Audit Report

22/02

State and European Union funds earmarked to support digital education

The audit was included in the audit plan of the Supreme Audit Office (hereinafter the "SAO") for 2022 under number 22/02. The audit was headed and the Audit Report drawn up by Ing. Adolf Beznoska, a SAO member.

The aim of the audit was to verify whether the Ministry of Education, Youth and Sports spent and provided funds intended for the support of digital education efficiently and in accordance with legal regulations.

The audit for the audited entities was carried out in the period from January 2022 to September 2022.

The audited period was 2019–2021; both the previous and subsequent periods were also considered for contextual reasons.

Audited entities:
The Ministry of Education, Youth and Sports (also referred to below as "MEYS" or "the Ministry"); National Pedagogical Institute of the Czech Republic (a facility for further education of pedagogical staff), Prague (hereinafter also referred to as "NPI").

Board of the SAO, at its 15th session held on 21 November 2022,

approved, by Resolution No 15/XV/2022,

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

Digital education in Czech schools

1.3

Extraordinary state budget funds for ICT equipment during the COVID-19 pandemic in CZK billion

4,100

Number of schools supported with extraordinary funds for ICT during the COVID-19 pandemic

91%

Increase in the number of portable devices, such as tablets/laptops in schools between 2018–2021

2 %

Percentage of teachers who have tested their digital competences

64 %

Percentage of unused digital teaching materials by teachers

25%

Percentage of activities not fulfilled by the MEYS in the framework of implementation of *Digital Education Strategy by 2020*

I. Summary and Evaluation

SAO carried out an audit of the State and European Union funds expended to support digital education. The audit also focused on distance education during the COVID-19 pandemic. The MEYS has spent a total of CZK 8.2 billion on supporting digital education from the State Budget and the European Structural and Investment Funds. Digital education uses digital technologies in teaching, yet it also develops students' digital literacy and prepares them for involvement in society and the labour market.

The aim of the audit was to verify whether the Ministry of Education, Youth and Sports spent and provided funds intended for the support of digital education efficiently and in accordance with legal regulations. The audit was carried out at the MEYS as the guarantor of digital education and NPI as the system project promoter.

The MEYS provided funds for the implementation of measures in the field of digital education in accordance with the applicable legislation. The Ministry has not met the objectives of *Digital Education Strategy until 2020* (hereinafter also referred to as "DES"). The MEYS has also not set up a sustainable system for financing the information and communication technologies (ICT) in schools. Neither the Ministry nor the NPI were not aware of the level of digital competences of teachers in the Czech Republic.

The SAO found that within the framework of systemic projects implementing the DES, the project promoters created and tested tools for the development of digital education. Their impact cannot be comprehensively evaluated because of all four systemic projects audited only two projects' outputs are actually used in the field of education. The outputs of the other two projects will only be used in the future change of the content of primary school education, which the MEYS is planning for 2024.

The funds provided by the Ministry for the development of digital education have not been incurred efficiently, as the benefits of some of these funds have not yet produced effects in the education system.

Educational institutions were not prepared for distance learning. Their preparedness for this form of education could have been significantly better if the MEYS had implemented the activities and measures set out in *the Digital Education Strategy until 2020*.

Paradoxically, the COVID-19 pandemic contributed to the development of digital education, this is confirmed by the audit findings of the SAO, questionnaire surveys conducted by the SAO and thematic reports of the Czech School Inspectorate (hereinafter also "CSI").

The overall evaluation is based on the following main audit findings:

1. **The MEYS has not met the objectives of *Digital Education Strategy until 2020* and failed to set out a set of indicators for the Strategy 2030+**

Digital Education Strategy until 2020

The MEYS has set out three priority objectives within DES, for the evaluation of which it has also set out the indicators. **Of the seven** general indicators, the MEYS **met two, one was**

partially met and for the remaining four the MEYS was unable to assess their implementation due to missing data. Thus, the MEYS **did not assess the actual fulfilment of most indicators.** For this reason, the MEYS **could not and did not evaluate the fulfilment of the priority objectives**.

The MEYS has continuously evaluated the implementation of DES activities on an annual basis. It was clear from these evaluations that only three of the 43 activities met the deadline, which accounts approximately for seven percent. Overall, according to the final evaluation of the strategy, the Ministry fulfilled 33 out of 43 activities, i.e. approximately three quarters. Given the **significant delay in the implementation of the DES and the failure to meet as many as a quarter of the activities**, it is clear that even the **priority objectives have not been met.** Thus, the funds for the **implementation of the DES were not incurred entirely efficiently.**

Strategy for Education Policy of the Czech Republic until 2030+

For the period of implementation 2020–2023, the MEYS has set out five sets of measures supporting the development of digital education within the *Strategy for Education Policy of the Czech Republic until 2030+* (hereinafter also referred to as the "Strategy 2030+"). However, it **did not set out indicators for** the implementation of each set of measures until the audit was completed. Similarly, as of the end of the audit**,** the MEYS **had not established a set of indicators that** would enable monitoring of the education system in relation to the fulfilment of the objectives of Strategy 2030+. If the MEYS **does not set out indicators adequately, it will not be able to evaluate the implementation and impacts of the Strategy 2030+ not only in the field of digital education.**

2. The MEYS has so far failed to ensure the use of some system projects in the field of education

The SAO selected four system projects for audit:

- The *Capacity Building for the Development of Basic Pre/literacy Skills in Pre-School and Primary Education – Supporting Teachers' Work* project (hereinafter also referred to as "STW");
- The *System for Supporting Professional Development of Teachers and Principals* (SYSU) project;
- The *Promoting the development of computational thinking* project (hereinafter also referred to as "PRIM");
- The *Promoting the development of digital literacy* project (hereinafter also referred to as "PDDL").

Of these projects**, the PRIM** project and **partly the PDDL project also had an impact on the education system** by the end of the audit. These projects can be assessed as effective. The use of the outputs of the other two audited projects – **STW and SYSU – is linked to the future change of the content of education** in primary schools. The expected start of the implementation of the modified content of education in primary schools is set by the MEYS for 2024, i.e. about three years after the end of the STW projects. The STW project can **be assessed as efficient in terms of achieving the set-out objectives and outputs.** In terms of the

use of the funds and their effect on the education system, it can be concluded that **some of the outputs of the STW project will need to be further developed to be of real benefit to the whole education sector.**

3. The MEYS and NPI were not aware of the level of digital competences of teachers in the Czech Republic

The NPI was to identify the situation in the field of digital education, evaluate and prepare documents for setting the digital agenda of the MEYS. **However, the NPI was not and is not aware of what actual digital competences teachers in the Czech Republic have, because** it did not monitor and evaluate the data obtained from the self-assessment application *Profile Teacher21*. According to the SAO, the **self-assessment character of** *the Teacher Profile21* and its significantly low use among teachers **does not provide accurate and objective information for verifying the level of digital competences of teachers** in the Czech Republic.

Given the above**, the MEYS was not accurately familiar with the digital competences of teachers in the Czech Republic in the audited period.**

4. The NPI has not found a way to promote the use of digital teaching materials in teaching process.

The NPI supported the platform for sharing digital teaching materials, however, the *RVP.CZ Methodological Portal* (containing the module "EMA Catalogue", the module "Teaching Materials"and the module "Expert Articles") was not widely used by the target group, i.e. teachers.

A physical inspection of the *RVP.CZ Methodological Portal* found that it **contains a large number of educational materials that are not clearly arranged and therefore cannot be considered user-friendly and attractive,** which was confirmed by the NPI in its opinion. Although the NPI promoted these modules on social media, on blogs and in newsletters, it **did not track the impact and reach of the promotion of these modules.** The impact of this promotion is negligible given the low use of the materials.

5. The MEYS did not have a sustainable system of ICT funding for schools

In the audited period, the MEYS **did not have a sustainable system of financing ICT equipment and** therefore commissioned an analysis of the method of financing the digital infrastructure of schools in 2022. The final report should not be received by the MEYS until 2023, by which time it will be providing funds to schools under the *National Recovery Plan* (NRP) for the further acquisition of digital teaching aids.

Schools can use the State Budget for purchase of ICT equipment, through other non-investment expenditure (hereinafter referred to as "ONE"). There has been a gradual increase in ONE between 2019 and 2022. Despite this increase, the MEYS **failed to ensure an increase in ONE by at least CZK 500 per pupil** in the audited period. This need was identified by the Ministry itself in 2019. Therefore, **after the outbreak of the COVID-19 pandemic,** the MEYS **had to provide one-off emergency funds of CZK 1.3 billion** from the state budget for primary

schools (hereinafter also referred to as “PS”) and lower secondary schools to cover the acquisition of ICT equipment.

With regard to the establishment of a sustainable system of financing ICT equipment, the SAO believes that the **financial contribution to the operation of schools should be provided primarily from the state budget or from other sustainable resources** (e.g. from the founder) and should depend only to minimal extent on one-off resources (e.g. from European Structural and Investment Funds).

6. Educational institutions and MEYS were not prepared for distance learning.

Prior to the outbreak of the COVID-19 pandemic, schools and students were struggling with a **lack of necessary ICT equipment** (see Annex 2 to this Audit Report). The Ministry **provided** extraordinary one-off financial support of CZK 1.3 billion to schools **only during the second wave of the COVID-19 pandemic**, i.e. from September 2020. After this extraordinary support, the number of portable ICT devices in schools increased significantly.

The **Czech Republic was one of the countries where the distance learning form of education lasted the longest** (see Annex 3 to this Audit Report). The MEYS would have been better prepared for this form of teaching if it had implemented the activities and measures of the DES approved as early as in 2014 (see point 1).

II. Information on the Audited Area

Digital education responds to changes in society related to the development of digital technologies and their use in various areas of human activity. It includes education that makes effective use of digital technologies to support teaching and learning, as well as education that develops pupils’ digital literacy. It prepares students for involvement in society and the labour market, where the demands for knowledge and skills in the information technology segment are constantly increasing.

Ministry of Education, Youth and Sports

The Ministry of Education, Youth and Sports is, according to the provisions of Section 7(1) of Act No 2/1969 Coll., on the establishment of ministries and other bodies of central government of the Czech Republic, the central state administration authority for pre-schools, schools, primary schools, secondary schools (hereinafter also referred to as “SSL”) and universities, for science policy, research and development, including international cooperation in this field, and for scientific degrees, for state care for children, youth and physical education. From 1 January 2019, digital education was integrated into the Education Section of the MEYS, where a new Department of Concepts and Innovations in Education was created, which was responsible for, among other things, managing the development and implementation of *Digital Education Strategy until 2020*. The agenda also covers the areas of digital skills, digital mindsets, digital literacy, cyber-prevention, cyber-security and new technologies in education (e.g. artificial intelligence). From 2022 onwards, the MEYS is also

responsible for the implementation of component 3.1. *Innovation in education in the context of the digitization of the National Recovery Plan*. The MEYS is also the managing authority for the Operational Programme *Research, Development and Education* (hereinafter also "OP RDE") for programming period of 2014–2020 and for the Operational Programme *Jan Amos Komenský* for the 2021–2027 programming period.

National Pedagogical Institute of the Czech Republic

The National Pedagogical Institute of the Czech Republic is a state contributory organisation directly managed by the MEYS. The NPI was established on 1 January 2020, merging the National Institute for Education and the National Institute for Further Education. Over the years 2020–2021, digital education was addressed across the NPI. As of 1 January 2022, a unit for digitalisation in education was established at NPI. This unit promotes synergies and opportunities for developing the digital competencies of NPI staff and collaborators to make effective and safe use of a wide range of digital technologies and to act in line with the changes in the modern world of education. It also provides support to schools, head teachers and other teaching staff in efficiently setting up the development and use of digital technologies in the life of the whole school. Last but not lease, the NPI ensures identification of the situation in the field of digital education, evaluate and prepare documents for setting the digital agenda of the MEYS.

Strategic materials

Digital Education Strategy until 2020

In 2014, the MEYS developed the *Digital Education Strategy until 2020* (DES), which was approved by the Government of the Czech Republic in the same year. DES had three priority objectives, namely:

1. to open up education to new methods and ways of learning through digital technologies,
2. to improve pupils' competences in working with information and digital technologies,
3. to develop students' computational thinking.

In addition, the MEYS identified 23 measures and 43 DES-related activities. In May 2021, the MEYS prepared an evaluation of DES, which was subsequently discussed by the Government of the Czech Republic.

Strategy for Education Policy of the Czech Republic until 2030+

The *Strategy for Education Policy of the Czech Republic until 2030+* is a follow-up document to the *Strategy for Education Policy of the Czech Republic until 2020*. The Strategy 2030+ is a document of a general, overarching nature, describing the priorities to be addressed over the period, particularly in the areas of regional education, non-formal and informal education and lifelong learning. The Strategy 2030+ contains two strategic objectives:

1. to focus education more on the acquisition of competences needed for active civic, professional and personal life;
2. to reduce inequalities in access to quality education and enable the maximum development of the potential of children, pupils and students.

Furthermore, the Strategy 2030+ contains five strategic lines, with digital education being part of strategic line 1 "*Transforming the content, modes and assessment of education"*.

National Recovery Plan

The *National Recovery Plan of the Czech Republic* contains six priorities. The funds for the implementation of NRP will be provided to the Czech Republic by the European Union through the *Recovery and Resilience Facility* on a rolling basis until 2026. The MEYS is responsible for three components of NRP at a total of CZK 23 billion. For the area of digital education, the key component is 3.1 *Innovation in education in the context of digitalization*, for which over CZK 4.8 billion is allocated and which will be implemented by the MEYS together with the NPI.

System projects supported by the MEYS

1) The Capacity Building for the Development of Basic Pre/literacy Skills in Pre-School and Primary Education – Supporting Teachers' Work ("STW")

The project was launched on 1 December 2016 and ended on 30 November 2021, it was established within the framework of OP RDE with NPI as the promoter. The NPI subsidy for the project amounted to CZK 98.7 million. The NPI spent CZK 98.3 million on the project. The aim of the STW project was to develop reading, mathematical and digital literacy in all educational areas. The STW project consisted of six interrelated key activities (hereinafter also referred to as "KA"). The output of the project featured professional modules and web services on the *RVP.CZ Methodological Portal* (i.e. the *EMA Catalogue*, the *Teacher21 Profile* and the *Digital Literacy* Reputation System) and a network of 36 pilot schools was created to test the project outputs.

2) System for Supporting Professional Development of Teachers and Principals (SYSU)

The project started on 1 January 2018 and is expected to end on 30 June 2023, with NPI as the project promoter. The NPI subsidy for the project amounted to CZK 341.6 million. The NPI has spent CZK 247.5 million on the project (as of 30 June 2022). The main objective of the project is to create, verify and implement a system of comprehensive modular support contributing to the professional development of school leaders in the field of pedagogical management and teachers in the field of didactics. The output of the project should be eight products in systemic projects, such as an educational model with methodology and curriculum, an individual support service for teachers and a platform for professional thematic meetings, etc. It should also result in four training modules with methodology and curriculum and four national systems (introduction of a system of management of methodological cabinets, introduction of a system of support for beginning teachers, introduction of a system of support for school management especially in the field of pedagogical management, quality management system).

3) Promoting the development of computational thinking (PRIM)

The project was launched on 1 October 2017 and its implementation was completed on 30 November 2020 with the Faculty of Education of the University of South Bohemia in České Budějovice as the project promoter. The project was audited by the SAO at the level of the

provider. A total of CZK 109.8 million was allocated to the project. The total amount spent was CZK 97.4 million. The main objective of the project was to create educational materials for teachers (methodological materials) and for all age groups of pupils (textbooks) from kindergarten to high school. Another objective was to create a system of training for teachers of computer science at all levels of schools, a system of training future teachers at faculties of education and to popularize the development of computer thinking of students. The project outputs included expert articles on the topic of computational thinking, textbooks and educational materials for the new subject of informatics and model school curricula in the field of informatics for primary schools and grammar schools. Two online courses and training materials have been created for teachers.

4) Promoting the development of digital literacy (PDDL)

The project was launched on 1 January 2018 and its implementation was completed on 31 December 2020 with the Faculty of Education of Charles University as the project promoter. The project was audited by the SAO at the level of the provider. A total of CZK 109 million was allocated to the project. The total amount spent was CZK 93.3 million. The main objective of the project was to promote conditions for open education and to contribute to the development of the education system by strengthening competences for the development of digital literacy of children and pupils. The output of this project was the definition of digital literacy in individual general education subjects (e.g. Czech language, mathematics, geography, etc.) for primary and secondary schools. Other outputs of the project included educational courses for teachers of kindergartens, primary schools and secondary schools (mostly in the form of e-learning), which focused on the methodology of developing digital literacy in children, pupils and students. The project also created syllabi for university courses at faculties of education focused on the development of digital literacy.

III. Scope of the Audit

The audit concerned the State funds and the EU funds expended on digital education. The aim of the audit was to verify whether the Ministry of Education, Youth and Sports spent and provided funds intended for the support of digital education efficiently and in accordance with legal regulations. The audited period was determined as the years 2019-2021 and also, where relevant, the period immediately before that and the period up to the completion of the audit.

The audit was carried out at the Ministry of Education, Youth and Sports as the managing authority for digital education and as the managing authority of the OP RDE and also at the National Pedagogical Institute of the Czech Republic as the project promoter for the STW and SYSU projects.

The audit was focused on the use of funds from the State budget and the EU budget targeted at distance education. The MEYS verified the setting of objectives and the implementation of measures and activities of DES and Strategy 2030+. Furthermore, the SAO examined the setup of calls for proposals concerning digital education within the OP RDE. Four system projects were audited at the level of the MEYS as the managing authority. Their benefits and impacts

on the primary and secondary education system were evaluated. The beneficiaries of the two selected system projects were examined for the fulfilment of the project objectives, the implementation of key activities and the use of their outputs in practice.

The audited volume of funds at the system level at the MEYS totalled CZK 8 177.6 million. This is equal to the funds expended on projects supported by 18 calls from OP RDE related to digital education and extraordinary one-off support from the State budget in the amount of CZK 1 300 million. CZK. The audited volume of funds for the National Pedagogical Institute of the Czech Republic as a beneficiary totalled CZK 345.8 million. CZK.

The legality criteria were based on generally binding legislation, primarily Act No 561/2004 Coll., on pre-school, primary, secondary, tertiary vocational and other education (Education Act).

The assessment of effectiveness consisted primarily in evaluating whether the funds spent by the MEYS on the development of digital education contributed to the fulfilment of the objectives in this area with a clear impact on the education system.

The Digital Education Strategy until 2020 was evaluated in terms of the fulfilment of the set objectives and the fulfilment of individual measures and activities. The criterion for the evaluation of effectiveness was the implementation of all 23 DES measures within the set deadline. In Strategy 2030+, the setting of the strategy and the criteria for its evaluation were checked.

The SAO audited the effectiveness and compliance with legal regulations of four system projects supported by three calls of OP RDE totalling CZK 536.5 million:

- Project: *Capacity Building for the Development of Basic Pre/literacy Skills in Pre-School and Primary Education (STW)* supported by call No 02_15_001,
- Project: *System for Supporting Professional Development of Teachers and Principals* (SYSU) supported by call No 02_17_052,
- Project: *Promoting the development of computational thinking (PRIM)* supported by call No 02_16_036,
- Project: *Promoting the development of digital literacy (PDDL)* supported by call No 02_16_036.

Table 1: System projects supported by the MEYS

Projects	Subsidy beneficiary	Subsidy amount (in CZK million)	Drawn (in CZK million)	Project completed
STW	National Pedagogical Institute of the Czech Republic	98.7	98.3	31/11/2021
SYSU	National Pedagogical Institute of the Czech Republic	341.6	247.5 (as of 30 June 2022)	30/06/2023
PRIM	Faculty of Education at the University of South Bohemia in České Budějovice	109.8	97.4	31/11/2020
PDDL	Faculty of Education, Charles University	109	93.3	31/12/2020
Total		**659.1**	**536.5**	

Source: Made by SAO using data from MEYS.

Of these four projects, three have been completed and one is under way. The financial volume of funds provided to the beneficiaries for selected projects amounted to CZK 536.5 million.

During the audit, the SAO also carried out quantitative research using a standardized questionnaire in two versions for the teaching staff of primary schools (principals and teachers) and for parents or legal representatives of pupils in grades 4 and 8. The purpose of the questionnaire survey was to obtain additional information about the experiences and attitudes of principals, teachers and parents of pupils in the field of digital education in primary schools. **The SAO contacted 3,928 primary schools, with 2,077 principals and 19,579 teaching staff responding to the questionnaire. In addition, a total of 28 852 parents or legal representatives of pupils responded to the questionnaire**. The results of the questionnaire survey were used by the SAO to support the audit findings (see Annex 1 to this Audit Report).

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

IV. Detailed Facts Found in the Audit

1. The MEYS has not met the objectives of Digital Education Strategy until 2020 and failed to set out a set of indicators for the Strategy 2030+

Two strategic documents developed by the MEYS were in force for the area of digital education in the audited period.

Digital Education Strategy until 2020

In 2014, the MEYS prepared the *Digital Education Strategy until 2020*, which was approved by the Government of the Czech Republic as a key strategic document for the development of digital education in the Czech Republic.[1] DES had three priority objectives, namely:

1. to open up education to new methods and ways of learning through digital technologies,
2. to improve pupils' competences in working with information and digital technologies,
3. to develop students' computational thinking.

The DES grouped the actions into seven main lines of intervention to address the priority objectives and the main vision. Within the individual interventions, the MEYS identified 23 measures and 43 related activities. For each activity, the MEYS set a deadline for completion, the organisation responsible for implementation and the source of funding (mainly OP RDE).

Interim evaluations of the DES implementation showed that **only three of the 43 activities** (i.e. approximately 7%) **were completed by the** original deadline set out by the MEYS. **In many cases, the MEYS did not even meet the already postponed deadlines**, and many of the deadlines in the annual evaluations were adjusted to "ongoing". The MEYS also modified the wording of individual activities.

In the final evaluation of DES, the Ministry mentioned that it fulfilled 33 out of 43 activities, i.e. approximately three quarters. Of the seven general indicators, the MEYS **met two, one**

[1] Resolution of the Government of the Czech Republic of 12 November 2014, No 927.

was partially met and for the remaining four the MEYS was unable to assess their implementation due to missing data. For example, the MEYS deprived itself of data from the ICILS survey[2] when it did not support the Czech Republic's participation in this survey. Thus, the MEYS **did not evaluate the fulfilment of more than half of the indicators, which** were set to evaluate the fulfilment of the three priority objectives of the whole DES. **The Ministry has not evaluated the achievement of these objectives.** Therefore, it is not clear how the implementation of DES has opened up education to new methods and ways of learning through digital technologies or improved pupils' competences in working with information and digital technologies or developed pupils' computational thinking.

Effective implementation of the DES assumes that the MEYS implements all measures and activities on time and thus meets the set priority objectives. Given the significant delay in the implementation of the DES and **the failure to meet as many as a quarter of the activities**, it is clear that even the **priority objectives have not been met.** Thus, the funds for the **implementation of the DES were not incurred entirely efficiently.**

Strategy for Education Policy of the Czech Republic until 2030+

The Strategy 2030+ was approved by the Government of the Czech Republic in October 2020.[3] The MEYS has divided the implementation of the Strategy 2030+ into three periods. Each of these should be based on the identification of the key measures that have the most significant potential to contribute to the achievement of the set objectives.

For the period 2020–2023 of the implementation of the Strategy 2030+, the MEYS has set out five sets of measures. **However, it did not set out indicators for the implementation of each set of measures until the audit was completed.** Similarly, as of the end of the audit, the MEYS had not established a set of indicators that would enable monitoring of the education system in relation to the fulfilment of the objectives of Strategy 2030+. If the MEYS **does not set out indicators adequately, it will not be able to evaluate the implementation and impacts of the Strategy 2030+.**

In the course of the implementation of the Strategy 2030+, the Ministry has approved the *Connectivity and Security Standard for Schools* and started implementing the partially revised *Framework Educational* Programme (hereinafter referred to as "FEP") for primary education in the area of new informatics.

2. The MEYS has so far failed to ensure the use of some system projects in the field of education

The SAO focused on systemic projects in the area of digital education development, which were linked to the implementation of the *Digital Education Strategy until 2020*. All completed projects audited achieved the expected outputs. The project can be assessed as efficient in terms of achieving the set-out objectives and outputs. In terms of the use of the funds and their effect on the education system, it can be concluded that **some of the outputs of the**

[2] The International Computer and Information Literacy Study (ICILS) is a survey carried out by the CSI in the Czech Republic that examines the level of computer and information literacy skills of pupils.

[3] Resolution of the Government of the Czech Republic of 19 October 2020 No 1062.

projects will need to be further developed to be of benefit to the whole education sector. Only in the framework of the STW project there was one of the sub-objectives not met.

STW project

The main objective of the STW project was to develop reading, mathematical and digital literacy in all educational areas. The sub-objectives of the key activities of the project were met, except for objections against the key activity No 6 (hereinafter also "KA6").

The aim of KA6 was to create the capacity for efficient provision of methodological support to target groups through online services and the development of appropriate interfaces for mobile devices. For the implementation of this activity, NPI has allocated CZK 20 million out of the total CZK 98.7 million intended for the STW project. Objective KA6 was not met because the **outputs were not transferred to all educational areas.** On the basis of the information found (see points 3 and 4), it can be concluded that **efficient provision of methodological support did not occur in some cases** (i.e. very low use of the *Teacher Profile21* application and digital teaching materials).

The impact of the funds used by the STW project on the education system is to a significant extent linked to the future revision of the Framework Curriculum for Primary Education, the implementation of which in schools is planned by the MEYS for three years after the end of the project. The results of the project in the area of methodological support for basic literacy will be used in the future revision of the FEP for basic education.

Thus, the STW project can **be assessed as efficient in terms of achieving the set-out objectives and outputs.** In terms of the use of the funds and their effect on the education system, it can be concluded that **some of the outputs of the STW project will need to be further developed to be of real benefit to the whole education sector.**

SYSU project

During the audit, the SAO focused on key activities of the SYSU project related to digital education. For digital education, the output of establishing a network of regional ICT methodologists has been achieved so far. The SYSU project provided methodological support to schools during the COVID-19 pandemic through individual expert webinars. The SYSU project has not yet been completed.

NPI had 20 regional ICT Methodologists (RIM) working as part-time external staff under the SYSU project. They were responsible for the expertise, leadership, organisation and implementation of digital education processes. They carried out evaluations of the set processes and informed about training programmes in the relevant region. Given the total number of **10 914 schools** (kindergartens, primary schools, secondary schools and grammar schools)**, there were theoretically 545.7 schools for each RIM on average** – see Table 2.

Table 2: Overview of the number of schools per RIM

	PHA	STK	KVK	PLK	JČK	LBK	USK	KHK	PAK	VYS	JHK	OLK	MSK	ZLK	TOTAL
Number of kindergartens	435	808	125	281	328	235	360	315	320	291	679	388	466	318	5,349
Number of primary schools	252	534	99	207	246	183	260	248	236	260	460	276	413	243	3,917
Number of secondary schools	187	148	31	55	88	49	94	74	75	63	123	92	136	70	1,285
Number of grammar schools	74	37	9	15	22	13	22	19	20	18	40	19	39	16	363
Total number of schools	948	1,527	264	558	648	480	736	656	651	632	1302	775	1,054	647	10,914
Number of RIMs	1	1	2	2	1	1	1	1	2	2	2	1	2	1	20
Number of schools per RIM	**948**	**1,527**	**132**	**279**	**648**	**480**	**736**	**656**	**325.5**	**316**	**651**	**775**	**527**	**647**	**545.7**

Explanatory notes:

PHA = Prague, STK = Central Bohemia Region, KVK = Karlovy Vary Region, PLK = Pilsen Region, JČK = South Bohemia Region, LBK = Liberec Region, USK = Ústí nad Labem Region, KHK = Hradec Králové Region, PAK = Pardubice Region, VYS = Vysočina Region, JHK = South Moravian Region, OLK = Olomouc Region, MSK = Moravian-Silesian Region, ZLK = Zlín Region.

Source: compiled by the SAO based on data available at: https://statis.msmt.cz/rocenka/rocenka.asp.

Given the scope of the RIM's workload, it is **unrealistic that with so many schools per coordinator, the schools could receive the care and assistance they need.**

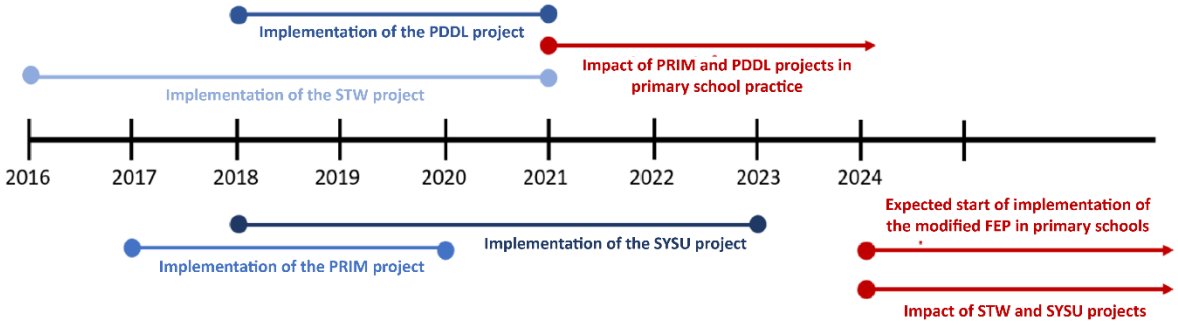
PRIM project

The PRIM project has achieved all the expected outputs. The outputs have been tested in 152 participating schools and are currently being used in the implementation of new informatics in primary schools. The introduction of new informatics in primary schools has a precise timetable from the MEYS. By 2022, more than half of the Czech Republic primary schools will teach the revised subject of computer science. The PRIM project can thus be evaluated as **effective in terms of achieving the set objectives and outputs of the project as well as in terms of the use of funds,** since the benefits of these funds are verifiable in the practice of education in Czech primary schools.

PDDL project

The PDDL project has achieved all the expected outputs. The project worked with 82 pilot schools. Some of the project outputs were already integrated into the education system after the project was completed. Some of the project's outputs in the area of digital literacy will be used in the future revision of the RVP for primary education, which is planned to be implemented by schools by September 2024 at the earliest. Thus, the PDDL project can **be assessed as efficient in terms of achieving the set-out objectives and outputs even in terms of funds expended.**

Diagram 1: Impact of incurred funds in audited projects



Source: drawn up by the SAO.

3. The MEYS and NPI were not aware of the level of digital competences of teachers in the Czech Republic.

Teachers' digital competences include the use of digital technologies to directly support teaching, but also to interact and communicate with colleagues, pupils and parents. They also serve for their own professional development and to collaborate in the development of the school.

In 2019, the MEYS published the *Framework of Digital Competences for Teachers* (the Framework), which was developed by the NPI in the STW project. The digital competences were based on the European DigCompEd framework. The framework included areas of digital technology use that teachers should know and be able to use in their teaching. The Framework is also the basis for one of the outputs of the STW project, the online application *Profile Teacher21*, which was implemented by NPI.

The ***Teacher21 Profile*** **application** is intended to be used by teachers to assess and plan the development of their own digital competences. The digital competences are divided into six levels, from A1 ("novice") to C2 ("pioneer"). The NPI *Teacher Profile21* refers to materials that should help teachers to achieve a higher level of digital competence. The *Teacher21 profile* is set up so that the logged-in user performs a self-assessment for each competency. However, **the user knows in advance which level (A1-C2) is being assessed. According to the SAO, the self-assessment character and the voluntary nature of *the* *Teacher Profile21* do not provide accurate and objective information for verifying the level of digital competences of teachers in the Czech Republic.**

The SAO verified the extent to which the *Teacher21 profile* is used by teachers. The average number of visitors to the *Teacher21 Profile* by May 2022 was lower than in the previous year, as shown in Table 3. Furthermore, only **2 478 completed profiles** were in the system during this period. Table 3 shows that 1 487 new profiles were completed in the last year, which is more than 50% of all profiles created. With **more than 133,000 primary and secondary school teachers** in the 2021/2022 school year , this represents**less than two percent of teachers who have tested their digital competences.**[4]

[4] However, it can also be assumed that some teachers have set up multiple profiles, which the *Teacher 21 profile* system allows, and therefore the percentage may actually be even lower.

Table 3: Attendance and evolution of the number of new profiles in the module *Profile Teacher21*

	Year/ month	I.	II.	III.	IV.	V.	VI.	VII.	VIII.	IX.	X.	XI.	XII.
Attendance	2021	5,743	8,559	5,788	4,294	5,710	2,484	1,372	2,592	5,709	8,583	2,903	2,625
	2022	5,416	5,307	5,830	4,421	4,537	-	-	-	-	-	-	-
New profiles	2021	-	-	-	-	-	-	22	61	122	166	39	47
	2022	163	206	202	184	164	111	-	-	-	-	-	-

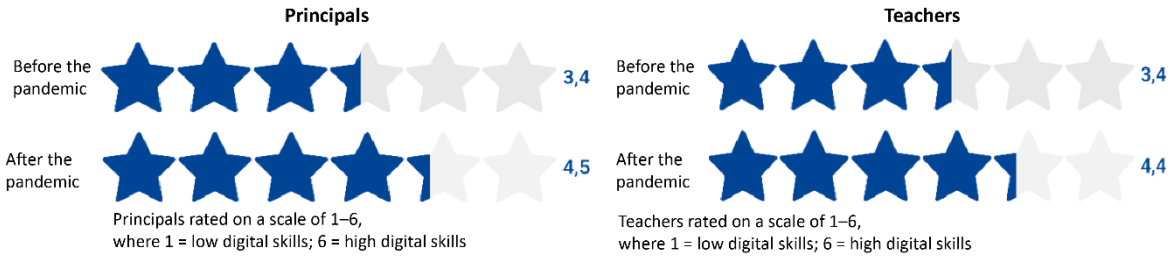
Source: drawn up by SAO using data from NPI.

The NPI was not and is not aware of what actual digital competences teachers in the Czech Republic have. It did not monitor nor evaluate the data obtained from the *Teacher Profile21* on the resulting levels of teachers' digital competences. Such a self-assessment system **does not give accurate and objective information** about the digital competences of the tested person.

Given the above, the MEYS was not accurately familiar with the digital competences of teachers in the Czech Republic in the audited period.

According to the SAO survey, the digital competences of primary school principals and teachers improved during the pandemic of COVID-19 and distance education. The average improvement in digital competence for primary school principals was 1.1 points and for primary school teachers 1.0 points (see Diagram 2).

Diagram 2: Digital Competences of Primary School Principals and Teachers



Source: drawn up by the SAO from questionnaire survey data.

4. The NPI has not found a way to promote the use of digital teaching materials in teaching process.

In the field of digital education, other key skills for teachers include working with digital learning materials such as worksheets, videos, audio demonstrations, animations, simulations, etc. The materials are mainly created by teachers, who can share them via various websites.

Digital teaching materials created within the framework of projects supported by the MEYS were available on the *RVP.CZ Methodological Portal*, which was managed by the NPI. The materials were located on the portal in the modules "EMA Catalogue", "Teaching Materials"and "Expert Articles".

The ***EMA Catalogue*** is a catalogue of digital learning resources, where links to various digital learning resources are brought together in one place. The author and the publisher are fully responsible for the content of the *EMA Catalogue*. There were approximately **46,500 insertions** in the *EMA Catalogue* at the end of June 2022. Of this number of uploads, a total

of **29,991, i.e. 64%,** were **without any display** (i.e. this number of materials has never been displayed by any user before).

There were approximately **10,591 digital teaching materials** in the "**Teaching Materials"** module as of the end of June 2022. All of these materials have been viewed at least once by users. The NPI did not track the number of downloads of materials for teaching, but only **tracked the number of times they were viewed.** According to the SAO, the number of downloads of these materials is indicative of the use of this module because only downloaded material can be used in teaching.

There were approximately **8,999 peer-reviewed articles** in the "**Expert Articles"** module as of the end of June 2022. The peer-reviewed articles went through a publication process that included approval, peer review and proofreading by NPI. For professional articles, NPI **tracked the number of views.** The NPI promoted these modules on social media, on blogs and in newsletters, yet it did not track the impact and reach of the promotion of these modules.

Table 4: Attendance of modules on *Methodological portal RVP.CZ*

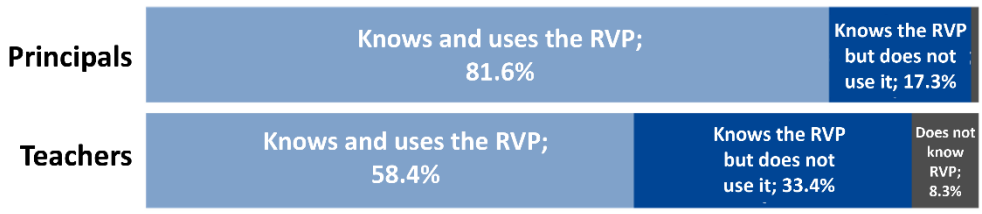
Year	Module "Teaching materials"	Module "Expert articles"	Module "EMA Catalogue"
2018	783,994	1,148,107	38
2019	746,299	1,156,179	5,712
2020	1,217,155	1,330,425	14,830
2021	873,059	1,420,390	15,059

Source: drawn up by SAO using data from NPI.

Table 4 shows that the highest attendance of all modules was in 2020, when the pandemic of COVID-19 broke out in the Czech Republic and distance education was taking place in schools. For the modules "EMA Catalogue" and "Expert Articles", the number of visitors increased between 2018 and 2021, while the number of visitors to the module "Teaching Materials" tended to decrease (except for 2020).

Although the NPI supported the platform for sharing digital teaching materials, however, the ***RVP.CZ Methodological Portal*** **was not widely used by the target group**, i.e. teachers (see Chart 1). Due to the large volume of educational materials in the modules "EMA Catalogue", "Teaching Materials" and "Expert Article", these modules cannot be considered user-friendly and attractive, as it is difficult to search and filter information. A physical inspection of the *RVP.CZ Methodological Portal* found that **it contains a large number of educational materials. According to the NPI's opinion, despite its partial modifications by the NPI, this portal is not popular among teachers mainly because of its lack of clarity** (see Chart 2).

Chart 1: Usage *of the methodological portal RVP.CZ*



Source: drawn up by the SAO from questionnaire survey data.

The SAO survey showed that over 19% of respondents (principals and teachers) would like to see the portal made more user-friendly/clear. Furthermore, almost 16% of respondents would welcome the availability of information on one portal (the MEYS uses the EDU.CZ portal for communication with principals and teachers), see Chart 2.

Chart 2: The most frequent responses of respondents to possible changes in *Methodological portal RVP.cz*

Source: drawn up by the SAO from questionnaire survey data.

5. The MEYS did not have a sustainable system of ICT funding for schools

At the beginning of each calendar year, the MEYS sets the norms[5] for kindergartens, elementary schools, secondary schools, conservatories, colleges, and after-school clubs. The largest part of the normatives is payroll expenditure. According to the Education Act[6] , the costs of teaching aids, school supplies, textbooks and the costs of further education of teaching staff are covered by the State Budget through **so-called other non-investment expenditure.** Schools can also use these funds to purchase and replace ICT tools (hardware and software).

In 2019, the MEYS divided the national norms by age categories as in previous years. The MEYS has established five categories according to the education provided, as shown in Table 5.

Table 5: Normative ONE per child / per pupil in 2019 (in CZK)

Age category	Other non-investment expenditure, total in CZK/pupil
3–5 years	541
6–14 years	1,136
15–18 years	1,117
19–21 years old	700
Regional Institutional Education Facility	2,500

Source: www.msmt.cz/vzdelavani/skolstvi-v-cr/ekonomika-skolstvi/republikove-normativy-skol-a-skolskych-zarizeni-zrizovanych-10.

For the period 2020–2022, the structure of the ONE standards has been changed and broken down according to the categories of levels of education shown in Table 6.

[5] Schools and educational institutions are financed from the State Budget under the Education Act through so-called normative financing. The amount of the national norms is set annually by the MEYS at the beginning of the year.

[6] Provision of Section 160(1)(c) of Act No 561/2004 Coll.

Table 6: Normative ONE per child / per pupil in 2020–2022 (in CZK)

Category	2020	2021	2022	2022 (NRP)
Kindergarten in a regular classroom	399	700	450	741
Kindergarten according to Section 16 (9) of the Education Act	980	1,250	1,150	741
Primary school preparatory class	578	900	600	887
Preparatory stage of special primary school	1,400	1,700	1,450	887
1st stage of primary school (without 2nd stage)	1,313	3,000	1,710	887
1st stage of primary school (with 2nd stage)	1,155	2,800		
2nd stage of primary school	998	1,600	1,220	887
1st stage of primary school according to Section 16(9) of the Education Act	1,850	3,500	2,300	887
2nd stage of primary school according to Section 16(9) of the Education Act	1,700	2,300	1,800	887
Special schools	1,900	3,000	2,000	887
Secondary school by field of education	683–20 356	1 250–20 923	800–22 702	249–749
College of Education according to an accredited educational programme	651	800	800	-

Source: drawn up by the SAO based on data available at: www.msmt.cz/vzdelavani/skolstvi-v-cr/ekonomika-skolstvi/rozpocet.

There was a gradual increase in ONE between 2019 and 2022. Despite this increase, the **announced need of the MEYS to increase the ONE funds by CZK 500 per pupil in 2019 has still not been met.** The insufficiency of funds, among other things, within the framework of ONE, was an obstacle to the acquisition and replacement of ICT at primary and secondary schools at least until the end of 2018 (see also page 5 of the SAO's audit report from audit operation No 18/18). In 2020, **the MEYS provided** additional **extraordinary funds** from the State budget for primary schools and lower grades of grammar schools **through an increase in ONE by CZK 1.3 billion.**[7]

Table 6 shows that there was only a one-off increase in ONE schedule at the beginning of the year in 2021 due to the COVID-19 pandemic. According to the draft budget of Chapter 333 – *Ministry of Education, Youth and Sports* for 2022, the 2022 ONE budget for regional education of local self-governing units was reduced by CZK 995 million compared to 2021.[8] In 2022, the average increase in ONE compared to 2020 for kindergartens and primary schools is CZK 193 per pupil. Additional funds for ONE will be provided to schools in 2022 from the NRP in the amount of CZK 1.2 billion. The MEYS has focused these funds on the digital transformation of schools.

The MEYS **failed to ensure an increase in ONE by at least CZK 500 per pupil** in the audited period. Ministry in 2020–2022 **has not developed an analysis of the spending of ONE due to the spread of the COVID-19 pandemic.**

In the audited period, the MEYS **did not have a sustainable system of financing ICT equipment.** The Ministry commissioned an analysis of the *state of digital infrastructure and*

[7] For the increase of ONE, the MEYS applied the provisions of Section 161(7) of Act No 561/2004 Coll., which became effective on 1 October 2020 in connection with the adoption of Act No 284/2020 Coll., amending Act No 561/2004 Coll., on pre-school, primary, secondary, higher vocational and other education (Education Act), as amended, and Act No 178/2016 Coll, 561/2004 Coll., on pre-school, primary, secondary, higher vocational and other education (Education Act), as amended, and Act No 200/1990 Coll., on offences, as amended, as amended.

[8] The reduction included CZK 145 million due to a one-off reduction in the expenditures of the MEYS chapter and another CZK 850 million which were transferred to the budget for private education.

its systemic and sustainable financing in the Czech Republic, with proposals for future measures to be made in 2022. The final report should not be received by until 2023, by which time it will be providing funds to schools under the NRP for the further acquisition of digital teaching aids.

As regards the establishment of a sustainable system of financing ICT equipment, the SAO believes that the **financial contribution to the operation of schools should be provided primarily from the state budget or from other sustainable resources** (e.g. from the founder) and should depend only to minimal extent on one-off resources (e.g. from European Structural and Investment Funds). This will allow schools to purchase ICT equipment according to actual needs.

6. Educational institutions and MEYS were not prepared for distance learning.

In March 2020, the government of the Czech Republic issued a ban on the personal presence of all pupils and students in schools and educational institutions due to the presence of COVID-19 in the territory of the Czech Republic. Schools have switched to distance education. Distance education is a form of learning that does not take place in classrooms and does not require teachers and students to be present in person at school. A student communicates with teachers and the school e.g. via the internet using apps or email. **Yet schools and students were struggling with a lack of necessary ICT equipment** (see Annex 2 to this Audit Report).

The Czech Republic was one of the countries where distance education was the longest running form of education at all levels of education during the COVID-19 pandemic. In total for the school years 2019/2020 and 2020/2021, this amounted to approximately 150 teaching days (see Annex 3 of this Audit Report). At the second stage of primary and secondary schools, students spent more than half of their education during the COVID-19 pandemic in distance learning mode (on average **143 teaching days**). **However, schools were not prepared for this form of teaching.** Their preparedness for the distance education could have been significantly better if the MEYS had implemented the DES activities and measures in a timely manner (see point 1).

According to the CSI, "*of the estimated 250 000 pupils who did not participate in online distance learning in spring 2020, a number of interventions implemented at the end of the 2019/2020 school year and in the 2020/2021 school year have succeeded in reducing this number of non-participants to around a fifth*."[9]

Financial support during the COVID-19 pandemic

During the first wave of the COVID-19 pandemic, i.e. from March to June 2020, the MEYS did not provide emergency funds to schools for distance learning. The **Ministry provided extraordinary one-off financial support** to schools in the amount of CZK 1.3 billion **during the second wave of the COVID-19 pandemic**, i.e. from September 2020, with the provisions of Section 161(7) of Act No 561/2004 Coll. coming into force. It also set out the criteria, purpose and other conditions for the use of these emergency funds. The funds could be used by the schools for the purchase of teaching aids used for the implementation of online distance learning, in particular portable devices such as laptops or tablets, including accessories and software (see Annex 2 to this Audit Report).

[9] CSI: Thematic report – *Distance education at primary and secondary schools*, May 2020. Available at: https://www.csicr.cz/cz/Dokumenty/Tematicke-zpravy/Tematicka-zprava-Vzdelavani-na-dalku-v-ZS-a-SS.

A **total of 4,102 schools were supported,** of which 4,100 actually used the subsidy and two schools returned the subsidy in entirety. Primary schools and lower stages of multi-year grammar schools used the subsidy for the purchase of laptops/ultrabooks including accessories, tablets, teaching aids such as webcams, microphones, headsets, speakers, wireless mice, etc., software (licenses, teaching programs, software for online teaching and cloud packages) and mobile phones. The **number of portable devices**, which were used for teaching during the COVID-19 pandemic**, increased significantly in schools**. Comparing 2018 and 2021, the increase in the number of portable devices in schools was 91% (see Annexes 1 and 2 of this Audit Report).

Methodological support for schools during the COVID-19 pandemic

In the first wave of the COVID-19 pandemic, schools were looking for ways to provide the best possible distance learning. They decided which communication platforms to use and how to ensure the conditions for teaching in the families of the pupils.[10] At the same time, the MEYS launched an information web portal with recommended procedures, online educational resources and support for teaching staff to ensure distance education. Subsequently, starting in September 2020, the MEYS successively issued five guiding methodologies aimed at helping schools with distance education.

NPI organised the broadcast of UčíTelka programme on Czech Television from mid-March to mid-June 2020 and published 15 issues of the weekly newsletter for schools. NPI conducted 135 webinars during the first wave of the COVID-19 pandemic. Based on the methodological instructions of the MEYS in cooperation with the CSI, NPI staff provided targeted support to schools. Between May and June 2020, NPI staff contacted a total of 1,212 schools (1,018 primary schools and 194 secondary schools).

Distance learning experience

The **Czech School Inspectorate** carried out **three thematic investigations** during the pandemic. The CSI issued three thematic reports summarising recommendations in the field of distance education for the MEYS, schools and founders. The MEYS has partially responded to the recommendations of the CSI on the thematic report *Distance Education in Primary and Secondary Schools* issued in May 2020.[8] Furthermore, the Ministry has responded with concrete steps and measures to the CSI recommendations on the thematic report *Distance Education in Primary and Secondary Schools* issued in March 2021.[10] **Yet, the MEYS did not reflect the recommendations of the CSI** from the thematic report *Return to full-time education in primary and secondary schools* issued in August 2021 and **did not follow up on these recommendations with any specific measures.**

Distance education during the school closure period in spring 2020 confirmed that distance learning can be functional and beneficial as a complement to face-to-face education. The MEYS is testing combined full-time and distance education through experimental validation at primary and secondary schools from September 2021, building on the experience of schools with distance education. The results of the testing will not be available to the MEYS until 2023 at the earliest.

[10] CSI: Thematic report – *Distance education at primary and secondary schools*, March 2021. Available at: https://www.csicr.cz/cz/Dokumenty/Tematicke-zpravy/Tematicka-zprava-Distancni-vzdelavani-v-zakladnich.

Paradoxically, the COVID-19 pandemic contributed to the development of digital education, this is confirmed by the audit findings of the SAO, questionnaire surveys conducted by the SAO and thematic reports by CSI.

List of Abbreviations

CSI	Czech School Inspectorate
CR	Czech Republic
ICT	Information and communication technologies
KA	Key activity
RIM	Regional ICT Methodologist
MS	kindergarten
MEYS, the Ministry	Ministry of Education, Youth and Sports
SAO	Supreme Audit Office
NPI	National Pedagogical Institute of the Czech Republic
NRP	*National Recovery Plan*
ONE	sub-grouping of items *Other non-investment expenditure*
OP RDE	Operational Programme *Research, Development and Education*
STW	Project:Capacity Building for the Development of Basic Pre/literacy Skills in Pre-School and Primary Education – Supporting Teachers' Work ("STW")
PDDL	Project*: Promoting the development of digital literacy*
PRIM	Project: *Promoting the development of computational thinking*
Framework	*Framework of digital competences for teachers*
FEP	framework educational programme
DES	*Digital Education Strategy until 2020*
SŠ	secondary school
Strategy 2030+	*Strategy for Education Policy of the Czech Republic until 2030+*
SYSU	project *System for Supporting Professional Development of Teachers and Principals*
ZŠ	primary school

List of Annexes

Annex 1: SAO questionnaire survey
Annex 2: ICT equipment for schools
Annex 3: International comparison of distance education during the Covid-19 pandemic (2020-2021)

Annex 1

SAO questionnaire survey

The SAO carried out quantitative research using a standardised questionnaire in two versions for primary schools and for parents/legal representatives of pupils in the 4th and 8th grades as part of audit No 22/02 – *State and EU funds earmarked for digital education*. The purpose of the questionnaire survey was to obtain information about the experiences and attitudes of principals, teachers and parents of pupils in the field of digital education in primary schools. The SAO contacted 3,928 primary schools via data mailbox. 2,077 principals and 19,579 teachers responded to the questionnaire. As part of the request to complete the questionnaire, the SAO asked the management of primary schools to distribute the questionnaire to parents and legal representatives of pupils in grades 4 and 8. A total of 28 852 parents or legal representatives of pupils responded to the questionnaire. Since the SAO did not have information on how many parents and legal representatives of pupils were contacted through primary schools, it is not possible to calculate the return rate of the questionnaires.

The questionnaire for teachers and principals of primary schools contained 19–31 questions (depending on the filtering of answers), the questionnaire for parents and legal representatives contained 15–17 questions. It took about 10 minutes on average to fill in. The last two questions in both versions of the questionnaires were used to complement or express the respondent's attitude. Some questions in the questionnaire offered an open-ended response.

The survey was conducted between 20 May and 9 June 2022.

For the interactive annex, click here: https://www.nku.cz/scripts/detail.php?id=12815.

Annex 2

ICT equipment for schools

Table 7: Overview of ICT equipment in schools in 2018–2021

	2018	2019	2020	2021
Desktop computers, total*	**307,340**	**316,387**	**317,442**	**319,664**
Of which: accessible to children, pupils and students	*199,960*	*202,113*	*204,277*	*205,133*
MS	*4,325*	*4,224*	*3,954*	*3,341*
1st stage of PRIMARY SCHOOL	*77,649*	*79,930*	*81,226*	*81,000*
2nd stage of PRIMARY SCHOOL	*76,996*	*78,833*	*80,469*	*81,400*
SŠ	*87,206*	*89,129*	*90,603*	*91,090*
Conservatoire and College	*10,286*	*9,636*	*9,673*	*9,185*
Of which: with internet connection***	196,809	199,325	201,491	
of which: maximum age of two years	32,717	46,606	51,733	52,745
i.e. %	*16.6*	*23.4*	*25.7*	*25.7*
Portable devices such as notebook, tablet, etc.*	**166 117****	**187,191**	**244,399**	**317,391**
Of which: accessible to children, pupils and students	71,953**	94,644	130,982	166,008
MS	5,015**	8,761	13,570	16,215
1st stage of PRIMARY SCHOOL	31,685**	44,779	63,566	83,997
2nd stage of PRIMARY SCHOOL	28,881**	39,812	56,343	75,573
SŠ	21,064**	23,405	21,211	34,389
Conservatoire and College	1,317**	1,405	1,750	2,330
Of which: with internet connection***	69,611**	92,241	127,970	
Of which: maximum age of two years	20,512**	45,490	72,755	86,521
i.e. %	*29.5*	*49.3*	*56.9*	*52.1*
	2018	**2019**	**2020**	**2021**
School wireless network (WI-FI)				
MS	3,030	3,415	4,208	4,626
1st stage of PRIMARY SCHOOL	3,561	3,732	3,948	4,076
2nd stage of PRIMARY SCHOOL	2,390	2,515	2,666	2,766
SŠ	1,182	1,197	1,231	1,249
Conservatoire and College	169	163	166	165
School wireless system (school intranet)****				
Of which: available online to pupils/parents				
MS	257/109	299/138	406/210	816/443
1st stage of PRIMARY SCHOOL	1 042/749	1 163/864	1,472/1,232	2,524/2,117
2nd stage of PRIMARY SCHOOL	957/701	1 052/798	1,308/1,114	2,085/1,852
SŠ	808/728	834/769	889/829	1 059/985
Conservatoire and College	136/122	133/120	140/132	148/118

Source: school headquarters reports as of 30 September 2018, 30 September 2019, 30 September 2020 and 30 September 2021 (R 13-01) for the school years 2017/2018, 2018/2019, 2019/2020, 2020/2021.

* This includes all computers, whether available to school staff or to children, pupils and students.

** As of 30 September 2018, the sum of the categories “Portable” (laptop and netbook devices) and “Other” (tablet, phablet devices); in other years the categories are combined.

*** The column cancelled for the year.

**** Closed website available only to pupils or school staff.

Table 8: Average number of pupils per computer/device

	2018		2019		2020		2021	
Type of school	ZŠ	SŠ	ZŠ	SŠ	ZŠ	SŠ	ZŠ	SŠ
Total pupils	940,928	403,949	952,946	408,086	962,348	417,301	964,571	430,214
Desktop computers	6.08	4.63	6.00	4.57	5.95	4.60	5.93	4.72
Portable devices	15.53	19.17	10.95	17.44	8.03	19.67	6.04	12.51
Desktop computers + portable devices	4.37	3.73	3.91	3.62	3.41	3.73	2.99	3.42

Source: prepared by the SAO using data from reports on school directorates provided by the MEYS and the *Statistical Yearbook of Education – Performance Indicators* for the relevant years.

Annex 3

International comparison of distance education during the Covid-19 pandemic (2020–2021)

The study by the Parliamentary Institute of the Chamber of Deputies of the Parliament of the Czech Republic[11] provides a concrete assessment of the experience with distance online learning during the closure of schools in the spring of 2020 due to the pandemic of COVID-19 in selected countries: Czech Republic, Finland, Austria and the UK. As implied by the evaluation of the experience with online distance learning at the time of the closure of schools in spring 2020 due to the COVID-19 pandemic, the situation varied from one European country to another. This is also consistent with the OECD data[12] on the length of school closures in each country (see Chart 3).

Czech Republic

In the Czech Republic, according to the cited study, the situation was remarkably similar to that in Austria (as shown by surveys conducted in the Czech Republic). In the first weeks after the closure of schools, parents replaced the work of teachers, who mostly communicated with the family only by assigning tasks via e-mail. Up to 20% of pupils were not involved in online communication with their teachers, either because of insufficient computer facilities or low motivation of the pupils themselves or due to lower support from their families. On the other hand, schools lacked methodological support. For the period of the year 2020 to May 2021, the Czech Republic ranked among the five countries with the longest school closures according to the OECD international comparison (see Chart 3).

Austria

The transition to online distance learning was often new for teachers and students in Austria and the situation varied from school to school. In some schools, classes stopped completely, while in others students complained about the excessive amount of homework. In many schools, teaching process was provided mainly in the form of printed materials ready to be picked up at the schools. According to Chart 3, Austria was above the OECD average in terms of the length of school closures.

Finland

In Finland, the use of digital tools became a common part of daily teaching. Therefore, Finnish schools managed the transition to distance learning very well and did not experience any critical problems. Established online platforms were used to communicate with students and parents. The significant aspect was the ability of families to adapt their daily routines to home study. Chart 3 shows that Finland was one of the countries where schools were closed for a relatively short period of time.

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[11] *Distance education and digital competences in the coronavirus crisis* (Comparative study No 5.399, January 2021, Parliamentary Institute of the Chamber of Deputies of the Parliament of the Czech Republic).

[12] OECD = Organisation for Economic Co-operation and Development.

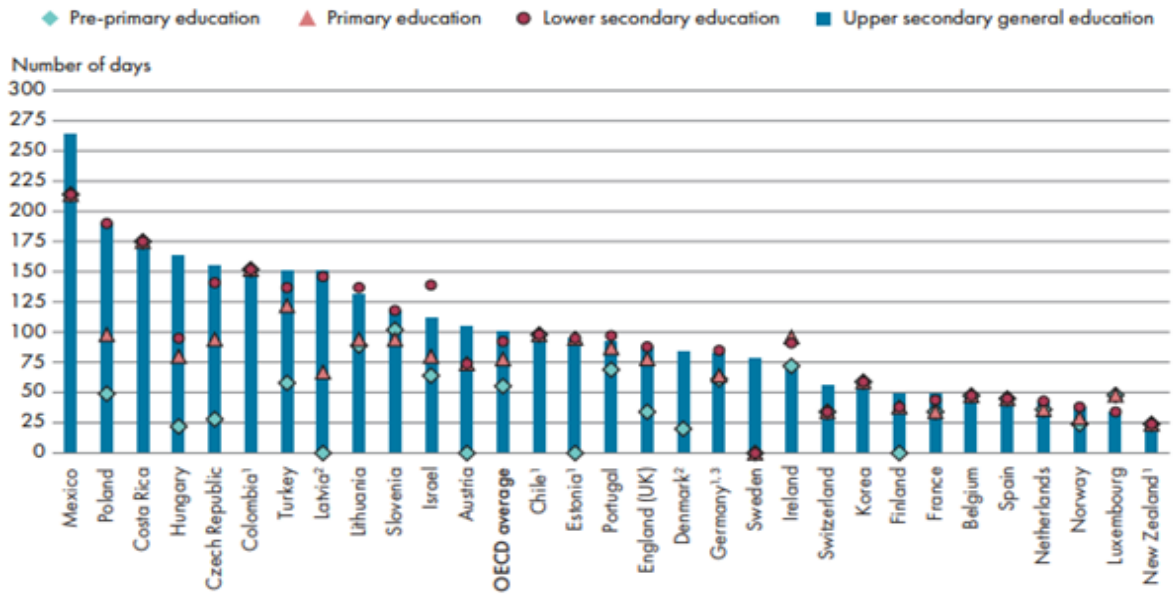
Great Britain

The National Audit Office's 2021 report[13] indicated that the Department for Education in the UK was not prepared for the arrival of the COVID-19 pandemic, and had no plan or strategy in place to deal with a mass disruption to full-time primary and secondary school teaching, despite the fact that the Department for Education took part in an inter-governmental exercise in 2016 to test how the UK would respond to an influenza pandemic. In February 2020, the Department for Education had already established its pandemic operations centre to assess the current pandemic situation in education. The workforce of this centre has grown from an initial five (February) to fifty (May). On 18 March 2020, the Department for Education announced that in order to reduce the transmission of COVID-19, schools will be closed to all pupils, except those from disadvantaged backgrounds, from 23 March. The schools were partially reopened on 1 June 2020 for pre-school and first stage primary school children. In mid-June, schools began providing face-to-face support to school-leaving class in order to supplement their distance learning. However, most of the children were distance learners during the whole period and all the children returned to school in September with the beginning of the new school year. In April 2020, the Department issued guidance on the provision of ICT equipment to support children's distance learning. The first wave of more than 1,200 pieces of this equipment reached pupils from disadvantaged backgrounds on 18 May 2020. Since April, the Department began to develop a methodology to support schools during the COVID-19 pandemic, but it was not until late June that the Department began to form an overarching support plan that set out the objectives, risks and potential impacts at departmental level. At the same time, Oak National Academy, an organisation supported by the Department for Education, was established in April to provide online learning and teaching materials. The organisation provides teachers with free educational sessions and teaching materials for pupils aged 4 to 16. This organization also provides special curriculum for students of specialized institutions. More than two million people used the service in its first week of operation. According to the aforementioned Parliamentary Institute study No 5.399, a survey of families in the UK found that distance learning was a challenge, especially for children from disadvantaged backgrounds (e.g. due to lack of study space, lack of technology or lack of parental support for learning), who on average performed less well than their classmates. According to Chart 3, schools in the UK were only closed for less than 100 school days in total.

According to the study by the Parliamentary Institute, emphasis has already begun to be placed on increasing digital ICT literacy in education systems. Within the schools, it was not only subjects directly focused on information technology, but the use of digital competences as a cross-cutting theme across the whole educational process. This trend was reinforced during the school closure period in the spring of 2020, when it was confirmed that the use of distance learning elements supported by digital technologies is crucial and that online tools should be reinforced during education in standard (face-to-face) settings. Some teachers may have struggled to make the transition to online teaching due to a lack of digital skills, contributing to a wide variation in the quality of online teaching across schools. The efficient use of ICT for teaching purposes depends heavily on the digital competences of teachers and on the integration of technology into teaching practice.

[13] National Audit Office: *Support for children´s education during the early stages of the COVID-19 pandemic*, published on 17 March 2021.

Chart 3: Number of school days when schools were completely closed during the period 1 January 2020 – 20 May 2021 (depending on level of education)



Source: OECD, *The State of Global Education: 18 Months into the Pandemic*, available at: https://www.oecd-ilibrary.org/education/the-state-of-global-education_1a23bb23-en.