Executive Summary

This book includes the depiction of countries' digital ecosystem and digital governance. It covers 28 countries (Austria, Belgium, Brazil, Canada, Chile, the Czech Republic, Denmark, Estonia, Finland, France, Hungary, Iceland, Italy, Ireland, Japan, Korea, Latvia, Lithuania, Luxembourg, Mexico, the Netherlands, New Zealand, Slovenia, Spain, Sweden, Türkiye, the United States and England (United Kingdom)), including the Flemish and French communities of Belgium. The objective of each of the chapters is to provide an overview of the resources that central governments provide to their schools, teachers, and students, how the responsibilities are divided between different public stakeholders, and how they ensure the security, privacy, equity and effectiveness of this digital ecosystem while keeping incentives for private education technology (EdTech) companies to develop a variety of digital resources and tools for education.

The information presented in this book was collected through the following process. The OECD Secretariat designed two questionnaires (in the Annex), covering a variety of aspects of a digital education ecosystem and of digital governance. The questionnaires were designed through an iterative process of consultation with country coordinators. The administration of the questionnaires followed a two-step process given the novelty and variety of denominations of the different issues covered. Countries were asked to answer the questions and provide the name and URLs of the digital platforms and tools they were referring to. One or more "validation" meetings with each country participant took place to make sure that the questions and response categories were understood the same way across countries, thus allowing for international comparisons, but also to collect qualitative information about the digital governance and infrastructure within countries. The chapters were drafted based on this information as well as on desk research by the OECD Secretariat. Inasmuch as possible, the secretariat accessed the different digital resources (when publicly accessible) to ensure they include the functionalities expected for these categories of tools.

While authored by the OECD Secretariat, all country notes were verified for accuracy by countries, with last changes occurring in December 2023. The book describes the situation as of end of 2023 (or early 2024) and provides a baseline to assess future evolutions. It provides a neutral account of countries' situation, highlighting what they do rather than what they do not do. Links to and names of the platforms and legislation or guidelines mentioned are provided throughout the chapters.

One challenge in referring to countries' digital education infrastructure lies in the lack of a common terminology across and within countries. For example, a school learning management system can refer to tools that have different types of functionalities (e.g. student information management, content management, communication with parents), including functionalities that correspond to other dedicated tools (e.g. customer relationships systems for communication with parents). These tools can also have different names within countries: student information systems, student tracking systems, student enrolment systems, etc. The chapters attempt to provide a similar language across countries – and definitions are provided in the *OECD Digital Education Outlook 2023.*

A second challenge pertains to the devolution of responsibilities within countries. Respondents to the questionnaires were officials in the national ministry of education (where there is one) but, depending on their responsibilities, the public provision of digital tools and governance arrangements differ across

countries. Comparing more centralised to more decentralised countries could give a wrong impression regarding the abundance or scarcity of digital tools and resources – as well as guidelines and regulation. To overcome this challenge, where possible and relevant, with the support and advice of country representatives, sub-government entities or associations of those sub-government entities answered the questionnaires and/or were interviewed. The book attempts to make the devolution of responsibilities and the internal logic of the provision of digital tools and resources and of its regulation as clear as possible, while recognising that there is no strict determinism between the two. It also highlights the roles of the national government (if any).

All the country chapters follow more or less the same outline, adapted to the country context:

- **General policy context**. This section describes the roles of the ministry of education and other relevant actors to highlight the devolution of responsibility between different subgovernment levels (as is most often the case). It also presents the latest digital strategy of the country for education and how it is coordinated with the overall digital strategy within the country/jurisdiction.

- **Public digital education infrastructure**. This section covers two aspects of a digital education ecosystem, in line with the study of the frontiers of education technology in the *Digital Education Outlook 2021*. On the one hand, it presents the digital ecosystem for system and school management, which is composed of digital *tools* such as student information systems (also known as education management and information systems), digital assessment platforms, admission management systems and career/study information systems at the education system level, as well as learning management systems, communication tools with parents and administrative tools at the institutional level. On the other hand, it presents the digital ecosystem for teaching and learning that is provided by public authorities, composed of digital *resources* such as open digital resources and the licensing of commercial resources for staff and students enrolled in their education systems. Public provision is only one possible mode and many countries let schools procure some of these tools and resources directly (usually with their public funds).

- **Access, use and governance of digital technology and data in education**. This section portrays how countries ensure access to digital tools and resources and support their use, acknowledging that mere provision does not equate to adoption. It highlights how they try to compensate for the possible inequalities induced by the devolution of responsibilities on digital issues within countries, and the incentives that are provided to develop teachers' competencies and teachers' use of these resources (either through formal and informal digital competency frameworks for the teaching profession or more indirectly through the national/jurisdictional curriculum, if any). It also covers the governance of data and digital technology in education as it ensures stakeholders' trust in the use of digital data and solutions: it covers the rules and guidelines for accessing and sharing administrative and commercial data collected within schools, and rules and guidelines related to algorithms and interoperability, if any, as well as rules and guidelines about public procurement.

- **Support for innovation and research and development (R- D) in digital education**. As building and sustaining a robust supply and use of digital tools and resources remains a challenge in education, this section covers efforts from governments to support the development of new digital tools and resources by education technology companies as well as their support to monitoring and researching the effective uses of digital education.

This book is the underlying basis of the comparative and thematic chapters of the Digital Education Outlook 2023, that analyses the information in a thematic and comparative manner and provides additional country and international examples of initiatives to foster an effective and equitable digital education ecosystem. This is a thus a companion book that provides more in-depth information about each country.
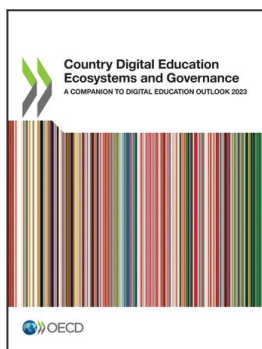
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