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Operationalizing Innovation: How AI Will Change Skill Development and Validation

By: [Maria Popo](#)

AI's Real Opportunity: Scaling Human Capability



Broadband operators are used to managing change. Fiber networks are expanding, hybrid environments are becoming more complex, and software-driven operations are reshaping how teams monitor and improve performance. Artificial intelligence is entering that environment quickly, but the real question is not whether operators can deploy another tool. It is whether their people can absorb new technology, apply it consistently, and prove they are ready to use it in the field.

That is where AI can make a practical difference. Not as a replacement for skilled practitioners, and not as a shortcut around training, but as a tool to scale human capability. AI can help operators capture expert knowledge, guide learning in the flow of work, and validate competency based on real operational performance. Used well, it can shift workforce development from periodic training events to continuous learning that happens as part of everyday work.

The timing matters. Fortune Business Insights projects the global broadband services market will grow from \$608.70 billion in 2026 to more than \$1.15 trillion by 2034, an 8.3 percent compound annual growth rate. That growth means more networks to build, more assets to maintain, and more decisions to make every day. The industry cannot meet that demand through infrastructure investment alone. It also has to scale the knowledge, confidence, and judgment of the people responsible for making those networks work.

The workforce challenge is already visible. Pew Research found that 41 states and Washington, D.C., identified workforce challenges in their Broadband Equity, Access, and Deployment or Digital Equity Act (BEAD) plans.

Pew's numbers point to a structural issue. The industry needs more people, but it also needs new ways to develop people faster and more consistently. Classroom instruction, shadowing, and certification will continue to matter. But traditional models can take workers out of the field, depend on scarce experts, and often measure completion rather than capability.

AI can help close that gap by making expertise more accessible at the moment it is needed.

What Is Agentic AI, and What Is Its Role in Network Operations?

One of the most useful developments is agentic AI: systems that can plan, coordinate, and guide actions across a multi-step process. In network operations, that might mean helping a technician follow a troubleshooting path, recommending next steps based on telemetry and service history, or guiding a customer care representative through a complex service issue. The goal is not to remove the person from the decision. The goal is to extend expert-informed decision-making to more people, more consistently.

Every operator has pockets of deep expertise that are difficult to scale. It may be a senior technician who knows where to look when a service issue appears, or an engineer who recognizes the pattern behind a recurring impairment. Too often, that knowledge lives in individual experience, informal notes, or habits that newer workers learn only if they are paired with the right mentor.

AI can help codify that knowledge. It can turn expert decisions into structured workflows, guided procedures, and decision support. It can surface known issues at the moment a worker needs them. It can help confirm safety steps, standardize troubleshooting, and reduce the variability that leads to rework.

Making Expertise Scalable

Consider fiber blowing. Done well, it requires preparation, equipment setup, route awareness, pressure control, cable handling, and disciplined execution. Done poorly, it can create safety issues, failed installs, damaged materials, and costly rework. AI-enabled guidance could help a technician confirm the sequence, identify risks, check setup conditions, and document the result. The technician still performs the work and owns the outcome. But the process becomes more consistent, and learning happens in context.

The same principle applies to proactive network maintenance. AI can analyze large volumes of network data, flag anomalies, and suggest where to look first. That can make teams faster and more precise. But it does not eliminate the need for human judgment. A person still has to understand the local plant, assess trade-offs, decide what action is appropriate, and be accountable for the result.

Learning to Use AI Properly in the Flow of Work

Finding the right balance between professional talent and where technology can assist is essential. AI is strong at pattern recognition, retrieval, summarization, and process guidance. It can reduce time spent searching for information and help newer employees learn from accumulated experience. What it cannot do is replace critical thinking, ethical oversight, leadership, or accountability. It cannot build trust with a customer, mentor a colleague through a difficult situation, or make a values-based decision when the data is incomplete. Those remain human responsibilities.

That is why AI in workforce development should be framed as augmentation: helping people get better faster. This distinction matters because many employees are already using AI without the support needed to use it well. EY's 2025 Work Reimagined Survey found that 88 percent of employees use AI at work, mostly for search and summarization. Only 5 percent use it in advanced ways, and only 12 percent said they receive sufficient AI training. EY also found that companies can miss up to 40 percent of potential AI productivity gains when talent strategy does not keep pace.

For broadband leaders, the lesson is clear. Giving people AI tools is not the same as preparing them for AI-enabled operations. Tools without training can create confusion. Automation without standards can introduce inconsistency. Recommendations without human review can produce overconfidence. Value comes when organizations define the work clearly, build strong data foundations, train people to use AI responsibly, and create feedback loops that improve both the tool and the worker.

Moving From Training Completion to Skills Validation

Skills validation also needs to evolve. For years, many organizations have treated training completion as the proof point. A worker attended the class, passed the test, or received the credential. Those measures have value, but they are not the same as operational readiness. Readiness means a person can apply the skill in context, follow the standard, make appropriate decisions, and produce the right outcome.

AI can help shift validation from activity-based measurement to performance-based evidence. It can support scenario-based assessments that reflect real field conditions. It can help evaluate whether a learner followed the correct sequence, identified the right risk, and selected an appropriate response. It can make microcredentials more meaningful by tying them to specific job tasks and observable competencies.

AI-enabled validation can also help managers see capability more clearly. Instead of asking only who completed training, leaders can ask who has demonstrated proficiency in a specific task, under what conditions, and with what level of consistency. That information can guide staffing, improve safety, support career pathways and make development more targeted.

Still, validation must remain human-centered. A credentialing system should not reduce people to data points. Skills validation must be fair, transparent, and aligned with the realities of the work. It must account for context, be reviewed by people who understand the environment, and build confidence, not fear. AI can strengthen the evidence base, but skilled leaders must decide how that evidence is used.

What Operators Should Do Now

For operators preparing their workforce for AI-enabled operations, the first step is not to apply AI everywhere. It is to identify the workflows where better guidance and validation would have the greatest impact. These are often tasks with high safety, quality, or customer experience implications: fiber installation, maintenance, troubleshooting, service activation, network monitoring, and complex customer support. Start where inconsistency is costly and expert knowledge is already in short supply.

The second step is to codify the standard. AI cannot compensate for unclear processes. Operators need to define best practices, capture expert judgment, and build workflows that reflect how work should be done.

The third step is to keep people accountable for outcomes. AI may recommend a path, but people

remain responsible for decisions, safety, customer trust and operational integrity. Workers need to understand when to rely on a recommendation, when to escalate, and when experience or local context should override a prompt.

The fourth step is to treat learning as continuous. Networks, tools and customer expectations will keep changing. Modular learning, scenario-based validation and job-aligned credentials can help people build capability while staying connected to daily work.

The future workforce will not be defined by humans on one side and AI on the other. It will be defined by how well we combine them. AI can scale expertise, shorten learning cycles, and bring more consistency to complex operations. People bring judgment, creativity, leadership, collaboration, ethical oversight, relationship-building, and problem-solving in ambiguous situations. The strongest outcomes will come from systems that respect both.

Operationalizing innovation means more than deploying new technology. It means building the human capability to use that technology well. The organizations that succeed will invest in people as deliberately as they invest in networks, use AI to strengthen learning rather than bypass it, and validate skills in ways that prove readiness for the real world.

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