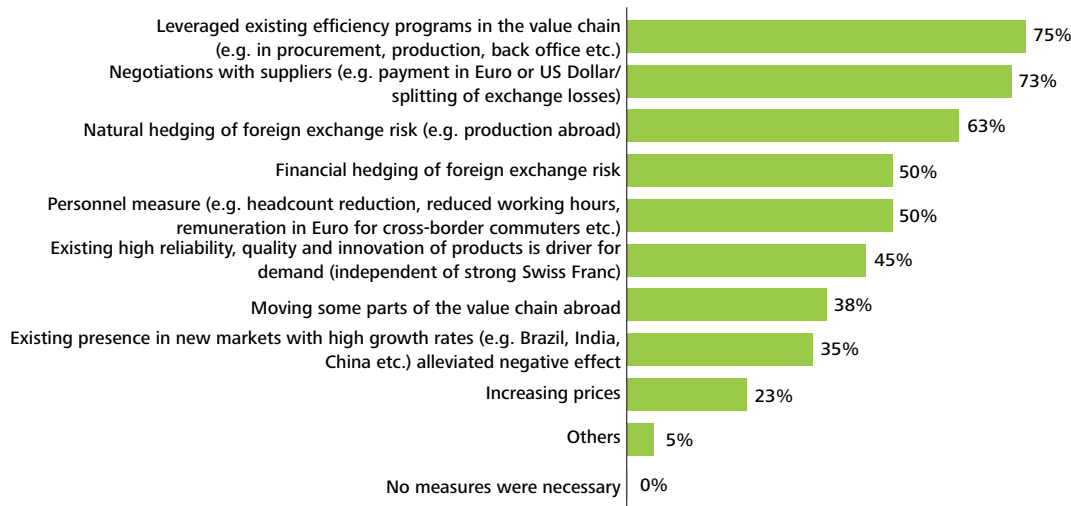
Dr. Jean-Philippe Kohl

Swissmem, Vice Director, Head of Commercial Law & Politics

Accordingly, most MEM companies surveyed (75%) characterised the pursuit of existing efficiency programmes as the most effective means by which to reduce or successfully manage the negative effects of the strong Swiss franc (see Chart 15).

**Chart 15. Preferred measures to reduce the negative effects of the strong Swiss franc over the past year**

[multiple answers possible]<sup>37</sup>



Various negotiation options pursued with suppliers were mentioned as the second-best measure (73%). Examples of such options include paying suppliers in Euros, sharing currency losses with suppliers (what is referred to as the “open books policy”) and negotiating with Swiss middlemen who benefit from currency advantages. The latter option included circumventing importers entirely where there is no discount to be had and procuring directly in the Euro-zone.

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“The strong Swiss franc also represents an opportunity. It enables cheap procurement and sourcing from the Euro-zone.”<sup>38</sup>

**Clemens Sager**

Country Controller ABB Switzerland, CEU Regional Reporting & Consolidation Manager, ABB Schweiz AG

This type of re-routing of sourcing is likely to become even more prominent in the future as a necessary optimising measure representing potential savings in the supply chain.

Other successful measures mentioned include hedging of the exchange rate risk through production abroad (63%) and through financial transactions (50%).

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“Natural hedging is a useful measure in light of the strong Swiss franc. If the customer pays in US Dollars, procurement in US Dollars should take place if possible.”<sup>39</sup>

**Peter K Widmer**

CFO Power Systems CH and CEU, ABB Switzerland, Power Systems

Many Swiss MEM companies that engage in financial hedging focus on cash flow hedging. Yet in order to cushion the enormous price increases and price fluctuations seen in commodities in recent years, commodity hedging is increasingly coming to the fore while purchasing raw materials.

In addition, many MEM companies have focused on various HR measures over the past year (50%) such as workforce cuts, implementation of short-time work and increasing working hours for example by two hours for the same wages (in consultation with employees).

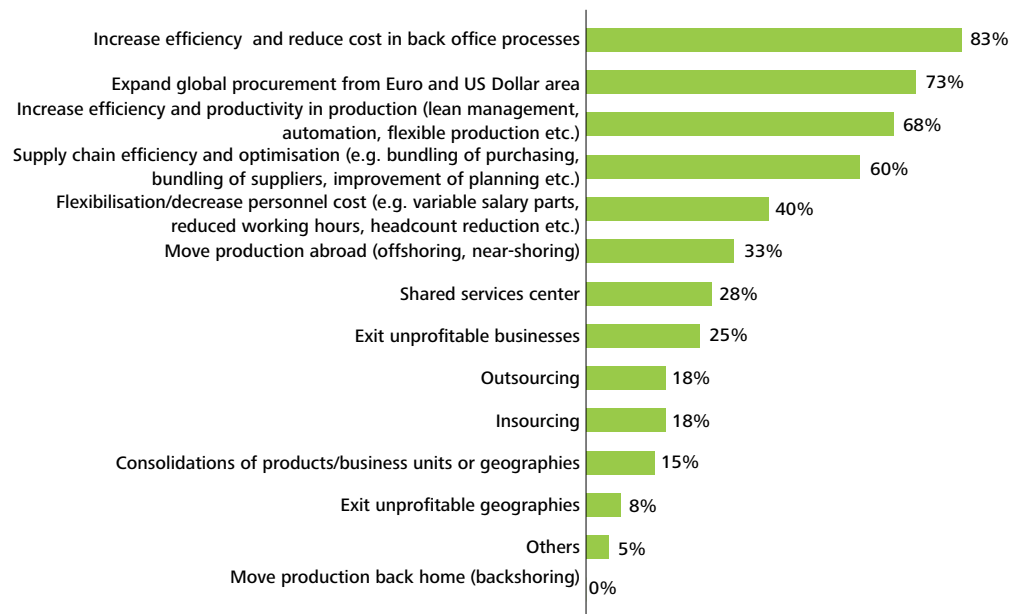
More than one third (38%) of the MEM companies surveyed have already moved some parts of the value chain to cheaper locations abroad in order to circumvent exchange rate losses.

**Enhanced focus on efficiency, optimisation and costs**

The main strategies employed by the surveyed MEM companies to cope with higher economic volatility and increasing uncertainty include steps to enhance efficiency, optimise processes and reduce costs in the next 12 months, in some cases linked directly to the measures taken to manage the strong Swiss franc (see Chart 16).

**Chart 16. Preferred strategies to increase efficiency and reduce cost over the next 12 months**

[multiple answers possible]<sup>40</sup>



The majority of respondents (83%) are focused on increasing efficiency and reducing cost in their back-office processes. This is an issue that has already been tackled by very large MEM companies during the past few years, though to a lesser degree by medium-sized and small companies, which are just now beginning to address it.

“Cost transparency is hugely important for SMEs. Certainty about which products contribute how much to your profits is very important.”<sup>41</sup>

Martin Meier  
CFO, Robatech

Another key measure cited is the expansion of global procurement outside the Euro and US Dollar areas with the objective of achieving better purchasing terms (73%). This strategy has also been mastered for the most part by large MEM companies, and will be increasingly tackled by medium-sized and small companies in the future.

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**“If sourcing abroad contributes to Swiss competitiveness, we have to choose this lesser evil over the greater evil of moving production abroad.”<sup>42</sup>**

**Daniel Küng**  
CEO, Osec

Increasing efficiency and productivity in the production process (68%) will also gain in importance. However, the degree of automation in the manufacturing processes of many Swiss companies has already been maximised and would be difficult to further improve, as evidenced in the expert interviews. Yet there is still a need for lean production in many MEM companies. Moreover, greater emphasis is being placed on efficiency and optimisation throughout the value chain, i.e. not only in production but also in all adjacent processes. Synchronous manufacturing and continuous flow production in conjunction with the supply chain are the key topics here. Optimisation and efficiency measures in the supply chain, such as bundling of procurement and suppliers, are also accorded high priority (60%).

Furthermore, almost half of the MEM companies surveyed (40%) responded that additional flexibilisation and variability of personnel costs, both of which were already mentioned as central measures taken to reduce the negative effects of the strong Swiss franc, will remain a topic throughout the next 12 months.

The offshoring of individual parts of the value chain has already been employed as a measure against the strength of the Swiss franc by more than one of every three surveyed MEM companies. Thirty-three percent of respondents continue to view offshoring and near-shoring as key strategies to enhance efficiency and cut costs.

The highly specific measures of centralisation (shared services centre) (at 28%) and outsourcing (at 18%) also enjoy a relatively high level of popularity. Both strategies of efficiency enhancement and cost reduction have enjoyed rather limited popularity in the Swiss MEM industry to date, and have been employed primarily by large MEM companies. Medium-sized and small MEM companies continue to employ a cautious approach towards such centralisation and outsourcing, fearing diminished quality. But should cost pressures continue to rise, MEM companies will be forced to accept more risks and (temporarily) lower quality.

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**“We are willing to outsource any activity that cannot anymore be justified in Switzerland when comparing the valued added out of it with the manpower costs, exchange rate effects included.”**

**Joseph Santoro**  
Bobst, Group Treasurer and Head of Investor Relations

Another interesting measure currently being considered by some MEM companies (18%) is insourcing, i.e. bringing the formerly outsourced processes back into the company. This can certainly be an attractive means for medium-sized and small MEM companies to reduce certain costs.



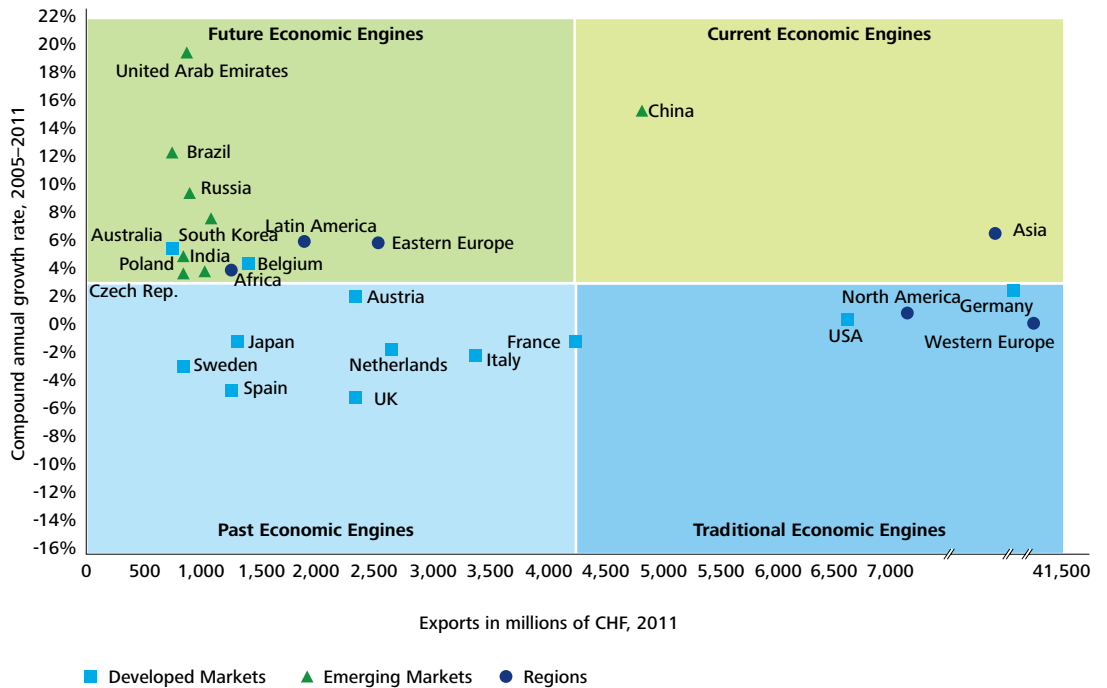
To a certain extent, this insourcing trend in Switzerland is comparable to the backshoring trend currently being pursued in the United States: Previously outsourced parts of the value chain are brought back home to the United States – or, in the case of Switzerland, will be made in-house again.

## 2.2. New growth markets

The Swiss MEM industry has had a strong historical focus on Europe. More than 60% of all exports by the MEM industry in recent years have been to Europe. In 2011 the total value of exported products was CHF 68.5 billion. Germany is the largest export market, with a share of 25% (or CHF 18.4 billion) (see Chart 17)<sup>43</sup>

**Chart 17. Top 20 export countries of the Swiss MEM industry**

[2011; in millions of CHF; growth rate 2005–2011, in %]<sup>44</sup>



In 2011 the share of Switzerland's second-largest export market, the United States, was slightly more than 9% (or CHF 6.6 billion). Exports to the United States have barely risen in recent years. However, Germany and the United States continue to be the *traditional economic engines* of the export-oriented Swiss MEM industry.

The Asian economic area is increasingly emerging as a *current economic engine*. Since 2005, China's share of exports has grown at an annual rate of 15.3%. China has grown into the third-largest export market for the Swiss MEM industry, with a 7% share in 2011 (or CHF 4.7 billion). Only the United Arab Emirates has posted more rapid growth in recent years, though beginning from a lower baseline.

Fundamentally, the following export trend can be identified for the Swiss MEM industry: on the one hand, we have emerging markets that have experienced strong growth of exports since 2005, although in some cases they remain small in terms of volume. However, they have already become important growth markets for the Swiss MEM industry and are likely to become *future economic engines* – specifically Brazil (with a growth rate of 12.3%), Russia (9.3%), South Korea (7.4%) and India (4.1%). On the other hand, many of the established large European markets have experienced negative growth since 2005, such as the *past economic engines* of France, Italy, the Netherlands and the United Kingdom. The only exceptions are Germany and certain smaller markets (Belgium, Austria).

This export picture for the Swiss MEM industry is partially congruent with the current and future sizes of economies and GDP growth forecasts for developed markets and emerging markets worldwide.

According to the International Monetary Fund's (IMF) 2012 rankings of the current sizes of economies around the world, the top 10 positions continue to be dominated by the usual highly industrialised countries (United States, Japan, Germany, etc.), although their growth is very weak at the moment (see Chart 18). Taken together, the average growth rate for all developed economies ranking among the top 20 is only 0.7%. In 2017 the average rate should be around 2.1%.

**Chart 18. Top 20 countries by size of economy (GDP) in international comparison**

[2012 v. 2017; size of the economy in billions of USD; growth in %]<sup>45</sup>

	Size of Economy (GDP) 2012 (USD billions)	Growth Forecast 2012		Size of Economy (GDP) 2017 (USD billions)	Growth Forecast 2017
① USA	15,610	2.1%	—	① USA	19,705 3.3%
② China	7,992	8.2%	—	② China	12,714 8.5%
③ Japan	5,981	2.0%	—	③ Japan	6,696 1.1%
④ Germany	3,479	0.6%	—	④ Germany	3,893 1.3%
⑤ France	2,712	0.5%	—	⑤ Brazil	3,268 4.1%
⑥ United Kingdom	2,453	0.8%	—	⑥ France	3,198 2.0%
⑦ Brazil	2,450	3.0%	—	⑦ United Kingdom	3,168 2.8%
⑧ Italy	2,067	-1.9%	—	⑧ Russia	3,106 3.8%
⑨ Russia	2,022	4.0%	—	⑨ India	2,906 8.1%
⑩ Canada	1,805	2.1%	—	⑩ Italy	2,248 1.2%
⑪ India	1,779	6.9%	—	⑪ Canada	2,141 2.2%
⑫ Australia	1,586	3.0%	—	⑫ Australia	1,932 3.5%
⑬ Spain	1,398	-1.8%	—	⑬ Indonesia	1,812 7.0%
⑭ Mexico	1,208	3.6%	—	⑭ South Korea	1,645 4.0%
⑮ South Korea	1,164	3.5%	—	⑮ Spain	1,591 1.8%
⑯ Indonesia	928	6.1%	—	⑯ Mexico	1,568 3.3%
⑰ Turkey	817	2.3%	—	⑰ Turkey	1,259 4.6%
⑱ Netherlands	802	-0.5%	—	⑱ Netherlands	910 1.9%
⑲ Saudi Arabia	652	6.0%	—	⑲ Saudi Arabia	763 4.2%
⑳ Switzerland	621	0.8%	—	⑳ Switzerland	663 1.9%

● Developed Markets	∅ = 0.7%	● Developed Markets	∅ = 2.1%
● Emerging Markets	∅ = 4.9%	● Emerging Markets	∅ = 5.3%

It is noteworthy that the new growth markets make up almost half of the top 20 economies in 2012, led by China (in second place), Brazil (7), Russia (9) and India (11).

Taken together, the average growth rate for all emerging markets ranking among the top 20 is 4.9%. In 2017, with 5.3% on average more than twice as much growth is expected for emerging markets than for developed markets. This difference could be even starker if growth in developed markets turns out to be weaker than foreseen in the recent optimistic forecast by the IMF.

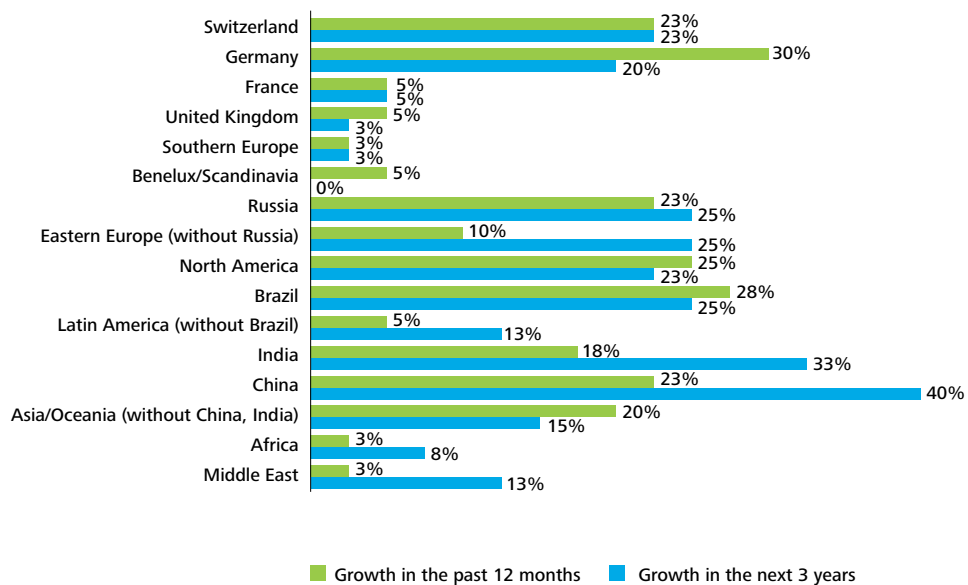
Additional shakeups in the rankings should certainly be expected over the next five years, with emerging markets assuming their positions in the upper echelons. In addition to the familiar BRICS<sup>46</sup>, less known emerging economies are also exhibiting strong growth potential, such as Indonesia and Turkey, of which annual growth rates of 7% and 4.6% respectively are expected in five years from now.

**Lively interest in emerging markets by the MEM industry**

The survey and expert interviews revealed that the Swiss MEM industry is keenly interested in the new growth markets of emerging countries. In line with the cited overall economic forecasts, most respondents see low potential for growth for their own companies in the developed markets of Europe and North America over the next three years (see Chart 19).

**Chart 19. Past and future growth regions for Swiss MEM companies**

[multiple answers possible]<sup>47</sup>



“Uncertainties regarding the Euro-zone prevent companies in Europe from investing in new industrial plants, although they could afford it.”

Joseph Santoro

Bobst, Group Treasurer and Head Investor Relation

For many of these markets, Swiss MEM companies anticipate the same growth potential in the near future as seen in the last 12 months as the best case scenario (e.g. Switzerland, France), or even a slight drop in potential (United Kingdom, North America). Moreover, only 20% of the Swiss MEM companies surveyed see future potential for growth in Germany. This is somewhat less than the 30% of respondents that continued to experience growth in Switzerland’s largest export market over the past 12 months. Longer term, these markets should continue to remain attractive, especially with regard to machine outfit replacement and more energy-efficient products.

“Europe will continue to be an important market. There is a wave of plants out there that are 40 or 50 years old and need to be replaced. The retrofitting market for more efficient plants is huge, and the money is there.”<sup>48</sup>

Peter K. Widmer

CFO Power Systems CH and CEU, ABB Switzerland, Power Systems



Among the new growth markets, the most prominent are China, India and Eastern Europe (excluding Russia). Twenty-three percent of respondents have already seen growth in China over the past year, and 40% see future growth for their companies in China. A similar shift in growth focus by Swiss MEM companies can be identified for India (from 18% to 33%) and Eastern Europe (excluding Russia) (10% versus 25%). Almost twice as many respondents see future growth in these emerging markets compared to the last 12 months.

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**“We are in China because China is a large market and not because it is cheap to manufacture there.”<sup>49</sup>**

**Klaus Stahlmann**  
CEO, Sulzer

Russia and Brazil will remain the focus of growth for Swiss MEM companies as the largest markets in their regions. Yet it is noteworthy that, as is the case in Eastern Europe, the focus of growth also continues to shift in Latin America and Asia, away from the familiar BRICS states to other countries. In the expert interviews, Colombia, Chile and Peru repeatedly came up for Latin America, and Indonesia for Asia. In addition, Turkey is often mentioned as an attractive candidate with significant potential for the future.

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**“Demand for capital equipment continues to stagnate or even decline in various markets of the Euro-zone. A significant challenge for the Swiss MEM industry will be to maintain its market volume in Europe while expanding market volume in parallel in the new growth markets (emerging markets).”<sup>50</sup>**

**Dr. Jean-Philippe Kohl**  
Swissmem, Vice Director, Head of Commercial Law & Politics

Large infrastructure initiatives are under way in most of the emerging markets cited. Demand for machinery will be the next stage of development, making these markets extremely attractive for the Swiss MEM industry.

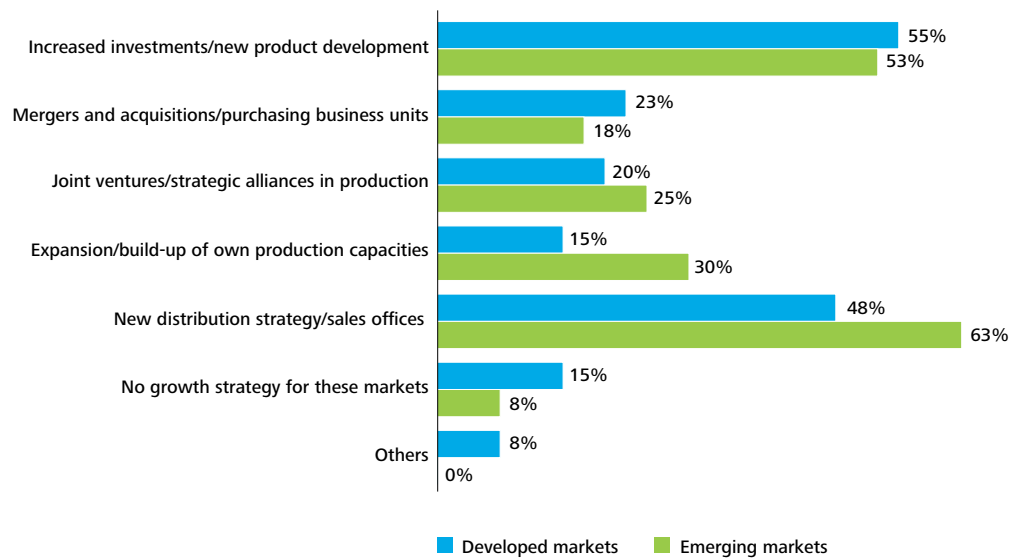
Africa’s potential as an emerging market is already recognised by many Swiss MEM companies, as emerged in various expert interviews. Yet compared to the emerging markets in Asia, Eastern Europe and Latin America mentioned above, Africa is thought of as a next-generation growth region.

### Different growth strategies

There were a few commonalities as well as sharp differences with respect to which strategies Swiss MEM companies wished to employ to achieve additional growth in the low-growth developed markets and in the rapidly developing emerging markets (see Chart 20).

**Chart 20. Growth strategies for developed markets and emerging markets**

[multiple answers possible]<sup>51</sup>



The strategy of increasing investments and engaging in new product development is thought to be the key growth strategy by just about half of all surveyed Swiss MEM companies – and this is for both developed and emerging market categories.

At 63%, launching a new distribution strategy and opening new sales offices is slightly favoured as a strategy for growth in emerging markets. In contrast, only 48% of respondents see this as a promising strategy for developed markets.

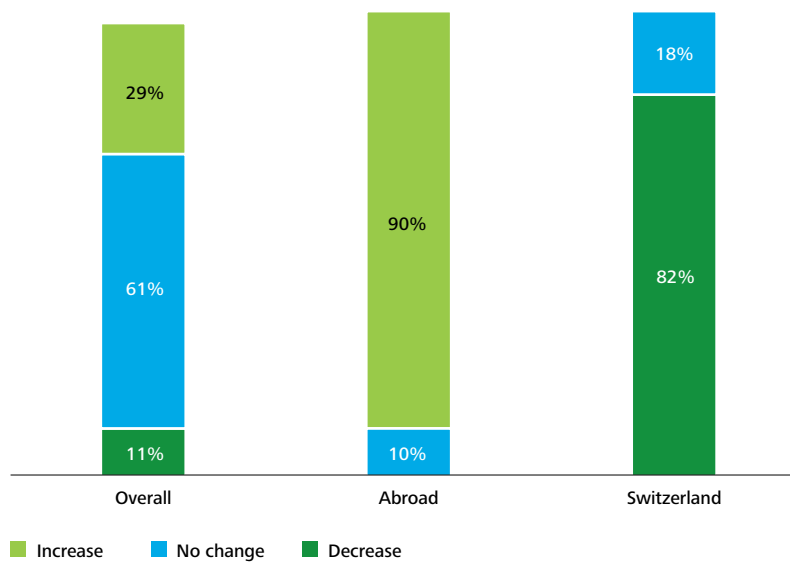
Mergers and acquisitions (M&A) are slightly more favoured as a growth strategy in developed markets, whereas joint ventures and strategic alliances are more popular in emerging markets. This is because majority shareholdings in local companies can often be impeded by red tape and protectionism in many new growth markets (especially in Asia). Joint ventures and other minority shareholdings are therefore used more frequently as an alternative, while also reducing the risks of entering into a market.

### Increasing production abroad

The only clear difference between the two market categories is with regard to the strategy for building up and expanding own production capacities: slightly more than 30% of respondents wished to grow in emerging markets using this growth strategy, compared to the 15% who wished to continue developing in established markets using this method. Generally, the new growth markets are no longer viewed as pure export markets to be served by Swiss MEM companies primarily out of Switzerland. Instead, more production is taking place locally, i.e. in a country for that country (or even a region).

Asked how the number of production facilities for the entire Swiss MEM industry will change over the coming years, just more than 29% of Swiss MEM companies are expecting an increase, with 61% anticipating no change, and only 11% worrying that there will be a contraction (see Chart 21). Moreover, with regard to the locations of these new production facilities, the majority of respondents (90%) expect to see an increase abroad, with 82% of respondents anticipating a decrease in Switzerland.

**Chart 21. Changing number of MEM industry production facilities<sup>52</sup>**



Note that the sharp increase in production facilities located abroad anticipated by the Swiss MEM industry will partly be the result of the offshoring currently considered to be the key strategy in increasing efficiency and reducing costs in the face of strong economic volatility and the strong Swiss franc (see previous chapter). Yet the strategy of local production will also come heavily into play here. Production will increasingly occur close to the customer, with local needs increasingly being addressed.

It was repeatedly stressed in the expert interviews that many factors have to be accounted for both when relocating production and when setting up new production facilities abroad. The country risk and transfer risk is often underestimated or not considered at all. Moreover, it was repeatedly stressed that these offshoring initiatives needed to be seen as part of the overall supply chain.

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**“I consider relocation in pursuit of factor cost benefits alone to be a mistake.”<sup>53</sup>**

**Guido Meier**

Bühler AG, Head of Production for Switzerland and the Czech Republic



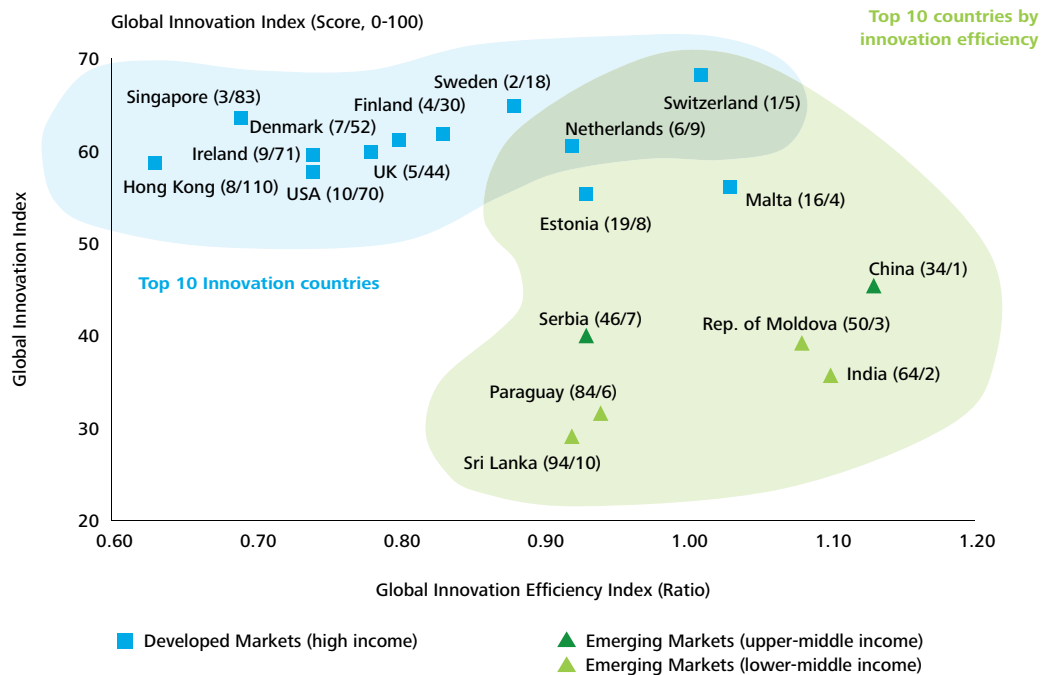
### 2.3. Global competition and increasing pressure to innovate

As noted in the opening chapter, Switzerland as a location for manufacturing is distinguished by its long tradition of innovation and leadership, which is of key importance in making the location attractive and competitive. This is best illustrated by the *Global Innovation Index* published by the World Intellectual Property Organization (WIPO), in which Switzerland currently holds the highest ranking.

Yet global competition has continued to intensify in recent years. The pressure to innovate has risen on the whole, and has risen disproportionately for many locations. The *Global Innovation Efficiency Index 2012*, which complements the *Global Innovation Index* and measures which countries have been most successful in implementing concrete results, is now led by the emerging economies of China and India (see Chart 22).<sup>54</sup> Switzerland is currently ranked fifth if the input/output ratio for innovations is considered.

**Chart 22. Global Innovation Index Ranking**

[2012]



Switzerland (1/5): 1. Figure in brackets = Global Innovation Index rank; 2. Figure in brackets = Global Innovation Efficiency Index rank

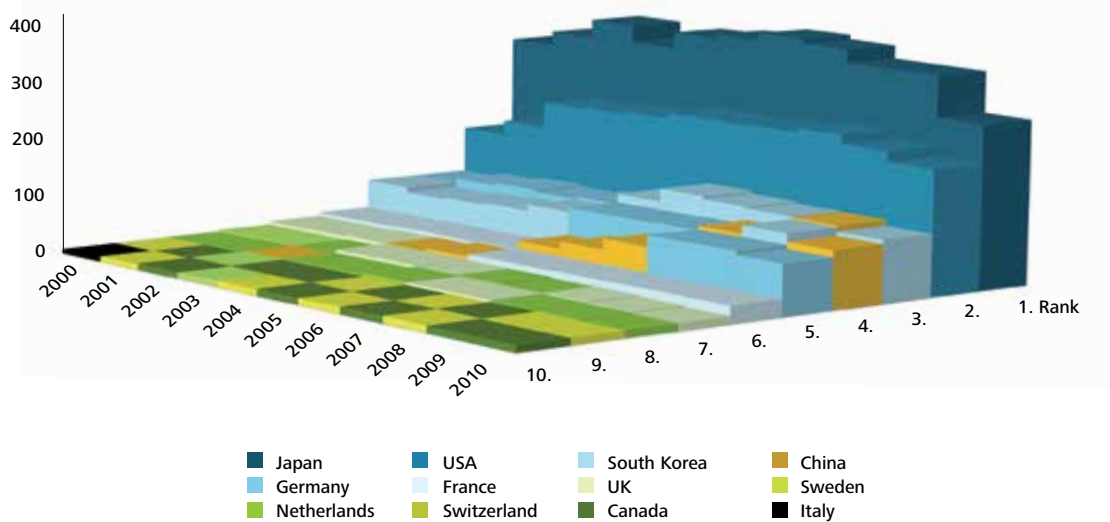
It should be noted that the innovation efficiency index applies a neutral rating to a country's level of development. This means that even very small and poor emerging countries with especially low input values (with regard to institutions, human capital, infrastructure, etc.) can still achieve a high ranking. Nevertheless, it is possible to discern a trend whereby in recent years large emerging countries of the middle income category and with less favourable original conditions than Switzerland or other traditional industrial nations have increasingly been able to achieve high innovation output (e.g. China and India).

The high efficiency with which emerging countries are able to rapidly bring innovations to market is likely to further intensify in the future, continuing to put pressure on the innovation leadership of the developed countries.

This trend is already clearly discernible in the MEM industry. It is true that Japan (ranked first) and the United States (second) continue to lead the rankings for new patents in instruments, mechanical and electrical engineering – although both nations have reported declining patent applications in recent years (see Chart 23).<sup>55</sup> But the big climber is China, which has made up significant ground in the patent area over the past decade, ranking fourth as early as 2010 (2000: ranked 12).

**Chart 23. Top 10 countries by patent applications in instruments, mechanical and electrical engineering**

[in thousands; 2000–2010]



Also the traditional industrial nation of Germany, which was previously ranked third for MEM industry patents, has been eclipsed by both South Korea and China, and is currently ranked fifth. By comparison, Switzerland has been able to hold onto its position in the top 10 throughout the past decade (ranked either ninth or tenth throughout). Switzerland would have been ranked even higher if the basis for comparison had been the number of patents per capita.

With this in mind, it is hardly surprising that about half of the Swiss MEM companies (50%) surveyed, cite the technologically improved products marketed by the competition as the second most important factor (after the primary factor of currency pressure) to explain why global competitive pressure on the Swiss MEM industry has increased so strongly over the last decade (see Chart 24).

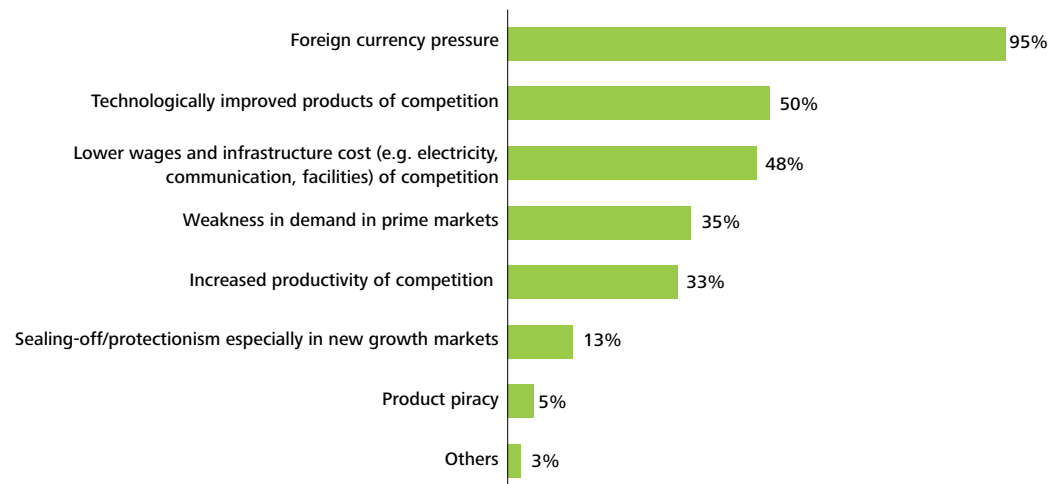
“Due to the strong Swiss franc, the margin was used at short notice to maintain competitiveness. But there is a danger that Switzerland may be displaced as the innovation champion in the medium to long term as a result of diminished R&D investments.”<sup>56</sup>

Daniel Küng  
CEO, Osec

Only the lower factor costs of the competition in emerging markets, covered in the previous chapter, were mentioned as frequently (48%).

**Chart 24. Reasons for increased global competitive pressure on the Swiss MEM industry**

[Multiple answers possible]<sup>57</sup>



Interestingly, only 13% of the respondents consider protectionism in new growth markets to be a reason for the increase in global competitive pressure. One reason for this may be the considerable network of 26 free trade agreements with 35 partner states outside the European Union that Switzerland has built up in recent years.<sup>58</sup>

When questioned about the issue of free trade agreements and protectionism, more than 65% of Swiss MEM companies considered such bilateral free trade agreements to have been beneficial to their export business in the past.<sup>59</sup> The most important reasons for this benefit, cited by the respondents, were the reduction in custom tariffs and import quotas (63%), greater legal security (20%) and the implementation of uniform technical norms and certificates (23%).<sup>60</sup>

#### ***Strong focus on product and process innovation***

In view of the ongoing technological improvement of competitors' products, the ability to innovate is of central importance to the MEM industry in Switzerland. Seventy-nine percent of the MEM companies surveyed also clearly stressed that focusing on innovations and new technologies was a key component of their existing business strategy.

Only 18% of respondents said that this was "partially" the case, while 3% maintained that their innovation potential had been exhausted. The latter is the case especially for small and medium-sized companies that in some cases are unable to deploy the same resources for innovations as multinational groups or very large MEM companies. Moreover, not all sectors of the MEM industry exhibit the same high potential for innovation.

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**“Risk goes hand in hand with innovation. SMEs can quickly run up against the limits of their innovation ability.”<sup>62</sup>**

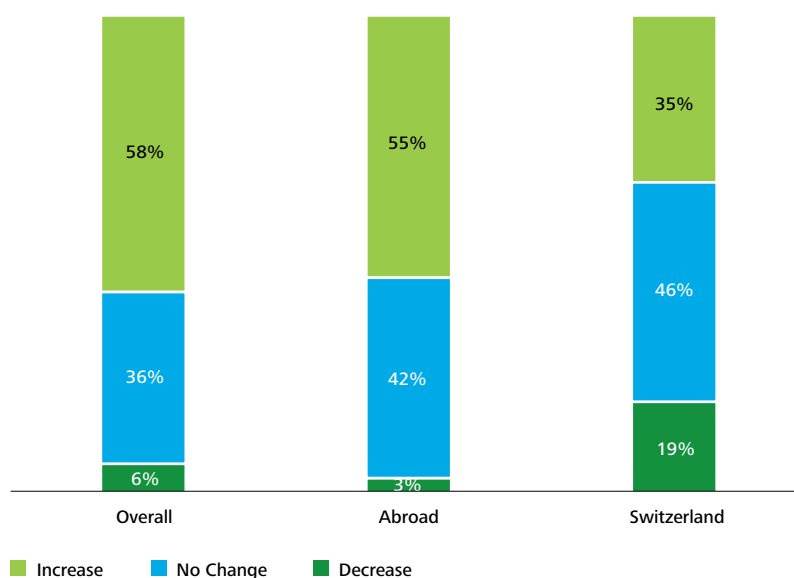
**Robert Rudolph**

Swissmem, Member of the Executive Board/Head of Training & Innovation

When the topic of innovation pressure was discussed in the expert interviews, it was repeatedly stressed that to improve the competitiveness of the Swiss MEM industry, not only were production innovations crucial (e.g. improving existing products or developing market innovations), but that special emphasis should be placed on process innovation. The key here is to optimise existing business processes and to harness innovative processes in order to be able to manufacture both existing and new products more cost-effectively or at a higher level of quality than the global competition.

When asked how they believe the R&D capacities of the entire Swiss MEM industry will change over the coming years, slightly more than 58% of Swiss MEM companies were expecting an increase, with only 6% concerned that there would be a decrease (see Chart 25).

**Chart 25. Changing R&D capacities of Swiss MEM companies<sup>63</sup>**



As was the case for the question regarding future production capacities in the preceding chapter, in terms of future developments in R&D capacities, a majority of respondents (55%) anticipate that an increase will occur predominantly abroad. New growth markets also require new products and adaptations of existing products to local needs. The build-up of local R&D capacities can provide a competitive advantage, while guaranteeing that no innovation is happening that does not fit the customer's needs.

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**“Innovation should always proceed with a focus on potential utility for the customer.”<sup>64</sup>**

**Martin Meier**  
CFO, Robatech

One in three respondents (35%) also anticipate an increase in R&D capacities for their company in Switzerland. This can be explained by the fundamental stance taken by Swiss MEM companies of conducting their research-intensive activities and developing new technologies primarily in Switzerland. Keeping these core processes in Switzerland and not performing them abroad is the best way to protect intellectual property and defend against product piracy in the new growth markets.

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“Creating a good climate of innovation is essential to remain globally competitive. Research should be kept in Switzerland if possible, whereas development can often take place in local markets close to the customer.”<sup>65</sup>

Klaus Stahlmann  
CEO, Sulzer

Even if the Swiss manufacturing industry shifted more production sites abroad in the future, Switzerland will remain an important centre of technology and innovation for the MEM industry.

The 19% of respondents who anticipate a reduction of their R&D capacities in Switzerland still note that competition between locations in the research field will probably continue to intensify, and that migration may occur due to low costs and the need for market proximity.

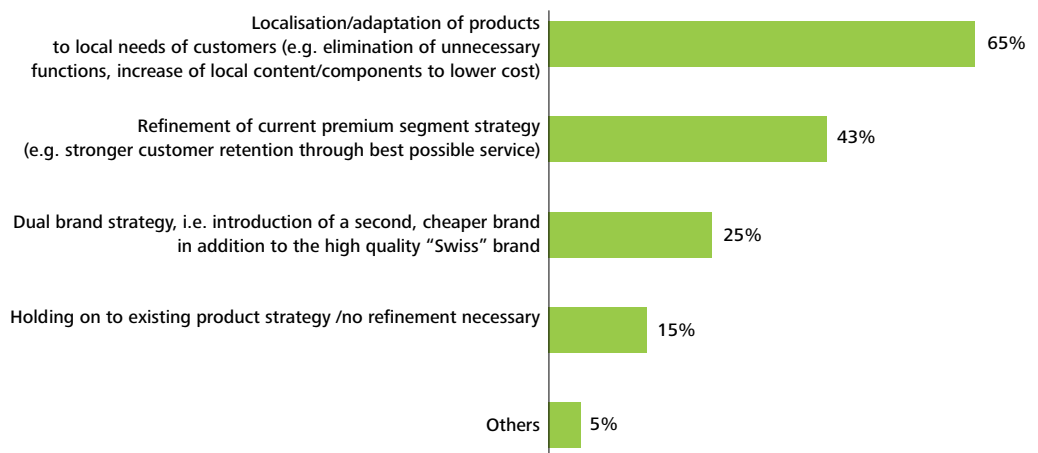
**Quality and localisation as key factors**

The brand endorsement “Switzerland” as an expression of quality, safety and reliability is also essential for the Swiss MEM industry. Customers in new growth markets are increasingly asking for quality at reduced prices and are expanding the middle market segment (e.g. “good enough” machinery and not just maximum performance equipment).

When asked which product strategies Swiss MEM companies intended to use to position themselves in new growth markets in the future, 65% cited localisation as the most important measure, i.e. the adaptation of products to local customer needs (see Chart 26).

**Chart 26. Product strategies for the high-quality brand “Switzerland” in new growth markets**

[Multiple answers possible]<sup>66</sup>





This should be understood not only as the raising of the local share of manufacturing in order to cut costs and remain competitive with cheaper local products. Instead, at the forefront here are product strategies such as customised products adapted to local customer needs and basic simplifications (eliminating unnecessary functions in machinery, less electronics/automation and more manual controls, etc.). The latter should increase the need for local R&D capacities, or at least local know-how in new growth markets.

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“In developing markets you see more the kind of innovations that are really trying to reduce cost. The best of these innovations simultaneously reduce cost and improve quality, but quite often offering the lower price point is almost a necessity for developing markets, whereas in the West it is more about added features to products.”

**Kamalini Ramdas**

Professor of Management Science and Operations, London Business School

During the course of the expert interviews, it emerged repeatedly that Swiss MEM companies that produce locally and employ local engineers and technicians in the development process are able to produce products that are better localised than those that coordinate the process from Switzerland. Fundamentally, there is still a significant risk of producing unnecessarily “over-engineered” solutions when designing products intended for emerging markets, in developed countries.

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“Frugal engineering or reverse innovation is an important trend. Low-cost innovation does not mean necessarily lower quality or that it will not satisfy some other important goals like sustainability. Definitely there is learning that can occur from developing countries to the West.”

**Kamalini Ramdas**

Professor of Management Science and Operations, London Business School

Almost half of respondents (43%) cite the refinement of their existing premium segment strategy as the second most important measure. This is understood to include the expansion of the existing service business to increase customer retention, as well as the development of new, innovative services that stand out from the competition (locally and globally).

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“Differentiation by means of a service strategy helps in developed markets. We offer customers needs-based service packages with clear customer benefits.”<sup>67</sup>

**Martin Meier**

CFO, Robatech

A quarter of all respondents (25%) identified a dual brand strategy, i.e. the introduction of a second, cheaper brand in addition to the high-quality “Swiss” brand, as a sensible measure that could be chosen to remain competitive with cheaper local competition. Fifteen percent would like to retain the existing product strategy and do not believe any refinement to be necessary for their high-quality Swiss products.

“The precious brand of Switzerland is “Made in Switzerland”. You can sell it at a premium. This does not just apply to chocolates and watches, but also to engineering products.”

Ashwin Shanbhag

CFO & Head of IT, Procurement, 3A Composites



#### 2.4. Resource shortage (talent) and rising resource prices (energy)

Resource shortage (talent) and rising resource prices (energy) are also important factors that are currently exerting a strong influence on the competitiveness of Switzerland as a location for manufacturing and the Swiss MEM industry.

##### Talent shortage should not be underestimated

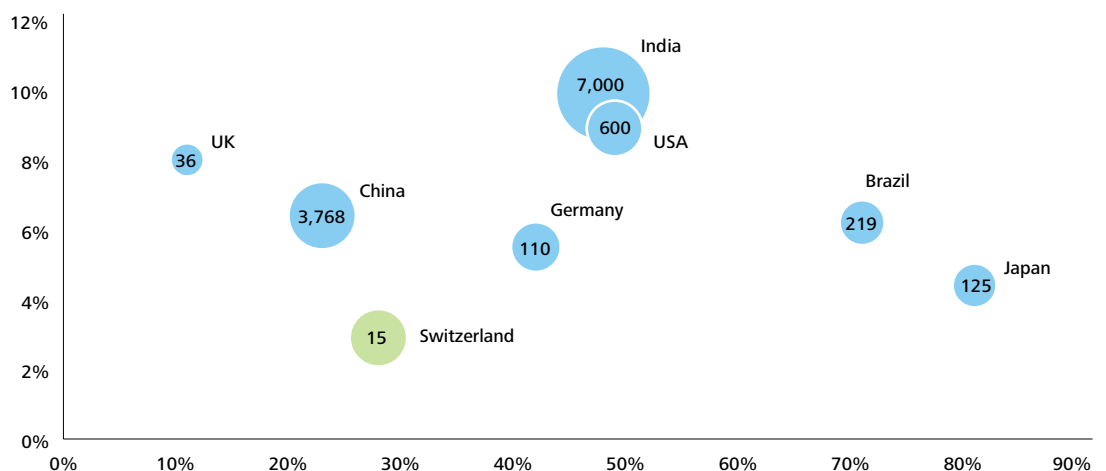
The Swiss MEM industry has suffered from years of a shortage of talent. In the second quarter of 2012, the manufacturing sector in Switzerland had a total of slightly more than 15,000 vacancies, according to the Federal Statistical Office (FSO).<sup>68</sup>

Compared to the situation in other traditional industrial nations and major emerging countries, the absolute number of vacancies in Switzerland does not appear to be very high at first glance (see Chart 27). But if the number of vacancies in the manufacturing sector is compared to the working-age population (15 to 64), coupled with the difficulty employers have in filling vacancies, it becomes clear that Switzerland has a problem similar to that faced by Germany or the United States.

Chart 27. Swiss manufacturing industry vacancies in international comparison

[2012]<sup>69</sup>

Unemployment rate [2012; in %]



Employers reporting difficulty filling jobs [2012; in %]

Figure in bubble: Number of unfilled jobs in manufacturing industry [2012; in thousands]

Bubble size: Number of unfilled jobs in manufacturing industry in % of working-age population [2012]

Common to all these countries is that the ratio of vacancies to the working-age population ranges between 0.2% and 0.3% – and all are experiencing moderate difficulty in filling these vacancies (between 25% and 50%).

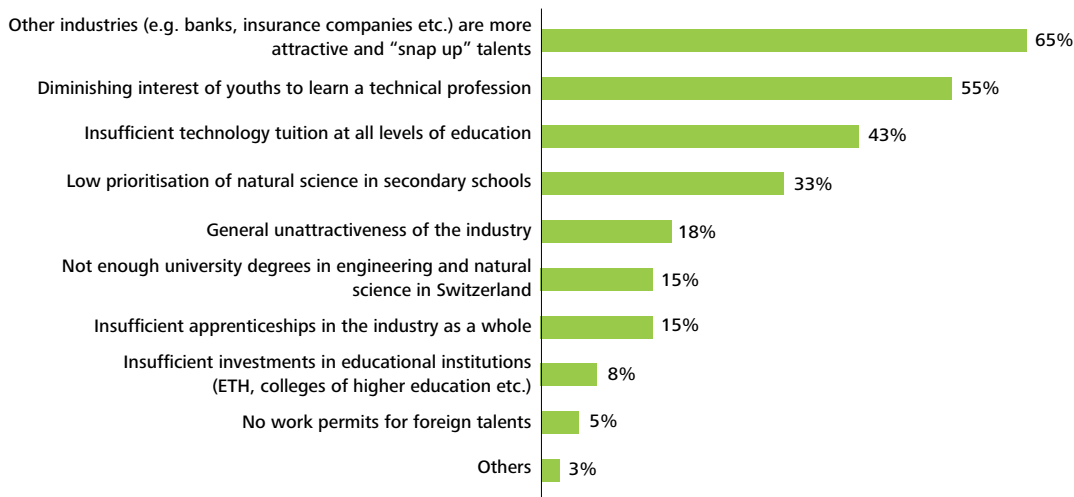
The battle for talent will only intensify in the future. Estimates suggest that the global manufacturing sector has slightly more than 10 million vacancies that cannot be filled due to a skills shortage.<sup>70</sup>

**Insufficient attractiveness of industry and technology**

When asked to account for the reasons for the prevailing talent shortage, 65% of Swiss MEM companies said that other sectors of the economy (especially banking and insurance) were more attractive and that they “snap up” talent from the MEM industry (see Chart 28). It was heard repeatedly in the expert interviews that the “salary issue” played a major role and that the Swiss MEM industry was not competitive with the services sector in this respect.

**Chart 28. Reasons for talent shortage in the MEM industry**

[Multiple answers possible]<sup>71</sup>



Other primary reasons cited for the talent shortage were the diminishing interest shown by young people in learning a technical profession (55% of respondents) and the problem of insufficient technology tuition being given at all school levels (43%).

“Mathematics, information technology, natural sciences and technology are barely encouraged any longer at primary school level. And if interest in these disciplines is not awakened by the age of 15, then it’s too late.”<sup>72</sup>

**Robert Rudolph**

Swissmem, Member of the Executive Board/Head of Training & Innovation

Respondents find that the educational system is characterised by deficits in the teaching of mathematics, information technology, natural science and technology. Thirty-three percent of respondents found that natural sciences are accorded low priority in secondary schools. An additional 15% of Swiss MEM companies point out that not enough Swiss university students are graduating with degrees in engineering and natural sciences.

**Focus on free movement of persons, strengthening apprenticeships and advanced training**

Fifty-eight percent of respondents cite the need to recruit talent from abroad (see Chart 29) as the central step taken to combat talent shortage in the Swiss MEM industry. Given that Switzerland does not produce enough talent on its own, and that much of it is lost to the services sector, the free movement of persons and the recruitment of foreign professionals play an important role.

“Switzerland is very attractive and can gain from the brain drain out of Europe and other countries. This is important, because young Swiss professionals in the industry are scarce.”<sup>73</sup>

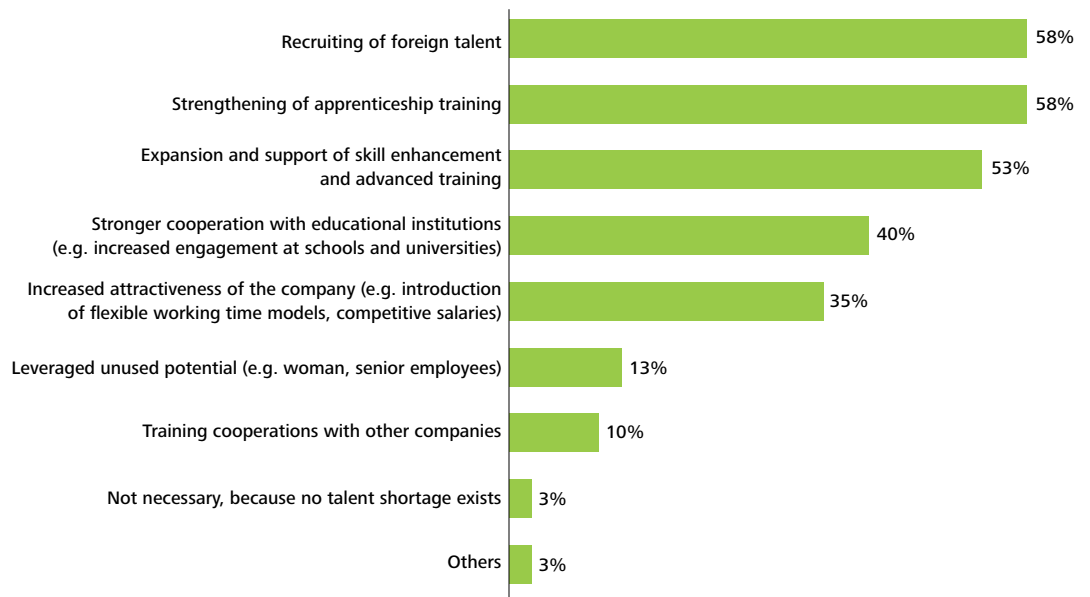
Clemens Sager

Clemens Sager, Country Controller ABB Switzerland, CEU Regional Reporting & Consolidation Manager, ABB Schweiz AG

Additional measures cited by Swiss MEM companies include further strengthening apprenticeships (58%) and expanding and supporting skill enhancement and advanced training (53%). It was mentioned repeatedly in the expert interviews that one strength of Switzerland and its manufacturing location is the dual-track educational system and the ability of employees to take advantage of advanced training programmes, both of which need to be reinforced in order to remain competitive in the future.

**Chart 29. Preferred measures against talent shortage**

[Multiple answers possible]<sup>74</sup>



Increasing the attractiveness of the Swiss MEM industry is viewed primarily at the level of educational institutions and the business itself: 40% of respondents believe that increased involvement in schools and universities is of major importance. The expert interviewees referred in particular to holding technology days/weeks as well as factory visits for students and teachers, and the need for vocational information centres to assist students in choosing a profession. A further 35% of respondents saw the need to implement flexible working hours at the company level, as well as more competitive wages in order to stop the migration of talent to the services sector.

Of course, not all Swiss MEM companies are suffering from a shortage of talent – this largely depends on company size and international orientation.

Multinational groups and very large and medium-sized companies (ABB, Sulzer, etc.) are generally highly attractive to both experienced professionals and recent graduates, and have less trouble filling vacancies. Recruitments from abroad are also easier for large companies to carry out due to their extensive experience and international reputation. In contrast, smaller MEM companies and SMEs with an exclusively Swiss business focus are seen as less attractive, and have more difficulty attracting professionals (especially internationally).

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**“The Swiss education system is top class especially in engineering and research skills. If you add good knowledge of English and add a more “globalized” touch to this mix, Switzerland would become world class.”**

**Ashwin Shanbhag**

CFO & Head of IT, Procurement, 3A Composites

### ***Electricity price increases and electricity supply gaps***

In addition to the resource shortage (talent) already discussed, the issue of rising resource prices (energy) has begun to play a prominent role for manufacturing in Switzerland and for the Swiss MEM industry.

The Swiss government’s announcement in May 2011 of its intention to phase out nuclear power by 2034 and to increasingly meet the nation’s future energy needs with renewable energy sources sparked fears of rising electricity prices. Furthermore, this energy policy transition (nuclear phase-out) has also heightened the fear of uncertain service security (electricity supply gaps).

Of course, industrial electricity prices have dropped slightly in Switzerland in recent years, from CHF 0.151/kWh in 2009 to CHF 0.143/kWh in 2011 (see Chart 30). Compared to the countries in the European Union, industrial electricity prices are now significantly higher than the European average, i.e. the liberalisation of the European electricity market has led to more pronounced rate drops in neighbouring countries over the past three years than in Switzerland.

**Abb. 30. Industrial electricity prices in European comparison**

[2009 vs. 2011]<sup>75</sup>

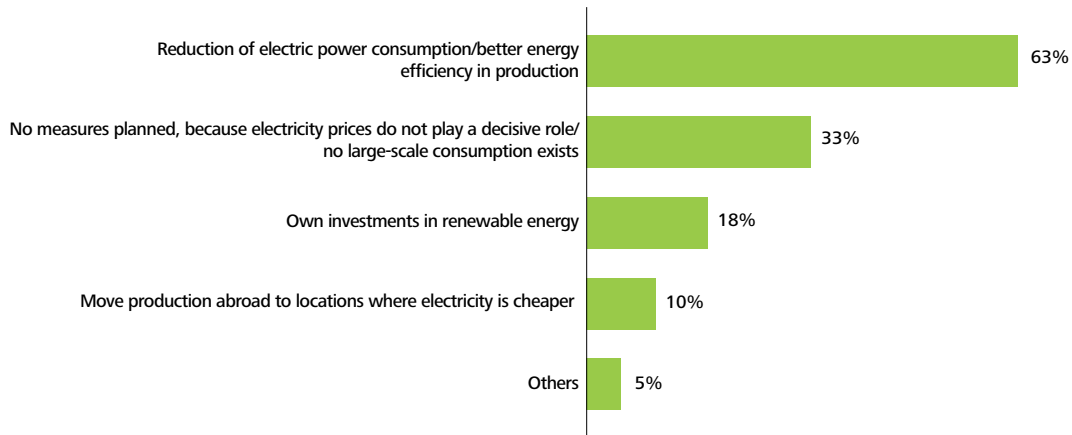
Industrial electricity price 2009 CHF/kWh, Medium voltage			Industrial electricity price 2011 CHF/kWh, Medium voltage		
1	Italy	0.217	1	Slovakia	0.151
2	Slovakia	0.213	2	Ireland	0.148
3	Hungary	0.192	3	Italy	0.144
4	Ireland	0.180	4	Switzerland	0.143
5	Luxembourg	0.175	5	Czech Republic	0.134
6	Spain	0.172	6	Spain	0.134
7	Germany	0.171	7	Latvia	0.129
8	Netherlands	0.169	8	Lithuania	0.128
9	Belgium	0.168	9	Belgium	0.123
10	Czech Republic	0.165	10	UK	0.120
11	UK	0.161	11	Luxembourg	0.119
12	EU 27	0.159	12	Greece	0.116
13	Slovenia	0.157	13	EU 27	0.116
14	Switzerland	0.151	14	Hungary	0.115
15	Greece	0.143	15	Poland	0.115
16	Portugal	0.143	16	Germany	0.111
17	Poland	0.139	17	Portugal	0.111
18	Latvia	0.135	18	Croatia	0.110
19	Denmark	0.135	19	Slovenia	0.110
20	Croatia	0.134	20	Norway	0.107
21	Lithuania	0.129	21	Sweden	0.106
22	Romania	0.124	22	Denmark	0.104
23	Norway	0.120	23	Netherlands	0.104
24	Turkey	0.118	24	Romania	0.099
25	France	0.106	25	Turkey	0.094
26	Finland	0.104	26	France	0.089
27	Sweden	0.102	27	Finland	0.085

In view of this, the majority of Swiss MEM companies would fundamentally view further increases in electricity rates as negative. Forty-five percent of respondents assessed the impacts of higher electricity prices on the future competitiveness of their companies as “rather negative”, with 11% responding “very negative”. In contrast, 42% would assess such development as “neither positive nor negative”, with the remaining 3% responding “very positive”.<sup>76</sup>

When asked what measures had been planned to counteract rising electricity prices in the future, 63% of Swiss MEM companies cited an additional reduction in energy consumption and better energy efficiency in production (see Chart 31).

**Chart 31. Preferred measures to counteract rising electricity prices in the future**

[Multiple answers possible]<sup>77</sup>



It emerged in the expert interviews that Swiss MEM companies had been dealing with the issue of energy efficiency for some time. Yet due to the strength of the Swiss franc, consistent implementation of energy efficiency initiatives was not necessarily the highest priority, especially for small MEM companies.

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“Energy efficiency in production has been a topic for a long time, and the objectives easily within reach have already been achieved by many companies. At this point, large investments would be necessary to become more energy-efficient, but a lot of MEM companies don’t have the money to go through with such investments in the current economic climate.”<sup>78</sup>

**Dr. Sonja Studer**

Swissmem, Department Head Energy

Moreover, slightly more than 33% of respondents reported not planning any such measures since electricity prices do not play a decisive role and/or because they are not major consumers.

Not all sectors of the MEM industry are as energy-intensive, and for many MEM companies the electricity price is not a major cost factor. In metal production for example, the electricity price does have a significant impact on the product price – although for many MEM companies energy costs account for no more than 1% of value added. Energy is only a part of the overall infrastructure, and there are other infrastructure costs that are more important, i.e. which play a greater role as they become more expensive.

Asked what impact an uncertain electricity supply situation would have on the future competitiveness of their companies, most respondents were basically negative in their assessment (a total of 55%): more specifically, 37% responded “rather negative” and 18% responded “very negative”. In contrast, 40% would assess such development as “neither positive nor negative”, with the remaining 3% responding “rather positive” and 3% as “very positive”.<sup>79</sup>

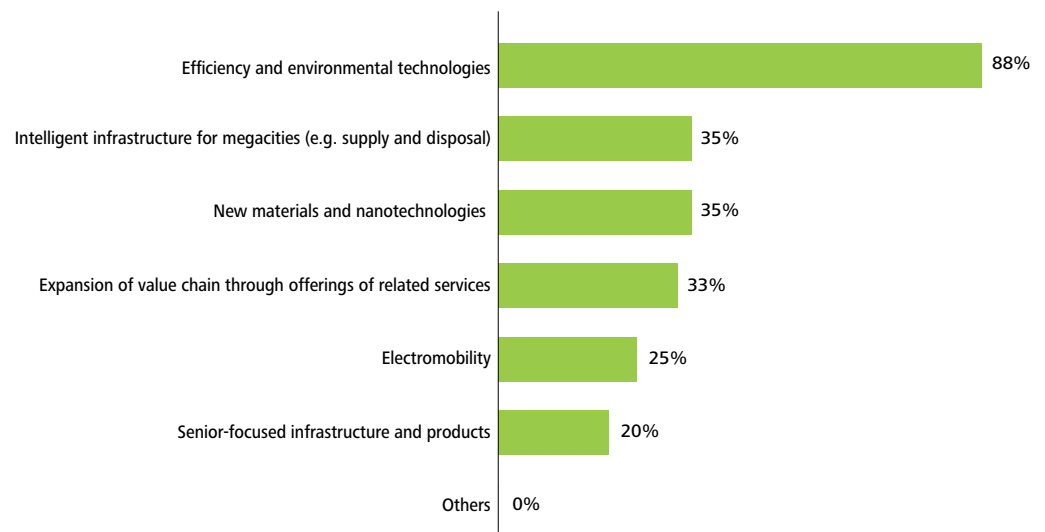
A feared electricity supply gap is assessed as “very negative” by a greater share of respondents (18%) than a feared electricity price increase (11%). This is because the impacts would be more severe, i.e. not only leading to higher costs, but also to production stoppages, delays and losses of quality. At the same time, however, the expert interviewees emphasised that electricity supply gaps were quite an unrealistic scenario, as Switzerland would certainly act opportunistically and buy electricity on the European market if it had to.

### *New energy policy as an opportunity*

Yet there are also some Swiss MEM companies that perceive the nuclear phase-out as a market opportunity. Thus it is hardly surprising that 88% of all respondents consider efficiency and environmental technologies to be major business opportunities with the potential to increase the long-term competitiveness of the Swiss MEM industry (see Chart 32).

**Chart 32. New business opportunities to increase the competitiveness of the Swiss MEM industry**

[Multiple answers possible]<sup>80</sup>



Swiss MEM companies also cite intelligent infrastructure for megacities (35%), new materials and nanotechnologies (35%) and new services (33%) as additional new business opportunities geared strongly towards dominant global megatrends like ecology, mobility, urbanisation and ageing populations.

Global industry trends also influence the Swiss manufacturing location, and encourage MEM companies to continue innovating and transforming.

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“At the moment though, the opportunities provided by the energy transition are not perceived as strongly as the risks it poses.”<sup>81</sup>

**Dr. Sonja Studer**

Swissmem, Department Head Energy

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“Innovation in manufacturing does not only mean product innovation. In the future, innovation will be much more solutions and services oriented and will be seen as a means for transformation.”

**Ashwin Shanbhag**

CFO & Head of IT, Procurement, 3A Composites



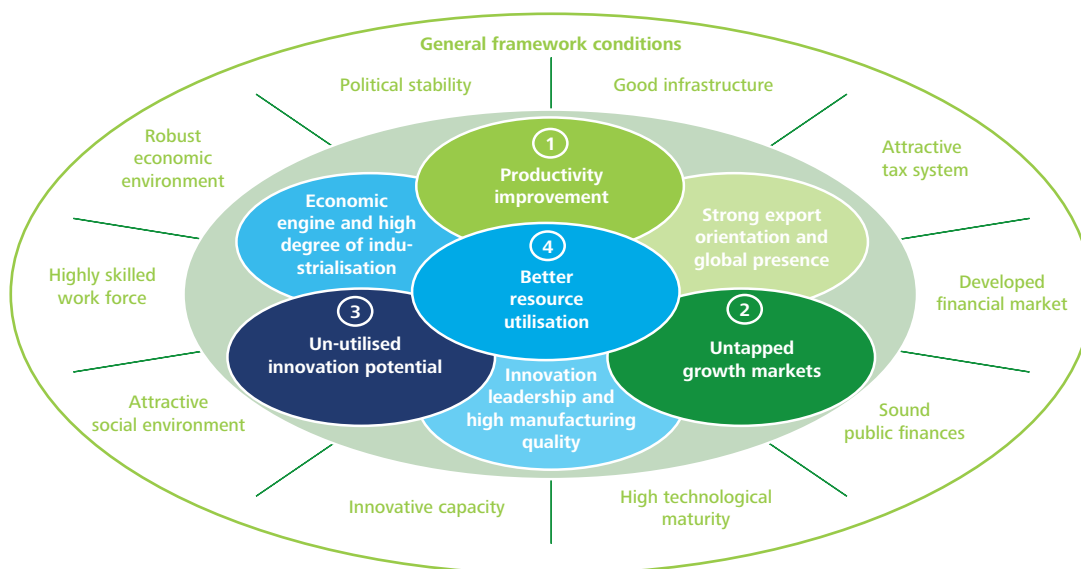
# 3. Solution approaches

## 3.1. Options for action for the Swiss manufacturing industry to enhance its attractiveness

As we have seen, Switzerland as a location for manufacturing has many strengths that make up the attractiveness and competitiveness of the Swiss MEM industry. The MEM industry as the core of the manufacturing industry is characterised in particular by its role as an economic engine, its strong export focus and global presence, and its innovation leadership and high manufacturing quality.

The challenges currently faced by Swiss MEM companies (volatility and strong Swiss franc, new growth markets, global competition, pressure to innovate, resource shortage and rising resource prices) point to the four core areas of Swiss manufacturing and the Swiss MEM industry where there is room for improvement and options for action exist to enhance competitiveness (see Chart 33).

Chart 33. Options for action for the Swiss manufacturing industry



### 1 Productivity improvement

Although Swiss companies responded superbly to the global financial crisis and recession of 2008–2009 and have initiated comprehensive programmes to cushion the strong Swiss franc, there still remains a need to improve labour productivity. Despite innovation leadership, productivity and efficiency measures are necessary to increase competitiveness, in light of the relatively expensive industrial location and the fact that the strength of the Swiss franc remains unchanged. The labour productivity of the MEM industry already rates rather favourably compared to the entire services sector in Switzerland. But it lags behind that of the chemical and pharmaceutical industry. Between 1998 and 2008, the average annual productivity increase of the MEM industry was 2.6%, compared to the 5% annual increase posted by the chemical and pharmaceutical industry (the rate was 0.5% for the services sector as a whole, and 2.8% for financial service providers).<sup>82</sup> Between 2008 and 2011, the same growth rate for the entire industrial sector was 0.8% (the services sector was down -0.8%).<sup>83</sup> Compared to other countries, the Swiss MEM industry is in a good position, exhibiting a high level of productivity.<sup>84</sup> However, the labour productivity of the Swiss MEM industry grew only slightly in the years following the 2008–2009 crisis. Other comparably large industrial nations made higher productivity gains and threaten to overtake Switzerland. Permanent productivity improvement is an ongoing matter of survival for the Swiss business location.

## ② Untapped growth markets

Despite the strong export focus and significant global presence of the Swiss MEM industry, there is still considerable potential to tap into undeveloped growth markets that should play a more prominent role in the global economic structure of the next decades. Numerous global studies offering medium- to long-term national growth forecasts come to similar conclusions: in the coming decades, global growth will no longer be driven only by familiar emerging countries like China and India, but increasingly by the next generation of emerging economies as diverse as Ghana, Ecuador or the Philippines.<sup>85</sup> The following are repeatedly cited as the fastest-growing countries (besides China and India): the Philippines, Malaysia, Bangladesh, Vietnam and Sri Lanka in Asia; Uzbekistan, Kazakhstan, Azerbaijan and Turkmenistan in Central Asia; Ukraine and Serbia in Eastern Europe; Jordan in the Middle East; Peru, Ecuador, Bolivia, Paraguay and Honduras in Latin America; along with Egypt, Algeria, Tanzania, Ethiopia, Kenya, Uganda and Ghana in Africa.<sup>86</sup> To survive global competition, the Swiss MEM industry needs to start tapping into such future growth markets which are expected to become major global economic engines.

## ③ Un-utilised innovation potential

Despite the innovation leadership and high manufacturing quality of the Swiss MEM industry, there is still un-utilised innovation potential that could further enhance its attractiveness and competitiveness. There are opportunities present in continued development of local product variants that account for local customer and regulatory requirements, and especially in the area of frugal innovations (frugal engineering) in emerging markets that could be imported back into developed markets. Frugal innovations are more promising than slimmed premium products, as they utilise cheaper development processes and leaner production processes while simultaneously appealing to customers in emerging markets and developed markets alike. Various Indian and Chinese companies have already successfully implemented frugal innovations in their markets, and have also been able to attract the cost-conscious middle classes of Europe and North America with value-for-money products. Good examples of frugal innovations that have seen global success are the tractors made by India's Mahindra & Mahindra and the appliances made by the Chinese company Haier.<sup>87</sup> Many Western groups already recognise this untapped innovation potential: Renault-Nissan, General Electric, Procter & Gamble, PepsiCo and Siemens are all increasingly focusing on frugal innovations.<sup>88</sup> The Swiss MEM industry needs to embrace these new innovation trends in order to maintain its global competitive edge into the future.

## ④ Better resource utilisation

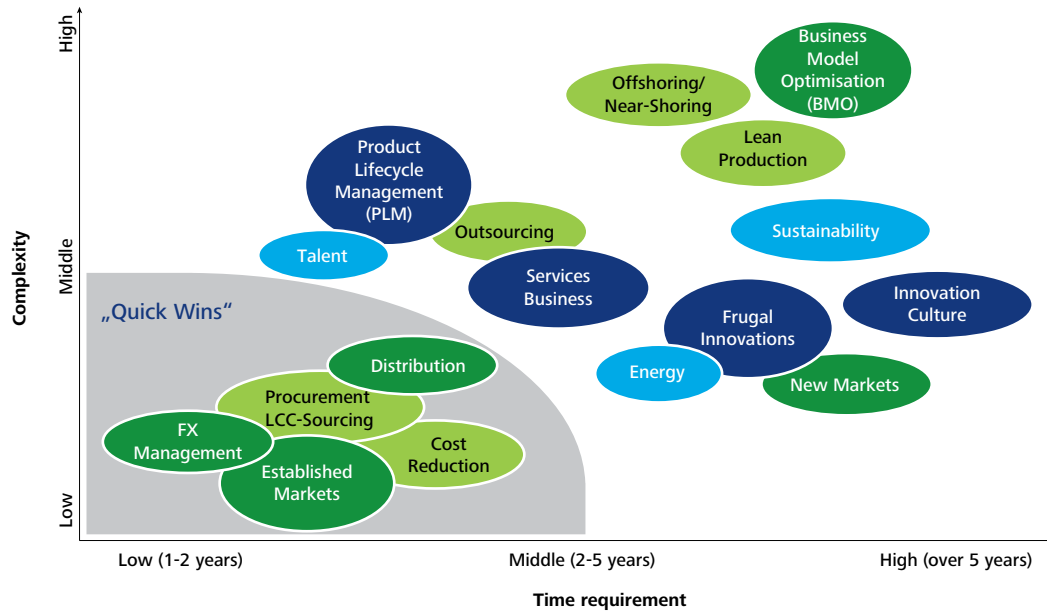
Improving resource utilisation is important for the Swiss MEM industry. The ability to attract talent plays an important role when it comes to investigating untapped innovation potential and developing new growth markets. Swiss MEM companies are not only grappling with a talent shortage at home; the struggle to attract the best talent is increasingly intensifying globally as well. Estimates suggest that the global manufacturing industry has slightly more than 10 million vacancies that cannot be filled due to a skills shortage.<sup>89</sup> Despite high global unemployment figures, industrial companies are experiencing significant problems filling vacancies with the right talent. Access to talent will become more important in the future and will be increasingly competitive. Existing skills shortages will not be overcome in the near future. The ageing of the global population will further exacerbate the talent shortage. Swiss MEM companies need to develop the right talent strategies to address this. Energy and commodities are additional resource issues that will play a key role for the Swiss MEM industry. Here too, the global trend is towards increased scarcity and intensified competition. Access to energy and raw materials will be subject to increased competition in the future, not only among companies but also between countries. The Swiss MEM industry and its companies also need to develop the right energy and commodities strategies to deal with these issues.

### 3.2. Options for action for MEM companies to increase their competitiveness

With respect to the four options for action identified for Swiss manufacturing industry, it is possible to define focused measures to enhance the competitiveness of Swiss MEM companies (see Chart 34). The focus here is solely on actions for companies, and not actions by the government to improve the framework conditions for Swiss manufacturing and for the MEM industry.

Here it is possible to distinguish between measures characterised by a higher degree of complexity on the one hand, and measures that require more time for implementation on the other hand. "Quick wins" can be achieved by measures that generally exhibit a low degree of complexity and that can be implemented within a year or two.

Chart 34. Options for action for MEM companies



Action options for Swiss manufacturing Industry:

- = Productivity improvement
- = Untapped growth markets
- = Un-utilised innovation potential
- = Better resource utilisation

## 1 Productivity improvement

**Cost reduction** Optimisation and reduction of costs remains a key issue for Swiss MEM companies of all sizes. This is primarily a matter of cost transparency and understanding where the real cost drivers lie. The focus is on back-office processes, where cost-reduction potential exists. Operational and non-operational areas are equally in focus. Centralisations (shared services centres) will become even more important. Cost reductions for MEM companies will increasingly become the core strategy to survive global (location) competition.

**Lean production** Various lean production concepts (such as elimination of waste, needs-oriented (just-in-time) production or integrated supply chains) will also be accorded high priority in Swiss MEM companies in the future. They will continue to offer significant savings potential to make production even more efficient and productive. Lean concepts are applicable not only to the production process, but also to other business areas (lean management, lean administration, lean development, lean maintenance, etc.).

**Optimisation of procurement** Swiss MEM companies should focus on transparency and efficiency in the supply chain. Internal measures (e.g. bundling of suppliers, improving planning, improving specifications) should be given higher priority than external measures (e.g. negotiations with suppliers). Moreover, expansion of global procurement using low-cost country (LCC) sourcing harbours significant potential for further reducing costs and increasing competitiveness.

**Offshoring/nearshoring potential** In the past, offshoring was considered to be a strategic course of action whereby a company could differentiate itself. Now, offshoring has been adapted more broadly and is now an operational necessity. Nearshoring (e.g. in Eastern Europe) is increasingly coming into focus for Swiss MEM companies as a more attractive alternative to keep certain parts of the value chain (especially R&D) in Switzerland.

## ① Productivity improvement

**Outsourcing** By international standards, Swiss MEM companies have been less aggressive when it comes to outsourcing. Because of sustained cost pressure, outsourcing will have to be considered even more seriously in the future, as a potential source of strengths. The focus of outsourcing of services resides on services with low value added (e.g. facility management, cleaning services). Areas like IT, payroll services and HR (keyword Business Process Outsourcing (BPO)), as well as maintenance, warehousing and logistics should increasingly be examined with respect to their strategic importance. In addition, the outsourcing of assembly services, component manufacturing or entire segments of production should be considered (keyword contract manufacturing).

## ② Untapped growth markets

**New markets** Swiss MEM companies can differentiate themselves strategically from their competition by entering into new markets with strong growth potential. Choosing the right markets offering the greatest potential for growth for the individual company is critical. Well-known emerging economies like China and India no longer offer the highest potential for growth, or growth at reasonable expense, taking into consideration the already fierce competition in these countries. The next generation of emerging markets with strong potential for growth needs to be considered. It is also important to define the right growth strategies for these new markets (innovation, M&A, joint ventures, local production, new sales strategies, etc.).

**Established markets** The optimisation of existing growth opportunities is a priority in established markets. Here it is important to redefine offerings, i.e. to better position existing products, replace old products and services while introducing new ones, and to tap alternative growth areas. As in new markets, appropriate growth strategies need to be defined in established markets.

**Distribution** Many Swiss MEM companies are faced with the task of developing new sales and distribution strategies and channels in new growth markets. At the same time, distribution plans in established markets will occasionally need to be adjusted. To enhance competitiveness, it is important, on the one hand, to maximise existing potential to increase the efficiency of the distribution (controlling distribution channels and resources, customer integration, etc.). On the other hand, lock-in strategies in distribution also offer opportunities for winning customer loyalty and for companies to differentiate themselves from the competition.

**FX management** Extensive FX management will remain a relevant topic, not only for large multinational groups, but also for small and medium-sized Swiss MEM companies with a strong export focus. The focus here is primarily on financial hedging instruments (especially cash flow hedging), but also natural hedging (e.g. by harmonising buying and selling currencies, invoicing sales in Swiss francs and borrowing money in relevant foreign currencies).

**Business Model Optimisation (BMO)** Intense pressure to continually reduce costs and to keep growing through new products, services and markets, as well as growing global complexity and an increasing regulatory environment are placing pressure on MEM companies to optimise their business model. The core element of such an optimisation is the transformation of the overall business model from a country/region-driven structure to a service line organisation that aligns business strategies across all regions, leverages advantages of common processes, and overcomes the risk of double taxation. BMO is especially important when entering new growth markets and/or setting up new services.

### ③ Un-utilised innovation potentials

<b>Systematic Product Lifecycle Management (PLM)</b>	Product lifecycle management with the objective of improving product time-to-market, achieving cross-functional compliance while ensuring end-to-end integration and driving greater efficiencies in development and sales is also gaining in importance. Optimal PLM will allow Swiss MEM companies to differentiate themselves from the competition in the future while improving their global competitiveness in the context of an increasing pressure to innovate.
<b>More customer-oriented innovations</b>	In the innovation area, the focus will continue to be on innovations with a strong focus on customer needs. MEM companies will be able to differentiate themselves by means of process innovations used to further optimise existing business processes and, for example, to produce products either of higher quality or at lower cost. Frugal innovations (frugal engineering) that appeal to customers in both emerging markets and developed markets will become a strategic competitive advantage in the future. Also of key significance to the future competitiveness of MEM companies will be the establishment of a comprehensive culture of innovation spanning all business areas. In this regard, building an innovation management model that includes both strategic and organisational aspects will be indispensable (e.g. innovation portfolio management). With respect to R&D in the strict sense, it is also important to optimise issues like taxation (intellectual property rights), talent management, IT support and innovation controlling.
<b>Focus on higher-margin services business</b>	The manufacturing industry is increasingly marked by the global servitisation trend, i.e. the situation whereby industrial manufacturers are also becoming service providers. The ability to bundle higher-margin services with industrial products and/or to introduce new, exclusive services will represent an advantage for Swiss MEM companies amid ever-intensifying competition going forward. This services sector is increasingly developing away from the old model primarily equated with plant maintenance towards services that offer additional benefits or even towards a service business with comprehensive industry solutions that no longer involve the selling of machinery, but rather the selling of production capacities.

### ④ Better resource utilisation

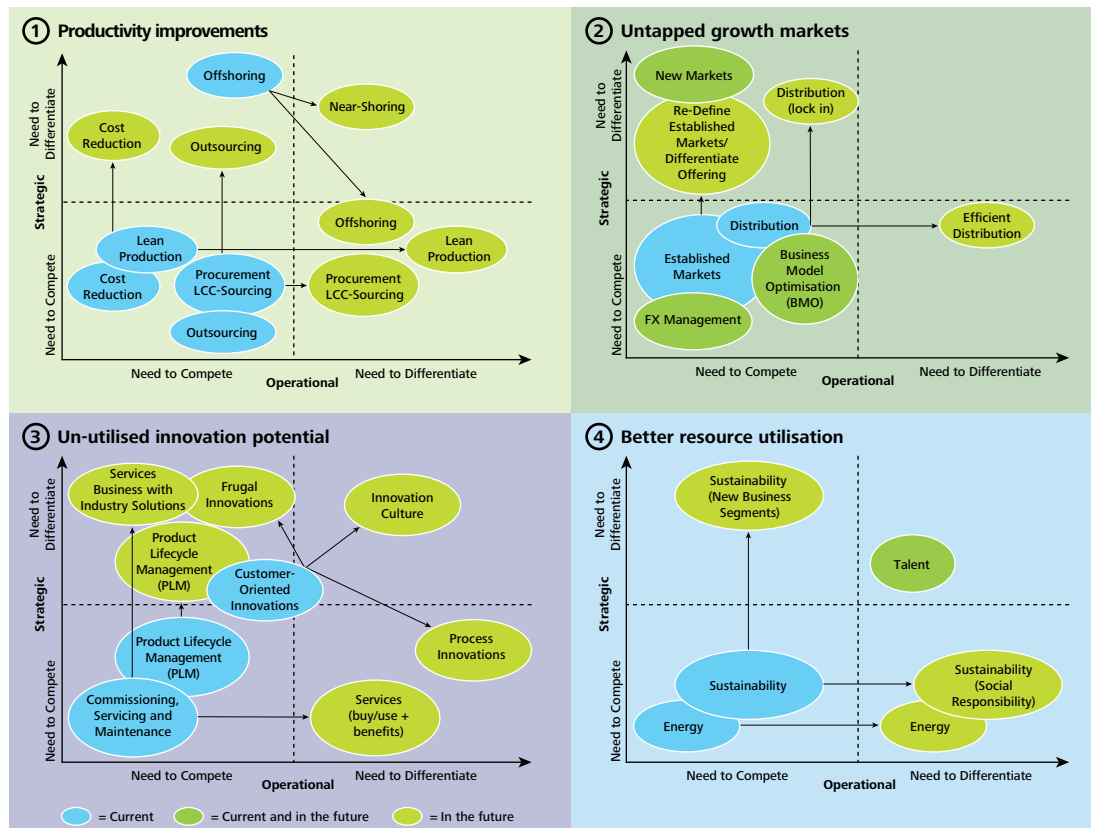
<b>Talent</b>	Given the existing talent shortage faced by Switzerland and the strong need for local talent when entering new growth markets, the importance of local and global talent sourcing for Swiss MEM companies will only continue to increase. Swiss companies not only need to resolve the issue of talent shortage at home, but need to develop new strategies to prevail in the global war for talent. The main challenge will be to attract talented and promising candidates with long-term potential.
<b>Sustainability</b>	The issues of sustainability and climate protection will continue to be important drivers for the manufacturing industry in the future. MEM companies will be able to utilise these issues to differentiate themselves strategically and operationally from the competition and gain a competitive advantage. Sustainable corporate management is primarily characterised by environmentally friendly products, sustainable manufacturing and product development, recycling systems, the use of renewable energy and social responsibility.
<b>Energy</b>	In view of the global trend towards increasing scarcity and intensified competition for energy and commodities, MEM companies need to develop new strategies to help them remain competitive. It is becoming ever more important to secure access to inherently scarce resources (e.g. rare earth elements).

### 3.3 Deloitte's expectations regarding the development of options for action

The options for action presented above cannot be examined statically; their significance will evolve as a function of the maturity of the company and market in question (see Chart 35).

These measures to enhance competitiveness can be mapped according to operational and strategic considerations. Measures that are currently important for being able to participate in a market ("need to compete") may evolve into differentiation factors enabling a competitive advantage ("need to differentiate") and vice versa.

Chart 35. Development of options of actions



# Index of footnotes

1. A largely identical picture also emerges if one takes the number of employees in Switzerland as a benchmark. Federal Statistical Office (FSO). <http://www.bfs.admin.ch>.
2. Top 10 (2012–2013): Switzerland (1), Singapore (2), Finland (3), Sweden (4), Netherlands (5), Germany (6), United States (7), United Kingdom (8), Hong Kong (9) and Japan (10). Selected emerging countries: China (29), Brazil (48), South Africa (52), India (59) and Russia (67). World Economic Forum (WEF): The Global Competitiveness Report 2012–2013. <http://www.weforum.org/issues/global-competitiveness>.
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5. Economist Intelligence Unit (EIU) <http://www.eiu.com/>.
6. Value added Switzerland (2011; sector share as a percentage): Public and private services (21%), business services (18%), retail and car industry (13%), financial and insurance services (12%), other industries (10%), MEM industry (9%), construction (6%), transport and communications (6%), hospitality (2%), energy and water supply (2%), and agriculture and forestry (1%). Swissmem: Panorama 2012. <http://www.swissmem.ch/information-politik/publikationen.html>.
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13. Swiss exports (2011; sector share as a percentage): chemicals and pharmaceuticals (38%), MEM industry (35%, of which mechanical engineering (13%), precision instruments (7%), electrical engineering/electronics (6%), metalworking (7%), automotive (2%), watches (10%), other goods (8%), food, beverages and tobacco (4%), electric power (3%) and textiles (2%). Swissmem: Panorama 2012. <http://www.swissmem.ch/information-politik/publikationen.html>.
14. Top 10 (2010): Switzerland (1), Luxembourg (2), Austria (3), Denmark (4), Belgium (5), Germany (6), Singapore (7), Sweden (8), Netherlands (9) and Italy (10). Swissmem: Panorama 2012. <http://www.swissmem.ch/information-politik/publikationen.html>.
15. According to ABB's recent annual reports.
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26. Bilanz/Interbrand: Brand ranking 2012. <http://www.bilanz.ch/unternehmen/marken-das-ranking-2012>.

27. Original quotation in German: "Die Schweiz wird auch zukünftig ein wichtiger Industriestandort bleiben und nicht deindustrialisiert. Es geht darum die bestehenden Stärken zu stärken, namentlich die gute Infrastruktur, Kompetenz der Mitarbeiter, gute Ausbildung, Innovationsfähigkeit, politische Stabilität und Sicherheit."
28. Original quotation in German: "Die Schweiz als Werkplatz ist sehr attraktiv weil das Kapital günstig ist für kapitalintensive Branchen. Das Geld ist vorhanden und zudem gibt es gut ausgebildete Leute."
29. Original quotation in German: "Die Produktion findet zunehmend in lokalen Märkten bei den Kunden statt, nach dem Motto "local for local". Die Schweiz hat hier einen Vorteil, weil sie in der Welt als Qualitätsmarke angesehen wird, und dies in gelungener Kombination mit lokalen Produktionsstätten ausspielen kann."
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33. Thomson Reuters Datastream.
34. Question: How would you judge the impact of the strong Swiss Franc on your profitability in the last 12 months? Because of rounding, the sum of all responses may not always be 100.
35. Questions: How do you judge the outlook for the entire Swiss economy for the next 12 months? How do you judge the outlook for the Swiss MEM industry for the next 12 months? How do you judge the outlook for your company for the next 12 months?
36. Original quotation in German: "Viele "Fitnessprogramme", welche von den Unternehmen schon in der Folge des Wirtschaftseinbruchs von 2008/09 eingeführt werden mussten, haben einen positiven Effekt hinterlassen und helfen bei der Bewältigung des starken Schweizer Frankens."
37. Question: With which of the following measures were you able to reduce or successfully manage the negative effects of the strong Swiss Franc?
38. Original quotation in German: "Der starke Schweizer Franken stellt auch eine Chance dar. Er ermöglicht billigen Einkauf und Sourcing im Euroland."
39. Original quotation in German: "Natural Hedging hilft als nützliche Massnahme im Zeichen der Frankenstärke. Zahlt ein Kunde in US-Dollar, sollte wenn möglich auch in US-Dollar eingekauft werden."
40. Question: Which of the following strategies to increase efficiency and reduce cost will be the main focus for your company in the next 12 months?
41. Original quotation in German: "Kostentransparenz ist von enormer Bedeutung für KMU's. Es ist wichtig Gewissheit zu haben, welche Produkte wie viel zum Ergebnis beitragen."
42. Original quotation in German: "Wenn Sourcing im Ausland einen Beitrag zur Wettbewerbsfähigkeit der Schweiz beiträgt muss man dieses kleinere Übel dem grösseren Übel einer Produktionsverlagerung ins Ausland vorziehen."
43. Swissmem: Panoramas 2008–2012. <http://www.swissmem.ch/information-politik/publikationen.html>. Swiss Federal Customs Administration (FCA). <http://www.ezv.admin.ch/themen/00504/index.html?lang=de>.
44. Export regions (exports in billions of CHF, 2011): Western Europe (41.2), Asia (13.8), North America (7.1), Eastern Europe (2.5), Latin America (1.9) and Africa (1.2).
45. International Monetary Fund(IMF): World Economic Outlook Database. <http://www.imf.org/external/pubs/ft/weo/2012/01/weodata/download.aspx>.
46. Brazil, Russia, India, China and South Africa.
47. Questions: In which region did your company achieve the highest growth in the last 12 months? In which region do you see the highest growth potential for your company in the next 3 years?
48. Original quotation in German: "Europa wird weiterhin ein wichtiger Markt bleiben. Es gibt eine Ablösungswelle von Anlagen, die nun 40 oder 50 Jahre alt sind. Der Nachrüstungsmarkt für effizientere Anlagen ist riesig und das Geld ist vorhanden."
49. Original quotation in German: "Wir sind in China weil China ein grosser Markt ist und nicht weil es billig ist zu produzieren."
50. Original quotation in German: "Die Nachfrage nach Investitionsgütern entwickelt sich in verschiedenen Märkten der Eurozone stagnierend oder ist sogar eingebrochen. Eine grosse Herausforderung für die Schweizer MEM Industrie wird sein ihr Marktvolumen in Europa zu halten und parallel dazu das Marktvolumen in den neuen Wachstumsmärkten (Schwellenländer) auszubauen."
51. Questions: Which of the following strategies would best support your growth in developed markets (like Europe, North America)? Which of the following strategies would best support your growth in new growth markets (BRIC and other emerging markets)?
52. Question: How will the number of production facilities of the Swiss MEM industry, as a whole, change in your opinion over the next few years at the following locations?
53. Original quotation in German: "Verlagerungen nur aufgrund von Faktorkosten-Vorteilen alleine zu betreiben erachte ich als falsch."



54. Top 10 (2012): China (1), India (2), Moldova (3), Malta (4), Switzerland (5), Paraguay (6), Serbia (7), Estonia (8), Netherlands (9), Sri Lanka (10). World Intellectual Property Organization (WIPO): The Global Innovation Efficiency Index 2012. [http://www.wipo.int/export/sites/www/freepublications/en/economics/gii/gii\\_2012.pdf](http://www.wipo.int/export/sites/www/freepublications/en/economics/gii/gii_2012.pdf).
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56. Original quotation in German: "Wegen der Frankenstärke wurde die Marge kurzfristig gebraucht um die Wettbewerbsfähigkeit zu erhalten. Gefahr besteht aber, dass die Schweiz mittel- und langfristig nicht mehr Innovationschampion sein wird, weil weniger in F+E investiert wird."
57. Question: What do you see as the main reasons for increased global competition for the Swiss MEM industry in the past few years?
58. State Secretariat for Economic Affairs (SECO). <http://www.seco.admin.ch/themen/00513/00515/01330/index.html?lang=de>.
59. Question: How useful were free trade agreements for the exporting activity of your company in the past?
60. Question: Name the main reasons why free trade agreements are useful for your company.
61. Question: Is the focus on new innovations and new technologies an integral part of your existing company strategy?
62. Original quotation in German: "Der Zwilling des Begriffs Innovation ist Risiko. KMUs können schnell an die Grenzen ihrer Innovationsfähigkeit stossen."
63. Question: How do you plan to change the research and development (R&D) capacities of your company in the next 3 years at the following locations?
64. Original quotation in German: "Innovation sollte immer mit Fokus auf den potentiellen Kundennutzen geschehen."
65. Original quotation in German: "Die Erzeugung eines guten Innovationsklimas ist zentral um global wettbewerbsfähig zu bleiben. Die Forschung sollte wenn möglich in der Schweiz behalten werden, wohingegen die Entwicklung oft in lokalen Märkten in Kundennähe stattfinden kann."
66. Question: Which of the following product strategies do you envisage for your company to remain competitive in new growth markets?
67. Original quotation in German: "Eine Differenzierung über eine Service-Strategie hilft in entwickelten Märkten. Wir bieten Kunden bedürfnisgerechte Leistungspakete mit klaren Kundennutzen an."
68. Swiss Federal Statistical Office (FSO): Employment Statistics (BESTA). Index of vacancies. <http://www.bfs.admin.ch/bfs/portal/de/index/themen/03/03/blank/data/05.html>.
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71. Question: What do you see as the main reasons for a talent shortage in the Swiss MEM industry in the past few years?
72. Original quotation in German: "MINT (Mathematik, Informatik, Naturwissenschaft und Technik) wird in der Volksschule praktisch nicht mehr gefördert. Wird das Interesse für MINT jedoch nicht geweckt bis zum fünfzehnten Lebensjahr, dann ist es zu spät."
73. Original quotation in German: "Die Schweiz ist sehr attraktiv und kann stark vom Brain Drain aus Europa und andern Ländern profitieren. Dies ist wichtig, denn der Schweizer Nachwuchs für die Industrie ist knapp."
74. Question: Which measures did you introduce in your company to deal with the talent shortage?
75. Swissmem: Panorama 2012. <http://www.swissmem.ch/information-politik/publikationen.html>.
76. Question: How do you judge the effect of higher electricity prices on the future competitiveness of your company?
77. Question: Are you planning one of the following measures to counteract increases in electricity prices in the future?
78. Original quotation in German: "Energieeffizienz in der Produktion ist schon länger ein Thema und die leicht greifbaren Ziele wurden bei vielen Unternehmen bereits erreicht. Hohe Investitionen wären nun aber notwendig um noch energieeffizienter zu werden, wobei aber vielen MEM-Unternehmen im aktuellen Wirtschaftsklima das Geld fehlt."
79. Question: How do you judge the effect of an uncertain service security on the future competitiveness of your company?
80. Question: Which of the following business opportunities will increase the competitiveness of the entire Swiss MEM industry in the long-term??
81. Original quotation in German: "Aktuell werden aber die Chancen der Energiewende weniger stark wahrgenommen als die Gefahren."
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