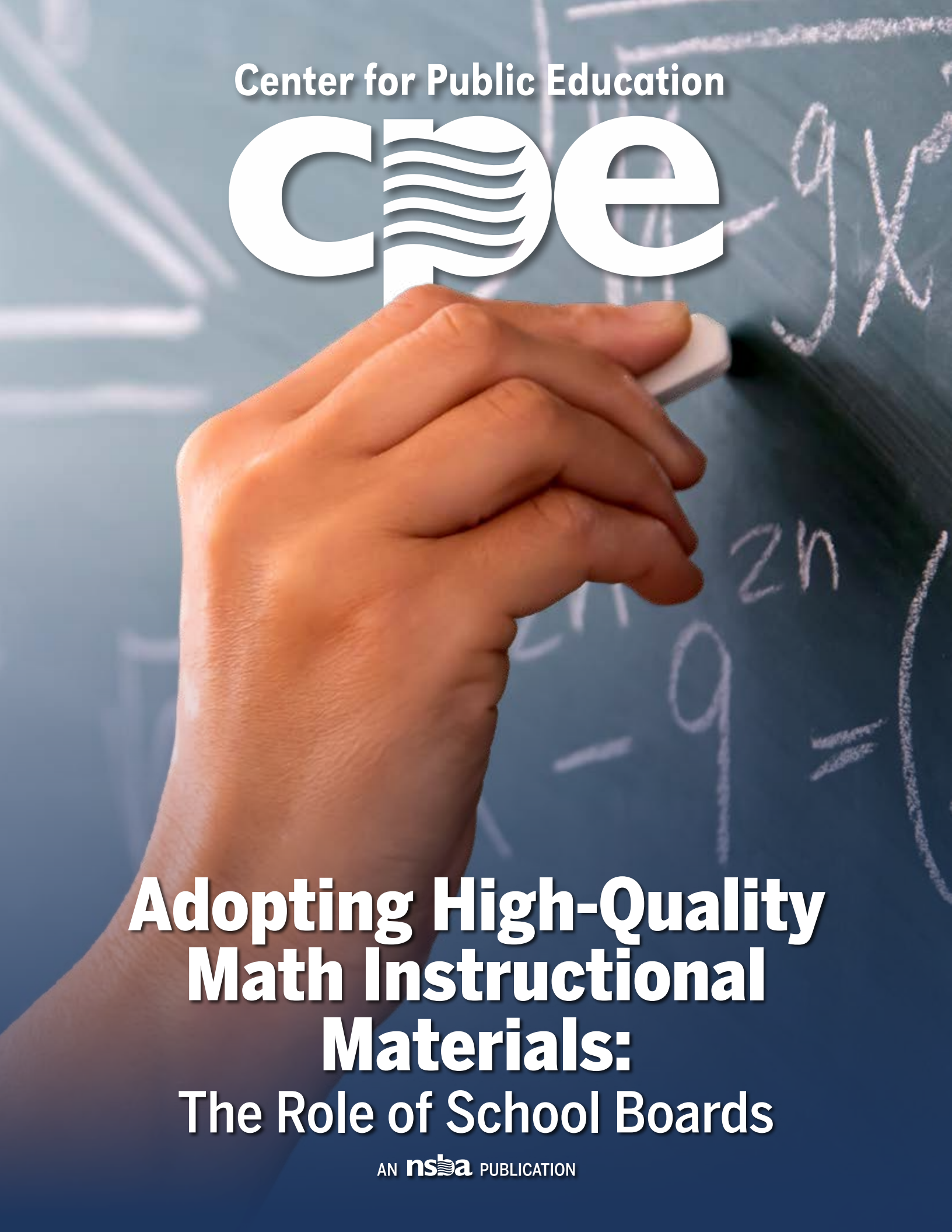


Center for Public Education

Adopting High-Quality Math Instructional Materials:

The Role of School Boards

AN nsba PUBLICATION

Table of Contents

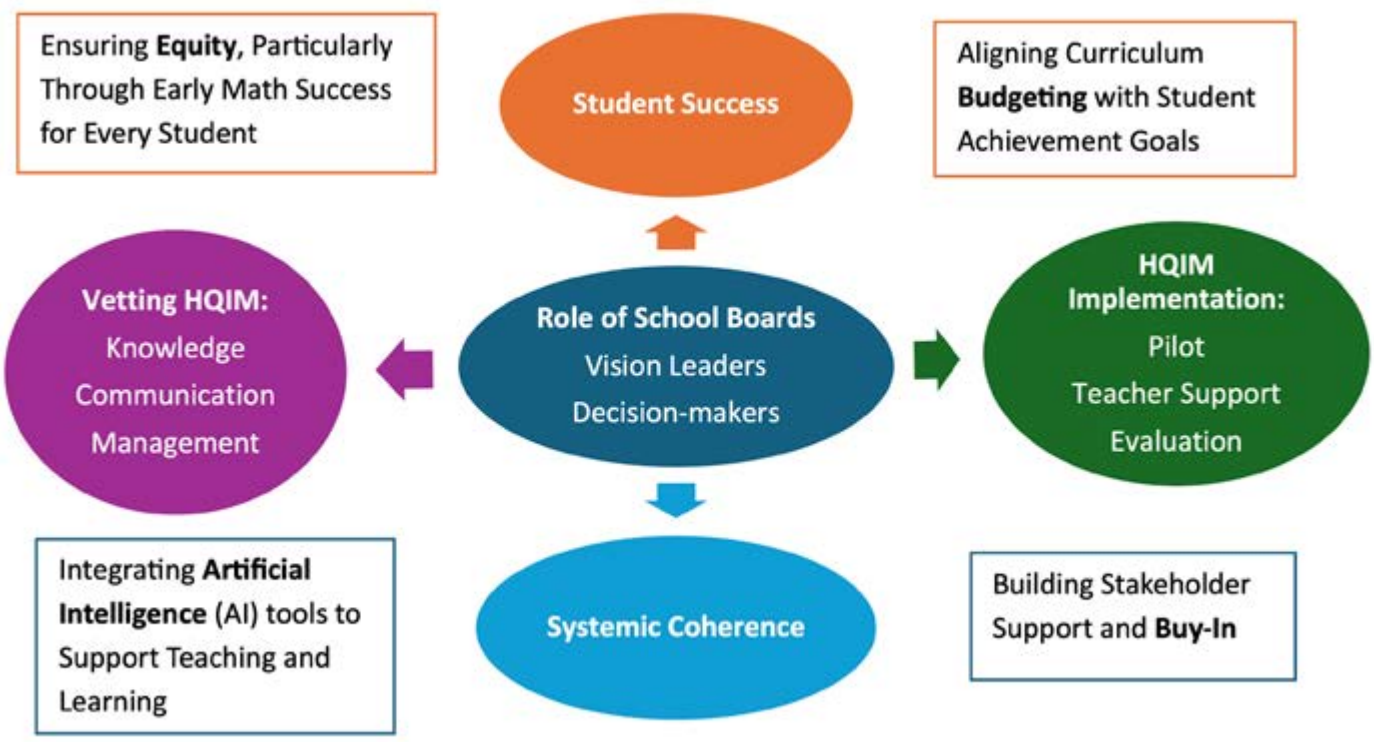
Introduction

Demand for science, technology, engineering, and mathematics (STEM) workers continues to grow faster than many other occupations (IES, 2016). The U.S. Department of Labor projects that from 2024 to 2034, STEM employment will grow by about 8.1%, compared with 2.7% for non-STEM jobs. STEM careers also offer significantly higher wages, with median annual earnings around $104,000 — more than double the roughly $48,000 median for non-STEM occupations. Mathematics proficiency is a key gateway to many of these high-demand careers.

For school boards, this trend highlights the importance of prioritizing strong math instruction through policy decisions, resource allocation, and the adoption and effective implementation of high-quality math instructional materials. High-quality instructional materials (HQIM) are curricula designed to be meaningful and engaging for all students. They typically include grade-level content and tools that support teachers while reflecting local community needs (CPE, 2025; EdReports, 2021).

Strategic governance decisions about high-quality math curriculum can help ensure students are prepared for future workforce opportunities and long-term economic mobility. To support school leaders with research-based guidance, the Center for Public Education (CPE) developed a framework outlining the role of school boards in adopting HQIM (see Chart 1). This framework is informed by research across school governance, student learning, and math education.

Chart 1. A Practical Framework for School Board Leadership in HQIM Adoption



The framework includes four components — student success as the ultimate goal, vetting HQIM, implementing HQIM, and ensuring systemic coherence — and four priority consideration areas that apply to both the vetting and implementation phases of HQIM adoption: equity, AI-enabled tools for teaching and learning, budget alignment, and stakeholder buy-in.

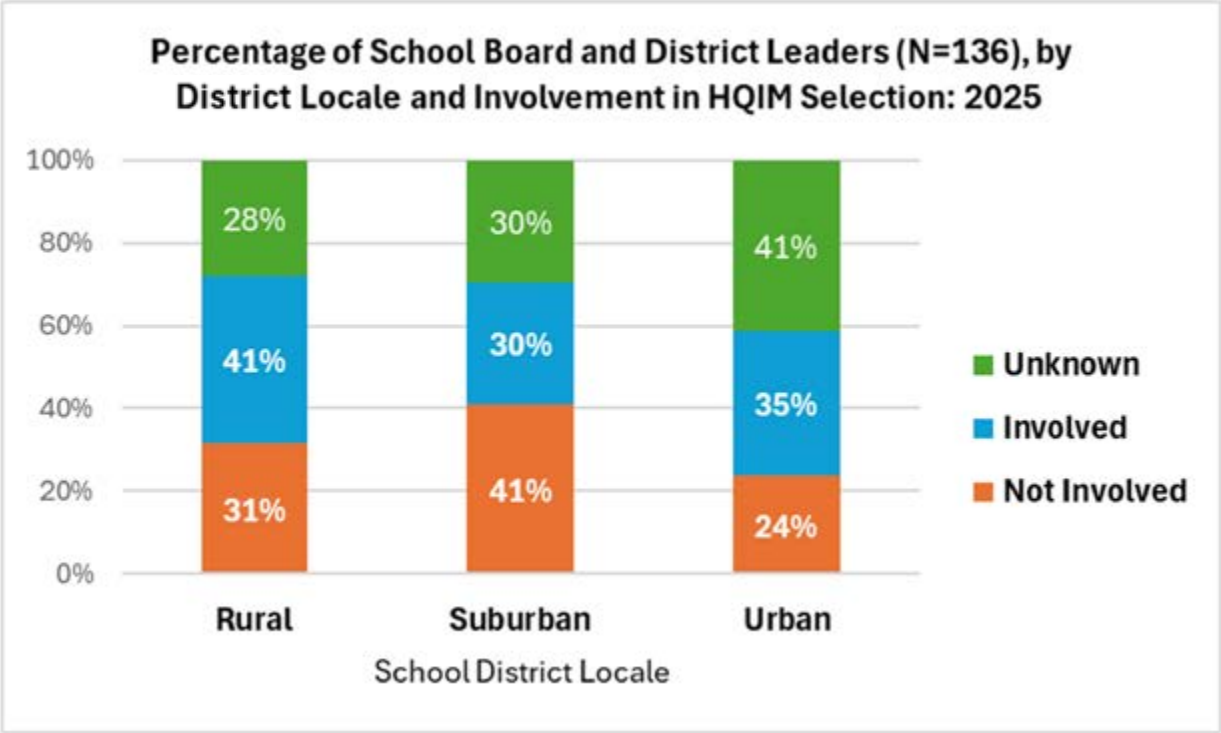
This report begins by explaining why we developed this framework. It then defines the broad governance role of school board members and outlines the priority areas boards should consider when adopting HQIM. Next, the report examines the two key processes—vetting and implementing HQIM—and highlights systemic coherence as a critical factor for successful adoption. Throughout the report, we provide examples that illustrate effective practices in HQIM adoption.

Why This Report

In 2025, the National School Boards Association (NSBA) surveyed district leaders about their awareness of HQIM and the role they play in the adoption process. Although the sample was not nationally representative, 136 district leaders from California, Florida, Illinois, New York, and Texas participated. Respondents were primarily school board representatives (82%) and included leaders from rural (40%), suburban (45%), and urban (13%) districts.

The findings point to significant gaps in school board engagement and confidence related to HQIM adoption. Approximately one-third of respondents — most of whom were school board members — reported that they were not involved in the HQIM selection process, and another one-third did not respond to the question (see Chart 2). Among those not involved, more than 90% reported low confidence in determining whether a potential math curriculum is of high quality.

Chart 2. About one-third of school board members reported that they were not involved in the HQIM selection process. Another one-third reported that they were involved in some capacity — for example, providing input and recommendations, serving in a consultative role, acting as the primary decision-maker, or approving materials after staff review and public hearings.



While these results may not represent national trends, they raise important concerns about governance readiness in one of the most critical areas affecting student learning. As districts face increasing pressure to improve academic outcomes, ensure instructional coherence, and make effective use of limited resources, school boards need clearer guidance, stronger frameworks, and practical tools to support high-quality instructional materials adoption and implementation. This report is intended to help address that need.

In this report, we explain the framework by addressing the following three overarching questions:

- What roles do school boards play in adopting HQIM?
- What key considerations require school board leadership during the adoption process?
- What best practices can help guide successful HQIM adoption?

The report also includes three practice-focused discussion boxes that highlight: how students learn math in high-performing countries such as Japan and Finland; how school board members can strengthen their understanding of artificial intelligence (AI) tools used in teaching and learning; and best practices school districts are using when adopting HQIM.

School Board Roles in HQIM Adoption

Effective school board governance leads to student success. Research suggests that governance structures, goal setting, and policy coherence at the board level are associated with districtwide improvement in student achievement, particularly when aligned with strong instructional leadership and implementation capacity (Alsbury, 2008; Ford & Ihrke, 2016). In reality, many districts continue to experience fragmented instructional systems, including misalignment across curriculum, assessments, professional learning, and evaluation systems — conditions that can limit student learning gains even when strong programs or materials are adopted (RAND, 2023).

From Oversight to Outcomes: The Changing Governance Role

Traditionally, school boards have focused primarily on fiscal stewardship, legal compliance, and constituent representation, while leaving responsibility for student academic outcomes to superintendents, administrators, and instructional staff (Land, 2002). This division of responsibilities reflected a long-standing governance model in which boards set overall direction and ensured operational stability, while professional educators led instructional decisions.

Our HQIM adoption framework does not suggest that school board members step into the professional role of educators or make day-to-day instructional decisions. Rather, it emphasizes a **shared accountability model** in which responsibilities are clearly aligned across governance and professional practice. Educators and district leaders retain primary responsibility for instructional expertise and implementation, while school boards exercise their governance role by setting priorities, ensuring transparency, asking informed questions, and aligning policy, resources, and community expectations with student learning goals. In this model, school boards do not replace professional judgment; instead, they help create the conditions in which high-quality instructional decisions can be made and sustained.

Vision Leaders

School board members are expected to serve as vision leaders. According to Eight Characteristics of Effective School Boards (CPE, 2019), "Effective school boards commit to a vision of high expectations for student achievement and quality instruction and define clear goals toward that vision," and "have strong shared beliefs and values about what is possible for students and their ability to learn, and of the system and its ability to teach all children at high levels."

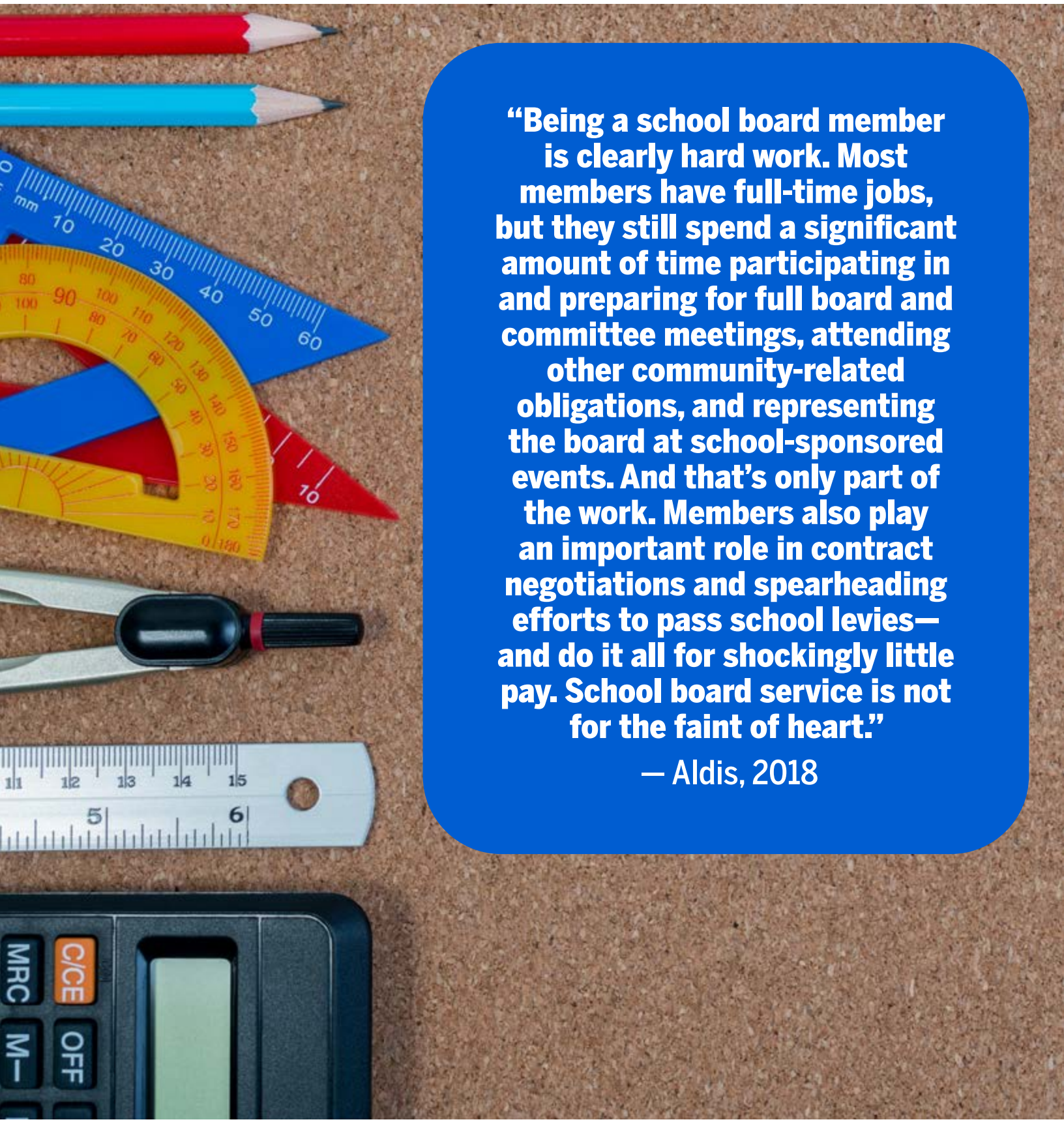
In practice, this means school boards should move beyond traditional oversight and work in partnership with their superintendents to implement a strategic governance model that prioritizes student outcomes (Hartney, 2024; Robinson, 2024). Guided by the framework outlined in this report — centered on student success, effective vetting and implementation of HQIM, and systemic coherence — boards can help ensure that instructional priorities are clearly defined and supported. This includes setting evidence-informed academic priorities; adopting policies and allocating resources to support HQIM and coherent instructional systems; monitoring the quality of implementation; and using multiple data sources to evaluate progress and impact over time.

Decision-makers

Recent research identifies HQIM as a key driver of improved student outcomes when used within coherent instructional systems (National Institute for Excellence in Teaching, 2020; EdReports, 2021; CPE, 2025). As accountability expectations increase and demographic, fiscal, and workforce challenges reshape public education, school boards are playing a larger role in shaping instructional strategy. The critical question is no longer whether school boards influence student outcomes, but how intentionally and effectively they do so — particularly through decisions that strengthen instructional coherence, such as aligning professional development, educator collaboration, and evaluation systems, and ensuring HQIM are implemented in ways that benefit all students.

As vision leaders and decision-makers, school boards play an essential role in ensuring that schools across the district use strong, high-quality curriculum. As Aldis (2018) notes, districts have — and should retain — local control over how they educate students. One of the most important decisions districts make is selecting curriculum for each subject and grade level. However, with many curriculum options available, quality varies widely. Because board members often do not have the time or technical expertise to review every program in detail, they can set clear expectations that any materials recommended by district leaders meet high-quality standards. Independent reviews from organizations such as EdReports can help districts rely on objective evidence rather than marketing claims or long-standing vendor relationships.

In summary, serving as vision leaders and decision-makers positions school board members as central drivers of instructional quality and student success. Strong governance in HQIM adoption is essential to improving teaching, strengthening instructional coherence — meaning that all parts of the instructional program, from core instruction to interventions and extended learning time, work together to support the same priorities, goals, and grade-level learning experiences — and ensuring all students have access to high-quality learning opportunities.



"Being a school board member is clearly hard work. Most members have full-time jobs, but they still spend a significant amount of time participating in and preparing for full board and committee meetings, attending other community-related obligations, and representing the board at school-sponsored events. And that's only part of the work. Members also play an important role in contract negotiations and spearheading efforts to pass school levies—and do it all for shockingly little pay. School board service is not for the faint of heart."

— Aldis, 2018

Center for Public Education

Practice Discussion Box 1 – How Math Is Taught in Finland and Japan

Media and the public often cite international math assessments such as the Program for International Student Assessment (PISA) to criticize the U.S. education system and suggest that American schools are falling behind their global peers. While students in countries such as Finland and Japan consistently outperform U.S. students on these assessments, these comparisons should be interpreted with caution. Finland and Japan operate in education systems that differ significantly from the United States' decentralized structure, where states and local districts make most instructional decisions.

Examining these countries is not meant to suggest that U.S. educators lack expertise or that their models can be directly replicated. Instead, these systems highlight several conditions widely recognized as important for strong mathematics learning: well-prepared teachers, high-quality instructional materials, coherence across curriculum and instruction, sustained attention to early mathematics, and opportunities for students to develop both problem-solving skills and procedural fluency. The following overview highlights key instructional materials and teaching approaches used in Finland and Japan to help education leaders better understand how high-performing systems support math learning.

Finland: Building Mathematical Thinking from the Start

Finland's math education system focuses on developing strong mathematical thinking for all students beginning in the early grades. Instructional materials are aligned to national curriculum guidelines, and teachers are trusted to choose and use materials and assessments based on student needs.

Primary classroom teachers provide most math instruction in Grades 1–6, while specialized subject teachers teach math in Grades 7–9. Schools typically use one of a few widely used textbook series aligned to national standards. These series often include student materials, teacher guides, assessments, and supplemental resources. Schools and teachers have flexibility in selecting materials, though teachers within the same school usually use the same series for consistency.

A key feature of Finland's system is strong teacher preparation. Teachers are trained as research-informed professionals with deep content knowledge and strong pedagogical skills. Combined with clear curriculum expectations, high-quality materials, and coherent assessment practices, teacher expertise plays a central role in maintaining strong mathematics instruction nationwide.

Center for Public Education

Japan: Encouraging Problem-Solving-Based Learning in Math Education

Japan's math education system emphasizes problem-solving-based learning. Lessons are designed to encourage productive struggle, student discussion, and deep thinking, helping students develop strong conceptual understanding and communication skills in mathematics.

Math textbooks in Japan are written by private publishers but must be reviewed and authorized by the Ministry of Education, Culture, Sports, Science and Technology (MEXT). A national review council, made up of university professors and experienced teachers, evaluates textbooks to ensure alignment with national curriculum standards. Once approved, textbooks are placed on an authorized list.

Local boards of education select textbooks from this approved list for schools in their jurisdiction, often based on teacher recommendations. At the upper secondary level, individual schools select textbooks from the authorized list. This structured selection process helps ensure alignment with national expectations while still allowing local input.

Japan's broader instructional approach also emphasizes hands-on learning, observation, and real-world application, especially in math and science education. Together, high-quality instructional materials, clear national standards, and strong teacher expertise support consistent, high-quality instruction across schools.

Four Priority Areas for School Board Leadership

School board members carry broad responsibilities but often have limited time and resources. To support boards in serving as effective vision leaders and decision-makers, the framework presented in this report highlights four priority areas for governance focus (see Chart 1). While many issues compete for attention, these areas identify where boards can ask strategic questions and provide leadership during HQIM adoption.

- Equity — Districts should adopt HQIM at every grade level to ensure that all students build strong foundations in early mathematics and meet grade-level expectations beginning in kindergarten. During the vetting process, board members can ask questions such as whether English learner students and students from low-income families receive the support they need to succeed in math alongside their peers?
- Artificial Intelligence — Maintaining and improving high-quality mathematics instruction as new technologies, especially AI tools, are increasingly promoted as solutions to classroom challenges. During the vetting process, board members can ask: How can districts use technology, including AI tools and instructional materials, to help teachers better meet students' diverse learning needs?
- Budget — School districts should align curriculum spending with student achievement goals. When considering HQIM, the key issue is the quality of the materials, not simply their purchase cost. During the vetting process, board members may ask how differences in cost compare with the potential impact on teaching and learning? During implementation, boards should also consider what resources — such as teacher training and instructional support — are needed to ensure HQIM are used effectively and consistently.
- Buy-in — Building stakeholder support should be a process of meaningful engagement, not simply a way to avoid disagreement. When teachers are actively involved and confident in the selected materials, they often become strong advocates who can explain the benefits to families and the broader community. Board members may ask what strategies the district is using to engage key stakeholders — such as classroom teachers, principals, and families — throughout the HQIM adoption process?

Equity

In Practice Discussion Box 1, we highlighted how two high-performing countries — Finland and Japan — approach math education. Finland builds strong foundations through early play-based learning, while Japan treats math learning as a natural, everyday skill developed from an early age. Both systems prioritize early math development as a key driver of long-term academic success.

In the United States, children enter kindergarten with wide differences in numerical knowledge and math skills, and closing income- and race/ethnicity-related gaps in pre-K and kindergarten is critical to improving long-term outcomes (Mattera et al., 2021). Prioritizing early math is both an achievement and an equity strategy, helping ensure all students — especially those from disadvantaged backgrounds — develop the skills needed for postsecondary education and careers.

Research in psychology and neuroscience consistently shows that early math skills strongly predict later success in math and other subjects (see Table 1). Early math knowledge is also a strong predictor of middle and high school math performance, graduation, and college enrollment. Foundational skills such as number sense, quantity understanding, and spatial reasoning are especially critical.

These findings have clear implications for school board decision-making. Because early math learning sets the trajectory for later success, the adoption of HQIM in kindergarten and elementary grades is a critical governance decision. Selecting HQIM that build strong foundations, address unfinished learning, and support diverse learners can help districts advance equity goals and improve long-term student outcomes.

Table 1. Research Evidence of the Association Between Early Math and Student Achievement

Study	Findings
What's Past is Prologue: Relations Between Early Mathematics Knowledge and High School Achievement (Watts et al., 2014)	This longitudinal study found that math skills measured at 54 months strongly predicted math achievement through age 15, even after accounting for reading ability, cognitive skills, and family background. Growth in math skills from preschool to first grade was an even stronger predictor of later achievement. The findings highlight the importance of strong pre-K math knowledge and early math development for long-term success.
It Matters How You Start: Early Numeracy Mastery Predicts High School Math Course-Taking and College Attendance (Davis-Kean et al., 2022)	Using data from 1,364 children in a national longitudinal study, researchers found that math skills at 54 months — especially counting, basic arithmetic, and understanding abstract math concepts — were linked to later education outcomes. Children with lower early numeracy skills were more likely to be placed in lower-level high school math courses and were less likely to enroll in college. The findings also showed early math skill gaps linked to socioeconomic differences, highlighting the long-term importance of early numeracy development.
Early Predictors of High School Mathematics Achievement (Siegler et al., 2012)	Longitudinal data from the United States and the United Kingdom show that elementary students' understanding of fractions and division strongly predicts algebra knowledge and overall math achievement in high school. These relationships remained significant even after accounting for general intelligence, working memory, family background, and other math skills. The findings highlight the importance of mastering key foundational math concepts in elementary school to support later success.
Predictive Model for Early Math Skills Based on Structural Equations (Aragon et al., 2016)	This study of 207 preschool students found that early math skills are strongly linked to cognitive factors, including early literacy, general intelligence, working memory, and short-term memory. Early literacy showed the strongest relationship to math skill development. The findings suggest that cognitive skills should be considered when designing early interventions to support students at risk for math learning difficulties.
Why Do Early Mathematics Skills Predict Later Reading? The Role of Mathematical Language (Purpura et al., 2017)	This study of 125 preschool children found that early math and early literacy skills are closely related. Results showed that mathematical language skills help explain how early math supports later literacy development. The findings suggest that strong math language skills may drive both math and reading success in early learning.

Artificial Intelligence

Artificial intelligence (AI) refers to computer-based systems that can simulate aspects of human thinking and decision-making, including performing tasks or analyses using machine learning algorithms (Peterson, 2024). The use of AI in math education has evolved over time. In the 1990s, Carnegie Mellon University developed early AI-powered math tutoring systems designed to match students with interactive digital tutors. By 2016, AI tools began to be integrated into learning management systems, allowing schools to use data analytics to support student engagement and performance (Wang, 2025). Since 2023, the emergence of large language models (LLMs) has accelerated the use of generative AI (GenAI) in classrooms, expanding capabilities beyond answer checking to supporting complex problem-solving and conceptual learning (Sawyer, 2024).

Interestingly, one researcher predicted that in 2026, existing curriculum, assessment, and intervention providers will begin embedding AI-powered features into their products, while at the same time some districts, teachers, and parents may choose to opt out of AI use entirely (Freitag, 2025). This prediction aligns with findings from the 2025 NSBA survey, which showed mixed perspectives among school board members about the role of technology in HQIM. Some respondents expressed concern that HQIM should not rely too heavily on technology, noting that excessive reliance on school-issued and personal devices may weaken student performance and reduce meaningful teacher–student interaction.

As AI tools become more integrated into core instructional resources, education leaders must make informed decisions about how these tools fit within coherent instructional systems and HQIM. Research shows that AI can support math learning through personalization, adaptive instruction, and data-driven insights, with small but positive effects on student achievement, especially when paired with strong teacher instruction. However, studies also highlight important limitations, including accuracy concerns, age-appropriateness issues, and the risk of overreliance without strong teacher oversight. Overall, AI is most effective when used to support — not replace — high-quality teaching and instructional materials.

In 2025, the National Council of Supervisors of Mathematics (NCSM) published Educational Technology & AI Guidance for Math Leaders. The guidance encourages school leaders to ask several key questions when considering technology tools:

- **Does the tool deepen students' mathematical thinking?**
- **Does it align with what we know about how students learn mathematics?**
- **And does it strengthen teachers' professional judgment or replace it?**

To help school leaders better understand current research on AI in teaching and learning, we compiled the table on the next page, which highlights selected studies examining both the benefits and potential challenges of AI in instruction.

Table 2. What Research Says About AI in Teaching and Learning

Study	Findings
Comprehensive Analysis of AI-Based Math Learning Platforms for K-12 Education (Yoon, Min, & Kang, 2024)	This study analyzed 12 global AI-based math learning platforms to identify features linked to improved learning outcomes. Most platforms supported personalized learning by analyzing student data, displaying progress through dashboards, and delivering tailored learning materials and content. The findings highlight how AI-driven tools can support more personalized and data-informed math instruction.
The Effectiveness of AI on K-12 Students' Mathematics Learning: A Systematic Review and Meta-Analysis (Yi et al., 2024)	This systematic review and meta-analysis examined 21 studies (40 samples) comparing AI-supported instruction with traditional math instruction in K–12 classrooms. Results showed a small but positive overall effect of AI on math performance, with stronger effects when AI was used in intelligent tutoring or adaptive learning systems. The findings provide early evidence to guide effective and appropriate integration of AI across grade levels, math content areas, and instructional designs.
The Effect of AI-Based Systems on Mathematics Achievement in Rural Context: A Quantitative Study (Khazanchi, Mitri, & Drachsler, 2024)	A quasi-experimental study of 78 students from socioeconomically disadvantaged backgrounds compared AI-supported instruction (Edmentum Exact Path plus teacher-led instruction) with teacher-led instruction alone. Both groups improved in math achievement, while the teacher-led group showed higher gains in affective engagement, and no differences were found in cognitive engagement.
Artificial Intelligence Chatbot as a Mathematics Curriculum Developer: Discovering Preservice Teachers' Overconfidence in ChatGPT (Sawyer, 2024)	This study examined the quality of math curriculum content generated by ChatGPT, how preservice teachers adapted those materials, and their perceptions of using AI. ChatGPT often produced tasks with high cognitive demand but used text that was not age-appropriate for elementary students. The study also found that many preservice teachers made only surface-level changes to AI-generated materials, suggesting the need for training on critically evaluating AI outputs and using effective prompt strategies for math instruction.
Examining the Potential and Pitfalls of AI in Problem Solving (Memiş, 2025)	This study evaluated how well AI tools — ChatGPT-4, Gemini, and Copilot — identified and addressed common student errors in proportional reasoning. ChatGPT-4 showed the highest accuracy, correctly answering 10 of 14 questions and providing more detailed explanations, but all tools repeated some common student reasoning errors. The findings suggest that while AI shows promise for math instruction, improvements are needed in contextual understanding and problem-solving accuracy.

Center for Public Education

Practice Discussion Box 2 – School Board Members' Professional Development in AI

Artificial intelligence is reshaping classrooms, operations, and the broader public education landscape. NSBA, in partnership with the National AI Academy (NAIA), has launched the AI Smart Certification for K-12 education leaders. The NSBA AI Smart Certification provides foundational and practical insights into how AI is shaping public education, helping school leaders make informed, strategic decisions about technology integration, policy, and governance.

Through this certification, participants will:

- **Gain a clear understanding of AI's impact on teaching, learning, and operations.**
- **Explore best practices for ethical and effective AI implementation in schools.**
- **Build confidence in leading AI-driven transformation across their districts.**

The AI Smart Certification prepares board members to ask the right questions, set informed priorities, and lead confidently as AI becomes integral to district operations.

(Source: NSBA AI Smart Certification - National School Boards Association)

Budget

When districts consider adopting HQIM, the central issue should be the quality of the materials selected, not simply the cost of purchasing them (Chan, 2024). In many cases, the price difference between instructional materials is relatively small compared with the potential impact those materials can have on teaching and learning. Districts may go many years without adopting new instructional materials due to budget constraints, but the key governance question should be whether the materials selected are truly high quality and aligned with academic standards and instructional goals.

Because HQIM adoption requires substantial financial investment and long-term implementation support, securing funding should be treated as a strategic governance decision rather than a routine budget action. Districts should recognize that the more significant investment may come after adoption. If a district is committed to ensuring that HQIM are used effectively and consistently, it may need to allocate resources for teacher training, instructional support, and ongoing implementation. These investments help ensure that the materials are not only purchased but also used in ways that improve classroom instruction and student learning.

Research also shows that districts often face their greatest challenges after curriculum decisions are made (EdReports, 2025). Nearly half of districts report difficulty building stakeholder consensus (49%) and supporting effective implementation (48%). These challenges are significantly higher than those reported in earlier phases of the adoption process, such as determining district needs (13%) or narrowing curriculum options (14%). Together, these findings highlight the importance of aligning funding decisions with stakeholder engagement and implementation planning from the outset.

"As a school board, you need to determine how you will spend your money to achieve your vision and goals" (NSBA, 2000). To do this effectively, school board members should clearly communicate their vision and priorities. Budget planning and stakeholder buy-in should occur together, ensuring financial decisions are supported by shared understanding and commitment.

Buy-in

Building stakeholder support should be understood as a process of meaningful engagement, not simply as a strategy to avoid disagreement. During the vetting phase, districts have an opportunity to actively involve teachers in the selection of HQIM. Teachers can review options, pilot materials in classrooms, and help identify the professional learning and instructional supports needed for successful implementation. When educators participate in this process, they are more likely to develop a sense of ownership over the final choice, which strengthens both the quality of the decision and the likelihood of effective implementation.

Community engagement plays a related but distinct role. When teachers are deeply involved and confident in the selected materials, they often become strong advocates who can explain the instructional benefits to families and the broader community. This helps create a more constructive environment for conversations about district priorities, resource allocation, and long-term instructional improvement. In this way, thoughtful engagement during the vetting process can build both professional ownership and broader community understanding of HQIM adoption (California Curriculum Collaborative, 2025).

In short, true stakeholder buy-in goes beyond communication. It is built through sustained, high-quality professional learning that helps educators use the adopted HQIM effectively in daily instruction. When vision, policy, budget, and implementation are well aligned, investments in HQIM are more likely to strengthen teaching and improve student outcomes.

HQIM Adoption in Practice: Two Stages and One Key to Success

As outlined in this framework (see Chart 1), school board members serve as both vision leaders and decision-makers. In this role, boards should support the two major stages of HQIM adoption: vetting HQIM and ensuring effective implementation. One key to success or a critical factor linking these two stages is systemic coherence — ensuring that HQIM selection, professional learning, assessments, leadership expectations, classroom practice, and teacher evaluation work together to support student learning.

In practice, some experts have identified common pitfalls districts should avoid when budgeting for HQIM adoption. These include treating curriculum adoption as a check-the-box exercise, being distracted by flashy marketing, delaying implementation planning until materials arrive, and underestimating the complexity of successful implementation (EdSource, 2025). Avoiding these pitfalls requires careful attention to the four priority areas — especially aligning budget decisions with instructional goals, implementation capacity, and long-term student outcomes

To support effective investment in HQIM, districts may consider incorporating the following evidence-based practices into their budgeting process:

1. **Build stakeholder alignment.** During HQIM vetting, districts should engage teachers, students, administrators, and families to establish a shared understanding of HQIM budget priorities, with an emphasis on improving math outcomes and closing achievement gaps — particularly by prioritizing early math as an equity strategy.
2. **Prioritize quality and sustainability.** Vet materials that meet high-quality standards for coherence, usability, and accessibility for all learners, while ensuring budgets include funding for sustained professional learning and implementation support.
3. **Plan for multi-year implementation.** Treat curriculum adoption as the first phase of implementation. Involve teachers and principals early in decision-making, and invest in teacher leaders and instructional coaches to support effective use of materials (Villegas, 2025).
4. **Align systems and monitor progress.** Align curriculum with assessments and educator supports, and monitor implementation to ensure materials are used effectively and that instructional practices improve over time.
5. **Sustain professional learning investments.** Maintain strong professional development for educators and administrators, even during periods of fiscal constraint (NSBA, 2019).

Table 3 outlines the specific steps that school boards need to take during HQIM vetting and implementation and shows what best practices and systemic coherence look like in action. Effective HQIM adoption requires boards to connect vetting and implementation from the start, center educator voice, and tie decisions directly to clear student outcome goals. Districts should treat HQIM adoption as a multi-year effort, strategically investing in sustained professional learning and using data and external expertise to support implementation. Strong management is essential. When these actions are coordinated across district leadership, school buildings, and classrooms, systemic coherence strengthens instructional practice and increases the likelihood of improved student outcomes.

Table 3. What Best Practices and Systemic Coherence Look Like

	What Boards Need	What Best Practice Looks Like	What Systemic Coherence Looks Like
Vetting	**Knowledge**	Establish strong foundations early. Understand local, state, and federal requirements and assess technology infrastructure compatibility before beginning the materials review process. (Source)	**Design comprehensive adoption processes and plan implementation from day one.** Vetting and implementation should not be separate activities. To avoid the gap between selection confidence and implementation readiness, district leaders should consider systemic coherence and connect early decisions to classroom success. (Source) **Treat curriculum adoption as the first phase of implementation.** Involve teachers and principals early in decision-making and invest in teacher leaders and instructional coaches to support effective use of materials. (Source) **School boards should engage early** in the curriculum adoption process — setting expectations, asking key questions, and reviewing evidence — rather than becoming involved only after materials have been selected. (Source)
	Communication	Center educator voice and build stakeholder consensus. Engage teachers meaningfully while building broader stakeholder support through structured communication and engagement strategies. Because stakeholder buy-in is often the greatest challenge, early and sustained engagement is essential for long-term success. (Source)	
	Management	Manage five areas effectively. (1) Adopt a mindset focused on improving student outcomes. (2) Clarify the priorities by adopting goals about student outcomes, describing what students should know or be able to do. (3) Spend 50% of board meetings each month monitoring those goals to see whether students are making progress. (4) Aggressively align the district's resources to those goals. (5) Communicate the results regarding the goals — the good, the bad, the ugly — to the community at regular, predefined intervals. (Source)	
Implementation	**Pilot & Evaluation**	Leverage external expertise strategically. Use external partners to support complex aspects of adoption — such as data analysis, process design, or implementation planning — while maintaining local decision-making authority and prioritizing resources for core instructional needs. (Source)	
	Teacher Support	Sustain professional learning investments. Maintain strong professional development for educators and administrators, even during periods of fiscal constraint. Consider policies to help align teaching practices, teacher collaboration, teacher evaluation, and student learning expectations across schools and grade levels. (Source)	

Center for Public Education

Practice Discussion Box 3 – Examples of School Districts in HQIM Adoption

We selected three examples to illustrate how systemic coherence can support successful HQIM adoption. We do not endorse specific instructional materials, as each district has unique contexts and student needs. Instead, we focus on how district leaders collaborate with teachers, students, and other stakeholders to build shared goals, shared understanding, and sustained commitment to improving math achievement.

Building Buy-In: Appoquinimink School District (Delaware)

The Appoquinimink School District in Delaware has experienced rapid growth over the past decade, expanding by nearly 45% to serve more than 12,000 students. As enrollment increased, so did the diversity of student needs. The district's commitment to providing an equitable education for every student led leaders to seek high-quality instructional materials that reduce the need for teachers to assemble resources on their own.

From the start, district leaders intentionally embedded teacher leadership into the curriculum selection process. Grade-level committees of five to six teachers identified two programs for pilot testing. Following pilot evaluation and comparison, teachers selected the instructional materials and supported collaborative implementation. This end-to-end teacher engagement — from research through implementation — strengthened instructional alignment and helped secure strong teacher buy-in.

Another key strategy was the district's commitment to "start slow to go fast." Recognizing that transitioning to a new curriculum would be challenging, district leaders planned intentionally and broke learning into manageable phases. For example, the first summer of professional development focused primarily on the first unit, helping build teacher confidence for the start of the school year.

School leaders also participated in the training, ensuring they had a clear understanding of the curriculum's components and could effectively support staff. While the district values its instructional coaches, leaders believe administrators must be equally knowledgeable about the curriculum so they can provide meaningful instructional support. Administrators need to know what high-quality implementation looks and sounds like in classrooms.

Center for Public Education

Leading with the Right Tone from Day One: Homer Plessy Community Schools (Louisiana)

Homer Plessy Community Schools (Plessy) is a PK–8 district in New Orleans serving a predominantly non-White student population (71%), including 48% Black and 12% Hispanic students. Approximately 74% of students come from low-income families. To support the adoption of a high-quality math curriculum, the district established a cross-functional leadership team that included school administrators and experienced teachers with a strong commitment to the district's mission and student population.

District leaders identified two primary implementation challenges: transitioning to a new instructional model and addressing teacher concerns related to instructional autonomy and the perceived impact on teacher expertise. Early implementation generated mixed reactions among staff, reflecting the scale of instructional and cultural change required. District leaders anticipated these challenges and developed strategies to support staff throughout the transition.

Throughout the adoption process, district leadership emphasized structured teacher engagement, responsive communication, and targeted professional support. Leaders prioritized understanding teacher perspectives and designed implementation supports accordingly. This included strategic selection of teacher leaders and trainers, clear prioritization of instructional focus areas, and structured professional learning aligned to the new curriculum. Leaders also focused on ensuring teachers had both instructional guidance and transition supports during implementation.

Over time, these strategies contributed to increased teacher trust in district decision-making. After one to three years of implementation, teacher feedback indicated growing confidence in both the selected curriculum and the district's implementation approach. This case highlights the role of leadership, teacher engagement, and sustained implementation support in strengthening HQIM adoption within a coherent instructional system.

Center for Public Education

Connecting Vision Directly to Classroom Practice: Math HQIM Adoption in Nebraska

Nebraska school districts are adopting HQIM for K–12 math. To support strong implementation, the Nebraska Department of Education (NDE) launched the Math Acceleration Project, a multiyear effort designed to strengthen district and regional capacity and support long-term improvements in math instruction.

The project focused on strengthening the state's regional support network, known as Educational Service Units (ESUs). ESUs worked directly with school and district leaders to build the knowledge and systems needed to implement HQIM effectively. NDE partnered with Instruction Partners to support this work, providing targeted support to help leaders build sustainable and replicable implementation practices across districts.

In one district, school leaders said they had often avoided vision work because it felt disconnected from daily practice. Through this process, leaders shifted their approach. Instead of treating vision as a statement on paper, they focused on defining what they wanted for students, identifying what that should look like in classrooms, and committing to the actions needed to make it happen. Connecting vision directly to classroom practice made the work more meaningful and actionable.

School leaders also involved teachers in the vision-setting process. Teachers helped define key "look-fors" in math instruction, such as meaningful student engagement and strong alignment with standards. These inputs helped shape a vision-aligned walkthrough tool used to guide instructional coaching and professional learning.

Conclusion

Meeting the growing demands of the workforce and economy requires districts to ensure every student has access to strong math instruction supported by high-quality instructional materials. Research is clear: HQIM are most effective when implemented within coherent instructional systems and supported by sustained professional learning and strong leadership.

School boards should treat HQIM adoption as a strategic governance priority. This includes engaging early in adoption decisions, aligning policy and resources to instructional goals, requiring strong implementation plans, and monitoring results over time. By taking these actions, school boards can help ensure that curriculum investments translate into stronger teaching, improved student outcomes, and expanded opportunity for all students.

References

Bellwether. (2025). How we solve America's math crisis: A systemwide approach to evidence-based math learning. Retrieved from https://345105.fs1.hubspotusercontent-na1.net/hubfs/345105/K12%20White%20Paper%20%7C%20How%20We%20Solve%20Americas%20Math%20Problem.pdf.

Brookings. (2025). School boards should focus budget deliberations on student outcomes, financial sustainability. Retrieved from https://www.brookings.edu/articles/school-boards-should-focus-budget-deliberations-on-student-outcomes-financial-sustainability/.

Center for Public Education. (2019). Eight characteristics of effective school boards. Retrieved from https://higherlogicdownload.s3.amazonaws.com/NSBA/dfc2722c-752e-43ee-b165-99ed3a3c9d30/UploadedImages/Documents/Eight_Characteristics_of_Effective_School_Boards_Report.pdf.

Columbia Law School — Center for Public Research and Leadership. (n.d.). Curriculum implementation change framework. Retrieved from https://cprl.law.columbia.edu/content/curriculum-implementation-change-framework.

Council of Chief State School Officers. (n.d.). Making sense of instructional coherence. Retrieved from https://learning.ccsso.org/making-sense-of-instructional-coherence?related_post_from=7270.

EdSource. (2025). Four common mistakes California districts can avoid when choosing a math curriculum. Retrieved from https://edsource.org/2025/pitfalls-curriculum-adoption-schools/747271#:~:text=Materials%20that%20meet%20the%20standard,over%20for%20sustained%20professional%20learning.

EdReports & The Decision Lab. (2025). Beyond selection: Rethinking how districts adopt curriculum. Retrieved from https://cdn.edreports.org/media/2025/09/Beyond-Selection-September-2025.pdf?_gl=1*yz01r0*_gcl_au*MTE1ODMwMzczNC4xNzU5NDM4OTY3.

Hess, F. M. (2023). How to build a more effective school board. Retrieved from https://rickhess99.medium.com/how-to-build-a-more-effective-school-board-b721e0c755c2.

Koontz, S. (2025). Finland's education system vs. the US: The interesting and surprising differences. Retrieved from https://mathandmovement.com/finlands-education-system-vs-the-us-the-interesting-and-surprising-differences/#elementor-toc__heading-anchor-0.

Kupari, P. (n.d.). Mathematics education in Finnish comprehensive school: characteristics contributing to student success. Retrieved from https://www.mathunion.org/fileadmin/ICMI/files/About_ICMI/Publications_about_ICMI/ICME_11/Kupari.pdf.

References

Institute of Education Sciences. (2016). Exploring the foundations of the future STEM workforce: K–12 indicators of postsecondary STEM success. Retrieved from https://files.eric.ed.gov/fulltext/ED565641.pdf.

Instruction Partners. (2023). Scaling elementary math success in Nebraska. Retrieved from https://instructionpartners.org/2023/05/25/scaling-elementary-math-success-in-nebraska/.

Mattera, S. K., Jacob, R., MacDowell, C., & Morris, P. A. (2021). Long-term effects of enhanced early childhood math instruction: The impacts of Making Pre-K Count and High 5s on third-grade outcomes. Retrieved from https://files.eric.ed.gov/fulltext/ED616510.pdf.

National Institute for Excellence in Teaching. (2020). High-quality implementation: Connecting what to teach with how to teach it. Retrieved from https://www.niet.org/assets/1da4c1fbd6/high-quality-curriculum-implementation.pdf.

National School Boards Association. (2000). The key work of school boards guidebook. Retrieved from https://www.schoolinfosystem.org/archives/NSBA-KeyworkGuidebook.pdf.

Pondiscio, R. (2015). The hidden value of curriculum reform. Retrieved from https://fordhaminstitute.org/national/commentary/hidden-value-curriculum-reform.

Stanford University. (2025). Artificial intelligence index report 2025. Retrieved from https://hai.stanford.edu/assets/files/hai_ai_index_report_2025.pdf.

Truitt, T. (2021). 3 ways instructional materials help to address unfinished learning in math. Retrieved from https://fordhaminstitute.org/national/commentary/3-ways-instructional-materials-help-address-unfinished-learning-math.

Turner, C. (2025). A deep dive on U.S. reading and math scores, and what to do about them. Retrieved from https://www.npr.org/2025/02/11/nx-s1-5291451/us-reading-math-scores-solutions#:~:text=In%20fact%2C%20just%20a%20quick,%2C%20has%20grown%20by%2011%25.

Center for Public Education

About CPE

The National School Boards Association (NSBA) believes that accurate, objective information is essential to building support for public schools and creating effective programs to prepare all students for success. As NSBA's research branch, the Center for Public Education (CPE) provides objective and timely information about public education and its importance to the well-being of our nation. Launched in 2006, CPE emerged from discussions between NSBA and its member state school boards associations about how to inform the public about the successes and challenges of public education. To serve a wide range of audiences, including parents, teachers, and school leaders, CPE offers research, data, and analysis on current education issues and explores ways to improve student achievement and engage support for public schools.

About NSBA

Founded in 1940, the National School Boards Association's (NSBA) purpose is to ensure each student everywhere has access to excellent and equitable public education governed by high-performing school board leaders and supported by the community.

With members spread across the United States, the Virgin Islands, and Canada, NSBA is the only national organization representing school boards. Along with its member state associations and member public school districts representing locally elected school board officials serving millions of public school students, NSBA believes that public education is a civil right necessary to the dignity and freedom of the American people and that each child, regardless of their ability, ethnicity, socioeconomic status, identity, or citizenship, deserves equitable access to an education that maximizes their individual potential.

For more information, visit **nsba.org.**