



Audit Report

21/30

State budget funds earmarked for targeted support of industrial research, development and innovation as part of national programmes under the responsibility of the Ministry of Industry and Trade

The audit was included in the audit plan of the Supreme Audit Office (hereinafter the “SAO”) for 2021 under number 21/30. The audit was headed, and the Audit Report was drawn up by SAO member Mr Jan Kinšt.

The aim of the audit was to verify whether the funds earmarked for targeted support of industrial research, experimental development and innovation from the national programmes of the Ministry of Industry and Trade are provided and drawn effectively and efficiently.

Audited entities:

Ministry of Industry and Trade (hereinafter the “MoIT”);

Technology Agency of the Czech Republic, Prague (hereinafter the “TA CR”);

selected beneficiaries: STRIX Chomutov, a.s.; MEDIUM INTERNATIONAL I. s.r.o., Most; VVV MOST spol. s r.o.; ŠMT a.s., Plzeň; CZECH PRECISION FORGE a.s., Plzeň; TGS nástroje-stroje-technologické služby spol. s r.o., Mýto; Zemědělské družstvo Rpety se sídlem ve Rpetech; EMBITRON s.r.o., Vocho; Integrated Micro-Electronics Czech Republic s.r.o., Třemošná; MECAS ESI s.r.o., Plzeň; ZKL, a.s., Brno; Ing. Vladimír Fišer, Mlýnská 388/68, Brno; DAKO Brno, spol. s r.o.; Czech Machines, s.r.o., Blansko; AMF Reece CR, s.r.o., Prostějov; HOPAX s.r.o., Červenka; SIGMA PUMPY HRANICE, s.r.o.; NAUPO s.r.o., Nezamyslice.

The audited period was from 2016 to 2021. For factual context, the period preceding the conclusion of the audit was considered as well.

The audit of the audited entities was carried out in the period from November 2021 to May 2022.

The Board of the SAO, at its 12th session held on 29 August 2022,

approved by Resolution No 7/XII/2022

the ***Audit Report*** as follows:

Targeted Support of Industrial Research, Experimental Development and Innovation from National Programmes of the MoIT



12 of 19 (63%)

The number of audited projects from the TRIO programme evaluated by the SAO as effective to a limited extent and efficient to a limited extent, or as ineffective and inefficient.

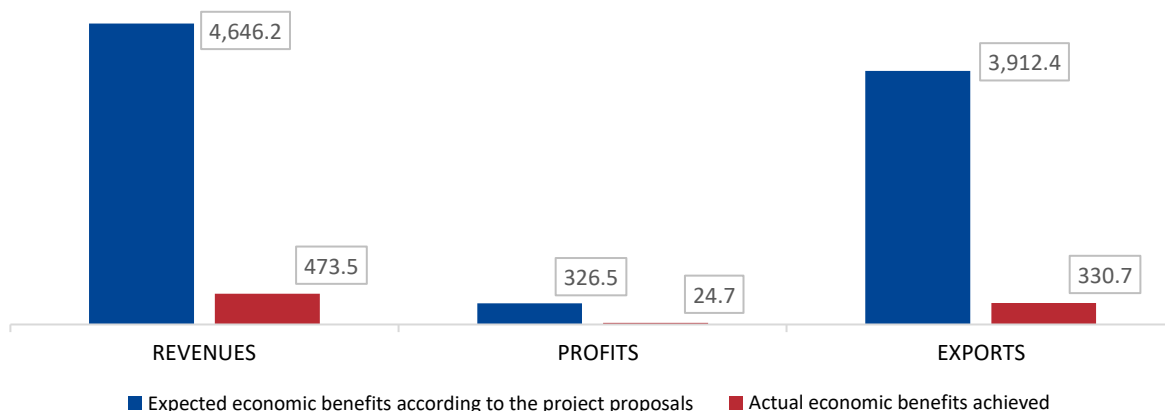
7.6%–10.2%

Proportions of actual economic benefits achieved to expected benefits for three indicators – examined on a sample of 19 audited projects from the TRIO programme (see chart below).

Up to CZK 4 thousand per hour

The MoIT did not evaluate the adequacy of the amount of personnel costs with respect to the project implementation in the TRIO programme, which increases the risk of uneconomical spending.

Comparison of expected and actual economic benefits achieved for the audited projects from the TRIO programme over two, or three, years since the completion of the projects (in CZK million)



Source: information obtained through audit; prepared by the SAO.

I. Summary and Evaluation

1.1 The SAO carried out an audit of the state funds provided for the targeted support of industrial research, experimental development and innovation from the TRIO, CFF and TREND national programmes under the responsibility of the MoIT, where the support is provided by the MoIT and TA CR. Between 2016 and 2022, the MoIT and TA CR provided a total of approximately CZK 9.9 billion on the allocated support from these programmes, with a total allocation of CZK 21.9 billion for the period of 2016–2027.

1.2 The aim of the audit was to verify whether the funds earmarked for targeted support of industrial research, experimental development and innovation from the national programmes of the Ministry of Industry and Trade are provided and drawn effectively and efficiently. The audited entities were the MoIT and TA CR as the providers of targeted support from state budget funds and 18 beneficiaries of support from the TRIO programme, where a total of 19¹ selected projects were audited. Projects from all three programmes were selected for the audit of the subsidy providers. A total of CZK 840.2 million was provided to the selected projects.

1.3 The SAO found shortcomings with the MoIT and the beneficiaries that reduce the effectiveness and efficiency of the funds provided and drawn for the targeted support of industrial research, experimental development and innovation.

The MoIT has not created the conditions for evaluating the achievement of the expected objectives and impacts of the TRIO programme, and therefore, will not be able to evaluate the effectiveness and efficiency of the support provided therefrom. The transparency of the system for the evaluation and selection of projects for support from the TRIO programme was reduced by the ambiguity of the rules for assigning scores to projects and the insufficient justification of project evaluation by the opponents. The MoIT did not effectively assess the adequacy of the amount of personnel costs for the project implementation. This increases the risk of wasteful spending of the state budget. This risk has manifested itself in the case of three audited projects.

1.4 Even though the audited projects from the TRIO programme mostly achieved their research and development results, in most cases, they did not lead to the expected economic benefits resulting from the implementation of the achieved results into practice. Mainly for this reason, the SAO evaluated over 63% of the audited projects as projects with only limited effectiveness and efficiency or as ineffective or inefficient. According to the SAO, there is a risk that the economic benefits of the TRIO programme in the amount exceeding CZK 100 billion in revenues, which the MoIT claimed in the interim report to the government in 2018, are unlikely to be achieved to a significant extent.

For the subsequent CFF and TREND programmes, the SAO found a number of persisting shortcomings in the system for the evaluation of the programme objectives and impacts and the project evaluation system for their selection for support, and therefore the risk of ineffective and inefficient use of funds.

¹ A total of 20 projects were selected for audit, but only 19 were audited by the SAO; one of the projects was not evaluated as the audit of the beneficiary could not be carried out.

1.5 This overall evaluation is based on the following main findings of the audit:

- a)** In the case of the TRIO programme, the MoIT did not create the conditions for the evaluation of effectiveness and efficiency of the support provided therefrom, as it did not set indicators that would measure and evaluate the benefits and achievement of the programme objectives, nor did it calculate the expected economic impacts in the CFF and TREND programmes. The MoIT has not yet prepared the specific procedures for the ex-post evaluation of the benefits and impacts of the TRIO programme. Moreover, the MoIT did not acquire the necessary data from all beneficiaries for such an evaluation (see para. 4.2–4.5 and para. 4.29–4.30).
- b)** According to the MoIT, a successful project is a project that achieves the objectives and results of research and development (e.g., the number of patents, utility models, industrial designs, prototypes, functional samples); however, it does not take into account whether it has also achieved the expected economic benefits resulting from the implementation of the results into practice. In the case of applied research and development projects, the SAO considers such an evaluation insufficient. However, the expected application of results into practice and the expected economic benefits of research were required as a part of the applicants' applications for support, and therefore, were also included in the MoIT's evaluation process for the selection of projects for support (see para. 4.6 and 4.7).
- c)** The transparency of the selection of projects from the TRIO programme was reduced by the ambiguity of the rules for the allocation of points in scored criteria and insufficient justification for the project evaluation by the opponents. The MoIT's project selection system did not prevent the possibility of granting support to inefficient projects. Projects that did not sufficiently demonstrate the ability to apply the results of research in practice were also selected for support. The MoIT did not specify the criteria for the adequacy of the personnel costs of projects, leaving their amount to be decided by the internal rules of the beneficiaries and thus failing to prevent the risk of wasteful expenditure. In the case of the CFF and TREND programmes, the project evaluation process remains ambiguous. In the case of the TREND programme, the risk of selecting inefficient projects persists (see para. 4.8–4.20 and para. 4.31–4.41).
- d)** The audited projects from the TRIO programme mostly achieved the expected research and development results, but most of them did not achieve the expected economic benefits. Out of the 19 projects audited, the SAO assessed the use of support funds as effective and efficient or with only slight shortcomings in seven projects. However, in the case of ten projects, it determined limited effectiveness and efficiency, and two projects were evaluated as completely ineffective, and therefore inefficient. These 12 projects evaluated with criticism amount to more than 63% of the audited projects (see para. 4.21, 4.27 and 4.28).
- e)** In its interim report to the Government of the Czech Republic on the implementation of the TRIO programme from December 2018, the MoIT estimated the economic benefits of the programme in terms of revenues achieved due to support at more than CZK 100 billion. Based on the interim data on actual benefits to date for a sample of audited projects, the SAO identified a risk that such an amount is unlikely to be achieved to a significant extent. Based on the sample of audited projects, the SAO also determined that the ongoing values achieved in the case of realised profits and exports were far below the expected figures (see para. 4.23–4.25).

f) In two cases, the SAO found shortcomings in the audited projects that were not detected by the MoIT during the substantive controls. The MoIT and TA CR do not require the beneficiaries to submit accounting documents proving the actual costs of the project in the annual report on project implementation. For the audited programmes, the MoIT and TA CR verify the eligibility of project costs only in retrospect during on-site financial audits, however, only for a sample of projects. Such a manner of auditing leads to the risk of reimbursement of ineligible expenditures for projects that have not undergone on-site audits (see para. 4.26, 4.42 and 4.43).

1.6 Based on the results of the audit, the SAO recommends the Ministry of Industry and Trade, in cooperation with the Technology Agency of the Czech Republic, to take measures to increase the effectiveness and efficiency of the funds used for the targeted support of industrial research, experimental development and innovation from the ongoing CFF and TREND programmes, in particular:

- a) For the purposes of assessing project proposals, to establish clear rules for the opponents to assign scores for the individual criteria, and consistently require the opponents to provide due justification for the evaluation of proposals and scores assigned to the evaluated criteria.
- b) When assessing project proposals, to rigorously evaluate the realistic projections of the application of the results of research in practice and the resulting expected economic benefits.
- c) To set exclusion criteria, or scoring criteria, for the evaluation of project proposals so that proposals with insufficiently conclusive projections of application of the results of research in practice and the resulting expected economic benefits, as well as projects with low expected economic benefits in comparison with the amount of support requested, are excluded from support.
- d) As a part of the evaluation of project proposals, to rigorously assess the justification of the number of individual items of project implementation costs, in particular, the personnel costs, as they represent a significant portion of the total costs of supported projects.
- e) To evaluate the effectiveness and efficiency of the state budget funds used for the supported project and the programme as a whole not only on the basis of achieving the results of research but also in terms of the fulfilment of the expected economic benefits of the projects based on regular annual reports provided by the beneficiaries after the completion of the project. To conduct such evaluations in the course of the programmes.

II. Information on the Audited Area

2.1 Applied research, according to the Organisation for Economic Co-Operation and Development (OECD), means experimental and theoretical work aimed at gaining new knowledge, however, clearly focused on specific previously defined application objectives. Technical innovation means technological and product innovation consisting of the introduction of new products and technologies and substantial improvements to the products

manufactured and technologies used². The basic legal framework for the provision of support for research, development and innovation from public funds in the Czech Republic is set out in Act No 130/2002 Coll.³

2.2 The Ministry of Industry and Trade is the central state administration authority for, among other things, industrial research and development of technology. The MoIT is also the provider, or the coordinator of support, for three research programmes, namely:

- In the TRIO applied research and experimental development programme (hereinafter the “TRIO Programme”), the MoIT provides support from its budget chapter⁴,
- In *The Country for the Future* research, development and innovation programme (hereinafter the “CFF Programme”), the MoIT provides support from its budget chapter,
- In the TREND industrial research and experimental development support programme (hereinafter the “TREND Programme”), the MoIT acts as a coordinator which determines the focus of the programme, conditions of support and public tenders and ensures the evaluation of the programme; the support is provided by the TA CR from its budget chapter⁵.

2.3 The Technology Agency of the Czech Republic is an organisational unit of the state, and it manages the targeted and institutional funds allocated by the Act on the state budget of the Czech Republic independently. The main task and focus of the TA CR is to prepare and implement programmes of applied research, experimental development and innovation, including the implementation of the TREND Programme. The parameters of cooperation between the MoIT and TA CR in the implementation of the TREND Programme are stipulated by Government Resolution No 202 dated 25 March 2019⁶.

TRIO Programme

2.4 The objective of the TRIO Programme, which is planned to be implemented between 2016 and 2022, is, among other things, to increase the business applicability of results of research and development, increase the productivity and efficiency of research activities in enterprises (in particular, in the SMEs) and research organisations. The programme has the further goal of strengthening the sustainability of economic development and growth,

² Adapted from the Oslo Manual – OECD (Guidelines for Collecting, Reporting and Using Data on Innovation).

³ Act No 130/2002 Coll., on the support of research, experimental development and innovation from public funds and amending certain acts (the R&D&I Support Act). Pursuant to the provisions of Section 2(2)(k) points (2) and (3) of this Act, the results of research, development and innovation mean “**in the case of applied research**, any new findings and skills for the development of products, procedures or services, or findings and skills applied as results that are protected in accordance with legislation regulating the protection of the results of copyright, inventions or similar activities or used by the professional public or other users, or findings and skills for the requirements of the grantor that are used for its activities, provided these were produced during the performance of the public contract, or **in the development** of proposals for new, or significantly improved products, technologies or services, and **in the innovation** of new or significantly improved products, technologies or services, that have been brought into operation”.

⁴ Chapter 322 – Ministry of Industry and Trade.

⁵ Chapter 377 – Technology Agency of the Czech Republic.

⁶ Resolution of the Government of the Czech Republic No 202 dated 25 March 2019, on the TREND industrial research and experimental development programme. Annex 1 – Parameters of cooperation between the MoIT and TA CR in the implementation of the TREND Programme.

including sustainable management of materials, and of enhancing the effective collaboration⁷ in research and development between enterprises and research organisations. The maximum amount of subsidy per project was CZK 20.0 million, and the funding intensity per project ranged between 25% and 80%.

2.5 Under the TRIO Programme, the MoIT announced four calls for applications to public tenders, accepting and evaluating the applications for support (project proposals). For the evaluation of project proposals, the MoIT used two opponents, a rapporteur and the Programme Council; however, the selection of projects for support remained the responsibility of the MoIT. The MoIT further reviews the use of support by the beneficiaries, the fulfilment of contractual obligations of the beneficiaries and the fulfilment of project objectives, including the results achieved. It is also responsible for the evaluation of programme objectives and benefits. In order to monitor projects and evaluate the programme, the beneficiaries are obligated to inform the MoIT of the actual progress of project implementation once a year. For a period of three years following the year of project completion, the beneficiaries are to send information on the actual benefits achieved by the project to the MoIT.

2.6 From the TRIO Programme with an approved allocation of CZK 6,086.0 million, a total of 495 projects have been supported, and a total of CZK 6,225.2 million have been drawn as of 9 May 2022⁸.

CFF Programme

2.7 The main objective of the CFF Programme, which is planned to be implemented between 2020 and 2027, is to increase the international competitiveness of enterprises by connecting the academic and business spheres and increasing the utilisation of research and development results in practice. The CFF Programme, with the approved allocation in the amount of CZK 6,100.0 million, is divided into three sub-programmes:

- The *Start-ups* sub-programme is intended to support the operation of “technology incubation centres” and provide direct support to innovative start-ups in selected fields. On 1 October 2021, the MoIT and the CzechInvest Business and Investment Development Agency concluded an agreement on the provision of targeted support for the implementation of the first system project – *Technological Incubation*. As of 31 March 2022, the MoIT has not disbursed any funds under the sub-programme.
- The *Digital Leaders* sub-programme is intended, through sub-projects, to be one of the sources of co-financing for projects focused on building a network of digital innovation

⁷ Under the TRIO Programme, effective collaboration is considered a collaboration between at least two independent parties for the purpose of exchanging knowledge or technology or achieving a common objective based on a division of labour, where the parties concerned jointly define the scope of the collaboration project, contribute to its implementation and share its risks and results.

⁸ The budget of the TRIO Programme was exceeded in order to fulfil the MoIT’s tasks in the area of industrial research support and to maintain its continuity, as well as in response to the delay in the preparation of the TREND Programme, which had already projected increased expenditure on this type of support. This was done in accordance with the provisions of Section 5(3) of Act No 130/2002 Coll., which provides for the possibility of exceeding the programme expenditure by up to 20% without the need to submit its change to the Government of the Czech Republic.

centres. As of 31 March 2022, the MoIT has not announced any public tenders under this sub-programme due to the delay in the launch of the *Digital Europe* programme.

- The *Innovation into Practice* sub-programme aims to increase the intensity of the promotion of innovation in enterprises. The maximum amount of support is set at CZK 25.0 million per project, and it may cover up to 100% of the costs (depending on the specific project and call). The principles of project evaluation, selection and monitoring, as well as the obligations of the beneficiaries for the purposes of programme evaluation, are similar to those of the TRIO Programme (see para. 2.5). As of 9 May 2022, a total of 127 projects have been supported, and a total of CZK 844.1 million have been drawn.

TREND Programme

2.8 The main objective of the TREND Programme, which is planned to be implemented between 2020 and 2027, is to increase the international competitiveness of enterprises, in particular, by expanding their markets abroad, entering new markets or shifting global value chains. The TREND Programme is divided into two sub-programmes:

- The *Technology Leaders* sub-programme is focused on bringing results of research and development and their use for own business activities. The allocation of state budget funds for the *Technology Leaders* sub-programme amounts to CZK 9,100 million.
- The *Newcomers* sub-programme is focused on kick-starting enterprises' own research and development activities. The allocation of the state budget funds for the *Newcomers* sub-programme amounts to CZK 600 million.

2.9 The maximum amount of support per project may not exceed CZK 70 million in the *Technology Leaders* sub-programme and CZK 20 million in the *Newcomers* sub-programme. The maximum allowed funding intensity per project may amount to 70–80% of the total eligible costs of the project.

2.10 Within the TREND Programme, the TA CR announces public tenders and receives and evaluates applications for the provision of support using three opponents, a rapporteur and the Programme Council for each project proposal. It concludes agreements on the provision of funding with the successful applicants (or issues decisions on the provision of funding⁹). The TA CR further reviews the use of support, the fulfilment of contractual obligations of the beneficiaries and the fulfilment of project objectives, including the results achieved. It also cooperates with the MoIT on the evaluation of the objectives and benefits of the programme. The obligations of the beneficiaries for the purposes of project monitoring and programme evaluation within the TREND Programme are similar to those in the TRIO Programme (see para 2.5).

⁹ The TA CR issues a decision on the provision of funding if the participant is an organisational unit of the state, an organisational unit of a territorial self-governing unit or an organisational unit of a ministry dealing with research and development. In other cases, the TA CR concludes an Agreement on the Provision of Funding with the main beneficiary.

2.11 From the TREND Programme with an approved allocation of CZK 9,700.0 million, a total of 354 projects have been supported, and a total of CZK 2,875.6 million have been drawn as of 31 March 2022¹⁰.

2.12 Details of the planned and actual use of funds from the TRIO, CFF and TREND Programmes between 2016 and 2022 are provided in Annex 1 to this Audit Report.

III. Scope of the Audit

3.1 The aim of the SAO's audit was to verify whether the funds earmarked for targeted support of industrial research, experimental development and innovation from the national programmes of the MoIT are provided and drawn effectively and efficiently.

3.2 The entities audited by the SAO were the MoIT, as the provider of targeted support in the case of the TRIO and CFF Programmes and as the coordinator of the TREND Programme, and the TA CR as the provider of targeted support from the TREND Programme. The SAO also audited 18 selected beneficiaries who completed the projects funded by the TRIO Programme. In the case of the CFF and TREND Programmes, the SAO audited only the providers of support, as the vast majority of projects funded from these programmes were still in their implementation phase.

3.3 In the case of the TRIO Programme, the SAO assessed whether the management and control systems of the MoIT are set up and implemented in a way to ensure the effective and efficient use of funds. In particular, the SAO focused on the setting of specific and measurable programme objectives, the setting and implementation of the selection of effective and efficient projects, the monitoring and control system of the project implementation and the results and benefits of the projects. The SAO then compared the results of the audit of the provider with the findings acquired during the audit of the projects of the selected beneficiaries.

3.4 In the case of the CFF and TREND Programmes, the audit assessed similar parameters of the management and control system for both providers of support (MoIT and TA CR). In particular, the aim was to verify whether some of the identified shortcomings in the older TRIO Programme persisted in the more recent CFF and TREND Programmes and whether they pose a risk to the effective and efficient use of funds on the projects funded from these programmes.

3.5 The use of public funds is considered effective if it ensures an optimal rate of achievement of objectives in the fulfilment of the set tasks¹¹. The use of public funds is considered efficient if it achieves the best possible scope, quality and benefit of the tasks

¹⁰ As of 31 March 2022, the implementation of eight projects was completed, meaning that the vast majority of projects were in the implementation phase at the time of the SAO's audit.

¹¹ Pursuant to Section 2 (o) of Act No 320/2001 Coll., on financial control in public administration and on amendments to certain acts (Act on Financial Control).

performed in comparison with the amount of funds spent on their performance¹². The use of public funds is considered economical if it ensures the performance of the set tasks with the least possible expenditure of such funds while ensuring the adequate quality of performance of the tasks¹³. The economical use was part of the overall efficiency assessment.

3.6 A sample of 20 research and development projects of different focus funded by the TRIO Programme and implemented by eighteen beneficiaries was selected for audit (hereinafter the “Selected Projects”). For the Selected Projects, the SAO assessed the effectiveness and efficiency of the funds spent. With regard to the nature of applied research and the TRIO Programme itself (see also para. 2.1 and 2.4), the SAO assessed the fulfilment of the objective and benefit of the project both in terms of achievement of the projected research result, e.g., a patent, utility model, prototype, pilot plant, etc. (see para. 4.6), and the effectiveness of its implementation in practice and the achievement of the projected economic benefits, which formed an integral part of the project proposal and were assessed in the process of selecting projects for support. The SAO further selected a sample of eight projects funded from the CFF Programme and 20 projects funded from the TREND Programme, for which the audit examined the project selection procedure of the MoIT and TA CR. The audited amount of funds at the level of projects selected for audit from the TRIO, CFF and TREND Programmes was set as the sum of funding set out in the agreements for the provision of targeted support for the given projects. In the case of the sample of projects from the TRIO Programme, the audited funding amounted to CZK 272.6 million; in the case of the sample of projects from the CFF Programme, the audited funding amounted to CZK 134.2 million; in the case of the sample of 19 projects from¹⁴ the TREND Programme, the audited funding amounted to CZK 433.4 million. The total amount of funds audited at the level of the sample of projects from the three audited programmes amounted to CZK 840.2 million.

Note: The legal regulations referred to in this Audit Report apply in their wording effective in the audited period.

¹² Pursuant to Section 2 (n) of Act No 320/2001 Coll., on financial control in public administration and on amendments to certain acts (Act on Financial Control).

¹³ Pursuant to Section 2 (m) of Act No 320/2001 Coll., on financial control in public administration and on amendments to certain acts (Act on Financial Control).

¹⁴ The sample of projects selected for audit from the TREND Programme included 20 projects; however, by 31 March 2022, the TA CR had concluded an Agreement on the Provision of Funding with only 19 of the projects.

IV. Detailed Facts Found in the Audit

A. TRIO Programme

4.1 In order to assess the achievement of the programme objectives, it is necessary to set a system of indicators, including their projected values, of sufficient representative value and relation to the set objectives. The system of continuous monitoring and evaluation is intended to provide the coordinator of the given programme with sufficient information on the fulfilment of the set objectives and on the effectiveness and efficiency of the funds used. In the event the prerequisites are not fulfilled, it is in place to ensure that the necessary changes can be made to improve the management and control of the programme and the effective and efficient use of funds.

→ Indicators and procedures set by the MoIT do not allow the evaluation of the fulfilment of the programme objectives.

4.2 The MoIT has set indicators for the evaluation of the fulfilment of objectives at the programme level with the projected values for the number of supported projects, number of applied results, number of protected industrial results and the proportion of successfully completed projects. However, it did not set indicators to assess the fulfilment of the set objectives, such as increasing the productivity of research activities in enterprises and research organisations, increasing the quality, flexibility and attractiveness of products and services and strengthening the sustainability of development and growth of the economy. Similarly, it did not set indicators to assess the increase in innovation performance of the supported enterprises or the strategic orientation of research and development towards the areas with the largest potential and benefit for the economy, despite listing them as some of the key expected benefits of the programme.

4.3 The MoIT evaluates the programme in accordance with the current *Methodology for the evaluation of research organisations and the evaluation of programmes of targeted support for research, development and innovation*¹⁵ (hereinafter the “Methodology”). However, the Methodology does not contain specific procedures for evaluating the impact of the targeted support programmes, and at the time of the control, the MoIT had not proposed such procedures for evaluating the benefits and impacts of the TRIO Programme.

4.4 According to the tender documents in the TRIO Programme, the applicant was required to provide an estimate of the project’s benefits in the five-year period after the completion of the project in the project proposal. However, in the agreement on the provision of targeted support (hereinafter the “Agreement”) concluded with the beneficiary, the MoIT set a shorter period for proving the benefits, namely three years, with the rationale that the beneficiaries are not able to identify the benefits of individual projects after a longer period of time from the completion of the project has passed. The Ministry of Industry and Trade did not set penalties for non-compliance with the obligation to submit annual reports on the actual

¹⁵ *Methodology for the evaluation of research organisations and the evaluation of programmes of targeted support for research, development and innovation* approved by Government Resolution No 107 dated 8 February 2017.

benefits achieved under the TRIO Programme. For the CFF and TREND Programmes, this was rectified in the subsequent period, and the sanctions were contractually adjusted (with the exception of the 2nd public tender in the CFF Programme).

4.5 The MoIT has concluded Agreements with the beneficiaries in accordance with Act No 130/2002 Coll.¹⁶, which, however, limited the validity of contracts to a maximum of 180 days from the date of completion of the project. Therefore, after the period of 180 days from the completion of the project, the MoIT did not have effective tools to enforce compliance with the conditions. The SAO found that for 2019, two out of 40 beneficiaries did not submit information on the actual benefits of the project to the MoIT; for 2020, it was three out of 125 beneficiaries, and for 2021, it was 28 out of 256 beneficiaries. This inadequate legal regulation effective at the time¹⁷ resulted in incomplete information that the MoIT acquired from the beneficiaries to evaluate the benefits of the supported projects and the programme as a whole in terms of the effective use of funds.¹⁸

→ MoIT considers projects successful even in cases where the beneficiaries have not achieved the expected economic benefits.

4.6 One of the output indicators of a programme is the “*minimum ratio of successfully completed projects*”. However, the MoIT includes projects that have only fulfilled the expected results of research and development in the successfully completed projects as well¹⁹. In their project proposals, the applicants had to demonstrate the ability to apply the results of research and development (hereinafter the “R&D”) in practice and calculate the expected economic benefits of the projects. The application potential of the R&D results presented in project proposals and the expected economic benefits of the project in comparison with the project costs were also subject to evaluation under the individual evaluation criteria, and the results of the evaluation had an impact on the final ranking of the projects and the provision of support.

4.7 In this context, the SAO emphasises that the objectives of the programme include the increase in the productivity and efficiency of research activities, improvement of the quality, flexibility and attractiveness of products and services and strengthening of the sustainability

¹⁶ Section 9(1) of Act No 130/2002 Coll.

¹⁷ Act No 50/2020 Coll., amending Act No 130/2002 Coll., on the support of research, experimental development and innovation from public funds and amending certain related laws (Act on the Support of Research and Development), as amended, eliminated this shortcoming with effect from 12 March 2020. According to the effective wording of the provisions of Section 9(1), the Agreement is concluded for the period of project implementation and the following period necessary for the evaluation of results of project implementation, including the settlement of the funds provided under the budgetary rules.

¹⁸ In the case of project No FV10592, which was focused on the development of a new semi-automatic Index Cutting Machine, supported with a subsidy of CZK 10.1 million and completed in August 2018, the MoIT did not receive any information on the actual benefits achieved by the project for 2019–2021. In addition, in 2019, there was a change of the Director and the sole member of the beneficiary. Therefore, the beneficiary has not fulfilled its information obligation with respect to the MoIT, and it was not possible to carry out an audit by the SAO due to the permanent unavailability of the statutory representative.

¹⁹ Under the TRIO Programme, projects which reasonably expect to achieve at least one R&D result of the following types of results can be supported – categorised according to the information system for research, development and innovation (hereinafter the “R&D&I IS”): F – utility or industrial model; G – prototype, functional sample; P – patent; R – software; Z – pilot plant, proven technology.

of economic development. It follows that successful projects in terms of the effectiveness of the support provided can be considered those projects that, in addition to fulfilling and achieving the objectives and results of research, also show the expected economic benefits and are applied in practice. The MoIT's approach, which considers successful projects to be those that achieve the expected results, regardless of whether the expected economic benefits resulting from the implementation of the research results into practice were subsequently achieved, is considered insufficient by the SAO. The SAO presents Examples 11 and 12, which show cases where the MoIT evaluated projects as successful even though they did not achieve the expected economic benefits.

→ The transparency of the selection of projects was reduced by the ambiguity of the rules for the allocation of points and insufficient justification for the project evaluation by the opponents.

4.8 A prerequisite for a high-quality transparent project selection is the establishment and application of a uniform methodological procedure for the evaluation of project proposals, including the possibility of checking whether the evaluators have followed the rules (the "audit trail").

4.9 For the evaluation of project proposals, the MoIT established a set of 11 exclusion criteria and seven scoring criteria in the tender documents. The SAO verified that the established set of evaluation criteria covers all relevant aspects of the targeting of support.

4.10 For each public tender, the MoIT prepared a "*Guide for opponents*" document instructing the opponents on how to evaluate each criterion. When assessing the exclusion criteria, the opponents should mark each criterion with "YES" if the project meets the criterion and "NO" if the project does not meet the criterion. If they mark the criterion with "NO", they must provide a proper justification. However, the established system for the evaluation of the exclusion criteria lacked a requirement for the justification of criteria marked with "YES". For example, in the assessment of the criterion where the opponents were to confirm that the content of the project proposal or part thereof is not and has not been the subject of another project assessed in the programme or other RDI activity supported from public funds, the MoIT did not require the opponents to indicate how and in relation to which projects the opponent assessed this fact. Therefore, the audit trail for verifying the evaluation method was not sufficiently ensured.

4.11 When assessing the scored criteria, the opponents were to evaluate the degree of their fulfilment and to provide a written justification for the number of points awarded to each criterion. The text was to make it clear to what extent the criterion has been met, and the score was to correspond to the justification. However, for the 1st, 2nd and 3rd public tenders (with the exception of the 4th), the MoIT did not establish a precise procedure for the allocation of points for all the scored criteria. As a consequence, there is a risk of a high degree of subjectivity in the evaluation and ambiguity in the scores given by the individual opponents. In the sample of 20 audited projects, the SAO found three cases where the evaluation of the opponents did not include a proper justification for the given score or the method of evaluation (see Examples 1 to 3). Nevertheless, the MoIT accepted these insufficient documents.

4.12 For the “*fulfilment of the programme objectives*” criterion, the “*Guide for opponents*” states that the opponent should describe how the project meets the objectives of the programme and that it is not sufficient to simply state that the project meets the objectives of the programme.

Example 1

Project No FV10019 focused on the forging technology for middle-sized forgings of nickel and titanium-based alloys; the subsidy amounted to CZK 11.4 million. For the “fulfilment of the programme objectives” criterion awarded with 15 points out of 20, the first opponent only stated the main objective of the project, what specific RDI objectives the project fulfils, and that it will contribute to strengthening the competitiveness of the Czech economy, but did not justify the reduction of the score by 5 points. The second opponent awarded 20 points and gave a similar written evaluation, i.e. that the project fully meets the programme criteria. Therefore, in the case of the opinions of both opponents, the “Guide for opponents” has not been complied with. Nevertheless, the MoIT accepted both opponents’ opinions as the basis for selecting the project for support.

4.13 For the scored criterion “*adequacy of schedule and financial requirements*”, the opponent is to assess the adequacy of the project schedule, the adequacy of the financial requirements according to a detailed breakdown of eligible costs, their justification and the correctness of the allocation of project costs to the individual supported categories.

Example 2

Project No FV10297 focused on the development of thin-walled glass fibre reinforced concrete elements for a roof covering with integrated photovoltaic and heat exchange layers; the subsidy amounted to CZK 17.8 million. For the “adequacy of schedule and financial requirements” criterion awarded 7 points out of 10, one of the opponents only stated that the schedule and financial requirements are adequate and that the project costs are allocated to the individual categories correctly. The reasons for the reduction of the score by 3 points are not clear from the opponent’s opinion and it does not indicate how the adequacy of the financial requirements was assessed; the MoIT nevertheless accepted the opinion as the basis for selecting the project for support.

4.14 For the scored criterion “*project topicality and usefulness and suitability for public funding*”, the opponent is to assess the expected benefits of the project on the part of the applicants and users of the results in comparison with the project costs and the requested subsidy. The opponent is also to assess the extent of the incentive effectiveness and evaluate the non-economic benefits of the project.

Example 3

Project No FV10441 focused on the development of an emergency plunger pump for boric acid solution pumping in the primary circuit for nuclear power plants; the subsidy amounted to CZK 17.4 million. For the “project topicality and usefulness and suitability for public funding” criterion awarded 9 points out of 10, the opponent only stated that the project is topical for the applicant with regard to gaining new experience and broadening the application with new product possibilities. The support should enable the applicant to get ahead of the competition and improve its market position. It is not clear from the opponent’s

opinion whether, how and with what result the opponent assessed the expected benefits of the project on the part of the applicants and users of the results in comparison to the project costs and the requested subsidy. Nevertheless, the MoIT accepted the opponent's opinion as the basis for selecting the project for support.

→ The MoIT did not specify the criteria for the adequacy of the personnel costs of projects, leaving their amount to be decided by the internal rules of the beneficiary and thus failing to prevent the risk of wasteful expenditure.

4.15 The MoIT did not establish detailed criteria for assessing the adequacy of personnel costs in the tender documents for the 1st–4th public tenders in the TRIO Programme. In the project proposal, the applicants only indicated the total personnel costs expenditure, the composition of the research team and the type of employment. Based on the information provided in the project proposal, it was not possible to assess the adequacy of the personnel costs for the individual positions on the project research team.

4.16 However, the personnel costs amount to a significant part of the total project costs. The proportion of the personnel costs on the total costs for the Selected Projects ranged from 38.2% to 75.6%. The MoIT did not limit the amount of personnel costs in the conditions of the TRIO Programme; however, the costs had to be demonstrable, strictly necessary and directly related to the project. Their amount used should only be in accordance with the internal regulations or practices of the relevant beneficiary or another project participant. For example, the set parameters of public tenders did not limit the maximum hourly rate for the individual positions on the research team. The consequence of this vague and insufficient definition of eligible personnel costs is the risk of uneconomical use of part of the project support funds. This risk has materialised in the case of three Selected Projects (No FV10720, No FV10530 and No FV10329) and is documented by the SAO in Examples 4 and 5.

Example 4

Project No FV10720 focused on the optimisation of multi-axial machine tools for higher manufacturing performance and machining accuracy; the subsidy amounted to CZK 10.6 million. In the personnel cost of the project, the beneficiary included the personnel costs of the company's Director for 21 months in the total amount of CZK 1,155,908.14 as eligible costs. The hours worked on the project were based on the Director's part-time employment, which ranged from 0.1 to 0.6 FTE between 2016 and 2018. The Director's average hourly wage, including deductions, ranged from CZK 1,777.17 per hour to CZK 2,512.50 per hour. In view of the disproportionately high proportion of this employee's personnel costs on the total project personnel costs (23%) and the high hourly rates of this employee (compared to the project's lead researcher and other project staff), the SAO assessed these personnel costs paid out of the project funding as disproportionate.

Example 5

Project No FV10530 focused on the development of an integrated device for universal robotic rehabilitation of arms and legs with motivational biofeedback; the subsidy amounted to CZK 7.1 million. Even though the work on the project and the associated spending on personnel costs were to start in July 2016, in reality, the work actually started with a three-month delay in October 2016. Despite this fact, a higher amount of personnel

costs than expected was spent. The personnel costs of the lead researcher in the project amounted to approximately CZK 4,000 per hour in 2016, and the lead researcher's total average hourly rate for the entire period of project implementation amounted to CZK 1,835 per hour. For the other projects selected by the SAO as a part of the audit, the SAO found that the median hourly rate for the position of the lead researcher was approximately CZK 545 per hour. Therefore, the SAO assessed the hourly rate of the lead researcher of this project as inadequate.

→ The project selection system allowed to support projects that did not receive any points in the assessment of effectiveness, where the ability to put the project results into practice was not sufficiently demonstrated or where they did not have a direct connection to the objectives of the TRIO Programme.

4.17 The scoring system contains components for the evaluation of the expected efficiency of projects in two criteria. The first criterion scored is the “*adequacy of schedule and financial requirements*”, where the opponent was to assess, among other things, the adequacy of the financial requirements for the project implementation according to a detailed breakdown of eligible project costs. The second criterion scored is the “*project topicality and usefulness and suitability for public funding*”, where the opponent is to assess the expected benefits of the project on the part of the applicants and users of the results in comparison with the project costs.

4.18 For each of the criteria above concerning efficiency, the opponent could, in the 1st to the 3rd public tender, award a maximum of 10 points, i.e. the project could receive a maximum of 20 points for meeting both criteria. In the 4th public tender, the opponent could award a maximum of 10 points for meeting these criteria in total. Given that the minimum threshold for recommending a project for support in the 1st to the 3rd public tender was 60 points out of 100, and 30 points out of 60 in the case of the 4th public tender, these criteria did not have sufficient weight to significantly influence the overall evaluation of the project. The SAO found a risk of selecting inefficient projects in the way the scoring criteria were set up; projects that did not receive a single point in such criteria could receive support as well.

4.19 The opponents evaluated the project proposals, among other things, according to the beneficiaries' ability to apply the project results in practice (the beneficiaries were obligated to substantiate this fact in the project proposal). In the audited projects No FV10505, No FV10506 and No FV20197, the SAO found that the beneficiaries did not sufficiently demonstrate the potential for practical application of the expected project results, while the MoIT accepted the positive evaluation of the opponents. Example 6 illustrates one such case.

Example 6

Project No FV10506 focused on the development of a mobile protective and ballistic barrier made of composite board and water infill; the subsidy amounted to CZK 14.1 million. According to the tender documents for the 1st public tender, the applicant was to demonstrate the market potential of the expected results of the project, not just a statement of support for the research goal. The SAO found that the beneficiary did not sufficiently document the ability to put the project results into practice, as it was only supported with two letters in the project proposal which expressed support for the project. Even though the

market potential of the expected project results was not substantiated, the opponents evaluated the project in the scored criterion “application of results” with a total of 17 and 19 points out of 20, respectively; the MoIT accepted this evaluation and supported the project. At the time of the SAO’s audit, the results of the project had not been put into practice, with the exception of a free donation of three barriers to one station of the Fire Rescue Service of the Czech Republic.

4.20 When scoring the “fulfilment of the programme objectives” criterion, the opponents did not take into account the fact that one selected project was not directly related to the programme objective to “increase the business applicability of R&D results” and gave the project a high score in this criterion (see Example 7).

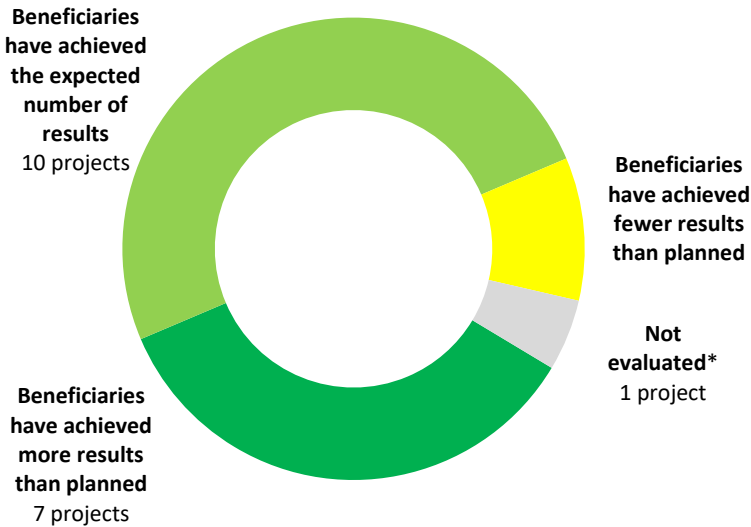
Example 7

Project No FV20197 focused on research and project concept of a multifunctional robotic effector of an underground multi-robot for storage of disposal casks in a deep geological repository and the realisation of a prototype of a dual robotic effector module; the subsidy amounted to CZK 19.4 million. The objective of the TRIO Programme was to “increase the business applicability of R&D results focused on KETs”. The objective of the project was to create a prototype for the Radioactive Waste Repository Authority (SÚRAO), an OUS established by the Ministry of Industry and Trade. The beneficiary has not provided enquiries from other potential customers. The beneficiary did not even envisage the economic benefits of the project; therefore, it is unclear how the implementation of the project would fulfil the objective of the TRIO Programme, i.e. to increase the business applicability of the R&D results. Despite the above, the opponents evaluated the project proposal in the “fulfilment of the programme objectives” criterion with 20 and 18 points out of 20, respectively. The MoIT accepted the opinions and funded the project. The SAO further notes that more than two years after the completion of the project, the model prototype remained entirely unused and stored in the beneficiary’s production plant.

→ The projects selected for audit by the SAO mostly met the expected results of research and development.

4.21 For the 20 Selected Projects, the SAO verified whether the beneficiaries had achieved the expected results of research and development through the implementation of the projects. The SAO found that, for seven projects, the beneficiaries achieved more results than originally anticipated; for 10 projects, they achieved the expected amount of results, and for two projects, they achieved fewer results than anticipated. In the case of one project, the achievement of results was not evaluated because the SAO could not carry out the audit of the beneficiary (due to the permanent unavailability of the statutory representative of the audited entity). Chart 1 summarises the findings in this area.

Chart 1: Achievement of expected results for Selected Projects from the TRIO Programme



Source: Prepared by the SAO based on the audit protocols concerning the beneficiaries from the TRIO Programme.

* The project was not evaluated as the audit of the beneficiary could not be carried out by the SAO (see footnote No 18).

→ The SAO found three cases where beneficiaries reported incorrect values in their annual reports on the achievement of the economic benefits of the project.

4.22 According to the Agreement on the provision of targeted support, the beneficiary is obligated to provide the MoIT with information on the actual benefits achieved by the project for the preceding calendar year once a year for a period of three years. Of the three identified cases (projects No FV10094, No FV10739 and No FV10645) of incorrectly reported values by the beneficiaries (out of the 19 projects audited), the following Example 8 is provided, where the beneficiary reported project benefits in hundreds of millions CZK, whereas the actual figure was in the tens of millions CZK.

Example 8

Project No FV10739 focused on developing the technology of the division of bearing rings to eliminate the occurrence of critical cracks; the subsidy amounted to CZK 18.9 million. The SAO found that, for 2020 and 2021, the beneficiary reported to the MoIT in the “table of actually achieved project benefits” under the “revenues” item not only the revenues directly related to the sale of split bearings but also other revenues for large-size and special bearings, even though these revenues were not directly related to the project. Therefore, the beneficiary incorrectly reported project benefits to the Ministry as revenues in the amount of CZK 320.2 million for 2020 and CZK 328.1 million for 2021. The SAO found that the revenues related to the project actually amounted to CZK 24.0 million for 2020 and CZK 31.3 million for 2021. Although the revenues reported by the beneficiary differed substantially (in the order of hundreds of millions) from the revenues originally projected by the beneficiary (in 2020, revenues in the amount of CZK 15 million were expected, in 2021, in the amount of CZK 28.0 million), the MoIT did not assess this fact as a possible inaccuracy and accepted the distorted data.

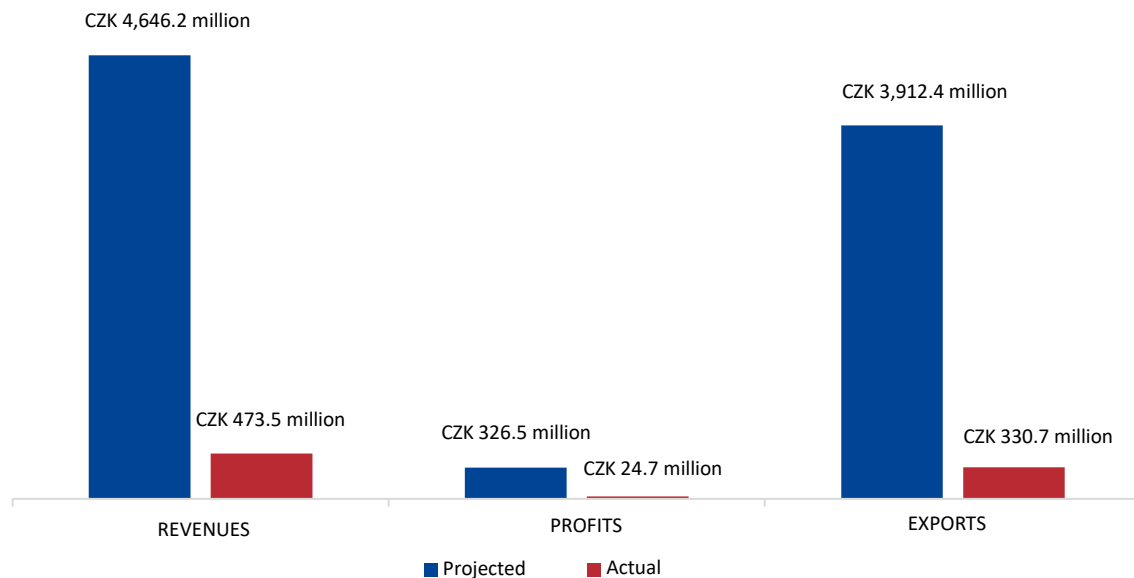
→ In its interim report to the government, the MoIT predicted the economic benefits of the TRIO Programme in the amount of CZK 100 billion, however, this amount is unlikely to be achieved to a significant extent.

4.23 By its Resolution No 379 of 25 May 2015, the Government of the Czech Republic instructed the Ministry of Industry and Trade to submit an interim report on the implementation of the TRIO Programme (hereinafter the “Report”) to the R&D Council by 31 December 2018. The MoIT has prepared the Report as at 18 December 2018 and has included information from the first three public tenders announced, under which 348 projects have been supported and the beneficiaries committed to creating 1,196 applied results. The planned number of supported projects and applied results was exceeded. In the Report, the MoIT provided an estimate of the expected revenues resulting from the implementation of the programme. However, the Report did not provide the already known data on the ongoing economic benefits actually achieved by the projects.

4.24 In the Report, the MoIT estimated an increase in revenues of the beneficiaries due to the support provided in the amount exceeding CZK 100 billion in five years after the completion of project implementation (between 2019 and 2026). For the estimate, the MoIT used the data provided by the beneficiaries in the project proposals. For the sample of 19 Selected Projects, the SAO compared the expected economic benefits indicated in the project proposals with the actual benefits reported in the annual reports.²⁰ The economic benefits estimated in the proposals of the Selected Projects for the period of two, or three, years from the completion of the projects amounted in total to CZK 4,646.2 million in revenues, CZK 326.5 million in profits and CZK 3,912.4 million in exports. The beneficiaries have, so far for the given period, reported total revenues of CZK 473.5 million, i.e. 10.2% of the expected amount, profits of CZK 24.7 million, i.e. 7.6% of the expected amount, and exports of CZK 330.7, i.e. 8.5% of the expected amount. The result of the comparison is shown in Chart 2.

²⁰ For the two, or three, years for which data on expected and actual economic benefits were available, in terms of revenues, profits and exports.

Chart 2: Comparison of expected and actual economic benefits achieved for the audited projects from the TRIO Programme over two, or three, years from the completion of the projects



Source: Prepared by the SAO based on the audit protocols concerning the selected beneficiaries from the TRIO Programme.

4.25 Based on the comparison of planned and actual economic benefits in the sample of supported projects, the SAO points out the risk that the projected revenues of CZK 100 billion in a five-year period following the completion of the projects in the TRIO Programme are unlikely to be met to a significant extent. The actual economic benefits from the projects supported by the TRIO Programme are very likely to be significantly lower than originally predicted when the projects were approved for support than the MoIT estimated and reported to the government in its report on the implementation of the TRIO Programme in December 2018.

→ The SAO found shortcomings in two beneficiaries that were not detected by the MoIT during its audit activities.

4.26 As a part of the audits carried out by the MoIT in 2017 and 2018, the MoIT identified a medium risk in the implementation of seven projects and, based on the evaluation of audit reports, notified the competent financial authorities of 23 suspected breaches of the budgetary discipline. However, the SAO also found some shortcomings of the beneficiaries that were not detected by the MoIT during the substantive audits:

- Project No FV10295 was focused on the development and application of laminated safety glass with reinforcement; the subsidy amounted to CZK 5.7 million. The SAO found that the beneficiary did not fulfil the mandatory condition set by the provider in the Agreement and did not ensure that the intellectual property rights to the primary project results (industrial designs and utility models) belonged to the beneficiary and the project participants. The audit report and the report of the final opposition procedure show that the MoIT did not review the intellectual property rights to the primary results of the project. By not providing intellectual property rights to the results of the project to all the participants involved in its solution, the beneficiary violated the provisions of Act No 130/2002 Coll.

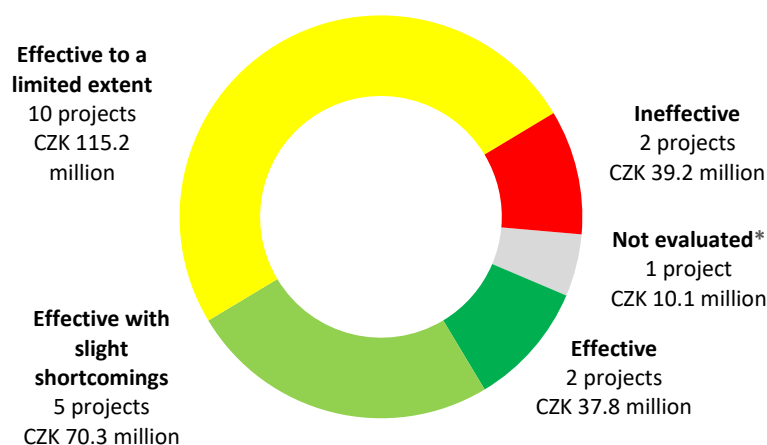
- For project No FV10094, the SAO found that the beneficiary implemented the third stage of the project in a different material scope and schedule than approved by the MoIT in the Agreement. In the “final project report” from 2019, the beneficiary stated that the indexer research included in the activities of the third stage was carried out between 2017 and 2019. However, the beneficiary had already filed a patent application under No 2016-184 on 31 March 2016 for an indexer invention entitled “*Method and apparatus for sewing inclined buttonholes on an industrial sewing machine*”. This application was registered in the register of patents and inventions on 30 August 2017 under No 306 955, i.e. before the implementation of the third stage, which was to lead to the creation of the indexer. This fact was not mentioned in the final opposition procedure, and in the two substantive audits of the beneficiary carried out, the MoIT had no reservations concerning the performance of the individual project results.

The MoIT stated that, in both cases, it started its investigation during the SAO’s audit.

→ The SAO evaluated the results and benefits of 19 projects; in more than three-fifths of them, it found limited effectiveness or efficiency or ineffective and inefficient use of funds.

4.27 The SAO assessed the effectiveness and efficiency of the funds spent on the 19 projects under the TRIO Programme selected for audit. To assess both aspects of performance (see para. 3.5), a four-point scale was used, which the SAO developed for audits in relation to the focus and objectives of the support provided. The definition of the individual levels of this scale and the criteria used to assess effectiveness and efficiency are provided in Annex 3. Since an important parameter for the evaluation of effectiveness and efficiency of the funds spent was the degree of fulfilment of the expected objectives or benefits of the projects, including economic benefits (i.e. not only the results achieved – see para. 3.6), the results of the evaluation are similar for both aspects. Charts 3 and 4 illustrate the results of the evaluation. A detailed overview of the evaluation of the effectiveness and efficiency of the use of funds for all 20 projects is presented in Annex 2.

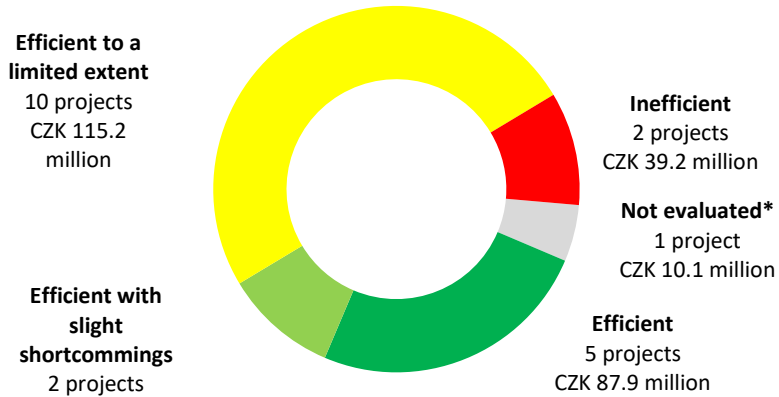
Chart 3: Results of the evaluation of the effectiveness of Selected Projects from the TRIO Programme



Source: Prepared by the SAO based on the audit protocols concerning the beneficiaries from the TRIO Programme.

* The project was not evaluated as the audit of the beneficiary could not be carried out by the SAO.

Chart 4: Results of the evaluation of the efficiency of Selected Projects from the TRIO Programme



Source: Prepared by the SAO based on the audit protocols concerning the beneficiaries from the TRIO Programme.

* The project was not evaluated as the audit of the beneficiary could not be carried out by the SAO.

4.28 Examples 9 to 12 illustrate the circumstances justifying the particular score of effectiveness and efficiency of the funds used in Selected Projects. Examples 4, 5, 6 and 7 above also illustrate the reasons for the lower score of other projects.

Example 9

The main objective of project No FV10297 was to develop thin-walled glass fibre reinforced concrete elements for a roof covering with integrated photovoltaic and heat exchange layers. Furthermore, the beneficiary has set two secondary objectives. Among the expected benefits, the beneficiary listed the creation of a new job and revenues from the sale of the project result worth CZK 7.0 million for the first two years following the project completion. The beneficiary achieved the planned objectives and results of the project within the set timeframe, and the subsidy was used to cover the eligible expenditure of the project. After the completion of the project, the results of the project have been applied in practice, as the beneficiary now offers the result of the project among its products. Revenues from the sale of the product in the first two years after the completion of the project in the amount of CZK 6.8 million nearly correspond to the projected revenues, and the expected revenues will likely be reached in the following years. These revenues were realised through the export of products, which was beyond the planned economic benefits outlined in the approved project proposal. The beneficiary has achieved the parameter related to the number of new jobs above expectations. By implementing the project, the beneficiary has strengthened its position on the market. The SAO assessed the use of funds for this project as effective and efficient.

Example 10

The objective of project No FV10329 was to develop a transportable device designed for the physical treatment of circulatory disorders of limbs and related neurological and trophic defects of affected limbs, particularly in diabetic patients. The MoIT provided the beneficiary with targeted support for the project solution in the form of a subsidy in the amount of CZK 6.5 million. The SAO found that the beneficiary had developed the device, i.e. met the project objective, but had not achieved the results declared in the project proposal in the form of two patents. With the consent of MoIT, the beneficiary replaced one of the patents with a registered utility model; the beneficiary failed to achieve the second result. In the R&D&I IS, the beneficiary incorrectly listed a completely different patent as the result of the project, which was not the subject of the project solution. The SAO further found that, due to the lacking certification for the device developed in the project, the beneficiary had not implemented the project results into practice, and therefore, had not achieved any economic benefits since the project's completion in December 2018. The SAO evaluated this project as effective and efficient to a limited extent in terms of the funds spent.

Example 11

In the case of project No FV10019, the SAO found that the amount of projected benefits from the project was not justified and sufficiently substantiated by the beneficiary, which was subsequently confirmed after the project was completed. Even though the beneficiary has achieved all the expected results of the project, in the first two years after its completion, the beneficiary has hardly used the results in practice, as it has not shown any economic benefits in 2020 and 2021, despite expecting revenues in those years amounting to CZK 452.5 million.

From the documentation on the implementation of the project, it was not possible to verify the link between the hours worked by the project team members and the specific work performed by them. Contrary to the Agreement, when drawing the subsidy, the beneficiary also claimed costs of work activities not directly related to the implementation of the project in the project's personnel costs. The ineligible expenditure consisted in the fact that the beneficiary used part of the subsidy on remuneration for a board member without demonstrating the link between the remuneration and the research tasks of the project. The SAO assessed the use of the part of the funding as an unjustified use of state budget funds and as a fact indicating a breach of the budgetary discipline in the total amount of CZK 65,414.76.

The effectiveness of the project in terms of public funding is also fundamentally affected by the significant underachievement of economic benefits. The SAO evaluated this project as effective and efficient to a limited extent in terms of the funds spent.

Example 12

The objective of project No FV10094 was the research and development of special types of industrial sewing machines and equipment designed for sewing ready-made men's and women's suits and other clothing; the subsidy amounted to CZK 19.7 million. The SAO found that the beneficiary had achieved all the expected project results. However, the actual economic benefits of the project in terms of increased revenues, profits and exports in 2020 and 2021 were significantly lower than expected by the beneficiary. In the third year after the completion of the project, the economic benefits of the project cannot be expected to improve and be fulfilled as the beneficiary went bankrupt on 17 December 2021. The beneficiary did not create any of the six planned jobs. Furthermore, the SAO found that the beneficiary implemented the activities of the third stage of the project only after filing the patent application for the automated indexer, which was the subject of the solution of this stage (see para. 4.26). The SAO evaluated this project as ineffective in terms of the funds spent, and therefore inefficient.

This beneficiary has repeatedly drawn subsidies for three projects in the TRIO Programme between 2007 and 2021 in the total amount of CZK 53.2 million and for another nine projects in other research, development and innovation support programmes of the MoIT and the TA CR (for example, the IMPULS, TIP, OPEI, OPEIC or EPSILON programmes) in the total amount of CZK 401.3 million, i.e. CZK 454.5 million in total.

B. CFF and TREND Programmes

→ **The MoIT, as with the previous TRIO Programme, has not calculated the expected impacts of the CFF and TREND Programmes.**

4.29 The MoIT has set only general objectives for the CFF Programme. In order to assess the extent to which the objectives of the programme were met, the MoIT established a set of output indicators and their expected target values. The MoIT did not set any indicators to evaluate the impact of the support, which was supposed to be the increase in the international competitiveness of enterprises by connecting the academic and business spheres and the increase in the utilisation of research and development results in practice.

4.30 For the TREND Programme, the MoIT has established specific indicators for the evaluation of the programme's objectives and impacts, as well as basic output indicators. While it has set target values for the output indicators, it has not set target values for the purpose of evaluating the objectives and impacts of the programme. The MoIT plans to evaluate the impacts of the programme at the project level and by comparing the overall values of the indicators for the set of supported entities and values of other economic entities. As the MoIT has not set the expected values for the impacts of the programme, it will not be able to evaluate the extent to which the supported projects have contributed to the objectives of the programme.

→ **For both programmes, the ambiguous project selection process and the lack of transparency persist.**

4.31 For the CFF and TREND Programmes, any accumulation of funding provided to the project (activities) with other public support was not allowed, and the applicants were obligated to provide information about any identical or similar public support. In order to avoid double funding of projects in the CFF Programme, the MoIT set up an exclusion criterion²¹, according to which the opponents have to assess the relation of the evaluated project to the projects indicated by the applicant, as well as the projects that are related to the applicant and the subject of research, which are listed in the R&D&I IS system or of which the opponent is aware from his/her professional activities. The opponents were not required to describe how and in relation to which projects they checked the evaluated projects.

4.32 On a sample of 16 opinions on eight projects in the CFF Programme, the SAO found that in six of the opinions, the opponents commented on the criterion and information sources on which they drew when evaluating the criterion. In contrast, in the case of 10 evaluations, they only indicated “YES” or simply stated that they found no duplicate projects. Therefore, it was not possible to verify the process or the result of the evaluation of the exclusion criterion for these projects.

4.33 In the case of the 1st and 2nd public tender in the TREND Programme, the opponents were required to provide a justification in the cases where they found any duplication. However, in the subsequent 3rd and 4th public tenders, the MoIT did obligate the opponents to justify their assessments. The opponents were also not required to indicate the projects they had assessed in relation to the possible duplication of the project proposal.

4.34 The TA CR recommended that the opponents use the *Starfos*²² database and the R&D&I IS. However, these systems do not contain sufficient information on all RDI projects supported from public and EU funds. The evaluation of possible double funding of projects would have been facilitated, e.g., by the TA CR’s access to the monitoring system of the European Funds, which was unavailable to the TA CR at the time of the SAO’s audit.

4.35 In the case of the CFF Programme, for the scored sub-criterion “*adequacy of costs*” in the 1st public tender and the scored criteria “*fulfilment of the programme objectives*” and “*contribution to the solution of the thematic focus of public tender*” in the 2nd public tender, the MoIT did not set a clear method for giving scores or a requirement for the justification of such an evaluation. For the 2nd public tender, the MoIT was ambiguous in its setting of the exclusion criterion²³ and the scoring criterion “*fulfilment of the programme objectives*” for the evaluation of the project efficiency, as it did not set out a clear procedure for how the opponents should evaluate this criterion and only required the project costs to be “adequate” and the project return to be “sufficient”.

²¹ The exclusion criterion (with the result of evaluation marked as “YES”, i.e. fulfilled, or “NO”, i.e. not fulfilled): “*the contents of the project proposal (or any part thereof) is not and has not been the subject of another project solved in the Programme (or proposed for support in this public tender) or another research, development and innovation activities supported from public funds*”.

²² *Starfos* is a full-text search engine of the TA CR, which allows searching for RDI projects and results that have been supported from public budgets in the Czech Republic. The source of data for *Starfos* is the R&D&I IS.

²³ Exclusion criterion: “*the project is an innovation project; all activities and eligible costs are clearly assigned to the categories under Articles 28 and 29 of the GBER, with the exception of the costs eligible for support under the de minimis Regulation regime; the costs are adequate to the activities described*”.

4.36 Example 13 below illustrates that the lack of a scoring method for the “adequacy of costs” led to significant differences in the project evaluations.

Example 13

Project No. FX01030049 was focused on the innovation of the mass production process of nano-structured optics for LED sources; the subsidy amounted to CZK 18.5 million. In the case of the scored sub-criterion “adequacy of costs”, the first opponent scored the project one point out of three, stating that the personnel costs exceeding the amount of CZK 25.0 million are disproportionate, and their use in the project is described very vaguely. The second opponent scored the project with full three points, stating that the personnel costs were sufficiently justified by the number of staff, the high level of skills required and the complexity of the tasks. In terms of the opponent’s agreement with the amount of eligible costs proposed by the applicant, the first opponent indicated “NO”, justifying the evaluation by stating that 11 team members would not be working on the project for 11 man-years and proposed reducing the personnel costs by 20%. In contrast, the second opponent indicated “YES” without further comments.

4.37 In the case of the 3rd and 4th public tenders in the TREND Programme, the evaluation instructions for the opponents were no longer set out for all the exclusion criteria and the scored criteria “fulfilment of the TREND Programme objectives”, “demonstration of knowledge of solutions to analogous problems in the CR and abroad” and “expected economic benefits”. Therefore, the MoIT has reduced the clarity of the content of individual criteria and the way they are evaluated, increasing the risk of a varying approach towards the evaluation of individual criteria.

4.38 In the case of the *Innovation into Practice* sub-programme under the CFF Programme, the applicants were required to submit a risk analysis and were to be excluded if they failed to do so. Under the “fulfilment of the programme objectives” scoring criterion for the 2nd public tender, the opponents were asked to evaluate the project in terms of cost recovery and planned economic benefits. In the event of a discrepancy, the rapporteur was to make a decision and provide a justification for any reduction in the project costs. The Sub-programme Council was to evaluate the projects objectively and impartially, taking into account the opinions of the opponents.

4.39 In the case of half of the 20 Selected Projects from the TREND Programme, the SAO found that the opponents did not provide sufficient justification for their scores given to the scored criteria or sub-criteria and even deviated from the recommendations for the evaluation of the given criterion. Examples 14 and 15 below illustrate these facts. In another case, the Programme Council decided contrary to the negative opinion of both the opponent and the rapporteur and recommended the project for support without justification.

Example 14

Project No FW01010471 focused on the development of a gamma camera for thyroid gland and small organs imaging; the subsidy amounted to CZK 37.0 million. One of the opponents evaluated the project proposal in the criterion “amount of economic benefits in relation to the eligible project costs” with the maximum possible score of 10 points despite the fact that the expected economic benefits of the project amounted only to 1.9 times the total project

costs, whereas the Guide for opponents recommended the maximum score starting from the five times of the project costs upwards. The awarded score was not duly justified. Two other opponents also gave the project proposal a high score; as a result, the project proposal reached 28 of 30 possible points in the given criterion.

Example 15

For project No FW01010386 focused on the research and development of an articulated electric bus (with a subsidy of CZK 16.9 million), the main applicant did not provide any written statement of potential customers to use the project results. The provision of letters of interest was not required in the TREND Programme, but it could have supported the credibility of the marketing study. In the project proposal, the main applicant mentioned the highly competitive environment in the subject area. This project proposal was scored full points by one of the opponents despite the fact that the ability to commercialise the project results was not substantiated by the applicant. The project was rated higher than other projects that have demonstrated interest from potential customers that will be implemented in a less competitive environment.

→ In the case of the TREND Programme, the risk of selecting inefficient projects persists.

4.40 The system for the evaluation of project proposals in the TREND Programme includes the evaluation of project efficiency in the scored criterion “adequacy of schedule and financial requirements”, scored sub-criterion “amount of economic benefits in relation to eligible project costs” and, in the case of 3rd and 4th public tenders only, in the exclusion criterion “project proposal fulfils the basic conditions of the public tender, in particular, its objective is in line with the focus of the Programme, the eligible costs of the project are duly detailed and justified and the project is economically viable, i.e. the project costs are adequate in relation to the expected benefits”.

4.41 The weight of the criteria evaluating the project efficiency in the total score was 15 points out of the 100 possible points in the case of the 1st public tender, and 20 points out of the 100 possible points in the case of the 2nd public tender. In the TREND Programme, the MoIT set the conditions so that in the 1st public tender, any project meeting the exclusion criteria could be supported, and in the 2nd public tender, only the projects that gained at least 40 additional points out of the 100 possible could be supported. In the absence of the exclusion criterion taking into account the cost recovery of the project, the evaluation system for the selection of projects in the 1st and 2nd public tenders in the TREND Programme did not eliminate the risk of supporting projects that did not receive any points in the efficiency evaluation. The SAO had already pointed out this problem with the TRIO Programme (see para. 4.18).

→ The MoIT and TA CR only verify the eligibility of project costs in retrospect during on-site audits and only for a sample of projects.

4.42 Pursuant to Act No 130/2002 Coll., eligible costs mean those eligible costs or expenses in RDI that are approved by the provider and justified. Pursuant to the terms and conditions of the Agreement on the Provision of Funding in the CFF Programme, the beneficiary is obligated to submit an annual report on the implementation of the project with the

opponent's opinion and a detailed project budget attached to the MoIT. In the TREND Programme, the beneficiary attaches an extract from the accounting records to the interim reports on the project implementation. The rapporteur draws up an opinion on the interim report.

4.43 Information on project implementation, which is required annually by the MoIT and TA CR from the beneficiaries, does not contain data that would allow for the verification of eligibility of project costs and the use of funding. Neither the MoIT nor the TA CR requires beneficiaries to provide accounting documents proving the actual costs of the project. The MoIT and the TA CR verify the eligibility of the costs reported by the beneficiaries only in retrospect during on-site financial audits, as is the case in the TRIO Programme. However, the providers of support only carry out such audits on a sample of projects. The SAO considers this method of reviewing eligible expenditures to be insufficient as it creates a risk of reimbursement of ineligible expenditures for projects that have not been subject to on-site financial audits.

→ In two cases, the TA CR determined that the amount of funding provided was in breach of the conditions for its provision under the TREND Programme.

4.44 In the case of the 3rd public tender in the TREND Programme, the MoIT reduced the maximum amount of support per project to CZK 40 million. The support could amount to a maximum of 70% of the project costs. In two cases, the TA CR determined higher funding to the beneficiaries than the conditions set for the 3rd public tender in the TREND Programme. One such case is given in Example 16.

Example 16

In the case of project No FW03010364 focused on the development of an amphibious vehicle for civil life rescue, the SAO found that the TA CR had determined the amount of funding for the project in the Agreement on the Provision of Funding in the amount of CZK 43,632,078, i.e. by CZK 3,632,078 more than the conditions for the 3rd public tender in the TREND Programme allowed. The TA CR justified the error by the incorrect setting of a control rule in the ISTA information system and initiated negotiations with the beneficiary to correct the undesirable situation during the SAO's audit.

List of Terms and Abbreviations

Agreement	Agreement on the Provision of Targeted Support
CFF	<i>The Country for the Future</i> research, development and innovation programme
CR	Czech Republic
DC	Disposal cask
EPSILON	Programme for support of applied research and experimental development
IMPULS	Industrial research and development programme
ISTA	Information system of the TA CR
KETs	Key technologies
Methodology	<i>Methodology for the evaluation of research organisations and the evaluation of programmes of targeted support for research, development and innovation</i>
MoIT	Ministry of Industry and Trade
OECD	Organisation for Economic Co-operation and Development
OPEI	<i>Enterprise and Innovation</i> Operational Programme
OPEIC	<i>Enterprise and Innovation for Competitiveness</i> Operational Programme
R&D	Research and development
R&D&I IS	Information system for research, development and innovation
RDI	Research, development and innovation
RDI Priorities	<i>National Priorities of Oriented Research, Experimental Development and Innovations</i> (document of the Research, Development and Innovation Council)
Report	Interim report on the implementation of the TRIO Programme (the report was prepared by the MoIT as at 18 December 2018 and subsequently submitted to the Government of the Czech Republic)
SAO	Supreme Audit Office
Selected Projects	Sample of 20 projects selected for audit by the SAO from the TRIO Programme
TA CR	Technology Agency of the Czech Republic
TIP	Programme for the support of applied research, experimental development and innovation
TREND	Industrial research and experimental development programme
TRIO	Applied research and experimental development programme

Overview of planned expenditure and actual use of state budget funds from the TRIO, CFF and TREND Programmes

TRIO Programme (in CZK million)

	2016	2017	2018	2019	2020	2021	2022	Total
Projected expenditure	268.000	842.000	1,367.000	1,560.000	1,202.000	682.000	165.000	6,086.000
Actual spending	304.271	842.036	1,318.867	1,490.539	1,187.184	735.909	346.379	6,225.185

Source: The TRIO Programme document (version valid from 30 April 2018), MoIT's information on spending (as at 9 May 2022); processed by the SAO.

CFF Programme (in CZK million)

	2020	2021	2022	2023	2024	2025	2026	2027	Total
Projected expenditure	650.000	900.000	1,150.000	1,050.000	850.000	600.000	450.000	450.000	6,100.000
Actual spending	87.721	328.345	428.065						844.131

Source: The CFF Programme document (version valid from 20 January 2021), MoIT's information on spending (as at 9 May 2022); processed by the SAO.

TREND Programme (in CZK million)

	2020	2021	2022	2023	2024	2025	2026	2027	Total
Projected expenditure	515.000	1,095.000	1,605.000	1,900.000	1,900.000	1,435.000	855.000	345.000	9,700.000
Actual spending	783.071	1,671.367	421.171						2,875.609

Source: The TREND Programme document, TA CR's information on spending (as at 31 March 2022); processed by the SAO.

**Overview of the projects audited in the TRIO Programme
and the result of the effectiveness and efficiency evaluation of the funds used**

Project number	Project name	Beneficiary	Total expected support for the project (in CZK thousands)	Evaluation	
				Effectiveness	Efficiency
FV10505	Intelligent composite anchoring element	STRIX Chomutov, a.s.	19,139.603	3	3
FV10506	Research and development of a mobile protective and ballistic barrier made of composite board and water infill	STRIX Chomutov, a.s.	14,140.929	3	3
FV20336	Research and development of new remediation technologies for peripheral nodes construction of prefabricated houses	MEDIUM INTERNATIONAL I. s.r.o.	13,843.541	2	1
FV10226	Development of high-efficiency technology for recycling metals from bottom ash	VVV MOST spol. s r.o.	13,433.037	3	3
FV10219	Multifunctional machine for machining of large and complex shaped parts of a rotary character, designed for power and renewables	ŠMT a.s.	19,995.000	1	1
FV10019	Research and development of forging technology for middle-sized forgings of nickel and titanium-based alloys	CZECH PRECISION FORGE a.s.	11,440.000	3	3
FV10720	Performance and technology optimisation of multiaxial machine tools	TGS nástroje-stroje-technologické služby spol. s.r.o.	10,570.000	3	3
FV10645	Continuous acoustic emission analyzer for diagnostics of erosion-corrosion and creep damage of pipeline systems	Zemědělské družstvo Rpety se sídlem ve Rpetech	13,327.110	2	2
FV10530	Integrated device for universal robotic rehabilitation of arms and legs with motivational biofeedback	EMBITRON s.r.o.	7,136.000	3	3
FV10329	Transportable personalised medical device for vacuum compression therapy	EMBITRON s.r.o.	6,484.000	3	3
FV10044	Research and development of an advanced collaborative robotic platform and its application in the manufacturing of electronic components	Integrated Micro-Electronics Czech Republic s.r.o.	14,280.509	3	3

FV10709	Welding numerical simulation, including fatigue prediction of welded constructions in ground transportation, steel constructions and energy industrial section – high and low fatigue, thermal fatigue and hot tearing	MECAS ESI s.r.o.	6,852.000	2	2
FV10739	Research and development of the division of bearing rings in relation to the dynamic stress dividing plane	ZKL, a.s.	18,878.519	2	1
FV10670	Modified concrete overlays for bridges	Ing. Vladimír Fišer	12,911.827	3	3
FV10297	Active system of roof covering reducing the energy consumption of buildings	DAKO Brno, spol. s r.o.	17,766.200	1	1
FV10592	Development of a new semi-automatic Index Cutting Machine	Czech Machines, s.r.o.	10,109.600	x	x
FV10094	Research and development of specialty ready-made industrial sewing machines of the new generation	AMF Reece CR, s.r.o.	19,740.000	4	4
FV20197	Research and project concept of a multifunctional robotic effector of an underground multi-robot for storage of disposal casks in a deep geological repository and the realisation of a prototype of a dual robotic effector module and its master control system	HOPAX s.r.o.	19,419.125	4	4
FV10441	Research and development of an emergency plunger pump for boric acid solution pumping in the primary circuit of WWER-type nuclear power plant	SIGMA PUMPY HRANICE, s.r.o.	17,410.000	2	1
FV10295	Safety glass with reinforcement	NAUPO, s.r.o.	5,730.000	3	3
Total			272,607.000		

Grading:

- 1 Project is effective and efficient.
- 2 Project is effective, or efficient with minor shortcomings.
- 3 Project is effective but shows only limited efficiency.
- 4 Project is ineffective and inefficient.
- x Project was not evaluated as the SAO could not carry out the audit of the beneficiary.

Criteria for evaluating effectiveness and efficiency of projects from the TRIO Programme

1. Evaluation of effectiveness

Level of project effectiveness	Definition of effectiveness level
<p style="text-align: center;">1. Project is effective</p>	<p>Project has achieved all expected results, and such results are used in practice. It is assumed that the results of the research bring a real contribution to the relevant field of targeted support. Usually, this entails achieving 100% of the expected results and benefits. It can be evaluated as “project has fulfilled the expected results”.</p>
<p style="text-align: center;">2. Project is effective with minor shortcomings</p>	<p>Nearly all expected results have been met and are largely being used in practice. Failure to achieve some of the expected results does not have a significant impact on the success of the project and its use and benefits.</p> <p>The results of the project are largely used in practice; the failure to meet the expected benefits to achieve the programme objectives is not significant.</p>
<p style="text-align: center;">3. Project shows limited effectiveness</p>	<p>The expected results were only partially achieved; their use in practice is significantly lesser than expected. Therefore, the project benefits are significantly lower than expected, and there is no reasonable expectation of significant improvement in the future.</p>
<p style="text-align: center;">4. Project is ineffective</p>	<p>The expected results were not achieved, e.g., due to their unrealistic nature. For example, the project has failed to achieve even half of the expected results, or it is reasonable to assume that more than half of the results will not be achieved.</p> <p>None of the results is currently used, or their use is marginal, and the project has not demonstrated steps to reach potential users that would use the results and thus improve the situation in the future.</p> <p>Alternatively, the project has deviated completely from the original assignment and objective, and therefore, cannot fulfil its purpose and reason for being selected for targeted support.</p> <p>Alternatively, the project was selected by the provider of the subsidy in complete contravention to the relevant rules and regulations, and therefore, was ineligible from the outset.</p>

2. Evaluation of efficiency (and economy)

Level of project efficiency	Definition of efficiency level
<p style="text-align: center;">1. Project is efficient</p>	<p>The expected benefit of the project was achieved with the corresponding amount of funds expended.</p> <p>It was assessed whether:</p> <ul style="list-style-type: none"> • the expected benefits of the project have been achieved, and the total costs of the project are not disproportionate to the results and benefits achieved; • the scope of work performed in the project solution was in line with the planned schedule both in terms of time and substance; • all the funds spent were directly related to the implementation of the project and were necessary for the achievement of the project objectives (in terms of substantive content); • all expenditure on personnel costs was incurred in the extent necessary for the purposes of the project and was adequate – comparison of prices in the selected audited projects; • all expenditure on tools, instruments and equipment and expenditure on services was incurred at prices usual for the given place and time – comparison of prices in the selected audited projects; • the evaluated project was not duplicated in relation to another project, and its results were not known at the time of implementation.
<p style="text-align: center;">2. Project is efficient with minor shortcomings</p>	<p>Some of the efficiency requirements have not been met in full, but this has only a partial or insignificant effect on the overall positive evaluation of the project efficiency. For example, an uneconomical expenditure of a small part of the project costs (e.g. higher than usual price) was found. Such a partial and insignificant expenditure had no demonstrable link to the achievement of the project objectives.</p>
<p style="text-align: center;">3. Project shows limited efficiency</p>	<p>Several of the efficiency requirements have not been met, or they have more than a partial impact on the overall efficiency of the project. Several costs were found to be uneconomical, or the wastefulness of some of them is significant. Due to lower-than-expected project results, or lower benefits, the total amount of costs incurred limits its efficiency, or the expected results and benefits were not entirely proportional to the project costs. Alternatively, more expenditure incurred as a part of the project had no direct link to the achievement of its objectives.</p>
<p style="text-align: center;">4. Project is inefficient</p>	<p>The project and its implementation have major shortcomings with respect to the cost-effectiveness of the expenditure. For example, expenditure on the given project is completely disproportionate to the results achieved, e.g., because most of the results have not been achieved. Significant parts of the expenditure have been overestimated and do not correspond to the prices usual for the place and time. Alternatively, the project is wholly or largely duplicated in relation to another project, or the expected results of the project already exist. Alternatively, the project budget was significantly exceeded without proper justification. The project is always rated as ineffective if it is evaluated as inefficient.</p>