Tech Retirement Crisis: Vulnerable Industries and What They Must Do

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As seasoned tech professionals with decades of institutional knowledge approach retirement, many industries risk losing the expertise required to maintain aging systems and tools. These legacy technologies often power critical operations but are unfamiliar to younger tech professionals, creating a widening skills gap.

The retirement of veteran tech experts is a wake-up call for industries still tethered to outdated systems—the challenge isn't just replacing those systems, but also preserving the knowledge that keeps them running. Below, members of Forbes Technology Council highlight the industries most at risk and share what leaders can do now to transfer essential know-how and prepare the next generation to step in with confidence.

1. Ports

Ports still rely on terminal operating systems (TOS) and EDI standards from the 1980s. Young engineers face a steep learning curve with cryptic interfaces and minimal documentation. To future-proof, leaders must digitize maritime workflows using AI-integrated APIs while creating simulation labs for cross-training younger talent on legacy systems—before the sea of knowledge ebbs away. - Jagadish Gokavarapu, Wissen Infotech

2. Financial Services

Financial services is one industry that relies on legacy systems younger tech professionals can't maintain. To ensure continuity as technology leaders retire, organizations must urgently modernize by migrating to the cloud, unlocking AI and attracting top talent for future growth. - Chetan Mathur, Next Pathway

3. Automotive; Heavy Machinery

Industries like automotive and heavy machinery rely on proprietary software and specialized control systems. As experienced engineers retire, there is a risk of knowledge gaps emerging. Leaders should implement mentorship programs in which older professionals share their expertise with their younger counterparts. Investing in intuitive training materials can also help bridge the generational divide. - Neel Sendas, Amazon

4. OT And Manufacturing

Operational technology and manufacturing often run on legacy operating systems and hardware and rarely incorporate AI into critical workflows. While these sectors require deterministic outcomes, pairing AI models with strict guardrails—such as limiting outputs to a predefined set of approved results—can still boost efficiency and innovation without introducing undue risk to sensitive environments. - Keren Katz, Tenable

5. Corporate Banking

Corporate banking risks falling behind as legacy systems outlast the talent trained to maintain them. To stay competitive, banks must modernize with interoperable cloud, SaaS and AI solutions; ensure structured knowledge transfer between generations; and foster a culture of innovation to future-proof operations, enhance compliance and meet rising customer expectations. - Alex Ford, Encompass Corporation

6. Professional Services

Many professional services firms still rely on outdated tools—spreadsheets, siloed systems and tribal knowledge held by a few. Younger talent isn't trained on or drawn to these ways of working. As experts retire, firms risk losing both continuity and edge. Leaders must modernize workflows and capture knowledge in connected, accessible systems to future-proof their teams and retain their advantage. - Sarah Edwards, Kantata

7. Energy

The energy sector still leans heavily on legacy SCADA systems and custom PLC setups that younger professionals rarely encounter. As veteran engineers retire, leaders should invest in cross-generational training programs and gradually modernize infrastructure—bridging knowledge gaps before they become operational risks. - Kirill Sagitov, COYTX GLOBAL LLC

9. Healthcare

The healthcare industry continues to rely on legacy technology, such as EHR systems built with platforms like MUMPS, a language that is now unfamiliar to most new professionals. As experienced staff retire, younger pros lack the skills to maintain them. Leaders should prioritize mentorship, detailed documentation and phased modernization to ensure continuity and prepare for a tech-forward future. - Tannu Jiwnani, Microsoft

10. Aerospace

The aerospace industry still relies on legacy systems, such as Fortran-based simulations and outdated telemetry tools. As seasoned experts retire, leaders must document key knowledge, modernize tools and build mentorship pipelines. Just as NASA blends Apollo-era wisdom with Artemis-era innovation, bridging generations ensures mission continuity and tech evolution without losing institutional memory. - Shelli Brunswick, SB Global LLC

11. Retail

Retail is a prime example of an industry still dependent on legacy systems, siloed data and the deep expertise of long-tenured employees. As these experts retire, leaders should accelerate the shift to unified commerce platforms, modernize tools for frontline staff, and leverage AI for both onboarding and customer engagement to future-proof their operations. - Zornitza Stefanova, BSPK

12. Global Logistics

Global logistics runs on fragile legacy EDI pipes, which younger pros rarely touch. Instead of patching, leaders should build a blockchain-backed trade graph. Pair retiring EDI experts with AI agents to translate workflows, compress the past and future-proof the industry. - Akhilesh Sharma, A3Logics Inc.

13. Utilities

The utilities industry still runs on SCADA and COBOL—tools young tech talent rarely encounters. Leaders must build simulation labs for training, capture tacit knowledge digitally and layer modern APIs over core systems to ensure continuity before the grid's human backbone retires. - Mark Mahle, NetActuate, Inc.

14. Broadcast Media

The broadcast media industry still runs on decades-old video playout servers, SDI hardware and proprietary codecs. As tech veterans retire, leaders must digitize tribal knowledge, modernize with IP-based workflows and train new talent through virtual production labs—before the signal fades on this critical yet aging infrastructure. - Roman Vinogradov, Improvado

15. Life Insurance

The life insurance industry uses policy administration systems that need to be maintained for the lifetime of the insured (which is usually up to 40 or 50 years). The older books of business need to be migrated to modern systems to mitigate the risk of a loss of support due to retiring professionals. - Arnab Mukhopadhyay, VNS Health

16. Government Agencies

Too many government agencies run COBOL systems, managing payments on half-century-old infrastructure. We can prioritize "bridge" roles, pairing retiring experts with younger staff to transfer knowledge of both technical systems *and* the legal frameworks behind them. Leaders must modernize while preserving privacy protections through gradual adoption of new technologies. - Nick Hart, Data Foundation

17. Airlines

The airline industry is deeply reliant on legacy reservation and operations systems built in languages like Fortran and TPF, which are unfamiliar to modern developers. Leaders should launch dual-track modernization: Pair retiring experts with junior engineers on active systems while building cloud-native replacements. Preserve tribal knowledge now or risk turbulence tomorrow. - Sandipan Biswas

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