



RESEARCH REPORT

BEYOND TRIBAL KNOWLEDGE: BUILDING SCALABLE SERVICE EXPERTISE IN AN ERA OF WORKFORCE TRANSFORMATION

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EXECUTIVE SUMMARY

Service organizations are confronting a growing knowledge transfer challenge as workforce demographics shift, service portfolios become more complex, and technicians' burden rises. Recently, Service Council and SightCall convened a Smarter Services™ IdeaShare workshop that brought together field service leaders from a cross-section of industries to explore how organizations can address this challenge and reduce their growing dependence on tribal knowledge.

While it's not a new challenge, the discussion's revelation that tribal knowledge remains a significant operational dependency is cause for concern. For many organizations, a meaningful portion of service events still depend on access to a small number of experienced experts. As products and service environments become more complex, that dependency creates increasing risk.

Above and beyond the limits of human memory as the installed base and the intelligence to support it keep evolving, when expertise exists primarily in people's heads organizations can struggle to make it consistently accessible to the technicians who need it. This is exacerbated as experienced workers retire or move into new roles.

Risk awareness hasn't been the main challenge, but legacy approaches to knowledge capture are neither

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Documentation, interviews, manuals, and knowledge base entries can preserve important information, but they often require experts to stop what they are doing and invest additional time documenting what they know. This creates an inherent challenge, because the very people whose expertise organizations most need to capture are often the least able to take time away from the customer experience and instead take on another administrative task. Furthermore, these approaches run the risk of missing case-by-case nuance or omitting steps that have become second nature to experts. And even when knowledge is successfully documented, it can quickly become outdated as products, processes, and service conditions continue to change.

Emerging technologies are putting a different approach on the table. Rather than asking experts to reconstruct and document their knowledge after the work is complete, AI and video intelligence can capture expertise as it is being applied in the field. This creates the potential for organizations to

EXECUTIVE SUMMARY, CONT...

continuously and faithfully capture the context, decisions, and problem-solving techniques embedded in real service interactions, to then structure and distribute that knowledge so it can be accessed by others when they need it. The result is that knowledge capture becomes a natural byproduct of service execution rather than a separate documentation exercise.

At the same time, IdeaShare participants highlighted the importance of addressing the organizational factors that determine whether such new approaches can actually succeed, including governance, security, accessibility, and the technicians' day-in-the life experience. Any system designed to capture expertise must fit naturally into the way technicians work, provide confidence that information is secure and appropriately managed, and ensure that captured knowledge can be trusted and easily accessed.

The workshop grounded these themes in attendees' own experiences, emphasizing that the challenge is not simply about a project documenting what individual experts know. It is about creating a service knowledge ecosystem that can continuously capture, structure, validate, and distribute expertise as work happens. The organizations best positioned to address the knowledge transfer gap will be those that move beyond periodic, broad strokes and highly manual documentation and toward systems that make expertise a self-maintained, trusted and continuously available operational asset.

THE GROWING CHALLENGE OF EXPERT DEPENDENCY

The challenge of knowledge transfer is becoming more urgent as service organizations navigate workforce transitions while simultaneously supporting increasingly complex products and service environments. Organizations are not only tasked with developing new expertise; they must also preserve and make accessible the knowledge accumulated by experienced employees before it becomes difficult or impossible to transfer.

Attendees quickly grounded that challenge in their own operations. One attendee described the challenge of preparing an 800-person global field service team to support next-generation devices

THE GROWING CHALLENGE OF EXPERT DEPENDENCY, CONT...

without losing the knowledge built up during the current product generation. Another shared that the majority of their organization's U.S. field resources now have five years of tenure or less, which strains not only senior engineers but also second-level support teams who end up re-solving the same repeatable issues for a constant stream of newer technicians.

Service Council research shows that 44% of technicians industry-wide have five years of tenure or less at their current organization, meaning nearly half of the field service population has limited familiarity with their organization's specific installed base, systems, processes and customer expectations, regardless of how many years they have spent in the profession overall. Notably, more than half of that group is 35 years of age or older, which attendees agreed undercuts the assumption that this is purely a generational or "younger workforce" issue. Rather than a smooth bell curve, several participants observed a workforce distribution with disproportionately large early- and late-career populations and comparatively few technicians in the middle experience band.

The conversation also uncovered a more troubling trend: the number of first-year technicians who expect to make a long-term career in field service has dropped from approximately 40% to 31% over the past three years of Service Council data. Several attendees called this the most alarming data point of the session, prompting discussion about whether the cause is compensation, onboarding design, generational differences, or the rigidity of scripted workflows that may be removing the sense of ownership and craftsmanship from the job. Others offered a complementary explanation grounded in the research: the gap between growing operational complexity and the tools available to manage that complexity is widening faster than technicians' ability to close it, regardless of age or tenure, raising the bar to competence while patience for a long ramp-up period, on both the customer and organizational side, keeps shrinking.

Polling throughout this opening discussion reinforced how widely felt this dependency already is. Asked about their current dependency on tribal knowledge, 82% of participants described a moderate dependency, where a significant portion of service events rely on the availability of a few experts, while the remaining 18% characterized their dependency as high, saying the service experience primarily relies on individual expertise. Not a single participant described their dependency level on tribal knowledge as low.

THE GROWING CHALLENGE OF EXPERT DEPENDENCY, CONT...

When asked what would happen if their top 20% of experts left the organization this year, every respondent characterized the impact as high, with 57% expecting that impact to be concentrated in a low-volume set of situations and 43% expecting it to be felt across a high volume of service events. One attendee illustrated the low-volume, high-impact scenario with legacy equipment: portfolio categories with limited install-base volume where it is not economically justifiable to build broad in-house competence, leaving the organization reliant on a small number of experienced technicians who understand aging assets that may no longer be well documented.

On what is driving that risk, 55% pointed to the so-called "Silver Tsunami" of retiring experts, 36% cited limits to expertise as the complexity of service assets grows too much or too quickly, and 9% pointed to an unexperienced workforce entering the profession. While retirements remain the most commonly cited driver, more than a third of participants pointed instead to the accelerating complexity of the assets themselves. This is a reminder that expert dependency is not solely a demographic problem that would resolve itself if the proportion of highly experienced technicians significantly increased, as even those who are highly experienced have biases and limits to the information they can progressively incorporate and retain.

CAPTURING AND OPERATIONALIZING TRIBAL KNOWLEDGE

A central theme of the workshop was the shift from individual expertise, such as the reflexive habit of calling a colleague with questions, to scalable organizational knowledge. Participants noted that calling or texting a colleague is not inherently problematic; it can even provide valuable peer connection for geographically dispersed technicians during the workday.

The risk is less about the behavior itself and more about what happens when the expert being consulted is unavailable, inconsistent, or simply wrong, and that error propagates because the organization has no visibility into how problems are actually being solved in the field.

CAPTURING AND OPERATIONALIZING TRIBAL KNOWLEDGE, CONT...

What actually needs to be captured is the troubleshooting judgment, decision-making processes, experience-based insights, and customer-specific knowledge that rarely makes it into a service manual.

Attendees converged on a consistent set of challenges:

- Limited bandwidth among the very experts organizations most need to preserve knowledge from.
- Unintentional omissions when experts document tasks that have become second nature to them.
- The ongoing effort required to keep captured knowledge current as products, processes, and best practices evolve.
- Lack of standardized troubleshooting approaches across technicians, particularly in outsourced service delivery models where some organizations explicitly prefer to retain core competence.
- When asked directly about their greatest challenge in reducing expert knowledge dependency, half of respondents pointed to a lack of bandwidth or willingness among experts to capture their own knowledge, and 20% cited the ongoing effort required to keep captured knowledge up to date.

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WORKFORCE DEVELOPMENT AND TECHNICIAN ENABLEMENT

New technician onboarding and time-to-proficiency emerged as a significant and worsening challenge. Forty-five percent of participants said it takes their organization more than a year to bring a new technician to full proficiency, and another 36% said six months to a year, meaning more than four in five organizations in the room need at least half a year to fully ramp a new technician. That steep, costly ramp compounds the retention challenge facing organizations already struggling to keep newer technicians in the profession.

WORKFORCE DEVELOPMENT AND TECHNICIAN ENABLEMENT, CONT...

Rather than representing a single forecasted cost, long-term service delivery increasingly resembles a probability distribution with multiple potential outcomes. The more uncertainty organizations can understand before signing a contract, the greater confidence they can have in both pricing and profitability.

Two best practices echoed amongst participants as ways to shorten this curve. The first is capturing knowledge in real time, as senior technicians perform their jobs, rather than asking them to reconstruct it from memory after the fact. This approach is being piloted by one IdeaShare participant within a newly formed service business unit, embedding captured expertise directly into the CRM and field service tools technicians already use rather than introducing a standalone system.

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The second is prioritizing by persona rather than treating the technician population as a single, uniform group. This includes identifying the highest-volume roles, such as customer-facing field engineers, repair technicians, remote support staff, and concentrating knowledge-enablement investment where it reaches the largest share of the workforce fastest, or more generally, where more risk can be mitigated and value achieved. Organizations taking this approach are also pairing it with deliberate career-pathing, rotating technicians across remote support, field service, and repair operations to build broader competence and give them a visible growth trajectory, which several attendees linked directly to improved retention.

A related consensus was that no single content format fits every learning need. Video tends to work well for repair demonstrations and safety procedures, while text-based, searchable formats are often better suited to procedural or SOP-driven troubleshooting, reinforcing that accelerating proficiency requires a deliberate mix of delivery channels rather than a one-size-fits-all knowledge strategy.

THE OPPORTUNITY OF A NEW ROLE FOR VIDEO INTELLIGENCE IN SERVICE

Video has traditionally been viewed as something a technician watches to learn a repair, review a safety procedure, or complete a training. The IdeaShare confronted this self-imposed limitation by inverting the model: rather than video being something a technician goes to in order to do the work, what if the act of doing the work itself generated the video, and by extension the knowledge?

IdeaShare participants' current video usage mirrored just how early most organizations still are in this journey: 56% said video resources are not yet available to their technicians at scale, 22% said their technicians primarily use on-demand videos to support their work, and the remaining 22% was split evenly between other applications and live-video support with AR/VR capabilities.

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On-demand training content, which recent Service Council research found 80% of frontline agents view positively, remains the dominant application where video is used at all, but the group's discussion made clear that on-demand libraries only address part of the problem. Real-time capture, using AR, VR, and wearable technology to record technicians as they perform a job rather than asking them to document it afterward, is emerging as a natural next step, illustrated by one attendee already piloting the approach and routing captured footage into the specific community or team best positioned to use it.

The same discussion surfaced a practical warning: technicians will gravitate toward whatever information is easiest to find, including public sources like YouTube, if an organization's own resources aren't competitive. Even something as simple as live video, an engineer using a phone camera to show a colleague what they're looking at instead of describing it over a call, has already changed how field teams collaborate informally.

THE OPPORTUNITY OF A NEW ROLE FOR VIDEO INTELLIGENCE IN SERVICE, CONT...

Risks and Governance Requirements

Attendees were candid about the risks of scaling video-based knowledge capture. Their concerns centered on three practical barriers:

- **Environmental and security constraints:** Many customer sites lack reliable cell coverage or network access, and data-security requirements in regulated or sensitive environments are often underestimated.
- **Content preparation effort:** Raw footage can be labor-intensive to edit into useful, consumable knowledge assets.
- **Ongoing governance:** Video-based knowledge must be reviewed and refreshed as products change. Like a written service manual, outdated video guidance can be misapplied years after it was recorded, so governance cannot be treated as a one-time task.

Despite these challenges, the group converged on a clear point of agreement: content captured from technicians solving problems in real conditions carries an inherent reliability advantage over knowledge reconstructed after the fact, since it reflects current practice rather than a memory of practice. Video alone is not a complete solution. Its value depends on the content being trusted, searchable, structured, and connected to the broader knowledge system rather than existing as a disconnected library of clips.

AI'S ROLE IN BRIDGING THE SCALABILITY GAP

If video addresses how expertise gets captured, AI is emerging as the mechanism for making that captured content usable at scale. Across the discussion, four capabilities stood out as the primary ways AI is being applied to reduce dependency on individual expertise: analyzing and structuring the tribal knowledge captured through video, making that expertise searchable and accessible, enabling conversational retrieval so technicians can query it directly, and keeping the resulting knowledge base current and relevant as products, processes, and best practices evolve.

AI'S ROLE IN BRIDGING THE SCALABILITY GAP, CONT...

Among IdeaShare participants, a fairly even split emerged in how organizations are currently applying AI. Sixty percent of participants said their primary use is capturing and structuring tribal knowledge, while the remaining 40% pointed to conversational knowledge retrieval as the mechanism helping bridge the expertise gap. That near-even distribution suggests most organizations see a role for both: AI as the front-end tool that turns raw expertise into structured content, and AI as the back-end interface that delivers it back to technicians on demand.

The discussion consistently framed AI's value in terms of what it makes possible rather than what it replaces. Several opportunities recurred throughout the conversation:

- Turning an individual technician's expertise into a resource the whole organization can draw on
- Connecting technicians with relevant information faster and more controlled than a phone call to a colleague
- Preserving the reasoning and judgment behind an expert's decisions, not just the outcome
- Validating and standardizing expertise so it can be trusted across the organization
- Improving access to knowledge at the exact point of need in the field

The clearest point of consensus was that AI's role in this context is to augment and scale human expertise, not replace it. The goal participants described was consistent: extract the reasoning embedded in how an expert actually works, structure and validate it, and deliver it back to the point of need faster and more reliably than the informal networks technicians rely on today.

ANALYST'S TAKE: BUILDING CONNECTED SERVICE COMMUNITIES

The workshop closed by returning to a theme raised throughout: technology should reduce dependency on any single expert without eliminating the human collaboration that makes field service work meaningful. Calling a colleague for help remains one of the most consistent behaviors in the field, and for many technicians, it is also a critical source of human connection.

ANALYST'S TAKE: BUILDING CONNECTED SERVICE COMMUNITIES, CONT...

The workshop closed by returning to a theme raised throughout: technology should reduce dependency on any single expert without eliminating the human collaboration that makes field service work meaningful. Calling a colleague for help remains one of the most consistent behaviors in the field and, for many technicians, an important source of human connection. The goal is not to engineer that behavior away, but to make the expertise behind it more consistent, accessible, and scalable, and ensure fewer technicians are left without anyone to call.

Video intelligence powered by AI can help make that expertise accessible across every tenure level, empowering newer technicians while giving experienced technicians a faster way to validate and apply relevant knowledge. Several organizations are already creating more structured pathways, including technician communities organized around specific product lines or install bases. But technology alone will not get organizations there. Trusted systems require governance, security, accessibility, and ongoing attention to accuracy as products and best practices evolve.

Expert dependency is not a temporary workforce issue. It is a structural risk that will intensify as retirements accelerate, service portfolios grow more complex, and technician tenure continues to shorten. Addressing it requires a fundamental shift from periodic, effortful documentation toward systems that continuously capture, structure, validate, and distribute expertise with minimal burden on the experts who hold it.

The opportunity is not simply to document what experts know, but to preserve the judgment, context, and problem-solving process they apply while the work is happening. Video intelligence and AI offer a path forward, not as a replacement for human judgment, but as infrastructure that turns individual expertise into an organizational asset, accessible when and where it is needed. The organizations best positioned for this transition will pair that technology with strong governance and thoughtful risk management while preserving the human collaboration at the heart of field service.