

Interview with Rebecca Rudolph, General Manager at North Star Imaging

Why NSI is focused on usability as the next frontier in advanced inspection

Across manufacturing and inspection, parts are becoming more complex, standards are tightening, and the pool of experts who know how to inspect them is shrinking.

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Rising complexity, fewer experts - A turning point for inspection

Everyone is being asked to do more - do it faster, do it with confidence, often with fewer hands and less time. Yet one question now sits at the center of the industry's future: How do we scale expertise so that advanced inspection becomes clear, guided, repeatable, and practical, not just for experts but for entire teams? This is where NSI is focusing. And the moment where the story turns is just beginning.

What shifts are you seeing in the inspection market that make it essential to think ahead?

"We're seeing increasing pressure on throughput, customers need to inspect more parts, faster. At the same time, the labor market is tight, and deep inspection expertise is harder to find and sustain. The technology isn't becoming simpler, but the availability of skilled operators is. So, I think the tools need to be easier, faster, and more guided."

So finding people to operate the equipment is part of the challenge?

"Expertise is an issue across the industry. Whether you're a manufacturer or a customer, finding talent

is hard. And it's a real challenge for companies to train and sustain the level of skill needed for complex inspections.

X-ray, and especially 3D inspection expertise, which is a big part of what we do at NSI, is still a complex technology. Achieving best-in-class image quality takes time to develop and maintain. So, we have to ask: how do we help our customers build and keep that capability?

At the same time, we recognize the parts themselves are getting more complex. Additive manufacturing, composites, and multi-material components all raise the bar for what "good inspection" looks like.

For NSI, it's about ease of use and operability. How do we create systems that are easier to engage with and help customers get to insights faster? You have a part, you have a question, and you need an answer that helps you move forward, the system should support that.



Advanced X ray performance that keeps pace with expanding part complexity.

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Rebecca Rudolph, NSI

So, we're focused on both how people interact with the equipment and how data flows through the workflow. Data management is still a major challenge, we need to help customers make faster, more consistent decisions, meet tighter specs, and provide proof, not just promises.

As parts get denser and more complex, inspection only gets harder. We're unifying workflows, scaling training and support, and building from the voice of the customer, making acquisition, data, performance, and standards easier to manage end-to-end."

Proactive development and high-energy CT

How does NSI approach innovation to stay ahead of the curve, and can you share an example of a capacity you developed before customers explicitly asked for it?

"We've tried to stay ahead by developing capabilities before customers formally ask for them. For example, we offer high-energy inspection services at our Florida facility because parts are getting denser and harder to penetrate.

And on the software side, things like our accelerated Subpix¹ Imaging lets us achieve higher resolution faster with the X-ray sources available, including Comets, so customers can get more detail without slowing down their workflow.

We also built tools and procedures aligned with regulated image-quality standards, like ASTM², before many customers even wrote those requirements into their RFQs³.

And we've been consolidating workflows, removing extra applications, reducing window switching, and shortening iteration cycles, so inspection can move more smoothly into production.

In short, we're embedding the core X-ray requirements into automated, guided, repeatable workflows that fit real manufacturing environments."

Does that reduce the need for expertise at the customer end?

"I don't think it circumvents it. I think it enhances it, right? I think the question that we have to ask is, how do we make our customers more effective? How do we make them more powerful? How do we help them do more, see more, be more insightful, make faster decisions, achieve better outcomes, and deliver value back to their business?"

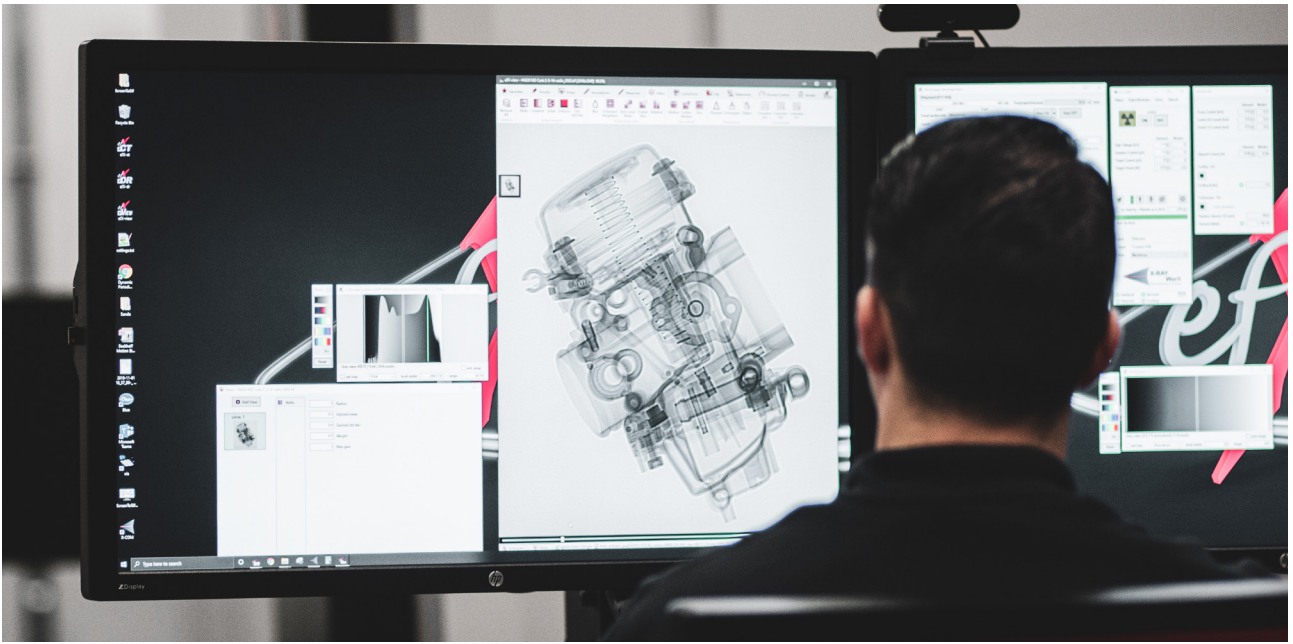
I think that is, in many ways, what everybody's being asked to do, right? Do more, do better, do faster. And that's a tall bar for anybody at any company.

So how can NSI be part of that solution? Those are some of the things that we're actively working on. And when we go out to our customers through our customer-back innovation process, we're asking for

1 Subpix: Software-based imaging enhancement method that improves image resolution and quality by processing X-ray data more efficiently.

2 ASTM: American Society for Testing and Materials

3 RFQ: A formal inquiry issued by a customer when evaluating suppliers — often includes technical specs and inspection requirements.



Integrated workflows optimized to leverage Comet's imaging stability and power.

insights, listening to our customers' pain points, to understand what they're struggling with, and then actively innovating to address those needs, getting out in front of solving pain points."

Partnerships and technology

How do new X-ray technologies and partnerships like those with Comet help NSI stay aligned with future needs?

"I think, on the X-ray technology front, something I really appreciate about Comet is that it constantly pushes the boundaries of what's possible in X-ray physics; rounder or more stable focal spots, higher power, and operability with the delivered tubes.

If we look at some of the new products with dual focal spots, those modalities and options broaden what's inspectable for us, shorten cycle time, and allow us to optimize on the back end from an image capture and processing perspective, delivering better results for our customers.

And where I think there's a benefit is in how we continue to work together, joint road mapping, understanding what's correct.

Comet is the expert in what is possible from an X-ray tube technology perspective, and NSI is an expert in harnessing that power to create best-in-

class images that help customers transform their data into decisions.

When we partner, we can drive better outcomes and address our customers' pain points uncovered through our customer-first innovation process, transforming their inspection routines and enabling them to deliver timely insights. That's where the power is in the relationship."

Customer value and trust

How do customers respond when NSI introduces something that anticipates their next challenge?

"I think, through our customer-first innovation process, it's not so much about anticipation, it's about understanding and innovating to address needs.

Maybe that feels like anticipation, but if we're properly doing our job from an innovation perspective, we're actively working with customers, gaining insights, understanding their challenges, and focusing on their needs to move quickly.

We can be iterative based on the feedback we're getting, which drives customer loyalty and good outcomes for our customers, because it really focuses on their real needs and ensures our solutions are relevant, valuable, and validated for what they're struggling with today and in the future."

Turning capability into customer value

What does staying relevant mean to NSI over the next five to ten years?

"There are three key pillars that form the foundation of NSI's approach. The first is predictable image quality, delivering reliable insights and consistent outcomes. The second is software-led workflows that accelerate the time to insight and help customers move from scan to decision more efficiently.

The third is scalable expertise, addressing the complexity of the technology while making it accessible and operable through training, services, and support.

From both an NSI and Comet perspective, the strengths are highly complementary. Comet provides world-class source technology, while NSI brings application-driven systems that translate this performance into practical, production-ready imaging.

Together, this combination enables the delivery of high-quality results that meet the standards and expectations of the most demanding customers and markets."



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