

Periodic Assessment of Research, Development, Artistic and Other Creative Activities VER 2026

Final Report of the Chemical Sciences Sub-panel

Key findings

Overall it was clear that the Chemical Sciences in Slovakia are in strong shape. The sub-panel reviewed outputs, creative environments and social impact case studies across the breadth of the Chemical Sciences, and found that there was high quality work taking place across the field. We would like to congratulate the researchers delivering this excellent work, and also the leadership teams in the submitting institutions for putting together the submissions in a manner which made the sub-panel's work straightforward and pleasurable.

Outputs

We reviewed a total of 249 outputs across 10 submissions. The subject matter addressed varied widely from fundamental organic synthesis through inorganic and physical chemistry to theoretical chemistry and chemical engineering. The quality of the outputs was generally high, and more than half the outputs were scored as 1 (World leading) or 2 (Internationally excellent). A breakdown of the ratings is as follows:

Rating	# of outputs	% of outputs
1	28	11
2	155	62
3	63	25
4	2	1
5	0	0

Few outputs were rated at 4, but those that were received this grade because the sub-panel felt that there was minimal novelty and/or no impact outside of Slovakia. In contrast, outputs rated as 1 were those where the sub-panel could see that there was a very high level of novelty and the potential (or actuality) of extensive impact on the research community in terms of offering new insights or potential applications. Such outputs demonstrated considerable visibility and influence within the field, and it was clear to the sub-panel that there was a paradigm shift over the state of the art. Outputs rated at 2 or 3 fell somewhere between those extremes, with those scoring 2 less novel/impactful than outputs given 1 but more than those awarded 3. In general, outputs scored at 3 were felt to be more incremental (yet solid and scientifically rigorous) work – publications where, for instance, new materials were reported but these were similar to others that had been prepared in the past.

Overall the submissions of outputs were clear and well organised. There were some cases identified however where the wrong file had been uploaded.

Creative environments

The creative environments submissions varied widely between institutions. A summary of the scores awarded is as follows:

Criterion	Number of environments given score of				
	1	2	3	4	5
Strategic Direction & Profiling	7	1	2	0	0
Workplace Conditions	4	4	1	1	0
Degree of Collaboration	6	3	0	1	0
Overall Sustainability	5	2	2	1	0

The strongest submissions outlined a clear strategic direction and vision for the future with suitable breadth and focal points. Objectives and milestones where stated helped the sub-panel to understand the planned rate of change. High workplace conditions scores were given to institutions which presented strong evidence of how staff are supported to grow and progress. For instance, we paid attention to postdoctoral career development, and long-term employment strategies. We looked in particular for plans to deal with gender and other protected characteristic imbalances. Some Slovak institutes implement targeted, well-resourced strategies to enhance their attractiveness and visibility among leading global research talent, while others we felt could do more to that end. The infrastructure and facilities available were also considered: in the main, we found that researchers in all submitting institutions had good access to state-of-the-art facilities.

In terms of collaboration, the sub-panel particularly appreciated collaboration outside academia and outside Slovakia; submissions where it was evident that researchers were working with industry and internationally thus scored more highly than those where collaboration appeared to be limited to Slovak colleagues. We noted some strong examples of good practice where researchers were actively encouraged to spend time abroad as part of their career planning.

In terms of sustainability, the sub-panel looked at partnerships and the funding mix. Where there was good evidence of a broad funding base, we awarded higher scores than those submissions which showed very heavy reliance on a single (usually state) funder. The strongest applications showed the ability to attract funds from Slovak government, industry and international (e.g. EU) sources. It was appreciated that several institutes, despite having a relatively small number of permanent staff, demonstrated a strong level of initiative by submitting numerous grant proposals. Even though some applications were not successful, this reflects a proactive approach to participating in competitive funding schemes.

Strong submissions gave clear evidence to support the statements made. In contrast, weaker submissions were vague in their language and/or did not clearly articulate the underpinning evidence to support their environment. In some instances, the submissions seemed to have been prepared with less attention than expected, and the sub-panel encourages all submitting institutions to devote appropriate care to their preparations. We would like to note that this applies to a small number of submissions however, and most were prepared at standards typical for similar research quality exercises conducted internationally.

Social impact case studies

A wide range of different case studies was presented. Many of these were excellent, with a clear link between research and societal or industrial impact. The best case studies traced a clear path from fundamental lab research to a change in an industrial process, a new product, or a new analytical technique, with strong supporting evidence presented to link the research to impact in the VER 2026 timeframe. The sub-panel gave lower scores where it was not clear that the real-world impact had already happened (e.g. where research was leading companies to *consider* a change/new product but had not yet enacted it). We also scored lower where the evidence of impact was limited, and/or when it was not obvious to us that the impact had happened during the VER 2026 assessment period. Examples of evidence that was convincing to the sub-panel included international patents, spin-out companies, letters of support from partners, or clinical trials.

The sub-panel also recognised some excellent case studies in terms of outreach and educational impact, where activities building on chemical sciences research had led to demonstrable educational benefits outside the university or research institute environment.

There were however several such submissions where the evidence of impact was relatively weak and/or there was a lack of demonstrable connection between the impact and the original research carried out at the institute, and these scored lower.

We noted that some submitting institutions did not include a case study, and in other cases some of the case studies were unexpectedly weak: there were several instances where institutions with clearly strong underlying research portfolios had submitted case studies which we felt undersold their capabilities.

A summary of the overall scores given is as follows:

Criterion	% of case studies awarded score of				
	1	2	3	4	5
Application potential of underpinning research	77	8	15	0	0
Degree of social impact	62	38	0	0	0
Link between underpinning research and social impact	69	23	8	0	0
Quality of evidence of social impact	38	38	8	8	8

Final comments

The sub-panel would like to congratulate the Slovak chemical sciences research community on their achievements. It is clear that there is excellent work being carried out across the country, and that this is leading to real world impacts in terms of new products, improved industrial process, and the education of young people and the public. We enjoyed learning about the research environment and reading your outputs, and overall felt that the portfolio of research is strong compared to international norms.

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