



Photo: PCI

In the AI Era, Do We Still Need Standards?

William N. Nickas, *Editor-in-Chief*

Like many of you, I've read a lot about this thing called artificial intelligence (AI). For example, I recently read an article about an AI-produced video that seems to demonstrate new farming techniques.¹ Some farmers trusted what they saw, partly because the video referenced a University of Minnesota study, and tried the new methods. Unfortunately, that study was entirely bogus, an AI hallucination.

That agricultural story got me thinking about our own industry. How do we monitor and control AI hallucinations in bridge design and construction, and how do we continue to set industry goals and expectations via standards? Our entire process and portfolio of tools depend on meticulously developed, fact-based, and laboratory-tested standards. Pick any activity from bridge-plan development through actual construction delivery, and there is a standard or required methodology to follow for success. Applying these standards requires discipline and the expert judgment of well-trained humans. How do we operate safely and efficiently and adhere to standards in the "wild West" of AI? The basic advice is to set boundaries on how AI is used. That is a good starting point, but we also need to understand that AI can, and does, fabricate data—AI tools do not just generate misinformation; they also actively spread disinformation. We cannot simply trust. We must verify.

I have been fortunate to attend several joint meetings of the American Association of State Highway and Transportation Officials (AASHTO) and the National Concrete Bridge Council (NCBC) and observe firsthand their work to develop standards and other industry documents. Of note, work on two new publications on the topic of environmental stewardship is currently underway. The first document is *Guide Specification for Conducting Environmental Life Cycle Assessment of New Bridges*. This standard, which has been drafted by the NCBC and the National Steel Bridge Alliance and edited in collaboration with the AASHTO Committee on Bridges and Structures' members and staff from several state departments of transportation, will help our industry evaluate the lifetime environmental impacts of new structures and

maximize their sustainability. The second publication, *Concrete Bridge Stewardship* (volume 1), catalogs recent concrete stewardship contributions from around the United States as well as a few well-recognized international organizations. The brain power in the meeting rooms where these documents are written and reviewed is enough to cause the lights to flicker. That is the collective energy we must maintain to develop programs and standards to protect our industry.

The success of NCBC's Concrete Stewardship initiative inspired me to investigate what other organizations are doing to strengthen and improve infrastructure programs. One impressive association is Austroads, which serves transportation agencies in Australia and New Zealand. According to its website, Austroads provides "high-quality, practical and impartial advice, information, tools and services to help our members to deliver efficient, reliable and safe mobility to their customers."² One current Austroads priority is to advance techniques in the use of low-carbon concrete, with the goal of carbon reduction in all things concrete. Further, Austroads believes that a national presence and strong, proactive leadership are required to succeed in this effort. I absolutely concur.

Bridge stewardship is a matter of real, human intelligence. The preservation of the current bridge inventory is critically important, and I applaud the collective efforts of those who create, revise, and uphold standards. Our strength is in collaboration and adherence to the standards we develop, test, and deliver. I am interested in leveraging the power of AI, but I don't want to repeat the mistakes of the farmers who didn't verify whether new techniques were based on actual facts.

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Cover

The Y-shaped Wishbone Bridge in Austin, Tex., spans Lady Bird Lake at the eastern end of the Ann and Roy Butler Hike-and-Bike Trail. The three legs converge at a central plaza that offers scenic views and shade for users. Photo: HDR.

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