

AI in Natural Gas

Quick Action Guide for Leaders

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THE CORE PRINCIPLE

Technology should amplify human capability, not replace human relevance. In natural gas operations, where safety depends on judgment, this isn't philosophy; it's operational necessity.

The Challenge You're Facing

Two converging forces threaten your operational resilience:

- AI is changing work from hands-on decision-making to supervising systems
- Experienced operators are retiring, taking undocumented tribal knowledge with them

Three Immediate Actions

1. Redesign Work for Judgment Development

Don't just digitize workflows, preserve opportunities for problem-solving:

- Field rotation programs: Control room operators spend 1 day/week in the field
- Quarterly manual operation drills without SCADA or AI support
- 60-second pause protocols: Require manual verification before automated actions
- Post-incident debriefs, even when AI fixes the problem

2. Make Data Literacy a Core Competency

Train everyone to question green dashboards, not just trust them:

- Monthly 'dashboard limitations' training, what sensors CAN'T see
- Empower operators to initiate field inspections when instinct conflicts with data
- Document 'human judgment wins', share these stories in safety meetings
- Create override authority guidelines with clear criteria

3. Create a Culture That Values Judgment

Shift from 'follow the system' to 'govern the system':

- Change metrics: 'What did you notice that the system didn't?' vs. compliance rate
- Investigate operator concerns seriously, even when dashboards are green
- Pair new technicians with veterans for 6-12 months (not just weeks)
- Ask for every AI implementation: 'Are we making our veterans stronger or obsolete?'

Knowledge Transfer: Four-Phase Framework

Phase 1: Identify Critical Knowledge Holders (This Week)

- Ask leadership: 'Who would we panic if they retired tomorrow?'
- Review incident logs: Whose name appears in 'resolved by'?
- Create Knowledge Risk Register: Name, role, retirement date, critical knowledge areas

Phase 2: Deploy Structured Tools (This Month)

- **Expert interview protocol:** 90-120 min sessions with guided questions. Video record.
- **Structured shadow rotations:** 8-16 weeks with daily 15-minute debriefs
- **Problem-solving story archive:** Capture 'remember when' stories with situation-problem-solution-learning

Phase 3: Create Mentorship Systems (Next 90 Days)

- Strategic matching by domain, geography, and learning style
- Protected time: Minimum 4 hours/week on the calendar
- Specific learning objectives, measurable and testable
- Recognition: Include mentorship effectiveness in performance reviews

Phase 4: Institutionalize Knowledge (Ongoing)

- **Living SOPs:** Include the 'why' behind each step, not just 'what.'
- **Asset-specific wisdom files:** QR codes on equipment with quirks, troubleshooting tips
- **Community of practice:** Monthly 60-minute meetings by discipline to share challenges

Your 30-Day Action Plan

Week	Action
Week 1	Identify the top 3 knowledge flight risks. Review AI plans for judgment preservation gaps.
Week 2	Schedule expert interviews for the top 3 risks. Create one cross-generational problem-solving team.
Week 3	Establish 2-3 mentorship pairings with protected time. Launch weekly team huddles (15 min).
Week 4	Brief the executive team on findings. Launch a communication campaign recognizing mentors.

THREE CRITICAL QUESTIONS FOR EVERY AI IMPLEMENTATION

1. Are we building AI-capable teams who can govern these systems, or just deploying technology?
2. What judgment capabilities are we preserving vs. eliminating?
3. How do we measure the erosion of expertise that doesn't show up in dashboards?