OECD Education Policy Perspectives

No. 48

Design and Implementation of a Comprehensive Education Monitoring System in Austria

Austria is in the process of developing and implementing a comprehensive education monitoring system intended to be a backbone for the future governance of school education. It aims to provide data to support a number of processes including quality assurance, school self-evaluation, effective governance, regional education planning, evidence-based policy making, and allocation and use of resources. As part of this process, a project to support the design and implementation of a comprehensive education monitoring system in Austria was developed under a Grant Agreement between the European Commission's Directorate General for Structural Reform Support (DG REFORM) and the OECD. This document prepared by the Implementation Education Policies team at the OECD in consultation with the Austrian *Bundesministerium für Bildung, Wissenschaft und Forschung* (Ministry of Education, Science and Research, BMBWF) and the European Commission presents the final conclusions of the project.

Austria has progressed with the design and implementation plan of its monitoring system, defining indicators, planning and preparing the technical infrastructure as well as engaging relevant stakeholders in the process. In particular, Austria wants to guarantee that the information provided by the monitoring tools can be of value at school level to facilitate improvement. In this regard, the reporting mechanisms proposed for different levels of the system are meant to facilitate policy development and improvement in line with the 2017 Education Reform Act now in place in the country.

This report recognises that the implementation of a comprehensive education monitoring system in Austria is a complex process that requires balancing traditional top-down implementation processes with more bottom-up approaches that leave room for co-construction and local adaptation. It suggests that to accomplish education change in schools, policy makers in charge of the education monitoring system will need to shape a coherent, actionable and well-communicated implementation strategy that engages stakeholders early on and takes into account the broader socio-economic and political environment as part of the policy design process.

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1. Introduction

The Austrian Government is committed to an education system that promotes the development and learning of all its students, fosters a desire for lifelong learning and prepares them for life and work in the 21st century. To realise this aspiration, the Austrian Government passed a substantive plan to reform its education system (OECD, 2017[1]). More concretely, the Educational Reform Act of 2017 (*Bildungsreformgesetz*) introduced a governance reform, which aims to increase school autonomy, develop school clusters, give schools leaders more responsibility in human resources policy, improve quality assurance and merge two province-level administrative bodies into one provincial education administration (Bruneforth, Shewbridge and Rouw, 2019[2]). In addition, the reform pays special attention to the socio-economic background of students, the language spoken at home, and special needs as critical factors to determine resource allocation at school level. To support these changes, and provide an evidence base for more effective and efficient steering processes, the Educational Reform Act envisages the implementation of a comprehensive education monitoring system. It is intended to be a backbone behind the future governance of school education (BMBWF, 2019[3]). More broadly, the monitoring system should support the Austrian Ministry of Education, Science and Research (BMBWF) to track and achieve its own goals (BMBWF, 2019[3]).

The education monitoring system, referred to in the *Bildungsreformgesetz,* is intended to be a backbone for the future governance of school education in Austria.

More concretely, it is the intention of Austria that the education monitoring system, underpinned by the Quality Framework for Schools (EURYDICE, 2020[4]), should enable education actors to assess the impact of their actions and measures and subsequently adjust policies and implementation to reach the national education objectives of equity, quality and efficiency. The Austrian authorities also aim for the education monitoring system to facilitate steering, quality management and accountability processes, by linking existing instruments of education monitoring and the different levels of administration of the education system (BMBWF, 2019[3]). Finally, the system will incorporate new IT applications to assist those involved at the different levels of quality management and for schools to use data from the monitoring system to measure progress and pursue their own priorities.

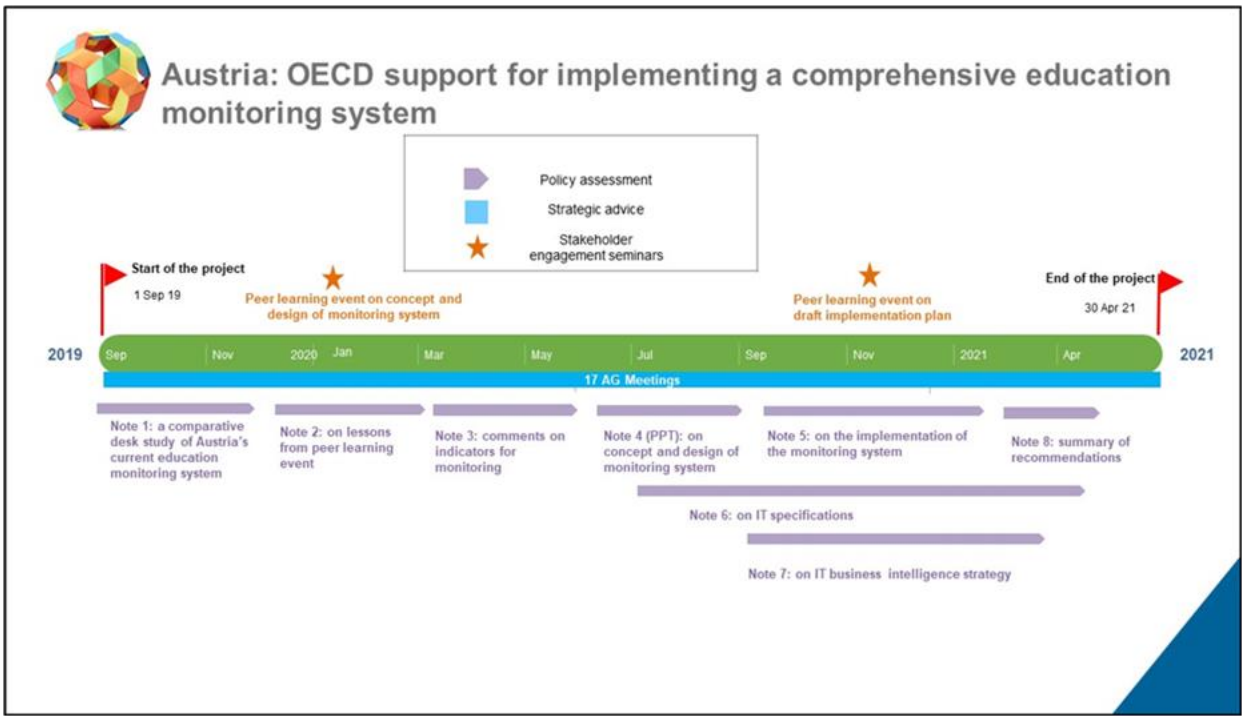
To facilitate this process, a project was developed to “Support the Design and Implementation of a Comprehensive Education Monitoring System in Austria” under a Grant Agreement between the European Commission’s Directorate General for Structural Reform Support (DG REFORM) and the OECD (through the Implementing Education Policies team, IEP). This document prepared by the OECD team, in consultation with BMBWF and the European Commission, is the final of a series of outputs produced as part of this project.

This report summarises the main recommendations developed throughout the project for Austria to support the implementation of its education monitoring system. Following this introduction and an overview of the methodology of the project, the report reviews the context and presents the main recommendations for implementing a comprehensive education monitoring system in Austria. It includes evidence to support the recommendations and, when possible, reference to relevant international practices and experiences.

Methodology and analytical framework

The collaborative project between BMBWF, the European Commission and the OECD was focused on supporting the design and implementation of a comprehensive education monitoring system in Austria; it is meant to underpin Austria's commitment with quality and equity in education.

Figure 1. Timeline of the project



The purpose of the project was to develop a concept and design of the Austrian monitoring system, from a technical and policy perspective, and to provide a set of recommendations for implementation. It was based on research and analysis of policies and indicators in Austria from a comparative perspective as well as stakeholder engagement. It ran from September 2019 to April 2021 (Figure 1) in two phases: the first one focused on the design of the education monitoring system and the second one focused on the implementation plan. To provide oversight and review progress, BMBWF, the OECD team and the European Commission constituted an advisory group that met periodically. The role of the OECD was to provide strategic advice on the design and implementation plans for the monitoring system. To this end, the OECD created a specific project team that combined expertise in indicators (Indicators of Education Systems (INES team) and in implementation (Implementing Education Policies, IEP team)).

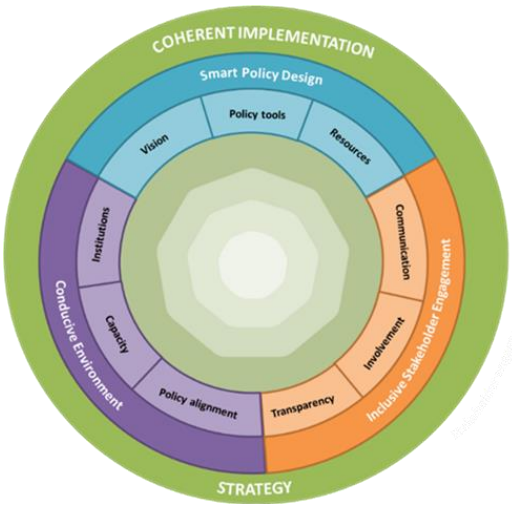
The OECD team, with guidance and contribution from BMBWF and the European Commission, produced a range of deliverables, including analysis, two peer-learning events, contributions by international experts (from Bavaria in Germany, Denmark and Portugal); and contributions by technical experts. The project has had the following deliverables:

- Note no. 1: Analysis and summary of the main features of the education monitoring systems of three OECD countries and/or sub-national governments considered of relevance for Austria (Bavaria in Germany, Denmark and Portugal).
- Note no. 2: Analysis, summary and conclusions of the first peer-learning workshop to discuss three international experiences of relevance for Austria, 28-29 January 2020, Vienna.

- Note no. 3: Analysis, advice and recommendations based on international experience and good practices on a selection of education indicators identified by BMBWF.
- Note no. 4: Analysis and detailed feedback on the design and concept of the education monitoring system (EMS) in Austria.
- Note no. 5: Analysis and feedback on BMBWF's implementation plan and ideas for the education monitoring system, including the conclusions of the second peer-learning workshop.
- Note no. 6: Documentation related to the technical specifications required for the implementation of the education monitoring system (drafted by technical expert).
- Note no. 7: Paper with recommendations for the further development of the design, concept and implementation of the education monitoring system in the country (drafted by technical expert).
- Note no. 8: Summary of recommendations on the design and implementation of a comprehensive education monitoring system in Austria.

To assess the initial implementation plans and provide recommendations for the future education monitoring system in Austria, the OECD team built on the analysis and contributions prepared throughout the project. Furthermore, it leveraged its comparative experience on indicators by the INES team and on education implementation by the Implementing Education Policies team, to reflect on the indicators and on what is necessary to make the implementation of the EMS effective. It also undertook analysis of evidence, data and relevant practices in education policy and practice relevant for the design and implementation of education monitoring systems. In addition, discussions with three international experts from the cases selected as references (Bavaria in Germany, Denmark and Portugal) and with the two technical experts working in the project have provided.

Figure 2. Education policy implementation: an OECD proposed framework



Source: (OECD, 2020[5]), An implementation framework for effective change in schools, OECD Education Policy Perspectives No. 9, https://doi.org/10.1787/4fd4113f-en.

The assessment of the education monitoring system as a policy has been undertaken using the OECD's Implementing Education Policy framework. The framework suggests that for an education policy to accomplish change effectively it has to bring together under an actionable approach the following dimensions (Figure 2):

1. Smart policy design (encompassing vision, policy tools, and resources)
2. Inclusive stakeholder engagement (encompassing transparency, involvement, and communication)
3. Conducive environment (encompassing institutions, capacity, and policy alignment)
4. A coherent implementation strategy (brings together and makes actionable the previous dimensions).

The implementation of a comprehensive education monitoring system in Austria is a complex process that requires aligning it to the vision and the different education policies and balancing traditional top-down implementation processes with more bottom-up approaches that leave room for co-construction and local adaptation. It suggests that to accomplish the implementation of the education monitoring system across Austria, policy makers in charge of the EMS will need to develop an actionable and well-communicated implementation strategy that engages stakeholders in the process and takes into account the broader socio-economic and political environment.

Context: a monitoring system to support education reform in Austria

An overview of the Austrian education system

The education system in Austria covers five levels: early childhood education and care, primary education, lower-secondary education, upper-secondary education and tertiary education. Schooling in Austria is characterised by early selective transitions, a large vocational sector comprising more than half of the students at age 15, and a high degree of differentiation (Nusche et al., 2016[6]).

The governance of the education system has been characterised by a complex distribution of responsibilities between the federal and the provincial levels This includes a split between federal and provincial schools, a complex distribution of federal funding for teacher salaries of provincial schools (OECD, 2017[1]). School autonomy has increased significantly with the 2017 reform (CEDEFOP, 2018[7]).

The federal Ministry of Education, Science and Research (BMBWF) holds the executive authority for all aspects related to school education, including compulsory, technical and vocational, as well as upper-secondary education. It develops and proposes legislation on education standards, curricula and teaching, including teachers' remuneration, training and retirement (Nusche et al., 2016[6]).

Nine provinces (*Bundesländer*) are responsible for the implementation of all federal legislation related to school education. The federal constitution aims to balance provincial and federal responsibilities in school governance and results in intertwined responsibilities, notably at the lower-secondary level. While in four provinces there are parallel structures of school administration for federal and provincial schools, five provinces have delegated their responsibilities to the federal administration "Provincial School Board" (Nusche et al., 2016[6]).

The 2017 education reform transferred the responsibility for the administration of both federal and provincial schools to a new type of federal-provincial authority, the Education Directorates (*Bildungsdirektionen*) which organise the administration of schools in each province. Finally, education regions[1] within the Education Directorates are responsible for the following aspects:

- Co-ordination of appropriate regional education and care provision and development of all-day school types
- Further development of educational quality

[1] The education region is a regional co-ordination platform and entity which controls co-operation between education system stakeholders (BMBWF, 2021[18])

- Evidence-based analysis
- Organisation of co-operation between schools and the regional environment
- Support for the development and professionalisation of schools and teachers at the regional level (OECD, 2017[1]).

In terms of performance, available data shows the Austrian system is a relatively strong performer with some areas that might require further focus. The level of expenditure in education in Austria is relatively high, especially in terms of public expenditure in relation to the OECD average. In 2017, Austria spent more on primary to tertiary educational institutions per full-time student than the OECD average, investing a total of USD 16 319 per student compared to USD 11 231 on average across OECD countries (OECD, 2020[8]). Class sizes are relatively small and teachers at lower and upper-secondary level spend less working hours in teaching than the rest of their peers in other OECD countries (OECD, 2020[8]), making room for the emergence and development of collaborative activities with other teachers and parents. Additionally, the vocational sector attracts a considerable portion of the student body (42%) and results in competitive labour market returns to its graduates even in comparison with graduates of tertiary education (OECD, 2020[8]).

Fundamentals of EMS practices

Education monitoring systems bring together data from a range of sources to monitor and evaluate quality and track progress towards education objectives. The effective monitoring and evaluation of an education system is central to informing policy planning for improvement, as it can ensure goals and policies are rooted in evidence and can help to create an open and continuous cycle of organisational learning.

During the first peer-learning event of this Project, the OECD team suggested a definition of an Education Monitoring System (EMS) as a structured framework that brings together different components (OECD, 2020[9]). First, the setting of “Goals” of the EMS defines the overarching framework for the selection of data and indicators. Second, an “Indicator Monitoring Plan” frames a comprehensive list of indicators to measure progress in achieving the goals, including the definitions and data needs. It also provides an assessment on the availability and quality of possible data sources, which will influence the selection, definitions, and methodology relative to the indicators. The third component is the “Tools” that support the EMS. It consists in national assessments that monitor education system performance regularly, and the Education Management Information System (EMIS), which is the data or IT related component of the EMS. The EMIS comprises the different steps of the data collection, processing, evaluation, dissemination and reporting. Finally, the last component consists in the purpose of the EMS, how it contributes to evidence-based policy making and public accountability.

On the other hand, results in the OECD Programme for International Student Assessment (PISA) (2018) show that Austrian students scored lower that the average in reading literacy, higher in mathematics and just above the average of their OECD peers in science (OECD, 2020[8]). Socio-economic status explains a slightly higher proportion of the variance in reading performance of students in Austria than in the OECD average. In terms of completion rates, Austria experiences, like many other countries, a gender gap where men tend to delay the completion of their studies more than women do. At the same time, in Austria, the expansion of tertiary education continues despite the minimal difference in terms of employment opportunities (measured as the employment rate) compared with upper-secondary graduates (especially those from VET); a significant return is offered from other tertiary degrees (like short-cycle, masters and doctoral programmes) (OECD, 2020[8]).

It is in this context that reform efforts in education have unfolded in Austria. The diagnosis of the Austrian Government (BMBWF, 2018[10]) is that bigger efforts are needed to administer the system in a more effective and efficient way given its complexity and intricate network of overlapping responsibilities between different levels of government (Bruneforth, Shewbridge and Rouw, 2019[2]). This lays behind the education governance reform in 2017.

The need for a comprehensive education monitoring system in Austria

Education monitoring systems are key to monitor and evaluate quality and track progress towards education objectives. The Austrian the Educational Reform Act of 2017 introduced a governance reorganisation to increase school autonomy, develop school clusters, give schools leaders more responsibility in some areas (like human resources policy), improve quality assurance and merge two province-level administrative bodies into one provincial education administration (Bruneforth, Shewbridge and Rouw, 2019[2]). It also envisaged the implementation of an improved education monitoring system to support all these changes, and provide evidence for more effective and efficient steering processes (BMBWF, 2018[10]).

The monitoring system aims to be a central piece of the government's education strategy supporting many relevant fronts: quality assurance, school self-evaluation, effective governance, province's education planning, evidence-based policy making, and allocation and use of resources. In addition, the education monitoring system will provide relevant data for a revised Quality Framework for Schools, implemented in January 2021 (EURYDICE, 2020[4]). This quality framework aims to be useful for all levels of the school system providing a basic reference for school development and quality management, external school evaluation, and educational monitoring in general (BMBWF, 2019[11]). In this regard, the experience acquired from the *Bundesinstitut für Bildungsforschung, Innovaton und Entwicklung des österreichischen Schulwesens* (Institute for Educational Research, Innovation and Development of the Austrian School System, BIFIE) and its succesor, the *Institut des Bundes für Qualitätssicherung im österreichischen Schulwesen* (Federal Institute for Quality Assurance in the Austrian School System, IQS)[2], is important.

The implementation of the planned education monitoring system requires the consolidation and modernisation of several existing fragmented systems and data sources, which bring together the evidence base of the Austrian education system (BMBWF, 2019[3]). The data sources to be accessed or integrated include the national statistical system, national and international student assessment and examination results, and data gathered in scientific studies. The objective of BMBWF is for these fragmented systems to be systematically consolidated, adapted and transformed for everyday use and governance purposes. The IT component of this education monitoring system in Austria is called BILIS[3].

For Austrian authorities, the education monitoring system, paired with the National Quality Framework, will support education professionals to assess the impact of their actions and subsequently adjust policies to reach national education objectives

[2] The IQS was established in 2019, and started operations in July 2020. The IQS continues the work of the former Federal Institute for Educational Research, Innovation and Development of the Austrian School System (BIFIE). The IQS builds on BIFIE's professional network and expertise in assessment methods. It aims to establish the base for a more effective and practical use of data and evidence for quality assurance processes in the Austrian school system (BMBWF, 2021[19]).

[3] BILIS is the abbreviation for the German word "*Bildungsinformationssystem*", which can be roughly translated as education monitoring information system.

2. Preparing the ground for successful implementation of the education monitoring system in Austria: recommendations

General assessment

Austria has conceived an education monitoring system as a key instrument to support the performance of its education system in light of its recent governance reform. The aim is for the system to provide relevant and timely information for schools as part of quality management and to have national, provincial and regional level information to design and monitor system performance and quality and allocate resources efficiently and effectively (BMBWF, 2019[3]).

The design and initial implementation of a comprehensive education monitoring system in Austria is a challenging task. This type of reform requires substantive effort given its transversal nature touching upon almost every aspect of education policy at different governance levels. Additionally, it requires the combination of multiple resources and the involvement of staff holding strong technical skills. Furthermore, the project is unfolding in a context shaped by the COVID-19 pandemic. Bearing in mind these factors, this report considers that throughout the duration of the Austria-OECD-European Commission project:

- BMBWF made progress in the design and concept of the EMS during the duration of this project (September 2019-April 2021). This progress took place despite the challenges imposed by COVID-19 which meant, in practice, that there were (and still are) less resources available for the planning and undertaking of non-essential policy making for the school system. At Ministerial level, there was greater priority to COVID-19 education responses and less attention to medium and long-term policy developments. In this context, progress made by the unit at BMBWF handling the EMS project is meritorious.
- BMBWF also made progress in preparing for future implementation, through a pilot of some of the basic elements of the EMIS, called BILIS in Austria (the technical component of the EMS[4]). The IEP team witnessed positive evolution in the experience acquired by BMBWF towards the identification of the specific requirements for the EMIS and the type of technical support needed.
- Towards the end of the project, there was a decision made to keep the development and implementation of the data warehousing part of the EMIS within the domain of Austrian Government institutions. This was perceived as a positive development that could reduce the time needed for implementation, and potentially simplify processes and trigger synergies between public entities (Hudec, 2021[12]).
- BMBWF is aware of the importance of incorporating stakeholders into the design and implementation of the EMS not just from a policy perspective but also from a technical one (this might have a positive impact in the development and implementation of BILIS). There is now consensus around the idea that stakeholder involvement will contribute both to legitimate the value of the EMS for the improvement of the education system and to consider that stakeholders can contribute to ensure the provision of high-quality data (Tesar, 2021[13]).

[4] In order to have a better understanding of the findings and recommendations, the OECD team suggests to have the following two concepts in mind: 1) Education Monitoring System (EMS): is the systematic and regular collection of data from different sources and provision of indicators with the purpose of improving the system's processes and outputs. An EMS includes generally a data/indicators component and a qualitative information/feedback component; and 2) Education Monitoring Information System (EMIS): is the data or IT related component of the EMS (called BILIS in the case of Austria).

The period ahead (the remainder of 2021 and beyond) will be crucial for the development of the implementation plan and the piloting of some technical components of the EMIS (BILIS), if BMBWF decides to do so. The definition of the precise technical specifications for the data warehousing continue under discussion and preparation for the consolidation of the first databases is planned to start in the coming period (Hudec, 2021[12]).

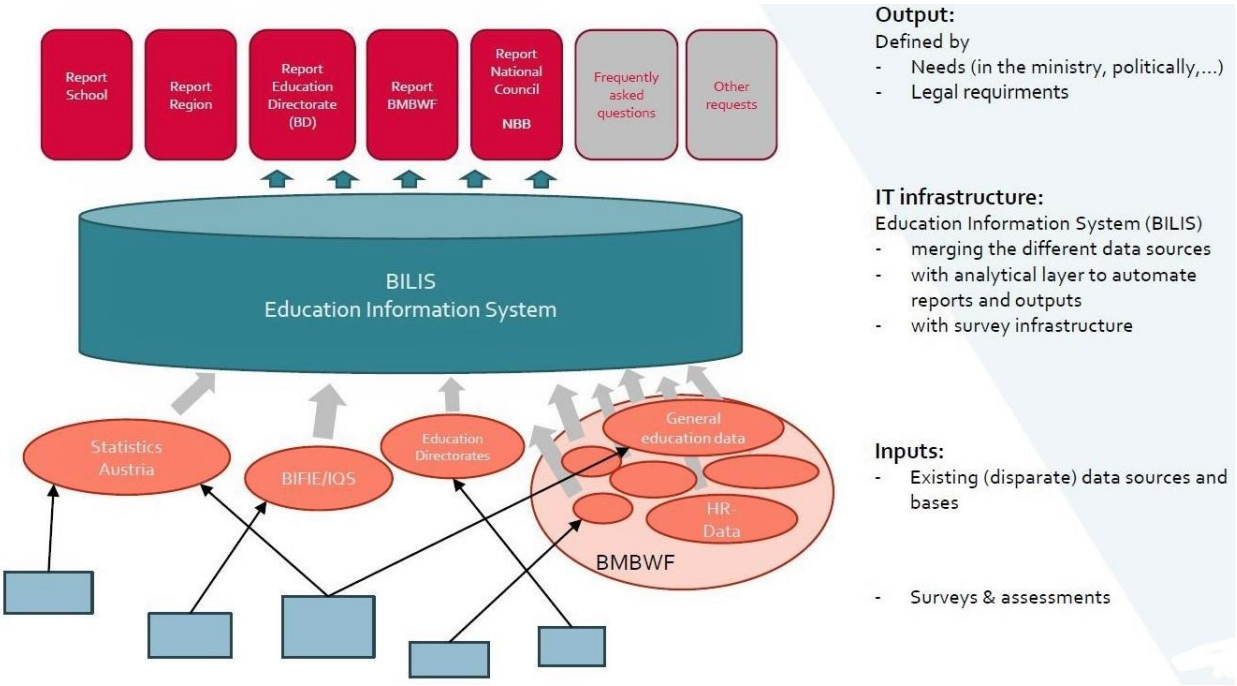
To support upcoming BMBWF efforts to implement the EMS, the OECD team (INES and IEP teams together) identified a number of issues and elaborated a set of related recommendations throughout the project, based on research, relevant country practices, contributions from experts and exchanges with the project team and education stakeholders in Austria. These recommendations, which are presented in the next sections, are organised around the dimensions of the IEP framework for implementing education policy: smart policy design; inclusive stakeholder engagement; and a conducive environment to be brought together in an actionable implementation strategy for the education monitoring system.

Smart policy design: Develop a shared understanding of the aims and intended use of the EMS

What is the design of the EMS?

In the framework, policy refers to a governmental action aiming to respond to an identified issue or to initiate improvement (OECD, 2020[5]). The design of the policy may directly influence its implementation because it guides stakeholders all along the process. The education monitoring system in Austria is an important part of the recent reform and will have a fundamental role in supporting and monitoring the performance of the system in the years to come (BMBWF, 2018[10]).

Figure 3. Conceptual basis for the design of the EMS

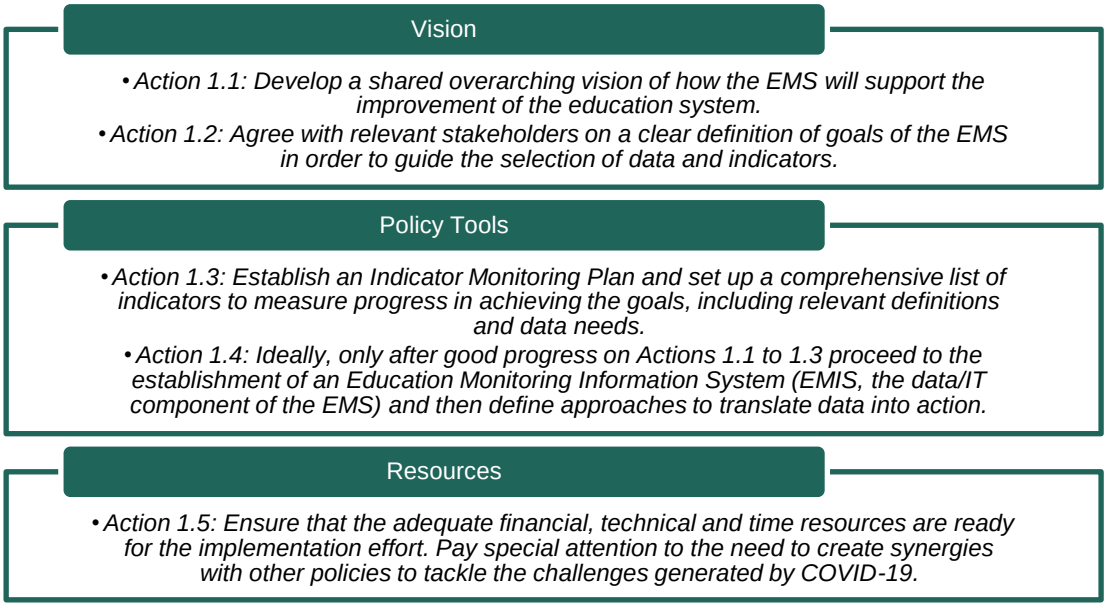


Source: BMBWF Presentation, Peer-Learning Workshop, January 2020 in Vienna (Austria).

The conceptual basis for the design of the EMS is rather complex given the number of actors involved and the different inputs and outcomes expected in the system (Figure 3). For it to be effectively implemented, the EMS requires a clear vision, policy tools that are evidence-based and match the vision and adequate resources. BMBWF is making progress in refining the vision of the EMS, aimed at making its goals more visible for stakeholders and to identify the relevant policy actions to make it happen. Yet, there is a need to develop a shared understanding of the multiple aims and intended use of the EMS. Austria may consider reflecting on the following issues to refine the design of the EMS (vision, policy tools, and resources):

- There is a lack of clarity in terms of the specific purposes of the EMS in relation to the improvement of student learning at school level. While there is a formal **vision** for the EMS on BMBWF policy documentation (BMBWF, 2018[10]), which is focusing on many different purposes, what is less clear is the purpose of the EMS in driving behavioural change in the use of data to improve learning outcomes (or creating a data culture). The desire to create a data culture that moves toward data-driven policy making is a vision in itself that is worth explicitly articulating. This data culture will inform the decision making process on how the EMS will access, disseminate, and share data (Hudec, 2021[12]) Addressing these points will aid BMBWF to get a balance between the accountability and improvement purposes of the EMS.
- The lack of enough clarity in the vision also affects both the resources required and the selection of the **policy tools** necessary to implement the EMS. The selection of the indicators for the EMIS (and other policy tools that complement them) requires the guidance of a clear vision that states its purposes (OECD, 2020[14]). Considering this will allow BMBWF to be more specific about how to align the format and dissemination of data with a new vision for the data culture. If data culture is indeed a vision or goal in itself, then tools should encourage on-demand access and exploratory analysis through a flexible interface. Making data public and incorporating the use of the EMIS in other policies could help reinforce this data culture by demonstrating how the data can contribute to the overall improvement of the system (OECD, 2020[15]).
- The COVID-19 situation calls for **resource** planning. The successful implementation of the EMS will greatly depend on how BMBWF manages to secure resources (e.g. financial, technical and staff) for the EMS project during a time when resources and attention are also required in other policy fronts. Inevitably, there is always competition for resources across different policy priorities but the aims of the EMS project could be aligned with the current priorities at BMBWF, chiefly its focus on COVID-19 (OECD, 2020[16]). This way, synergies can be created and the EMS can gain legitimacy in the system at this critical moment.

Actions to conclude the design of the education monitoring system



Action 1.1: Develop a shared overarching vision of how the EMS will support the improvement of the education system.

- Clear definitions of an EMS will be relevant to develop a shared overarching vision on how the EMS will support the improvement of the education system. Most of these elements are already present in relevant policy documents in Austria (BMBWF, 2019[3]) but should include clear definitions to guide discussions with stakeholders (OECD, 2020[15]). One of the first issues discussed at the beginning of the project was the need to have a clear definition of an education monitoring system (EMS). Initially, Austria advanced a response, based on academic and international organisations' definitions: "education monitoring entails the systematic and continuous gathering of information and data on the education system and its context." In subsequent discussions, it was clear that for Austria the collection and processing of information of the monitoring system should serve a purpose, focused on the improvement of the outcomes of the education system. As a result, the education system objectives are pivotal for the selection of indicators to be covered by the monitoring system. Based on these initial exchanges with BMBWF and international experts (see Table 1 for a summary of these discussions), the OECD team proposed the following concept: "An Education Monitoring System is the systematic and regular collection of data from different sources and provision of indicators with the purpose of improving the system's processes and output. An Education Monitoring System generally includes a data/indicators component and a qualitative information/feedback component"[5] (OECD, 2020[9]). With this definition at hand, the discussion with relevant stakeholders, at all levels, could be more concrete.

[5] The IEP team realises that it is difficult to provide qualitative information for around 6 000 schools in the Austrian system.

Table 1. Dimensions to guide the concept and design of an education monitoring system

Austria in comparison to Bavaria (Germany), Denmark and Portugal

Dimension	Austria	Bavaria (Germany)	Denmark	Portugal
Definition	Capturing of key areas of school quality and framework conditions based on scientific criteria on the basis of regularly and centrally collected or processed data and indicators.	Education monitoring is an ongoing and systematic monitoring of educational processes drawing on data from different sources. Monitoring should identify both progress and areas requiring attention.	Education monitoring is to provide transparency and accountability in the system (for all levels) as well as identify potential risks or areas in need of intervention.	Education monitoring aims at collecting relevant data and information about the performance of the education system in a systematic and regular way.
Scope	All levels of school administration.	All levels of school administration.	All levels of school administration and higher education administration.	All levels of school administration and higher education administration.
What	Areas of school quality and framework conditions.	Areas of the national quality framework.	Areas of the national quality framework.	Areas of the national quality framework.
How	According to best practices and supported by data and indicators.	According to best practices and supported by data and indicators.	According to best practices and supported by data and indicators.	According to best practices and supported by data and indicators.
When	Regularly (Frequency depends on the level of educational governance).	Regularly (Frequency depends on the level of educational governance).	Regularly (Frequency depends on the level of educational governance).	Regularly (Frequency depends on the level of educational governance).

Source: Peer-Learning Workshop, January 2020 in Vienna (Austria).

Action 1.2: Agree with relevant stakeholders on a clear definition of goals of the EMS in order to guide the selection of data and indicators.

- Clarity on the concept will also help to clarify the goals. The possible goals or objectives of the EMS should be education-related, such as promoting the quality of the education system, ensuring the achievement of competency, skills, and knowledge objectives of students, or supporting evidence-based policies (OECD, 2019[17]). But the goals can also be related to governance, for instance promoting efficiency and efficacy of the education system, improving transparency and accountability, or promoting data availability about the education system. These areas are in the agenda of BMBWF in discussing this project (BMBWF, 2018[10]). Finally, goals can also be related to a national information/data strategy, such as promoting access to data or improving their quality (indicators included) (please see Table 2 for a comparison of different goals in the cases of Austria, Bavaria in Germany, Denmark and Portugal). To some extent, this can be seen as the creation of a new data culture in the education sector in Austria about how data is collected, used and analysed in every single level of the system (Hudec, 2021[12]).
- It is important to identify priorities (Action 1.2). During a seminar on EMS with relevant countries, there was agreement that education monitoring systems should allow for the systematic collection of relevant data and indicators on a regular basis and for all levels of the education system. They considered that while the improvement of the quality of the education system as an overall goal of the education system, there are different perspectives countries have about the priorities of the monitoring system (OECD, 2020[9]). While transparency and accountability, policy development and assessment, and research were common goals across countries, the extent to which they are emphasised varied across countries. Austria's EMS goals had a strong focus on accountability and data availability, while the goals in Denmark have a strong focus on the improvement of the quality of the education system (OECD, 2020[9]). In Bavaria and Portugal, the focus is on both the education quality dimension as well as the data availability and access (Table 2).
- The focus on particular goals depends also on the governance (e.g. degree of school autonomy) and context of each system. The vision and concept of the education monitoring system in Austria

should also match the objectives of the general education reform that are oriented to give more autonomy to schools (OECD, 2020[15]). In countries where there is a relatively high level of school autonomy, the monitoring system should feed schools with the relevant information they need to monitor their own performance, and this should be one of the major purposes of the EMS. In countries with less autonomy at individual school level, decision makers at regional or federal level might guide the process and monitor improvement efforts at a larger scale (OECD, 2019[17]).

Table 2. Main goals of the education monitoring system

Austria compared to Bavaria (Germany), Denmark and Portugal

Goals	Austria	Bavaria (Germany)	Denmark	Portugal
Promote the quality of the education system	x	x	x	x
Ensure the achievement of competency, skills, and knowledge objectives		x	x	x
Support evidence-informed policies	x	x		x
Promote efficiency and efficacy of the education system	x			x
Improve transparency and accountability	x	x	x	
Promote data availability about the education system (not necessarily publicly available)	x	x		x
Promote public access to data		x	x	x
Improve quality of data and indicators	x	x		x

Note: x: The country considers the goal as particularly important.
Source: Presentations and discussions, Peer-Learning Workshop, January 2020 in Vienna (Austria).

Action 1.3: Establish an "indicator monitoring plan" and set up a comprehensive list of indicators to measure progress in achieving the goals, including relevant definitions and data needs.

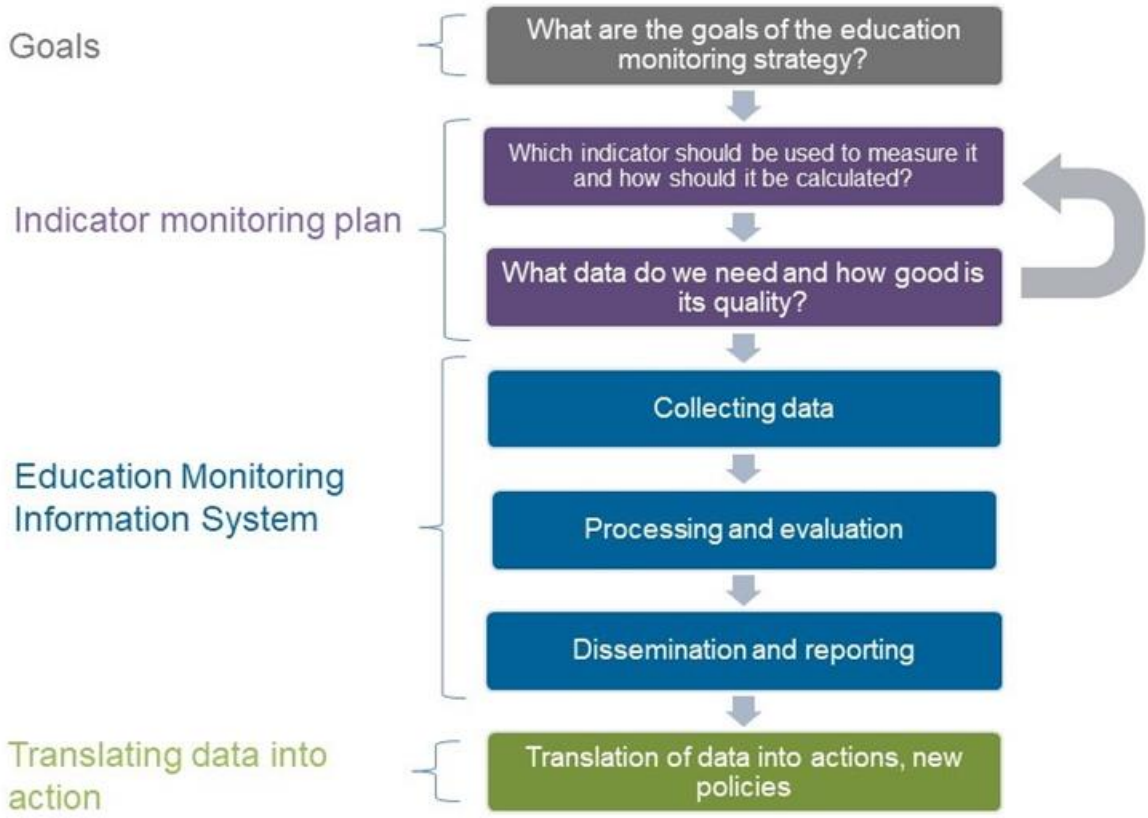
- It is advisable that BMBWF continues with the careful selection and development of the initial indicators to measure the goals to be achieved by the EMS. One of the activities of this project (Note 3) was dedicated to the discussion and development of an initial set of indicators for the EMIS. On that occasion, it was recommended that each one of the indicators selected should be aligned to rigorous international frameworks, definitions and methodologies (OECD, 2020[14]). The selection of these indicators should be accompanied by the right display and report mechanisms according to the needs of users (OECD, 2020[14]). The selection of indicators and its reporting are two activities strongly interconnected that should allow for a close monitoring of the goals to be achieved by the system.

Action 1.4: Establish an education monitoring information system (EMIS) and define approaches to translate data into action.

- Consider that an EMS is a structured framework of different components that will serve to guide the selection of relevant indicators to measure the impact of the education policies undertaken. The OECD considers the EMS as a structure with four main components (OECD, 2020[15]). First, a clear definition of goals or aims of the education monitoring system will define the overarching framework for the selection of data and indicators. Second, an indicator monitoring plan sets up a comprehensive list of indicators to measure progress in achieving the goals, including the definitions and data needs. It also provides an assessment on the availability and quality of possible data sources, which will influence the selection, definitions, and methodology of the indicators. The third component is the education monitoring information system (EMIS) which is the data or IT related component of the EMS, in Austria, this part is known as BILIS. It comprises the different

steps of the data collection, processing, evaluation, dissemination and reporting. The fourth and last component, translating data into action, defines the different actions and policies in the areas covered by the EMS (Figure 4). For the effective development of an EMS it is important to ensure that the four basic steps towards building an education monitoring system (definition of goals, definition of the indicator monitoring plan, building of the EMS and translating data into action) are considered. The suggested sequential order will need to have some iterations in order to align the general vision with its feasibility. For example, the final indicators depend on the available data.

Figure 4. Building an education monitoring system (EMS)



Source: Adapted from OECD (2020), Note 2. Analysis, summary and conclusions of the first peer-learning workshop that took place on 28-29 January 2020 in Vienna, OECD-DG Reform-BMBWF Project.

Action 1.5 Ensure that adequate financial, technical and time resources are ready for the implementation effort. Pay special attention to the need to create synergies with other policies to tackle the challenges generated by COVID-19.

- Make sure there is adequate funding, equipment and time available for implementation of the EMS. The design and implementation of an education monitoring system in a country is a challenging task that requires the combination of multiple data and staff resources. Some of these resources might be scarce or go outside the traditional remit of the Ministry of Education (like technical services). In addition, the situation generated by COVID-19 has made the allocation of resources more complex and demanding (OECD, 2020[16]). However, competing for resources should not be an option. To the contrary, the implementation of the EMS can create synergies with other policy efforts such as data gathering or sharing during the pandemic. Finally, the design and

implementation of the EMS might take a relatively long period, not just due to the time required to fulfill technical requirements but also because enough time should be dedicated to discussions with relevant stakeholders about the purpose and use of the EMS (Hudec, 2021[12]).

Stakeholder Engagement: Define clear roles and responsibilities to develop and implement the EMS

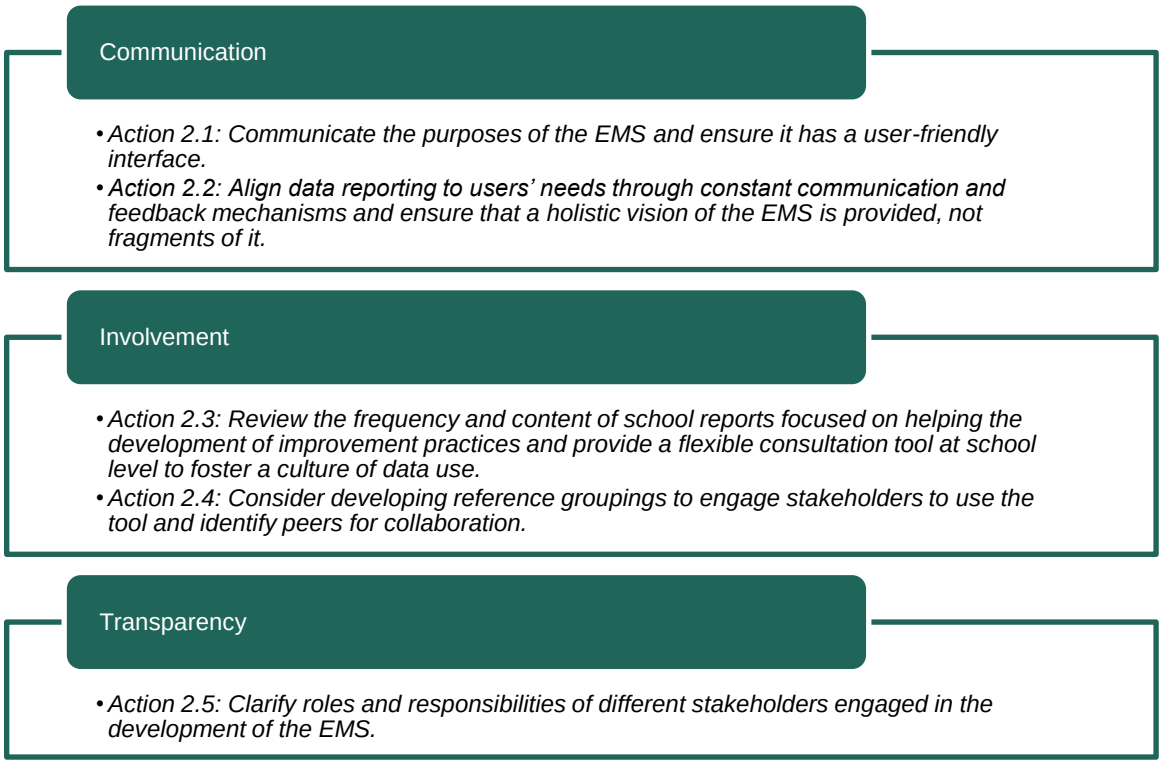
How are stakeholders engaged with the EMS?

In the process of education policy implementation, effective stakeholder engagement is key for success. Stakeholders can be individuals, groups of individuals or complex organisations. Their behaviours and views will profoundly affect implementation and the policy itself. In general, it is crucial to identify their vision of education and their interests, the different interactions existing among them, and to acknowledge how they can contribute to, or hinder, setting up the policy (OECD, 2020[5]). Stakeholder engagement in the development of the EMS is one of the elements that gained considerable attention during the development of this collaborative project between BMBWF, the European Commission and the OECD. As suggested by international experts and the project team, it is clear that the involvement of stakeholders is recognised in Austria as essential to guarantee the legitimacy of the EMS (OECD, 2020[9]). Moreover, to support a coherent implementation of the EMS in Austria, an important recommendation of this project is to define clearly the roles and responsibilities of stakeholders in the development and implementation of the EMS, bearing in mind the changes that may have arisen due to the COVID-19 pandemic. There are issues to consider to ensure an inclusive stakeholder engagement (communication, involvement, and transparency):

- The current **communication** strategy about the design and implementation of the EMS remains fragmented. It does not provide stakeholders with a complete picture regarding the purpose, and the intended use of the EMS. Consequently, they may not be empowered to collaborate and offer meaningful feedback in the construction and refinement of the EMS. At this stage of the process, there is a lack of detail about the roles and responsibilities of specific stakeholders in the collection, dissemination, and use of EMS data (OECD, 2020[15]).
- Piloting is a good opportunity to increase the **involvement** of stakeholders and shape the EMS. However, if the full EMIS (BILIS) is not ready during the pilot phase, this may create a risk for stakeholder engagement if they do not fully understand the whole purpose of the education monitoring package. If this sequencing is followed, it will be important to plan the different phases of the project roll-out, and align opportunities for stakeholder engagement at each critical milestone. In any event, it is important for stakeholders to understand the ideas and purpose of the complete EMS rather than receiving information in pieces (OECD, 2020[16]).
- There is a need to secure widespread stakeholder **involvement** and commitment with the EMS project across all the different levels of the education system. Securing such a commitment will require continued investment from inside the Ministry. In this respect, efforts to secure stakeholder commitment to the EMS will need to explain the extent to which the new system will also support the school system and relevant authorities (at all levels) to deal with the challenges imposed by COVID-19 (OECD, 2020[15]).
- There is also a need to improve the **transparency**, clarity and shared understanding of different stakeholder **roles and responsibilities**. Although BMBWF is making a considerable effort to involve stakeholders, the lack of a transparent strategy for this involvement erodes its efficacy. An effective and transparent strategy would designate which stakeholders it seeks to reach, how they will do so and how their contribution will be included in the EMS. In this process, Austria will need to indicate what kind of feedback is sought and how it will be incorporated into the implementation plans. This might encourage a better use of the EMS and could be used to promote collaboration

between peers in the search for solutions when common challenges are identified (especially at school level) (OECD, 2020[15]).

Actions to engage stakeholders in implementing the EMS



Action 2.1: Communicate the purposes of the EMS and ensure that it has a user-friendly interface.

- A considerable part of the legitimacy of the EMIS (BILIS) will depend on its ability to provide key information on the education system through a user-friendly approach. Despite the sophistication of the technical solutions for the design and implementation of the EMIS (BILIS), its major merit will consist on the extent to which users easily find key information in it. Therefore, the selected indicators and their value and use should be communicated to the public with clarity (OECD, 2020[9]). Furthermore, the interface should be friendly for users at all levels, especially in schools, where teachers and school leaders might want to use the data of the EMIS (BILIS) to elaborate their improvement plans at different levels (i.e. school or classroom level) (OECD, 2020[15]).

Action 2.2: Align data reporting to the users' needs through constant communication and feedback mechanisms and ensure that a holistic vision of the EMS is provided, not fragments of it.

- Align the reporting strategy to the data strategy. It is important to differentiate the content of the reports from the way they are provided. The content relates to the goals of the monitoring system and the needs of different users, but the way reports are provided depends on the data strategy and the data culture. Austria should remain attentive not just about what are the data needs of stakeholders but also about the format in which these data needs are satisfied. Giving attention to these issues can also trigger improvement in the way data is collected, disseminated and used, especially at school level (OECD, 2020[15]).

Action 2.3: Review the frequency and content of school reports focused on helping the development of improvement practices and provide a flexible consultation tool at school level to foster a culture of data use.

- Reflect on what is the adequate frequency and formats of the reporting instrument in order to increase its value for stakeholders. For example, if the aim of the reports is to promote the use of data for rapid decision making, then a reporting system which is dynamic and on-demand and with regular frequency may be more adaptable than an annual static data sheet. In addition, Austria should consider that users have different data and indicator needs, as already shown in the different types of reporting at school, regional and national level (OECD, 2020[15]). Different reporting formats from easily accessible data visualisations to advanced access with pivot tables or access to raw data should be provided based on the statistical knowledge of the user and their intended use for the data.

Action 2.4: Consider developing reference groupings to engage stakeholders to use the tool and identify peers for collaboration.

- Engaging users when designing the reporting format is key to understand their data requirements. The provision of comparison and reference groupings (e.g. similar schools) can be of help for stakeholders to make sense of data and develop collaboration. A robust and user-friendly EMS, can be a very valuable tool also to create synergies with other stakeholders and policies in place to produce a coherent and aligned response to the challenges imposed by COVID-19 (OECD, 2020[15]).

Box 1. Responsibilities for education evaluation and monitoring in Denmark and Bavaria (Germany)

A clear distribution of responsibilities in Denmark

In Denmark, the Ministry of Education Quality and Supervision Agency takes the lead on monitoring compulsory education and has responsibility for monitoring compulsory education providers. The School Council commissions research and documents "what works" as part of its mandate to follow, assess, and guide the Minister of Education on the academic standard and pedagogical development in the *Folkeskole* (public schools). The School Council decides the evaluations to be undertaken by the Danish Evaluation Institute (EVA) in the area of compulsory education. The major collection, processing and presentation of education data is conducted by UNI-C (the Danish ITCentre for Education and Research), an agency under the Ministry of Education. The Centre for Strategic Educational Research brings together researchers for targeted research on priority areas in the *Folkeskole*.

Shared responsibilities in Bavaria (Germany)

The Bavarian State Ministry of Education and Cultural Affairs has overall responsibility for the monitoring of the education system. With this authority, the Bavarian State Ministry has commissioned the provision of education monitoring information to the State Institute for School Quality and Educational Research. The State Institute makes the results of research and classroom experience available to schools. The Institute supports and advises the Bavarian State Ministry of Education and Cultural Affairs in the continuing development of the Bavarian educational system. The Ministry also monitors quality in the school system via professional guidance and school evaluation. Internal and external school evaluation are central elements in the Bavarian evaluation system and anchored in the Bavarian legal framework for education.

As part of the federal system, parts of the monitoring of the education system are under the shared responsibility of Bavaria, the federal states (*Länder*) and the federal government. State supervisory authorities, statistical surveys carried out by the Federal Statistical Office and the Statistical Offices of the federal states (*Länder*), as well as educational research in subordinate institutes all contribute to system evaluation.

The Institute for Educational Quality Improvement (IQB) supports the federal states (*Länder*) in improving and assuring the quality of its educational system. The IQB's work is founded on the educational standards adopted by the Standing Conference of the Ministers of Education and Cultural Affairs of the federal states (*Länder*). The IQB is responsible for regularly monitoring the extent to which Germany's schools are achieving these targets defined by the national education standards (*IQB Bildungstrend*).

In addition, the Federal Government and the federal states (*Länder*) may mutually agree to co-operate on international comparative studies and drafting relevant reports.

Source: OECD Reviews of Evaluation and Assessment in Education: Denmark 2011, OECD Reviews of Evaluation and Assessment in Education, https://doi.org/10.1787/9789264116597-en.

Action 2.5: Clarify roles and responsibilities of different stakeholders engaged in the development of the EMS

- Given the large numbers of stakeholders involved in the development and use of the EMIS (BILIS), a data mapping exercise can help to manage their co-operation effectively aligned to the governance of the system as a whole (EMS). In the data mapping, it is important that BMBWF look at what datasets from other ministries and levels of government the EMIS (BILIS) may need to build in the linkages and interfaces appropriately to facilitate co-ordination with them. It is important that the design of this collaborative information system aligns with the evaluation and monitoring governance arrangements in place in Austria (the EMS). The different data contributions to the EMIS (BILIS) should match their use across the education system (EMS) (Hudec, 2021[12]). The dynamics between the EMS and its technical component (the EMIS, BILIS) might help to ensure the quality of the information provided and encourage its use (Hudec, 2021[12]). Box 1 presents the examples of how responsibilities for the evaluation of education system are distributed in Denmark and Bavaria (Germany). Austria can reflect on a distribution of responsibilities in the EMS that mirrors stakeholder roles in the evaluation and monitoring of the education system.

Conducive Environment: Ensure policy alignment and capacity to achieve the goals of the EMS

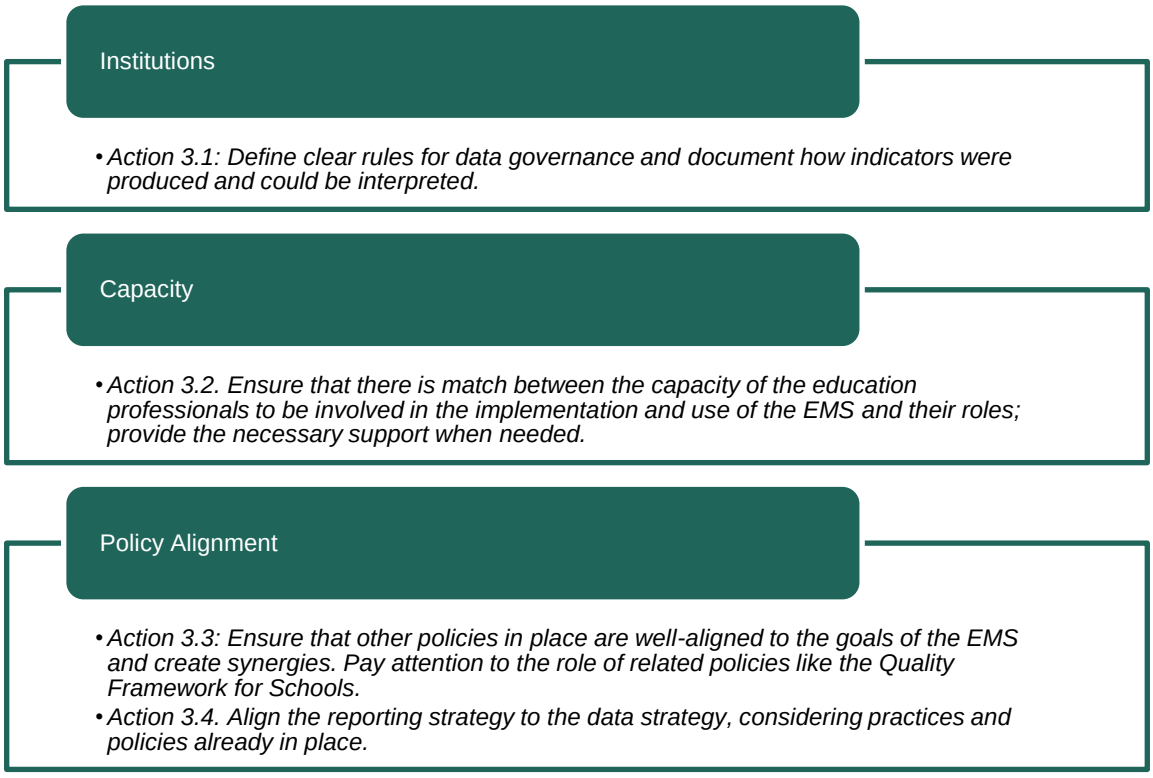
How is the context for implementing the EMS?

Many factors might influence how the EMS will unfold on the ground. An effective policy implementation process takes into account exogenous contextual elements, such as the demographics, the socio-economic context surrounding the education system, and international trends in education. It also factors in environmental elements that, despite being fixed in the short-term, may be reshaped by the implementation strategy in the medium term (OECD, 2020[5]). For example, the COVID-19 pandemic situation can have considerable impact on the implementation of the EMS and its technical component (BILIS). Therefore, the implementation process may require, on one hand, to rely initially on the existing educational governance and institutional settings, the available capacity, and the current policy environment. On the other hand, it may evolve progressively to reach its objectives while dealing with events like the COVID-19 pandemic. It is important to recognise the progress made by the BMBWF in the

design and implementation of the EMIS given the difficult circumstances brought by COVID-19 (OECD, 2020[16]). In order to support the next phases of the implementation of the EMIS, it will be important to ensure policy alignment and adequate capacity to match the goals of the EMS with the needs of education professionals in the system. There are issues to consider to shape a conducive environment that will contribute to accomplish the EMS (institutions, capacity, and policy alignment):

- There is a need to assess the extent to which the different **institutions** involved have the capacity and willingness to adapt to the changes required by the EMS and its technical component. As discussed during a peer-learning workshop with education stakeholders in Austria, business processes and organisational structures inside the education system in Austria might require some adaptation to get the most of the benefits of the EMS (OECD, 2020[16]). This capacity assessment is essential for all the institutions that will be playing the role of providers of data sources but also for those education professionals that will be the main users. Special attention should be given to ensure that adequate data governance mechanisms are in place to ensure the quality of data, its accessibility and security, as well as to reinforce both the transparency and robustness of the system (Hudec, 2021[12]).
- It is unclear what kind of support will be provided to the different **institutions** involved in order to be fully engaged in the construction and implementation of the EMS and its technical components. This is key, and required first to have an assessment of the current **capacity** relevant institutions have and what kind of support will be in place to develop it if needed. This kind of support can be critical for professionals at school level (such as teachers and school leaders) (OECD, 2020[15]).
- Despite the EMS being part of a major education reform effort in Austria, it remains insufficiently clear how the **instrument will be aligned** with other policies and goals. This alignment should be perceived as a top priority, especially in relation to the Quality Framework for Schools (QFS) (BMBWF, 2019[11]). From the perspective of the OECD, those responsible for the operation of the QFS should envisage the EMS as one of their essential policy tools in order to access data and support policy development in the sector (as currently stated on policy documents in Austria). However, while alignment is inherently important to pursue, how it is undertaken and communicated to other parts of the education system requires caution. If the QFS is currently perceived as controversial or 'high stakes', the dislike of teachers/schools/the public for the QFS may "contaminate" schools/the public's perception of the EMS at this early stage of its development and roll-out. In such a scenario, it would be advisable to present the EMS as an independent/scientific data tool, not as a branch of the quality/evaluation framework at this stage. Policy alignment is desirable but communications about such alignment can be delicate. BMBWF is advised to take the time to understand perceptions before deciding how its plans to align are communicated to different audiences (OECD, 2020[16]).
- Besides the specific components of the education reform, more effort is needed to ensure that the EMS is **aligned** with other major education policy areas. In particular, assessment and evaluation practices are in need of immediate attention. In addition, an active data culture for policy development should be promoted at all levels of the system, so the information generated by the EMS can create synergies to support efforts in the areas mentioned (OECD, 2020[16]). To reinforce this point, it is important to remember that the Education Reform Act of 2017 has a strong equity component therefore the EMS and its technical components should support goals in this policy area (BMBWF, 2018[10]).

Actions to ensure policy alignment and capacity to deliver the EMS:



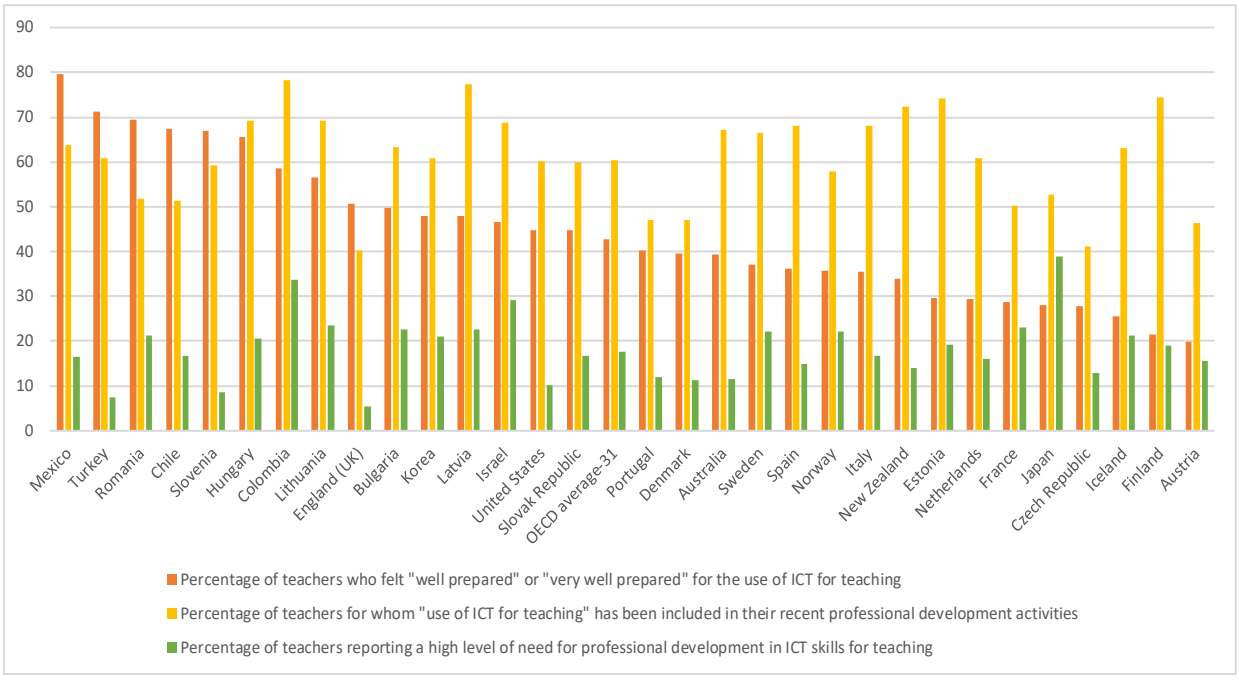
Action 3.1: Define clear rules for data governance and document how indicators were produced and could be interpreted.

- Define clear rules for the data governance of the system to assist in the clarification of roles and responsibilities of stakeholders. In the context of digital transformation, every organisation needs a concept to manage its data efficiently. Data Governance encompasses the management measures required to make high-quality data available to the right data users (Hudec, 2021[12]). This creates the framework conditions for efficient utilisation of data to gain better insights. More concretely, a clear data governance framework will facilitate a continuous process of defining, measuring, analysing, and improving data quality, including the design of the necessary general conditions for these processes to happen (Hudec, 2021[12]).
- Some concrete roles can be defined for the data governance system. For example, there could be a data steward, responsible for data content, context, and associated business rules, and a data custodian, responsible for the technical environment and database structure. In this data governance system it would be imperative not to lose sight that accountability and educational goals should be aligned; this will require more efforts to align the principles embedded in educational goals and ensure their clear understanding by school agents (OECD, 2020[15]).
- Consider that the EMS is a socio-technical entity blending both policy and technical elements oriented to transform the data culture. In addition to IT technologies, management concepts and organisational structures, the exploitation of the data treasure also requires a corresponding data culture with a comprehensive view of the data. Therefore, a complete data governance programme not only includes the implementation of technical IT systems, but also requires a framework and plan for all procedures within the organisation that deal with data as well as a corresponding capacity, mind-set and data culture (Hudec, 2021[12]).

Action 3.2. Ensure that there is match between the capacity of the education professionals to be involved in the implementation and use of the EMS and their roles; provide the necessary support when needed.

- Ensure adequate capacity for the development and correct use of the EMS will require efforts on different fronts. It is important to have the right capacity for the design and implementation of the EMS. This can reduce the possibilities of misinterpretation, misuse and non-use of indicators to ensure the EMS is used properly as a whole (OECD, 2020[14]). Given this, BMBWF may consider refining the alignment of vision, goals and indicators (in that order) of the EMS together with relevant stakeholders before proceeding further in the EMS roll-out (Tesar, 2021[13]). In that sense, it would be essential for Austria to provide the necessary training in the use of the EMS interface for stakeholders to use to address their specific needs, for example, in the design of their own implementation plan (OECD, 2020[15]). Austria could make an assessment on the scale of the support needed for teachers to develop the adequate skills to be able to review, interpret and use data). For example, information from TALIS 2018 offers a somehow puzzled picture for Austria in terms of information and communication technologies (ICT) skills of teachers (just as one of the elements of the skill-set required by teachers to make better use of data). On the one hand, only 15% of the teachers in the country report a high level of need for professional development in ICT skills for teaching, while 46% of teachers reported that "use of ICT for teaching" was included in their recent professional development activities. On the other hand, only 20% of the teachers in the country seem to feel "well or very well" prepared for the use of ICT for teaching (Figure 5).

Figure 5. ICT for teaching



Note: countries are ranked in descending order according to the percentage of teachers who felt "well prepared" or "very well prepared" for the use of ICT for teaching.
Source: OECD (2020), Education at a Glance 2020: OECD Indicators, OECD Publishing, Paris, https://dx.doi.org/10.1787/69096873-en.

Action 3.3: Ensure that other policies in place are well-aligned to the goals of the EMS and create synergies. Pay attention to the role of relevant policies like the Quality Framework for Schools.

- Pay special consideration to related policies like the Quality Framework for Schools and their relationship with the data and reporting strategy. Policies are not designed in a vacuum, and have to articulate with an existing policy framework to be positioned in education policy as a whole (OECD, 2020[5]). Complementary policies aim to achieve similar goals to the new policy, or are stepping stones to support the new policy. While the goal should be the same, sometimes the new policy contradicts or competes with existing complementary policies, creating obstacles to implementation (OECD, 2020[5]). To ensure the alignment of other education policies, Austria should reflect on how the EMS will influence and co-exist with other relevant policies. Especially important will be the link between the EMS and the Quality Framework for Schools (QFS). The EMS should be useful for the QFS to fulfill its mission but should also be perceived as a more general and inclusive instrument that should be used in other policy domains. In this regard, the reporting strategy should be closely co-ordinated with other education policies, especially those aiming at creating and using data. Those major education policy areas which deserve particular attention include assessment and evaluation, teacher professional development, curriculum, and equity (OECD, 2020[14]).

Action 3.4. Align the reporting strategy to the data strategy, considering practices and policies already in place.

- To facilitate the alignment between the reporting and the data strategies, it is important to insist that having a clear data governance structure will help to bring together, under the same roof, the different technical and reporting components of the EMS. As mentioned before, data governance ensures secure availability of high-quality data to enable integrated data-driven decision making with measurable outcomes. The data governance should organise a data eco-system that connects people, processes and technology with at least five technical components of the EMS: policies, guidelines and standards; data quality framework; privacy compliance and security; information architecture and integrations; and reporting and analytics (Hudec, 2021[12]). All these components should be well integrated and aligned to ensure coherence and synergies between the reporting and data strategies.

3. Next steps

Austria will continue its progress with the design and implementation of specific components of BILIS (the technical parts of the EMS). To ensure that an education policy like the EMS contributes to effective change in schools, it needs to be made actionable through the development of a coherent implementation strategy (OECD, 2020[15]). Rather than a list of measures or actions taken independently, a coherent implementation strategy should weave together in an actionable way the design of the EMS, the engagement of different education stakeholders throughout the process, and the institutions, governance and policy alignment that surround it. Designing and communicating a coherent implementation strategy for the EMS can help guide the complex web of interactions required for a policy to be realised in schools. This will not be an easy path and Austria might benefit from the experience of the cases selected as reference whose situation was central in the discussions during the peer-learning events (Table 3).

Table 3. Challenges for the implementation of education monitoring systems

Example of Bavaria (Germany), Denmark and Portugal

Challenges in selected areas	Bavaria (Germany)	Denmark	Portugal
Defining the goals	No official objectives formulated for education monitoring	Not discussed at the workshop	Not discussed at the workshop
Identifying the indicator monitoring plan	Proper identification of the user needs	Indicators on political set aims and targets of the system and education	Adaptation of indicators due to policy changes
			Getting the right balance between the scientific robustness of the indicator and the simplicity needed to explain it to the public
Building an education information monitoring system	Scarcity of staff with the right skills set to perform well in this area	Continually improving the quality of data, e.g. granularity, better documentation of data and getting closer to "real time" data are current issues	Getting high-quality data
	Lack of documentation of the data-systems		Lack of different available data (indicators) for all levels and educational programmes
	Lack of APIs (application programming interfaces) to facilitate data exchange between different providers		
Translating data into action	Data are barely used by school inspectors	Data literacy	Building of public trust
		Balancing between the intended and unexpected use of indicators	Getting teachers and parents involved and helping them understand the indicators. This becomes more challenging for non-public indicators
			Balancing between the intended and unexpected use of indicators

Source: Presentations and discussions, Peer-Learning Workshop, January 2020 in Vienna (Austria).

The IEP team encourages Austria to consider the recommendations and actions presented in this document to prepare future steps in the implementation plan taking on board the following principles:

- The EMS should be driven by a concrete **vision** not only about worthy goals for education but also about how Austria will use data to drive policy change to achieve them (a vision in itself) accompanied by relevant **policy actions** and supported by **resources** that match its objectives. It could also consider how the EMS could help to address issues brought about by COVID-19.
- There should be **a communication** strategy that targets different groups of stakeholders, that ensures that they are **actively engaged** throughout the whole process, and that their responsibilities are known both to them and to others in a way that supports **transparency**. In particular, stakeholders should know how their contribution will shape and refine the EMS.
- The EMS should be adapted to the context (political, institutional and socio-economic) and to existing **capacity**. Furthermore, the EMS should be aligned to the existing **policy framework** and **governance arrangements**. Given the current situation, the EMS should not be competing for resources but pursuing the creation of synergies with other policies to deal with the challenges created by the COVID-19 pandemic.

Planning the implementation (even the pilot) of the EMS will require careful thinking about these dimensions, their translation into a set of coherent, concrete actions and how they are communicated effectively. Table 4 displays an action plan model that BMBWF can draw on to implement the EMS. It brings together the recommendations presented in the previous section for reflection. To ensure these actions are effectively implemented, each of them should be associated with a clear attribution of

responsibilities, dedicated resources, indicators to monitor progress, and an indicative timeline to guide stakeholders. This report acknowledges that the implementation process is rather complex so this table is provided as a resource for reflection to BMBWF and stakeholders on how to move forward with the implementation strategy of the EMS. This resource can be adapted to new considerations from BMBWF to respond to the challenges of implementing the EMS in the future.

Table 4. Planning a coherent and actionable implementation strategy for the EMS in Austria

OECD recommendations	Proposed implementation actions	Who?	Resources	Indicators	When?
Overarching recommendation for Smart Policy Design: Develop a shared understanding of the aims and intended use of the EMS	**Vision** *Action 1.1:* Develop a shared overarching vision of how the EMS will support the improvement of the education system. *Action 1.2:* Agree with relevant stakeholders on a clear definition of "Goals" of the EMS in order to guide the selection of data and indicators.				
	Policy tools *Action 1.3:* Establish an "indicator monitoring plan" and set up a comprehensive list of indicators to measure progress in achieving the goals, including relevant definitions and data needs. *Action 1.4:* Ideally, only after getting good progress on Actions 1.1 to 1.3 proceed to the establishment of an "education monitoring information system" (EMIS) which is the data or IT component of the EMS and then define approaches to translate data into action.				
	Resources *Action 1.5:* Ensure that the adequate financial, technical and time resources are ready for the implementation effort. Pay special attention to the need to create synergies with other policies to tackle the challenges generated by COVID-19.				
Overarching recommendation for Stakeholder Engagement: Define clear roles and responsibilities to develop and implement the EMS	**Communication** *Action 2.1:* Communicate the purposes and key results of the EMS and ensure that there is a user-friendly interface in place. *Action 2.2:* Align data reporting to the users' needs through constant communication and feedback mechanisms and ensure that a holistic vision of the EMS is provided, not fragments of it.				
	Involvement *Action 2.3:* Review the frequency and needs for school reports to help the development of improvement practices and provide a flexible consultation tool at school level to foster a culture of data use. *Action 2.4:* Consider reference groups to encourage stakeholders to use the tool and identify peers for collaboration. Make an effort to create synergies among different actors to deal with the challenges imposed by COVID-19.				
	Transparency *Action 2.5:* Clarify roles and responsibilities of different stakeholders engaged in the development of the EMS.				

OECD recommendations	Proposed implementation actions	Who?	Resources	Indicators	When?
Overarching recommendation for Conducive Environment: Ensure policy alignment and capacity to achieve the goals of the EMS	**Institutions** *Action 3.1:* Define clear rules for data governance and document how indicators were produced and should be interpreted.				
	Capacity *Action 3.2.* Ensure that there is match between the capacity of the agents to be involved in the implementation and use of the EMS and their roles; provide the necessary support when needed.				
	Policy alignment *Action 3.3:* Ensure that other policies in place are well-aligned to the goals of the EMS and create synergies. Pay particular attention to the role of relevant policies like the Quality Framework for Schools. *Action 3.4.* Align the reporting strategy to the data strategy, considering practices and policies already in place.				

Finally, as stated in the general assessment (section 3), this report recognises that BMBWF made progress in the design and implementation plans of the EMS despite the challenges imposed by COVID-19. This situation makes the progress made by the BMBWF unit in charge of the EMS project meritorious. In pursuing the following steps, the IEP framework could continue to be a valuable tool to guide the development of the EMS and engage all relevant stakeholders in its implementation.

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The bottom line: a coherent strategy for implementation of the EMS is key

To ensure that the planned education monitoring system (EMS) in Austria is effectively in place and in use across the country, it needs to be made actionable through the development of a coherent implementation strategy. Rather than a list of measures or actions taken independently, the design of the EMS, the engagement of different education stakeholders throughout the process, and the institutions, governance and policy alignment that surround it should be brought together. Designing and communicating a coherent implementation strategy for the EMS can help guide the complex web of interactions required for a policy to be realised in schools.

Implementing Policies: supporting change in education

This document was prepared by the Implementing Education Policies team at the OECD.

The OECD project *Implementing Policies: Supporting Effective Change in Education* offers peer-learning and tailored support for countries and jurisdictions to help them achieve success in the implementation of their policies and reforms in school education. The tailored support consists of three complementary strands of work that target countries and jurisdictions' needs: policy and implementation assessment, strategic advice and implementation seminars.

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