



BEYOND SCADA UPTIME

BUILDING MEASUREMENT INTEGRITY IN GAS OPERATIONS WITH AVEVA ENTERPRISE SCADA

A Practical Guide for SCADA Directors,
SCADA Managers, and Engineering Leaders

EXECUTIVE SUMMARY

WHY GAS SCADA OPERATIONS AND MEASUREMENT ARE NOW **BOARD-LEVEL RISKS**

Most pipeline operators know their SCADA environment is critical. Downtime matters, aging infrastructure constrains resilience, Cyber Security risk is increasing, and modern operations depend on trustworthy data.

Yet many operators still underestimate a more specific risk inside the SCADA ecosystem: the gas operations and measurement applications that determine how gas is configured, calculated, validated, reported, and trusted. This is where risk often appears first, not as a major outage, but as measurement uncertainty, gas day confusion, fragile hourly uploads, unexplained data gaps, cutover workarounds, slow dispute resolution, or reports that key stakeholders do not fully trust.

THAT IS THE UNCOMFORTABLE TRUTH ABOUT GAS SCADA.

The platform may be available. The screens may work. Controllers may operate safely. Yet the workflows beneath the surface may carry more business risk than leadership realizes.

For senior SCADA and engineering leaders, that distinction matters. Gas operations and measurement are not background SCADA functions. They are business-critical systems that affect reliability, compliance, revenue confidence, audit readiness, operator trust, and the credibility of operational data across the organization.

THE OLD STANDARD WAS SIMPLE: KEEP THE SYSTEM RUNNING.

The new standard is different: build measurement integrity, operator confidence, and audit-ready evidence into the operational backbone.

This guide helps SCADA leaders rethink how gas operations and measurement applications should be modernized inside AVEVA Enterprise SCADA. It does not argue that technology alone solves the problem. Platform capability does not automatically create operational maturity.

HIGH-PERFORMING OPERATORS TAKE A MORE DISCIPLINED APPROACH.

They treat gas applications as engineered operational assets. They design workflows, validate EFM data flows, document gas day logic, commission applications with rigor, train users on the reasoning behind the process, and sustain the environment after go-live.

THE OBJECTIVE IS NOT TO MOVE OLD PROCESSES INTO A NEW PLATFORM.

It is to create a gas operations and measurement environment leaders can trust before an audit, incident, billing dispute, or major upgrade forces the issue.

If your gas applications require heroics, tribal knowledge, or manual workarounds, the risk is already present. The opportunity is to bring that risk into view and build an environment your operators, engineers, and business stakeholders can rely on.

CHAPTER 1

Gas Measurement Is a Business System, Not a SCADA Feature



THE LEADERSHIP PROBLEM HIDING INSIDE EFMS AND AGA WORKFLOWS

Gas measurement is often discussed in technical terms: EFMs, AGA calculations, data uploads, device configuration, datapumps, interfaces, reports, and validation routines. That language is necessary, but it can obscure the real issue.

GAS MEASUREMENT IS NOT JUST AN ENGINEERING CONCERN. IT IS A BUSINESS SYSTEM.

The numbers moving through gas measurement workflows influence decisions far beyond the control room. Finance, commercial teams, regulatory and compliance teams, operations, and engineering all rely on them to understand performance, resolve issues, and defend decisions.

When measurement data is wrong, incomplete, delayed, poorly documented, or difficult to reconcile, the consequences do not stay inside SCADA. They move downstream into billing confidence, nomination accuracy, audit readiness, operational trust, and stakeholder credibility.

THAT IS WHY MEASUREMENT RISK DESERVES LEADERSHIP ATTENTION.

The challenge is that many gas measurement environments were not designed as enterprise business systems. They evolved over time. Teams added scripts, custom logic, reports, device configurations, interfaces, and manual checks as needs changed. Each addition may have solved a specific problem. Over years, however, the result can become a fragile operating model that only a handful of people truly understand.

That fragility becomes especially visible during migration or modernization. EFM database issues appear. Data mapping assumptions break. Historical and archived data do not align cleanly. Post-cutover gaps create uncertainty. The team discovers that the old environment depended on knowledge that was never fully captured.

THESE ISSUES ARE NOT RANDOM. THEY ARE PREDICTABLE.

They happen when gas measurement is treated as a SCADA feature instead of a governed operational system, when platform migration takes priority over workflow validation, and when cutover planning does not account for the connected nature of EFM, gas day logic, reporting, interfaces, and downstream consumers.

FOR SCADA LEADERS, THE REFRAME IS IMPORTANT.

If Finance, Commercial, Regulatory Operations, engineering, and the control room all depend on your gas numbers, then gas measurement is an enterprise system. It needs design authority, documentation, validation, commissioning, and lifecycle ownership.

High-performing operators recognize this. They do not measure success only by whether the new SCADA screens are live. They ask harder questions:

- Can we trust the gas numbers after cutover?
- Can we explain how the logic works?
- Can operators understand what changed and why?
- Can engineering validate the EFM flows?
- Can reports be defended during audit or dispute resolution?
- Can the environment be sustained without relying on one or two people?

Those questions change the modernization conversation. They move it away from implementation activity and toward operational confidence.

Dexcent helps industrial organizations strategize, transform, and evolve by bringing structure to complex OT environments. In gas operations and measurement, that means helping pipeline operators design, migrate, configure, validate, commission, and sustain the applications and workflows that turn SCADA data into business-critical evidence.



THE GOAL IS TO CREATE A MEASUREMENT ENVIRONMENT SENIOR SCADA AND ENGINEERING LEADERS CAN TRUST.



CHAPTER 2

What High-Performing Gas Pipelines Do Differently



THE EXECUTION PATTERNS MOST TEAMS NEVER ADOPT

High-performing gas pipeline operators are not necessarily the organizations with the newest platform, the largest internal team, or the most custom applications. They are the organizations that treat gas operations and measurement as designed systems.

Many operators have deep SCADA knowledge. Their teams understand the environment, know the workarounds, and can keep the system running under pressure. That expertise is valuable. But expertise alone is not the same as system maturity.

A mature system does not depend on memory, one senior engineer understanding a critical script, or a controller remembering which report needs manual verification. It does not depend on a small group of people interpreting gas day exceptions through experience alone.

High-performing operators reduce that dependency by building gas operations and measurement into engineered, testable, supportable systems.

THEY DO THIS IN FIVE PRACTICAL WAYS.

FIRST, THEY BUILD GAS APPLICATION SUITES INSTEAD OF SCRIPT COLLECTIONS.

Custom scripts may still have a role, but they are governed by a clear application philosophy. Logic is documented, ownership is defined, and dependencies are understood.

SECOND, THEY DEFINE GAS DAY WORKFLOWS WITH AUDITABLE LOGIC.

High-performing teams clarify how data is collected, processed, validated, reported, and corrected. They understand where timing matters, where accounting logic matters, and where manual intervention must be controlled.

THIRD, THEY VALIDATE EFM DATABASES AND DATAPUMP FLOWS.

Measurement integrity depends on confidence that the right data is collected, mapped, migrated, verified, and available for downstream use.

FOURTH, THEY COMMISSION GAS APPLICATIONS, NOT JUST I/O.

Points, screens, alarms, and communications matter, but gas operational apps, measurement apps, forecasting, reports, interfaces, gas day processes, and EFM flows must be validated as connected workflows.

FIFTH, THEY TRAIN OPERATORS AND ENGINEERING TEAMS ON WHY THE SYSTEM WORKS, NOT ONLY WHAT BUTTONS TO PRESS.

Training that explains intent helps controllers understand why gas numbers behave a certain way, how exceptions should be interpreted, and where to escalate uncertainty.

These patterns reflect a mindset. High-performing teams do not rely on SCADA knowledge alone. They rely on designed, testable systems that can survive turnover, audits, incidents, upgrades, and operating pressure.

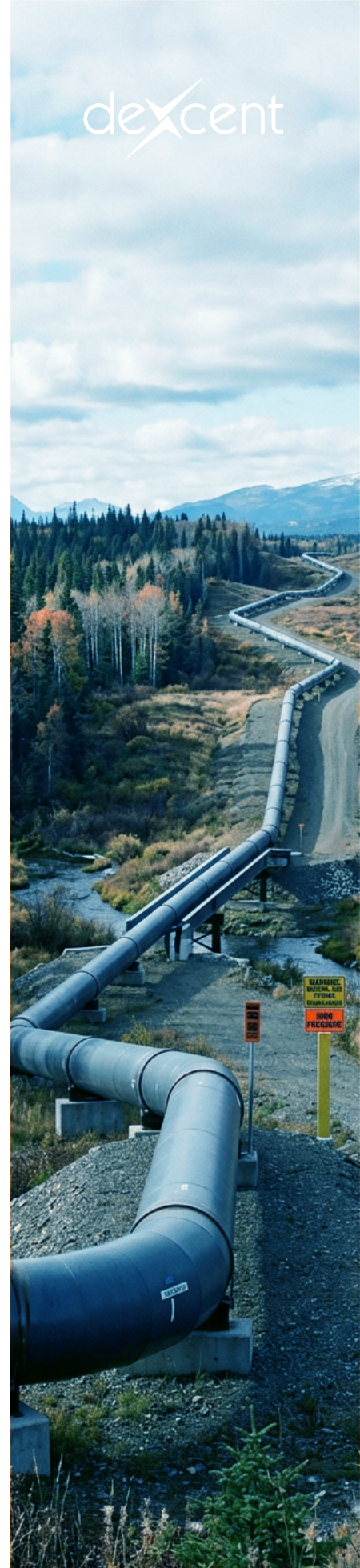
That is especially important as operational complexity increases, regulatory scrutiny grows, data expectations rise, and SCADA teams are asked to do more with fewer internal resources.

The organizations that succeed will make gas operations easier to understand, support, and defend. That does not mean everything should be over-engineered. It means critical workflows should be intentionally engineered.

A high-performing gas application environment gives operators clarity, engineers traceability, leaders confidence, and the business numbers it can trust.

Dexcent supports that outcome through practical execution across gas operational applications, gas measurement applications, gas load forecasting, real-time and historical database migration, EFM database migration, datapump configuration and verification, interface development, custom SCADA-related software, operational reports, commissioning, and hands-on training.

**THE VALUE IS NOT ONLY TECHNICAL DELIVERY.
THE VALUE IS REDUCING AMBIGUITY IN A
SYSTEM WHERE AMBIGUITY BECOMES RISK.**



CHAPTER 3

The Gas Operations Reality Nobody Talks About



WHY GAS SCADA COMPLEXITY IS QUIETLY INCREASING RISK

Gas pipelines are operationally different from liquids. Most SCADA leaders know this, but many organizations still underestimate what that difference means at the application layer.

Gas operations require distinct logic, timing, measurement, forecasting, allocation, reporting, and validation workflows. Gas day processes, hourly uploads, AGA workflows, EFM data, weather data, measurement interfaces, totalization hierarchies, and forecasting configurations all create dependencies that must work together.

THE PROBLEM IS NOT THAT GAS OPERATIONS ARE COMPLEX.

The problem is that the complexity often grows quietly. A report is added, a script is modified, a custom program is created, a device configuration changes, a manual check becomes routine, an interface is adjusted, and a workaround becomes accepted practice. Over time, the system still appears to work, but the operating model becomes harder to explain, test, and sustain.

THIS IS WHY GAS OPERATIONAL LOGIC OFTEN AGES FASTER THAN THE SCADA PLATFORM ITSELF.

The platform may still be supported, the servers may still run, and controllers may still operate safely. But the application logic may have accumulated years of small decisions that no longer reflect current operating needs, regulatory expectations, staffing realities, or data requirements.

SCADA LEADERS SEE THE SYMPTOMS.

THEY JUST DO NOT ALWAYS NAME THEM AS STRATEGIC RISK.

- **Manual gas day interventions** become normal.
- **Hourly uploads** require monitoring that should not be necessary.
- **AGA calculations and upload processes** need manual reconciliation.
- **Reports** are trusted only after someone checks them outside the system.
- **Measurement disputes** take weeks because the evidence is scattered across systems, spreadsheets, and individual knowledge.
- **Scripts** remain untouched because nobody wants to risk breaking them.
- **Only one or two people** know how a specific application behaves.
- **After cutover**, teams discover that the old system had undocumented dependencies that were never properly captured.

Each issue may seem manageable on its own. Together, they signal a deeper problem: **gas operations are being sustained by effort rather than by design.**

Effort can keep an environment moving for a while. Design makes it repeatable, visible, and supportable. Effort becomes fragile during turnover. Design creates continuity. Effort often hides risk until a pressure event occurs. Design exposes risk early enough to address it.

Consider a common transition scenario. An hourly upload process appears successful because the job completes and values appear in the expected location. After cutover, a downstream report shows a variance. The root cause may sit in EFM mapping, gas day timing, historical database migration, or a calculation assumption that was never documented. If each component was tested separately, the full workflow risk may not appear until operations depends on the result.

That is why gas operations are not background workflows. They are mission-critical business processes disguised as SCADA scripts.

Once leaders see them that way, the modernization agenda changes.

The question is no longer, **"Are the gas apps still running?"**

The better question is, **"Can we trust, explain, support, and improve the gas workflows our business depends on?"**

CHAPTER 4

Gas Operations Inside AVEVA Enterprise SCADA: What Good Looks Like



FROM FRAGILE SCRIPTS TO ENGINEERED APPLICATIONS

AVEVA Enterprise SCADA can serve as the operational backbone for gas pipeline environments, providing a platform for supervisory control, operational visibility, data management, application integration, and enterprise-scale modernization.

But platform capability does not automatically create gas operations maturity. It creates the opportunity for better operations. It does not guarantee that gas workflows, measurement logic, EFM flows, reporting, forecasting, and operator processes have been designed well.

MOST FAILURES ARE NOT PLATFORM FAILURES. THEY ARE IMPLEMENTATION DESIGN FAILURES.

A strong gas operations environment inside AVEVA Enterprise SCADA starts with a clear view of the operational application domains that matter.

GAS OPERATIONAL APPLICATIONS

Gas operational apps help support the daily workflows required to run pipeline operations. These may include gas device configuration, gas day processes, hourly uploads, operational reporting, action sequences, data processing, and interfaces that support control room and engineering needs.

GAS MEASUREMENT APPLICATIONS

Gas measurement apps support the integrity of the numbers that flow through the business. These include EFM database workflows, datapump configuration and verification, AGA upload and download processes, measurement advisor interfaces, post-cutover measurement data migration, and interfaces to external pipeline measurement applications.

GAS LOAD FORECASTING

Gas load forecasting helps operators and planners understand expected demand, operational constraints, weather impacts, and future system behaviour. Forecasting is only as useful as the quality of the data, configuration, hierarchy, and governance behind it.

GAS DAY CONFIGURATION AND WORKFLOWS

Gas day configuration defines how operating time, measurement logic, data availability, and reporting processes are structured. If gas day logic is unclear, downstream trust is compromised.

WHAT DOES GOOD LOOK LIKE ACROSS THESE DOMAINS?

It starts with intentional design. The application environment should reflect an operating philosophy, not a collection of inherited habits. Leaders should understand which workflows should be standardized, where customization is justified, and how each application supports operational, measurement, compliance, or business requirements.

It continues with documentation. A Solution Definition Document, or equivalent design record, should connect business requirements, technical design, commissioning, training, and sustainment.

It requires configuration and migration discipline. Real-time databases, historical databases, archived historical databases, gas devices, EFM databases, reporting logic, and interfaces all require careful planning. Migration should not copy old complexity into a new environment. It should identify what must be preserved, improved, and retired.

It depends on testing connected workflows. EFM data affects reports. Gas day logic affects downstream interpretation. Weather data may affect forecasting. Interfaces may affect measurement availability. Testing must reflect those dependencies.

It also requires hands-on training. Operators and engineers need confidence in how the new environment behaves, how exceptions should be handled, and how to interpret the workflows that support their decisions.

Operators often underutilize AVEVA Enterprise SCADA when they use it to replicate old processes, migrate logic without challenging its business value, customize without governance, document too late, commission the technical environment but not the operational workflow, or assume users will adopt the system because it is live.

High-performing operators use modernization as a control point. They ask what the gas application layer should become, not only how it can be moved.

Dexcent brings practical experience across SCADA, gas applications, measurement, interfaces, databases, commissioning, and training. The objective is a stronger operating model inside AVEVA Enterprise SCADA.

GOOD LOOKS LIKE THIS:

GAS APPLICATIONS THAT ARE DESIGNED, DOCUMENTED, VALIDATED, UNDERSTOOD, AND SUPPORTABLE.



CHAPTER 5

Gas Measurement: Where Compliance, Revenue, and Trust Intersect



WHY MEASUREMENT INTEGRITY IS NOW A LEADERSHIP ISSUE

Measurement systems rarely fail dramatically. That is what makes them dangerous.

A measurement issue may not stop the pipeline or trigger the kind of visible incident that immediately commands executive attention. But over time, measurement uncertainty can erode confidence across the business.

A missing data set creates reconciliation work. A questionable EFM flow creates investigation time. A manual AGA upload creates dependency on human discipline. A post-cutover gap creates doubt. A reporting issue creates friction. A billing dispute exposes whether the organization can defend its numbers.

Measurement systems do not fail loudly. They fail expensively and reputationally.

THAT IS WHY MEASUREMENT INTEGRITY IS NOW A LEADERSHIP ISSUE.

At a technical level, gas measurement depends on multiple connected elements: configured and validated EFM data, verified datapump flows, reliable AGA workflows, supportable interfaces, clear reporting logic, and historical data that can support operational review, audit, and analysis.

At a business level, these technical elements create the numbers that stakeholders trust.

When trust is strong, teams spend less time reconciling data, disputes are easier to investigate, audit questions are easier to answer, and leaders can rely on a shared operational picture.

When trust is weak, people create shadow spreadsheets, maintain parallel checks, question reports, and escalate problems that should have been designed out of the workflow. The organization pays for uncertainty through time, risk, and friction.



SEVERAL FAILURE POINTS APPEAR REPEATEDLY IN GAS MEASUREMENT ENVIRONMENTS.

EFM database design can compromise downstream trust when the structure does not reflect operational and measurement requirements. Post-cutover data gaps create uncertainty when data continuity has not been validated. Interface failures between SCADA and external systems become difficult to detect or explain when ownership is unclear. Manual AGA uploads and shadow spreadsheets become risk when they function as unofficial controls. Unclear reporting logic creates exposure when reports become evidence during audit or dispute review.

A MATURE MEASUREMENT ENVIRONMENT REQUIRES MORE THAN TECHNICAL COMPETENCE. IT REQUIRES OPERATIONAL DISCIPLINE.

That discipline includes clear requirements, documented logic, validated migration, commissioning rigor, hands-on training, and a sustainment model that prevents measurement applications from degrading after go-live.

FOR SENIOR SCADA AND ENGINEERING LEADERS, THE LEADERSHIP QUESTION IS STRAIGHTFORWARD:

Can your organization defend the integrity of its gas measurement workflows without relying on tribal knowledge?

IF THE ANSWER IS UNCERTAIN, THAT UNCERTAINTY IS THE RISK.

Dexcent helps bring that risk into view. By supporting EFM database migration, datapump configuration and verification, post-cutover data migration, gas measurement applications, AGA workflows, measurement advisor interfaces, external measurement interfaces, reports, commissioning, and training, Dexcent helps operators build measurement environments that are easier to trust and sustain.

THE GOAL IS NOT PERFECTION. THE GOAL IS DEFENSIBLE CONFIDENCE.

CHAPTER 6

The Gas Application Lifecycle Most Pipelines Do Not Have



WHY INSTALLED ONCE EQUALS FAILED EVENTUALLY

Many gas applications are treated like project deliverables. They are installed, configured, tested, accepted, handed over, and left to operate.

That approach may work for simple systems. It does not work well for gas operations and measurement.

Gas applications are living systems. They depend on changing assets, devices, data requirements, compliance expectations, reporting needs, users, integrations, and business processes. If they are installed once and then left to drift, they eventually become fragile.

The issue is not neglect. Most SCADA and engineering teams are managing limited time and competing priorities. The issue is that many organizations do not have a defined lifecycle model for gas applications.

A mature lifecycle includes four major disciplines.

1. DESIGN AND DOCUMENTATION

Before implementation begins, the organization should clarify what the application must do, which workflows it supports, who depends on it, which data sources it uses, which systems it interfaces with, and how success will be validated. A Solution Definition Document can align functions, features, assumptions, and testable outcomes.

2. CONFIGURATION AND MIGRATION DISCIPLINE

Gas applications rarely operate in a clean-sheet environment. They are often migrated from older systems, integrated with existing databases, connected to external measurement tools, aligned with historical data requirements, and configured to reflect current operations. Without discipline, migration becomes a technical transfer instead of an operational improvement.

3. COMMISSIONING RIGOUR

Commissioning should validate more than whether an application launches. It should confirm that operators can use it, engineering can support it, data flows correctly, reports reflect the right logic, EFM and gas day dependencies are validated, exceptions are understood, and the right people are trained.

4. ONGOING FINE-TUNING AND SUPPORT

Gas applications need sustainment. That may include performance review, script and application maintenance, ACE, Action Sequence, REFLEX, custom programs, interface maintenance, report updates, training refreshers, and governance checks. Fine-tuning is not a sign that the original work failed. It keeps the system aligned with operational reality.

The absence of lifecycle ownership creates technical debt.

Custom programs become harder to modify, scripts become untouchable, reports become outdated, interfaces become fragile, training becomes informal, documentation becomes stale, and only a few people know how the system really works.

Eventually, the organization faces a modernization project under pressure and discovers that the application layer is far more complex than expected.

Gas applications should be treated like regulated operational assets, not scripts.

That does not mean every application needs unnecessary process. It means applications that support safety, reliability, measurement integrity, reporting, compliance, and business confidence need appropriate governance.

A lifecycle approach helps SCADA leaders know what exists, why it exists, who owns it, how it is validated, and how it will evolve. It also prevents the organization from rediscovering its own logic during a high-pressure transition.

DEXCENT'S STRATEGIZE, TRANSFORM, EVOLVE APPROACH ALIGNS WITH THIS LIFECYCLE VIEW.

Strategize means understanding the current application landscape, identifying risk, defining requirements, and building a practical roadmap. Transform means implementing, migrating, configuring, validating, commissioning, and training with discipline. Evolve means sustaining the environment through continuous improvement, governance, support, and operational alignment.

Gas applications cannot be treated as one-time installations if the business depends on them every day. Installed once means failed eventually. Designed, governed, and sustained means built for confidence.



CHAPTER 7

Modern Gas Operations Architecture in Practice

HOW HIGH-PERFORMING OPERATORS STRUCTURE GAS APPS

Modern gas operations architecture is not defined by a single diagram. It is defined by how well the environment supports the workflows the business depends on.

For pipeline operators, those workflows may include gas operational applications, measurement applications, load forecasting, gas device configuration, hourly uploads, AGA processes, gas day advisor functions, reporting, weather data interfaces, forecasting configuration, hierarchy configuration, totalization, EFM databases, datapump verification, external measurement interfaces, and custom SCADA-related software where required.

The list is long because gas operations are connected. The architecture must acknowledge that reality.

A PRACTICAL GAS OPERATIONS ARCHITECTURE SHOULD ACCOUNT FOR FIVE LAYERS.

1. SOURCE SYSTEMS AND FIELD DATA

This layer includes EFMs, gas devices, field instrumentation, weather data sources, and external measurement systems. The core question is whether source data is available, correctly mapped, and governed well enough to support downstream workflows.

2. SCADA AND GAS APPLICATION LAYER

This layer includes AVEVA Enterprise SCADA, gas operational apps, gas measurement apps, gas day workflows, hourly uploads, AGA workflows, forecasting applications, REFLEX, Action Sequence, DRA, APL, ACE, and custom programs where required. The main question is whether these functions operate as a coherent application environment or as isolated pieces of logic.

3. DATA AND HISTORIAN LAYER

This layer includes real-time databases, historical databases, archived historical databases, EFM databases, and data payload processing. The core question is whether the organization can preserve data continuity and traceability across migration, reporting, analysis, and audit use cases.

4. INTEGRATION AND REPORTING LAYER

This layer includes external measurement interfaces, measurement advisor interfaces, operational reports, gas day reporting, weather reporting, historical reporting, and business-facing outputs. The core question is whether the outputs are trusted and explainable.

5. SUSTAINMENT LAYER

This layer includes commissioning records, documentation, training, application maintenance, governance, change control, and ongoing support. The main question is whether the environment can be operated and improved without excessive dependency on tribal knowledge.

High-performing operators use these layers to make better architecture decisions. Every critical gas application should have a clear purpose, known inputs, defined outputs, and ownership. Data flows should support troubleshooting, audit response, and future modernization. Applications should reflect how operators and engineers actually work.

Customization should be fit for purpose. Commercial off-the-shelf capability should be used where it fits. Custom software should be created where it delivers measurable operational, compliance, or business advantage. Customization is not inherently bad. Ungoverned customization is the problem.

THESE PRINCIPLES HELP LEADERS AVOID TWO COMMON MODERNIZATION TRAPS.

The first is over-standardization, where every workflow is forced into a generic model even when gas operations require more nuanced logic. The second is uncontrolled customization, where unique logic becomes difficult to support, test, document, or migrate later.

THE STRONGER APPROACH IS BALANCED:

standardize where possible and customize where it creates [measurable operational or compliance advantage](#).

Dexcent's gas operations and measurement work is grounded in this practical reality. The scope of services includes migration and configuration across real-time, historical, and archived historical databases. It includes migration and creation of REFLEX, Action Sequence, DRA, APL, gas devices, hourly uploads, AGA workflows, measurement advisor interfaces, data payload processors, gas day advisor functions, reporting, data configuration, weather data interfaces, forecasting configuration, hierarchy configuration, totalization, EFM databases, datapump verification, custom SCADA-related software, operational reports, commissioning, and hands-on training.

Not every client needs every service. But modern gas operations require an integrated view. If applications, data, interfaces, measurement, reporting, and training are handled separately, the risk is fragmentation. If they are handled as part of a coherent architecture, the outcome is stronger.

For SCADA and engineering leaders, the architecture question is not just, "[Can AVEVA Enterprise SCADA support this?](#)"

The better question is, "[Have we structured the gas application environment so it can be trusted, operated, audited, and improved?](#)"

THAT IS WHAT GOOD ARCHITECTURE MAKES POSSIBLE.

CHAPTER 8

COMMISSIONING, CUTOVER, AND TRAINING: THE MOMENT RISK PEAKS



WHY MOST GAS MEASUREMENT ISSUES ARE CREATED DURING TRANSITION

Cutover is where hidden assumptions become operational facts. Before cutover, teams can rely on design documents, test plans, migration plans, configuration reviews, and project confidence. After cutover, controllers and engineers must rely on the system itself.

THAT IS WHY COMMISSIONING, CUTOVER, AND TRAINING ARE THE MOMENTS WHEN RISK PEAKS.

In gas environments, transition risk is especially high because workflows are connected. EFM, gas day logic, AGA processes, forecasting, reporting, interfaces, historical data, archived data, and operator procedures all depend on each other.

Common cutover mistakes include validating components without validating the full workflow, assuming EFM data migration is complete because the database exists, treating reporting as a late-stage deliverable, underestimating gas day timing, missing interface dependencies, and training users only on screens rather than operational intent.

These mistakes are understandable. Project teams face deadlines, technical workstreams move in parallel, legacy system knowledge may be incomplete, and users may not be available for extended validation. But gas operations require a more connected approach.

EFMs, gas day, and reporting must be validated together. A datapump can appear functional while still producing downstream uncertainty. A report can display values while still raising questions about timing, source logic, or calculation assumptions. An AGA upload process can run while still requiring manual intervention that should have been identified earlier.

IF CONTROLLERS DO NOT TRUST GAS NUMBERS AFTER CUTOVER, THE PROJECT HAS ALREADY FAILED.

It may be technically live, contractually accepted, and stable from an infrastructure perspective. But if operators and engineers do not trust the data and workflows, the organization will create compensating behaviors: spreadsheet checks, expert workarounds, delayed decisions, and questioned reports.

THOSE BEHAVIORS SHOW MODERNIZATION HAS NOT FULLY LANDED.



Hands-on training reduces this risk by helping operators and engineering teams understand what changed, why it changed, how the workflow behaves, how exceptions should be handled, and where to go when something does not look right.

Commissioning should be treated as an operational risk event, not a formality. A strong process validates the technical configuration and the business workflow under realistic operating conditions, including data availability, EFM flows, gas day logic, reports, interfaces, and user procedures.

A practical commissioning checklist should include:

- **EFM database** validation against migration requirements
- **EFM datapump** configuration and verification
- **Gas day workflow** validation across timing, reporting, and exception handling
- **AGA** upload and download process validation
- **Interface testing** with external measurement systems
- Real-time, historical, and archived **historical data checks**
- **Operational report** validation against agreed logic
- **Forecasting** configuration review where applicable
- **Operator workflow testing** using realistic scenarios
- **Engineering support** handover and documentation review
- **Training confirmation** for users who will operate and support the system

Dexcent's role in commissioning and hands-on training is important because transition is where specialized experience can prevent predictable problems. Teams that have migrated and commissioned gas applications before know where hidden dependencies tend to appear and which workflows need extra validation.

For SCADA leaders, cutover success should not be defined by whether the old system was turned off and the new system turned on. It should be defined by whether the organization can operate, measure, report, and trust the environment after transition.

CHAPTER 9

A Consulting-Led Approach to Gas SCADA Modernization



WHY TOOLS DO NOT SOLVE SYSTEMIC GAS OPERATIONS PROBLEMS

GAS SCADA MODERNIZATION IS OFTEN DISCUSSED AS A TECHNOLOGY PROJECT. THAT FRAMING IS TOO NARROW.

A platform matters. Application capability matters. Technical execution matters. But tools do not solve systemic gas operations problems on their own. They must be implemented within an operating model that accounts for people, process, data, workflows, governance, and sustainment.

THIS IS WHY SUCCESSFUL OPERATORS OFTEN BRING IN SPECIALIZED CONSULTING EXPERTISE.

Not because internal teams lack ability. Internal SCADA and engineering teams often know the system, assets, users, and history better than anyone. But they are also managing daily operations, competing project demands, limited resources, and inherited complexity. They may not have the bandwidth or specialized gas application migration experience required to modernize without increasing risk.

A CONSULTING-LED ENGAGEMENT PROVIDES STRUCTURE IN FOUR AREAS.

First, it clarifies the operating philosophy before technical work begins: how gas operations and measurement should function, which processes should be standardized, which custom workflows are justified, what data must be trusted, what reports must be preserved or improved, and what success looks like after cutover.

Second, it provides design authority across applications. Gas operational apps, measurement apps, EFM databases, interfaces, reports, forecasting, and custom logic must be viewed together. Without design authority, each workstream may complete its tasks while the integrated workflow remains fragile.

Third, it reduces single-point-of-failure knowledge by helping extract, document, validate, and transfer knowledge that may currently reside with a small number of internal experts.

Fourth, it creates documentation that supports operations, not just project closure. Strong documentation helps the organization explain what was built, why it was built, how it works, and how it is supported.



A PRACTICAL ENGAGEMENT MODEL SHOULD MOVE THROUGH SIX STAGES: ASSESS, DESIGN, MIGRATE AND CONFIGURE, VALIDATE, COMMISSION AND TRAIN, THEN SUSTAIN.

1. During **assessment**, the team identifies current-state risk in gas operations and measurement workflows, including existing applications, EFM flows, interfaces, reporting, data dependencies, documentation, and known workarounds.
2. During **design**, the team defines the target operating model, requirements, workflows, data flows, support expectations, success criteria, and a Solution Definition Document or equivalent design record.
3. During **migration and configuration**, the team implements the required applications, databases, interfaces, reports, and custom logic while preserving what is necessary, improving what is fragile, and retiring what no longer supports the business.
4. During **validation**, the team tests connected workflows, including EFM data, datapump flows, gas day logic, AGA workflows, forecasting inputs, reporting outputs, and external interfaces.
5. During **commissioning, training, and sustainment**, the team confirms the system under realistic conditions, prepares operators and engineers to use and support it, then sustains the environment through maintenance, fine-tuning, governance, documentation updates, training refreshers, and lifecycle improvement.

DEXCENT'S ROLE SPANS EACH OF THESE STAGES.

The value is not simply technical execution. It is the ability to reduce uncertainty across the full gas application lifecycle, from current-state assessment through post-go-live support.

For senior SCADA and engineering leaders, the question is not whether external support is needed for every activity. It is where specialized support can reduce the greatest risk.

If your gas operations and measurement environment depends on undocumented logic, fragile interfaces, aging scripts, complex EFM workflows, manual checks, or uncertain post-cutover plans, consulting support is a risk control.

MODERNIZATION SUCCEEDS WHEN THE TECHNICAL WORK AND THE OPERATING MODEL MOVE TOGETHER.

CHAPTER 10

Common Myths Holding Gas SCADA Leaders Back



SENIOR SCADA AND ENGINEERING LEADERS ARE PRACTICAL.

They need evidence, operational justification, and a clear reason to act. That discipline is a strength, but in gas operations and measurement, it can delay action when familiar myths go unchallenged.

MYTH 1:

“OUR GAS APPS ARE STABLE. WE HAVE NOT HAD INCIDENTS.”

STABILITY IS NOT THE SAME AS RESILIENCE.

A gas application can appear stable because experienced people keep it stable, operators know the workarounds, nobody touches the fragile logic, and the organization has normalized manual checks and exception handling.

The absence of incidents does not prove the absence of risk. It may only prove that the system has not yet been stressed in the wrong way.

The better question is: could the environment still perform if key personnel changed, an audit required detailed evidence, a billing dispute challenged the numbers, or a major migration forced the organization to explain every dependency?

MYTH 2:

“WE WILL FIX MEASUREMENT WHEN WE UPGRADE SCADA.”

THIS IS ONE OF THE MOST EXPENSIVE ASSUMPTIONS IN MODERNIZATION.

A platform upgrade can create the opportunity to improve measurement, but it does not automatically fix measurement. If EFM database issues, gas day logic, AGA workflows, reporting problems, and interface dependencies are not addressed intentionally, the organization may move old risk into a new platform.

Modernization can also expose risks hidden in the legacy environment. Data gaps, undocumented logic, and unclear ownership become visible when the team tries to migrate, test, and commission the new system.

Measurement should be addressed before and during SCADA modernization, not after post-cutover uncertainty appears.



MYTH 3:

“ONLY A FEW PEOPLE UNDERSTAND IT. THAT IS FINE.”

IT MAY BE FINE TODAY. IT IS NOT A STRATEGY.

Single-point-of-failure knowledge creates dependency on individuals, slows troubleshooting, increases transition risk, and weakens audit readiness.

When only a few people understand the logic, the organization does not truly own the system. It borrows confidence from the people who hold the knowledge.

High-performing operators convert tribal knowledge into system knowledge.

MYTH 4:

“THE CONTROLLERS KNOW HOW TO HANDLE IT.”

CONTROLLER EXPERIENCE IS INVALUABLE, BUT IT SHOULD NOT BE USED AS A SUBSTITUTE FOR SYSTEM DESIGN.

If controllers must remember special cases, manually reconcile routine issues, or work around application limitations, the system is consuming operational attention that should be protected.

The goal is not to remove operator judgment. It is to make sure judgment is applied to real operating decisions, not preventable application fragility.

MYTH 5:

“THIS IS TOO NICHE TO PRIORITIZE.”

GAS OPERATIONS AND MEASUREMENT MAY LOOK NICHE BECAUSE THE WORK IS TECHNICAL.

But the outcomes are not niche. They affect compliance, revenue confidence, operational reliability, audit readiness, and trust in the data that supports business decisions.

That makes gas applications a leadership priority. The strongest SCADA teams challenge these assumptions before the business forces the issue.

CHAPTER 11

What to Do Next



FROM AWARENESS TO ACTION WITHOUT OVER-COMMITTING

The right next step is not always a major modernization project. In many cases, it is a focused technical conversation that helps leaders determine where risk is accumulating and whether action is justified.

A gas operations and measurement assessment makes sense when **one or more signals are present**.

You may be planning an AVEVA Enterprise SCADA modernization and need to understand the gas application layer before migration begins. You may rely on aging gas operational or measurement applications that only a few people understand. You may have manual gas day interventions, hourly upload concerns, AGA workflow issues, reporting uncertainty, or recurring measurement reconciliation work.

You may also be preparing for audit, regulatory review, billing scrutiny, or governance improvement. Or you may be concerned that EFM databases, datapump flows, external measurement interfaces, or post-cutover data migration could create risk.

A PRACTICAL STARTING POINT SHOULD ANSWER THREE QUESTIONS:

1. **Where does the current gas operations and measurement environment create business risk?**
2. **Which risks should be addressed before a broader SCADA modernization or cutover?**
3. **What support is required to move from current state to a more reliable, documented, and trusted operating model?**

This does not require over-commitment. High-performing operators de-risk modernization by asking these questions early, before project momentum makes it harder to change direction.

A focused engagement can clarify the application landscape, map dependencies, review EFM and measurement workflows, identify documentation gaps, examine reporting and interface risks, and define a phased path forward. That path may include assessment, Solution Definition Document development, migration planning, application configuration, interface development, EFM datapump verification, reporting, commissioning, training, and sustainment support.

For senior SCADA and engineering leaders, the goal is not to make the environment more complicated. The goal is to make it more understandable, supportable, and defensible.

THAT STARTS WITH AN HONEST VIEW OF THE CURRENT STATE.



CONTROL RISK BEFORE IT CONTROLS YOU

Gas operations and measurement will only become more important as pipeline operators face pressure for safer operations, stronger reliability, better data, clearer audit evidence, more resilient systems, and more efficient use of internal expertise.

WAITING DOES NOT REDUCE GAS APPLICATION RISK. IT COMPOUNDS IT SILENTLY.

The strongest SCADA teams act before audits, incidents, billing disputes, or major upgrades force change. They bring risk into view, decide what matters most, and modernize with discipline.

That is the opportunity inside AVEVA Enterprise SCADA: not simply to replace technology, migrate old processes, or keep the system running, but to create a gas operations and measurement environment that operators trust, engineers can support, leaders can defend, and the business can rely on.

DEXCENT HELPS PIPELINE OPERATORS MAKE THAT MOVE.

Through deep ICS and OT experience, practical gas application delivery, measurement workflow knowledge, commissioning discipline, and hands-on training, Dexcent helps organizations strategize with clarity, transform with confidence, and evolve with purpose.

If any part of this guide reflects issues inside your current environment, a Dexcent expert can help benchmark your gas operations and measurement environment against what good looks like inside AVEVA Enterprise SCADA, identify where risk is accumulating, and define where modernization should begin.



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