News Release

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Innovation Panelists Talk AI, VIG, Software, Modeling at FGIA Annual Conference

SCHAUMBURG, IL – A panel on innovation at the Fenestration and Glazing Industry Alliance (FGIA) Annual Conference featured an in-depth discussion on utilizing artificial intelligence (AI), the future of vacuum insulated glass (VIG), prioritizing updated software over new hardware and the use of more sophisticated digital modeling. The “Ignite Innovation” panel discussion was moderated by Ray Garries (Global Fenestration Solutions) and featured panelists Dave Cooper ([VacuumGlass](https://www.vacuumglassllc.com/)), Chris Giovannielli ([Kawneer Company](https://www.kawneer.us/)) and Anthony Pigliacampo ([Joseph Machine Company](https://josephmachine.com/)).

Garries began the session with a mention of AI and how he navigated using it in his work. “A couple years ago, AI was something only dreamers talked about,” he said, pointing to an AI-generated image in his presentation. “So much has happened with it in the last 24 months.”

**The Future of VIG**

Things have really evolved since 1986 when VIG was created, Cooper said. “Time doesn't stand still in innovation in the VIG world,” he remarked. “Production lines have grown to be able to make giant panels of VIG.” Cooper said some of the best places for using VIG include single glazed building retrofits, high end homes, historical renovations, Passive House projects and cold climates. “Based on geographical factors, it can be targeted to about 19% of the fenestration market,” said Cooper.

Where innovation comes into play, according to Cooper, is cost. Currently, VIG production costs 10 times that of triple glazing. “But the most expensive part of producing VIG is not the materials,” said Cooper. “It is the labor. There is no large-scale production happening in the U.S., only offshore.” Automation will be key, he predicted. “We need those production lines. You can't crank 100 of these out in an hour. VIG is a complex process that takes time,” said Cooper.

**Sophisticated Digital Modeling**

“Over the last 20 years, we have seen probably the biggest jump in product technology at my company, out of the 119 [years] of its existence,” said Giovannielli. “One innovation is 2D/3D heat loss analysis. We can help improve that design in the early stages, where we used to not have that technology.” Giovannielli pointed out that modeling can incorporate things like gaskets, enabling design flexibility. “It's changed how we assemble glazing designs,” he said. “We need fewer people in the room, but we can work faster.”

His company also uses modeling when it comes to Outdoor/Indoor Transmission Class (OITC) thanks to computational fluid dynamics. “We can meet performance requirements by using tools to simulate sound transmission,” Giovannielli said. Another idea in the innovation space that he discussed is partnerships with several universities. “What a transformation that has been for our company,” Giovannielli said. “Students are bringing different software and ideas to us so we can see what will work.”

**New Software for Old Hardware**

Producing things is difficult, especially in the U.S., said Pigliacampo. “Our view is that spending money on equipment should make it easy,” he said. “But it's innovation that should make it cost less.” To find innovations that lower costs, Pigliacampo recommended companies do all they can to understand the needs of their customers. “Identifying a need can be easy, but it can take a long time to catch up with an innovative solution,” he said. “Companies are always spending money on research and development and then trying to find a market for their ideas. But that idea might not actually make your customer's business better.”

Pigliacampo suggested avoiding over-engineering complex features customers will never actually use. “Technicians in the future will be less skilled than those in the past,” he said. “Make your machines more like an iPhone, something anyone can understand. Think about how to use the software that controls the hardware.” Along those lines, Pigliacampo predicted a future using “digital twins,” or simulating production in a virtual setting well before a company runs it in a real one. “This is common when making cars or microchips but it's not yet common in our industry,” he said.

In closing, Garries had some parting advice about AI. “Don't ignore AI,” he said. “Dig into it. The more you know now, the better you'll be in the future.”

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