



# Global **Industry** Competitiveness Index 2021

Results  
for the chemical and  
pharmaceutical  
industry

**Executive Summary**

November 2021

**Published by**

BAK Economics AG

**Contact**

Klaus Jank

Project Management

Tel.: +41 (0)61 279 9724

klaus.jank@bak-economics.com

Michael Grass

Member of the Executive Board

Head of Sector Analysis

Phone +41 (0)61 279 97 23

michael.grass@bak-economics.com

**Address**

BAK Economics AG

Güterstrasse 82

CH-4053 Basel

Phone +41 (0)61 279 97 00

info@bak-economics.com

www.bak-economics.com

In this publication persons are described by the masculine but stand for the masculine and feminine form.

**Images**

iStock

**Copyright**

The entire content of this publication, especially text and graphics, are protected by copyright. The copyright is held by BAK Economics AG. The study may be quoted citing the source ("Source: BAK Economics").

Copyright © 2021 by BAK Economics AG

All rights reserved

# Editorial

How competitive are our members in the chemical, pharmaceutical and life sciences industries? The answer can be found in this year's Global Industry Competitiveness Index: Switzerland is a world leader and, together with Ireland, ranks second behind the USA.

This top ranking is the result of attractive location conditions and the high-level performance of our research-intensive industries, particularly in terms of their capabilities as well as innovation and technological leadership.

However, to ensure that Switzerland's largest export industry can continue to hold its own in Switzerland, digital transformation needs to be a success. The Digital Readiness Index shows that Switzerland still has room for improvement, especially with respect to the availability of healthcare data and the political framework.

One example of this is access to Horizon Europe, which needs to be restored following the standstill on the institutional framework agreement. This is the only way for companies to continue pursuing joint research projects with Europe. Research is the lifeblood of progress, after all. Since technology bans are the wrong way to respond to the challenges that lie ahead of us, the extreme initiative to ban animal and human experiments, which would result in a de facto ban on research, should also be categorically rejected next year.

What's more, scienceindustries is and always will be committed to ensuring that innovation is promoted and not obstructed, because research is the only way for all of us to advance!

Zurich, November 2021

A handwritten signature in blue ink, appearing to read 'M. Leuenberger', written in a cursive style.

Dr. Matthias Leuenberger  
Chairman scienceindustries



# Executive Summary

## Swiss chemical and pharmaceutical industry stands out for its first-rate competitiveness

The Swiss chemical and pharmaceutical industry is pivotal to the country's growth and prosperity. Its very high international competitiveness has allowed it to benefit considerably from favourable global demand trends over the last ten years, making it the main growth engine of the Swiss economy.

The «Global Industry Competitiveness Index » (GICI), a worldwide comparison of locations for the chemical and pharmaceutical industry, also attests to the country's high level of competitiveness. Switzerland took second place, like in 2020, and tied with the USA. Ireland enjoys a very slight lead and is currently the most competitive location according to the GICI. Trailing behind those top three countries by a fairly large margin are Denmark, the Netherlands, Sweden and Singapore. China improved greatly compared with the GICI 2020 and is now in 8th place.

The Swiss chemical and pharmaceutical industry is highly competitive, something not only evidenced by its successful performance and capability, but also the sector's strength in innovation: Swiss companies invest successfully in research and new product development. By doing this, they lay the foundation for their ability to hold their own against the global competition in future. And this is essential, since competition is increasing sharply, particularly in the area of innovation.

Digital transformation is one key factor that will determine whether the future research hub is a success. Our analysis, however, indicates that this is an area where Switzerland still has potential for improvement.

### Global Competitiveness Index 2021

#### Chemical and pharmaceutical industry



Index 100 = Country average

Source: BAK Economics

## Motivation

Global competitiveness is essential for the success of the chemical and pharmaceutical industry and the contribution it makes to overall economic growth. But how can this competitiveness be measured? While most approaches focus on the competitiveness of economies as a whole, the sectors in an economy are not actually subject to global competition to the same degree – in fact, some companies do not even compete globally at all.

At the same time, the growth of the overall economy and the prosperity of all depend very heavily in the long term on how successfully export-oriented companies are able to hold their own in global markets. Switzerland – as a small, open economy – is particularly dependent on this success.

BAK Economics developed the «Global Industry Competitiveness Index» (GICI) to take those aspects into account. The GICI does not focus on the whole economy, but on Switzerland's key export-oriented industries. We published the GICI for the chemical and pharmaceutical industry for the first time last year.

What is the purpose of the GICI? The GICI can carve out strengths and weaknesses and identify any corresponding need for action. The annual monitoring helps determine where Switzerland as a location has improved compared with the global competition and identify aspects where the country has lost ground.

We use a special assessment called the «Digital Readiness Index» to take a more in-depth look at the topic of digitalisation; this is presented as an aside. The index consolidates any digitalisation-related information in the GICI indicator pool into one synthetic index. That index indicates the country's general level of digital competitiveness, the framework conditions and the status of digitalisation in the healthcare system as well as the level of digital penetration in the area of chemical and pharmaceutical research and development.

The «Digital Readiness Index» serves to closely examine the topic of digitalisation on an individual basis, thus taking into account the fact that links to digital technologies are considered a vital success factor in many fields of research. Because going forward, the success of Switzerland as a research, development and production location will hinge in part on how the opportunities offered by digital transformation can be leveraged in the area of research and development.

## How did we measure «Competitiveness»?

The « Global Industry Competitiveness» Index is based on a set of 25 indicators for performance, market position and capability, innovation and technological leadership as well as for location quality.

### Performance

“How competitive was the sector in recent years?”

#### Indicators

- 1 = Growth in value added
- 2 = Growth in productivity



### Market position and capability

“How well is the sector currently positioned?”

- 3 = Share of global sector value added
- 4 = Productivity level



Results-oriented indicators

### Innovation and technological leadership

“What is the sector doing today for future competitiveness?”

- 5 = R&D spend per employee
- 6 = R&D spend/value added
- 7 = R&D positions per employee
- 8 = Top patents per employee
- 9 = Digital penetration of R&D
- 10 = Positioning in the global digitalised research landscape



Determinant-oriented indicators

### Location quality

“How good are the location’s current framework conditions?”

- 11 = Traffic infrastructure
  - 12 = Financial system
  - 13 = Technological environment (or digitalisation)
  - 14 = Availability of data in the healthcare system
- Infrastructure

- 15 = Macroeconomic stability
  - 16 = Political stability
- Stability

- 17 = Innovative environment
  - 18 = General level of education
  - 19 = Knowledge base (digit.)
  - 20 = Readiness for digit. transformation
- Business momentum and skills

- 21 = Product market regulation
  - 22 = Labour market regulation
  - 23 = Regulatory framework conditions for digitalisation of the healthcare system
- Market access and regulation

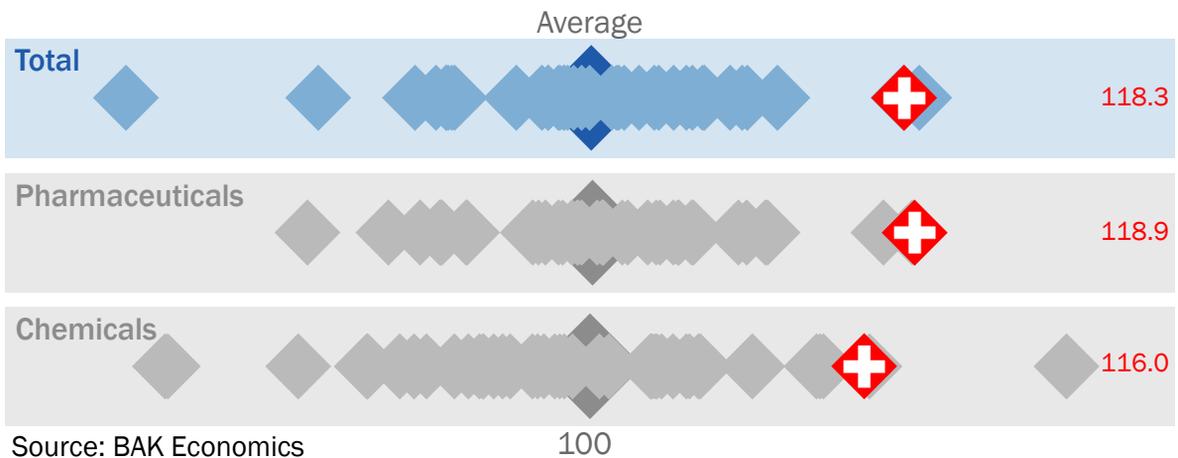
- 24 = Taxation of corporations
  - 25 = Taxation of qualified employees
- Tax burden

# 2021 results: Overview

The overall index is made up of the indices of the chemical and pharmaceutical industry on a pro rata basis. To establish a basis of comparison that is suitable from a Swiss perspective, the structure of the chemical and pharmaceutical industry in Switzerland is used for all countries to produce a weighted aggregation of both indices. The share of value added of both sectors in Switzerland is used when calculating the weightings (pharmaceutical = 80%, chemical = 20%).

Switzerland can boast top-ranking positions in the CIGI for both sectors, making it one of the world's most highly competitive nations when compared with the other major production locations.

## Global Industry Competitiveness Index 2021



### Peer Group

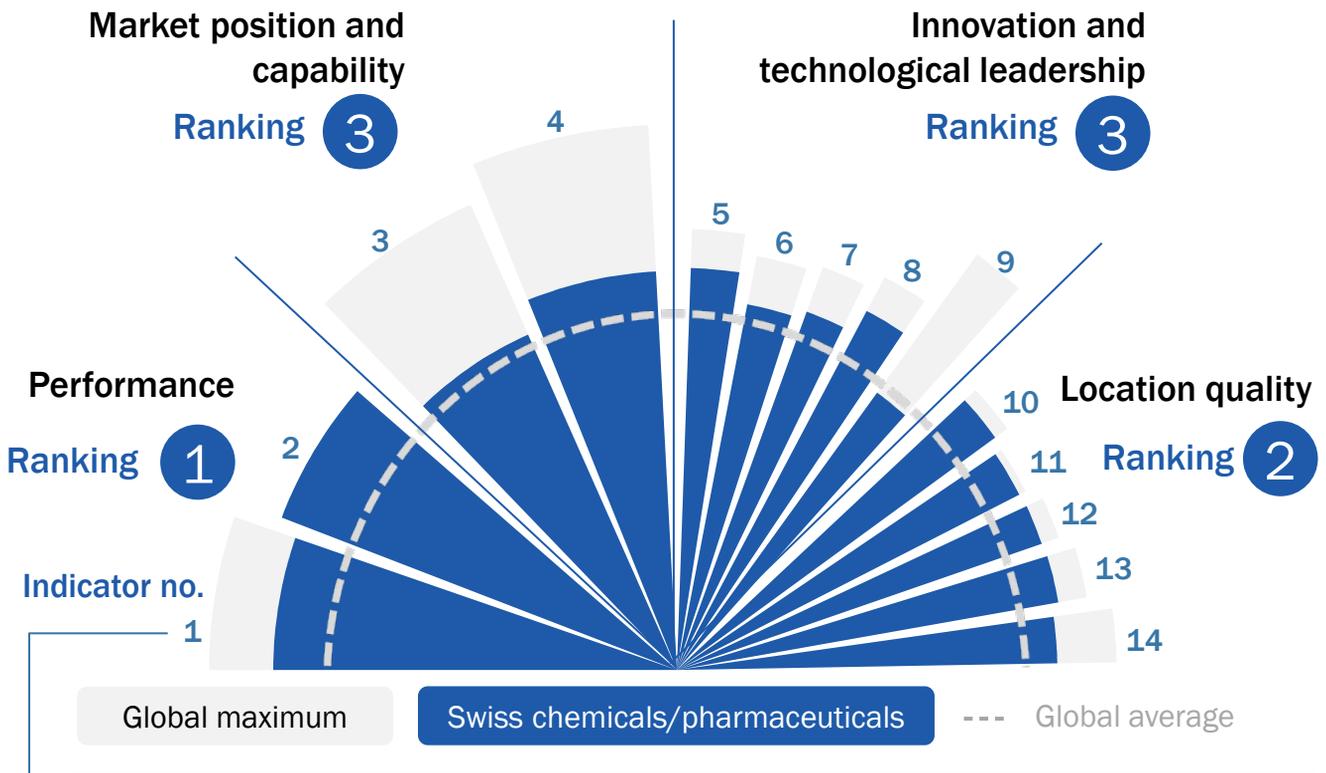
The peer group of countries consists of the 43 nations with the greatest gross value added globally in the chemical and pharmaceutical industry.



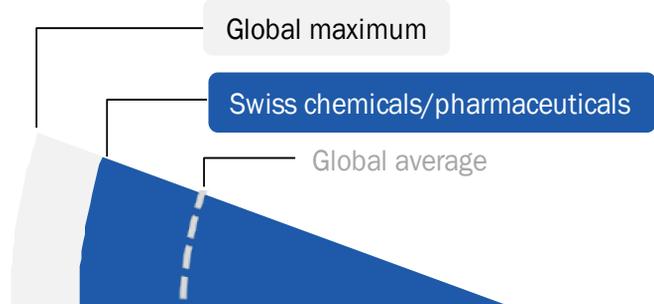
## Strengths and weaknesses of the Swiss chemical and pharmaceutical sector

The Swiss chemical and pharmaceutical industry ranks among the top 3 in all four categories, which reveals an extremely well-balanced profile. Its biggest competitive advantages are evident in its strong performance and high level of location quality. Switzerland is also a global leader in terms of its market position and capability as well as its innovation and technological leadership.

**The Swiss chemical and pharmaceutical sector shows no weaknesses and lands among the top 3 in all four categories**



- 1 = Growth in value added
- 2 = Growth in productivity
- 3 = Share of value added
- 4 = Labour productivity
- 5 = R&D spend per employee
- 6 = R&D spend/value added
- 7 = R&D positions per employee
- 8 = Top patents per employee
- 9 = Digital penetration of capacity for innovation
- 10 = Infrastructure
- 11 = Stability, 12 = Business momentum and skills
- 13 = Market access and regulation
- 14 = Tax burden

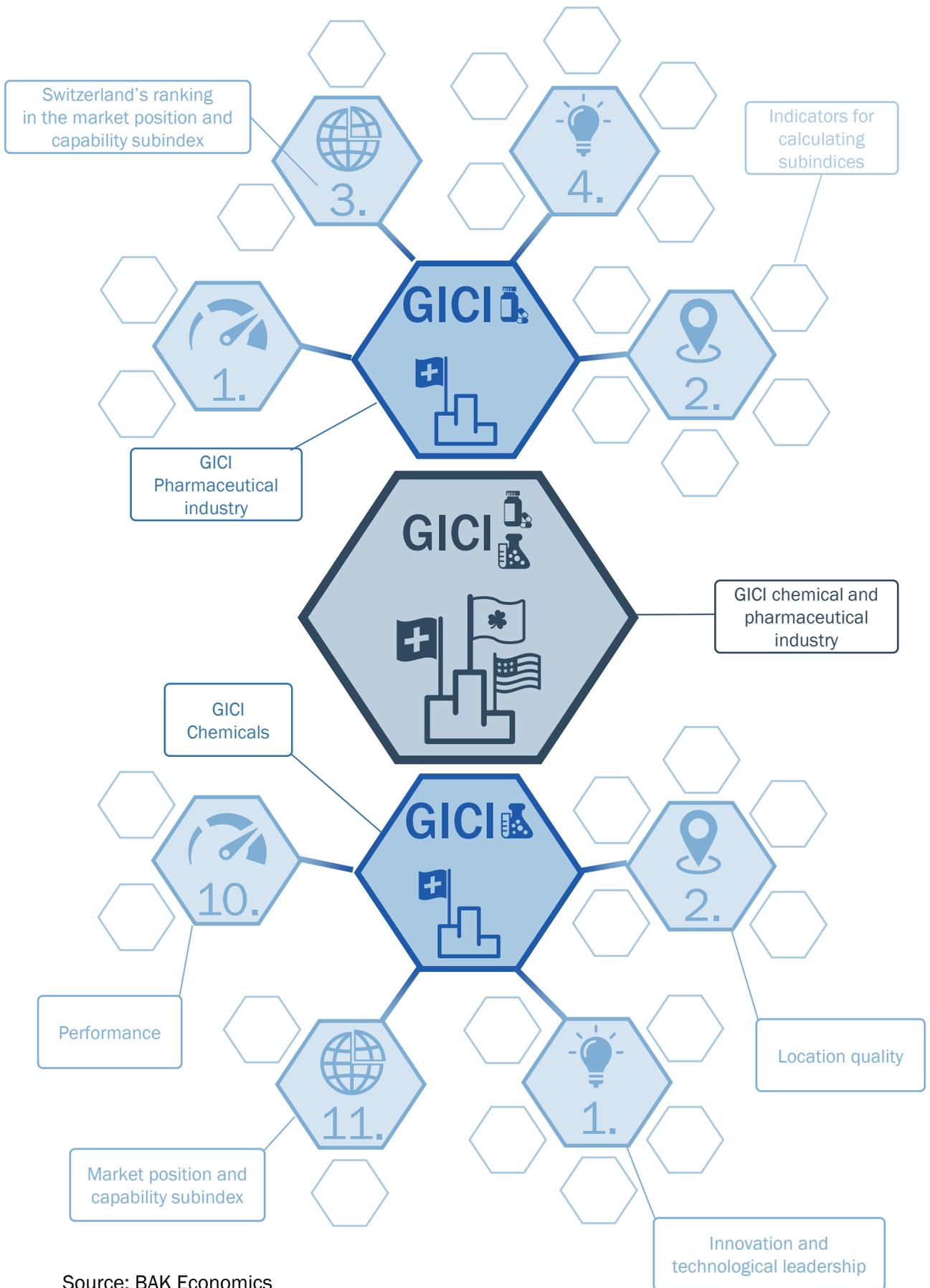


**Where Swiss GICI components stand compared to other countries around the globe**

Source: BAK Economics

# Global Industry Competitiveness Index 2021

## Chemical and pharmaceutical industry



# Information

## scienceINDUSTRIES

S W I T Z E R L A N D

### Business Association Chemistry Pharma Life Sciences

scienceindustries is firmly committed to the promotion of an innovation-friendly environment for the companies that belong to it. Founded in 1882, it currently has around 250 members. The largest Swiss research and export industry employs more than 77,000 people, 12,000 of which are highly qualified employees working in research. Another 250,000 employees in other sectors are also linked to the economic activity of the chemical, pharmaceutical and life sciences industries.



BAK Economics AG (BAK) is an independent Swiss economic research and consultancy institute. Founded as a spin-off from the University of Basel, BAK has stood for the combination of scientifically based empirical analysis and practical implementation since 1980.

The research focuses of BAK include economic analyses of life sciences and other key sectors of the Swiss economy. BAK has developed a broad range of instruments for this, among them global benchmarking of regional industry clusters.

In addition to traditional economic research, BAK also offer various economic advisory services for companies. The broad infrastructure of models and analyses serves as a starting point for in-depth analyses of company-specific issues and developing planning and strategy solutions.

BAK has offices in Basel, Berne, Lugano and Zurich.

**BAK Economics - economic intelligence since 1980**

**[www.bak-economics.com](http://www.bak-economics.com)**