

SALTO DIGITAL RESOURCE CENTRE

AI FOR INCLUSION

BUILDING SKILLS FOR INCLUSION
IN THE AI ERA

Inclusion - Diversity - Agency - Engagement





AI for Inclusion

Artificial intelligence provides new opportunities to enhance inclusion in education by assisting schools, for example, in meeting the needs of learners facing linguistic challenges, learning disabilities, or limited access to learning support. When used responsibly, AI tools can enhance teachers' efforts, improve accessibility, and offer personalized learning paths that support learners with diverse backgrounds and abilities.

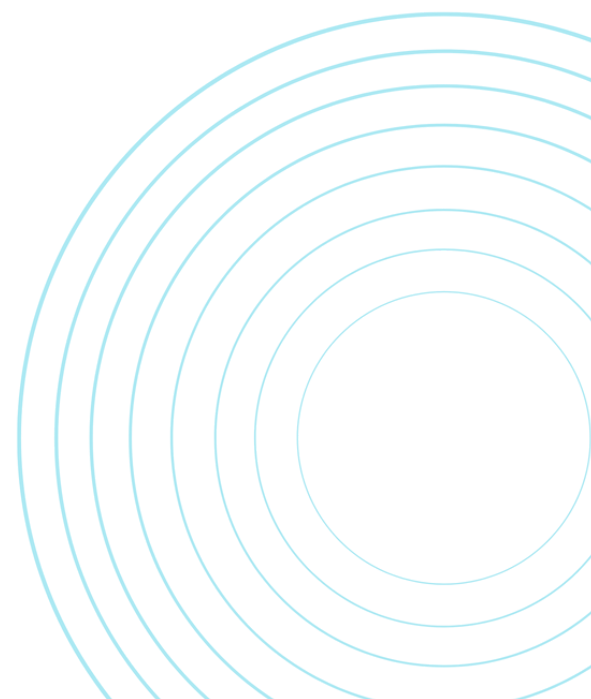
This material supports Erasmus+ projects and educational institutions in addressing AI and inclusion in teaching and learning. Although it does not constitute an official guideline, it presents curated considerations to support high-quality education addressing AI and digital inclusion.

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Digital inclusion

Digital inclusion refers to using digitalisation to empower individuals and communities, particularly those who are disadvantaged and underrepresented, by providing equitable access and participation. In the context of the Erasmus+ and ESC programmes, it can refer to many facets, including ensuring that digital approaches used in implementation are inclusive and that activities aim to strengthen inclusion and diversity (i.e., fostering digital literacy or bridging the digital gap).

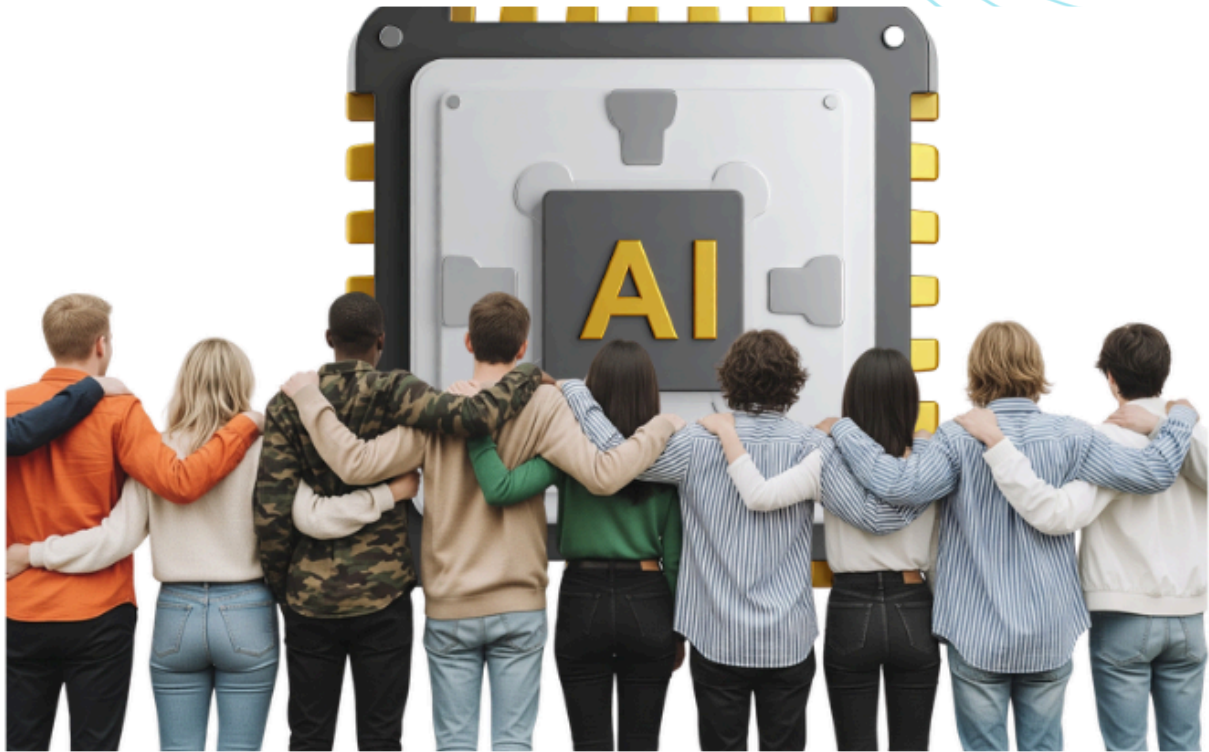
With the rapid developments in Artificial Intelligence (AI) and its impact on society and education, schools require greater capacity and resilience to navigate the evolving AI-powered world. This includes not only creating safe digital spaces for learners but also learning to leverage AI's potential to enhance teaching and learning processes. At the same time, education systems face increasing pressure to be more inclusive and move away from uniform teaching models. The diversity in classrooms has grown due to broader societal changes and increased migration, requiring more flexible approaches, personalized support, and adaptation.

New AI tools appear daily and are increasingly entering classrooms with limited supervision or formal oversight (OECD, 2024). This growing availability of AI tools for responding to diverse classroom needs presents both opportunities and challenges for educators who want to integrate them into their teaching. On the one hand, AI has the potential to support more adaptive, personalized, and culturally responsive teaching by helping teachers understand individual learners' needs, provide timely feedback, and design differentiated learning activities.

Teachers must be equipped with the knowledge, confidence, and pedagogical strategies to use AI inclusively, responsibly, and effectively. Schools, therefore, need to build professional capacity, develop shared understandings of AI's role in education, and adopt inclusive frameworks that ensure AI strengthens rather than widens existing gaps.

2

Developing Digital Skills and AI Literacy to Strengthen Inclusion



Building learners' digital skills and AI literacy is essential for increasing inclusion and reducing the digital gap that persists both within schools and across society. As AI tools become more embedded in everyday life, learners who lack basic digital competencies risk being excluded from learning opportunities, participation, and future employment. Teaching digital skills and AI literacy equips all learners, including those with fewer opportunities or limited access to technology, with the foundational knowledge needed to navigate and benefit from AI-supported environments.

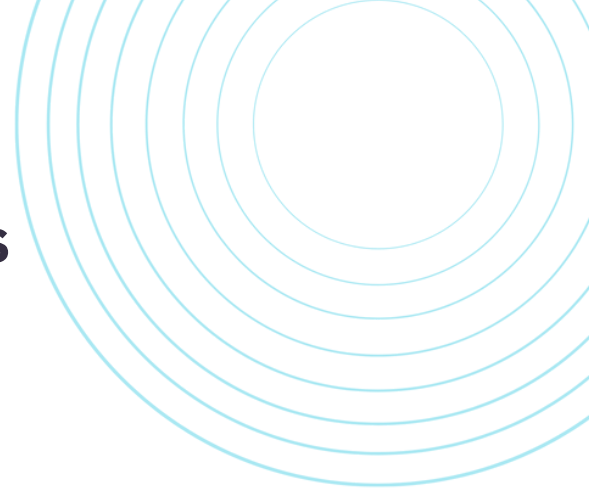
Developing AI literacy helps learners understand how AI systems operate, their limitations, and how to use them critically, which is crucial for tackling misinformation. Strengthening these competences also empowers learners with learning disabilities or linguistic challenges to use assistive AI applications that can reduce barriers and increase independence. Through explicit instruction, individuals learn how AI can support them—for example, by adapting texts, generating explanations, or offering translation and communication assistance.



Teachers play an important role in helping learners interpret AI outputs, evaluate the quality of digital information, and make informed decisions when using AI tools. When digital skills and AI literacy are embedded across subjects, learners gain experience applying them to meaningful, authentic tasks that support their motivation and engagement. This also helps ensure that personalized learning powered by AI is not limited to a small group of digitally confident learners but becomes universally accessible.

Educational institutions that invest in the development of digital competence for both learners and teachers help narrow structural inequalities that often affect learners from disadvantaged socio-economic backgrounds. Through targeted support, inclusive pedagogies, and the responsible use of AI, education systems can build a stronger foundation for equal participation in digital society. Ultimately, developing digital skills and AI literacy is not only a technical requirement but a key driver of educational equity, enabling all learners to benefit from the opportunities created by emerging technologies.





3 Challenges and Potentials of Using AI for Inclusion

AI technologies have the potential to enhance inclusion and promote equity, for example, by offering personalized learning paths for learners who need additional support, as well as for high achievers or early finishers who often lack sufficient challenges. The potential of AI lies in creating more inclusive and personalized learning experiences for all. AI-powered adaptive learning platforms, intelligent tutoring systems, and digital assistants can provide tailored instruction and support that cater to individual learning needs, interests, and preferences. These tools can provide learners with instant feedback, guidance, and resources that will help them achieve learning outcomes at their own pace. This, in turn, helps ensure that each individual is appropriately challenged, leading to a more engaging and effective learning experience for everyone.

While AI-driven tools can help personalize learning experiences, it must be acknowledged that many existing systems offer only limited forms of personalization. Genuine personalization goes beyond adaptive pathways and should enable self-actualization and learner autonomy (Holmes & Tuomi, 2022). Furthermore, it is important to prevent and mitigate the risk of “information bubbles,” where AI systems repeatedly present learners only with content that aligns with their previous choices or current performance. When this happens, personalization can keep learners in a comfort zone, limiting their exposure to more challenging tasks and restricting their freedom to explore new topics and develop higher-level skills (Kralj et al., 2023). Hence, AI-driven personalization needs to be approached carefully and critically.



AI tools can create immersive learning experiences for learners, including game-based learning, AI-powered robots, and virtual and augmented reality. These technologies can make curriculum content more realistic, tangible, and engaging (OECD, 2024), especially in situations where such experiences would not be possible or practical in real life. It is also necessary to ensure that learners are comfortable using the AI tool and understand its role and limitations in the learning process. A further challenge is that cost is a significant barrier, as many of these advanced technologies are financially out of reach for many schools that could benefit most from their use.

AI can offer teachers valuable insights into learner progress, highlight areas of strength and difficulty, spot problems, provide individual guidance, and enable them to adapt instruction in a more targeted way. AI tools can assist teachers in providing timely feedback to learners and supporting classroom management (OECD, 2024). Teachers can use AI both to curate and adapt classroom learning materials and to access just-in-time resources for their own professional development in this field or others of interest.

However, the use of these tools also raises other important challenges, including equitable access and ethical implications related to algorithmic bias, privacy, data protection, accountability, transparency, and techno-ableism. In this context, techno-ableism refers to the belief that technology can or should solve disability as a problem, which implies that disabled learners are problems themselves, rather than recognizing their rights, identities, and diverse ways of learning (OECD, 2024).



Finally, it is important to recognize that many AI tools used in classrooms today were not originally designed for educational purposes but have been adapted or repurposed for learning. As a result, they may not always offer appropriate pedagogical affordances or align well with curricular goals and evidence-informed teaching practices (Holmes & Tuomi, 2022).



4

Examples of How AI Can Be Used to Support Inclusion in Education

AI as Support for Linguistic Diversity and Multicultural Classrooms

AI-powered chatbots and language assistants can help learners practice speaking, writing, and comprehension in a supportive, low-pressure environment. These tools adjust the difficulty level based on the individual's progress, allowing learners with limited language proficiency to build confidence at their own pace.

Teachers can simultaneously monitor interactions, identify individuals who struggle with vocabulary or grammar, and receive suggestions for targeted follow-up activities. This dual function means that the same AI tool can serve both learner-centered and teacher-led purposes.

In multilingual schools, AI chatbots have also been used to support communication with families. Parents can ask questions in their own language and receive immediate guidance about school routines, assessments, or support services. Schools have reported that this strengthens accessibility, prevents misunderstandings, and helps reduce the risk of early school leaving among learners from underprivileged backgrounds.





AI for Learners With Learning Disabilities and Special Educational Needs

AI applications can help compensate for learning disabilities by offering alternative ways to access and process information. For example, speech-to-text tools can support learners with dyslexia or writing difficulties by enabling them to express their ideas without the barrier of manual writing. Text-simplification features can assist individuals with reading challenges by presenting content in a clearer and more accessible form. Multi-modal explanations that combine visual, auditory, and interactive elements allow learners to choose the format that best supports their understanding. In addition, AI-supported note-taking and summarization tools help learners concentrate on essential content rather than struggling with transcription.

Together, these applications reduce cognitive load, promote greater independence, and enable learners with special needs to participate more fully in classroom activities.

Tailored Learning Materials and Adaptive Learning Processes

AI can generate differentiated learning materials that match each learner's individual needs, such as readiness level, background knowledge, and pace. Teachers can request adapted versions of texts, alternative explanations, additional practice exercises, or scaffolds such as glossaries and visual supports. This allows learners with fewer opportunities, such as those who lack home support or experience interruptions in their schooling, to work with materials that meet them where they are.

Inclusive School-Level Practices Enabled by AI

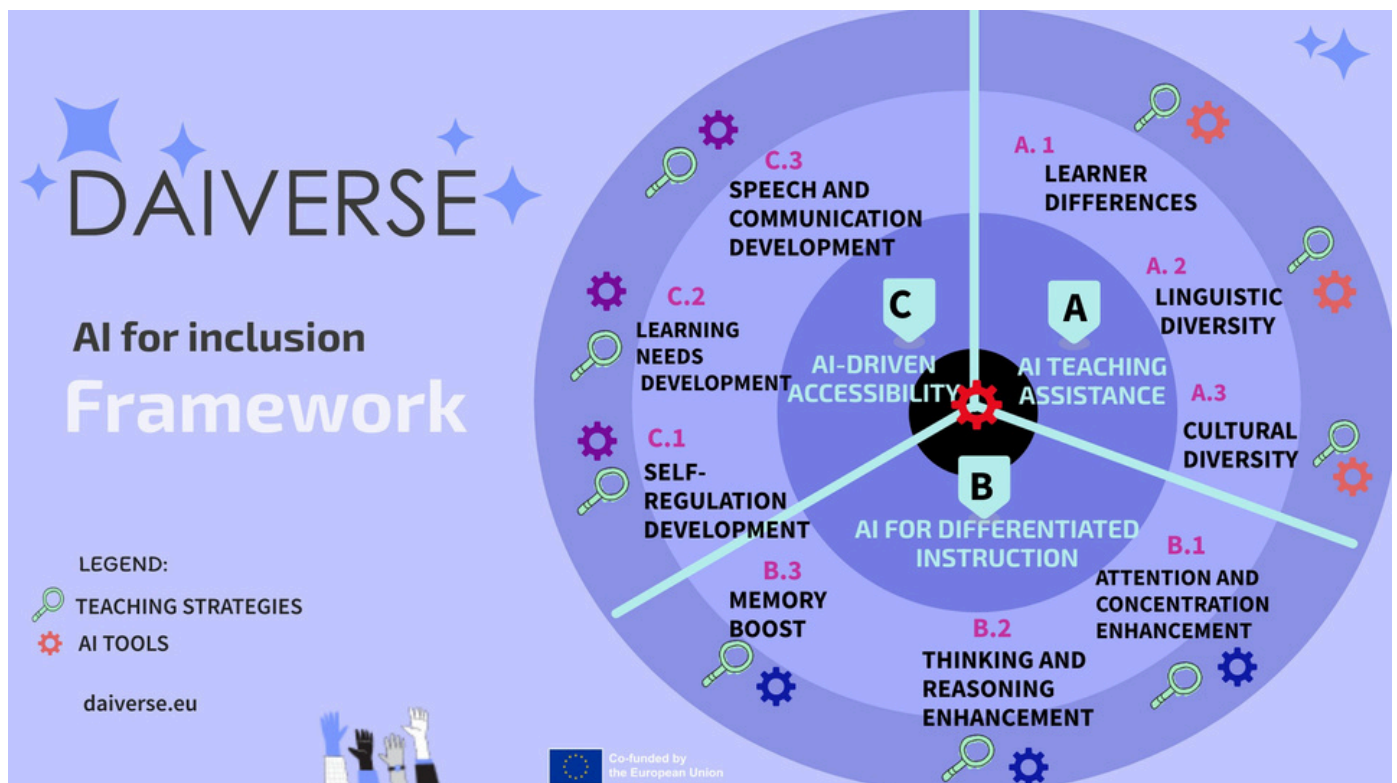
AI tools can also support inclusion at the institutional level. School principals and teachers can use aggregated insights on dashboards from chatbots or adaptive platforms to monitor participation, detect patterns of disengagement, and implement early support measures. This enables schools to respond proactively to learners who may be at risk of dropping out or becoming marginalized.

However, AI does not replace pedagogical expertise; instead, it expands the possibilities for personalization, accessibility, and early intervention. When integrated responsibly, with strong attention to ethics, transparency, and teacher professional development, AI can help create learning environments where all learners, including those with learning disabilities, linguistic challenges, or fewer opportunities, can succeed and participate fully in education.



5 AI for Inclusion and Diversity Framework

While many frameworks and initiatives are addressing AI in education more generally, far fewer focus specifically on AI for inclusion and diversity. Furthermore, given that inclusion and diversity in education span many different themes, it is challenging to address them in a single model. The DA/VERSE Framework (2024), developed in an Erasmus+ project, helps fill this gap by concentrating on three areas that offer practical, immediately applicable, and high-impact opportunities for teachers.



Interactive version of the DA/VERSE Framework at <https://daiverse.eu/framework>

The framework explores three key dimensions: AI for Teaching Assistance, AI for Differentiated Instruction, and AI-Driven Accessibility, which provide teachers with concrete strategies for creating more personalized, adaptive, and accessible learning experiences. Whether working with learners who need additional support, advanced learners who require more challenges, or multilingual and culturally diverse groups, these three dimensions offer a practical foundation for enhancing inclusion with AI. Each dimension is further broken down into subareas, with suggested teaching methods and proposed AI tools.

For example, **AI for Teaching Assistance** addresses learning, linguistic, and cultural diversity and recommends the use of real-time translators, multilingual chatbots, transcription tools, and culturally responsive storytelling.

AI for Differentiated Instruction focuses on attention and concentration, thinking and reasoning, and memory support using tools that monitor progress in areas such as reading or mathematics and provide personalized practice accordingly.

AI-Driven Accessibility targets self-regulation, specific learning needs, and speech and communication development through customizable chatbots that model speech, provide conversational practice, simulate authentic scenarios, and prepare learners for authentic, real-life communication.



The DA/VERSE framework presents a wide range of tools, but they are illustrative rather than exhaustive. They are not confined to a single dimension; many can be used across multiple areas to address different challenges of inclusive classrooms. See more information on the framework at: <https://daiverse.eu>.

6

Inclusive Use of AI Requires New Pedagogical Competencies

Recent discussions among educators have highlighted a growing need to move beyond theoretical debates about the “AI revolution” and its benefits and challenges for both mainstream and inclusive education. While these concerns remain relevant, teachers increasingly emphasize the importance of concrete, practical professional development experiences. Many find that knowing the theory behind AI is very different from being able to use it meaningfully in real classroom situations. This gap often affects teachers’ confidence and limits their ability to integrate AI in ways that support learning. Therefore, professional development should combine digital pedagogy, basic knowledge of AI, ethics, and data literacy with hands-on opportunities, such as experimenting with real-world examples, exploring pedagogical models, and engaging in reflective practice (Kralj et al., 2025).

Educators should understand how to safely and effectively integrate AI technologies into their teaching and embed them in authentic classroom scenarios to reach all learners, regardless of their needs, interests, and abilities. They should look for opportunities to try out AI tools in a supportive environment that allows them to explore their potential benefits and risks for both learners and teachers. Such experiences help them see the pedagogical value of AI technologies and how to align them with curriculum goals.



The integration of AI into education requires teachers to develop new competencies, rethink their pedagogical roles, and adopt innovative teaching approaches. Therefore, it is essential to identify three priorities for professional development: learning to use AI in teaching, understanding AI and its ethical implications, and preparing learners for an AI-driven world (Cukurova et al., 2024). Targeted and comprehensive teacher training is therefore fundamental for the successful integration of AI technologies (OECD, 2024). When teachers work within a supportive professional community that actively engages them in peer learning, exploratory practice, and the immediate implementation of new ideas, their confidence grows, and they become more willing to adopt emerging technologies and innovative teaching strategies to improve learner outcomes (Blazic & Verswijvel, 2017). This kind of collaborative environment also ensures that teachers receive practical guidance and inspiration to integrate AI into their teaching scenarios. For schools, it is equally important to build learning communities where advanced technology users (AI enthusiasts and innovators) and less tech-confident teachers develop new pedagogical approaches together and collaborate on adapting them to address the different needs, backgrounds, and abilities present in their own teaching context.



7

Erasmus+ Projects Provide Possibilities to Develop Inclusion With AI

Erasmus+ projects can play an important role in promoting inclusive practices by providing structured opportunities for teachers to collaborate across schools and countries, exchange inclusive practices, and co-develop AI-enhanced pedagogical approaches. The Erasmus+ Programme places a strong focus on ensuring equal opportunities, access, and fairness, directly supporting efforts to use AI more inclusively. Its priorities include supporting teachers, school leaders, and other education professionals; encouraging innovation in schools; and advancing digital transformation by developing digital skills, digital readiness, resilience, and capacity. This also involves fostering the purposeful use of emerging digital technologies and AI, as well as developing expertise in accessible and assistive technologies (Erasmus+ Programme Guide, 2025).

Through resources and examples shared on the [Erasmus+ Project Results Platform](#), educators can access a wide range of innovative ideas, learning scenarios, and professional communities that support both technologically confident and less experienced teachers in meeting learners' diverse needs. Building on this, active involvement in eTwinning and the European School Education Platform (ESEP) further strengthens collaboration and outreach as they offer educators a supportive environment for peer learning and the sharing of ideas and good-practice examples.





The European Digital Education Hub is an online community that connects digital educators to share best practices in digital education and discuss contemporary topics such as AI and Digital Inclusion. Through this community, participants gain access to expert discussions and thematic groups and can collaborate with colleagues across Europe.

Such practice communities provide opportunities for wider participation, allow educators from different countries to join, share their experiences with AI tools for inclusion, and engage in ongoing dialogue and lifelong learning.



8

Moving Forward: Questions for Reflection

The rapid development of AI and its growing presence in classrooms create both opportunities and responsibilities for education systems. AI tools can contribute to more inclusive and personalized learning experiences, but this requires more than just enthusiasm for technology and experimentation. It calls for critical reflection on issues such as the limitations of personalization, information bubbles, algorithmic bias, privacy, accountability, and techno-ableism, and on recognizing that many AI tools were not originally designed for education.

Policy documents such as the Ethical Guidelines for the Use of AI and Data in Teaching and Learning (2022) and UNESCO's AI-related frameworks (2024) provide essential foundations for the responsible use of AI in education. However, educators consistently indicate that they need more than being taught how to use AI. They need concrete, practical examples they can use in real classrooms. Teachers require hands-on support to transfer abstract knowledge into everyday practice. They need to see and understand what inclusive, AI-supported teaching looks like in authentic teaching contexts and how it can be aligned with learners' needs and curriculum goals. Educators require hands-on guidance to navigate AI in ways that support inclusion, differentiation, and diverse learning needs, and to learn how to make AI integration tangible and applicable to their teaching contexts.



Questions to Consider

1. How can teachers use AI to support inclusion for learners with linguistic or learning challenges?
2. How can schools develop digital skills and AI literacy to reduce the digital gap and support diverse learners?
3. How can teachers ensure that AI personalization strengthens inclusion for diverse learners?
4. How can AI help teachers better understand and respond to diverse learner needs?
5. How can schools select AI tools that truly support inclusive pedagogy and diverse learning pathways?
6. How can teachers and schools ensure ethical, safe and transparent use of AI for all learners?
7. What competencies do teachers need to use AI inclusively in diverse classrooms?
8. How can schools build collaborative practices that help teachers use AI to support inclusion and diversity?



Resources and More Information

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