

## Innovation as a growth driver

An analysis of the return on investment  
in the Swiss tech industry

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# Foreword

## **Dear Readers,**

The return on investment (ROI), as a universal measure of a company's earning power, is fundamental to corporate controlling and external balance sheet analyses. It is used to assess profitability and the real success of a company. However, the more specialised concept of the "ROI of innovation" is less established in many companies and industries due to the fact that it is more difficult to apply.

Controlling and measuring innovation processes in general and R&D, in particular, is a major challenge for companies. However, the strategic nature of innovation as an investment in the future viability of a company and the often high R&D budgets in relation to turnover require special controlling of the R&D area as well as a way of measuring innovation processes that goes beyond traditional key figures. The reason for this is that even though many traditional key figures in the R&D area allow for benchmarking, they are merely informative in nature and are less useful for measuring the success of innovations.

In view of this situation and the problems described above, we conducted in-depth interviews with experts to analyse the extent to which the ROI of innovation is already established in the Swiss tech industry. We were particularly interested in the degree to which Swiss tech companies measure the success of innovations, what the main barriers to a high ROI are, and which key factors lead to successful innovations.

We would like to thank the more than twenty CEOs, COOs, CTOs and CIOs of Swiss tech companies for their participation in the survey and the qualitative interviews with experts. Statements from experts who did not wish to be named were integrated into the study anonymously.

We are convinced that this study makes an important contribution to the discussion of this relevant and complex topic. The aim is to raise awareness of the concept of ROI of innovation in the Swiss tech industry and improve its applicability.

We hope you find it interesting and look forward to your direct feedback and suggestions.

## **Peter Vickers**

Partner, Head of Energy, Resources & Industrials, Deloitte Switzerland

## **Dr. Stefan Brupbacher**

Director, Swissmem

# Summary

## Findings

	<p><b>R&amp;D figures for the Swiss tech industry top the international comparison table</b></p> <p>Companies in the Swiss tech industry show similar R&amp;D growth to their international competitors. In terms of R&amp;D intensity, Swiss companies in the mechanical engineering and electronics/electrical engineering sectors perform even better than their global peers, i.e. their average R&amp;D expenditure as a percentage of turnover has been much higher over the last ten years. Only Swiss metal construction companies reinvest a comparable percentage of turnover in R&amp;D.</p>
	<p><b>There are differences in where, when and how innovational success is measured</b></p> <p>Swiss tech companies measure success primarily when the innovation is practically complete, i.e. when it is launched on the market and when it is sold (e.g. via sales contribution or profit growth). Quantitative measurements are also made during the idea generation phase, in R&amp;D and in production – but less so on the customer side. The time when innovation success is measured plays a role insofar as some innovations can only achieve a high return over several years. Potential innovations should therefore not be cancelled prematurely, as they may still be successful in the long term.</p>
	<p><b>The biggest obstacles to successful innovation are customer benefits that are deemed too small and cost targets that are not achieved</b></p> <p>Targeted customer benefits that are not big enough and cost targets that are not achieved appear to be the main obstacles to innovation. Swiss tech companies see the risk of excessively long development times, the time to market launch and a lack of financial means/resources in a challenging global economic environment as further obstacles.</p>
	<p><b>Innovation culture is the most important factor in achieving a high innovation ROI</b></p> <p>Swiss tech companies consider the cultural factor to be far more important than, for example, expertise/talent, new technologies or established methods and agility in innovation. Swiss tech companies cite a clear strategy and goals, a willingness to take risks/individual responsibility and an understanding of the market as the most important characteristics of a successful innovation culture.</p>

## Recommendation



### **Customer focus and integration are success factors**

The pressure to innovate is very intense for Swiss tech companies and innovation cycles are becoming ever shorter. In the past, new product innovations were only adopted by customers once they had been finalised and launched on the market. In order to be successful in the future, new product innovations must be implemented even more closely with customers. The focus here is not necessarily on perfection or quality. Sometimes the customer simply wants a "minimal viable product" that can be developed together.



### **Successful innovation cultures provide freedom and allow for mistakes**

Successful innovation cultures empower all employees to contribute new ideas and take responsibility. This requires freedom for researchers and developers to pursue ideas and a stronger culture of risk-taking (error culture). Employees should be able to take calculated risks, experiment more and try out new ideas. Switzerland is not necessarily known for taking risks, making mistakes or "failing" at innovation. However, many important innovations have emerged from an initial failure.



### **Talent must be sustainably promoted and networks expanded**

R&D and innovation need good people with the right skills. Swiss tech companies need to maintain their external networks with universities, schools of applied sciences and independent R&D institutes in order to achieve a high innovation ROI. It is also important to engage in dialogue with associations and strengthen international cooperation: Since new technologies are complex and dynamic and subject to regulatory or country-specific factors, it seems impossible today to pursue innovation alone. In addition to maintaining external networks, internal cooperation must also be strengthened. Successful innovation is often based on a greater exchange of ideas and knowledge between departments and cross-functional teams in projects.



### **Less is often more and not everything needs to be measured**

A pragmatic approach and a focus on the essentials often achieve a higher innovation ROI and are particularly important in the face of tougher global competition and increased pressure to innovate. Not everything always has to be measured either, as micromanagement often inhibits innovation. In addition to hard factors that can be measured, there are also many soft factors that cannot be properly measured but are nevertheless very important for innovational success.

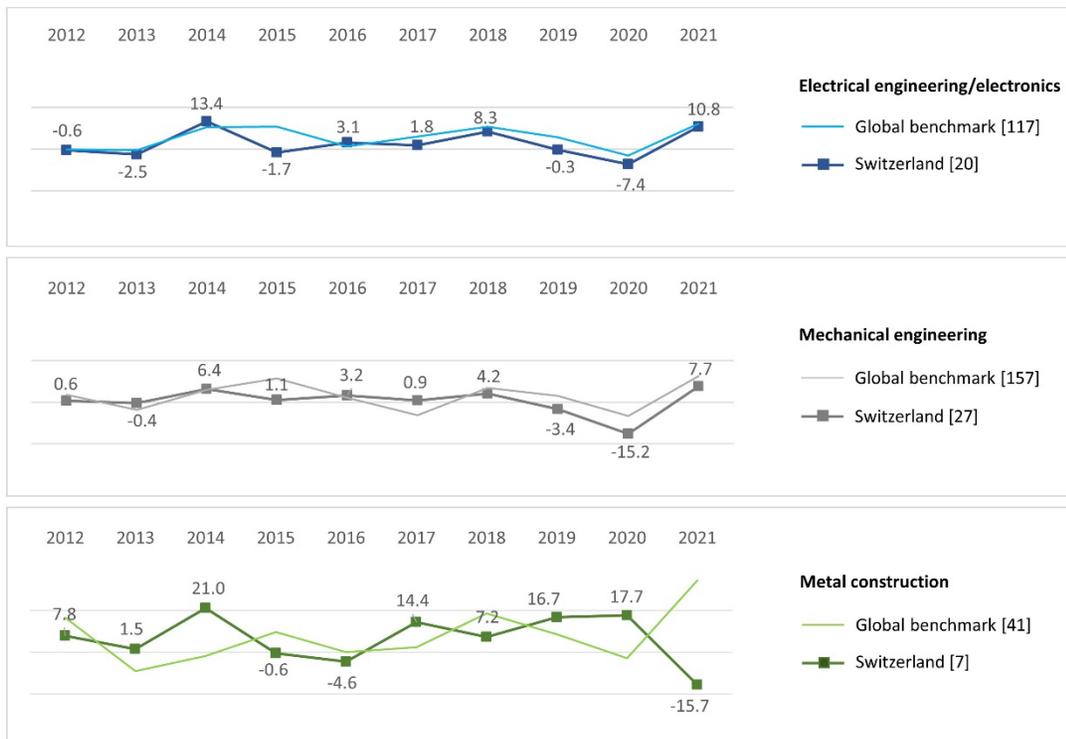
# ROI of innovation in the Swiss tech industry

## R&D key figures: an international comparison

If the classic key figures for R&D are analysed (e.g. R&D growth, R&D intensity), the Swiss tech industry is in a good position from an international perspective. However, this says more about general innovative strength and less about the success of innovation in the individual sectors. Companies in the Swiss tech sectors of mechanical engineering, electrical engineering/electronics and metal construction, for example, show similar R&D growth to their international competitors. This is shown by benchmarking the R&D growth of over 50 leading Swiss tech companies, for which R&D figures are publicly available, against over 300 leading global industrial companies from the EU Industrial R&D Investment Scoreboard for the last 10 years (see Figure 1).

**Fig. 1: R&D growth**

[Average R&D growth within one year as a %, by industry, 2012-2021]



Note: The allocation of Swiss companies to the individual tech sectors was similar to the sector breakdown in the EU Industrial R&D Investment Scoreboard in order to ensure a high level of comparability. Swiss electrical engineering/electronics companies [20]: Arbonia, Ascom, Belimo, Carlo Gavazzi, Comet, dormakaba, Elma Electronic, Endress+Hauser, Huber+Suhner, Inficon, Landis+Gyr, LEM, Meyer Burger, Phoenix Mecano, Reichle & De-Massari, Schaffner, Sonova, TE Connectivity, U Blox and Von Roll. Swiss mechanical engineering companies [27]: ABB, Autoneum, Bobst, Bucher Industries, Bühler, Burckhardt Compression, Dätwyler, Forbo Holding, Geberit, Georg Fischer, Hilti, Kardex, Komax, Liebherr, Mikron, OC Oerlikon, Pilatus, Rapid Holding, Rieter, Ruag, Schindler, Schlatter, Schweiter Technologies, SIG Combibloc, Starrag, Sulzer and Tornos. Swiss metal construction companies [7]: Adval Tech, Feintool, Fraisa Holding, Montana Tech Components, SFS Group, Swiss Steel Group and Zwahlen & Mayr.

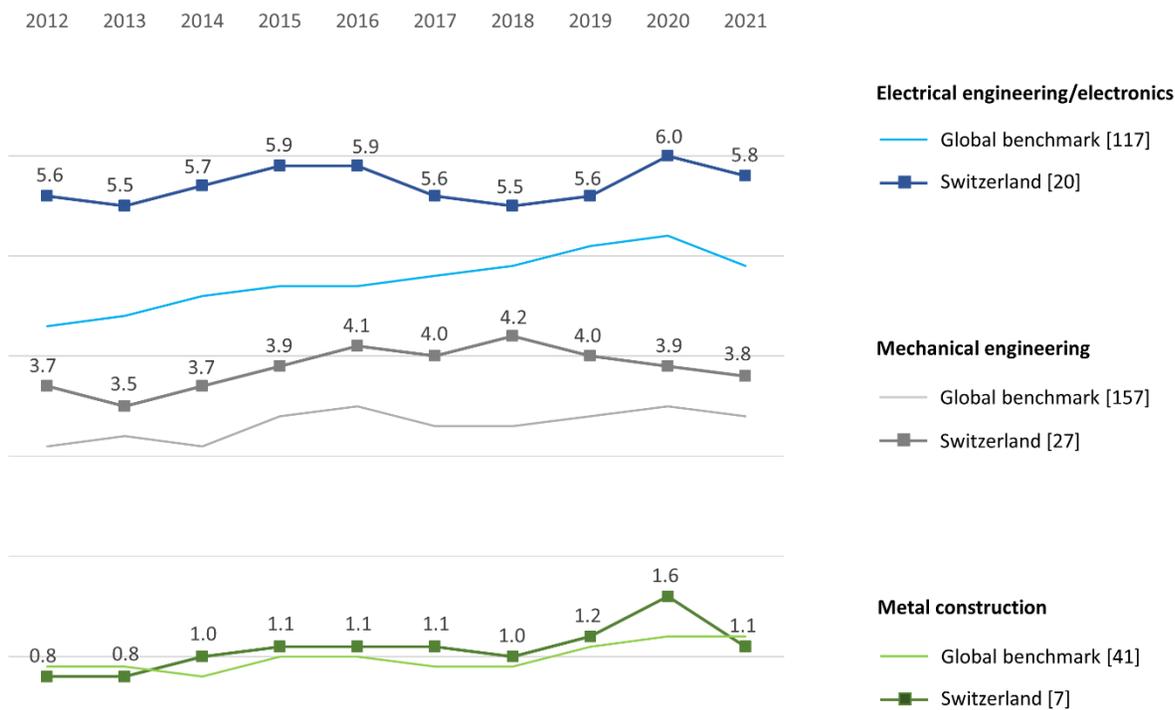
Source: Thomson Refintiv, company documents, websites and EU Industrial R&D Investment Scoreboard

If the classic key figure of R&D intensity is taken into account, i.e. the ratio of a company's R&D investments to its turnover, some interesting differences emerge that show the innovative power of the Swiss tech industry in an even better light (see Figure 2).

R&D intensity differs depending on the industry: high-tech industries are characterised by the highest R&D intensity, while more traditional industries generally have a low R&D intensity. In an international comparison, Swiss companies in the mechanical engineering and electronics/electrical engineering sectors perform even better than their global peers in terms of R&D intensity, i.e. their average R&D expenditure as a percentage of turnover has been much higher over the last ten years. Only Swiss metal construction companies reinvest a percentage of turnover in R&D that is comparable with their global peers.

**Fig. 2: R&D intensity**

[Average R&D expenditure as a % of turnover, by industry, 2012-2021]



Note: Same tech companies as in Figure 1.

Source: Thomson Refintiv, company documents, websites and EU Industrial R&D Investment Scoreboard

Investing in R&D is a popular way to develop future innovation and competitiveness. Innovation is the lifeblood of many Swiss tech companies in order to survive global competition.

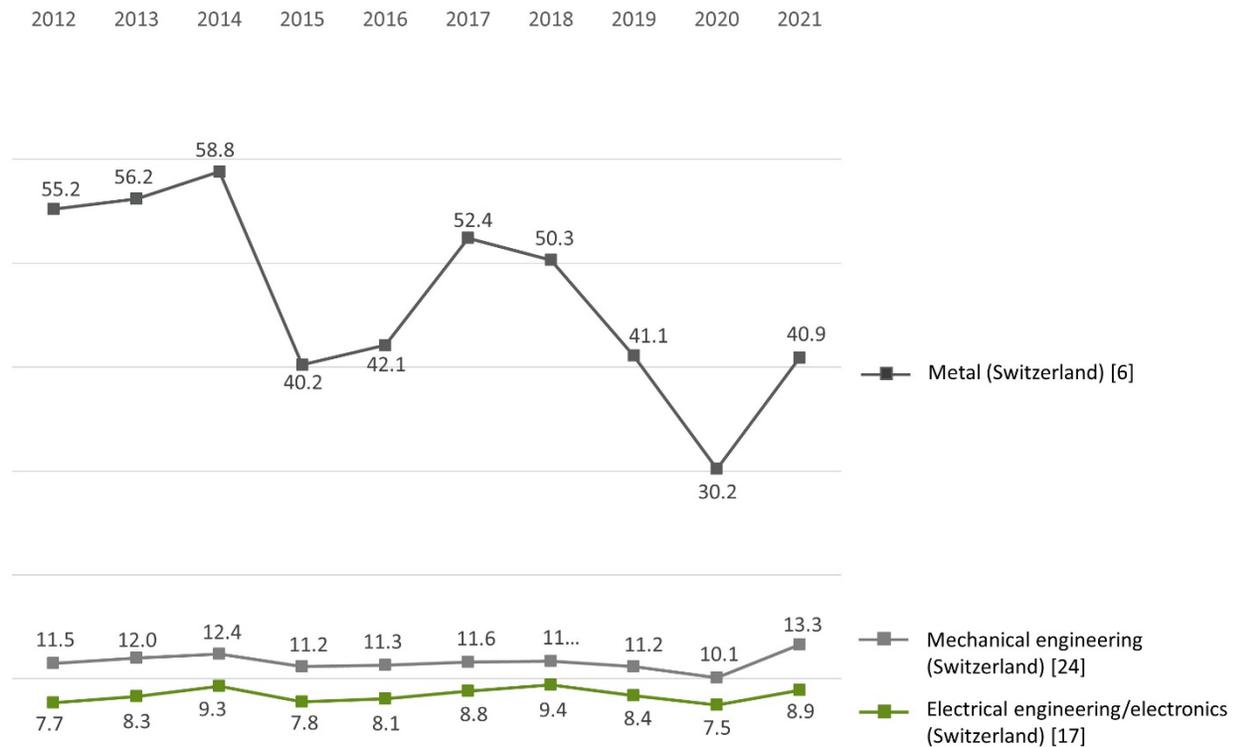
Our qualitative interviews with experts have shown that for many traditional standard products in the Swiss tech industry, investment in R&D is between 2% and 4%. In contrast, there are completely different dynamics for technology-orientated companies and start-ups: Depending on the business model, R&D investments in this sector can account for up to 20% of turnover. However, R&D budgets also grow in line with companies' profit growth and many companies regularly benchmark themselves against their competitors. Another classic R&D metric that provides an initial indication of the potential ROI of innovation is the return on research capital (RORC). The RORC is the amount of profit for each Swiss franc spent on R&D within a certain period of time (usually one year). It is calculated by dividing the current gross profit by the R&D expenditure of the previous year.

For example, one company generated a gross profit of CHF 100 million in 2021, with R&D expenditure of CHF 50 million in the previous year – the RORC is therefore CHF 2 (CHF 100 million / CHF 50 million). This means that for every CHF 1 spent on R&D, the company generates CHF 2 in gross profit.

However, investments in R&D and innovation can take many years before tangible results and successes are achieved, and the RORC generally varies greatly between industries. Swiss metal companies, for example, have a significantly higher RORC than Swiss companies in the mechanical engineering or electrical engineering/electronics sectors (see Figure 3). In metal, on the other hand, far less investment in R&D appears to be necessary to achieve high sales. Yet this does not mean that no innovation is needed in order to remain competitive in the future. Metal companies must also be able to react quickly and flexibly to new industry trends and changing customer needs with new products and services.

**Fig. 3: Return on research capital (RORC)**

[Average RORC, by sector, 2012-2021]



Note: Excluding Landis+Gyr, Meyer Burger, Montana Tech Components, Pilatus, Rapid Holding, Reichle & De-Massari and SIG Combibloc.  
 Source: Thomson Refintiv, company documents and websites and EU Industrial R&D Investment Scoreboard

R&D initiatives are fundamentally very difficult to manage and monitor because the key feature of research is that researchers and developers often do not know in advance exactly how and when they will be able to achieve a particular desired result. In many companies, monitoring R&D expenditure is therefore a challenge.

Higher R&D expenditure alone is also no guarantee of greater creativity, more successful innovation, higher profits or bigger market share. That is why the value of the RORC is only of limited use for measuring innovation success. However, there is sufficient other evidence that investment in R&D contributes to innovation success and creates added value for companies.

Although all of these traditional key figures in the R&D sector allow for benchmarking, they are for information purposes only and are less useful for measuring the success of innovations. The success of innovation is often measured in different phases of the innovation process, whereby a variety of different methods are used.

## Measuring the success of innovation

For many Swiss tech companies, innovation is an important part of their DNA, which they need "to survive" and compete internationally. A lot of money is spent on R&D and innovation and measuring success in different phases of the innovation process is therefore very important – but remains fundamentally difficult.

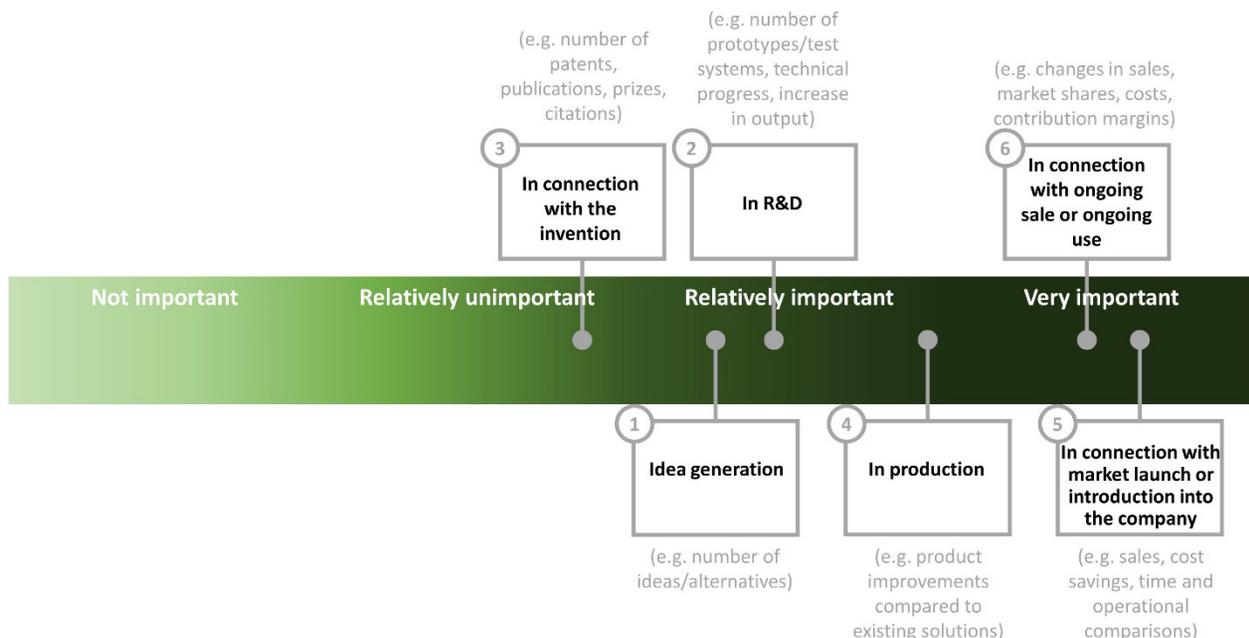
In addition to hard factors that can be measured, there are many soft factors that cannot be properly measured but are nevertheless very important for innovation success. Theoretically, every innovation can be calculated well or badly, which is why certain key figure analyses should be treated with caution. In addition, not all measurable key figures (e.g. number of patents, publications) play an equally important role for all Swiss tech companies, especially for small and medium-sized enterprises (SMEs).

In general, the following questions also arise: Where is the best place to measure innovation success? When is it measured? And how? Our qualitative interviews with experts provide clear indications of where innovation success is currently measured (see Figure 4).

"ROI as a measurement tool should be used with caution, as it is a relative concept with advantages and disadvantages. Many successful innovations took a long time to get off the ground and there are examples of successful products that were considered a flop in the first five years, but which recouped several times the investment over the next 15 years. When evaluating innovations, it is therefore important to always look at market proximity and adapt this dynamic."

**Andreas Häberli**  
Co-CEO | Co-Founder, PhenoSign

**Fig. 4: Measuring success in different phases of the innovation process**



Source: Deloitte survey and qualitative interviews with experts

In relation to the six most important phases of innovation – idea generation (1), R&D (2), invention (3), production (4), market launch (5) and ongoing sales/utilisation (6) – measuring success appears to be most important during market launch or the introduction into the company as well as in relation to sales or utilisation, i.e. when the innovation is practically complete (e.g. projected expectation, actual sales figures). However, there is often little quantitative measurement on the customer side (e.g. customer feedback, evaluation of machine data). Other phases, where measurements are also considered more important, are idea generation, R&D and production – in contrast, less is measured during the invention process itself.

In the early phase of idea generation, it is more informal processes that are measured (e.g. measurement/selection of potential ideas in the ideas competition). More precise measurement then begins with internal product development projects, where clear roadmaps (e.g. twice a year) and reviews (monthly, quarterly, annually) are used to successfully take stock of ongoing innovation projects and assess the success of the portfolio ("where do we stand?").

At the micro level, this means, for example, setting milestones for project teams and reviewing every three months which and how many targets/key performance indicators (KPIs) have been met. In many companies, there is an increased tendency generally towards measurement in operational areas and at team level, as well as an increased trend towards supervision, monitoring and reporting. This allows for better prioritisation of projects and more efficient management of available resources, since implementation is heavily dependent on personnel. However, it also poses a challenge to the innovation culture of companies, as this is more difficult to measure than operational factors. General uncertainties can also arise when measuring because there are too many processes or too many KPIs or there is a risk of missing the mark during the innovation process.

In project management, waterfall methods allow for greater predictability than agile methods, which allow for more flexibility. Yet, a mix of both approaches is often necessary for successful innovation management. It is also important to coordinate with the innovation steering committees, which manage and oversee the company's entire innovation journey. In the review (e.g. two to five times a year), priorities can be set, strategies refined, resources allocated or R&D budgets monitored and adjusted.

"Innovation without added value for customers and stakeholders is worthless. Measuring the ROI of innovations is not really an established practice in small companies – but the impact can be seen in the success of the companies and their customers in the long term. Strengthening value creation is an important focus for innovative SMEs – developing pragmatic solutions with customer benefits is their strength."

**Dr Tobias Moser**  
CEO and Co-Owner, FISCHER Spindle Group AG

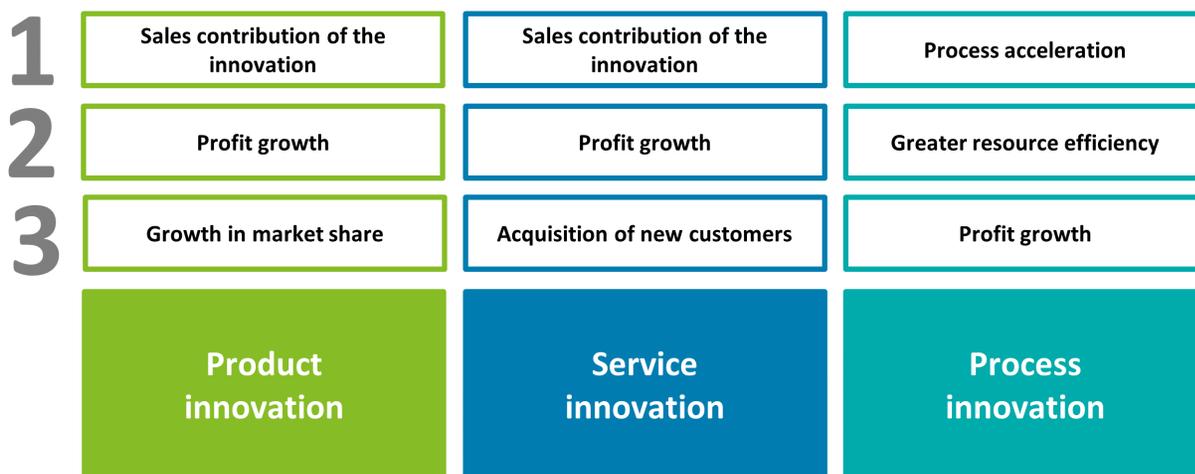
"A successful innovation culture is characterised by good people with the right skills, who take a pragmatic approach and innovate with their finger on the pulse of the market. The innovation process itself should not be over-processed, but should have a strong focus on risk management, consolidation and quality assurance."

**Andreas Häberli**  
Co-CEO | Co-Founder, PhenoSign

The time when innovation success is measured plays a role insofar as some innovations can only achieve a high return on investment over a span of several years. Potential innovations should therefore not be cancelled or abandoned prematurely, as they may be successful in the long term. Incremental innovations, e.g. efficiency improvements to products or processes, are often the least risky and the most successful to implement. However, larger innovation projects often take longer and can be very expensive, i.e. even if CHF 20 million is invested, this can still result in a profit of CHF 100 million, as disruptive innovations can remain on the market for up to 20 years.

When it comes to the question of how innovation success is measured, there are clear preferences depending on the type of innovation. Based on our qualitative interviews with experts, the majority use the innovation's contribution to turnover or the positive development of profits as the most important methods for measuring the success of product or service innovation in their companies (see Figure 5).

**Fig. 5: Top 3 methods for measuring success**



Source: Deloitte survey and qualitative interviews with experts

Positive market share development through product innovations and the acquisition of new customers through service innovations are other popular measurement methods in the market launch and ongoing sales phases. In the case of process innovation, on the other hand, success is primarily measured by the degree of process acceleration or higher resource efficiency. Other popular measurement methods for process innovations are greater customer satisfaction or cost reductions.

In principle, however, it is difficult for many companies to identify clear drivers for measuring the success of innovation, e.g. to merely use growth in profit or the innovation's contribution to sales as a measure or to rely primarily on customer feedback – instead, several of the methods mentioned are combined (or innovation success is not systematically measured at all).

## Obstacles to achieving innovation ROI

According to the experts consulted, the biggest obstacles to not achieving the ROI of innovations are that the intended customer benefit is not great enough and that cost targets have not been achieved. A poor understanding of customer needs and high acquisition or effective production costs appear to be the main obstacles to successful innovation.

Other obstacles include the risk of excessively long development times (e.g. in the production of prototypes), the time factor for market launch including product testing and limited financial means/resources or the general financing of innovation in a challenging global economic environment.

In addition, insufficient differentiation from competitors, slow approval processes, general risk aversion within the company and a lack of focus on new ideas or distraction by operational activities can often have a negative impact. According to the experts consulted, technical feasibility and underestimated complexity are further factors that hinder the realisation of a positive innovation ROI.

The experts consulted consider the failure to achieve the desired improvements, expected performance or technical specifications/goals of innovations to be the most important reasons for scrapping innovation projects. A cancellation can occur in various phases of the innovation process because a concept may not work – or the technology and material evaluations may be negative.

Other cancellation reasons include general changes in priorities and changes in market needs/volume potential and customer needs. The problem of customers suddenly wanting something different and if the customer base as a whole has shifted can only be mitigated by constant market and customer observation.

Sometimes, however, a new technology is simply not scalable or excessive costs and budget cuts lead to it being cancelled.

Insufficient differentiation from the competition  
Lack of economies of scale  
Risk of high costs  
Underestimated complexity  
Risk aversion  
Slow authorisation processes  
Limited financial resources  
Feasibility  
Obstacles  
Long development times  
No guarantee of success  
Low sales volumes  
Customer benefit not big enough  
Lack of focus  
Unmanageable projects  
Long market launch

Changing customer needs  
Limited investment outlay  
Too few resources  
Changing priorities  
Excessive costs  
Financial expectations not met  
Cancellations  
Budget cuts  
Targeted improvements or goals not reached  
Changing market expectations  
New technologies not scalable  
No business case

### Success factors of successful innovations

When it comes to the important factors for achieving a high innovation ROI, the experts consulted consider internal factors such as the right innovation culture, a clear innovation strategy, targeted support and management by leadership and the right skills and customer integration/proximity to be very important (see Figure 6).

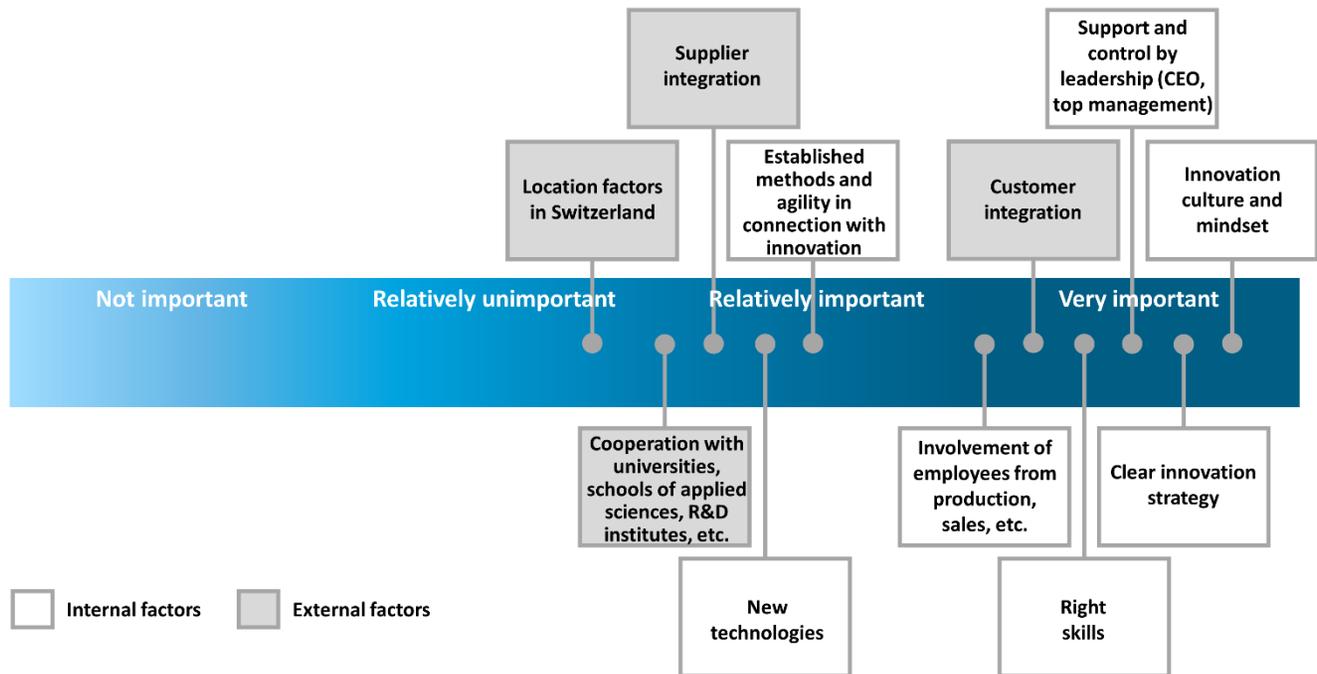
Innovation culture seems to be of crucial importance for maximising ROI. The cultural factor is considered far more important than, for example, expertise/talent, new technologies or established methods and agility in matters of innovation. External factors such as supplier integration, cooperation with universities, schools of applied sciences and independent R&D institutes as well as the general location factors of Switzerland (e.g. liberal economic policy, legal certainty, tax incentives, government support programmes) are also of secondary importance.

"Innovation is rarely risk-free. One of the risk factors is that R&D teams are working in closed echo chambers or virtually in a submarine with a clear mandate but at times without feedback and comparison. Other obstacles to achieving a high ROI are the underestimated complexity of a problem environment or a customer benefit that is overestimated at the beginning."

**Dr Martin Forrer**

Senior Vice President Business Development, FISBA AG

**Fig. 6: Internal and external factors for achieving a high innovation ROI**



Source: Deloitte survey and qualitative interviews with experts

According to the experts, a successful innovation culture is characterised above all by a clear strategy and goals, a willingness to take risks/individual responsibility and an understanding of the market (see Figure 7). A successful strategy should include clear development goals and well-defined processes as well as allowing success to be monitored and corrected, with top management primarily providing support, maintaining an overview and only steering where necessary.

The culture of innovation should allow employees to take personal responsibility and not be afraid to experiment – and to sometimes fail. Great curiosity and constant questioning are necessary. The freedom to try out new ideas and accept and learn from failure is a key feature of a successful innovation culture in the eyes of the majority of the experts consulted. However, assuming responsibility, showing initiative and taking calculated risks in connection with innovation are often still a challenge in the day-to-day operation of many companies.

"Innovations may be scrapped owing to a small customer base, unmet customer needs, high cost structures or technological problems. That's why, at the outset, it's important to focus not only on customers, but also on future megatrends and technological developments when developing ideas."

**Rolf Nussbaumer**  
Chief Technical Officer, Schurter

**Fig. 7: Key characteristics of a successful innovation culture**



Source: Deloitte survey and qualitative interviews with experts

"The most important factors in achieving a high ROI are personal responsibility, proximity to implementation and – in the late phase of the innovation process – bridging the so-called 'valley of death' to the finished product and serial implementation with customers."

**Dr Martin Forrer**  
Senior Vice President Business Development, FISBA AG

Another key feature is a close exchange with the market (market understanding) as well as the focus on and connection with customers and important suppliers. In addition to market observation, trade fairs or customer visits, further important sources can include the analysis of general megatrends or new technological developments. The success factor of "proximity to implementation", in particular, is about anticipating future customer needs and understanding how customers use existing products in order to offer new functions, solutions or services for existing problems.

In order to achieve a high innovation ROI via the customer benefit factor, the majority of the experts consulted focus primarily on increased efficiency, lower costs, better quality and also greater sustainability. The ideas of sustainability and circularity are incorporated much earlier in the innovation process, i.e. the circular economy of new products is increasingly taken into account as early as the research and development stage. Secondly, greater performance, better functionality and greater reliability are seen as important customer benefits.

In order to keep a finger on the pulse of the market, focus on the customer's well-being and unlock new opportunities, open communication between development, production and sales is also required. However, this is not always the case. Another difficulty for many Swiss tech companies – suppliers especially – is that there are different types of customers, i.e. actual customers (e.g. other machine manufacturers, distributors/dealers), but also their end customers. Sometimes the benefit for customers is not the same as for end customers – or companies have so many customers ("tens of thousands") that it is impossible to take them all into consideration.

It is also difficult to predict what the customer will need in two years' time. In order to generate important added value for customers and develop new customised applications, the "pain points" should be formulated together with the customer. This is often easier with incremental innovations or improvement innovations than with radical innovations or new ideas/product solutions.

"An important element of a good innovation culture is experimentation, i.e. simply trying out many approaches and setting off without having a clearly defined, marketable product in mind. Only over time can options be recognised that are worth developing. In this regard, close collaboration between developers and employees from production and sales is also important."

**Rolf Nussbaumer**  
Chief Technical Officer, Schurter

**Greater sustainability**      **Greater reliability**  
**Increased efficiency**  
**Customer benefits**  
**Lower costs**      **Better functionality**  
**Better performance**      **Greater user-friendliness**  
**Better quality**

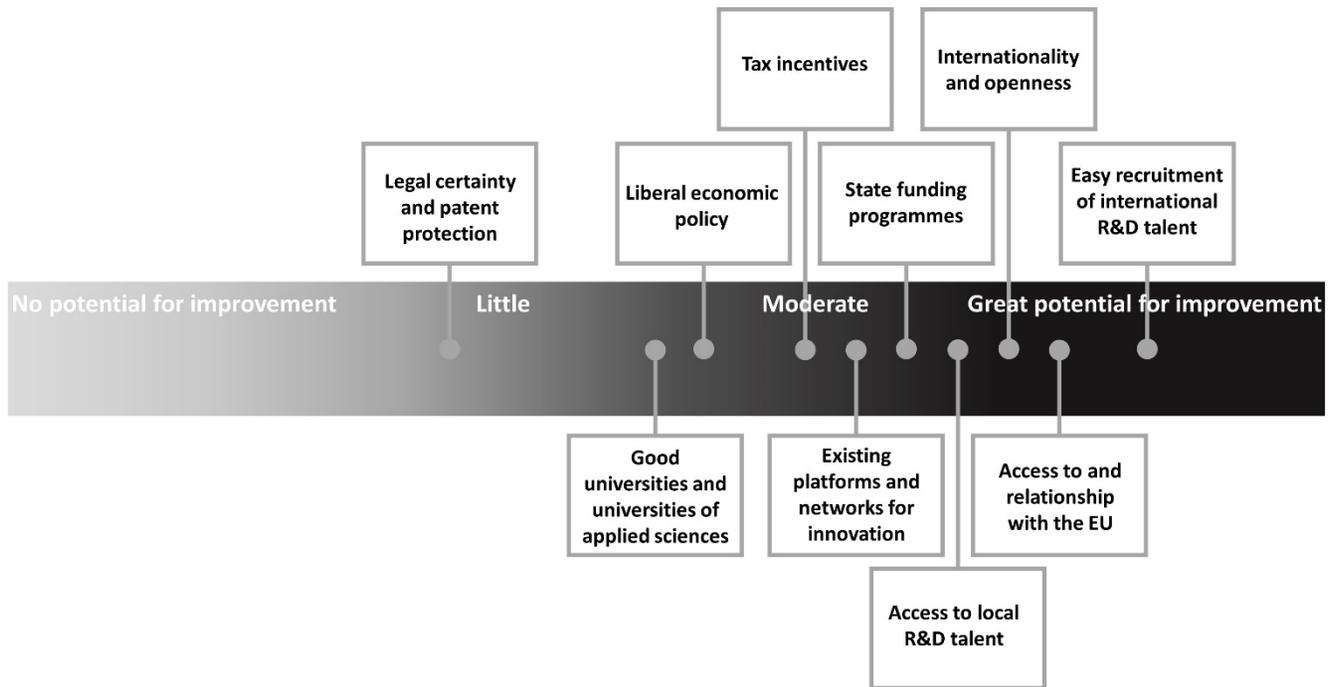
"Customer proximity is an important key to innovation success. Collaboration works best with customers who put their cards on the table. 'Pain points' can be formulated from the customer's perspective and real added value can be created. That's why it's important to build good relationships with customers and maintain these networks."

**Dr Stephan Scholze**  
Chief Technology Officer, Agathon AG

## Role of Switzerland as a location

Overall, the general conditions and location factors in Switzerland play a secondary role in the achievement of a high innovation ROI by Swiss tech companies. According to the experts consulted, many factors are fundamentally positive (e.g. political stability, legal certainty, financing options, quality of universities of applied sciences and ecosystem) and the fact that production takes place in Switzerland (e.g. Swiss Made) is also proving to be a major advantage. However, there is some potential for improvement with individual factors that could contribute even more to the success of innovations in the future (see Figure 8).

**Fig. 8: Potential for improving Swiss location factors in relation to innovation success**



Source: Deloitte survey and qualitative interviews with experts

"Innovation starts with the mindset. Questioning the status quo should be a given for all employees in a company. In the tech industry, we need to start with education. People should learn to question more rather than just memorising facts – that kills innovation. In addition, real innovation comes from interdisciplinary exchange and collaboration between the different departments of a company – engineering, production, application and digitalisation. Innovation can't be delegated to the R&D team."

**Dr Tobias Moser**  
CEO and Co-Owner, FISCHER Spindle Group AG

It should be noted, however, that this problem is less of an issue for the large global companies in the Swiss tech industry than for SMEs or so-called hidden champions and niche players, which inevitably have to adapt to the existing structures in Switzerland, as they have less access to a global innovation network.

There is great potential for improvement, particularly in the areas of talent and training, i.e. the easy recruitment of international R&D talent and access to local R&D specialists with the right innovation mentality. This also includes, for example, simplifying access to skilled labour, particularly from third countries, and enabling university graduates from third countries to work on an equal footing, without granting priority to nationals.

There is also room for improvement in the area of internationality and openness of research, particularly with regard to SMEs. A general improvement in relations with the EU and an association with Horizon Europe would be welcome developments.

Switzerland is also increasingly being challenged in terms of tax burden, i.e. by other countries such as Singapore that are much more attractive as research locations. The experts consulted see lower R&D costs, better availability of R&D talent and support for foreign production and sales in new markets as the main motives for Swiss tech companies to expand or establish R&D activities in foreign locations. Other motives for relocation include proximity to leading universities or R&D institutes, proximity to innovative companies (networks) and access to new technologies.

"Switzerland is characterised by a good ecosystem for innovation. With the Federal Institutes of Technology, universities, universities of applied sciences and the vocational training system, outstanding specialists for theory and practice can be found. However, there is room for improvement in research collaboration as mechanical engineering is increasingly seen as a 'commodity' in academia and therefore attracts less interest than other high-tech sectors. The international dimension of SMEs in matters of research could also be improved."

**Dr Stephan Scholze**  
Chief Technology Officer, Agathon AG

# Four takeaways for a high innovation ROI

## 1. Customer focus and integration are success factors

The pressure to innovate is very intense and innovation cycles are getting shorter and shorter. In the past, new product innovations were only used by customers once they had been finalised and launched on the market. In order to be successful in the future, new product innovations must be implemented even more closely with customers with the aim of scaling them up. The initial focus is not necessarily on perfection or quality. Sometimes the customer simply wants a "minimal viable product", i.e. an initial functional version of a product that can be manufactured quickly and has the most important core functions. Customer feedback then makes it possible to continue developing this minimal version until a fully-fledged new product or service has been created. Many Swiss tech companies are still not local enough and should get closer to their customers. Employees should regularly obtain feedback, learn from customer insights and develop new ideas.

Customer feedback is still used far too little in R&D. Open innovation and crowd innovation could be used to a greater extent for development processes in order to increase the ROI of innovations. It is not only important to increase dialogue between employees in research, production and sales, but also with suppliers and customers/end customers, i.e. all stakeholders.

## 2. Successful innovation cultures provide freedom and allow for mistakes

Successful innovation cultures enable employees to contribute new ideas and take on responsibility. Flat hierarchies, mutual appreciation, open communication and opportunities for skills development and the pursuit of ideas by researchers are important in this regard. The freedom created for personal projects relating to new innovative products/services can contribute substantially to increasing innovation ROI within companies. There also needs to be a stronger culture of risk-taking (error culture) than currently exists in the Swiss tech industry. The innovation environment should enable employees to take calculated risks, experiment more and try out new ideas – and sometimes to fail and learn from their mistakes. The willingness to take risks is likely to accelerate with the generational change.

What is also needed is a more entrepreneurial and risk-taking mindset and a willingness to embrace open innovation and focus not only on incremental but also on breakthrough innovations. Switzerland is not necessarily known for taking risks or "failing" at innovation. The Swiss focus on innovation tends to favour reliability, precision and high quality. However, top management and R&D staff should be encouraged to take more risks and learn from mistakes. Many important innovations have emerged from an initial failure.

### 3. Talent must be sustainably promoted and networks expanded

R&D and innovation need good people with the right skills. Although Switzerland has world-class universities (ETH, EPFL), it does not produce enough top talent. It is therefore necessary to recruit and retain additional R&D talent from abroad. Switzerland is still able to attract top talent and companies, as ETH and EPFL have a globally recognised reputation, especially in the fields of robotics, industrial automation and artificial intelligence (AI), and they foster a lively start-up culture. Examples include the long-standing presence of IBM, which has operated a research centre in Switzerland since 1956, the opening of Google's largest R&D site outside the US in 2016 and the announcement by Boston Dynamics that it will also open a research centre for AI in Zurich next year. However, as research is heavily dependent on individual bright minds, it is important to prevent these top talents from leaving or switching to more attractive industries (e.g. high-tech or financial services), as their ideas will be lost along with them. However, modern manufacturing companies are far more than just manufacturers of machines – they produce innovative technological solutions for energy, mobility and environmental problems. The Swiss tech industry must emphasise this attractiveness more strongly and maintain its external networks with talent pools into the future in order to achieve a high innovation ROI.

The relationship with associations and funding institutions as well as stronger international research cooperation with Europe and the rest of the world is also important. This should be promoted further, especially for SMEs. New technologies are complex and dynamic and subject to regulatory or country-specific factors, so it seems impossible today to pursue innovation alone. In addition to maintaining external networks and integration into the ecosystem, internal collaboration must also be strengthened. Successful innovation is often based on greater sharing of ideas and knowledge between departments or cross-functional teams in connection with projects. Stronger cooperation and collaborative approaches help to break down silos that inhibit innovation. It is important that R&D, production and sales work more closely together right from the start of the idea phase in a mutually open innovation culture.

### 4. Less is often more and not everything needs to be measured

The saying "less is more" also applies to companies when it comes to innovation. A pragmatic approach and a focus on the essentials often achieve a higher innovation ROI. This is particularly important in the face of tougher global competition and increased pressure to innovate. It is often forgotten that looking for the simplest possible solutions to a problem ("keep it simple and stupid") can be much more successful in terms of ROI than investing a lot of time and resources in developing highly complex new products or services. Moreover, if as much as possible can be achieved with relatively few resources at the beginning, more resources will be available in the implementation phase.

Things can also move faster by replacing rigid, linear processes with more agile, iterative ones. Techniques such as Scrum, Design Thinking and Lean Startup can help to adapt to rapidly changing environments in which circumstances, customer needs or competitive landscapes are constantly evolving. It is also important not to always try to measure everything because micromanagement often inhibits innovation. There are certain hard factors in the innovation process that can be measured – but there are also many soft factors that are practically impossible to measure or cannot be measured in a meaningful way, but nevertheless contribute to the success of innovations.

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