

Interview with Patrick Carlson Service Manager and Level III at North Star Imaging

Why ease of use is becoming the measure of real performance

The success of an inspection system is rarely decided at installation. It is decided months later, in daily use.



Patrick Carlson has spent decades working inside aerospace manufacturing and inspection environments, supporting customers through change, training, and production pressure.

As Service Manager and Level III at North Star Imaging, he works where systems meet reality - helping customers balance capability, ease of use, and the human side of inspection. His perspective shows why long-term performance depends as much on people and workflows as it does on technology.

Ease of use vs innovation – why change, not technology, is the biggest challenge

Where do you see the main tension between innovation and ease of use?

"The biggest challenge across the industry right now is change. We develop new products with ease of use in mind, but even when something is designed to make life easier for the operator, customers often experience the change itself as complicated. I saw this just yesterday at a customer site. We were rolling out software specifically designed to simplify their workflow, but the immediate concern became training and adoption, because their setup already worked.

Many customers prefer to keep the look and feel they know. If something works, they're reluctant to move away from it. Bridging that gap is where NSI adds value. NSI recognizes that real innovation only succeeds when it's supported in the field. Through long-term service relationships, expert-level sup-

port, and tailored training, NSI helps customers transition to easier-to-use solutions without sacrificing stability or trust.

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Do customers tend to avoid being early adopters?

"Yes, very much so. Many customers don't want to be at the beginning of a new hardware or software rollout. They don't want to be the first. They prefer to see a solution established in the industry for some time before they're ready to make the change.

That's very common in our NDT community. At the same time, we also work with customers who actively seek out cutting-edge technology and are willing to take on more risk in order to gain a competitive advantage."

Simplicity before capability – how NSI decides when to add features and when to simplify

"We see different needs across our customer base. Some customers operate in high-volume environments and require high levels of automation, yet they still want the process to feel simple. Others, especially on the scientific side, want more analytics and advanced tools. In every case, we start with the same approach: listen to the customer, understand the application, and let their pain points guide the balance between simplification and capability."

"Letting the system handle complexity while people focus on what matters makes a significant difference."

Patrick Carlson, NSI

Skills shortage and growing pressure on NDT - why automation and training must evolve together

What pressure does the shortage of skilled NDT professionals put on technology providers like NSI?

"There is constant pressure to stay up to date with technology while also supporting a workforce that is increasingly stretched. Customers are asking for more automation and easier-to-use equipment to increase efficiency and better use their people. The goal is often to move operators away from repetitive tasks and into more complex decision-making roles, while the equipment handles more of the routine work.

At the same time, industries like aerospace are becoming more complex, and there simply aren't enough skilled people available. As a result, training remains critical. From our side, the pressure is to deliver automated, intuitive equipment while also supporting customers with training so they have the right mix of skill levels."

Are customers aware of these certification requirements?

"Yes, customers are generally aware of the certification levels, but finding and developing the proper skill set remains a major challenge. Many customers try to grow that talent internally, and that's not easy. NSI training helps close this gap by providing structured, industry-aligned NDT training programs that ensure technicians develop the skills needed to meet both current and future requirements."

Why are there so few new people entering the NDT field?

"NDT is a very small and largely invisible community. There's very little marketing around it, and most people only hear about it through word of mouth. In the US, young people are exposed early to careers in healthcare, construction trades, or the military, but NDT is rarely presented as an option.

Even though NDT is embedded in almost all forms of manufacturing, the number of NDT professionals within any given company is small, so the field itself remains largely unseen."



Training and service elevate x-ray systems into trusted production tools.

Should industry organizations do more to promote NDT as a career?

"Yes, I think there's an opportunity there. Organizations like ASNT have already taken steps by expanding their training-provider roles, which is a positive development. But broader awareness is still lacking. To really make a difference, outreach must start at the school level, where career paths are formed. North Star's tour for Ridgewater College students is one example of how early engagement can raise awareness of NDT."

Where systems fail in daily operation – when purchase decisions and training fall short

Where do systems most often fail users in practice?

"In many cases, the failure starts with the initial purchasing decision. Customers don't always buy the right system with the proper capabilities for their application. Often, decisions are driven primarily by price rather than by quality or technical requirements.

We see customers who have already purchased equipment and later realize that it simply doesn't meet their needs. At that point, they're forced to revisit the decision and repeat the process, which costs time and money.

Even when a customer selects the right equipment, the next challenge is training and understanding how to use its features fully. Many companies don't invest enough in training. They don't always recognize that building people and optimizing equipment go hand in hand. Without that investment, even capable systems fall short of their potential. North Star Imaging helps mitigate some of these common pitfalls by offering advanced industrial X-ray and CT inspection systems along with com-

prehensive training, preventive maintenance, and on-site support so customers can realize the full value of their investment."

Do many customers see NDT as a cost rather than a value driver?

"Yes, absolutely. That perception is very common. NDT is often viewed as an added cost rather than to enhance quality. Many companies would prefer not to have NDT in their process at all. In some cases, quality inspection is added because manufacturing processes alone can't consistently produce acceptable results. So, NDT becomes a safeguard rather than a strategic investment, even though it plays a critical role in ensuring product quality.

"NDT can drive significant value by feeding inspection data back into production, improving processes, reducing scrap, and enabling continuous quality improvement. It also ensures safer, more reliable products, protecting brand reputation and reducing downstream failure costs."

Designing systems that work with people – letting technology absorb complexity instead of operators

How do you approach designing systems that work with people, not against them?

"When you design systems that truly work with people, you have to start by understanding the application and the workflow inside the manufacturing environment. Drawing on more than 20 years in manufacturing across different processes - from chemical processing to welding and inspection - I've seen how easily systems become overcomplicated. We tend to add steps and exceptions over time, and that creates complexity.

"If you can make something simple first, then you can add the right capability on top of that."

Patrick Carlson, NSI

Another issue is that people often build themselves into the process in ways that create inefficiency and audit risks. Ideally, processes should run independently. When people are deeply embedded in complicated workflows, the system can start to feel like it's working against them rather than supporting them. North Star Imaging enables robust documented processes through building process control into training, software, and inspection platforms to make NDT consistent and manageable."

Can you give a concrete example?

"A good example comes from a customer visit I did just yesterday. They had an existing X-ray unit, and their team was manually managing all the image data - prioritizing images, storing them, archiving them, and coordinating with IT to complete the workflow. Over time, this created a very complex

and inefficient process, even though the people involved were highly capable.

In reality, North Star Imaging already have software that provides a complete, hands-off workflow. It automatically manages, stores, and archives the data, and allows operators to retrieve images when needed.

Once we walked the customer through this and showed them how we could build and support the workflow, their perspective changed. We'll now work closely with them, side by side, to implement it and provide hands-on guidance. That shift - letting the system handle complexity while people focus on what matters - makes a significant difference in long-term success."

Full system reliability reinforced through hands-on training and support.



Small design choices with real daily impact

Can a small design change really make a difference in daily use?

"Yes, absolutely. A good example comes from earlier system designs, where the placement of the X-ray tube and the way operators accessed the system created unnecessary difficulty. In high-volume environments, operators are constantly loading and unloading parts or spending time setting up one-off samples that require careful positioning.

We redesigned the door and viewing window to give operators better visibility of the sample during setup. That simple change made a significant difference. Operators could position and center parts more quickly, rotate and manipulate them with better line of sight, and avoid mistakes like bumping a part into the X-ray tube. It improved both speed and confidence. Something as basic as better visibility had a meaningful impact on ease of use and overall efficiency."

A note on source choice and operational reality

Do you also work with open microfocus tubes like FXE?

"Yes, we do. We use both open and sealed X-ray sources, each serving a different purpose depending on the application. Open tubes, like FXE, are well-suited for certain use cases, but they come with different requirements. There is additional scheduled maintenance, including warm-ups, conditioning, and changing filaments. As a result, they also require a higher level of operator knowledge and a deeper understanding of how the source works.

Customers who already have experience with open tubes often prefer to stay with them. They're familiar with the operation, they know the maintenance routines, and they may already have spare parts and processes in place. We see that preference quite often in the field. So, the choice between open and sealed sources usually comes down to the application, the required performance, and the skill set available at the customer site.

What really matters when evaluating MesoFocus for daily operation?

It mainly comes down to ease of use. With MesoFocus, you're moving into microfocus-level capability while keeping the operation much simpler than with an open microfocus tube. The tube offers preset focal spots, so operators can achieve the required imaging results without deep scientific knowledge of the source. That lowers the barrier to entry and shortens training time.

Another important factor is maintenance and uptime. Because MesoFocus is a sealed source, customers can expect lower maintenance requirements and less downtime. There's no need to change filaments or rotate targets, which reduces both operational complexity and service interruptions. For many customers, that combination - high-resolution capability, simpler operation, and higher uptime - makes a real difference in day-to-day production."

What ease of use will mean next – from standalone inspection to integrated production

What will ease of use mean as systems become more intelligent and automated?

"As technology continues to evolve, inspection systems will become more integrated into everyday production. Today, many X-ray systems still sit off to the side, used as standalone tools. In the future, more of these systems will align and become part of the continuous manufacturing process, especially as quality requirements continue to rise across industries such as aerospace, medical, and defense.

With lighter materials, additive manufacturing, and more complex designs, the link between quality and safety will only become stronger. That will drive greater use of automated inspection and higher expectations for reliability and consistency."

How do you see NSI and Comet shaping this next stage?

"The next stage will focus on smarter systems and better data use. Equipment analytics will play a larger role, allowing customers to monitor system health, plan preventive maintenance, and reduce unplanned downtime.

This is where solutions like BLOX become important, giving customers visibility into system performance and helping them act before issues arise.

As automation increases, the role of the operator will continue to shift. Operators will spend less time handling parts and more time supervising systems, reviewing data, and making informed decisions. Instead of reacting to problems, they'll be working proactively, supported by dashboards and real-time insights. That combination of automation, data, and human decision-making will define what ease of use really means in the years ahead."

Ease of use is no longer about convenience. It is about uptime, confidence, and consistency in daily operation. As inspection becomes more automated and connected, the systems that succeed will be those designed around how people actually work. That is where long-term performance is decided.



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