

2021 TECH ENABLERS Driving K-12 Innovation

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CHALLENGE

Technology is an essential element of learning, yet the use and application of it is inequitable.

VISION

CoSN is a community of visionary technology leaders empowering every learner to achieve their unique potential in a changing world.

MISSION

CoSN provides current and aspiring education technology leaders for PreK–12 with the community, knowledge, and professional development they need to create and grow engaging learning environments.

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Introduction

oSN's Driving K-12 Innovation initiative convenes an international Advisory Board of 100+ education and technology experts to select the most important topics impacting teaching, learning, and education innovation around the globe. The first step is an initial survey to select Hurdles (barriers), Accelerators (mega-trends), and Tech Enablers (tools) for discussion. The Advisory Board then responds to prompts and discusses the topics via a virtual online forum and synchronous video calls. Finally, the Advisory Board completes a survey to select the top Hurdles, Accelerators, and Tech Enablers.¹

Each year, themes arise from the Advisory Board's work and this year in particular, the interconnectedness of specific Hurdles, Accelerators, and Tech Enablers quickly became a major point of conversation. Inspired by this, the editorial team expanded the Driving K-12 Innovation framework to explicitly call out Bridges. Bridges (themes) are recommendations, considerations, and mindsets to drive K-12 innovation that span our three lenses of Hurdles, Accelerators, and Tech Enablers. These overarching themes from Advisory Board discussion speak to important

THIS PUBLICATION FOCUSES ON THE TOP 3 TECH ENABLERS FOR 2021

synergies and intersections between topics. Bridges emerge from Advisory Board discussion and are not voted on in the final survey.

This publication focuses on the Top 3 Tech Enablers for 2021 and one key bridge: Systems Thinking.

The COVID-19 Pandemic + Driving K-12 Innovation

The Driving K-12 Innovation framework helps us make sense of the state of the world and chart paths forward. The COVID-19 pandemic is one such state of the world, a critical component of the context in which students, educators, and families create learning experiences and re-imagine the future of education. The Advisory Board discussed many ways in which the current state of the world is impacting Tech Enablers and the way we use them, and some of these examples are included below.

1. For more information on the Driving K-12 Innovation methodology, see the Driving K-12 Innovation: 2021 Hurdles + Accelerators publication.

Top 3 Tech Enablers

1. DIGITAL Collaboration Environments

Digital systems, tools, technologies, connectivity, and pedagogy that enable high levels of collaboration and support online and in person learning. Digital Collaboration Environments include both synchronous and asynchronous communication tools—platforms that allow multi-user, virtual communications, whether across the room or across the globe.

2. UNTETHERED Broadband and Connectivity

Ubiquitous broadband Internet and the underlying technologies that enable robust connected learning—without requiring devices to be physically connected (via cables, for example). These technologies enable mobility and learning anytime, anywhere.

3. BLENDED Learning tools

Digital tools, technologies, and pedagogy that enable learning experiences through a mix of face-to-face and online interactions. These tools can be used to strategically integrate online and in-person activities to enhance student learning.

Exploring the 2021 Tech Enablers



systems to leverage in 2021 (76 respondents):





igital Collaboration **nvironments**

hile some schools were using digital collaborative platforms already, remote learning has forced us to think creatively about how students can learn from each other and build off each others' ideas and work" (Liz Miller Lee, ISTE, Washington, D.C., USA).

Digital Collaboration Environments is a broad term that encompasses systems, tools, broadband connectivity, and practices for online collaboration—including synchronous and asynchronous communication tools. In light of the COVID-19 pandemic, these environments are more essential than ever as most interactions are digitally-mediated.

For example, at Herning Gymnasium in Denmark, educators have integrated their learning management system (LMS), administrative systems, and collaborative documents platform to create a digital collaboration environment. "Everything must be accessible from all devices via Internet connection, a browser, and apps. The infrastructure supports collaboration, sharing, distribution, archiving and communication" (Claus Gregersen, Herning Gymnasium, Denmark).

At the American International School of Egypt in Giza, Egypt, David Deeds is advocating for a unified digital collaboration environment in the form of a Learning Management System (LMS). "The big decisions will be whether to maintain our "hybrid"

approach—50% of the students in school, the other half at home—or shift to online/face-to-face. I say "decisionS" because we might be switching back and forth! With an LMS in place, we'll be prepared to



School of Egypt, Giza, Egypt

handle whatever happens. Regardless, we need to accept that education has changed and that the online component is here to stay" (David Deeds, American International School of Egypt, Giza, Egypt)

Recommendations from the Advisory Board

HUMANIZE DIGITAL **ENVIRONMENTS.** Use technol-

ogy in service of learning, fostering human connection, furthering collaboration, and developing empathy and social emotional learning in the digital environment.

IDENTIFY WHAT HAS

WORKED this year in terms of synchronous and asynchronous learning—including failures and successes—and build on those experiences. Involve students, teachers, administrators, families, and staff in creating the future of learning in their school system.

SELECT TOOLS

INTENTIONALLY, prioritizing learning, student safety, equitable access, security, and data privacy. It's important to evaluate technologies—including free platforms for compliance with the policies, standards, and laws relevant to your school system. Be intentional and attentive to how tools and systems that can connect to each other to form a cohesive environment and prioritize interoperability.

E Untethered Broadband and Connectivity

obust and ubiquitous infrastructure is the basis for basically anything a school wants to do with technology. Get this right and you'll be able to innovate. If you don't have this right, you'll be slowed down all over the place" (Wietse Van Bruggen, Advisor Innovation, Kennisnet Foundation, The Netherlands).

Broadband connectivity is critical for many aspects of education and learning, including the use of digital collaboration environments. Untethered Internet access is also a key component of advancing Digital Equity, the top Hurdle for 2021.

In Santa Fe Public Schools in New Mexico, USA, educators gathered data on each students' actual connectivity speed and discovered an incredibly complex landscape of factors. "The challenge of Internet speed to the device, that is adequate for remote learning, is an important equity challenge and will require a multi-pronged approach requiring a lot more data" (Tom Ryan, Ph.D.,

Santa Fe Public Schools, NM, USA).

In Florida, St. Vincent Ferrer Catholic School provides loaner iPads and IT support to students as needed. "Even if students are given a hotspot along with a device, schools must understand the importance of teacher training to help educators deliver quality instruction within new platforms such as Zoom and Google Meet," cautions Lisa Gustinelli. The pandemic has not only accelerated the need for devices and hotspots but also the importance of information technology support as families and educators struggle to navigate this new way of learning.

Recommendations from the Advisory Board

PRIORITIZE DIGITAL

EQUITY. Digital Equity includes three, interrelated components: digital foundations, conditions for learning, and meaningful learning opportunities. This nuanced hurdle encompasses more than just equitable access to quality digital technologies such as high-speed Internet and powerful computing devices both inside and outside of school.²

ENGAGE IN EFFORTS to

ensure ubiquitous broadband Internet. Find out what universal broadband efforts are underway in your district, city, or state/country. Identify organizations engaged in this work. Partner with various levels of government, higher education institutions, private sector groups, industry, and community organizations to understand the challenges in your area and enact a community-wide connectivity strategy.

EMPOWER EDUCATORS, STUDENTS, AND FAMILIES

with the skills and knowledge to effectively use Internet-connected tools and devices. Invest in professional development and communities of practice around using Internet-connected technology for learning.

ROBUST AND UBIQUITOUS INFRASTRUCTURE IS THE BASIS FOR BASICALLY ANYTHING WANTS T

-Wietse Van Bruggen, Advisor Innovation, Kennisnet Foundation, The Netherlands.

2. For more information, see the 2021 Driving K-12 Innovation: Hurdle & Accelerators publication and CoSN's Digital Equity initiative.

E Rieuqed Learning lools



ur district is fully in-person at this time. However, many of our typical "group work" activities are limited due to space and distancing. We have leveraged

our LMS to create more collaborative activities as well as to use web apps even while we are physically in class" (Amanda Wilkerson, Central Nine Career Center, IN, USA).

Blended Learning Tools include technologies, teaching and curriculum approaches, and norms that enable learning through a mix of in-person and virtual formats. These tools can transform learning, enabling greater flexibility, access, and personalization. Yet challenges of equity, data privacy, professional development, and digital literacy remain for many seeking to embrace blended learning tools.

With the closure of physical classrooms triggered by the COVID-19 pandemic, Harrison School District 2 **MORE THAN** 30% OF FAMILIES SFI FCTFD

—Tom Ryan, Ph.D., Santa Fe Public Schools, NM, USA

in Colorado, USA transitioned from experimenting with blended learning to fully embracing it. The district now offers three learning modes — fully online, hybrid, and in-person. More than 30% of families selected full online learning and many seem to prefer this modality over a more traditional face-to-face format. The district is currently developing a flexible, hybrid option with in-person learning pods and remote synchronous and asynchronous learning opportunities.

"Our goal is to be able to articulate a curriculum that strategically categorizes lessons that can be taught in the various modalities without compromising the efficacy of lessons" (David Jarboe, HSD2, CO, USA).

Recommendations from the Advisory Board

ADOPT BLENDED LEARN-

ING TOOLS, focusing on student learning. Start with the reasons for adopting blended learning tools. Select, implement, and support blended learning tools that enable student learning and align with pedagogy.

PROVIDE FLEXIBLE LEARN-**ING ENVIRONMENTS.** Leverage

blended learning tools to provide families and learners with options for how and where students learn. These technologies enable remote and hybrid learning, as well as in-person and physically distanced education. These tools can also support personalization and learner autonomy.

SUPPORT STAKEHOLDERS

in using technology. Provide training and resources to develop the technical skills and digital literacy of educators, families, and students. Support educators with time, processes, and expectations to set them up for success. Invest in human infrastructure, technical staff and services to support the implementation and ongoing use of selected digital collaboration tools.

PRIORITIZE ACCESS, equity,

and data privacy in the selection, implementation, and ongoing use of blended learning tools.

Systems Thinking

THE PANDEMIC HAS REQUIRED SCHOOLS TO QUICKLY ADAPT, AND IN SO DOING, WE'RE REMINDED THAT ASSUMPTIONS AND TRADITIONS ARE MORE FLEXIBLE THAN WE THOUGHT"

—Jim Vanides, Vanides2 Consulting, CA, USA.

he fundamental design of the system is the biggest hurdle of all - from what is meant by "a school", to the structures and assumptions that define the learner

experience, the technologies we choose to support and enhance teaching and learning, and even the teaching profession itself. The pandemic has required schools to quickly adapt, and in so doing, we're reminded that assumptions and traditions are more flexible than we thought" (Jim Vanides, Vanides2 Consulting, CA, USA).

The theme of Systems Thinking shares elements of Hurdles (for example, Lack of Systemic Perspectives), Accelerators (like Design Thinking) and Tech Enablers (including Digital Collaboration Environments). In order to transform education and to adapt/innovate successfully we must acknowledge the systemic nature of education and be willing to rethink the design of these systems. Doing so will help us overcome barriers of and within systems, and take advantage of opportunities presented by setting aside assumptions and rethinking systems. Intertwined in this are the tools and practices used to construct, reinforce, disrupt, or reinvent systems.

In grappling with this moment in

time, the Advisory Board repeatedly organized, re-structured, dismantled, and connected Hurdles, Accelerators, and Tech Enablers. Together, we kept returning to the imperative of leveraging systems and design thinking to build learning futures for student and community success. "In thinking about Driving K-12 Innovation at the education system level, we are asked to consider "how can a certain accelerator (mega-trend) catalyze the use of a technology enabler (tool) to overcome a hurdle (barrier)" (Frankie Jackson, Texas K-12 CTO Council, TX, USA).

Recommendations from the Advisory Board

As part of the concluding survey, the Advisory Board responded to the question, "What do you think is the most important thing for educators and school system leaders to keep in mind in order to drive impactful K-12 innovation in 2021?" Below are a few common themes.

FOCUS ON LEARNER

SUCCESS. Craft learning experiences with and for students to enable long-term success, support holistic well-being, and cultivate ownership of their learning.

ENVISION AND BUILD

better learning futures. What do we want the future of learning to look like and how can we further that vision as we navigate learning during the COVID-19 pandemic?

PRIORITIZE equity as a core value of education and innovation. Focus on providing equitable and innovative learning, teaching and schooling for all students.

CREATE A CULTURE of

improvement, innovation, and learning in which students and educators are supported and empowered to take risks, iterate, create change. Recognize that it is possible to iterate, improve, and innovate without increasing educator workloads.

▶ **BE FLEXIBLE,** patient, and human. Educators, students, and families are under tremendous stress and it is critical for school systems to actively ensure the well-being of their communities.

LEVERAGE TECHNOLOGY

in service of learning and teaching. Purposefully select technology that furthers learning and enables student, family, and educator success.

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