

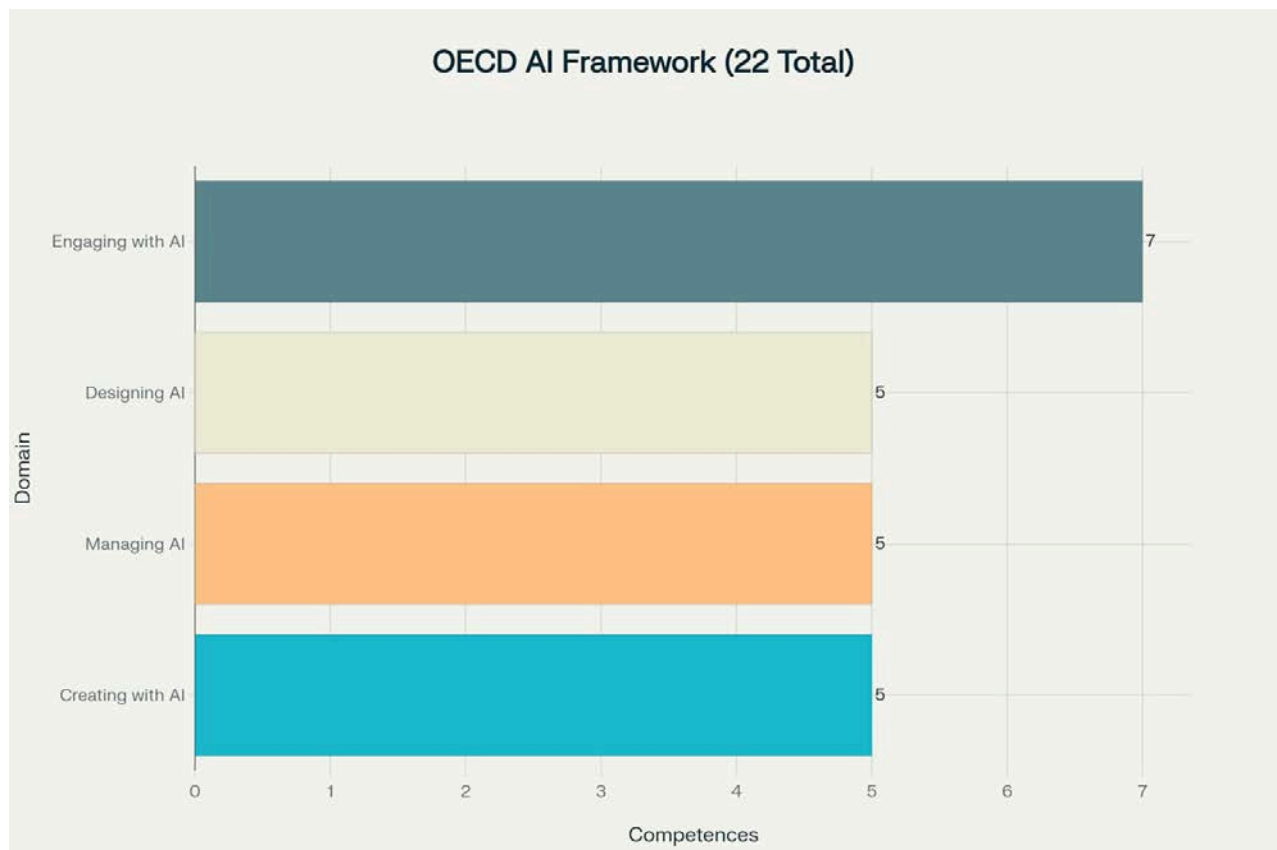
# The OECD AI Literacy Framework: Impact and Implementation in Belgian Primary and Secondary Education

The release of the OECD AI Literacy Framework in May 2025 represents a pivotal moment in educational policy, providing the first comprehensive international guidance for integrating artificial intelligence literacy into primary and secondary education <sup>[1]</sup> <sup>[2]</sup>. This framework emerges within a complex policy ecosystem that includes the EU AI Act, Digital Education Action Plan 2021-2027, and various national initiatives across Belgium's federal structure <sup>[3]</sup> <sup>[4]</sup> <sup>[5]</sup>. As Belgium grapples with coordinating AI education across its three regions—Flanders, Brussels-Capital, and Wallonia—the framework offers both opportunities and challenges for implementation in diverse educational contexts <sup>[6]</sup> <sup>[7]</sup>.

## Overview of the OECD AI Literacy Framework

The OECD AI Literacy Framework, developed jointly by the European Commission and OECD with support from [Code.org](https://code.org), establishes a foundational approach to AI education that emphasizes both technical understanding and ethical considerations <sup>[8]</sup> <sup>[2]</sup>. The framework defines AI literacy as "the technical knowledge, durable skills, and future-ready attitudes required to thrive in a world influenced by AI" <sup>[1]</sup>. This comprehensive definition encompasses the ability to engage, create with, manage, and design AI while critically evaluating its benefits, risks, and ethical implications <sup>[1]</sup> <sup>[2]</sup>.

The framework's structure is built around four interconnected domains that progressively develop learners' AI competencies <sup>[1]</sup>. These domains represent different ways learners interact with AI systems, from basic recognition and evaluation to advanced design and implementation <sup>[2]</sup> <sup>[9]</sup>.



#### OECD AI Literacy Framework: Distribution of 22 Competences Across Four Domains

The framework's 22 competences are distributed across these four domains, with "Engaging with AI" containing the largest number of competences (7), reflecting its foundational importance for all learners.

The remaining three domains each contain five competences, suggesting a balanced approach to developing both consumption and production capabilities with AI technologies.

### Policy Framework Integration and Compliance

#### EU AI Act Article 4 Requirements

The framework directly addresses Article 4 of the EU AI Act, which mandates that providers and deployers of AI systems ensure adequate AI literacy among their staff and users <sup>[4]</sup>. This legal requirement creates a compelling case for systematic AI literacy education, as organizations must demonstrate compliance through documented training and competency development <sup>[4]</sup>. Belgian schools, particularly those implementing AI-powered learning platforms like Century Tech, must therefore develop comprehensive AI literacy programs not just for students but also for educators and administrators <sup>[10] [11]</sup>.

## Alignment with Digital Education Frameworks

The OECD framework complements several existing European initiatives, creating a coherent policy ecosystem for digital education.

The Digital Education Action Plan 2021-2027 established the foundation for high-quality digital education across the EU, while the 2022 Ethical Guidelines on AI in Education provide specific guidance for responsible AI use in teaching and learning <sup>[3]</sup> <sup>[12]</sup>. The DigComp 2.2 Framework further supports this ecosystem by including AI-related skills within the broader digital competence framework <sup>[13]</sup>.

These interconnected frameworks create both opportunities and obligations for Belgian education systems. While they provide comprehensive guidance, they also require coordination across multiple policy levels and stakeholder groups.

## Regional Implementation in Belgium

### Flanders: Leading AI Education Innovation

Flanders has emerged as a pioneer in AI education implementation, with several major initiatives predating the OECD framework <sup>[14]</sup> <sup>[10]</sup>. The Flemish AI Action Plan, launched in 2019 with an annual budget of €32 million, has created a foundation for AI integration across education, research, and industry <sup>[15]</sup> <sup>[14]</sup>. This regional strategy emphasizes strategic research, implementation activities, ethical considerations, and education and training <sup>[14]</sup>.

The Century Tech implementation represents one of the world's largest school-level AI deployments, affecting 700 schools and over 200,000 students in Flanders <sup>[10]</sup> <sup>[11]</sup>. This initiative uses AI to create personalized learning experiences while reducing teachers' administrative burden <sup>[10]</sup> <sup>[11]</sup>. Teachers using the platform report saving six hours per week, allowing them to focus more on pedagogical activities rather than routine tasks <sup>[11]</sup>.

However, implementation faces significant challenges <sup>[16]</sup> <sup>[17]</sup>. Despite widespread student use of AI tools outside school, with 45% of Flemish students using AI for homework and 52% of sixth-year students regularly engaging with AI technologies, schools remain reluctant to embrace these tools <sup>[17]</sup>. This disconnect between student practice and institutional adoption creates a critical gap in formal AI literacy education <sup>[17]</sup>.

### Brussels-Capital Region: Research-Driven Approach

Brussels has adopted a research-intensive approach to AI education through the FARI Institute, established in 2021 as a collaboration between VUB and ULB <sup>[18]</sup> <sup>[19]</sup>. FARI's mission focuses on developing trustworthy, transparent, and explainable AI while addressing societal challenges in transportation, sustainability, healthcare, and civic participation <sup>[19]</sup>. The institute's educational initiatives emphasize citizen engagement and public awareness, complementing formal education efforts <sup>[19]</sup>.

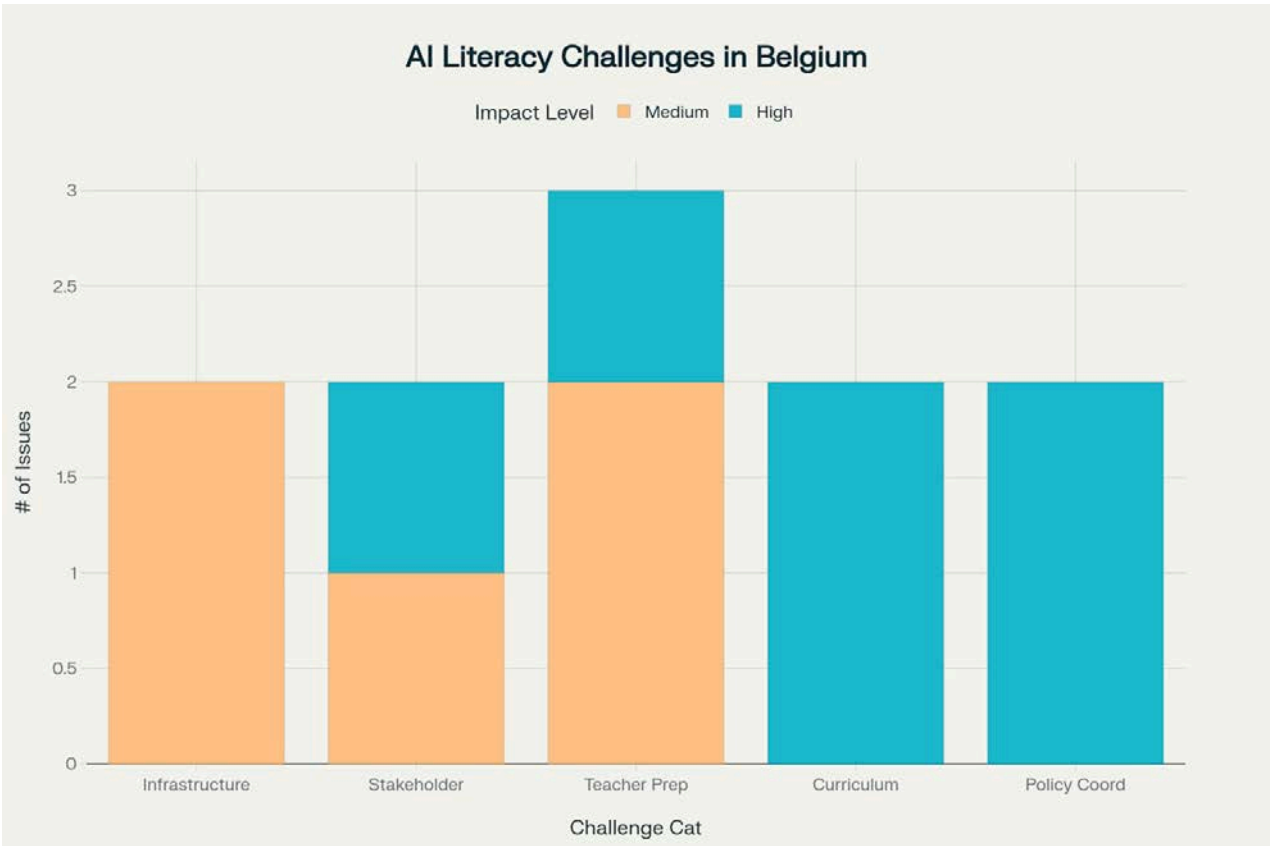
The Brussels AI strategy, supported by EU Recovery and Resilience Facility funding, positions the region as a leader in human-centered AI technologies <sup>[18]</sup>. This approach aligns closely with

the OECD framework's emphasis on ethical considerations and societal impact <sup>[18]</sup>. The "Elements of AI" MOOC, launched with hub.brussels support, demonstrates the region's commitment to broad-based AI literacy beyond formal education settings <sup>[20]</sup>.

### Implementation Challenges and Barriers

Belgian AI education implementation faces multiple interconnected challenges that vary by region and stakeholder group.

Policy coordination represents the most significant high-impact challenge, as Belgium's federal structure requires coordination between national, regional, and local authorities with different competencies and priorities.



#### Implementation Challenges for AI Literacy in Belgian Education by Category and Impact Level

Teacher preparation emerges as another critical challenge, with 70% of Flemish teachers reporting feeling unprepared to use digital tools effectively <sup>[21]</sup> <sup>[22]</sup>. This preparation gap is exacerbated by teacher reluctance to adopt AI applications, often stemming from concerns about academic integrity and skill development <sup>[17]</sup>. Research indicates that Flemish educators prefer traditional, face-to-face training environments and individual assistance from colleagues or ICT coordinators rather than online professional development opportunities <sup>[22]</sup>.

Curriculum integration challenges reflect deeper pedagogical questions about the framework's scope and implementation level <sup>[23]</sup>. The emphasis on "Designing AI" as a core competence has drawn criticism for being too technical for non-specialist teachers and subjects <sup>[23]</sup>. As noted in the educational blog analysis, this creates accessibility barriers for biology, geography, history,

and literature teachers who may find it "extremely complicated and time-consuming to start learning coding to include designing AI" in their classes <sup>[23]</sup>.

## **Critical Assessment of Framework Implementation**

### **Strengths and Opportunities**

The OECD framework's interdisciplinary approach offers significant advantages for Belgian schools seeking to integrate AI literacy across subjects <sup>[8] [2]</sup>. Unlike narrowly technical approaches, the framework emphasizes human capabilities and ethical considerations, ensuring learners can effectively leverage AI tools while maintaining critical thinking and empathetic judgment <sup>[1] [8]</sup>. This alignment with Belgian educational values, particularly the emphasis on ethical AI development seen in both Flemish and Brussels strategies, creates natural implementation opportunities <sup>[15] [18]</sup>.

The framework's practical scenarios for primary and secondary education provide concrete guidance for teachers across different subjects and contexts <sup>[1] [9]</sup>. These scenarios help bridge the gap between abstract competencies and classroom practice, addressing one of the key implementation challenges identified in Belgian research <sup>[22]</sup>.

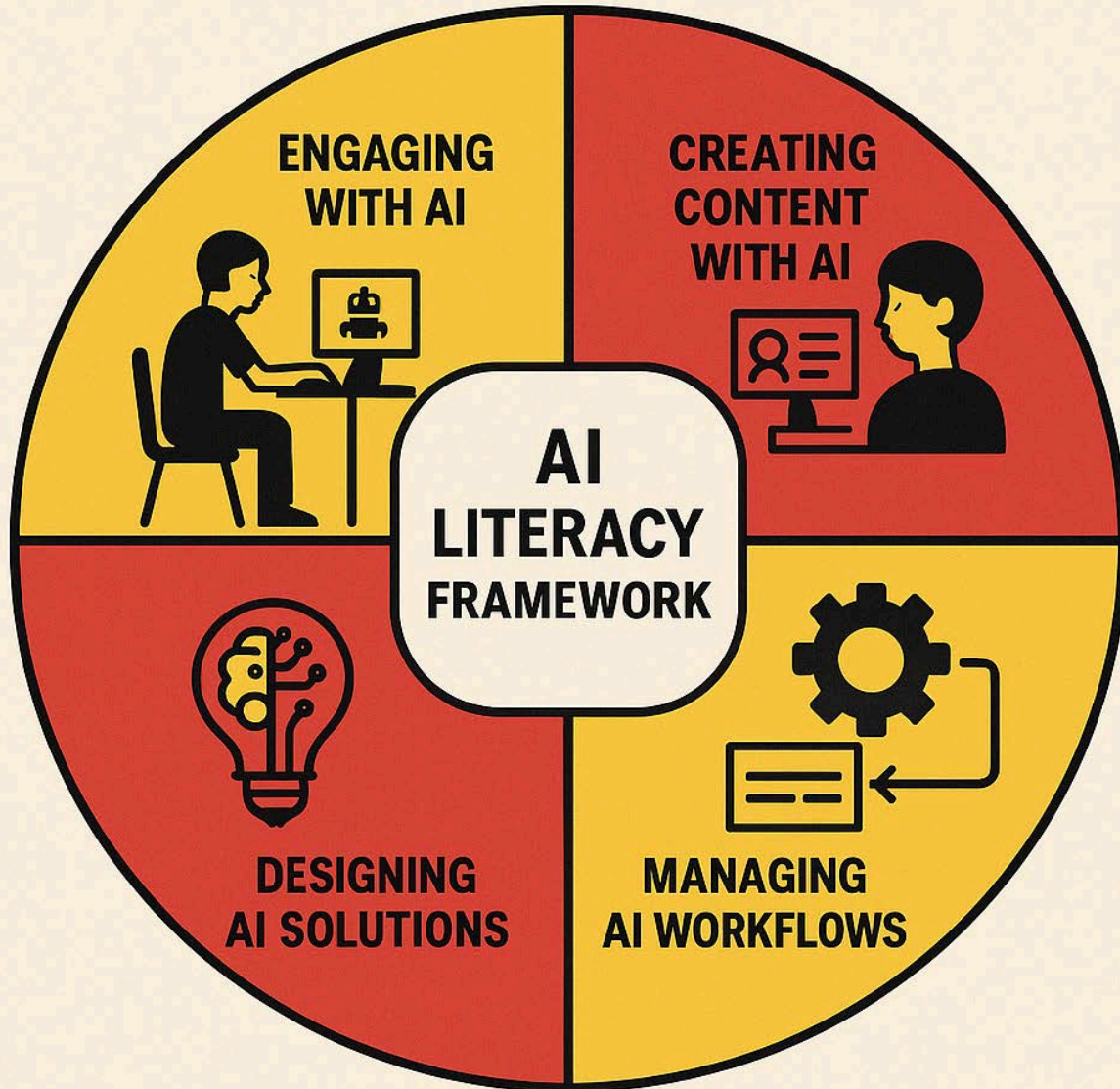
### **Limitations and Implementation Concerns**

The framework's comprehensive scope, while beneficial for long-term AI literacy development, may overwhelm schools and teachers in the short term <sup>[23]</sup>. The attempt to address both whole-school policy development and individual classroom implementation within a single framework creates ambiguity about appropriate application contexts <sup>[23]</sup>. This challenge is particularly acute in Belgium's diverse educational landscape, where schools have varying levels of digital readiness and AI experience.

The timeline for implementation presents additional challenges.

With the final framework scheduled for release in 2026 and PISA 2029 assessments beginning preparation, Belgian schools have limited time to develop comprehensive AI literacy programs. This compressed timeline is complicated by the need to coordinate across multiple policy frameworks and stakeholder groups.

# FRAMEWORK IN SCHOOLS



Visual representation of AI literacy implementation in Belgian schools

## Future Directions and Recommendations

### Policy Coordination and Governance

Belgium requires enhanced coordination mechanisms to align regional AI education initiatives with the OECD framework while respecting federal competency divisions. The AI4Belgium coalition provides a foundation for this coordination, but stronger integration between educational and technological initiatives is needed <sup>[24]</sup>. Regular inter-regional dialogue and shared performance indicators could help address current coordination challenges <sup>[7]</sup>.

## Teacher Professional Development

Addressing the teacher preparation gap requires targeted, context-specific professional development that recognizes teachers' preferences for traditional training methods while building digital confidence <sup>[21]</sup> <sup>[22]</sup>. The Digital School Project in Flanders provides a model for collaborative teacher education approaches that could be expanded to include AI literacy components <sup>[21]</sup>.

Professional development programs should focus on fundamental teaching competencies enhanced by AI rather than advanced technical skills <sup>[22]</sup>. This approach aligns with the framework's emphasis on human capabilities and addresses teacher concerns about overwhelming technological complexity <sup>[23]</sup> <sup>[22]</sup>.

## Assessment and Evaluation Framework

Belgium needs standardized AI literacy assessment tools that align with both the OECD framework and PISA 2029 requirements. Current assessment gaps limit the ability to measure implementation effectiveness and identify areas for improvement. Developing these tools requires collaboration between assessment bodies, educational researchers, and AI experts across all three Belgian regions.

## Conclusion

The OECD AI Literacy Framework offers a comprehensive foundation for AI education that aligns well with Belgium's existing digital education infrastructure and policy commitments. However, successful implementation requires addressing significant challenges in policy coordination, teacher preparation, and curriculum integration. Belgium's federal structure, while complicating coordination, also provides opportunities for innovative regional approaches that can inform broader implementation efforts.

The framework's emphasis on ethical AI use and human-centered design resonates strongly with Belgian educational values and existing initiatives <sup>[23]</sup> <sup>[18]</sup>. Success will depend on maintaining this ethical focus while developing practical implementation strategies that support teachers and schools in their AI literacy journey. As Belgium prepares for PISA 2029 assessments and EU AI Act compliance, the OECD framework provides essential guidance for developing digitally literate and ethically aware citizens ready for an AI-influenced future.

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